

GW - 6

MONITORING REPORTS

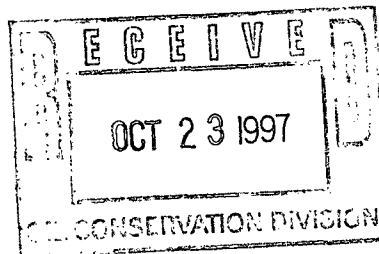
DATE:

1997-1992



October 22, 1997

Mark Ashley
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505



Dear Mark:

Enclosed are the results of the split samples we collected with you from the water wells near El Paso Natural Gas' Washington Ranch Facility. Also enclosed are the results from the Hood Irrigation/Domestic Well and the Hood Pond Well that were sampled later. These sample results are consistent with the results from past years.

Thank you for your assistance in this matter and if you have any questions or need additional information, please call me at (915) 759-2228.


Darrell Campbell
Superintendent
Laboratory Services

SAMPLE KEY

SAMPLE NUMBER: S97-0379 LOCATION: WASHINGTON RANCH
MATRIX: WATER
SAMPLE DESCRIPTION: RATTLESNAKE SPRINGS WELL
S D CONTINUED:
S D CONTINUED:
SAMPLE TIME: 09:42 SAMPLE DATE: 07/29/97

SAMPLE KEY

SAMPLE NUMBER: S97-0380 LOCATION: WASHINGTON RANCH
MATRIX: WATER
SAMPLE DESCRIPTION: JOHN BALLARD WELL
S D CONTINUED:
S D CONTINUED:
SAMPLE TIME: 10:07 SAMPLE DATE: 07/29/97

SAMPLE KEY

SAMPLE NUMBER: S97-0381 LOCATION: WASHINGTON RANCH
MATRIX: WATER
SAMPLE DESCRIPTION: JOHN BALLARD WELL - DUPLICATE
S D CONTINUED:
S D CONTINUED:
SAMPLE TIME: 10:07 SAMPLE DATE: 07/29/97

SAMPLE KEY

SAMPLE NUMBER: S97-0382 LOCATION: WASHINGTON RANCH
MATRIX: WATER
SAMPLE DESCRIPTION: HOOD HAND WELL
S D CONTINUED:
S D CONTINUED:
SAMPLE TIME: 11:29 SAMPLE DATE: 07/29/97

SAMPLE KEY

SAMPLE NUMBER: S97-0383 LOCATION: WASHINGTON RANCH
MATRIX: WATER
SAMPLE DESCRIPTION: EPNG WELL
S D CONTINUED:
S D CONTINUED:
SAMPLE TIME: 12:15 SAMPLE DATE: 07/29/97

SAMPLE KEY

SAMPLE NUMBER: S97-0384 LOCATION: WASHINGTON RANCH
MATRIX: WATER
SAMPLE DESCRIPTION: HOOD DOMESTIC WELL (SMALL)
S D CONTINUED:
S D CONTINUED:
SAMPLE TIME: 14:45 SAMPLE DATE: 07/29/97

SAMPLE KEY

SAMPLE NUMBER: S97-0385 LOCATION: WASHINGTON RANCH
MATRIX: WATER
SAMPLE DESCRIPTION: FIELD BLANK
S D CONTINUED:
S D CONTINUED:
SAMPLE TIME: 15:30 SAMPLE DATE: 07/29/97

NEL LABORATORIES

Reno • Las Vegas
Phoenix • Burbank

Reno Division
1030 Matley Lane • Reno, Nevada 89502
(702) 348-2522 • Fax: (702) 348-2546
1-800-368-5221

CLIENT: El Paso Natural Gas Co.
8645 Railroad Dr.
El Paso, TX 79904
ATTN: Darrell Campbell

PROJECT NAME:
PROJECT #:

NEL ORDER ID: P9707024

Attached are the analytical results for samples in support of the above referenced project.

Samples submitted for this project were not sampled by NEL Laboratories. Samples were received by NEL in good condition, under chain of custody on 7/30/97.

Samples were analyzed as received.

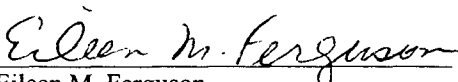
Where applicable we have included the following quality control data:

Method blank - used to demonstrate absence of contamination or interferences in the analytical process.
Laboratory Control Spike (LCS) - used to demonstrate laboratory ability to perform the method within specifications by spiking representative analytes into a clean matrix.
Surrogates - compounds added to each sample to ensure that the method requirements are met for each individual sample.

Should you have any questions or comments, please feel free to contact our Client Services department at (602) 437-0099.

Some results have been flagged as follows:

LA - Analysis performed by NEL Burbank.
LV - Analysis performed by NEL Las Vegas.


Eileen M. Ferguson
Laboratory Manager

8/8/97
Date

CERTIFICATIONS:

	<u>Reno</u>	<u>Las Vegas</u>	<u>Burbank</u>
Arizona	AZ0520	AZ0518	AZ0325
California	1707	2002	1192
US Army Corps of Engineers	Certified	Certified	Certified

	<u>Reno</u>	<u>Las Vegas</u>	<u>Burbank</u>
Idaho	Certified	Certified	
Montana	Certified	Certified	
Nevada	NV033	NV052	CA084
Washington			Certified

NEL LABORATORIES

CLIENT: El Paso Natural Gas Co.

CLIENT ID: S97-0379

PROJECT ID:

DATE SAMPLED: 7/29/97

PROJECT #:

NEL SAMPLE ID: P9707024-01

TEST: Metals

MATRIX: Drinking Water

ANALYST: JY

<u>PARAMETER</u>	<u>RESULT</u> <u>mg/L</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>D. F.</u>	<u>METHOD</u>	<u>DIGESTED</u>	<u>ANALYZED</u>
Calcium	100	0.25 mg/L	0.5	EPA 200.7	8/4/97	8/4/97
Magnesium	29	0.1 mg/L	0.5	EPA 200.7	8/4/97	8/4/97
Potassium	1.0	2. mg/L	1	EPA 200.7	8/4/97	8/6/97
Silica	4.8	1. mg/L	0.5	SM 3111D	8/4/97	8/6/97
Sodium	6.3	0.25 mg/L	0.5	EPA 200.7	8/4/97	8/4/97

D.F. - Dilution Factor

ND - Not Detected

This report shall not be reproduced except in full, without the written approval of the laboratory.

NEL LABORATORIES

CLIENT: El Paso Natural Gas Co.

CLIENT ID: S97-0380

PROJECT ID:

DATE SAMPLED: 7/29/97

PROJECT #:

NEL SAMPLE ID: P9707024-02

TEST: Metals

MATRIX: Drinking Water

ANALYST: JY

<u>PARAMETER</u>	<u>RESULT</u> <u>mg/L</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>D. F.</u>	<u>METHOD</u>	<u>DIGESTED</u>	<u>ANALYZED</u>
Calcium	360	2.5 mg/L	5	EPA 200.7	8/4/97	8/6/97
Magnesium	44	0.1 mg/L	0.5	EPA 200.7	8/4/97	8/4/97
Potassium	1.4	1. mg/L	0.5	EPA 200.7	8/4/97	8/6/97
Silica	7.0	1. mg/L	0.5	SM 3111D	8/4/97	8/6/97
Sodium	14	0.25 mg/L	0.5	EPA 200.7	8/4/97	8/4/97

D.F. - Dilution Factor

ND - Not Detected

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NEL LABORATORIES

CLIENT: El Paso Natural Gas Co.

CLIENT ID: S97-0381

PROJECT ID:

DATE SAMPLED: 7/29/97

PROJECT #:

NEL SAMPLE ID: P9707024-03

TEST: Metals

MATRIX: Drinking Water

ANALYST: JY

<u>PARAMETER</u>	<u>RESULT</u> <u>mg/L</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>D. F.</u>	<u>METHOD</u>	<u>DIGESTED</u>	<u>ANALYZED</u>
Calcium	360	2.5 mg/L	5	EPA 200.7	8/4/97	8/6/97
Magnesium	43	0.1 mg/L	0.5	EPA 200.7	8/4/97	8/4/97
Potassium	1.5	1. mg/L	0.5	EPA 200.7	8/4/97	8/6/97
Silica	6.1	1. mg/L	0.5	SM 3111D	8/4/97	8/6/97
Sodium	13	0.25 mg/L	0.5	EPA 200.7	8/4/97	8/4/97

D.F. - Dilution Factor

ND - Not Detected

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NEL LABORATORIES

CLIENT: El Paso Natural Gas Co.

CLIENT ID: S97-0382

PROJECT ID:

DATE SAMPLED: 7/29/97

PROJECT #:

NEL SAMPLE ID: P9707024-04

TEST: Metals

MATRIX: Drinking Water

ANALYST: JY

<u>PARAMETER</u>	<u>RESULT</u> <u>mg/L</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>D. F.</u>	<u>METHOD</u>	<u>DIGESTED</u>	<u>ANALYZED</u>
Calcium	370	2.5 mg/L	5	EPA 200.7	8/4/97	8/6/97
Magnesium	38	0.1 mg/L	0.5	EPA 200.7	8/4/97	8/4/97
Potassium	1.4	1. mg/L	0.5	EPA 200.7	8/4/97	8/6/97
Silica	6.1	1. mg/L	0.5	SM 3111D	8/4/97	8/6/97
Sodium	12	0.25 mg/L	0.5	EPA 200.7	8/4/97	8/4/97

D.F. - Dilution Factor

ND - Not Detected

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NEL LABORATORIES

CLIENT: El Paso Natural Gas Co.

CLIENT ID: S97-0383

PROJECT ID:

DATE SAMPLED: 7/29/97

PROJECT #:

NEL SAMPLE ID: P9707024-05

TEST: Metals

MATRIX: Drinking Water

ANALYST: JY

<u>PARAMETER</u>	<u>RESULT</u> <u>mg/L</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>D. F.</u>	<u>METHOD</u>	<u>DIGESTED</u>	<u>ANALYZED</u>
Calcium	75	0.25 mg/L	0.5	EPA 200.7	8/4/97	8/4/97
Magnesium	27	0.1 mg/L	0.5	EPA 200.7	8/4/97	8/4/97
Potassium	ND	1. mg/L	0.5	EPA 200.7	8/4/97	8/6/97
Silica	5.1	1. mg/L	0.5	SM 3111D	8/4/97	8/6/97
Sodium	4.9	0.25 mg/L	0.5	EPA 200.7	8/4/97	8/4/97

D.F. - Dilution Factor

ND - Not Detected

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NEL LABORATORIES

CLIENT: El Paso Natural Gas Co.

CLIENT ID: S97-0384

PROJECT ID:

DATE SAMPLED: 7/29/97

PROJECT #:

NEL SAMPLE ID: P9707024-06

TEST: Metals

MATRIX: Drinking Water

ANALYST: JY

<u>PARAMETER</u>	<u>RESULT</u> <u>mg/L</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>D. F.</u>	<u>METHOD</u>	<u>DIGESTED</u>	<u>ANALYZED</u>
Calcium	85	0.25 mg/L	0.5	EPA 200.7	8/4/97	8/4/97
Magnesium	31	0.1 mg/L	0.5	EPA 200.7	8/4/97	8/4/97
Potassium	1.3	1. mg/L	0.5	EPA 200.7	8/4/97	8/6/97
Silica	4.8	1. mg/L	0.5	SM 3111D	8/4/97	8/6/97
Sodium	6.2	0.25 mg/L	0.5	EPA 200.7	8/4/97	8/4/97

D.F. - Dilution Factor

ND - Not Detected

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NEL LABORATORIES

CLIENT: El Paso Natural Gas Co.

CLIENT ID: S97-0385

PROJECT ID:

DATE SAMPLED: 7/29/97

PROJECT #:

NEL SAMPLE ID: P9707024-07

TEST: Metals

MATRIX: Drinking Water

ANALYST: JY

<u>PARAMETER</u>	<u>RESULT</u> <u>mg/L</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>D. F.</u>	<u>METHOD</u>	<u>DIGESTED</u>	<u>ANALYZED</u>
Calcium	ND	0.25 mg/L	0.5	EPA 200.7	8/4/97	8/4/97
Magnesium	ND	0.1 mg/L	0.5	EPA 200.7	8/4/97	8/4/97
Potassium	ND	1. mg/L	0.5	EPA 200.7	8/4/97	8/6/97
Silica	ND	1. mg/L	0.5	SM 3111D	8/4/97	8/6/97
Sodium	ND	0.25 mg/L	0.5	EPA 200.7	8/4/97	8/4/97

D.F. - Dilution Factor

ND - Not Detected

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NEL LABORATORIES

CLIENT: El Paso Natural Gas Co.
PROJECT ID:
PROJECT #:

CLIENT ID: Method Blank
DATE SAMPLED: NA
NEL SAMPLE ID: P070221-BLK

TEST: Metals

<u>PARAMETER</u>	<u>RESULT</u> <u>mg/L</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>D. F.</u>	<u>METHOD</u>	<u>DIGESTED</u>	<u>ANALYZED</u>
Calcium	ND	0.25 mg/L	0.5	EPA 200.7	8/4/97	8/4/97
Magnesium	ND	0.1 mg/L	0.5	EPA 200.7	8/4/97	8/4/97
Potassium	ND	1 mg/L	0.5	EPA 200.7	8/4/97	8/4/97
Sodium	ND	0.25 mg/L	0.5	EPA 200.7	8/4/97	8/4/97

D.F. - Dilution Factor

ND - Not Detected

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NEL LABORATORIES

CLIENT: El Paso Natural Gas Co.

CLIENT ID: Method Blank

PROJECT ID:

DATE SAMPLED: NA

PROJECT #:

NEL SAMPLE ID: P07022SI-BLK

TEST: Metals

<u>PARAMETER</u>	<u>RESULT</u> <u>mg/L</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>D. F.</u>	<u>METHOD</u>	<u>DIGESTED</u>	<u>ANALYZED</u>
Silica	ND	1 mg/L	0.5	SM 3111D	8/4/97	8/6/97

D.F. - Dilution Factor

ND - Not Detected

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NEL LABORATORIES

CLIENT: El Paso Natural Gas Co.
PROJECT ID:
PROJECT #:

CLIENT ID: S97-0379
DATE SAMPLED: 7/29/97
NEL SAMPLE ID: P9707024-01

TEST: Inorganic Non-Metals
MATRIX: Drinking Water

PARAMETER	REPORTING			D. F.	METHOD	UNITS	ANALYZED
	RESULT	LA	LIMIT				
Alkalinity - Bicarbonate	240	LA	0.5	1	SM 2320 B	mg/L	8/5/97
Alkalinity - Carbonate	ND	LA	0.5	1	SM 2320 B	mg/L	8/5/97
Alkalinity - Hydroxide	ND	LA	0.5	1	SM 2320 B	mg/L	8/5/97
Bromide	ND	LV	0.1	1	EPA 300.0	mg/L	7/30/97
Chloride	4.2	LV	0.1	1	EPA 300.0	mg/L	7/30/97
Fluoride	0.2	LA	0.1	1	EPA 300.0	mg/L	8/1/97
Nitrate, as N	0.6	LV	0.1	1	EPA 300.0	mg/L-N	7/30/97
pH	7.37	LV	2.	1	EPA 150.1	ph Units	7/30/97
Specific Conductance	347	LA	1.	1	SM 2510 B	us/cm	7/31/97
Sulfate	97	LA	0.5	5	EPA 300.0	mg/L	7/31/97
Sulfide	ND	LA	0.1	1	SM 4500 S	mg/L	7/31/97
Total Dissolved Solids	404	LA	5.	1	SM 2540 C	mg/L	8/4/97
Total Hardness, as CaCO3	260	LA	1.	1	SM 2340 C	mg/L	8/5/97

D.F. - Dilution Factor

ND - Not Detected

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NEL LABORATORIES

CLIENT: El Paso Natural Gas Co.
PROJECT ID:
PROJECT #:

CLIENT ID: S97-0380
DATE SAMPLED: 7/29/97
NEL SAMPLE ID: P9707024-02

TEST: Inorganic Non-Metals
MATRIX: Drinking Water

PARAMETER	RESULT	REPORTING		D. F.	METHOD	UNITS	ANALYZED
			LIMIT				
Alkalinity - Bicarbonate	210	LA	0.5	1	SM 2320 B	mg/L	8/5/97
Alkalinity - Carbonate	ND	LA	0.5	1	SM 2320 B	mg/L	8/5/97
Alkalinity - Hydroxide	ND	LA	0.5	1	SM 2320 B	mg/L	8/5/97
Bromide	ND	LV	0.1	1	EPA 300.0	mg/L	7/30/97
Chloride	8.1	LV	0.5	5	EPA 300.0	mg/L	8/7/97
Fluoride	0.4	LA	0.2	2	EPA 300.0	mg/L	8/1/97
Nitrate, as N	0.2	LV	0.1	1	EPA 300.0	mg/L-N	7/30/97
pH	7.01	LV	2.	1	EPA 150.1	ph Units	7/30/97
Specific Conductance	561	LA	1.	1	SM 2510 B	us/cm	7/31/97
Sulfate	760	LA	4.	40	EPA 300.0	mg/L	7/31/97
Sulfide	0.1	LA	0.1	1	SM 4500 S	mg/L	7/31/97
Total Dissolved Solids	1380	LA	5.	1	SM 2540 C	mg/L	8/4/97
Total Hardness, as CaCO3	940	LA	1.	1	SM 2340 C	mg/L	8/5/97

D.F. - Dilution Factor

ND - Not Detected

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NEL LABORATORIES

CLIENT: El Paso Natural Gas Co.
PROJECT ID:
PROJECT #:

CLIENT ID: S97-0381
DATE SAMPLED: 7/29/97
NEL SAMPLE ID: P9707024-03

TEST: Inorganic Non-Metals
MATRIX: Drinking Water

PARAMETER	RESULT	REPORTING		D. F.	METHOD	UNITS	ANALYZED
		LA	LIMIT				
Alkalinity - Bicarbonate	220	LA	0.5	1	SM 2320 B	mg/L	8/5/97
Alkalinity - Carbonate	ND	LA	0.5	1	SM 2320 B	mg/L	8/5/97
Alkalinity - Hydroxide	ND	LA	0.5	1	SM 2320 B	mg/L	8/5/97
Bromide	ND	LV	0.1	1	EPA 300.0	mg/L	7/30/97
Chloride	7.4	LV	0.5	5	EPA 300.0	mg/L	8/7/97
Fluoride	0.4	LA	0.2	2	EPA 300.0	mg/L	8/1/97
Nitrate, as N	0.1	LV	0.1	1	EPA 300.0	mg/L-N	7/30/97
pH	7.05	LV	2.	1	EPA 150.1	ph Units	7/30/97
Specific Conductance	565	LA	1.	1	SM 2510 B	us/cm	7/31/97
Sulfate	764	LA	4	40	EPA 300.0	mg/L	7/31/97
Sulfide	0.1	LA	0.1	1	SM 4500 S	mg/L	7/31/97
Total Dissolved Solids	1410	LA	5.	1	SM 2540 C	mg/L	8/4/97
Total Hardness, as CaCO3	940	LA	1.	1	SM 2340 C	mg/L	8/5/97

D.F. - Dilution Factor

ND - Not Detected

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NEL LABORATORIES

CLIENT: El Paso Natural Gas Co.
PROJECT ID:
PROJECT #:

CLIENT ID: S97-0382
DATE SAMPLED: 7/29/97
NEL SAMPLE ID: P9707024-04

TEST: Inorganic Non-Metals
MATRIX: Drinking Water

PARAMETER	REPORTING				METHOD	UNITS	ANALYZED
	RESULT	LIMIT	D. F.				
Alkalinity - Bicarbonate	200	LA 0.5	1		SM 2320 B	mg/L	8/5/97
Alkalinity - Carbonate	ND	LA 0.5	1		SM 2320 B	mg/L	8/5/97
Alkalinity - Hydroxide	ND	LA 0.5	1		SM 2320 B	mg/L	8/5/97
Bromide	ND	LV 0.1	1		EPA 300.0	mg/L	7/30/97
Chloride	6.5	LV 0.5	5		EPA 300.0	mg/L	8/7/97
Fluoride	0.4	LA 0.2	2		EPA 300.0	mg/L	8/1/97
Nitrate, as N	1.0	LV 0.1	1		EPA 300.0	mg/L-N	7/30/97
pH	7.84	LV 2.	1		EPA 150.1	ph Units	7/30/97
Specific Conductance	563	LA 1.	1		SM 2510 B	us/cm	7/31/97
Sulfate	800	LA 4	40		EPA 300.0	mg/L	7/31/97
Sulfide	ND	LA 0.1	1		SM 4500 S	mg/L	7/31/97
Total Dissolved Solids	1410	LA 5.	1		SM 2540 C	mg/L	8/5/97
Total Hardness, as CaCO3	955	LA 1.	1		SM 2340 C	mg/L	8/5/97

D.F. - Dilution Factor

ND - Not Detected

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NEL LABORATORIES

CLIENT: El Paso Natural Gas Co.
PROJECT ID:
PROJECT #:

CLIENT ID: S97-0383
DATE SAMPLED: 7/29/97
NEL SAMPLE ID: P9707024-05

TEST: Inorganic Non-Metals
MATRIX: Drinking Water

PARAMETER	RESULT	REPORTING		D. F.	METHOD	UNITS	ANALYZED
			LIMIT				
Alkalinity - Bicarbonate	240	LA	0.5	1	SM 2320 B	mg/L	8/5/97
Alkalinity - Carbonate	ND	LA	0.5	1	SM 2320 B	mg/L	8/5/97
Alkalinity - Hydroxide	ND	LA	0.5	1	SM 2320 B	mg/L	8/5/97
Bromide	ND	LV	0.1	1	EPA 300.0	mg/L	7/30/97
Chloride	3.9	LV	0.5	5	EPA 300.0	mg/L	7/30/97
Fluoride	0.2	LA	0.1	1	EPA 300.0	mg/L	8/1/97
Nitrate, as N	0.8	LV	0.1	1	EPA 300.0	mg/L-N	7/30/97
pH	7.58	LV	2.	1	EPA 150.1	ph Units	7/30/97
Specific Conductance	273	LA	1.	1	SM 2510 B	us/cm	7/31/97
Sulfate	37	LA	0.2	2	EPA 300.0	mg/L	7/31/97
Sulfide	ND	LA	0.1	1	SM 4500 S	mg/L	7/31/97
Total Dissolved Solids	287	LA	5.	1	SM 2540 C	mg/L	8/5/97
Total Hardness, as CaCO3	240	LA	1.	1	SM 2340 C	mg/L	8/5/97

D.F. - Dilution Factor

ND - Not Detected

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NEL LABORATORIES

CLIENT: El Paso Natural Gas Co.
PROJECT ID:
PROJECT #:

CLIENT ID: S97-0384
DATE SAMPLED: 7/29/97
NEL SAMPLE ID: P9707024-06

TEST: Inorganic Non-Metals
MATRIX: Drinking Water

PARAMETER	RESULT	REPORTING		D. F.	METHOD	UNITS	ANALYZED
			LIMIT				
Alkalinity - Bicarbonate	240	LA	0.5	1	SM 2320 B	mg/L	8/5/97
Alkalinity - Carbonate	ND	LA	0.5	1	SM 2320 B	mg/L	8/5/97
Alkalinity - Hydroxide	ND	LA	0.5	1	SM 2320 B	mg/L	8/5/97
Bromide	ND	LV	0.1	1	EPA 300.0	mg/L	7/30/97
Chloride	4.3	LV	0.1	1	EPA 300.0	mg/L	7/30/97
Fluoride	0.2	LA	0.1	1	EPA 300.0	mg/L	8/1/97
Nitrate, as N	0.7	LV	0.1	1	EPA 300.0	mg/L-N	7/30/97
pH	7.78	LV	2.	1	EPA 150.1	ph Units	7/30/97
Specific Conductance	321	LA	1.	1	SM 2510 B	us/cm	7/31/97
Sulfate	42	LA	0.2	2	EPA 300.0	mg/L	7/31/97
Sulfide	ND	LA	0.1	1	SM 4500 S	mg/L	7/31/97
Total Dissolved Solids	297	LA	5.	1	SM 2540 C	mg/L	8/5/97
Total Hardness, as CaCO3	240	LA	1.	1	SM 2340 C	mg/L	8/5/97

D.F. - Dilution Factor

ND - Not Detected

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NEL LABORATORIES

CLIENT: El Paso Natural Gas Co.
PROJECT ID:
PROJECT #:

CLIENT ID: S97-0385
DATE SAMPLED: 7/29/97
NEL SAMPLE ID: P9707024-07

TEST: Inorganic Non-Metals
MATRIX: Drinking Water

PARAMETER	REPORTING			D. F.	METHOD	UNITS	ANALYZED
	RESULT		LIMIT				
Alkalinity - Bicarbonate	3	LA	0.5	1	SM 2320 B	mg/L	8/5/97
Alkalinity - Carbonate	ND	LA	0.5	1	SM 2320 B	mg/L	8/5/97
Alkalinity - Hydroxide	ND	LA	0.5	1	SM 2320 B	mg/L	8/5/97
Bromide	ND	LV	0.1	1	EPA 300.0	mg/L	7/30/97
Chloride	ND	LV	0.1	1	EPA 300.0	mg/L	7/30/97
Fluoride	ND	LA	0.1	1	EPA 300.0	mg/L	8/1/97
Nitrate, as N	ND	LV	0.1	1	EPA 300.0	mg/L-N	7/30/97
pH	6.31	LV	2.	1	EPA 150.1	ph Units	7/30/97
Specific Conductance	ND	LA	1.	1	SM 2510 B	us/cm	7/31/97
Sulfate	0.5	LA	0.1	1	EPA 300.0	mg/L	7/31/97
Sulfide	ND	LA	0.1	1	SM 4500 S	mg/L	7/31/97
Total Dissolved Solids	ND	LA	5.	1	SM 2540 C	mg/L	8/5/97
Total Hardness, as CaCO3	2	LA	1.	1	SM 2340 C	mg/L	8/5/97

D.F. - Dilution Factor

ND - Not Detected

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NEL LABORATORIES

CLIENT: El Paso Natural Gas Co.
PROJECT ID:
PROJECT #:

CLIENT ID: Laboratory Control Spike
DATE SAMPLED: NA
NEL SAMPLE ID: P07022I-LCS

TEST: Metals
MATRIX: Drinking Water

ANALYST: JY
EXTRACTED: 8/4/97
ANALYZED: 8/4/97

<u>PARAMETER</u>	<u>Percent Recovery</u>	<u>Acceptable Range</u>
Aluminum	95	85 - 115
Barium	97	85 - 115
Beryllium	105	85 - 115
Boron	100	85 - 115
Cadmium	104	85 - 115
Chromium	104	85 - 115
Copper	100	85 - 115
Iron	103	70 - 130
Manganese	105	85 - 115
Nickel	108	85 - 115
Silver	98	85 - 115
Zinc	101	85 - 115

ND - Not Detected

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NEL LABORATORIES

CLIENT: El Paso Natural Gas Co.
PROJECT ID:
PROJECT #:

CLIENT ID: **Matrix Spike**
DATE SAMPLED: NA
NEL SAMPLE ID: P9707022-01-MS

TEST: **Metals**
MATRIX: **Drinking Water**

ANALYST: JY
EXTRACTED: 8/4/97
ANALYZED: 8/4/97

<u>PARAMETER</u>	<u>Percent Recovery</u>	<u>Acceptable Range</u>
Aluminum	95	70 - 130
Barium	98	70 - 130
Beryllium	103	70 - 130
Boron	100	70 - 130
Cadmium	103	70 - 130
Chromium	103	70 - 130
Copper	98	70 - 130
Iron	97	70 - 130
Manganese	100	70 - 130
Nickel	103	70 - 130
Silver	97	70 - 130
Zinc	98	70 - 130

ND - Not Detected

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NEL LABORATORIES

CLIENT: El Paso Natural Gas Co.
PROJECT ID:
PROJECT #:

CLIENT ID: Matrix Spike Duplicate
DATE SAMPLED: NA
NEL SAMPLE ID: P9707022-01-MSD

TEST: Metals
MATRIX: Drinking Water

ANALYST: JY
EXTRACTED: 8/4/97
ANALYZED: 8/4/97

<u>PARAMETER</u>	<u>Percent Recovery</u>	<u>Acceptable Range</u>	<u>RPD</u>
Aluminum	95	70 - 130	0.
Barium	97	70 - 130	0.3
Beryllium	103	70 - 130	0.
Boron	100	70 - 130	0.4
Cadmium	103	70 - 130	0.
Chromium	103	70 - 130	0.2
Copper	98	70 - 130	0.3
Iron	97	70 - 130	0.3
Manganese	100	70 - 130	0.2
Nickel	103	70 - 130	0.1
Silver	97	70 - 130	0.2
Zinc	98	70 - 130	0.3

ND - Not Detected

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99707024

CHAIN OF CUSTODY RECORD

[illegible]

TRANSMISSION OPERATIONS LABORATORY SAMPLE REPORT

SAMPLE NO.S97-0379:

QA/QC GROUP NO.:

SAMPLE LOCATION: Washington Ranch

SAMPLE SITE DESCRIPTION: Rattlesnake Spring Well

SAMPLE DATE (MM/DD/YY):07/29/97

TIME:09:42

SAMPLE COLLECTED BY: Darrell Campbell

Analysis Results (mg/l)		Analysis Results (mg/l)	
Ammonia_(N)	_____	Color	_____
Chemical_Oxygen_Demand	_____	Fluoride	_____
Kjeldahl_Nitrogen_(N)	_____	Iodide	_____
Nitrate_(N)	_____	Odor	_____
Nitrite_(N)	_____	Residue,_Total	_____
Oil_&_Grease	_____	Residue,_Filterable_(TDS)	_____
Organic_Carbon	_____	Residue,_Nonfilterable_(TSS)	_____
Orthophosphate_(PO ₄)	_____	Residue,_Settleable	_____
Phosphorus,_Total_(P)	_____	Residue,_Volatile	_____
Cyanide,_Total	_____	Silica	_____
Cyanide,_Free	_____	Specific_Conductance_(umho)	_____
Phenols	_____	Sulfate	_____
Antimony	_____	Sulfite	_____
Arsenic	_____	Surfactants-MBAS	_____
Barium	_____	Turbidity_____NTU	_____
Beryllium	_____	BHC_Isomers	_____
Boron	_____	Chlordane	_____
Cadmium	_____	DDT_Isomers	_____
Calcium	_____	Dieldrin	_____
Chromium,_Total	_____	Endrin	_____
Chromium,_VI	_____	Heptachlor	_____
Copper	_____	Heptachlor_Epoxide	_____
Hardness_(CaCO ₃)	_____	Lindane	_____
Iron	_____	Methoxychlor	_____
Lead	_____	Toxaphene	_____
Magnesium	_____	2,4-D	_____
Manganese	_____	2,4,5-TP-Silvex	_____
Mercury	_____	2,4,5-T	_____
Nickel	_____	Sulfides	_____
Potassium	_____	Bromoform	_____
Selenium	_____	Bromodichloromethane	_____
Silver	_____	Carbon_Tetrachloride	_____
Sodium	_____	Chloroform	_____
Thallium	_____	Chloromethane	_____
Zinc	_____	Dibromochloromethane	_____
pH	_____	Methylene_Chloride	_____
Acidity,_Total	_____	Tetrachloroethylene	_____
Alkalinity,_Total_(CaCO ₃)	_____	1,1,1-Trichloroethane	_____
Alkalinity,_Bicarbonate_(CaCO ₃)	_____	Trichloroethylene	_____
Bromide	_____	Trihalomethanes	_____
Carbon_Dioxide	_____	PCBs_()	_____
Chloride	_____	Temperature_(°C)	_____
Dissolved_Oxygen	_____	Total_Petroleum_Hydrocarbons	_____

COMMENTS: METHANE - < 0.002 mg/l

ANALYST:

Darrell Campbell

DATE: 08/18/97

TRANSMISSION OPERATIONS LABORATORY SAMPLE REPORT

SAMPLE NO.S97-0380:

QA/QC GROUP NO.:

SAMPLE LOCATION: Washington Ranch

SAMPLE SITE DESCRIPTION: John Ballard Well

SAMPLE DATE (MM/DD/YY):07/29/97

TIME:10:07

SAMPLE COLLECTED BY: Darrell Campbell

Analysis Results (mg/l)		Analysis Results (mg/l)	
Ammonia_(N)	_____	Color	_____
Chemical_Oxygen_Demand	_____	Fluoride	_____
Kjeldahl_Nitrogen_(N)	_____	Iodide	_____
Nitrate_(N)	_____	Odor	_____
Nitrite_(N)	_____	Residue,_Total	_____
Oil_&_Grease	_____	Residue,_Filterable_(TDS)	_____
Organic_Carbon	_____	Residue,_Nonfilterable_(TSS)	_____
Orthophosphate_(PO ₄)	_____	Residue,_Settleable	_____
Phosphorus,_Total_(P)	_____	Residue,_Volatile	_____
Cyanide,_Total	_____	Silica	_____
Cyanide,_Free	_____	Specific_Conductance_(umho)	_____
Phenols	_____	Sulfate	_____
Antimony	_____	Sulfite	_____
Arsenic	_____	Surfactants-MBAS	_____
Barium	_____	Turbidity_____NTU	_____
Beryllium	_____	BHC_Isomers	_____
Boron	_____	Chlordane	_____
Cadmium	_____	DDT_Isomers	_____
Calcium	_____	Dieldrin	_____
Chromium,_Total	_____	Endrin	_____
Chromium,_VI	_____	Heptachlor	_____
Copper	_____	Heptachlor_Epoxide	_____
Hardness_(CaCO ₃)	_____	Lindane	_____
Iron	_____	Methoxychlor	_____
Lead	_____	Toxaphene	_____
Magnesium	_____	2,4-D	_____
Manganese	_____	2,4,5-TP-Silvex	_____
Mercury	_____	2,4,5-T	_____
Nickel	_____	Sulfides	_____
Potassium	_____	Bromoform	_____
Selenium	_____	Bromodichloromethane	_____
Silver	_____	Carbon_Tetrachloride	_____
Sodium	_____	Chloroform	_____
Thallium	_____	Chloromethane	_____
Zinc	_____	Dibromochloromethane	_____
pH	_____	Methylene_Chloride	_____
Acidity,_Total	_____	Tetrachloroethylene	_____
Alkalinity,_Total_(CaCO ₃)	_____	1,1,1-Trichloroethane	_____
Alkalinity,_Bicarbonate_(CaCO ₃)	_____	Trichloroethylene	_____
Bromide	_____	Trihalomethanes	_____
Carbon_Dioxide	_____	PCBs_()	_____
Chloride	_____	Temperature_(°C)	_____
Dissolved_Oxygen	_____	Total_Petroleum_Hydrocarbons	_____

COMMENTS: METHANE - 0.318 mg/l Ethane - 0.009

ANALYST:

Darrell Campbell

DATE: 08/18/97

TRANSMISSION OPERATIONS LABORATORY SAMPLE REPORT

SAMPLE NO.S97-0381:

QA/QC GROUP NO.:

SAMPLE LOCATION: Washington Ranch

SAMPLE SITE DESCRIPTION: John Ballard Well - Duplicate

SAMPLE DATE (MM/DD/YY):07/29/97

TIME:10:07

SAMPLE COLLECTED BY: Darrell Campbell

Analysis Results (mg/l)		Analysis Results (mg/l)	
Ammonia_(N)	_____	Color	_____
Chemical_Oxygen_Demand	_____	Fluoride	_____
Kjeldahl_Nitrogen_(N)	_____	Iodide	_____
Nitrate_(N)	_____	Odor	_____
Nitrite_(N)	_____	Residue,_Total	_____
Oil_&_Grease	_____	Residue,_Filterable_(TDS)	_____
Organic_Carbon	_____	Residue,_Nonfilterable_(TSS)	_____
Orthophosphate_(PO ₄)	_____	Residue,_Settleable	_____
Phosphorus,_Total_(P)	_____	Residue,_Volatile	_____
Cyanide,_Total	_____	Silica	_____
Cyanide,_Free	_____	Specific_Conductance_(umho)	_____
Phenols	_____	Sulfate	_____
Antimony	_____	Sulfite	_____
Arsenic	_____	Surfactants-MBAS	_____
Barium	_____	Turbidity_____NTU	_____
Beryllium	_____	BHC_Isomers	_____
Boron	_____	Chlordane	_____
Cadmium	_____	DDT_Isomers	_____
Calcium	_____	Dieldrin	_____
Chromium,_Total	_____	Endrin	_____
Chromium,_VI	_____	Heptachlor	_____
Copper	_____	Heptachlor_Epoxide	_____
Hardness_(CaCO ₃)	_____	Lindane	_____
Iron	_____	Methoxychlor	_____
Lead	_____	Toxaphene	_____
Magnesium	_____	2,4-D	_____
Manganese	_____	2,4,5-TP-Silvex	_____
Mercury	_____	2,4,5-T	_____
Nickel	_____	Sulfides	_____
Potassium	_____	Bromoform	_____
Selenium	_____	Bromodichloromethane	_____
Silver	_____	Carbon_Tetrachloride	_____
Sodium	_____	Chloroform	_____
Thallium	_____	Chloromethane	_____
Zinc	_____	Dibromochloromethane	_____
pH	_____	Methylene_Chloride	_____
Acidity,_Total	_____	Tetrachloroethylene	_____
Alkalinity,_Total_(CaCO ₃)	_____	1,1,1-Trichloroethane	_____
Alkalinity,_Bicarbonate_(CaCO ₃)	_____	Trichloroethylene	_____
Bromide	_____	Trihalomethanes	_____
Carbon_Dioxide	_____	PCBs_()	_____
Chloride	_____	Temperature_(°C)	_____
Dissolved_Oxygen	_____	Total_Petroleum_Hydrocarbons	_____

COMMENTS: METHANE - 0.306 mg/l Ethane - 0.008

ANALYST: *Darrell Campbell*

DATE: 08/18/97

TRANSMISSION OPERATIONS LABORATORY SAMPLE REPORT

SAMPLE NO.S97-0382:

QA/QC GROUP NO.:

SAMPLE LOCATION: Washington Ranch

SAMPLE SITE DESCRIPTION: Hood Hand Well

SAMPLE DATE (MM/DD/YY): 07/29/97

TIME: 11:29

SAMPLE COLLECTED BY: Darrell Campbell

Analysis Results (mg/l)		Analysis Results (mg/l)	
Ammonia_(N)		Color	
Chemical_Oxygen_Demand		Fluoride	
Kjeldahl_Nitrogen_(N)		Iodide	
Nitrate_(N)		Odor	
Nitrite_(N)		Residue, Total	
Oil & Grease		Residue, Filterable_(TDS)	
Organic_Carbon		Residue, Nonfilterable_(TSS)	
Orthophosphate_(PO ₄)		Residue, Settleable	
Phosphorus, Total_(P)		Residue, Volatile	
Cyanide, Total		Silica	
Cyanide, Free		Specific Conductance_(umho)	
Phenols		Sulfate	
Antimony		Sulfite	
Arsenic		Surfactants-MBAS	
Barium		Turbidity NTU	
Beryllium		BHC_Isomers	
Boron		Chlordane	
Cadmium		DDT_Isomers	
Calcium		Dieldrin	
Chromium, Total		Endrin	
Chromium, VI		Heptachlor	
Copper		Heptachlor_Epoxyde	
Hardness_(CaCO ₃)		Lindane	
Iron		Methoxychlor	
Lead		Toxaphene	
Magnesium		2,4-D	
Manganese		2,4,5-TP-Silvex	
Mercury		2,4,5-T	
Nickel		Sulfides	
Potassium		Bromoform	
Selenium		Bromodichloromethane	
Silver		Carbon Tetrachloride	
Sodium		Chloroform	
Thallium		Chloromethane	
Zinc		Dibromochloromethane	
pH		Methylene_Chloride	
Acidity, Total		Tetrachloroethylene	
Alkalinity, Total_(CaCO ₃)		1,1,1-Trichloroethane	
Alkalinity, Bicarbonate_(CaCO ₃)		Trichloroethylene	
Bromide		Trihalomethanes	
Carbon Dioxide		PCBs ()	
Chloride		Temperature_(°C)	
Dissolved Oxygen		Total Petroleum Hydrocarbons	

COMMENTS: METHANE - <0.002 mg/l

ANALYST:

Darrell Campbell

DATE: 08/18/97

TRANSMISSION OPERATIONS LABORATORY SAMPLE REPORT

SAMPLE NO.S97-0383:

QA/QC GROUP NO.:

SAMPLE LOCATION: Washington Ranch

SAMPLE SITE DESCRIPTION: EPNG Well

SAMPLE DATE (MM/DD/YY):07/29/97

TIME:12:15

SAMPLE COLLECTED BY: Darrell Campbell

Analysis Results (mg/l)		Analysis Results (mg/l)	
Ammonia_(N)		Color	
Chemical_Oxygen_Demand		Fluoride	
Kjeldahl_Nitrogen_(N)		Iodide	
Nitrate_(N)		Odor	
Nitrite_(N)		Residue,_Total	
Oil_&_Grease		Residue,_Filterable_(TDS)	
Organic_Carbon		Residue,_Nonfilterable_(TSS)	
Orthophosphate_(PO ₄)		Residue,_Settleable	
Phosphorus,_Total_(P)		Residue,_Volatile	
Cyanide,_Total		Silica	
Cyanide,_Free		Specific_Conductance_(umho)	
Phenols		Sulfate	
Antimony		Sulfite	
Arsenic		Surfactants-MBAS	
Barium		Turbidity	NTU
Beryllium		BHC_Isomers	
Boron		Chlordane	
Cadmium		DDT_Isomers	
Calcium		Dieldrin	
Chromium,_Total		Endrin	
Chromium,_VI		Heptachlor	
Copper		Heptachlor_Epoxide	
Hardness_(CaCO ₃)		Lindane	
Iron		Methoxychlor	
Lead		Toxaphene	
Magnesium		2,4-D	
Manganese		2,4,5-TP-Silvex	
Mercury		2,4,5-T	
Nickel		Sulfides	
Potassium		Bromoform	
Selenium		Bromodichloromethane	
Silver		Carbon_Tetrachloride	
Sodium		Chloroform	
Thallium		Chloromethane	
Zinc		Dibromochloromethane	
pH		Methylene_Chloride	
Acidity,_Total		Tetrachloroethylene	
Alkalinity,_Total_(CaCO ₃)		1,1,1-Trichloroethane	
Alkalinity,_Bicarbonate_(CaCO ₃)		Trichloroethylene	
Bromide		Trihalomethanes	
Carbon_Dioxide		PCBs_()	
Chloride		Temperature_(°C)	
Dissolved_Oxygen		Total_Petroleum_Hydrocarbons	

COMMENTS: METHANE - <0.002 mg/l

ANALYST: *Darrell Campbell*

DATE: 08/18/97

TRANSMISSION OPERATIONS LABORATORY SAMPLE REPORT

SAMPLE NO.S97-0384:

QA/QC GROUP NO.:

SAMPLE LOCATION: Washington Ranch

SAMPLE SITE DESCRIPTION: Hood Domestic Well (Small)

SAMPLE DATE (MM/DD/YY):07/29/97

TIME:14:45

SAMPLE COLLECTED BY: Darrell Campbell

Analysis Results (mg/l)		Analysis Results (mg/l)	
Ammonia_(N)	_____	Color	_____
Chemical_Oxygen_Demand	_____	Fluoride	_____
Kjeldahl_Nitrogen_(N)	_____	Iodide	_____
Nitrate_(N)	_____	Odor	_____
Nitrite_(N)	_____	Residue,_Total	_____
Oil_&_Grease	_____	Residue,_Filterable_(TDS)	_____
Organic_Carbon	_____	Residue,_Nonfilterable_(TSS)	_____
Orthophosphate_(PO ₄)	_____	Residue,_Settleable	_____
Phosphorus,_Total_(P)	_____	Residue,_Volatile	_____
Cyanide,_Total	_____	Silica	_____
Cyanide,_Free	_____	Specific_Conductance_(umho)	_____
Phenols	_____	Sulfate	_____
Antimony	_____	Sulfite	_____
Arsenic	_____	Surfactants-MBAS	_____
Barium	_____	Turbidity_____NTU	_____
Beryllium	_____	BHC_Isomers	_____
Boron	_____	Chlordane	_____
Cadmium	_____	DDT_Isomers	_____
Calcium	_____	Dieldrin	_____
Chromium,_Total	_____	Endrin	_____
Chromium,_VI	_____	Heptachlor	_____
Copper	_____	Heptachlor_Epoxyde	_____
Hardness_(CaCO ₃)	_____	Lindane	_____
Iron	_____	Methoxychlor	_____
Lead	_____	Toxaphene	_____
Magnesium	_____	2,4-D	_____
Manganese	_____	2,4,5-TP-Silvex	_____
Mercury	_____	2,4,5-T	_____
Nickel	_____	Sulfides	_____
Potassium	_____	Bromoform	_____
Selenium	_____	Bromodichloromethane	_____
Silver	_____	Carbon_Tetrachloride	_____
Sodium	_____	Chloroform	_____
Thallium	_____	Chloromethane	_____
Zinc	_____	Dibromochloromethane	_____
pH	_____	Methylene_Chloride	_____
Acidity,_Total	_____	Tetrachloroethylene	_____
Alkalinity,_Total_(CaCO ₃)	_____	1,1,1-Trichloroethane	_____
Alkalinity,_Bicarbonate_(CaCO ₃)	_____	Trichloroethylene	_____
Bromide	_____	Trihalomethanes	_____
Carbon_Dioxide	_____	PCBs_()	_____
Chloride	_____	Temperature_(°C)	_____
Dissolved_Oxygen	_____	Total_Petroleum_Hydrocarbons	_____

COMMENTS: METHANE - <0.002 mg/l

ANALYST:

Darrell Campbell

DATE: 08/18/97

TRANSMISSION OPERATIONS LABORATORY SAMPLE REPORT

SAMPLE NO.S97-0385:

QA/QC GROUP NO.:

SAMPLE LOCATION: Washington Ranch

SAMPLE SITE DESCRIPTION: Field Blank

SAMPLE DATE (MM/DD/YY):07/29/97

TIME:15:30

SAMPLE COLLECTED BY: Darrell Campbell

Analysis		Analysis	
Results (mg/l)		Results (mg/l)	
Ammonia (N)	_____	Color	_____
Chemical Oxygen Demand	_____	Fluoride	_____
Kjeldahl Nitrogen (N)	_____	Iodide	_____
Nitrate (N)	_____	Odor	_____
Nitrite (N)	_____	Residue, Total	_____
Oil & Grease	_____	Residue, Filterable (TDS)	_____
Organic Carbon	_____	Residue, Nonfilterable (TSS)	_____
Orthophosphate (PO ₄)	_____	Residue, Settleable	_____
Phosphorus, Total (P)	_____	Residue, Volatile	_____
Cyanide, Total	_____	Silica	_____
Cyanide, Free	_____	Specific Conductance (umho)	_____
Phenols	_____	Sulfate	_____
Antimony	_____	Sulfite	_____
Arsenic	_____	Surfactants-MBAS	_____
Barium	_____	Turbidity _____ NTU	_____
Beryllium	_____	BHC Isomers	_____
Boron	_____	Chlordane	_____
Cadmium	_____	DDT Isomers	_____
Calcium	_____	Dieldrin	_____
Chromium, Total	_____	Endrin	_____
Chromium, VI	_____	Heptachlor	_____
Copper	_____	Heptachlor Epoxide	_____
Hardness (CaCO ₃)	_____	Lindane	_____
Iron	_____	Methoxychlor	_____
Lead	_____	Toxaphene	_____
Magnesium	_____	2,4-D	_____
Manganese	_____	2,4,5-TP-Silvex	_____
Mercury	_____	2,4,5-T	_____
Nickel	_____	Sulfides	_____
Potassium	_____	Bromoform	_____
Selenium	_____	Bromodichloromethane	_____
Silver	_____	Carbon Tetrachloride	_____
Sodium	_____	Chloroform	_____
Thallium	_____	Chloromethane	_____
Zinc	_____	Dibromochloromethane	_____
pH	_____	Methylene Chloride	_____
Acidity, Total	_____	Tetrachloroethylene	_____
Alkalinity, Total (CaCO ₃)	_____	1,1,1-Trichloroethane	_____
Alkalinity, Bicarbonate (CaCO ₃)	_____	Trichloroethylene	_____
Bromide	_____	Trihalomethanes	_____
Carbon Dioxide	_____	PCBs ()	_____
Chloride	_____	Temperature (°C)	_____
Dissolved Oxygen	_____	Total Petroleum Hydrocarbons	_____

COMMENTS: METHANE - <0.002 mg/l

ANALYST:

Darrell Campbell

DATE: 08/18/97

SAMPLE KEY

SAMPLE NUMBER: S97-0406 LOCATION: WASHINGTON RANCH
MATRIX: WATER
SAMPLE DESCRIPTION: HOODS IRRIGATION/DOMESTIC WELL
S D CONTINUED:
S D CONTINUED:
SAMPLE TIME: 09:37 SAMPLE DATE: 08/12/97

SAMPLE KEY

SAMPLE NUMBER: S97-0407 LOCATION: WASHINGTON RANCH
MATRIX: WATER
SAMPLE DESCRIPTION: HOODS POND WELL
S D CONTINUED:
S D CONTINUED:
SAMPLE TIME: 09:50 SAMPLE DATE: 08/12/97

NEL LABORATORIES

Reno • Las Vegas
Phoenix • Burbank

Las Vegas Division
4208 Arcata Way, Suite A • Las Vegas, NV 89030
(702) 657-1010 • Fax: (702) 657-1577
1-888-368-3282

CLIENT: El Paso Natural Gas Company
8645 Railroad Drive
El Paso, TX 79904
ATTN: Darrell Campbell

PROJECT NAME: NA
PROJECT NUMBER: NA

NEL ORDER ID: P9708017

Attached are the analytical results for samples in support of the above referenced project.

Samples submitted for this project were not sampled by NEL Laboratories. Samples were received by NEL in good condition, under chain of custody on 8/14/97.

Samples were analyzed as received.

Where applicable we have included the following quality control data:

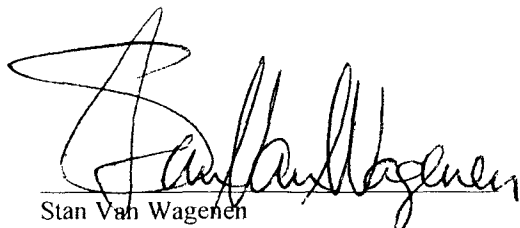
Method blank - used to demonstrate absence of contamination or interferences in the Analytical process.

Laboratory Control Spike (LCS) - used to demonstrate laboratory ability to perform the method within specifications by spiking representative analytes into a clean matrix.

Surrogates - compounds added to each sample to ensure that the method requirements are met for each individual sample.

Should you have any questions or comments, please feel free to contact our Client Services department at (602) 437-0099.

Nitrate sample received outside of method specified holding time.


Stan Van Wagenen
Laboratory Manager


Date

CERTIFICATIONS:

	<u>Reno</u>	<u>Las Vegas</u>	<u>Burbank</u>
Arizona	AZ0520	AZ0518	AZ0325
California	1707	2002	1192
US Army Corps of Engineers	Certified	Certified	Certified

	<u>Reno</u>	<u>Las Vegas</u>	<u>Burbank</u>
Idaho	Certified	Certified	
Montana	Certified	Certified	
Nevada	NV033	NV052	CA084
Washington			Certified

NEL LABORATORIES

CLIENT: El Paso Natural Gas Company
PROJECT NAME: NA
PROJECT NUMBER: NA

ANALYST: JY

METHOD: **METALS***

SAMPLE MATRIX: **WATER**

CLIENT ID: S97-0406
DATE SAMPLED: 8/12/97
NEL ID: P9708017-01

DIGESTED: 8/19-25/97
ANALYZED: 8/22-27/97

<u>PARAMETER</u>	<u>EPA METHOD</u>	<u>RESULT</u> <u>mg/L</u>	<u>REPORTING</u> <u>LIMIT</u>
Calcium	EPA 6010A	78	0.5 mg/L
Magnesium	EPA 6010A	28	0.5 mg/L
Potassium	EPA 6010A	ND	2.0 mg/L
Silica	SM3111D	7.4	2.0 mg/L
Sodium	EPA 6010A	5.6	0.5 mg/L

*Sample subcontracted to NEL Laboratories-Reno, NV
ND - Not Detected

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NEL LABORATORIES

CLIENT: El Paso Natural Gas Company
PROJECT NAME: NA
PROJECT NUMBER: NA

ANALYST: JY

METHOD: **METALS***

SAMPLE MATRIX: **WATER**

CLIENT ID: S97-0407
DATE SAMPLED: 8/12/97
NEL ID: P9708017-02

DIGESTED: 8/19-25/97
ANALYZED: 8/22-27/97

<u>PARAMETER</u>	<u>EPA METHOD</u>	<u>RESULT</u> <u>mg/L</u>	<u>REPORTING</u> <u>LIMIT</u>
Calcium	EPA 6010A	240	0.5 mg/L
Magnesium	EPA 6010A	46	0.5 mg/L
Potassium	EPA 6010A	2.2	2.0 mg/L
Silica	SM3111D	11	2.0 mg/L
Sodium	EPA 6010A	18	0.5 mg/L

*Sample subcontracted to NEL Laboratories-Reno, NV
ND - Not Detected

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NEL LABORATORIES

CLIENT: El Paso Natural Gas Company
PROJECT NAME: NA
PROJECT NUMBER: NA

ANALYST: JY

METHOD: METALS*

SAMPLE MATRIX: WATER

CLIENT ID: Method Blank
DATE SAMPLED: NA
NEL ID: P08017/S1-BLK

DIGESTED: 8/19-25/97
ANALYZED: 8/22-27/97

<u>PARAMETER</u>	<u>EPA METHOD</u>	<u>RESULT</u> <u>mg/L</u>	<u>REPORTING</u> <u>LIMIT</u>
Calcium	EPA 6010A	ND	0.5 mg/L
Magnesium	EPA 6010A	ND	0.5 mg/L
Potassium	EPA 6010A	ND	2.0 mg/L
Silica	SM3111D	ND	1.0 mg/L
Sodium	EPA 6010A	ND	0.5 mg/L

*Sample subcontracted to NEL Laboratories-Reno, NV
ND - Not Detected

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NEL LABORATORIES

CLIENT: El Paso Natural Gas Company
PROJECT NAME: NA
PROJECT NUMBER: NA

CLIENT ID: S97-0406
DATE SAMPLED: 8/12/97
NEL SAMPLE ID: P9708017-01

TEST: Inorganic Non-Metals
MATRIX: Aqueous

PARAMETER	RESULT	UNITS	REPORTING		METHOD	ANALYZED
			LIMIT	D. F.		
pH	7.85	pH Units	NA	1	EPA 150.1	8/14/97
pH Temperature	23.3	°C	1.	1	EPA 150.1	8/14/97
Specific Conductance	527	µS/cm	1.	1	SM 2510 B	8/19/97
Total Dissolved Solids	285	mg/L	25.	1	SM 2540 C	8/14/97
Total Hardness, as CaCO ₃	300	mg/L	2.	2	SM 2340 C	8/20/97
Total Alkalinity, as CaCO ₃	240	mg/L	0.5	1	SM2320 B	8/20/97
Hydroxide, as CaCO ₃	ND	mg/L	0.5	1	SM2320 B	8/20/97
Carbonate, as CaCO ₃	ND	mg/L	0.5	1	SM2320 B	8/20/97
Bicarbonate, as CaCO ₃	240	mg/L	0.5	1	SM2320 B	8/20/97
Fluoride	0.2	mg/L	0.1	1	EPA 300.0	8/14/97
Chloride	4.4	mg/L	0.1	1	EPA 300.0	8/14/97
Bromide	ND	mg/L	0.1	1	EPA 300	8/14/97
Sulfate	39	mg/L	2.5	25	EPA 300.0	8/19/97
Nitrate, as N	0.8	mg/L-N	0.1	1	EPA 300.0	8/14/97
Sulfide	ND	mg/L	0.02	1	SM4500-S	8/19/97

D.F. - Dilution Factor

ND - Not Detected

This report shall not be reproduced except in full, without the written approval of the laboratory.

NEL LABORATORIES

CLIENT: El Paso Natural Gas Company
PROJECT NAME: NA
PROJECT NUMBER: NA

CLIENT ID: S97-0407
DATE SAMPLED: 8/12/97
NEL SAMPLE ID: P9708017-02

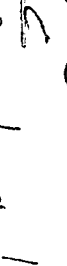
TEST: Inorganic Non-Metals
MATRIX: Aqueous

PARAMETER	RESULT	UNITS	REPORTING		METHOD	ANALYZED
			LIMIT	D. F.		
pH	7.19	pH Units	NA	1	EPA 150.1	8/14/97
pH Temperature	21.8	°C	1.	1	EPA 150.1	8/14/97
Specific Conductance	1240	µS/cm	1.	1	SM 2510 B	8/19/97
Total Dissolved Solids	946	mg/L	25.	1	SM 2540 C	8/14/97
Total Hardness, as CaCO ₃	610	mg/L	5.	5	SM 2340 C	8/20/97
Total Alkalinity, as CaCO ₃	220	mg/L	0.5	1	SM2320 B	8/20/97
Hydroxide, as CaCO ₃	ND	mg/L	0.5	1	SM2320 B	8/20/97
Carbonate, as CaCO ₃	ND	mg/L	0.5	1	SM2320 B	8/20/97
Bicarbonate, as CaCO ₃	220	mg/L	0.5	1	SM2320 B	8/20/97
Fluoride	0.4	mg/L	0.1	1	EPA 300.0	8/14/97
Chloride	7.9	mg/L	1.	10	EPA 300.0	8/19/97
Bromide	ND	mg/L	0.1	1	EPA 300	8/14/97
Sulfate	470	mg/L	20.	200	EPA 300.0	8/19/97
Nitrate, as N	0.8	mg/L-N	0.1	1	EPA 300.0	8/14/97
Sulfide	ND	mg/L	0.02	1	SM4500-S	8/19/97

D.F. - Dilution Factor

ND - Not Detected

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[illegible]

TRANSMISSION OPERATIONS LABORATORY SAMPLE REPORT

SAMPLE NO.S97-0406:

QA/QC GROUP NO.:

SAMPLE LOCATION: WASHINGTON RANCH

SAMPLE SITE DESCRIPTION: HOODS IRRIGATION/ DOMESTIC WELL

SAMPLE DATE (MM/DD/YY):08/12/97

TIME:09:37

SAMPLE COLLECTED BY: JOHN BENNETT

Analysis Results (mg/l)		Analysis Results (mg/l)	
Ammonia (N)		Color	
Chemical Oxygen Demand		Fluoride	
Kjeldahl Nitrogen (N)		Iodide	
Nitrate (N)		Odor	
Nitrite (N)		Residue, Total	
Oil & Grease		Residue, Filterable (TDS)	
Organic Carbon		Residue, Nonfilterable (TSS)	
Orthophosphate (PO ₄)		Residue, Settleable	
Phosphorus, Total (P)		Residue, Volatile	
Cyanide, Total		Silica	
Cyanide, Free		Specific Conductance (umho)	
Phenols		Sulfate	
Antimony		Sulfite	
Arsenic		Surfactants-MBAS	
Barium		Turbidity NTU	
Beryllium		BHC Isomers	
Boron		Chlordane	
Cadmium		DDT Isomers	
Calcium		Dieldrin	
Chromium, Total		Endrin	
Chromium, VI		Heptachlor	
Copper		Heptachlor Epoxide	
Hardness (CaCO ₃)		Lindane	
Iron		Methoxychlor	
Lead		Toxaphene	
Magnesium		2,4-D	
Manganese		2,4,5-TP-Silvex	
Mercury		2,4,5-T	
Nickel		Sulfides	
Potassium		Bromoform	
Selenium		Bromodichloromethane	
Silver		Carbon Tetrachloride	
Sodium		Chloroform	
Thallium		Chloromethane	
Zinc		Dibromochloromethane	
pH		Methylene Chloride	
Acidity, Total		Tetrachloroethylene	
Alkalinity, Total (CaCO ₃)		1,1,1-Trichloroethane	
Alkalinity, Bicarbonate (CaCO ₃)		Trichloroethylene	
Bromide		Trihalomethanes	
Carbon Dioxide		PCBs ()	
Chloride		Temperature (°C)	
Dissolved Oxygen		Total Petroleum Hydrocarbons	

COMMENTS: METHANE < 0.002 mg/l

ANALYST:

John Bennett

DATE:

8/13/97

TRANSMISSION OPERATIONS LABORATORY SAMPLE REPORT

SAMPLE NO.S97-0407:

QA/QC GROUP NO.:

SAMPLE LOCATION: WASHINGTON RANCH

SAMPLE SITE DESCRIPTION: HOODS POND WELL

SAMPLE DATE (MM/DD/YY):08/12/97

TIME:09:50

SAMPLE COLLECTED BY: JOHN BENNETT

Analysis Results (mg/l)		Analysis Results (mg/l)	
Ammonia_(N)		Color	
Chemical_Oxygen_Demand		Fluoride	
Kjeldahl_Nitrogen_(N)		Iodide	
Nitrate_(N)		Odor	
Nitrite_(N)		Residue,_Total	
Oil_&_Grease		Residue,_Filterable_(TDS)	
Organic_Carbon		Residue,_Nonfilterable_(TSS)	
Orthophosphate_(PO ₄)		Residue,_Settleable	
Phosphorus,_Total_(P)		Residue,_Volatile	
Cyanide,_Total		Silica	
Cyanide,_Free		Specific_Conductance_(umho)_	
Phenols		Sulfate	
Antimony		Sulfite	
Arsenic		Surfactants-MBAS	
Barium		Turbidity_____NTU	
Beryllium		BHC_Isomers	
Boron		Chlordane	
Cadmium		DDT_Isomers	
Calcium		Dieldrin	
Chromium,_Total		Endrin	
Chromium,_VI		Heptachlor	
Copper		Heptachlor_Epoxide	
Hardness_(CaCO ₃)		Lindane	
Iron		Methoxychlor	
Lead		Toxaphene	
Magnesium		2,4-D	
Manganese		2,4,5-TP-Silvex	
Mercury		2,4,5-T	
Nickel		Sulfides	
Potassium		Bromoform	
Selenium		Bromodichloromethane	
Silver		Carbon_Tetrachloride	
Sodium		Chloroform	
Thallium		Chloromethane	
Zinc		Dibromochloromethane	
pH		Methylene_Chloride	
Acidity,_Total		Tetrachloroethylene	
Alkalinity,_Total_(CaCO ₃)		1,1,1-Trichloroethane	
Alkalinity,_Bicarbonate_(CaCO ₃)		Trichloroethylene	
Bromide		Trihalomethanes	
Carbon_Dioxide		PCBs_()	
Chloride		Temperature_(°C)	
Dissolved_Oxygen		Total_Petroleum_Hydrocarbons	

COMMENTS: METHANE < 0.002 mg/l

ANALYST:

John Bennett

DATE:

8/13/97

CHAIN OF CUSTODY

AEN LAB I.D.

BP 7-30-97

DATE: 7-30-97 PAGE: 1 OF 1

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: <u>W. J. L...</u>				COMPANY: <u>W. J. L...</u> ADDRESS: <u>500 N. ...</u> PHONE: <u>(505) 253-7155</u> FAX: <u>(505) 253-8100</u> BILL TO: <u>STATE</u> COMPANY: <u>STATE</u> ADDRESS: <u>...</u>				
SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	ANALYSIS REQUEST			
2407971015	7-1-97	4:00	1.0		Petroleum Hydrocarbons (418.1) TRPH			
2407971019	7-1-97	4:00	1.0		(MOD.8015) Diesel/Direct/Inject			
2407971030	7-1-97	4:00	1.0		(M8015) Gas/Purge & Trap			
2407971225	7-1-97	4:00	1.0		Gasoline/BTEX & MTBE (M8015/8020)			
2407971450	7-1-97	4:00	1.0		BTXE/MTBE (8020)			
71030 Blank	7-1-97	4:00	1.0		BTEX & Chlorinated Aromatics (602/8020)			
					BTEX/MTBE/EDC & EDB (8020/8010/Short)			
					Chlorinated Hydrocarbons (601/8010)			
					504 EDB ☐ / DBCP ☐			
					Polynuclear Aromatics (610/8310)			
					Volatile Organics (624/8240) GC/MS			
					Volatile Organics (8260) GC/MS			
					Pesticides/PCB (608/8080)			
					Herbicides (615/8150)			
					Base/Neutral/Acid Compounds GC/MS (625/8270)			
					General Chemistry:			
					Priority Pollutant Metals (13)			
					Target Analyte List Metals (23)			
					RCRA Metals (8)			
					RCRA Metals by TCLP (Method 1311)			
					Metals:			
					NUMBER OF CONTAINERS			

October 17, 1995

CERTIFIED MAIL
RETURN RECEIPT NO. P 909 764 643

RECEIVED

OCT 23 1995

Environmental Bureau
Oil Conservation Division

Mr. William J. LeMay
Director, Oil Conservation Division
New Mexico Energy, Minerals and
Natural Resources Department
P. O. Box 6429
Santa Fe, New Mexico 87505-6429

RE: Groundwater Investigation
Washington Ranch Gas Storage Project
Eddy County, New Mexico

Dear Mr. LeMay:

El Paso Natural Gas Company (EPNG) received your letter dated July 18, 1995 in which you requested that a groundwater investigation plan be submitted to the Oil Conservation Commission (OCD) for the area of Section 27, Township 25 South, Range 24 East, NMPM. We apologize for the delay in responding to your letter, but we wanted to conduct some testing of the Smart Family's water well before responding. I contacted Mr. Mark Ashley of your office and indicated that we would be conducting water sampling and, as soon as the results were available and discussed with the Smart Family, a response to your letter would be sent.

EPNG does not believe that a groundwater investigation of the area is necessary based on the following:

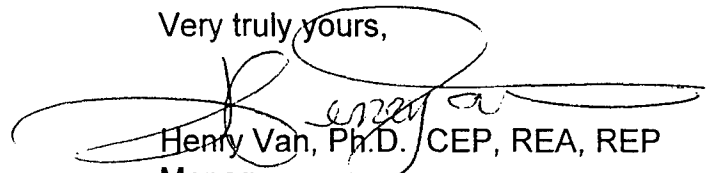
- EPNG collected and analyzed several water samples from the Smart's well on May 11, June 22, and July 19, 1995. The analytical results show the water quality to be in compliance with the New Mexico Water Quality Control Commission's drinking water standards. The water was tested for methane and was not detected.

- On July 19, EPNG agreed to pay for the collection and analysis of a water sample from the Smart Family well. EPNG collected a split sample. The sample was collected by RE/SPEC, Inc. on behalf of the Smart family and was sent to an analytical laboratory of their choice (Inter-Mountain Laboratory in Bozeman, Montana). The results are under Tab "A." EPNG sent its sample to Philip Environmental, Inc. laboratory in Seattle, Washington. These results are under Tab "B."
- The analytical results of the sample taken July 19 were reviewed independently by RE/SPEC and EPNG. Both concluded that the results do not indicate that the water quality exceeds the federal or New Mexico Safe Drinking Water Standards.
- EPNG has consistently obtained water quality results that meet regulatory standards.

EPNG respectfully declines to conduct a groundwater investigation near EPNG's Washington Ranch Gas Storage Project, Eddy County, New Mexico. EPNG has, after substantial and reliable investigation, found no evidence of contamination in any form at the site.

If you have questions, please contact me at 915/541-2832.

Very truly yours,



Henry Van, Ph.D. CEP, REA, REP
Manager,
Environmental Compliance Engineering

HV:hv

Enclosure

c: Mr. Tim Gum NMOCD Artesia Office (w/encl.)
Mr. Ray Smith, NMOCD Artesia Office (w/o encl.)
Mr. Mark Ashley, NMOCD Santa Fe Office(w/encl.)

A

EPNG
Wahington Ranch
Storage Project

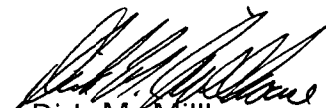
Well Water Analysis
Smart Family Split
Sample
July 19, 1995

CASE NARRATIVE

On July 20, 1995, two water samples and two trip blanks were received for analysis at Inter-Mountain Laboratories (IML), Bozeman, Montana. The chain of custody form requested analyses incorporating the SDWA parameters including 2,3,7,8 TCDD, a suite of general parameters, and bacteriological testing for coliform. Client / Project name was listed as RE/SPEC / El Paso Natural Gas.

Enclosed are the results of these analyses. A portion of these analyses were subcontracted and are noted. Included in the quality assurance section is applicable quality control documents supplied by the subcontracting laboratories.

Limits of detection for each instrument/analysis are determined by sample matrix effects, instrument performance under standard conditions, and dilution requirements to maintain chromatography output within calibration ranges. Quantitations have been calculated on an as received basis.


Dirk M. Millhouse
IML-Bozeman

re:elpa21dw

Analytical Results
Split Sample
This is Mr. Smart's
Sample taken to
IML, Inc.

EPA METHOD 524.2
PURGEABLE ORGANIC COMPOUNDS

Client: RE/SPEC
 Sample ID: Smart Ranch
 Project ID: El Paso Natural Gas
 Lab ID: B955618
 Matrix: Water

Date Reported: 08/18/95
 Date Sampled: 07/19/95
 Date Received: 07/20/95
 Date Extracted: NA
 Date Analyzed: 07/28/95

Parameter	Result	PQL	Regulatory Level	Units
1,1,1,2-Tetrachloroethane	ND	0.0005	NA	mg/L
1,1,1-Trichloroethane	ND	0.0005	0.2	mg/L
1,1,2,2-Tetrachloroethane	ND	0.0005	NA	mg/L
1,1,2-Trichloroethane	ND	0.0005	0.005	mg/L
1,1-Dichloroethane	ND	0.0005	NA	mg/L
1,1-Dichloroethene	ND	0.0005	0.007	mg/L
1,1-Dichloropropene	ND	0.0005	NA	mg/L
1,2,3-Trichlorobenzene	ND	0.001	NA	mg/L
1,2,3-Trichloropropane	ND	0.0005	NA	mg/L
1,2,4-Trichlorobenzene	ND	0.001	0.07	mg/L
1,2,4-Trimethylbenzene	ND	0.001	NA	mg/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.001	NA	mg/L
1,2-Dibromoethane (EDB)	ND	0.0005	NA	mg/L
1,2-Dichlorobenzene	ND	0.0005	NA	mg/L
1,2-Dichloroethane	ND	0.0005	0.005	mg/L
1,2-Dichloropropane	ND	0.0005	0.005	mg/L
1,3,5-Trimethylbenzene	ND	0.001	NA	mg/L
1,3-Dichlorobenzene	ND	0.0005	NA	mg/L
1,3-Dichloropropane	ND	0.0005	NA	mg/L
1,4-Dichlorobenzene	ND	0.0005	0.075	mg/L
2,2-Dichloropropane	ND	0.0005	NA	mg/L
2-Chlorotoluene	ND	0.0005	NA	mg/L
4-Chlorotoluene	ND	0.0005	NA	mg/L
4-Isopropyltoluene	ND	0.0005	NA	mg/L
Benzene	ND	0.0005	0.005	mg/L
Bromobenzene	ND	0.0005	NA	mg/L
Bromochloromethane	ND	0.0005	NA	mg/L
Bromodichloromethane	ND	0.0005	NA	mg/L
Bromoform	ND	0.0005	NA	mg/L
Bromomethane	ND	0.0005	NA	mg/L

EPA METHOD 524.2
PURGEABLE ORGANIC COMPOUNDS

Client: RE/SPEC
 Sample ID: Smart Ranch
 Project ID: El Paso Natural Gas
 Lab ID: B955618
 Matrix: Water

Date Reported: 08/18/95
 Date Sampled: 07/19/95
 Date Received: 07/20/95
 Date Extracted: NA
 Date Analyzed: 07/28/95

Parameter	Result	PQL	Regulatory Level	Units
Continued				
Carbon Tetrachloride	ND	0.0005	0.005	mg/L
Chlorobenzene	ND	0.0005	NA	mg/L
Chloroethane	ND	0.005	NA	mg/L
Chloroform	ND	0.0005	NA	mg/L
Chloromethane	ND	0.005	NA	mg/L
cis-1,2-Dichloroethene	ND	0.0005	0.07	mg/L
cis-1,3-Dichloropropene	ND	0.0005	NA	mg/L
Dibromochloromethane	ND	0.0005	0.005	mg/L
Dibromomethane	ND	0.0005	NA	mg/L
Dichlorodifluoromethane	ND	0.0005	NA	mg/L
Ethylbenzene	ND	0.0005	0.7	mg/L
Hexachlorobutadiene	ND	0.0005	NA	mg/L
Isopropylbenzene	ND	0.0005	NA	mg/L
m,p-Xylene	ND	0.0015	5.0	mg/L
Methylene chloride	ND	0.0005	NA	mg/L
n-Butylbenzene	ND	0.0005	NA	mg/L
n-Propylbenzene	ND	0.0005	NA	mg/L
Naphthalene	ND	0.001	NA	mg/L
o-Xylene	ND	0.0015	5.0	mg/L
sec-Butylbenzene	ND	0.0005	NA	mg/L
Styrene	ND	0.0005	0.1	mg/L
tert-Butylbenzene	ND	0.0005	NA	mg/L
Tetrachloroethene (PCE)	ND	0.0005	0.005	mg/L
Toluene	ND	0.0005	1.0	mg/L
trans-1,2-Dichloroethene	ND	0.0005	0.07	mg/L
trans-1,3-Dichloropropene	ND	0.0005	NA	mg/L
Trichloroethene (TCE)	ND	0.0005	0.005	mg/L
Trichlorofluoromethane	ND	0.0005	NA	mg/L
Vinyl Chloride	ND	0.0005	0.002	mg/L

EPA METHOD 524.2
PURGEABLE ORGANIC COMPOUNDS

Client: RE/SPEC
Sample ID: Smart Ranch
Project ID: El Paso Natural Gas
Lab ID: B955618
Matrix: Water

Date Reported: 08/18/95
Date Sampled: 07/19/95
Date Received: 07/20/95
Date Extracted: NA
Date Analyzed: 07/28/95

Parameter	Result	PQL	Units
-----------	--------	-----	-------

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichlorobenzene-d4	108	80 - 120
Bromofluorobenzene	108	80 - 120

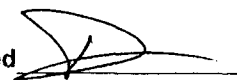
ND - Not Detected at Practical Quantitation Level (PQL).

Reference: Method 524.2, Measurement of Purgeable Organic Compounds in Water by Capillary Gas Chromatography/Mass Spectrometry, Revision 3.0, Methods for the Determination of Organic Compounds in Drinking Water, EPA/600/4-88/039, Environmental Protection Agency, September

Analyst



Reviewed



**EPA METHOD 504
HALOGENATED PESTICIDES**

Client: RE/SPEC
Sample ID: Smart Ranch
Project ID: El Paso Natural Gas
Lab ID: B955618
Matrix: Water

Date Reported: 08/11/95
Date Sampled: 07/19/95
Date Received: 07/20/95
Date Extracted: 08/01/95
Date Analyzed: 08/10/95

Parameter	Result	PQL	Regulatory Level	Units
Dibromochloropropane(DBCP)	ND	0.00005	0.0002	mg/L
Ethylene dibromide (EDB)	ND	0.00005	0.00005	mg/L

ND - Not Detected at Practical Quantitation Level (PQL).

Reference: Method 504, 1,2-Dibromoethane (EDB) and 1,2-Dibromo-3-Chloropropane (DBCP) in Water by Microextraction and Gas Chromatography, EPA/600/4-88/039, December, 1988.

Analyst



Reviewed



EPA METHOD 508
CHLORINATED PESTICIDES

Client: RE/SPEC
Sample ID: Smart Ranch
Project ID: El Paso Natural Gas
Lab ID: B955618
Matrix: Water

Date Reported: 08/16/95
Date Sampled: 07/19/95
Date Received: 07/20/95
Date Extracted: 07/25/95
Date Analyzed: 08/10/95

Parameter	Result	PQL	Regulatory Level	Units
Alachlor	ND	0.001	0.002	mg/L
Chlordane	ND	0.001	0.002	mg/L
Endrin	ND	0.001	0.002	mg/L
gamma-BHC (Lindane)	ND	0.0001	0.0002	mg/L
Heptachlor	ND	0.0002	0.0004	mg/L
Heptachlor epoxide	ND	0.0002	0.0002	mg/L
Hexachlorobenzene	ND	0.0005	0.001	mg/L
Pentachlorophenol	ND	0.0005	0.001	mg/L
Polychlorinated biphenyls	ND	0.0002	0.0005	mg/L
Toxaphene	ND	0.002	0.003	mg/L

ND - Not Detected at Practical Quantitation Level (PQL).

Reference: Method 508, Determination of Chlorinated Pesticides in Water by Gas Chromatography with an Electron Capture Detector, EPA/600/4-88/039, December, 1988.

Method 508A, Screening for Polychlorinated Biphenyls by Perchlorination and Gas Chromatography, EPA/600/4-88/039, December, 1988.

Method 505, Analysis of Organohalide Pesticides and Commercial Polychlorinated Biphenyl (PCB) Products in Water by Microextraction and Gas Chromatography, EPA/600/4-88/039, December,

Method 525.1 Determination of Organic Compounds in Drinking Water by Liquid-Solid Extraction and Capillary Column Gas Chromatography / Mass Spectrometry, Revision 2.2. Environmental Protection Agency Cincinnati, Ohio, 1988.

Analyst



Reviewed



EPA METHOD 515
CHLOROPHENOXY ACID HERBICIDES

Client: RE/SPEC
Sample ID: Smart Ranch
Project ID: El Paso Natural Gas
Lab ID: B955618
Matrix: Water

Date Reported: 08/18/95
Date Sampled: 07/19/95
Date Received: 07/20/95
Date Extracted: 08/01/95
Date Analyzed: 08/18/95

Parameter	Result	PQL	Regulatory Level	Units
2,4,5-TP (Silvex)	ND	0.005	0.05	
2,4-D	ND	0.005	0.07	
Dalapon	ND	0.05	0.2	
Dicamba	ND	0.005	NA	
Dinoseb	ND	0.005	0.007	
Picloram	ND	0.05	0.5	
QUALITY CONTROL - Surrogate Recovery	%		QC Limits	
DCAA	90		50 - 150	

ND - Not Detected at Practical Quantitation Level (PQL).

Reference: Method 515.1, Determination of Chlorinated Acids in Water by Gas Chromatography with an Electron Capture Detector, EPA/600/4-88/039, December 1988.

Analyst



Reviewed



EPA METHOD 531
CARBAMATE PESTICIDES

Client: RE/SPEC
Sample ID: Smart Ranch
Project ID: El Paso Natural Gas
Lab ID: B955618
Matrix: Water

Date Reported: 08/21/95
Date Sampled: 07/19/95
Date Received: 07/20/95
Date Extracted: NA
Date Analyzed: 08/01/95

Parameter	Result	PQL	Regulatory Level	Units
3-Hydroxycarbofuran	ND S	0.001	NA	mg/L
Aldicarb	ND S	0.0005	0.001	mg/L
Aldicarb sulfone	ND S	0.0004	0.002	mg/L
Aldicarb sulfoxide	ND S	0.0005	0.002	mg/L
Carbaryl	ND S	0.001	NA	mg/L
Carbofuran	ND S	0.0009	0.04	mg/L
Methomyl	ND S	0.0005	NA	mg/L
Oxamyl	ND S	0.001	NA	mg/L

ND - Not Detected at Practical Quantitation Level (PQL).

S - Analysis subcontracted.

Reference: Method 531.1, Measurement of N-Methylcarbamoyloximes and N-Methylcarbamates in water by aqueous injection HPLC with post column derivatization. Methods for the Determination of Organic Compounds in Drinking Water. EPA/600/4-88/039 Dec 1988.

Analyst Env. Health

Reviewed DR

EPA METHOD 525
SEMI VOLATILE COMPOUNDS

Client: RE/SPEC
Sample ID: Smart Ranch
Project ID: El Paso Natural Gas
Lab ID: B955618
Matrix: Water

Date Reported: 08/16/95
Date Sampled: 07/19/95
Date Received: 07/20/95
Date Extracted: 07/25/95
Date Analyzed: 08/10/95

Parameter	Result	PQL	Regulatory Level	Units
Aldrin	ND	0.0005	NA	mg/L
Atrazine	ND	0.001	0.003	mg/L
Benzo(a)pyrene	ND	0.0001	0.0002	mg/L
Butachlor	ND	0.0005	NA	mg/L
Di(2-ethylhexyl)adipate	ND	0.01	0.4	mg/L
Di(2-ethylhexyl)phthalate	ND	0.003	0.004	mg/L
Dieldrin	ND	0.0005	NA	mg/L
Hexachlorocyclopentadiene	ND	0.02	0.05	mg/L
Methoxychlor	ND	0.001	0.04	mg/L
Metolachlor	ND	0.0005	NA	mg/L
Metribuzin	ND	0.002	NA	mg/L
Propachlor	ND	0.0005	NA	mg/L
Simazine	ND	0.002	0.004	mg/L
QUALITY CONTROL - Surrogate Recovery	%		QC Limits	
Perylene-d12	83		31 - 142	

ND - Not Detected at Practical Quantitation Level (PQL).

Reference: Method 550, Determination of Polyaromatic Hydrocarbons in Drinking Water by HPLC Liquid-Liquid Extraction, Supplement 1, EPA/600/4-90-020, July, 1990.

Method 525.1 Determination of Organic Compounds in Drinking Water by Liquid-Solid Extraction and Capillary Column Gas Chromatography / Mass Spectrometry, Revision 2.2. Environmental Protection Agency Cincinnati, Ohio, 1988.

Method 508, Determination of Chlorinated Pesticides in Water by Gas Chromatography with an Electron Capture Detector, EPA/600/4-88/039, December, 1988.

Analyst



Reviewed



EPA METHOD 547
GLYPHOSATE

Client: RE/SPEC
Sample ID: Smart Ranch
Project ID: El Paso Natural Gas
Lab ID: B955618
Matrix: Water

Date Reported: 08/18/95
Date Sampled: 07/19/95
Date Received: 07/20/95
Date Extracted: NA
Date Analyzed: 08/01/95

Parameter	Result	PQL	Regulatory Level	Units
Glyphosate	ND S	0.006	0.7	

ND - Not Detected at Practical Quantitation Level (PQL).

S - Analysis subcontracted.

Reference: Method 547, Analysis of Glyphosate in Drinking Water by Direct Aqueous Injection
HPLC with Post-Column Derivatization.

Analyst

Reviewed

EPA METHOD 1613
DIOXIN

Client: RE/SPEC
Sample ID: Smart Ranch
Project ID: El Paso Natural Gas
Lab ID: B955618
Matrix: Water

Date Reported: 08/21/95
Date Sampled: 07/19/95
Date Received: 07/20/95
Date Extracted: NA
Date Analyzed: 08/01/95

Parameter	Result	PQL	Units
2,3,7,8-TCDD (Dioxin)	ND S	5.0	pg/L

ND - Not Detected at Practical Quantitation Level (PQL).

S - Analysis subcontracted.

Reference: Method 1613A - 2,3,7,8-Tetrachlorinated Dibenzo-p-Dioxin by High-Resolution Chromatography /
High-Resolution Mass Spectrometry (10/90).

Analyst Vinyle Labs

Reviewed 

TOTAL RECOVERABLE METALS

Client: RE/SPEC
Sample ID: Smart Ranch
Project ID: El Paso Natural Gas
Lab ID: B955618
Matrix: Water

Date Reported: 08/18/95
Date Sampled: 07/19/95
Date Received: 07/20/95

Parameter	Date Analyzed	Result	PQL	Units
Antimony	08/14/95	ND	0.005	mg/L
Arsenic	08/14/95	ND	0.005	mg/L
Barium	08/17/95	ND	0.5	mg/L
Beryllium	08/17/95	ND	0.01	mg/L
Boron	08/10/95	0.02	0.02	mg/L
Cadmium	08/07/95	ND	0.001	mg/L
Chromium	08/17/95	ND	0.01	mg/L
Copper	08/17/95	ND	0.02	mg/L
Iron	08/17/95	ND	0.03	mg/L
Lead	08/07/95	ND	0.005	mg/L
Manganese	08/17/95	ND	0.02	mg/L
Mercury	08/17/95	ND	0.0002	mg/L
Nickel	08/17/95	ND	0.01	mg/L
Selenium	08/09/95	ND	0.005	mg/L
Thallium	08/11/95	ND	0.002	mg/L
Zinc	08/17/95	ND	0.03	mg/L
Silica	08/17/95	6.2	0.1	mg/L

ND - Not Detected at Practical Quantitation Level (PQL).

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
SW-846, United States Environmental Protection Agency, September, 1986.

Analyst



Reviewed



GENERAL PARAMETERS

Client: RE/SPEC
Sample ID: Smart Ranch
Project ID: El Paso Natural Gas
Lab ID: B955618
Matrix: Water

Date Reported: 08/21/95
Date Sampled: 07/19/95
Date Received: 07/20/95
Date Extracted: NA

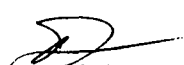
Parameter	Date Analyzed	Result	PQL	Units
Alkalinity, Total as CaCO ₃	07/26/95	230	1.0	mg/L
Bromide (Br)	08/01/95	ND	NA	mg/L
Calcium	08/08/95	84	1.0	mg/L
Chloride	07/25/95	16	5.0	mg/L
Coliform	07/26/95	ND S	2.0	col/100 ml
Conductivity, Lab @ 25C	07/25/95	560	NA	umhos/cm
Cyanide, Total	08/14/95	ND	0.01	mg/L
Fluoride	08/11/95	ND	0.05	mg/L
Hardness, Total as CaCO ₃	08/09/95	330	1.0	mg/L
Magnesium	08/08/95	29	1.0	mg/L
Methane	07/24/95	ND	NA	mg/L
Nitrate + Nitrite as N	07/26/95	2.5	0.05	mg/L
pH	07/26/95	7.5	NA	s.u.
Potassium	08/08/95	1.0	1.0	mg/L
Sodium	08/08/95	9.0	1.0	mg/L
Solids, Total Dissolved (TDS)	08/01/95	390	10	mg/L
Sulfate	08/02/95	61	10	mg/L
Sulfides as S ₂	07/26/95	ND	1.0	mg/L

ND - Not Detected at Practical Quantitation Level (PQL).

S - Analysis subcontracted.

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1982.
Standard Methods for Examination of Water and Wastewater, 18th Edition, 1992.
SW-846, United States Environmental Protection Agency, Nov. 1986.

Analyst 

Reviewed 

EPA METHOD 524.2
PURGEABLE ORGANIC COMPOUNDS

Client: RE/SPEC
 Sample ID: Washington Ranch
 Project ID: El Paso Natural Gas
 Lab ID: B955619
 Matrix: Water

Date Reported: 08/18/95
 Date Sampled: 07/19/95
 Date Received: 07/20/95
 Date Extracted: NA
 Date Analyzed: 07/28/95

Parameter	Result	PQL	Regulatory Level	Units
1,1,1,2-Tetrachloroethane	ND	0.0005	NA	mg/L
1,1,1-Trichloroethane	ND	0.0005	0.2	mg/L
1,1,2,2-Tetrachloroethane	ND	0.0005	NA	mg/L
1,1,2-Trichloroethane	ND	0.0005	0.005	mg/L
1,1-Dichloroethane	ND	0.0005	NA	mg/L
1,1-Dichloroethene	ND	0.0005	0.007	mg/L
1,1-Dichloropropene	ND	0.0005	NA	mg/L
1,2,3-Trichlorobenzene	ND	0.001	NA	mg/L
1,2,3-Trichloropropane	ND	0.0005	NA	mg/L
1,2,4-Trichlorobenzene	ND	0.001	0.07	mg/L
1,2,4-Trimethylbenzene	ND	0.001	NA	mg/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.001	NA	mg/L
1,2-Dibromoethane (EDB)	ND	0.0005	NA	mg/L
1,2-Dichlorobenzene	ND	0.0005	NA	mg/L
1,2-Dichloroethane	ND	0.0005	0.005	mg/L
1,2-Dichloropropane	ND	0.0005	0.005	mg/L
1,3,5-Trimethylbenzene	ND	0.001	NA	mg/L
1,3-Dichlorobenzene	ND	0.0005	NA	mg/L
1,3-Dichloropropane	ND	0.0005	NA	mg/L
1,4-Dichlorobenzene	ND	0.0005	0.075	mg/L
2,2-Dichloropropane	ND	0.0005	NA	mg/L
2-Chlorotoluene	ND	0.0005	NA	mg/L
4-Chlorotoluene	ND	0.0005	NA	mg/L
4-Isopropyltoluene	ND	0.0005	NA	mg/L
Benzene	ND	0.0005	0.005	mg/L
Bromobenzene	ND	0.0005	NA	mg/L
Bromochloromethane	ND	0.0005	NA	mg/L
Bromodichloromethane	ND	0.0005	NA	mg/L
Bromoform	ND	0.0005	NA	mg/L
Bromomethane	ND	0.0005	NA	mg/L

EPA METHOD 524.2
PURGEABLE ORGANIC COMPOUNDS

Client: RE/SPEC
 Sample ID: Washington Ranch
 Project ID: El Paso Natural Gas
 Lab ID: B955619
 Matrix: Water

Date Reported: 08/18/95
 Date Sampled: 07/19/95
 Date Received: 07/20/95
 Date Extracted: NA
 Date Analyzed: 07/28/95

Parameter	Result	PQL	Regulatory Level	Units
Continued				
Carbon Tetrachloride	ND	0.0005	0.005	mg/L
Chlorobenzene	ND	0.0005	NA	mg/L
Chloroethane	ND	0.005	NA	mg/L
Chloroform	ND	0.0005	NA	mg/L
Chloromethane	ND	0.005	NA	mg/L
cis-1,2-Dichloroethene	ND	0.0005	0.07	mg/L
cis-1,3-Dichloropropene	ND	0.0005	NA	mg/L
Dibromochloromethane	ND	0.0005	0.005	mg/L
Dibromomethane	ND	0.0005	NA	mg/L
Dichlorodifluoromethane	ND	0.0005	NA	mg/L
Ethylbenzene	ND	0.0005	0.7	mg/L
Hexachlorobutadiene	ND	0.0005	NA	mg/L
Isopropylbenzene	ND	0.0005	NA	mg/L
m,p-Xylene	ND	0.0015	5.0	mg/L
Methylene chloride	ND	0.0005	NA	mg/L
n-Butylbenzene	ND	0.0005	NA	mg/L
n-Propylbenzene	ND	0.0005	NA	mg/L
Naphthalene	ND	0.001	NA	mg/L
o-Xylene	ND	0.0015	5.0	mg/L
sec-Butylbenzene	ND	0.0005	NA	mg/L
Styrene	ND	0.0005	0.1	mg/L
tert-Butylbenzene	ND	0.0005	NA	mg/L
Tetrachloroethene (PCE)	ND	0.0005	0.005	mg/L
Toluene	ND	0.0005	1.0	mg/L
trans-1,2-Dichloroethene	ND	0.0005	0.07	mg/L
trans-1,3-Dichloropropene	ND	0.0005	NA	mg/L
Trichloroethene (TCE)	ND	0.0005	0.005	mg/L
Trichlorofluoromethane	ND	0.0005	NA	mg/L
Vinyl Chloride	ND	0.0005	0.002	mg/L

Continued

EPA METHOD 524.2
PURGEABLE ORGANIC COMPOUNDS

Client: RE/SPEC
Sample ID: Washington Ranch
Project ID: El Paso Natural Gas
Lab ID: B955619
Matrix: Water

Date Reported: 08/18/95
Date Sampled: 07/19/95
Date Received: 07/20/95
Date Extracted: NA
Date Analyzed: 07/28/95

Parameter	Result	PQL	Units
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Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichlorobenzene-d4	105	80 - 120
Bromofluorobenzene	100	80 - 120

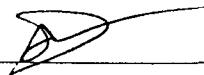
ND - Not Detected at Practical Quantitation Level (PQL).

Reference: Method 524.2, Measurement of Purgeable Organic Compounds in Water by Capillary Gas Chromatography/Mass Spectrometry, Revision 3.0, Methods for the Determination of Organic Compounds in Drinking Water, EPA/600/4-88/039, Environmental Protection Agency, September

Analyst



Reviewed



**EPA METHOD 504
HALOGENATED PESTICIDES**

Client: RE/SPEC
Sample ID: Washington Ranch
Project ID: El Paso Natural Gas
Lab ID: B955619
Matrix: Water

Date Reported: 08/11/95
Date Sampled: 07/19/95
Date Received: 07/20/95
Date Extracted: 08/01/95
Date Analyzed: 08/10/95

Parameter	Result	PQL	Regulatory Level	Units
Dibromochloropropane(DBCP)	ND	0.00005	0.0002	mg/L
Ethylene dibromide (EDB)	ND	0.00005	0.00005	mg/L

ND - Not Detected at Practical Quantitation Level (PQL).

Reference: Method 504, 1,2-Dibromoethane (EDB) and 1,2-Dibromo-3-Chloropropane (DBCP) in Water by Microextraction and Gas Chromatography, EPA/600/4-88/039, December, 1988.

Analyst



Reviewed



EPA METHOD 508
CHLORINATED PESTICIDES

Client: RE/SPEC
Sample ID: Washington Ranch
Project ID: El Paso Natural Gas
Lab ID: B955619
Matrix: Water

Date Reported: 08/16/95
Date Sampled: 07/19/95
Date Received: 07/20/95
Date Extracted: 07/25/95
Date Analyzed: 08/10/95

Parameter	Result	PQL	Regulatory Level	Units
Alachlor	ND	0.001	0.002	mg/L
Chlordane	ND	0.001	0.002	mg/L
Endrin	ND	0.001	0.002	mg/L
gamma-BHC (Lindane)	ND	0.0001	0.0002	mg/L
Heptachlor	ND	0.0002	0.0004	mg/L
Heptachlor epoxide	ND	0.0002	0.0002	mg/L
Hexachlorobenzene	ND	0.0005	0.001	mg/L
Pentachlorophenol	ND	0.0005	0.001	mg/L
Polychlorinated biphenyls	ND	0.0002	0.0005	mg/L
Toxaphene	ND	0.002	0.003	mg/L

ND - Not Detected at Practical Quantitation Level (PQL).

Reference: Method 508, Determination of Chlorinated Pesticides in Water by Gas Chromatography with an Electron Capture Detector, EPA/600/4-88/039, December, 1988.

Method 508A, Screening for Polychlorinated Biphenyls by Perchlorination and Gas Chromatography, EPA/600/4-88/039, December, 1988.

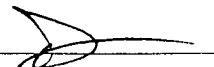
Method 505, Analysis of Organohalide Pesticides and Commercial Polychlorinated Biphenyl (PCB) Products in Water by Microextraction and Gas Chromatography, EPA/600/4-88/039, December,

Method 525.1 Determination of Organic Compounds in Drinking Water by Liquid-Solid Extraction and Capillary Column Gas Chromatography / Mass Spectrometry, Revision 2.2. Environmental Protection Agency Cincinnati, Ohio, 1988.

Analyst



Reviewed



EPA METHOD 515
CHLOROPHENOXY ACID HERBICIDES

Client: RE/SPEC
Sample ID: Washington Ranch
Project ID: El Paso Natural Gas
Lab ID: B955619
Matrix: Water

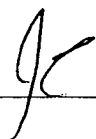
Date Reported: 08/18/95
Date Sampled: 07/19/95
Date Received: 07/20/95
Date Extracted: 08/01/95
Date Analyzed: 08/18/95

Parameter	Result	PQL	Regulatory Level	Units
2,4,5-TP (Silvex)	ND	0.005	0.05	
2,4-D	ND	0.005	0.07	
Dalapon	ND	0.05	0.2	
Dicamba	ND	0.005	NA	
Dinoseb	ND	0.005	0.007	
Picloram	ND	0.05	0.5	
QUALITY CONTROL - Surrogate Recovery	%		QC Limits	
DCAA	95		50 - 150	

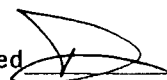
ND - Not Detected at Practical Quantitation Level (PQL).

Reference: Method 515.1, Determination of Chlorinated Acids in Water by Gas Chromatography with an Electron Capture Detector, EPA/600/4-88/039, December 1988.

Analyst



Reviewed



EPA METHOD 525
SEMI VOLATILE COMPOUNDS

Client: RE/SPEC
Sample ID: Washington Ranch
Project ID: El Paso Natural Gas
Lab ID: B955619
Matrix: Water

Date Reported: 08/16/95
Date Sampled: 07/19/95
Date Received: 07/20/95
Date Extracted: 07/25/95
Date Analyzed: 08/10/95

Parameter	Result	PQL	Regulatory Level	Units
Aldrin	ND	0.0005	NA	mg/L
Atrazine	ND	0.001	0.003	mg/L
Benzo(a)pyrene	ND	0.0001	0.0002	mg/L
Butachlor	ND	0.0005	NA	mg/L
Di(2-ethylhexyl)adipate	ND	0.01	0.4	mg/L
Di(2-ethylhexyl)phthalate	ND	0.003	0.004	mg/L
Dieldrin	ND	0.0005	NA	mg/L
Hexachlorocyclopentadiene	ND	0.02	0.05	mg/L
Methoxychlor	ND	0.001	0.04	mg/L
Metolachlor	ND	0.0005	NA	mg/L
Metribuzin	ND	0.002	NA	mg/L
Propachlor	ND	0.0005	NA	mg/L
Simazine	ND	0.002	0.004	mg/L
QUALITY CONTROL - Surrogate Recovery	%		QC Limits	
Perylene-d12	73		31 - 142	

ND - Not Detected at Practical Quantitation Level (PQL).

Reference: Method 550, Determination of Polyaromatic Hydrocarbons in Drinking Water by HPLC Liquid-Liquid Extraction, Supplement 1, EPA/600/4-90-020, July, 1990.

Method 525.1 Determination of Organic Compounds in Drinking Water by Liquid-Solid Extraction and Capillary Column Gas Chromatography / Mass Spectrometry, Revision 2.2. Environmental Protection Agency Cincinnati, Ohio, 1988.

Method 508, Determination of Chlorinated Pesticides in Water by Gas Chromatography with an Electron Capture Detector, EPA/600/4-88/039, December, 1988.

Analyst



Reviewed



EPA METHOD 531
CARBAMATE PESTICIDES

Client: RE/SPEC
Sample ID: Washington Ranch
Project ID: El Paso Natural Gas
Lab ID: B955619
Matrix: Water

Date Reported: 08/21/95
Date Sampled: 07/19/95
Date Received: 07/20/95
Date Extracted: NA
Date Analyzed: 08/01/95

Parameter	Result	PQL	Regulatory Level	Units
3-Hydroxycarbofuran	ND S	0.001	NA	mg/L
Aldicarb	ND S	0.0005	0.001	mg/L
Aldicarb sulfone	ND S	0.0004	0.002	mg/L
Aldicarb sulfoxide	ND S	0.0005	0.002	mg/L
Carbaryl	ND S	0.001	NA	mg/L
Carbofuran	ND S	0.0009	0.04	mg/L
Methomyl	ND S	0.0005	NA	mg/L
Oxamyl	ND S	0.001	NA	mg/L

ND - Not Detected at Practical Quantitation Level (PQL).

S - Analysis subcontracted.

Reference: Method 531.1, Measurement of N-Methylcarbamoyloximes and N-Methylcarbamates in water by aqueous injection HPLC with post column derivatization. Methods for the Determination of Organic Compounds in Drinking Water. EPA/600/4-88/039 Dec 1988.

Analyst

Env. Health Labs

Reviewed



EPA METHOD 1613
DIOXIN

Client: RE/SPEC
Sample ID: Washington Ranch
Project ID: El Paso Natural Gas
Lab ID: B955619
Matrix: Water

Date Reported: 08/21/95
Date Sampled: 07/19/95
Date Received: 07/20/95
Date Extracted: NA
Date Analyzed: 08/01/95

Parameter	Result	PQL	Units
2,3,7,8-TCDD (Dioxin)	ND S	NA	pg/L

ND - Not Detected at Practical Quantitation Level (PQL).

S - Analysis subcontracted.

Reference: Method 1613A - 2,3,7,8-Tetrachlorinated Dibenzo-p-Dioxin by High-Resolution Chromatography /
High-Resolution Mass Spectrometry (10/90).

Analyst



Reviewed



TOTAL RECOVERABLE METALS

Client: RE/SPEC
Sample ID: Washington Ranch
Project ID: El Paso Natural Gas
Lab ID: B955619
Matrix: Water

Date Reported: 08/18/95
Date Sampled: 07/19/95
Date Received: 07/20/95

Parameter	Date Analyzed	Result	PQL	Units
Antimony	08/14/95	ND	0.005	mg/L
Arsenic	08/14/95	ND	0.005	mg/L
Barium	08/17/95	ND	0.5	mg/L
Beryllium	08/17/95	ND	0.01	mg/L
Boron	08/10/95	ND	0.02	mg/L
Cadmium	08/07/95	ND	0.001	mg/L
Chromium	08/17/95	ND	0.01	mg/L
Copper	08/17/95	ND	0.02	mg/L
Iron	08/17/95	ND	0.03	mg/L
Lead	08/07/95	ND	0.005	mg/L
Manganese	08/17/95	ND	0.02	mg/L
Mercury	08/17/95	ND	0.0002	mg/L
Nickel	08/17/95	ND	0.01	mg/L
Selenium	08/09/95	ND	0.005	mg/L
Thallium	08/11/95	ND	0.002	mg/L
Zinc	08/17/95	ND	0.03	mg/L
Silica	08/17/95	5.9	0.1	mg/L

ND - Not Detected at Practical Quantitation Level (PQL).

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
SW-846, United States Environmental Protection Agency, September, 1986.

Analyst SK

Reviewed SK

GENERAL PARAMETERS

Client: RE/SPEC
Sample ID: Washington Ranch
Project ID: El Paso Natural Gas
Lab ID: B955619
Matrix: Water

Date Reported: 08/21/95
Date Sampled: 07/19/95
Date Received: 07/20/95
Date Extracted: NA

Parameter	Date Analyzed	Result	PQL	Units
Alkalinity, Total as CaCO ₃	07/26/95	220	1.0	mg/L
Bromide (Br)	08/01/95	ND	NA	mg/L
Calcium	08/08/95	75	1.0	mg/L
Chloride	07/25/95	ND	5.0	mg/L
Coliform	07/26/95	ND S	2.0	col/100 ml
Conductivity, Lab @ 25C	07/25/95	450	NA	umhos/cm
Cyanide, Total	08/14/95	ND	0.01	mg/L
Fluoride	08/11/95	0.24	0.05	mg/L
Hardness, Total as CaCO ₃	08/09/95	290	1.0	mg/L
Magnesium	08/08/95	24	1.0	mg/L
Methane	07/24/95	ND	NA	mg/L
Nitrate + Nitrite as N	07/26/95	1.1	0.05	mg/L
pH	07/26/95	7.5	NA	s.u.
Potassium	08/08/95	1.0	1.0	mg/L
Sodium	08/08/95	4.0	1.0	mg/L
Solids, Total Dissolved (TDS)	08/01/95	330	10	mg/L
Sulfate	08/02/95	35	10	mg/L
Sulfides as S ₂	07/26/95	ND	1.0	mg/L

ND - Not Detected at Practical Quantitation Level (PQL).

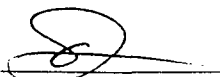
S - Analysis subcontracted.

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1982.
Standard Methods for Examination of Water and Wastewater, 18th Edition, 1992.
SW-846, United States Environmental Protection Agency, Nov. 1986.

Analyst



Reviewed



EPA METHOD 524.2
PURGEABLE ORGANIC COMPOUNDS

Client: RE/SPEC
 Sample ID: Trip Blank
 Project ID: El Paso Natural Gas
 Lab ID: B955620
 Matrix: Water

Date Reported: 08/21/95
 Date Sampled: 07/19/95
 Date Received: 07/20/95
 Date Extracted: NA
 Date Analyzed: 07/28/95

Parameter	Result	PQL	Regulatory Level	Units
1,1,1,2-Tetrachloroethane	ND	0.0005	NA	mg/L
1,1,1-Trichloroethane	ND	0.0005	0.2	mg/L
1,1,2,2-Tetrachloroethane	ND	0.0005	NA	mg/L
1,1,2-Trichloroethane	ND	0.0005	0.005	mg/L
1,1-Dichloroethane	ND	0.0005	NA	mg/L
1,1-Dichloroethene	ND	0.0005	0.007	mg/L
1,1-Dichloropropene	ND	0.0005	NA	mg/L
1,2,3-Trichlorobenzene	ND	0.001	NA	mg/L
1,2,3-Trichloropropane	ND	0.0005	NA	mg/L
1,2,4-Trichlorobenzene	ND	0.001	0.07	mg/L
1,2,4-Trimethylbenzene	ND	0.001	NA	mg/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.001	NA	mg/L
1,2-Dibromoethane (EDB)	ND	0.0005	NA	mg/L
1,2-Dichlorobenzene	ND	0.0005	NA	mg/L
1,2-Dichloroethane	ND	0.0005	0.005	mg/L
1,2-Dichloropropane	ND	0.0005	0.005	mg/L
1,3,5-Trimethylbenzene	ND	0.001	NA	mg/L
1,3-Dichlorobenzene	ND	0.0005	NA	mg/L
1,3-Dichloropropane	ND	0.0005	NA	mg/L
1,4-Dichlorobenzene	ND	0.0005	0.075	mg/L
2,2-Dichloropropane	ND	0.0005	NA	mg/L
2-Chlorotoluene	ND	0.0005	NA	mg/L
4-Chlorotoluene	ND	0.0005	NA	mg/L
4-Isopropyltoluene	ND	0.0005	NA	mg/L
Benzene	ND	0.0005	0.005	mg/L
Bromobenzene	ND	0.0005	NA	mg/L
Bromochloromethane	ND	0.0005	NA	mg/L
Bromodichloromethane	ND	0.0005	NA	mg/L
Bromoform	ND	0.0005	NA	mg/L
Bromomethane	ND	0.0005	NA	mg/L

EPA METHOD 524.2
PURGEABLE ORGANIC COMPOUNDS

Client: RE/SPEC
 Sample ID: Trip Blank
 Project ID: El Paso Natural Gas
 Lab ID: B955620
 Matrix: Water

Date Reported: 08/21/95
 Date Sampled: 07/19/95
 Date Received: 07/20/95
 Date Extracted: NA
 Date Analyzed: 07/28/95

Parameter	Result	PQL	Regulatory Level	Units
Continued				
Carbon Tetrachloride	ND	0.0005	0.005	mg/L
Chlorobenzene	ND	0.0005	NA	mg/L
Chloroethane	ND	0.005	NA	mg/L
Chloroform	ND	0.0005	NA	mg/L
Chloromethane	ND	0.005	NA	mg/L
cis-1,2-Dichloroethene	ND	0.0005	0.07	mg/L
cis-1,3-Dichloropropene	ND	0.0005	NA	mg/L
Dibromochloromethane	ND	0.0005	0.005	mg/L
Dibromomethane	ND	0.0005	NA	mg/L
Dichlorodifluoromethane	ND	0.0013	NA	mg/L
Ethylbenzene	ND	0.0005	0.7	mg/L
Hexachlorobutadiene	ND	0.0005	NA	mg/L
Isopropylbenzene	ND	0.0005	NA	mg/L
m,p-Xylene	ND	0.001	5.0	mg/L
Methylene chloride	ND	0.0005	NA	mg/L
n-Butylbenzene	ND	0.0005	NA	mg/L
n-Propylbenzene	ND	0.0005	NA	mg/L
Naphthalene	ND	0.001	NA	mg/L
o-Xylene	ND	0.0015	5.0	mg/L
sec-Butylbenzene	ND	0.0005	NA	mg/L
Styrene	ND	0.0005	0.1	mg/L
tert-Butylbenzene	ND	0.0005	NA	mg/L
Tetrachloroethene (PCE)	ND	0.0005	0.005	mg/L
Toluene	0.0008 B	0.0005	1.0	mg/L
trans-1,2-Dichloroethene	ND	0.0005	0.07	mg/L
trans-1,3-Dichloropropene	ND	0.0005	NA	mg/L
Trichloroethene (TCE)	ND	0.0005	0.005	mg/L
Trichlorofluoromethane	ND	0.0005	NA	mg/L
Vinyl Chloride	ND	0.0005	0.002	mg/L

EPA METHOD 524.2
PURGEABLE ORGANIC COMPOUNDS

Client: RE/SPEC
Sample ID: Trip Blank
Project ID: El Paso Natural Gas
Lab ID: B955620
Matrix: Water

Date Reported: 08/21/95
Date Sampled: 07/19/95
Date Received: 07/20/95
Date Extracted: NA
Date Analyzed: 07/28/95

Parameter	Result	PQL	Units
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Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichlorobenzene-d4	103	80 - 120
Bromofluorobenzene	102	80 - 120

ND - Not Detected at Practical Quantitation Level (PQL).

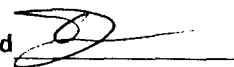
B - Parameter detected in Method Blank.

Reference: Method 524.2, Measurement of Purgeable Organic Compounds in Water by Capillary Gas Chromatography/Mass Spectrometry, Revision 3.0, Methods for the Determination of Organic Compounds in Drinking Water, EPA/600/4-88/039, Environmental Protection Agency, September

Analyst



Reviewed



EPA METHOD 524.2
PURGEABLE ORGANIC COMPOUNDS

Client: RE/SPEC
 Sample ID: Trip Blank
 Project ID: El Paso Natural Gas
 Lab ID: B955621
 Matrix: Water

Date Reported: 08/18/95
 Date Sampled: 07/19/95
 Date Received: 07/20/95
 Date Extracted: NA
 Date Analyzed: 07/28/95

Parameter	Result	PQL	Regulatory Level	Units
1,1,1,2-Tetrachloroethane	ND	0.0005	NA	mg/L
1,1,1-Trichloroethane	ND	0.0005	0.2	mg/L
1,1,2,2-Tetrachloroethane	ND	0.0005	NA	mg/L
1,1,2-Trichloroethane	ND	0.0005	0.005	mg/L
1,1-Dichloroethane	ND	0.0005	NA	mg/L
1,1-Dichloroethene	ND	0.0005	0.007	mg/L
1,1-Dichloropropene	ND	0.0005	NA	mg/L
1,2,3-Trichlorobenzene	ND	0.0005	NA	mg/L
1,2,3-Trichloropropane	ND	0.0005	NA	mg/L
1,2,4-Trichlorobenzene	ND	0.0005	0.07	mg/L
1,2,4-Trimethylbenzene	ND	0.0005	NA	mg/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.001	NA	mg/L
1,2-Dibromoethane (EDB)	ND	0.0005	NA	mg/L
1,2-Dichlorobenzene	ND	0.0005	NA	mg/L
1,2-Dichloroethane	ND	0.0005	0.005	mg/L
1,2-Dichloropropane	ND	0.0005	0.005	mg/L
1,3,5-Trimethylbenzene	ND	0.001	NA	mg/L
1,3-Dichlorobenzene	ND	0.0005	NA	mg/L
1,3-Dichloropropane	ND	0.0005	NA	mg/L
1,4-Dichlorobenzene	ND	0.0005	0.075	mg/L
2,2-Dichloropropane	ND	0.0005	NA	mg/L
2-Chlorotoluene	ND	0.0005	NA	mg/L
4-Chlorotoluene	ND	0.0005	NA	mg/L
4-Isopropyltoluene	ND	0.0005	NA	mg/L
Benzene	ND	0.0005	0.005	mg/L
Bromobenzene	ND	0.0005	NA	mg/L
Bromochloromethane	ND	0.0005	NA	mg/L
Bromodichloromethane	ND	0.0005	NA	mg/L
Bromoform	ND	0.0005	NA	mg/L
Bromomethane	ND	0.0013	NA	mg/L

EPA METHOD 524.2
PURGEABLE ORGANIC COMPOUNDS

Client: RE/SPEC
 Sample ID: Trip Blank
 Project ID: El Paso Natural Gas
 Lab ID: B955621
 Matrix: Water

Date Reported: 08/18/95
 Date Sampled: 07/19/95
 Date Received: 07/20/95
 Date Extracted: NA
 Date Analyzed: 07/28/95

Parameter	Result	PQL	Regulatory Level	Units
Continued				
Carbon Tetrachloride	ND	0.0005	0.005	mg/L
Chlorobenzene	ND	0.0005	NA	mg/L
Chloroethane	ND	0.0013	NA	mg/L
Chloroform	ND	0.0005	NA	mg/L
Chloromethane	ND	0.0013	NA	mg/L
cis-1,2-Dichloroethene	ND	0.0005	0.07	mg/L
cis-1,3-Dichloropropene	ND	0.0005	NA	mg/L
Dibromochloromethane	ND	0.0005	0.005	mg/L
Dibromomethane	ND	0.0005	NA	mg/L
Dichlorodifluoromethane	ND	0.0005	NA	mg/L
Ethylbenzene	ND	0.0005	0.7	mg/L
Hexachlorobutadiene	ND	0.0005	NA	mg/L
Isopropylbenzene	ND	0.0005	NA	mg/L
m,p-Xylene	ND	0.0015	5.0	mg/L
Methylene chloride	ND	0.0005	NA	mg/L
n-Butylbenzene	ND	0.0005	NA	mg/L
n-Propylbenzene	ND	0.0005	NA	mg/L
Naphthalene	ND	0.0005	NA	mg/L
o-Xylene	ND	0.0005	5.0	mg/L
sec-Butylbenzene	ND	0.0005	NA	mg/L
Styrene	ND	0.0005	0.1	mg/L
tert-Butylbenzene	ND	0.0005	NA	mg/L
Tetrachloroethene (PCE)	ND	0.0005	0.005	mg/L
Toluene	0.0005 B	0.0005	1.0	mg/L
trans-1,2-Dichloroethene	ND	0.0005	0.07	mg/L
trans-1,3-Dichloropropene	ND	0.0005	NA	mg/L
Trichloroethene (TCE)	ND	0.0005	0.005	mg/L
Trichlorofluoromethane	ND	0.0005	NA	mg/L
Vinyl Chloride	ND	0.0005	0.002	mg/L

Continued

EPA METHOD 524.2
PURGEABLE ORGANIC COMPOUNDS

Client: RE/SPEC
Sample ID: Trip Blank
Project ID: El Paso Natural Gas
Lab ID: B955621
Matrix: Water

Date Reported: 08/18/95
Date Sampled: 07/19/95
Date Received: 07/20/95
Date Extracted: NA
Date Analyzed: 07/28/95

Parameter	Result	PQL	Units
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Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichlorobenzene-d4	108	80 - 120
Bromofluorobenzene	106	80 - 120

ND - Not Detected at Practical Quantitation Level (PQL).

B - Parameter detected in Method Blank.

Reference: Method 524.2, Measurement of Purgeable Organic Compounds in Water by Capillary Gas Chromatography/Mass Spectrometry, Revision 3.0, Methods for the Determination of Organic Compounds in Drinking Water, EPA/600/4-88/039, Environmental Protection Agency, September

Analyst _____

Reviewed _____

QUALITY ASSURANCE / QUALITY CONTROL

LAB QA/QC
EPA METHOD 524.2
METHOD BLANKDate Analyzed: 07/28/95
Lab ID: MBW00209
Matrix: Water

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	0.0005	mg/L
1,1,1-Trichloroethane	ND	0.0005	mg/L
1,1,2,2-Tetrachloroethane	ND	0.0005	mg/L
1,1,2-Trichloroethane	ND	0.0005	mg/L
1,1-Dichloroethane	ND	0.0005	mg/L
1,1-Dichloroethene	ND	0.0005	mg/L
1,1-Dichloropropene	ND	0.0005	mg/L
1,2,3-Trichlorobenzene	ND	0.001	mg/L
1,2,3-Trichloropropane	ND	0.0005	mg/L
1,2,4-Trichlorobenzene	ND	0.001	mg/L
1,2,4-Trimethylbenzene	ND	0.001	mg/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.001	mg/L
1,2-Dibromoethane (EDB)	ND	0.0005	mg/L
1,2-Dichlorobenzene	ND	0.0005	mg/L
1,2-Dichloroethane	ND	0.0005	mg/L
1,2-Dichloropropane	ND	0.0005	mg/L
1,3,5-Trimethylbenzene	ND	0.001	mg/L
1,3-Dichlorobenzene	ND	0.0005	mg/L
1,3-Dichloropropane	ND	0.0005	mg/L
1,4-Dichlorobenzene	ND	0.0005	mg/L
2,2-Dichloropropane	ND	0.0005	mg/L
2-Chlorotoluene	ND	0.0005	mg/L
4-Chlorotoluene	ND	0.0005	mg/L
4-Isopropyltoluene	ND	0.0005	mg/L
Benzene	ND	0.0005	mg/L
Bromobenzene	ND	0.0005	mg/L
Bromochloromethane	ND	0.0005	mg/L
Bromodichloromethane	ND	0.0005	mg/L
Bromoform	ND	0.0005	mg/L

**LAB QA/QC
EPA METHOD 524.2
METHOD BLANK**

Date Analyzed: 07/28/95
Lab ID: MBW00209
Matrix: Water

Parameter	Result	PQL	Units
Continued			
Bromomethane	ND	0.0005	mg/L
Carbon Tetrachloride	ND	0.0005	mg/L
Chlorobenzene	ND	0.0005	mg/L
Chloroethane	ND	0.0005	mg/L
Chloroform	ND	0.0005	mg/L
Chloromethane	ND	0.0005	mg/L
cis-1,2-Dichloroethene	ND	0.0005	mg/L
cis-1,3-Dichloropropene	ND	0.0005	mg/L
Dibromochloromethane	ND	0.0005	mg/L
Dibromomethane	ND	0.0005	mg/L
Dichlorodifluoromethane	ND	0.0005	mg/L
Ethylbenzene	ND	0.0005	mg/L
Hexachlorobutadiene	ND	0.0005	mg/L
Isopropylbenzene	ND	0.0005	mg/L
m,p-Xylene	ND	0.0015	mg/L
Methylene chloride	ND	0.0005	mg/L
n-Butylbenzene	ND	0.0005	mg/L
n-Propylbenzene	ND	0.0005	mg/L
Naphthalene	ND	0.001	mg/L
o-Xylene	ND	0.0015	mg/L
sec-Butylbenzene	ND	0.0005	mg/L
Styrene	ND	0.0005	mg/L
tert-Butylbenzene	ND	0.0005	mg/L
Tetrachloroethene (PCE)	ND	0.0005	mg/L
Toluene	0.0011	0.0005	mg/L
trans-1,2-Dichloroethene	ND	0.0005	mg/L
trans-1,3-Dichloropropene	ND	0.0005	mg/L
Trichloroethene (TCE)	ND	0.0005	mg/L

Continued

**LAB QA/QC
EPA METHOD 524.2
METHOD BLANK**

Date Analyzed: 07/28/95
Lab ID: MBW00209
Matrix: Water

Parameter	Result	PQL	Units
Continued			
Trichlorofluoromethane	ND	0.0005	mg/L
Vinyl Chloride	ND	0.0005	mg/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichlorobenzene-d4	105	80 - 120
Bromofluorobenzene	105	80 - 120

ND - Not Detected at Practical Quantitation Level (PQL).

Reference: Method 524.2, Measurement of Purgeable Organic Compounds in Water by Capillary Gas Chromatography/Mass Spectrometry, Revision 3.0, Methods for the Determination of Organic Compounds in Drinking Water, EPA/600/4-88/039, Environmental Protection Agency, September

Analyst _____

Reviewed _____

LAB QA/QC

EPA METHOD 524.2

MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Date Analyzed: 07/28/95

Lab ID: 0595H05618

Matrix: Water

Original Sample Parameters

Parameter	Spike Added (mg/L)	Sample Result (mg/L)	Spike Result (mg/L)	MS Recovery %	QC Limits Rec.
1,1-Dichloroethene	0.02	0	0.022	110	80 - 120
Benzene	0.02	0	0.022	110	80 - 120
Chlorobenzene	0.02	0	0.021	105	80 - 120
Toluene	0.02	0	0.021	105	80 - 120
Trichloroethene (TCE)	0.02	0	0.02	100	80 - 120

Duplicate Sample Parameters

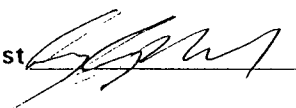
Parameter	Spike Added (mg/L)	MSD Result (mg/L)	MSD Recovery %	RPD %	QC Limits RPD Rec.
1,1-Dichloroethene	0.02	0.024	120	9	22 80 - 120
Benzene	0.02	0.023	115	4	21 80 - 120
Chlorobenzene	0.02	0.024	120	13	21 80 - 120
Toluene	0.02	0.023	115	9	21 80 - 120
Trichloroethene (TCE)	0.02	0.023	115	14	24 80 - 120

Note: Spike Recoveries are calculated using zero for Sample result
if Sample result was less than PQL (Practical Quantitation Level).

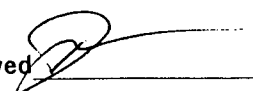
Spike Recovery: 0 out of 10 outside QC limits.

RPD: 0 out of 5 outside QC limits.

Analyst



Reviewed



**LAB QA/QC
EPA METHOD 504
METHOD BLANK**

Date Analyzed: 08/10/95
Lab ID: MBW95213
Matrix: Water
Date Extracted 08/01/95

Parameter	Result	PQL	Regulatory Level	Units
Dibromochloropropane(DBCP)	ND	.00005	0.0002	mg/L
Ethylene dibromide (EDB)	ND	.00005	0.00005	mg/L

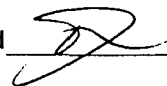
ND - Not Detected at Practical Quantitation Level (PQL).

Reference: Method 504, 1,2-Dibromoethane (EDB) and 1,2-Dibromo-3-Chloropropane (DBCP) in Water by Microextraction and Gas Chromatography, EPA/600/4-88/039, December, 1988.

Analyst



Reviewed



**LAB QA/QC
EPA METHOD 504
BLANK SPIKE / BLANK SPIKE DUPLICATE SUMMARY**

Date Analyzed: 08/10/95
Lab ID: BSW95213
Matrix: Water
Date Extracted: 08/01/95

Original Sample Parameters

Parameter	Spike Added (mg/L)	Sample Result (mg/L)	Spike Result (mg/L)	BS Recovery %	QC Limits Rec.
Dibromochloropropane(DBCP)	0.0001	0	0.00009	90	50 - 150
Ethylene dibromide (EDB)	0.0001	0	0.00007	70	50 - 150

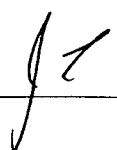
Duplicate Sample Parameters

Parameter	Spike Added (mg/L)	BSD Result (mg/L)	BSD Recovery %	RPD %	QC Limits RPD Rec.
Dibromochloropropane(DBCP)	0.0001	0.00007	70	35	50 50 - 150
Ethylene dibromide (EDB)	0.0001	0.00009	90	11	50 50 - 150

Note: Spike Recoveries are calculated using zero for Sample result
if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 0 out of 4 outside QC limits.
RPD: 0 out of 2 outside QC limits.

Analyst



Reviewed



**LAB QA/QC
EPA METHOD 508
METHOD BLANK**

Date Analyzed: 08/10/95
Lab ID: MBW95206
Matrix: Water
Date Extracted 07/25/95

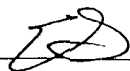
Parameter	Result	PQL	Regulatory Level	Units
Alachlor	ND	0.001	0.002	mg/L
Chlordane	ND	0.001	0.002	mg/L
Endrin	ND	0.001	0.002	mg/L
gamma-BHC (Lindane)	ND	0.0001	0.0002	mg/L
Heptachlor	ND	0.0002	0.0004	mg/L
Heptachlor epoxide	ND	0.0002	0.0002	mg/L
Hexachlorobenzene	ND	0.0005	0.001	mg/L
Pentachlorophenol	ND	0.0005	0.001	mg/L
Polychlorinated biphenyls	ND	0.0002	0.0005	mg/L
Toxaphene	ND	0.002	0.003	mg/L

ND - Not Detected at Practical Quantitation Level (PQL).

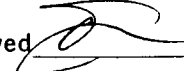
Reference: Method 508, Determination of Chlorinated Pesticides in Water by Gas Chromatography with an Electron Capture Detector, EPA/600/4-88/039, December, 1988.

Method 508A, Screening for Polychlorinated Biphenyls by Perchlorination and Gas Chromatography,

Analyst



Reviewed



LAB QA/QC
EPA METHOD 508
BLANK SPIKE

Date Analyzed: 08/10/95
Lab ID: BSW95206 BS1
Matrix: Water
Date Extracted: 07/25/95

Parameter	Spike Added (mg/L)	Sample Result (mg/L)	Spike Result (mg/L)	BS Recovery %	QC Limits Rec.
Hexachlorobenzene	0.001	0	0.00039	39	17 -128
Alachlor	0.001	0	0.00092	92	84 -126
Endrin	0.001	0	0.001	100	80 -126
Heptachlor	0.001	0	0.00077	77	66 -104
Heptachlor epoxide	0.001	0	0.001	100	78 -134
gamma-BHC (Lindane)	0.001	0	0.001	100	90 -120
Chlordane	0.001	0	0.00096	96	79 -108

Note: Spike Recoveries are calculated using zero for Sample result
if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 0 out of 7 outside QC limits.

Analyst



Reviewed



**LAB QA/QC
EPA METHOD 515
METHOD BLANK**

Date Analyzed: 08/18/95
Lab ID: MBW95213
Matrix: Water

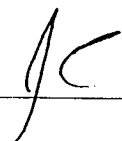
Parameter	Result	PQL	Regulatory Level	Units
2,4,5-TP (Silvex)	ND	0.005	0.05	mg/L
2,4-D	ND	0.005	0.07	mg/L
Dalapon	ND	0.05	0.2	mg/L
Dicamba	ND	0.005		mg/L
Dinoseb	ND	0.005	0.007	mg/L
Picloram	ND	0.05	0.5	mg/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
DCAA	74	50 - 150

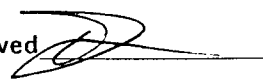
ND - Not Detected at Practical Quantitation Level (PQL).

Reference: Method 515.1, Determination of Chlorinated Acids in Water by Gas Chromatography with an Electron Capture Detector, EPA/600/4-88/039, December 1988.

Analyst



Reviewed



LAB QA/QC
EPA METHOD 515
BLANK SPIKE

Date Analyzed: 08/18/95
Lab ID: BSW95213 BS1
Matrix: Water

Parameter	Spike Added (mg/L)	Sample Result (mg/L)	Spike Result (mg/L)	BS Recovery %	QC Limits Rec.
2,4,5-TP (Silvex)	0.1	0	0.0797	80	50 -150
2,4-D	1.0	0	1.053	105	50 -150
Dalapon	2.5	0	1.392	56	50 -150
Dicamba	0.1	0	0.0753	75	50 -150

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
DCAA	83	50 -150

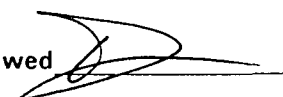
Note: Spike Recoveries are calculated using zero for Sample result
if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 0 out of 4 outside QC limits.

Analyst



Reviewed



LAB QA/QC
EPA METHOD 525
METHOD BLANKDate Analyzed: 08/10/95
Lab ID: MBW95206
Matrix: Water
Date Extracted 07/25/95

Parameter	Result	PQL	Units
Aldrin	ND	0.0005	mg/L
Atrazine	ND	0.001	mg/L
Benzo(a)pyrene	ND	0.0001	mg/L
Butachlor	ND	0.0005	mg/L
Di(2-ethylhexyl)adipate	ND	0.01	mg/L
Di(2-ethylhexyl)phthalate	ND	0.003	mg/L
Dieldrin	ND	0.0005	mg/L
Hexachlorocyclopentadiene	ND	0.02	mg/L
Methoxychlor	ND	0.001	mg/L
Metolachlor	ND	0.0005	mg/L
Metribuzin	ND	0.002	mg/L
Propachlor	ND	0.0005	mg/L
Simazine	ND	0.002	mg/L

ND - Not Detected at Practical Quantitation Level (PQL).

Analyst



Reviewed



LAB QA/QC
EPA METHOD 525
BLANK SPIKE

Date Analyzed: 08/10/95
Lab ID: BSW95206 BS1
Matrix: Water
Date Extracted: 07/25/95

Parameter	Spike Added (mg/L)	Sample Result (mg/L)	Spike Result (mg/L)	BS Recovery %	QC Limits Rec.
Aldrin	0.001	0	0.00068	68	49 -106
Atrazine	0.001	0	0.00091	91	86 -127
Dieldrin	0.001	0	0.0011	110	80 -159
Methoxychlor	0.001	0	0.00084	84	73 -103
Simazine	0.001	0	0.0004	40	26 -136

Note: Spike Recoveries are calculated using zero for Sample result
if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 0 out of 5 outside QC limits.

Analyst



Reviewed



LAB QA/QC
TOTAL RECOVERABLE METALS
MATRIX SPIKE

Date Analyzed: 08/14/95
Lab ID: 0595H05618 SK1
Matrix: Water

Parameter	Spike Added (mg/L)	Sample Result (mg/L)	Spike Result (mg/L)	MS Recovery %	QC Limits Rec.
Antimony	0.025	0	0.023	92	80 -120
Arsenic	0.025	0	0.025	100	80 -120
Barium	1.0	0	1.08	108	80 -120
Beryllium	0.1	0	0.093	93	80 -120
Cadmium	0.0025	0	0.0026	104	80 -120
Chromium	1.0	0	1.02	102	80 -120
Copper	0.5	0	0.53	106	80 -120
Iron	0.5	0	0.52	104	80 -120
Lead	0.025	0	0.025	100	80 -120
Manganese	0.5	0	0.53	106	80 -120
Mercury	0.002	0	0.0021	105	80 -120
Nickel	1.0	0	0.99	99	80 -120
Selenium	0.025	0	0.024	96	80 -120
Thallium	0.01	0	0.0093	93	80 -120

Note: Spike Recoveries are calculated using zero for Sample result
if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 0 out of 14 outside QC limits.

Analyst SA

Reviewed [Signature]

CASE NARRATIVE

**Analysis of Samples for the Presence of
2,3,7,8-Tetrachlorinated Dibenzo-*p*-Dioxin by
High-Resolution Chromatography / High-Resolution Mass Spectrometry**

Method 1613A (10/90)

Date:	August 1, 1995
Client ID:	Inter-Mountain Laboratories, Inc.
P.O. Number:	
TLI Project Number:	33505

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Rev. 06/02/95

Analytical Services Division
801 Capitola Drive
Durham, NC 27713-4411
919-544-5729

P.O. Box 13485
Research Triangle Park, NC 27709-3485
Fax # 919-544-5491

Overview

Two water samples were received from Inter-Mountain Laboratories, Inc. in good condition July 22, 1995 at 5° C and stored in a refrigerator at 4°C. The chain-of-custody did not indicate if the samples were preserved prior to shipment. The samples and associated QC samples were extracted using a distillation procedure and analyzed according to procedures described in EPA Method 1613A (October 1990) and in the Triangle Laboratories Data User's Manual (Rev. 1/93-VDE-3-AH-2/93). Any particular difficulties encountered during the sample handling by Triangle Laboratories will be discussed in the QC Remarks section below. Results reported relate only to the items tested.

Quality Control Samples

A laboratory method blank and an ongoing precision and recovery (OPR) sample are included with each batch of samples. A batch of samples may include samples from one or more TLI projects.

Quality Control Remarks

This analytical data has been released after being subjected to a series of inspections. General deviations from acceptable QC requirements are identified below. Comments on the effect of these deviations upon the validity and reliability of the results can be obtained from TLI's Data User's Manual. Specific QC issues associated with this particular project are:

Sample receipt: None.

Sample Preparation Laboratory: None.

Mass Spectrometry: None.

Data Review: No 2378-TCDD analyte was detected in the TLI Blank.

General Comments: None.

By our interpretation, the analytical data in this project are valid based on the guidelines of Method 1613A and the Triangle Laboratories' Method 1613 Data User's Manual. Any specific QC concerns or problems have been discussed in the QC Remarks section of this case narrative with emphasis on their affect on the data. Should Inter-Mountain Laboratories, Inc. have any questions or comments regarding this data package, please feel free to contact Project Scientist, Mary McDonald at 919/544-5729.

For Triangle Laboratories, Inc.,

Report Preparation

Patricia C. Berkowitz

8/01/95

Patricia C. Berkowitz
Report Preparation Chemist

Quality Control

Vijay Singh Chhabra

VIJAY SINGH CHHABRA
Report Preparation Chemist

TRIANGLE LABORATORIES OF RTP, INC.
Sample Result Summary for Project 33505
1613A TCDD Analysis (DB-5)

Page 1
08/01/95

```
=====
Data File      T953116      T953117      T953121      T953122
Sample ID      OPR HPLC Water  TLI HPLC Water  SMART RANCH B95  WASHINGTON RANC
                Blank      5618      H B955619
Units          pg/L      pg/L      pg/L      pg/L
=====
Analytes
2378-TCDD      195      < 5.0      < 5.0      < 5.0

Other Standards Percent Recovery Summary (% Rec)
37C1-TCDD      78.4      73.8      76.0      73.7

Internal Standards Percent Recovery Summary (% Rec)
13C12-2378-TCDD  80.1      76.3      81.8      69.3
=====
```

(Concentration of GC peaks out of theoretical isotopic
abundance ratio range expressed as a detection limit).

Minimum levels are reported for non-detected GC peaks.

***** = INTERFERENCE

TRIANGLE LABORATORIES OF RTP, INC.

DOCUMENT CONTROL

PROPRIETARY INFORMATION



CHAIN OF CUSTODY RECORD

Client/Project Name		Project Location		ANALYSES / PARAMETERS											
Inter-Mountain Labs		Bozeman, Mt.													
Sampler: (Signature)		Chain of Custody Tape No.		No. of Containers		Remarks									
Sample No./ Identification	Date	Time	Lab Number	Matrix											
Smart Ranch	7/19/05	1215	B455618	water	2	2,3,7,8-TCDF (detected)									
Whispering Ranch	7/19/05	1345	5619												
Relinquished by: (Signature)		Date	Time	Received by: (Signature)		Date	Time								
Dulene Henry		7/20/05	1630	Ted Ex. (carrier)											
Relinquished by: (Signature)		Date	Time	Received by: (Signature)		Date	Time								
Ted Ex. (carrier)															
Relinquished by: (Signature)		Date	Time	Received by laboratory: (Signature)		Date	Time								
				B. H. H. H.		7/20/05	1400								
Inter-Mountain Laboratories, Inc.															

☐ 1633 Terra Avenue
Sheridan, Wyoming 82801
Telephone (307) 672-8945

☐ 1701 Phillips Circle
Gillette, Wyoming 82718
Telephone (307) 682-8945

☐ 2506 West Main Street
Farmington, NM 87401
Telephone (505) 326-4737

☐ 1160 Research Dr.
Bozeman, Montana 59715
Telephone (406) 586-8450

☐ 11183 SH 30
College Station, TX 77845
Telephone (409) 776-8945

☐ 3304 Longmire Drive
College Station, TX 77845
Telephone (409) 774-4999

29735

Custody Seal : Present/Intact	Sample Seals: Present	TLI Project Number : 33505	Book : 806
Chain of Custody : Present		Client: INM01	Inter-Mountain Laboratories, Inc. 103
Sample Tags : Present		Date Received : 07/22/95	By <i>[Signature]</i> Page
Sample Tag Numbers: Listed			
SNO Forms : N/A			

Ice Chest	ICE	Temp 5.0 C	Carrier and Number : FedEx/6531538506	176
-----------	-----	------------	---------------------------------------	-----

TLI Number	Matrix	To LAB	To STORAGE	To LAB	To STORAGE	To LAB	To STORAGE	To LAB	To STORAGE
MR/H:CPM	Client ID	Location	Date/Init	Date/Init	Date/Init	Date/Init	Date/Init	Date/Init	Date/Init

103-176-1A	WATER	SMART RANCH B955618	7-25-95	7-25-95	7/27/95	Empty			
	C01				CM				
103-176-1B	WATER	SMART RANCH B955618			7/27/95				
	C01				CM				
103-176-2A	WATER	WASHINGTON RANCH B955619			Empty				
	C01								
103-176-2B	WATER	WASHINGTON RANCH B955619			7/29/95				
	C01				CM				

Receiving Remarks:

Archive Remarks:

TRIANGLE LABORATORIES, INC.
SAMPLE TRACKING AND PROJECT MANAGEMENT FORM

-----ADMINISTRATIVE INFORMATION-----

TLI Proj#: 33505-	Samples: 2	TurnAround.: 21 Day(s)
Prod Code: D28001	Matrix.: AQUEOUS	Hold Time.: 0 Day(s)
DetectLim: 5 pg/L	Type...: C	Date Recvd.: 07/22/95
		Date Due...: 08/12/95

Analyte List.: 2,3,7,8-TCDD

Method.....: 1613A:2378-TCDD ONLY

Client Proj...:

Client.....: Inter-Mountain Laboratories, Inc. (INM01)

P.O. No.....:

Collect Date.: 07/19/95

Contact.....: Wynn Sudtelgte

Phone.....: 406-586-8450

Proj. Mgr.....: Mary McDonald

Sample Origin: Montana

-----SPECIAL INSTRUCTIONS / QA REQUIREMENTS-----

Prespike Standard: n/a

-----REPORTING REQUIREMENTS-----

Reporting Format: Report Option II

See MILES for Instructions/Communications.

Completed by:

Salma Qumr

DATE:

7/24/95

Reviewed by:

MM

DATE:

7/24/95 (PMGT0395)

TRIANGLE LABORATORIES, INC.
Wet Lab Extraction and Observations
Project: 33505Date: 07/27/95
Time: 21:14

Sample #	cd	TLI_Number	Customer	Sample.Id	Init. pH...	NaOH mL...	Adj. pH.1.	H2SO4 mL...	Adj. pH.2.	Appearance	Color	Odor	Vol.	Entered	By	Date	Time
000	OPR		OPR		7.00	n/a	n/a	n/a	n/a	CLEAR	COLORLESS	NA	0	MYRICK		07/27/95	16:12:41 F
001	TLI Blank		TLI Water Blank		7.00	n/a	n/a	n/a	n/a	CLEAR	COLORLESS	NA	0	MYRICK		07/27/95	16:12:41 F
002	103-176-1A		SMART RANCH	B955618	7.00	n/a	n/a	n/a	n/a	CLEAR	COLORLESS	NA	0	MYRICK		07/27/95	16:12:42 F
003	103-176-2A		WASHINGTON RANCH	B955619	7.00	n/a	n/a	n/a	n/a	CLEAR	COLORLESS	NA	0	MYRICK		07/27/95	16:12:42 F

*** End of Report ***

Date: 07/25/95

TRIANGLE LABORATORIES, INC.

PRDPERC v3.12

Time: 14:34

Percent Moisture/Solid Calculations

Page: 1

Project: 33505

Sample #	Empty crd	Wet Vial Vial.Wt	Dry Vial Weight...	Entered.By.....	Date....	Time....	%Moist	%Solid	Valid Weight From.....To.....	Target Weight...
002	16.3568	26.2840	16.3456	PENDERGRAFT	07/25/95	12:49:25	100.0	0.0		
	16.3568	26.2840	16.3481	PENDERGRAFT	07/25/95	09:54:54				
	16.3568	26.2840	0.0000	CHUA	07/25/95	02:56:49				
	16.3568	0.0000	0.0000	CHUA	07/25/95	02:22:52			960.0000-1040.0000	1000.0000
003	16.2420	26.2079	16.2315	PENDERGRAFT	07/25/95	12:50:24	100.0	0.0		
	16.2420	26.2079	16.2325	PENDERGRAFT	07/25/95	09:54:54				
	16.2420	26.2079	0.0000	CHUA	07/25/95	02:56:50				
	16.2420	0.0000	0.0000	CHUA	07/25/95	02:22:52			960.0000-1040.0000	1000.0000

Percent Moisture/Solid Summary

TLI.MILES.ID....	TLI.Number..	Client.Id.Number.....	%Moist	%Solid	ExtrctWt	DryWtEqu
33505-	-002	103-176-1A SMART RANCH B955618	100.0	0.0		
33505-	-003	103-176-2A WASHINGTON RANCH B955619	100.0	0.0		

*** End of Report ***

TRIANGLE LABORATORIES, INC.

PAGE 1 OF 1

PCDD/PCDF/PBDD/PBDF Sample Preparation Tracking & Management Form

Project: 33505

Client: Inter-Mountain Laboratories, Inc. (INM01)

Sample Information

Extraction Date: 7/27/95

Spiking Dates: 7/27/95 7/27/95

Method: 1613A:2378-TCDD-ONLY

WL Spike: 20 µl, conc: 0.100 ng/µl

MS Spike: 20 µl, conc: 0.100 ng/µl

TLI	GROSS	SAMPLE	USF	USF - C	MISC	USFMX	Sample
SAMPLE	WEIGHT	SIZE	Ex/Cl	Ex/Cl	Ex/Cl	Extr.	Left ?
ID	Before	After	g/ml	Initials	Initials	Initials	Yes/No
OPR	XXXXXXXXXX	XXXXXXXXXX	1000	DL	SBm	DL	
000	OPR	XXXXXXXXXX	1000	DL	SBm	DL	
TLI Blank	XXXXXXXXXX	XXXXXXXXXX		DL	SBm		
001	TLI Water Blank	XXXXXXXXXX		DL	SBm		
103-176-1A	XXXXXXXXXX	XXXXXXXXXX		DL	SBm		Yes
002	SMART RANCH B955618	XXXXXXXXXX		DL	SBm		
103-176-2A	XXXXXXXXXX	XXXXXXXXXX		DL	SBm		
003	WASHINGTON RANCH B955619	XXXXXXXXXX		DL	SBm		

Gross weight of sample container + sample before/after aliquot removal

Indicate below the TLI Identification Number of the Sample Fortification Solutions:

USF-AIS: 2591M 0.100ng/ml
Exp. 11/28/95

USF-I: _____ USF-A: _____

USF-ACS: _____ USF-MX: 2802C 0.100ng/ml

Exp 8/21/95 Exp. 8/31/95

USF-C: 2743F .0ug/ml Other: _____

10 x DL

LOT # (Solvents): _____

for extraction: _____

COMMENTS:

INITIALS OF BOTH THE SPIKER AND OBSERVER MUST BE ENTERED.

(XXXXX = Gross Weight not provided for WATER Samples.)

TRIANGLE LABORATORIES, INC.
SAMPLE EXTRACTION and CLEANUP TRACKING FORM

TLI Project: 33505

=CHROMATOGRAPHIC CLEANUP=

Ext S#.crd and TLI Number	Spike before Extr.	Extr.	Spike after Extr.	Acid Base	Big Fish	Escltd Silica Gel	Acid Almina 6 gm	Flor- isil	Carbon Column	Trans- fer
000 OPR	Batched w/ 33523									7/27/95
001 TLI Blank			7/27/95							
002 103-176-1A	↓	↓	↓							
003 103-176-2A	↓	↓	↓							
	CM/DL	CM	JLE SBM							JLE
	7/27/95									

Spike

Rotovap (40ml, 10ml, dryness)

Combine

Divide

Solvent Exchange

Add Tri

Sox _____

Comments

=Rev 08/09/94 (PSTMF 4)

TRIANGLE LABORATORIES, INC.
Transfer Chain-of-Custody Form
Project 33505

Transfer From: DWLLO To: DMS5

	Initials..	Date.....	Time...
Released by:	<u>JLE</u>	<u>7/27/95</u>	<u>23:25</u>
Accepted by:	<u>CF</u>	<u>7/28/95</u>	<u>10:25</u>

MILES.ID.....	TLI_No.....	Cust.Id.....
33505- -002	103-176-1A	SMART RANCH B955618
33505- -003	103-176-2A	WASHINGTON RANCH B955619

Batched 2 33523

-----XfrCOC (Rev 11/01/94)-----
Additional comments or instructions:

APR 5 1968

MS#	COLUMN TYPE	COLUMN #	PLOT NAME	PKD	AMOUNT INJ	ACQUISITION	G/C
705	DB5	5655513	DBLT	DBLT	2.0	CONF2	TESTS

[illegible]

TRIANGLE LABORATORIES OF RTP, INC.

**SAMPLE
DATA**

PROPRIETARY INFORMATION

TRIANGLE LABORATORIES OF RTP, INC.
Ongoing Precision and Recovery - Sample Results

Project: 33505
Matrix: AQUEOUS
Method: 1613

File: T953116
SAS#:
Contract#: n/a

Extraction Date: 07/27/95
Analysis Date: 07/28/95
Analysis Time: 11:40

NOTE: Concentrations are concentrations in the final extract.
3rd Revision Table 7 Performance Specifications.

ISOMER	SPIKED. (ng/mL)	OBSERVED (ng/mL)	Perf.Specs.... from	to	%Recovery
2378-TCDD	10.0	9.8	6.9	13.8	97.5

Labeled Compound	SPIKED. (ng/mL)	OBSERVED (ng/mL)	Perf.Specs.... from	to	%Recovery
13C12-2378-TCDD	100.0	80.1	25.0	150.0	80.1
37C1-2378-TCDD	10.0	7.8	2.5	15.0	78.4

=====

LARS 6.00.09
TLI_PSUM v2.04

Processed By:

PCB

Date: 08/01/95

Inter-Mountain Laboratories, Inc.

TL-RTP Project: 33505

1613A TCDD Analysis (DB-5)

Client Sample: OPR HPLC Water

Analysis File: T953116

Client Project:	n/a	Date Received:	/ /	Spike File:	SP161F2S
Sample Matrix:	AQUEOUS	Date Extracted:	07/27/95	ICAL:	TF59033
TLRTP ID:	OPR	Date Analyzed:	07/28/95	CONCAL:	T953112
Sample Size:	1.000 L	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	T953117	% Lipid:	n/a
GC Column:	DB-5	Analyst:	DB	% Solids:	n/a

Analytes	Conc. (pg/L)	DL	Ratio	RT	Flags
2,3,7,8-TCDD	195		0.86	26:34	—

Internal Standard	Conc. (pg/L)	% Recovery	Ratio	RT	Flags
¹³ C ₁₂ -2,3,7,8-TCDD	1600	80.1	0.79	26:33	—

Surrogate Standard (Type C)	Conc. (pg/L)	% Recovery	Ratio	RT	Flags
³⁷ Cl ₄ -2,3,7,8-TCDD	157	78.4		26:34	—

Recovery Standard	Ratio	RT	Flags
¹³ C ₁₂ -1,2,3,4-TCDD	0.79	26:21	—

Data Reviewer: PCB 08/01/95

InitialDate...
 B-File/Header Changes PCB 8,01,95 Calculated Noise Area: 10.00
 Manual Integrations ↓ ↓ Channel:
 Transcription ↓ ↓ Initials:
 dBASE Corrections ↓ ↓ Date:

*NOISE OK for OPR
8/01/95 PCB*

Page No. 1 Listing of T953116B.dbf
 07/27/95 Matched GC Peaks / Ratio / Ret. Time

Compound/

M_Z.... QC.Log Omit Why ..RT. OK Ratio Total.Area... Area.Peak.1.. Area.Peak.2.. Rel.RT Compound.Name.. ID..

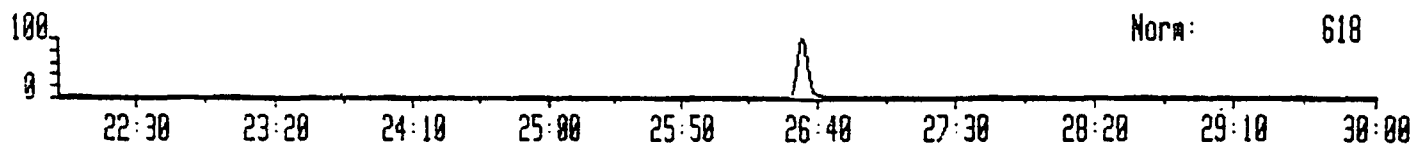
		0.65-0.89				0.913-1.046			
TCDD									
320-322	DC WL	23:43	RO 2.54	85.53			0.893		
		24:36	RO 2.93	29.36	21.88	7.48	0.927		
		26:20	0.69	46.09	18.89	27.20	0.992		
		26:34	0.86	5,687.59	2,623.47	3,064.12	1.001	2378-TCDD AN	
	DC SN	26:47	0.84	15.33			1.009		
	DC WH	30:34	RO 0.64	174.31			1.151		
	DC WH	31:15	0.73	175.01			1.177		
	DC SN	31:19	RO 0.54	17.65			1.180		
	DC WH	31:33	0.72	709.17			1.188		
320-322		3 Peaks		5,763.04					
37C1-TCDD							0.913-1.046		
328	DC WL	21:30		49.95			0.810		
	DC WL	22:57		28.90			0.864		
		26:34		4,939.95	4,939.95		1.001	37C1-TCDD SUR1	
	DC WH	30:38		33.85			1.154		
328		1 Peak		4,939.95					
13C12-TCDD							0.925-1.075		
332-334		25:29	0.66	206.30	82.33	123.97	0.960		
		26:21	0.79	53,849.40	23,846.58	30,002.82	0.992	13C12-1234-TCDD RS1	
		26:33	0.79	47,338.05	20,903.09	26,434.96	1.000	13C12-2378-TCDD IS1	
		26:53	0.72	814.39	339.60	474.79	1.013		
	DC WH	31:33	RO 0.92	659.58			1.188		
332-334		4 Peaks		102,208.14					

Column Description..... "Why" Code Description..... QC Log Desc.....

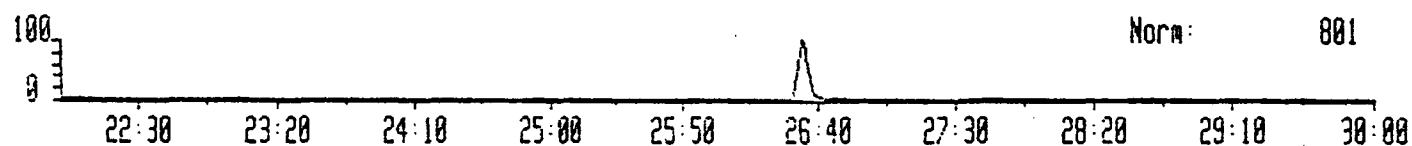
M_Z	-Nominal Ion Mass(es)	WL-Below Retention Time Window	A-Peak Added
..RT.	-Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1	-Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK	-RO=Ratio Outside Limits	<M-Below Method Detection Limit	T-Time Changed
Rel.RT	-Relative Retention Time	NL-Channel Specific Noise Level	M-Peak Area Changed
			N-Name Changed
			E-Ether Interference

*** End of Report ***

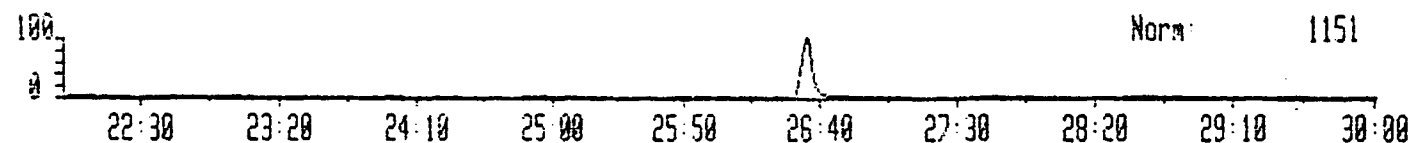
T953116 28-JUL-95 Sir Voltage 70-250S Sys: TEST085
Sample 1 Injection 1 Group 1 Mass 319.8965
Text: OPR HPLC WATER TLI#33523



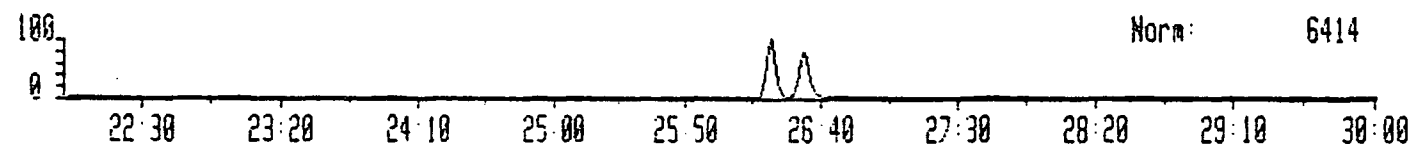
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Sample 1 Injection 1 Group 1 Mass 321.8936
Text: OPR HPLC WATER TLI#33523



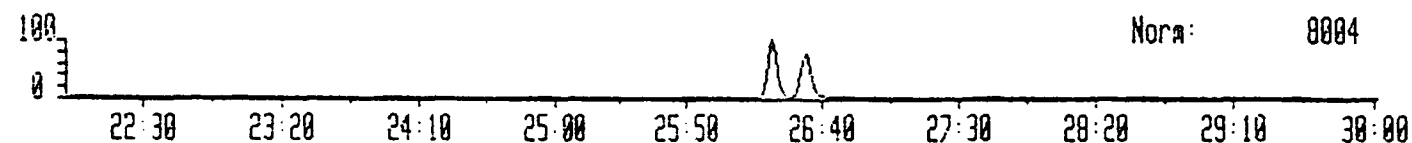
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Sample 1 Injection 1 Group 1 Mass 327.8847
Text: OPR HPLC WATER TLI#33523



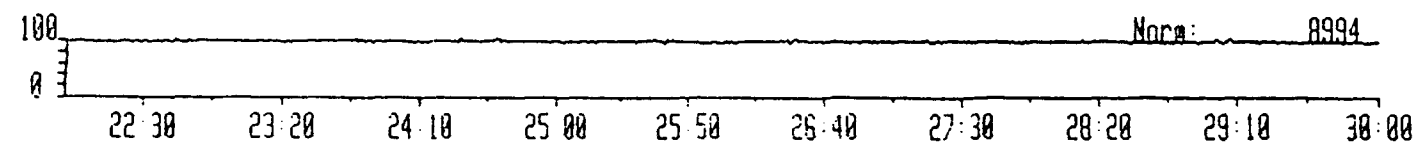
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Sample 1 Injection 1 Group 1 Mass 331.9368
Text: OPR HPLC WATER TLI#33523

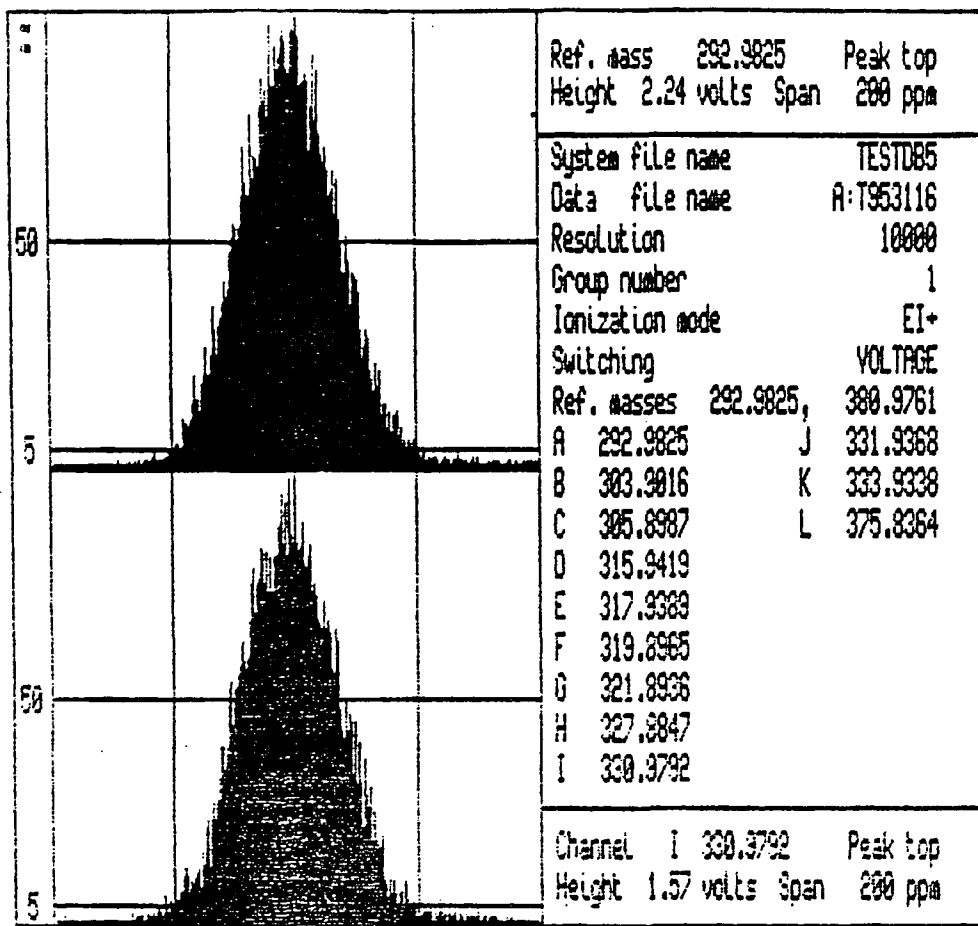


T953116 28-JUL-95 Sir Voltage 70-250S Sys: TEST085
Sample 1 Injection 1 Group 1 Mass 333.9338
Text: OPR HPLC WATER TLI#33523



T953116 28-JUL-95 Sir Voltage 70-250S Sys: TEST085
Sample 1 Injection 1 Group 1 Mass 338.9792
Text: OPR HPLC WATER TLI#33523





Inter-Mountain Laboratories, Inc.

TL-RTP Project: 33505

1613A TCDD Analysis (DB-5)

Client Sample: TLI HPLC Water Blank

Analysis File: T953117

Client Project:	n/a	Date Received:	/ /	Spike File:	SP161F2S
Sample Matrix:	AQUEOUS	Date Extracted:	07/27/95	ICAL:	TF59033
TLRTP ID:	TLI Blank	Date Analyzed:	07/28/95	CONCAL:	T953112
Sample Size:	1.000 L	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	T953117	% Lipid:	n/a
GC Column:	DB-5	Analyst:	RSL	% Solids:	n/a

Analytes	Conc. (pg/L)	DL	Ratio	RT	Flags
2,3,7,8-TCDD	ND	1.7			—

Internal Standard	Conc. (pg/L)	% Recovery	Ratio	RT	Flags
¹³ C ₁₂ -2,3,7,8-TCDD	1530	76.3	0.81	26:33	—

Surrogate Standard (Type C)	Conc. (pg/L)	% Recovery	Ratio	RT	Flags
³⁷ Cl ₄ -2,3,7,8-TCDD	148	73.8		26:34	—

Recovery Standard	Ratio	RT	Flags
¹³ C ₁₂ -1,2,3,4-TCDD	0.80	26:22	—

Data Reviewer: PCB 08/01/95

InitialDate...

B-File/Header Changes

PCB 8/01/95

Calculated Noise Area: 17.18

Manual Integrations

↓	↓
---	---

Channel: 320

Transcription

↓	↓
---	---

Initials: PCB

dBASE Corrections

↓	↓
---	---

Date: ~~4/8~~ 8/01/95

Page No. 1

Listing of T953117B.dbf

08/01/95

Matched GC Peaks / Ratio / Ret. Time

Compound/

M_Z... QC.Log Omit Why ..RT. OK Ratio Total.Area... Area.Peak.1.. Area.Peak.2.. Rel.RT Compound.Name.. ID..

		0.65-0.89				0.913-1.046			
TCDD									
320-322	DC WL 23:43 RO 6.65			59.72				0.893	
	DC SN 26:21 RO 1.63			33.54				0.992	
	DC WH 30:35		0.71	155.11				1.152	
	DC WH 31:16		0.73	137.57				1.178	
320-322	0 Peaks			0.00					
37Cl-TCDD								0.913-1.046	
328	DC SN 21:30			40.96				0.810	
	DC SN 22:57			26.90				0.864	
				26:34	4,345.04	4,345.04		1.001 37Cl-TCDD SUR1	
	DC SN 30:38			29.90				1.154	
328	1 Peak			4,345.04					
13C12-TCDD								0.925-1.075	
332-334	25:29	0.80		167.07	74.50	92.57	0.960		
	26:22	0.80		50,324.96	22,383.22	27,941.74	0.993	13C12-1234-TCDD RS1	
	26:33	0.81		42,120.92	18,842.65	23,278.27	1.000	13C12-2378-TCDD IS1	
	26:53 RO	0.93		686.62	331.01	355.61	1.013		
	DC WH 31:33	0.83		566.87				1.188	
332-334	4 Peaks			93,299.57					

Column Description..... "Why" Code Description..... QC Log Desc.....

M_Z	-Nominal Ion Mass(es)	WL-Below Retention Time Window	A-Peak Added
..RT.	-Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1	-Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK	-RO=Ratio Outside Limits	<M-Below Method Detection Limit	T-Time Changed
Rel.RT	-Relative Retention Time	NL-Channel Specific Noise Level	M-Peak Area Changed
			N-Name Changed
			E-Ether Interference

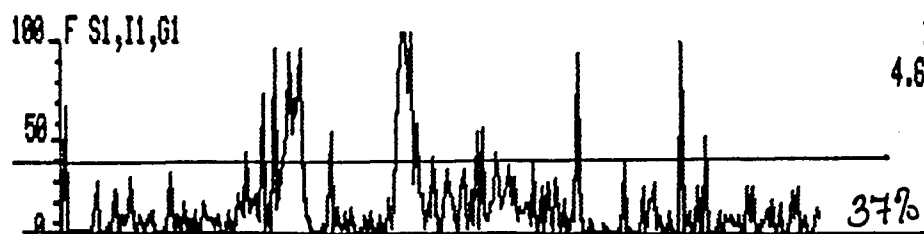
*** End of Report ***

Triangle Laboratories, Inc.

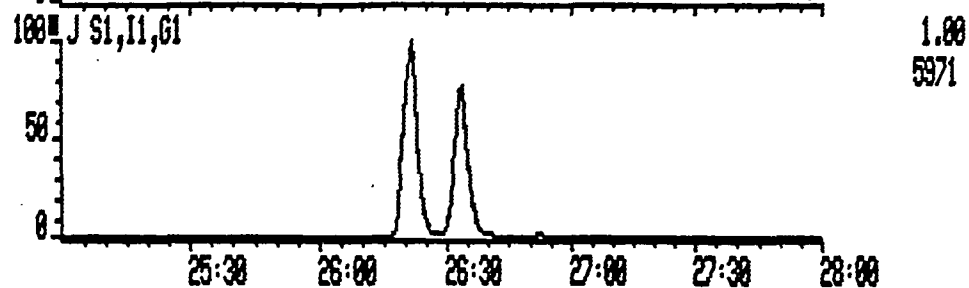
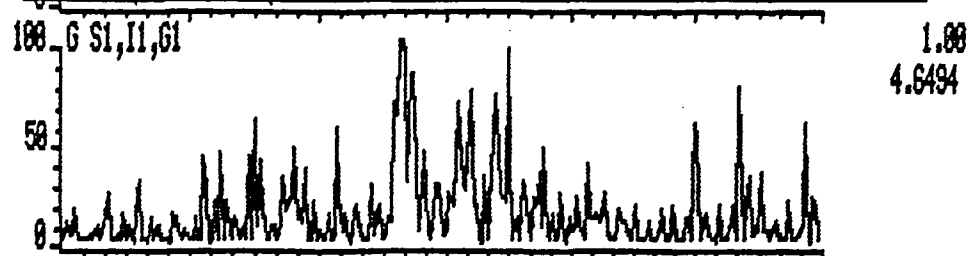
801 Capitola Drive • Durham, North Carolina 27713

Phone: (919) 544-5729 • Fax: (919) 544-5491

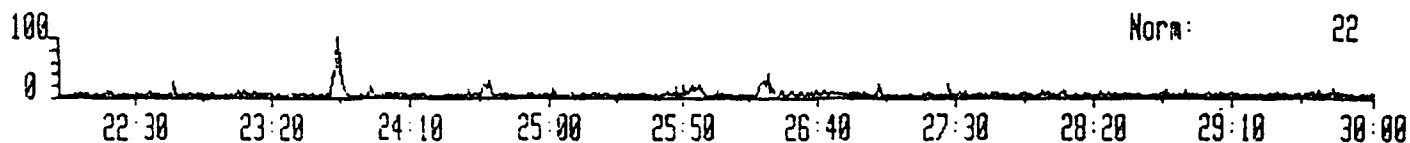
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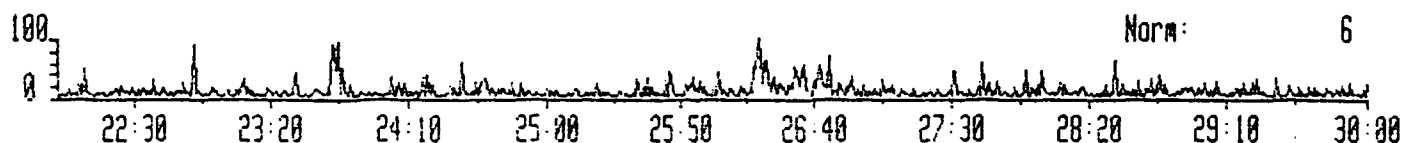
1.00
 $4.6435 \times 0.37 \times 10 = 17.18$
 8/01/95 RCB



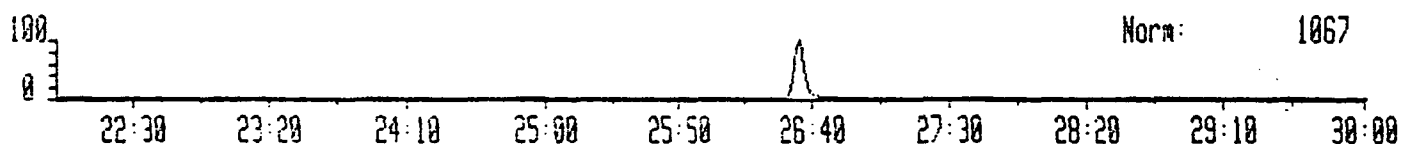
T953117 28-JUL-95 Sys: Voltage 70-250S Sys: TEST085
Sample 1 Injection 1 Group 1 Mass 319.8965
Text: TLI HPLC WATER BLANK TLI #33523



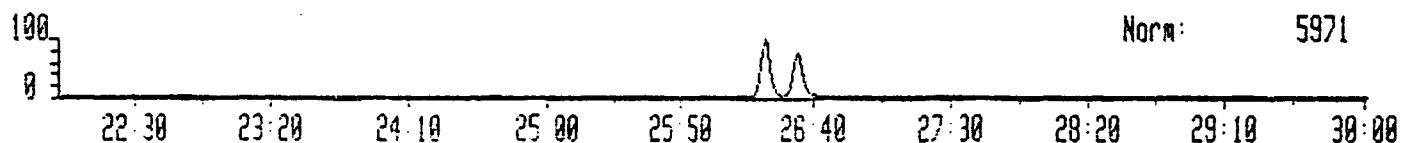
T953117 28-JUL-95 Sys: Voltage 70-250S Sys: TEST085
Sample 1 Injection 1 Group 1 Mass 321.8936
Text: TLI HPLC WATER BLANK TLI #33523



T953117 28-JUL-95 Sys: Voltage 70-250S Sys: TEST085
Sample 1 Injection 1 Group 1 Mass 327.8847
Text: TLI HPLC WATER BLANK TLI #33523



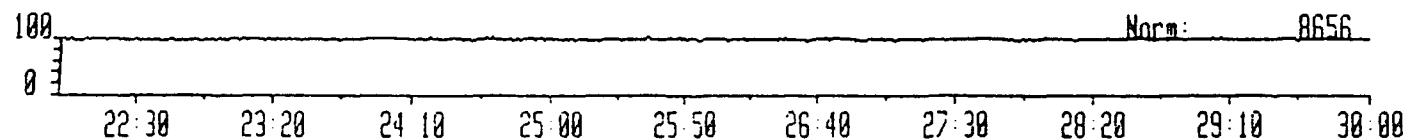
T953117 28-JUL-95 Sys: Voltage 70-250S Sys: TEST085
Sample 1 Injection 1 Group 1 Mass 331.9368
Text: TLI HPLC WATER BLANK TLI #33523

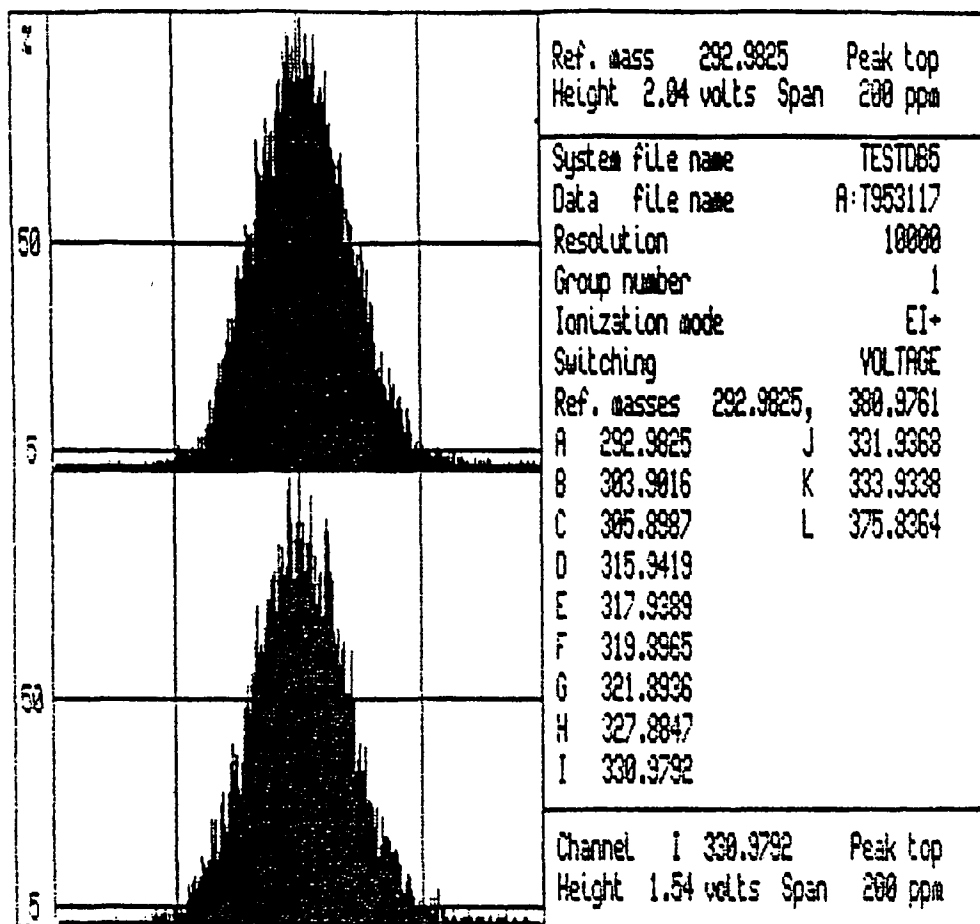


T953117 28-JUL-95 Sys: Voltage 70-250S Sys: TEST085
Sample 1 Injection 1 Group 1 Mass 333.9338
Text: TLI HPLC WATER BLANK TLI #33523



T953117 28-JUL-95 Sys: Voltage 70-250S Sys: TEST085
Sample 1 Injection 1 Group 1 Mass 338.9792
Text: TLI HPLC WATER BLANK TLI #33523





Inter-Mountain Laboratories, Inc.

TL-RTP Project: 33505

1613A TCDD Analysis (DB-5)

Client Sample: SMART RANCH B955618

Analysis File: T953121

Client Project:	n/a	Date Received:	07/22/95	Spike File:	SP161F2S
Sample Matrix:	AQUEOUS	Date Extracted:	07/27/95	ICAL:	TF59033
TLRTP ID:	103-176-1A	Date Analyzed:	07/28/95	CONCAL:	T953112
Sample Size:	1.000 L	Dilution Factor:	n/a	% Moisture:	100.0
Dry Weight:	n/a	Blank File:	T953117	% Lipid:	n/a
GC Column:	DB-5	Analyst:	VCA	% Solids:	0.0

Analytes	Conc. (pg/L)	DL	Ratio	RT	Flags
2,3,7,8-TCDD	ND	1.5			—

Internal Standard	Conc. (pg/L)	% Recovery	Ratio	RT	Flags
¹³ C ₁₂ -2,3,7,8-TCDD	1640	81.8	0.79	26:34	—

Surrogate Standard (Type C)	Conc. (pg/L)	% Recovery	Ratio	RT	Flags
³⁷ Cl ₄ -2,3,7,8-TCDD	152	76.0		26:35	—

Recovery Standard	Ratio	RT	Flags
¹³ C ₁₂ -1,2,3,4-TCDD	0.79	26:22	—

Data Reviewer: PCB 08/01/95

InitialDate...
 B-File/Header Changes PCB 8/01/95 Calculated Noise Area: 15.71
 Manual Integrations ↓ ↓ Channel: 320
 Transcription ↓ ↓ Initials: PCB
 dBASE Corrections ↓ ↓ Date: 8/01/95

Page No. 1 Listing of T953121B.dbf
 08/01/95 Matched GC Peaks / Ratio / Ret. Time

Compound/

M_Z.... QC.Log Omit Why ..RT. OK Ratio Total.Area... Area.Peak.1.. Area.Peak.2.. Rel.RT Compound.Name.. ID..

TCDD		0.65-0.89		0.913-1.046	
320-322	DC WL 23:44 RO 2.55	99.16		0.893	
	DC SN 24:37 RO 1.70	27.47		0.927	
	DC SN 26:20 RO 0.41	34.60		0.991	
	DC WH 30:35 RO 0.61	107.85		1.151	
	DC SN 30:37 RO 0.45	22.43		1.152	
	DC WH 31:15 RO 0.63	143.67		1.176	
320-322	0 Peaks	0.00			
37C1-TCDD		0.913-1.046			
328	DC WL 21:30	70.53		0.809	
	DC SN 21:43	25.36		0.817	
	DC WL 22:57	65.28		0.864	
	DC WL 24:03	55.10		0.905	
	26:35	4,129.76	4,129.76	1.001	37C1-TCDD SUR1
	DC WH 30:39	95.09		1.154	
328	1 Peak	4,129.76			
13C12-TCDD		0.925-1.075			
332-334	25:29 RO 0.90	163.72	77.54	86.18	0.959
	26:22 0.79	46,423.66	20,516.73	25,906.93	0.992 13C12-1234-TCDD RS1
	26:34 0.79	41,672.76	18,428.46	23,244.30	1.000 13C12-2378-TCDD IS1
	26:53 0.81	671.87	301.24	370.63	1.012
	DC WH 31:31 0.84	603.97		1.186	
332-334	4 Peaks	88,932.01			

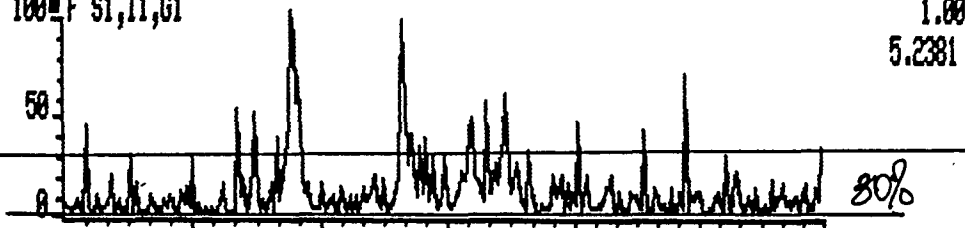
Column Description..... "Why" Code Description..... QC Log Desc.....

M_Z -Nominal Ion Mass(es) WL-Below Retention Time Window A-Peak Added
 ..RT. -Retention Time (mm:ss) WH-Above Retention Time Window K-Peak Kept
 Rat.1 -Ratio of M/M+2 Ions SN-Below Signal to Noise Level D-Peak Deleted
 OK -RO=Ratio Outside Limits <M-Below Method Detection Limit T-Time Changed
 Rel.RT-Relative Retention Time NL-Channel Specific Noise Level M-Peak Area Changed
 N-Name Changed
 E-Ether Interference

*** End of Report ***

T953121 28-JUL-95 15:17 70-2506 (EI+) Sys:TEST065
GR 1 F: 319.8965 G: 321.8936 H: 327.8847 I: 330.9792 J: 331.9368
Text: SMART RANCH B955618 TLI #33505

100 F S1,I1,G1



$$5.2381 \times 0.30 \times 10 = 15.71$$

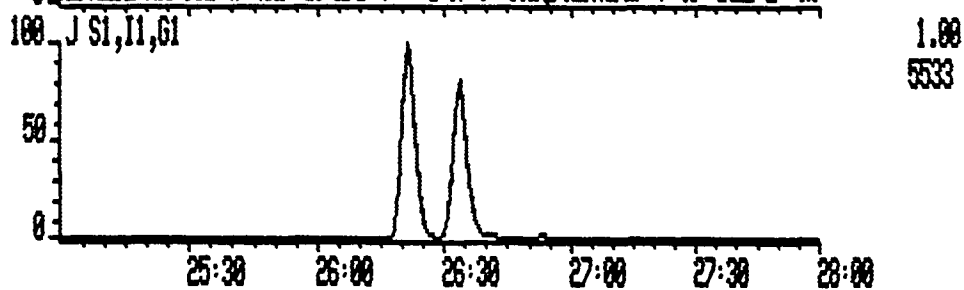
8/01/95 PCB

100 G S1,I1,G1



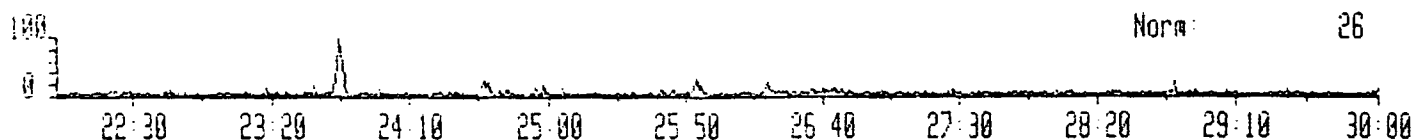
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100 J S1,I1,G1

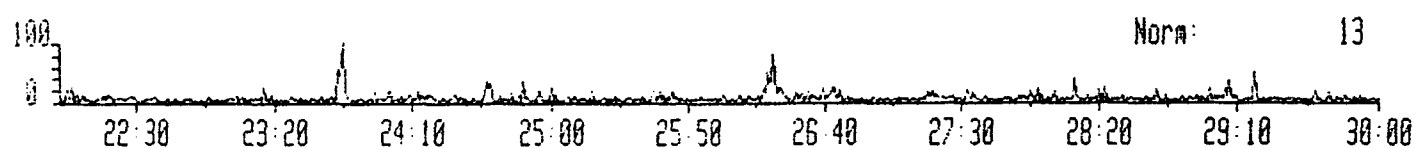


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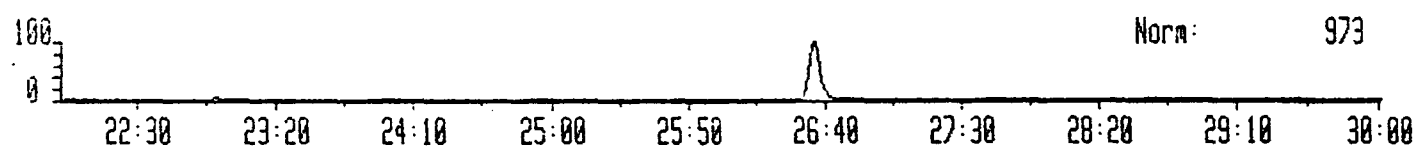
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Sample 1 Injection 1 Group 1 Mass 319.9965
Text SMART RANCH 8955618 TLI #33505



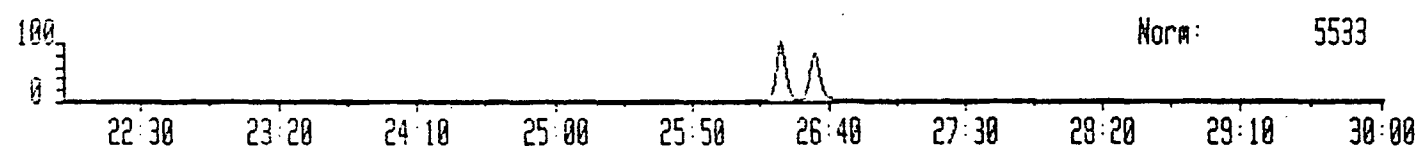
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Sample 1 Injection 1 Group 1 Mass 321.9936
Text SMART RANCH 8955618 TLI #33505



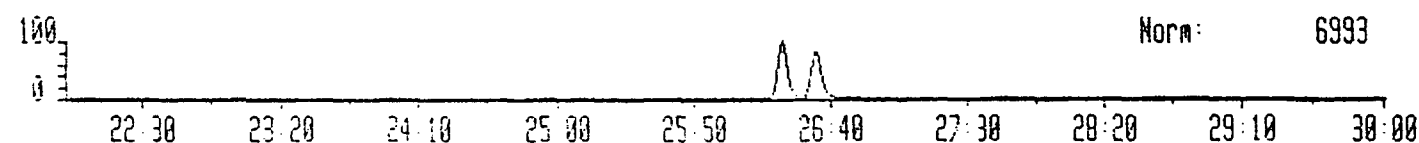
T953121 28-JUL-95 Sir Voltage 70-250S Sys TEST085
Sample 1 Injection 1 Group 1 Mass 327.8847
Text SMART RANCH 8955618 TLI #33505



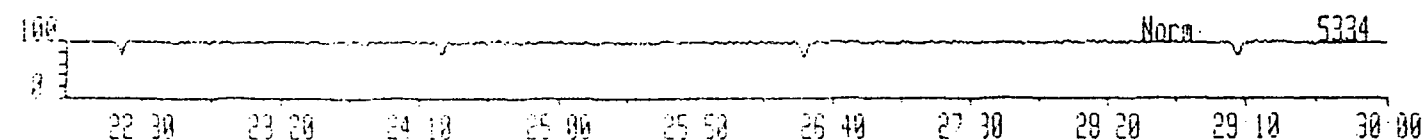
T953121 28-JUL-95 Sir Voltage 70-250S Sys TEST085
Sample 1 Injection 1 Group 1 Mass 331.9368
Text SMART RANCH 8955618 TLI #33505

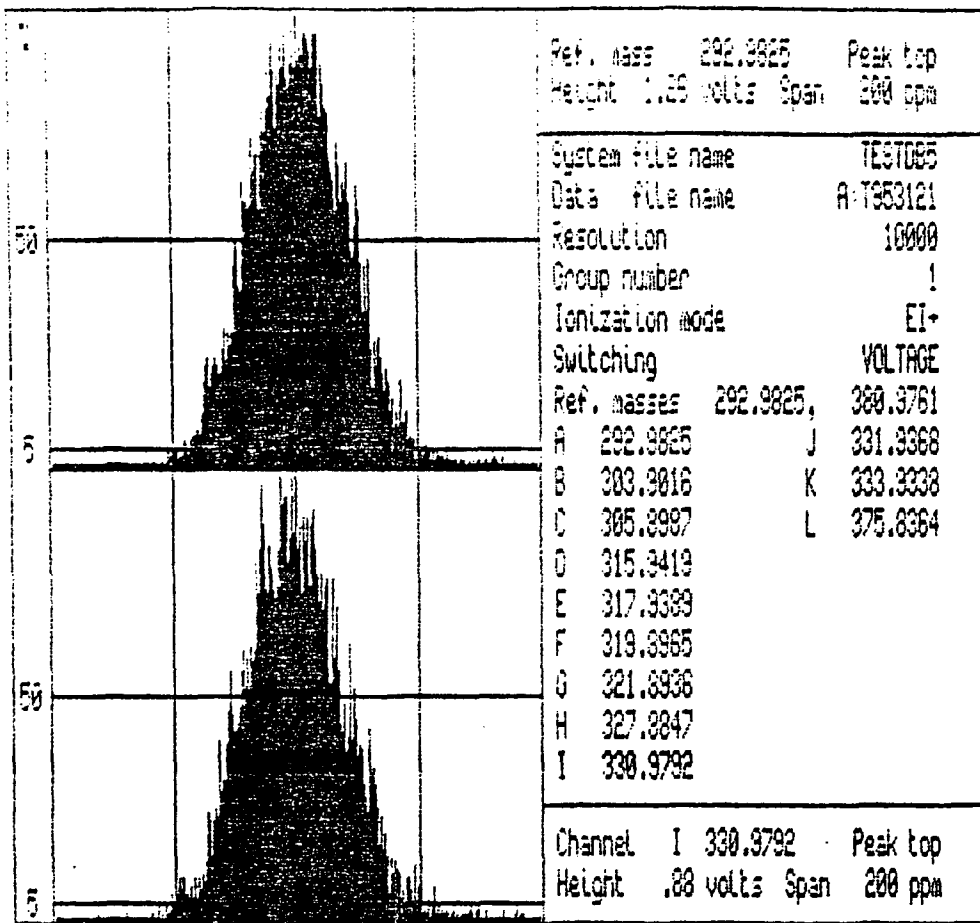


T953121 28-JUL-95 Sir Voltage 70-250S Sys TEST085
Sample 1 Injection 1 Group 1 Mass 333.9338
Text SMART RANCH 8955618 TLI #33505



T953121 28-JUL-95 Sir Voltage 70-250S Sys TEST085
Sample 1 Injection 1 Group 1 Mass 330.9792
Text SMART RANCH 8955618 TLI #33505





Inter-Mountain Laboratories, Inc.

TL-RTP Project: 33505

1613A TCDD Analysis (DB-5)

Client Sample: WASHINGTON RANCH B955619

Analysis File: T953122

Client Project:	n/a	Date Received:	07/22/95	Spike File:	SP161F2S
Sample Matrix:	AQUEOUS	Date Extracted:	07/27/95	ICAL:	TF59033
TLRTP ID:	103-176-2A	Date Analyzed:	07/28/95	CONCAL:	T953112
Sample Size:	1.000 L	Dilution Factor:	n/a	% Moisture:	100.0
Dry Weight:	n/a	Blank File:	T953117	% Lipid:	n/a
GC Column:	DB-5	Analyst:	VCA	% Solids:	0.0

Analytes	Conc. (pg/L)	DL	Ratio	RT	Flags
2,3,7,8-TCDD	ND	2.1			—

Internal Standard	Conc. (pg/L)	% Recovery	Ratio	RT	Flags
¹³ C ₁₂ -2,3,7,8-TCDD	1390	69.3	0.83	26:35	—

Surrogate Standard (Type C)	Conc. (pg/L)	% Recovery	Ratio	RT	Flags
³⁷ Cl ₄ -2,3,7,8-TCDD	147	73.7		26:35	—

Recovery Standard	Ratio	RT	Flags
¹³ C ₁₂ -1,2,3,4-TCDD	0.81	26:22	—

Data Reviewer: PCB 08/01/95

InitialDate...

B-File/Header Changes

PCB 8/01/95

Calculated Noise Area: 20.66

Manual Integrations

↓	↓
↓	↓
↓	↓

Channel: 320

Transcription

Initials: PCB

dBASE Corrections

Date: 8/01/95

Page No. 1

Listing of T953122B.dbf

08/01/95

Matched GC Peaks / Ratio / Ret. Time

Compound/

M_Z.... QC.Log Omit Why ..RT. OK Ratio Total.Area... Area.Peak.1.. Area.Peak.2.. Rel.RT Compound.Name.. ID..

TCDD 0.65-0.89 0.913-1.046

320-322	DC	WL	23:44	RO	3.04	99.53	0.893
	DC	SN	24:37	RO	1.56	38.87	0.926
	DC	SN	26:22	RO	2.59	27.85	0.992
	DC	SN	30:06	RO	2.13	22.72	1.132
	DC	WH	30:35		0.74	69.53	1.150
	DC	SN	30:38	RO	0.43	23.20	1.152
	DC	WH	31:16	RO	0.57	174.60	1.176
	DC	SN	31:27	RO	0.38	23.12	1.183
	DC	WH	31:51	RO	3.33	62.06	1.198
320-322	0 Peaks					0.00	

37Cl-TCDD

0.913-1.046

328	DC	SN	21:18		40.09	0.801
	DC	WL	21:31		327.03	0.809
	DC	WL	21:44		88.72	0.818
	DC	SN	22:22		44.57	0.841
	DC	WL	22:34		120.99	0.849
	DC	SN	22:45		43.46	0.856
	DC	WL	22:58		352.84	0.864
	DC	WL	24:03		272.68	0.905
			25:17		108.95	0.951
			26:35		4,540.25	1.000
	DC	WH	30:06		55.37	1.132
	DC	WH	30:39		108.42	1.153
328	2 Peaks					4,649.20

13C12-TCDD

0.65-0.89

0.925-1.075

332-334		25:30	RO	0.62	203.34	78.03	125.31	0.959
		26:22		0.81	52,634.29	23,571.13	29,063.16	0.992
		26:35		0.83	39,998.91	18,180.78	21,818.13	1.000
		26:53	RO	1.20	578.55	315.20	263.35	1.011
	DC	WH	31:31	0.84	558.30			1.186
	DC	WH	31:37	RO	1.08	67.95		1.189
332-334	4 Peaks					93,415.09		

Page No. 2
08/01/95

Listing of T953122B.dbf
Matched GC Peaks / Ratio / Ret. Time

Compound/

M_Z.... QC.Log Omit Why ..RT. OK Ratio Total.Area... Area.Peak.1.. Area.Peak.2.. Rel.RT Compound.Name.. ID..

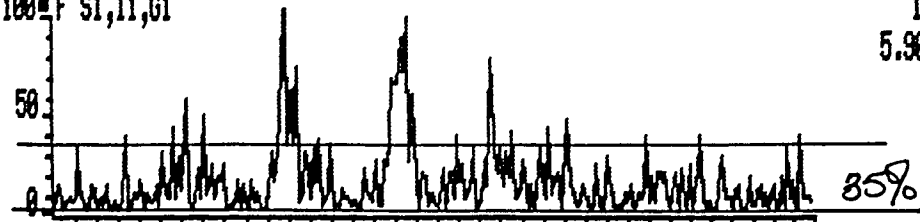
Column Description..... *Why* Code Description..... QC Log Desc.....

M_Z	-Nominal Ion Mass(es)	WL-Below Retention Time Window	A-Peak Added
..RT.	-Retention Time (mm:ss)	WH-Above Retention Time Window	K-Peak Kept
Rat.1	-Ratio of M/M+2 Ions	SN-Below Signal to Noise Level	D-Peak Deleted
OK	-RO=Ratio Outside Limits	<M-Below Method Detection Limit	T-Time Changed
Rel.RT	-Relative Retention Time	NL-Channel Specific Noise Level	M-Peak Area Changed
			N-Name Changed
			E-Ether Interference

*** End of Report ***

1953122 28-JUL-95 15:58 70-250S (EI+) Sus: TEST085
R 1 F: 319.8965 G: 321.8936 H: 327.8847 I: 330.9792 J: 331.9368
Text: WASHINGTON RANCH B955619 TLI #33505

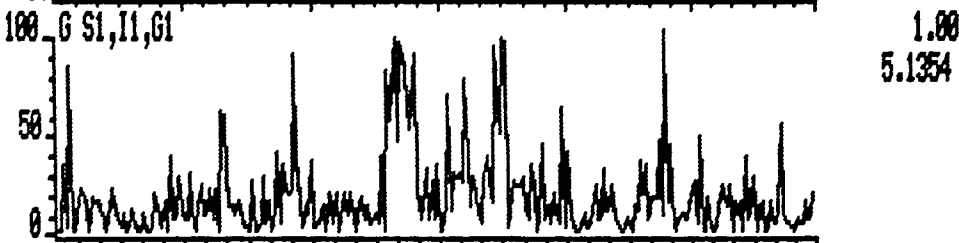
100 F S1,I1,G1



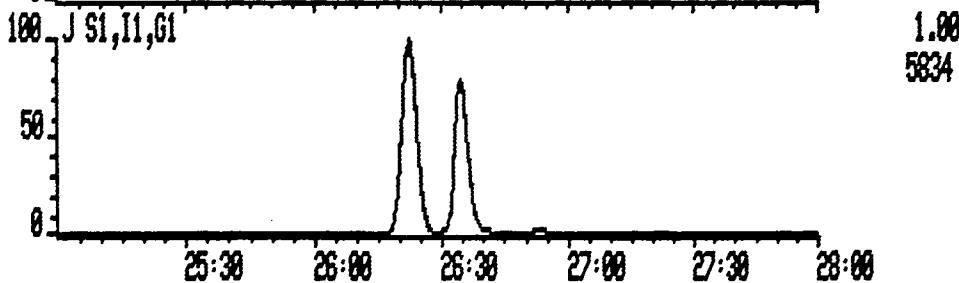
1.00
5.9826 $\times 0.35 \times 10 = 20.66$

8/01/95 PCB

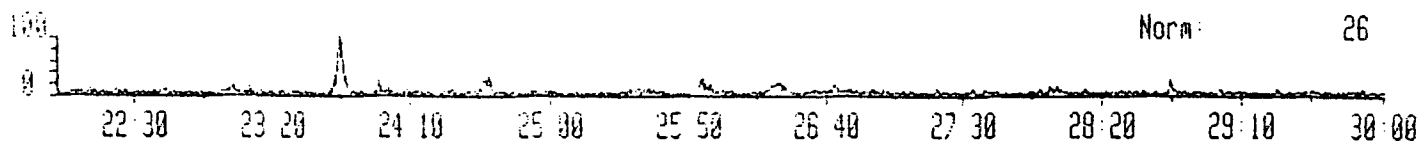
100 G S1,I1,G1



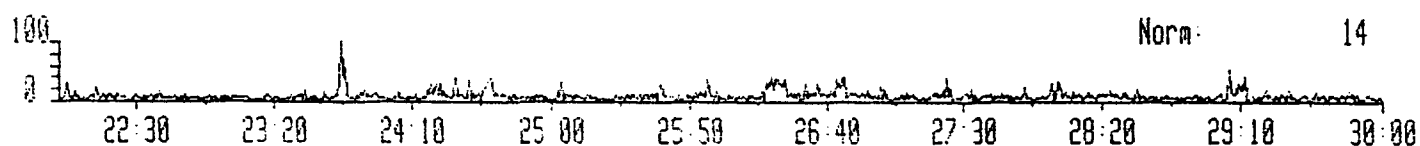
100 J S1,I1,G1



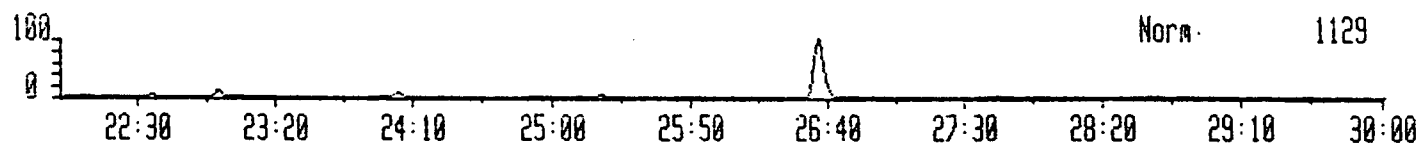
T953122 28-JUL-95 Sir:Voltage 70-250S Sys: TEST085
Sample 1 Injection 1 Group 1 Mass 319.8965
Text:WASHINGTON RANCH 8955619 TLI #33505



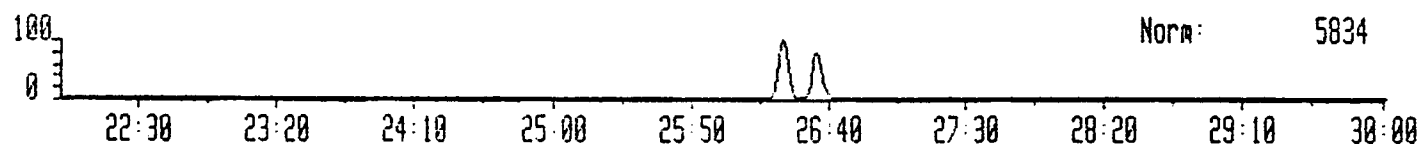
T953122 28-JUL-95 Sir:Voltage 70-250S Sys: TEST085
Sample 1 Injection 1 Group 1 Mass 321.8936
Text:WASHINGTON RANCH 8955619 TLI #33505



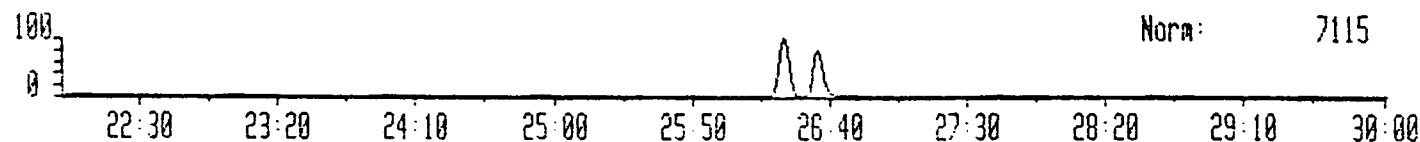
T953122 28-JUL-95 Sir:Voltage 70-250S Sys: TEST085
Sample 1 Injection 1 Group 1 Mass 327.8847
Text:WASHINGTON RANCH 8955619 TLI #33505



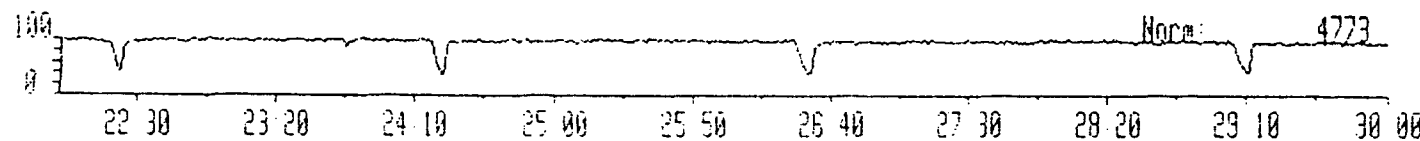
T953122 28-JUL-95 Sir:Voltage 70-250S Sys: TEST085
Sample 1 Injection 1 Group 1 Mass 331.9368
Text:WASHINGTON RANCH 8955619 TLI #33505

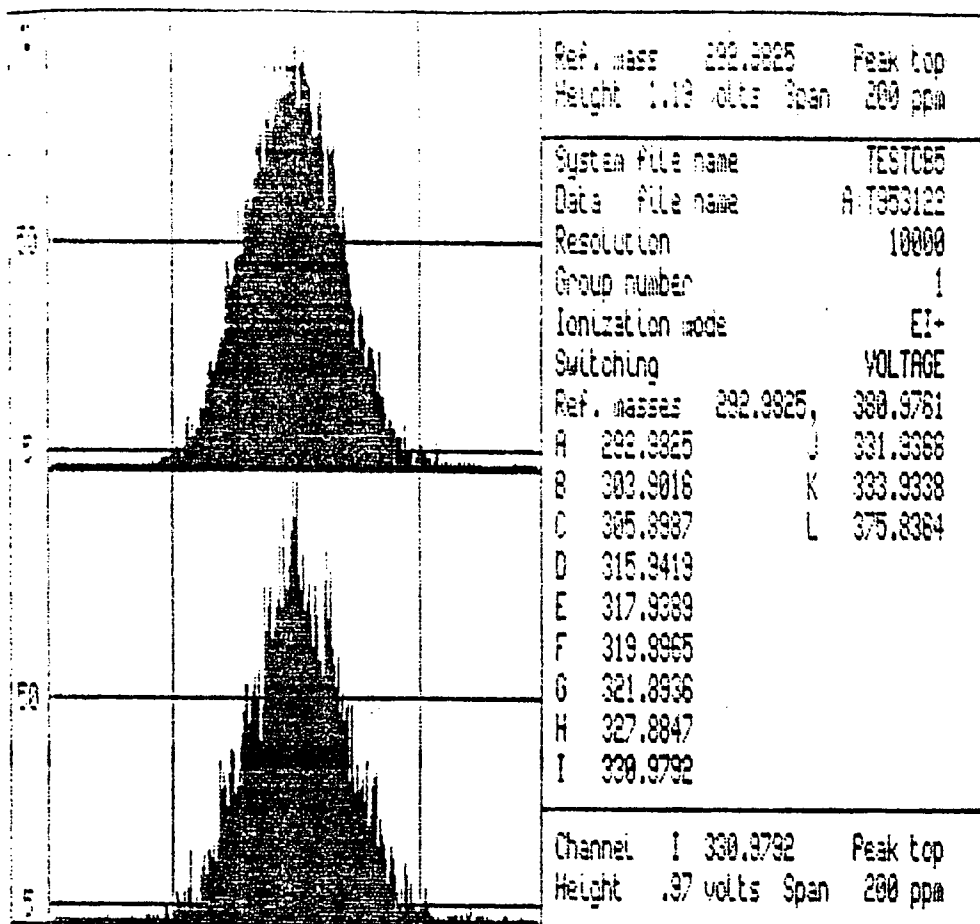


T953122 28-JUL-95 Sir:Voltage 70-250S Sys: TEST085
Sample 1 Injection 1 Group 1 Mass 333.9338
Text:WASHINGTON RANCH 8955619 TLI #33505



T953122 28-JUL-95 Sir:Voltage 70-250S Sys: TEST085
Sample 1 Injection 1 Group 1 Mass 330.9792
Text:WASHINGTON RANCH 8955619 TLI #33505





TRIANGLE LABORATORIES OF RTP, INC.

CALIBRATION DATA

PROPRIETARY INFORMATION

Date: 07/27/95

TRIANGLE LABORATORIES, INC.

Continuing Calibration for T953112

Analysis Date.....: 07/27/95

Method.....: 161F

Operator.....: GM

Instrument...: T

Init Calibration.: TF59033

Std.Conc.....: 10.00

ICal Date.....: 09/03/93

GC Column....: DB-5

Analysis Time.....: 08:49

GC Column ID: 5655513

Analyte Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
2378-TCDF	1.055	0.72	23:20 27:48	25:53	1.0000	1.054	0.001	0.1%
TOTAL TCDF	1.055	0.72				1.054	0.001	0.1%
2378-TCDD	1.160	0.77	24:14 27:45	26:33	1.0006	1.232	-0.072	-5.9%
TOTAL TCDD	1.160	0.77				1.232	-0.072	-5.9%

Other Standard Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
37Cl-TCDD	1.006		24:14 27:45	26:33	1.0006	1.067	-0.061	-5.7%

Internal Standard Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
13C12-2378-TCDF	1.550	0.73	25:43 26:03	25:53	1.0000	1.843	-0.293	-15.9%
13C12-2378-TCDD	1.111	0.80	24:32 28:32	26:32	1.0000	1.097	0.014	1.3%

Recovery Standard Summary

Name	RF	Ratio 1&2	RT Lo/High	RT	Rel. RT	ICal RF	Delta RF	%D
13C12-1234-TCDD	1.000	0.80		26:20	0.9925	1.000	0.000	0.0%

Initial Calibration Summary for TF59033

Analysis Date.....: 09/03/93

Method.....: 161F

Instrument.....: T

GC Column....: DB-5

GC Column ID: 3129411

Analytes	RF	SD	%RSD	RT	RT/LO	RT/HI	Ratio1	Ratio2	N
2378-TCDF	1.054	0.018	2%	27:02	20:02	31:02	0.758		5
TOTAL TCDF	1.054	0.018	2%				0.758		5
2378-TCDD	1.232	0.043	3%	27:48	23:47	31:47	0.795		5
TOTAL TCDD	1.232	0.043	3%				0.795		5

Other Standards	RF	SD	%RSD	RT	RT/LO	RT/HI	Ratio1	Ratio2	N
37C1-TCDD	1.067	0.047	4%	27:48	25:34	29:34			5

Internal Standards	RF	SD	%RSD	RT	RT/LO	RT/HI	Ratio1	Ratio2	N
13C12-2378-TCDF	1.843	0.175	9%	27:02	26:02	28:02	0.767		5
13C12-2378-TCDD	1.097	0.130	12%	27:47	25:47	29:47	0.820		5

Recovery Standards	RF	SD	%RSD	RT	RT/LO	RT/HI	Ratio1	Ratio2	N
13C12-1234-TCDD	1.000	0.000	0%	27:34			0.819		5

*** End of Report ***

July 25, 1995

INTER-MOUNTAIN LABORATORIES
1160 Research Drive
Bozeman, MT 59715

Attn: Wynn Sudtelgte

JOB NO. 29897

S

WCAS

**WEST COAST
ANALYTICAL
SERVICE, INC.**

ANALYTICAL CHEMISTS

LABORATORY REPORT

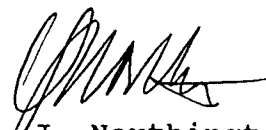
Samples Received: Two (2) Waters in Duplicate
Date Received: 7-21-95
Purchase Order No: Lab No's: B955618 & B955619

The samples were analyzed as follows:

<u>Samples Analyzed</u>	<u>Analysis</u>	<u>Page</u>
Two (2) samples	Methane by GC/FID (Headspace)	2

Page 1 of 2


Michael Shelton
Technical Director


D.J. Northington, Ph.D.
President

This report is to be reproduced in its entirety.

WEST COAST ANALYTICAL SERVICE, INC.

INTER-MOUNTAIN LABORATORIES
Ms. Wynn Sudtelgte

Job # 29897
July 25, 1995

LABORATORY REPORT

Methane by GC/FID (Headspace)

Sample ID Parts Per Million (mg/l)

Smart Ranch ND
Washington Ranch ND
Washington Ranch (Dup) ND

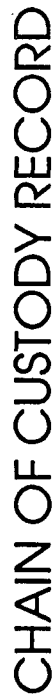
Detection Limit 0.001

Date Analyzed: 7-24-95

Matrix Spike Recovery Summary

Sample: Washington Ranch	Matrix: LIQUID
Date	Date
Analyzed: 07/24/95	Extracted: 07/24/95, HEADSPACE
	Units: PPM (MG/L)

Analyte	Sample Result	Amount Spiked	MS Result	% Rec MS
Methane	ND	0.164	0.173	105



CHAIN OF CUSTODY RECORD

Inter-Mountain Laboratories, Inc.

B

**EPNG
Wahington Ranch
Storage Project**

**Well Water Analysis
Smart Family
EPNG Split Sample
July 19, 1995**

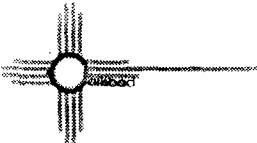
SAMPLE KEY

SAMPLE NUMBER: S95-0390 LOCATION: WASHINGTON RANCH
MATRIX: WATER
SAMPLE DESCRIPTION: G. SMART- WATER WELL
S D CONTINUED:
S D CONTINUED:
SAMPLE TIME: 12:15 SAMPLE DATE: 07/19/95

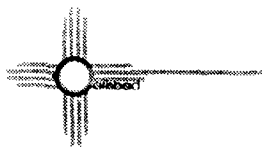
SAMPLE KEY

SAMPLE NUMBER: S95-0391 LOCATION: WASHINGTON RANCH
MATRIX: WATER
SAMPLE DESCRIPTION: WATER WELL #1
S D CONTINUED:
S D CONTINUED:
SAMPLE TIME: 13:45 SAMPLE DATE: 07/19/95

MICROBIOLOGICAL WATER REPORT

 CITY OF CARLSBAD WATER & WASTEWATER LABORATORY P.O. Box 1569 Carlsbad, NM 88220		Lab. No. <u>AA</u>		Bottle No. <u>595-0390</u>		
		Date Received		Time Received		
		Mo.	Day	Year		
		0	7	1	9	9
				15 : 27 ☐ AM ☒ PM		
SAMPLE IDENTIFICATION				LABORATORY TEST RESULTS		
Water Supply System Name		County		Type of Test MF ☒		
WSS Code No.						
COLLECTION INFORMATION				Total Coliforms per 100 ml: Present ☐ Absent ☒ Fecal Coliforms per 100 ml: Present ☐ Absent ☒		
Date Collected		Time Collected				Collected By
Mo.	Day	Year				
0	7	1	9	9	5	
		12 : 15 ☐ AM ☒ PM		<u>D. Campbell</u>		
Collection Location						
<u>G. Smart Well 595-0390</u>						
TYPE OF SYSTEM				INVALID SAMPLE		
Check One: ☐ Community ☐ Non-Community ☒ Private Well Ice ☐ Yes ☐ No _____ ☐ Disinfected? ☐ Yes ☒ No Residual: _____ mg/L				If one of the following is checked, resample. ☐ TNTC Non-Coliforms ☐ Confluent Growth ☐ Turbid Culture		
TESTING REQUIRED				REJECTED SAMPLE		
Check One: ☒ Total Coliforms - MF ☐ Other _____				If one of the following is checked, please resample. ☐ Sample is too old. Not received within _____ hours of collection. ☐ Temperature violation (above 10° C). ☐ Form incomplete. See circled item. ☐ Date discrepancy. ☐ Leaking sample. ☐ Quantity insufficient for testing. ☐ Quantity too great to permit agitation. ☐ Other _____		
REASON FOR SAMPLING						
Check One: ☒ Routine Sample ☐ Special Sample ☐ Repeat Sample ☐ Monitoring Sample						
Send Report to the following (Names and Addresses): <u>Darrell Campbell</u> <u>El Paso Natural Gas Co.</u> <u>8645 Railroad Dr</u> <u>El Paso, TX 79904</u> <u>915-759-2228</u>						
				Analyst <u><i>Arthur J. Long</i></u> Date Reported <u>7-20-95</u>		

MICROBIOLOGICAL WATER REPORT



CITY OF CARLSBAD
WATER & WASTEWATER LABORATORY
 P.O. Box 1569
 Carlsbad, NM 88220

Lab. No. <u>BB</u>			Bottle No. <u>S95-0391</u>		
Date Received			Time Received		
Mo.	Day	Year			
0	7	1995	15:27 ☒ AM ☒ PM		

SAMPLE IDENTIFICATION	
Water Supply System Name	County
WSS Code No.	

LABORATORY TEST RESULTS	
Total Coliforms per 100 ml: Present ☐ Absent ☒	Type of Test MF ☒
Fecal Coliforms per 100 ml: Present ☐ Absent ☒	

COLLECTION INFORMATION			
Date Collected		Time Collected	Collected By
Mo.	Day	Year	
0	7	1995	1345: ☐ AM ☐ PM <u>Campbell</u>
Collection Location <u>EPNH #1</u>			

TYPE OF SYSTEM	
Check One: ☐ Community ☐ Non-Community ☒ Private Well Ice ☐ Yes ☐ No _____ ☐ Disinfected? ☐ Yes ☒ No Residual: _____ mg/L	

INVALID SAMPLE
If one of the following is checked, resample. ☐ TNTC Non-Coliforms ☐ Confluent Growth ☐ Turbid Culture

TESTING REQUIRED
Check One: ☒ Total Coliforms - MF ☐ Other _____

REJECTED SAMPLE
If one of the following is checked, please resample. ☐ Sample is too old. Not received within _____ hours of collection. ☐ Temperature violation (above 10° C). ☐ Form incomplete. See circled item. ☐ Date discrepancy. ☐ Leaking sample. ☐ Quantity insufficient for testing. ☐ Quantity too great to permit agitation. ☐ Other _____

REASON FOR SAMPLING
Check One: ☒ Routine Sample ☐ Special Sample ☐ Repeat Sample ☐ Monitoring Sample

Send Report to the following (Names and Addresses):

DARRELL Campbell
 8645 Railroad Dr.
 El Paso, TX. 79904
 (915) 759-2228

Analyst <u>Arthur J. Sma</u> Date Reported <u>7-20-95</u>
--

G. SMART / EPNG SPLIT SAMPLE RESULTS

PARAMETER	NEW MEXICO REGULATORY LIMIT	SMART IML	EPNG IM	SMART PHILIP	EPNG PHILIP	UNITS
MICROBIOLOGICAL						
Total Coliform	1	ND	ND	ND	ND	col/100ml
INORGANIC CHEMICALS						
Antimony	0.006	ND	ND	ND	ND	mg/l
Arsenic	0.05	ND	ND	ND	ND	mg/l
Barium	2	ND	ND	0.095	0.11	mg/l
Beryllium	0.004	ND	ND	ND	ND	mg/l
Cadmium	0.005	ND	ND	ND	ND	mg/l
Chromium	0.1	ND	ND	ND	ND	mg/l
Cyanide	0.2	ND	ND	ND	ND	mg/l
Fluoride	4	ND	0.24	0.2	0.2	mg/l
Mercury	0.002	ND	ND	ND	ND	mg/l
Nickel	0.1	ND	ND	ND	ND	mg/l
Nitrate	10	2.5	1.1	2.2	0.81	mg/l
Nitrite	1			ND	ND	mg/l
Selenium	0.05	ND	ND	ND	ND	mg/l
Thallium	0.002	ND	ND	ND	ND	mg/l
ANIONS & CATIONS						
Alkalinity - P		0	0	0	0	mg/l
Alkalinity - T		230	220	200	220	mg/l
Boron		0.02	ND	0.06	0.06	mg/l
Bromide		ND	ND	0.16	ND	mg/l
Calcium		84	75	69	65	mg/l
Chloride	[250]	16	ND	22	3	mg/l
Copper	[1]	ND	ND	ND	ND	mg/l
Iron	[1]	ND	ND	ND	ND	mg/l
Lead		ND	ND	ND	ND	mg/l
Magnesium		29	24	30	26	mg/l
Manganese	[0.2]	ND	ND	ND	ND	mg/l
pH	[6-9]	7.5	7.5	7.38	7.37	
Potassium		1	1	1.2	0.83	mg/l
Silica		6.2	5.9	12	12	mg/l
Sodium		9	4	10	4.3	mg/l
Specific Conductance		560	450	590	490	umhos/cm
Sulfate	[600]	61	35	70	38	mg/l
Sulfide		ND	ND	ND	ND	mg/l
Total Dissolved Solids	[1000]	390	330	370	290	mg/l
Total Hardness		330	290	290	260	mg/l
Zinc	[10]	ND	ND	ND	ND	mg/l
METHANE						
		ND	ND	ND	ND	mg/l
TOTAL TRIHALOMETHANES						
	0.1	ND	ND	Broken	Broken	mg/l
VOLATILE ORGANIC COMPOUNDS						
1,1,1-Trichloroethane	0.2	ND	ND	Broken	Broken	mg/l
1,1,2-Trichloroethane	0.005	ND	ND	Broken	Broken	mg/l
1,1-Dichloroethylene	0.007	ND	ND	Broken	Broken	mg/l
1,2,4-Trichlorobenzene	0.07	ND	ND	Broken	Broken	mg/l
1,2-Dichloroethane	0.005	ND	ND	Broken	Broken	mg/l

Samples Taken 7/19/95

G. SMART / EPNG SPLIT SAMPLE RESULTS

PARAMETER	NEW MEXICO REGULATORY LIMIT	SMART IML	EPNG IML	SMART PHILIP	EPNG PHILIP	UNITS
1,2-Dichloropropane	0.005	ND	ND	Broken	Broken	mg/l
Benzene	0.005	ND	ND	Broken	Broken	mg/l
Carbon Tetrachloride	0.005	ND	ND	Broken	Broken	mg/l
cis-1,2-Dichloroethylene	0.07	ND	ND	Broken	Broken	mg/l
Dichloromethane	0.005	ND	ND	Broken	Broken	mg/l
Ethylbenzene	0.7	ND	ND	Broken	Broken	mg/l
Monochlorobenzene	0.1	ND	ND	Broken	Broken	mg/l
o-Dichlorobenzene	0.6	ND	ND	Broken	Broken	mg/l
p-Dichlorobenzene	0.075	ND	ND	Broken	Broken	mg/l
Styrene	0.1	ND	ND	Broken	Broken	mg/l
Tetrachloroethylene	0.005	ND	ND	Broken	Broken	mg/l
Toluene	1	ND	ND	Broken	Broken	mg/l
Total Xylenes	10	ND	ND	Broken	Broken	mg/l
trans-1,2-Dichloroethylene	0.1	ND	ND	Broken	Broken	mg/l
Trichloroethylene	0.005	ND	ND	Broken	Broken	mg/l
Vinyl Chloride	0.002	ND	ND	Broken	Broken	mg/l
ORGANIC COMPOUNDS						
2,3,7,8-TCDD (Dioxin)	0.00003	ND	ND	ND	ND	pg/l
2,4,5-TP	0.05	ND	ND	ND	ND	mg/l
2,4-D	0.07	ND	ND	ND	ND	mg/l
Aidicarb	0.001	ND	ND	ND	ND	mg/l
Aidicarb sulfone	0.002	ND	ND	ND	ND	mg/l
Aidicarb sulfoxide	0.002	ND	ND	ND	ND	mg/l
Alachlor	0.002	ND	ND	ND	ND	mg/l
Atrazine	0.003	ND	ND	ND	ND	mg/l
Benzo[a]pyrene	0.0002	ND	ND	ND	ND	mg/l
Carbofuran	0.04	ND	ND	ND	ND	mg/l
Chlordane	0.002	ND	ND	ND	ND	mg/l
Dalapon	0.2	ND	ND	ND	ND	mg/l
Di(2-ethylhexyl)adipate	0.4	ND	ND	ND	ND	mg/l
Di(2-ethylhexyl)phthalate	0.006	ND	ND	0.00028	0.00023	mg/l
Dibromochloropropane	0.0002	ND	ND	Broken	Broken	mg/l
Dinoseb	0.007	ND	ND	ND	ND	mg/l
Diquat	0.02			ND	ND	mg/l
Endothall	0.1			ND	ND	mg/l
Endrin	0.002	ND	ND	ND	ND	mg/l
Ethylene Dibromide	0.00005	ND	ND	Broken	Broken	mg/l
Glyphosate	0.7	ND	ND	ND	ND	mg/l
Heptachlor	0.0004	ND	ND	ND	ND	mg/l
Heptachlor epoxide	0.0002	ND	ND	ND	ND	mg/l
Hexachlorobenzene	0.001	ND	ND	ND	ND	mg/l
Hexachlorocyclopentadiene	0.05	ND	ND	ND	ND	mg/l
Lindane	0.0002	ND	ND	ND	ND	mg/l
Methoxychlor	0.04	ND	ND	ND	ND	mg/l
Oxamyl (Vydate)	0.2	ND	ND	ND	ND	mg/l
Pentachlorophenol	0.001	ND	ND	ND	ND	mg/l
Picloram	0.5	ND	ND	ND	ND	mg/l
Polychlorinated Biphenyls	0.0005	ND	ND	ND	ND	mg/l
Simazine	0.004	ND	ND	ND	ND	mg/l
Toxaphene	0.003	ND	ND	ND	ND	mg/l

SAMPLE KEY

SAMPLE NUMBER: S95-0390 LOCATION: WASHINGTON RANCH
MATRIX: WATER
SAMPLE DESCRIPTION: G. SMART- WATER WELL
S D CONTINUED:
S D CONTINUED:
SAMPLE TIME: 12:15 SAMPLE DATE: 07/19/95

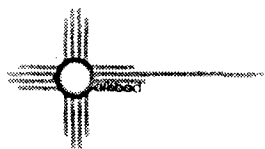
SAMPLE KEY

SAMPLE NUMBER: S95-0391 LOCATION: WASHINGTON RANCH
MATRIX: WATER
SAMPLE DESCRIPTION: WATER WELL #1
S D CONTINUED:
S D CONTINUED:
SAMPLE TIME: 13:45 SAMPLE DATE: 07/19/95

MICROBIOLOGICAL WATER REPORT

 CITY OF CARLSBAD WATER & WASTEWATER LABORATORY P.O. Box 1569 Carlsbad, NM 88220		Lab. No. <u>BB</u>		Bottle No. <u>S95-0391</u>	
		Date Received		Time Received <u>15:27</u> ☒ AM ☒ PM	
		Mo. Day Year			
		071995			
SAMPLE IDENTIFICATION					
Water Supply System Name			County		
WSS Code No.					
COLLECTION INFORMATION					
Date Collected		Time Collected	☐ AM ☐ PM	Collected By	
Mo. Day Year		<u>1345:</u>		<u>Campbell</u>	
071995		Collection Location <u>EPNH #1</u>			
TYPE OF SYSTEM <u>S95-0391</u>					
Check One: ☐ Community ☐ Non-Community ☒ Private Well Ice ☐ Yes ☐ No _____ ☐ Disinfected? ☐ Yes ☒ No Residual: _____ mg/L					
TESTING REQUIRED					
Check One: ☒ Total Coliforms - MF ☐ Other _____					
REASON FOR SAMPLING					
Check One: ☒ Routine Sample ☐ Special Sample ☐ Repeat Sample ☐ Monitoring Sample					
Send Report to the following (Names and Addresses): DARRELL Campbell 8645 Railroad Dr. El Paso, TX. 79904 L (915) 759-2228					
LABORATORY TEST RESULTS					
Total Coliforms per 100 ml: Present ☐ Absent ☒ Fecal Coliforms per 100 ml: Present ☐ Absent ☒					
INVALID SAMPLE					
If one of the following is checked, resample. ☐ TNTC Non-Coliforms ☐ Confluent Growth ☐ Turbid Culture					
REJECTED SAMPLE					
If one of the following is checked, please resample. ☐ Sample is too old. Not received within _____ hours of collection. ☐ Temperature violation (above 10° C). ☐ Form incomplete. See circled item. ☐ Date discrepancy. ☐ Leaking sample. ☐ Quantity insufficient for testing. ☐ Quantity too great to permit agitation. ☐ Other _____					
Analyst <u>Arthur J. Sma</u> Date Reported <u>7-20-95</u>					

MICROBIOLOGICAL WATER REPORT



CITY OF CARLSBAD
WATER & WASTEWATER LABORATORY
 P.O. Box 1569
 Carlsbad, NM 88220

Lab. No. <u>AA</u>				Bottle No. <u>595-0390</u>			
Date Received				Time Received			
Mo.	Day	Year					
0	7	1	9	9	5	15:27	☐ AM ☒ PM

SAMPLE IDENTIFICATION	
Water Supply System Name	County
WSS Code No.	

LABORATORY TEST RESULTS	
Total Coliforms per 100 ml: Present ☐ Absent ☒	Type of Test MF ☒
Fecal Coliforms per 100 ml: Present ☐ Absent ☒	

COLLECTION INFORMATION			
Date Collected		Time Collected	Collected By
Mo.	Day	Year	
0	7	1	9
9	9	5	
		12:15	☐ AM ☒ PM
		D. Campbell	
Collection Location			
G. Smart Well 595-0390			

TYPE OF SYSTEM	
Check One:	
☐ Community	☐ Non-Community
☒ Private Well	
Ice ☐ Yes ☐ No	
☐ Disinfected? ☐ Yes ☒ No	
Residual: _____ mg/L	

INVALID SAMPLE	
If one of the following is checked, resample.	
☐ TNTC Non-Coliforms	
☐ Confluent Growth	
☐ Turbid Culture	

TESTING REQUIRED	
Check One:	
☒ Total Coliforms - MF	
☐ Other _____	

REJECTED SAMPLE	
If one of the following is checked, please resample.	
☐ Sample is too old. Not received within _____ hours of collection.	
☐ Temperature violation (above 10° C).	
☐ Form incomplete. See circled item.	
☐ Date discrepancy.	
☐ Leaking sample.	
☐ Quantity insufficient for testing.	
☐ Quantity too great to permit agitation.	
☐ Other _____	
Analyst <u>Arthur J. Long</u>	
Date Reported <u>7-20-95</u>	

REASON FOR SAMPLING	
Check One:	
☒ Routine Sample	☐ Special Sample
☐ Repeat Sample	☐ Monitoring Sample

Send Report to the following (Names and Addresses):

Darrell Campbell
El Paso Natural Gas Co.
8645 Railroad Dr
El Paso, TX 79904
915-759-2228

SOUND ANALYTICAL SERVICES, INC.

ANALYTICAL & ENVIRONMENTAL CHEMISTS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

TRANSMITTAL MEMORANDUM

DATE: September 6, 1995

TO: Philip Environmental Laboratory

P.O. No. 60123

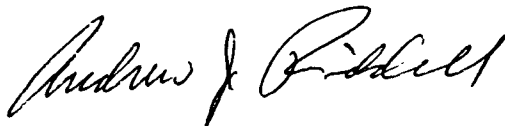
LABORATORY NUMBER: 50233

Enclosed are the test results for three samples received at Sound Analytical Services on July 20, 1995.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please call me at (206) 922-2310.

Sincerely,



Andrew J. Riddell
Project Manager

SOUND ANALYTICAL SERVICES, INC.

ANALYTICAL & ENVIRONMENTAL CHEMISTS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Philip Environmental Laboratory

Date: September 6, 1995

Report On: Analysis of Water

Lab No.: 50233

IDENTIFICATION:

Samples received on 07-20-95

P.O. No. 60123

ANALYSIS:

Lab Sample No. 50233-1

Client ID: S95-0390

ICP Metals Per EPA Method 200.7

Date Analyzed: 7-25-95

Units: mg/L

<u>Parameter</u>	<u>Result</u>	<u>PQL</u>
Boron	0.06	0.05
Calcium	69	0.50
Copper	ND	0.025
Iron	ND	0.1
Magnesium	30	0.10
Manganese	ND	0.015
Potassium	1.2	0.50
Silica	12	0.11
Sodium	10	0.50
Zinc	ND	0.02

ICP-MS Metals Per EPA Method 200.8

Date Analyzed: 7-25-95

Units: mg/L

<u>Parameter</u>	<u>Result</u>	<u>PQL</u>
Antimony	ND	0.006
Arsenic	ND	0.01
Barium	0.095	0.005
Beryllium	ND	0.004
Cadmium	ND	0.005
Chromium	ND	0.01
Lead	ND	0.003
Nickel	ND	0.04
Selenium	ND	0.005
Thallium	ND	0.002

ND - Not Detected

PQL - Practical Quantitation Limit

SOUND ANALYTICAL SERVICES, INC.

Philip Environmental Laboratory
Lab No. 50233
September 6, 1995

Lab Sample No. 50233-1

Client ID: S95-0390

Mercury By Cold Vapor AA Per EPA Method 7470
Date Analyzed: 7-25-95
Units: mg/L

<u>Parameter</u>	<u>Result</u>	<u>PQL</u>
Mercury	ND	0.0002

General Chemistry

<u>Parameter</u>	<u>Method</u>	<u>Result</u>	<u>PQL</u>
Bromide, mg/L	EPA 300.0	0.16	0.05
Chloride, mg/L	EPA 300.0	22	1
Cyanide, mg/L	EPA 335.3	ND	0.05
Fluoride, mg/L	EPA 300.0	0.2	0.1
Nitrate Nitrogen, mg/L	EPA 300.0	2.2	0.05
Nitrite Nitrogen, mg/L	EPA 300.0	ND	0.05
Sulfate, mg/L	EPA 300.0	70	5
Hardness (as CaCO ₃), mg/L	EPA 130.2	290	4
T-Alkalinity, mg/L	SM 2320B	200	3
P-Alkalinity, mg/L	SM 2320B	0	NA
Specific Conductance, umhos/cm	EPA 120.1	590	100
Sulfide, mg/L	EPA 376.2	ND	0.005
Total Dissolved Solids, mg/L	EPA 160.1	370	5
pH	EPA 150.1	7.38	NA

NA - Not Applicable

ND - Not Detected

PQL - Practical Quantitation Limit

SOUND ANALYTICAL SERVICES, INC.

Philip Environmental Laboratory
Lab No. 50233
September 6, 1995

Lab Sample No. 50233-2

Client ID: S95-0391

ICP Metals Per EPA Method 200.7

Date Analyzed: 7-25-95

Units: mg/L

<u>Parameter</u>	<u>Result</u>	<u>PQL</u>
Boron	0.06	0.05
Calcium	65	0.50
Copper	ND	0.025
Iron	ND	0.1
Magnesium	26	0.10
Manganese	ND	0.015
Potassium	0.83	0.50
Silica	12	0.11
Sodium	4.3	0.50
Zinc	ND	0.02

ICP-MS Metals Per EPA Method 200.8

Date Analyzed: 7-25-95

Units: mg/L

<u>Parameter</u>	<u>Result</u>	<u>PQL</u>
Antimony	ND	0.006
Arsenic	ND	0.01
Barium	0.11	0.005
Beryllium	ND	0.004
Cadmium	ND	0.005
Chromium	ND	0.01
Lead	ND	0.003
Nickel	ND	0.04
Selenium	ND	0.005
Thallium	ND	0.002

ND - Not Detected

PQL - Practical Quantitation Limit

SOUND ANALYTICAL SERVICES, INC.

Philip Environmental Laboratory
Lab No. 50233
September 6, 1995

Lab Sample No. 50233-2

Client ID: S95-0391

Mercury By Cold Vapor AA Per EPA Method 7470
Date Analyzed: 7-25-95
Units: mg/L

<u>Parameter</u>	<u>Result</u>	<u>PQL</u>
Mercury	ND	0.0002

General Chemistry

<u>Parameter</u>	<u>Method</u>	<u>Result</u>	<u>PQL</u>
Bromide, mg/L	EPA 300.0	ND	0.05
Chloride, mg/L	EPA 300.0	3	1
Cyanide, mg/L	EPA 335.3	ND	0.05
Fluoride, mg/L	EPA 300.0	0.2	0.1
Nitrate Nitrogen, mg/L	EPA 300.0	0.81	0.05
Nitrite Nitrogen, mg/L	EPA 300.0	ND	0.05
Sulfate, mg/L	EPA 300.0	38	2
Hardness (as CaCO ₃), mg/L	EPA 130.2	260	4
P-Alkalinity	SM 2320B	0	NA
T-Alkalinity	SM 2320B	220	3
Specific Conductance, umhos/cm	EPA 120.1	490	100
Sulfide, mg/L	EPA 376.2	ND	0.005
Total Dissolved Solids, mg/L	EPA 160.1	290	5
pH	EPA 150.1	7.37	NA

NA - Not Applicable

ND - Not Detected

PQL - Practical Quantitation Limit

SOUND ANALYTICAL SERVICES, INC.

Client Name	Philip Environmental Laboratory
Client ID:	595-0390
Lab ID:	50233-01
Date Received:	7/20/95
Date Prepared:	7/26/95
Date Analyzed:	7/29/95
% Solids	-

Organochlorine Pesticides and PCBs by USEPA Method 508

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	77		50	150
Decachlorobiphenyl	89		50	150

Analyte	Result (ug/L)	PQL	Flags
Aroclor 1016	ND	0.47	
Aroclor 1221	ND	0.47	
Aroclor 1232	ND	0.47	
Aroclor 1242	ND	0.47	
Aroclor 1248	ND	0.47	
Aroclor 1254	ND	0.47	
Aroclor 1260	ND	0.47	
Aldrin	ND	0.0094	
alpha-BHC	ND	0.0094	
beta-BHC	ND	0.0094	
delta-BHC	ND	0.0094	
gamma-BHC (Lindane)	ND	0.0094	
Chlordane (technical)	ND	0.094	
4,4'-DDD	ND	0.019	
4,4'-DDE	ND	0.019	
4,4'-DDT	ND	0.019	
Dieldrin	ND	0.019	
Endosulfan I	ND	0.0094	
Endosulfan II	ND	0.019	
Endosulfan sulfate	ND	0.019	
Endrin	ND	0.019	
Endrin aldehyde	ND	0.019	
Heptachlor	ND	0.0094	
Heptachlor epoxide	ND	0.0094	
Methoxychlor	ND	0.094	
Endrin ketone	ND	0.019	

SOUND ANALYTICAL SERVICES, INC.

Organochlorine Pesticides and PCBs by USEPA Method 508 data for 50233-01 continued...

Analyte	Result (ug/L)	PQL	Flags
Toxaphene	ND	0.94	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Philip Environmental Laboratory
Client ID:	595-0391
Lab ID:	50233-02
Date Received:	7/20/95
Date Prepared:	7/26/95
Date Analyzed:	7/29/95
% Solids	-

Organochlorine Pesticides and PCBs by USEPA Method 508

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	80		50	150
Decachlorobiphenyl	85		50	150

Analyte	Result (ug/L)	PQL	Flags
Aroclor 1016	ND	0.47	
Aroclor 1221	ND	0.47	
Aroclor 1232	ND	0.47	
Aroclor 1242	ND	0.47	
Aroclor 1248	ND	0.47	
Aroclor 1254	ND	0.47	
Aroclor 1260	ND	0.47	
Aldrin	ND	0.0093	
alpha-BHC	ND	0.0093	
beta-BHC	ND	0.0093	
delta-BHC	ND	0.0093	
gamma-BHC (Lindane)	ND	0.0093	
Chlordane (technical)	ND	0.093	
4,4'-DDD	ND	0.019	
4,4'-DDE	ND	0.019	
4,4'-DDT	ND	0.019	
Dieldrin	ND	0.019	
Endosulfan I	ND	0.0093	
Endosulfan II	ND	0.019	
Endosulfan sulfate	ND	0.019	
Endrin	ND	0.019	
Endrin aldehyde	ND	0.019	
Heptachlor	ND	0.0093	
Heptachlor epoxide	ND	0.0093	
Methoxychlor	ND	0.093	
Endrin ketone	ND	0.019	

SOUND ANALYTICAL SERVICES, INC.

Organochlorine Pesticides and PCBs by USEPA Method 508 data for 50233-02 continued...

Analyte	Result (ug/L)	PQL	Flags
Toxaphene	ND	0.93	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Philip Environmental Laboratory
Client ID:	595-0390
Lab ID:	50233-01
Date Received:	7/20/95
Date Prepared:	7/27/95
Date Analyzed:	7/28/95
% Solids	-

Chlorinated Acids by USEPA Method 515.1

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
2,4,6 Tribromophenol	114		10	123

Analyte	Result (ug/L)	PQL	Flags
Dalapon	ND	0.084	
3,5-Dichlorobenzoic acid	ND	0.084	
4-Nitrophenol	ND	0.084	
Dicamba	ND	0.037	
Dichloroprop	ND	0.075	
2,4-D	ND	0.037	
Pentachlorophenol	ND	0.037	
Silvex (2,4,5-TP)	ND	0.065	
Chloramben	ND	0.075	
2,4,5-T	ND	0.037	
Dinoseb	ND	0.047	
2,4,-DB	ND	0.047	
Bentazon	ND	0.065	
Picloram	ND	0.028	
Acifluorfen	ND	0.047	

SOUND ANALYTICAL SERVICES, INC.

Client Name

Philip Environmental Laboratory

Client ID:

595-0391

Lab ID:

50233-02

Date Received:

7/20/95

Date Prepared:

7/27/95

Date Analyzed:

7/29/95

% Solids

-

Chlorinated Acids by USEPA Method 515.1

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
2,4,6 Tribromophenol	109		10	123

Analyte	Result (ug/L)	PQL	Flags
Dalapon	ND	0.084	
3,5-Dichlorobenzoic acid	ND	0.084	
4-Nitrophenol	ND	0.084	
Dicamba	ND	0.037	
Dichloroprop	ND	0.075	
2,4-D	ND	0.037	
Pentachlorophenol	ND	0.037	
Silvex (2,4,5-TP)	ND	0.065	
Chloramben	ND	0.075	
2,4,5-T	ND	0.037	
Dinoseb	ND	0.047	
2,4,-DB	ND	0.047	
Bentazon	ND	0.065	
Picloram	ND	0.028	
Acifluorfen	ND	0.047	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Philip Environmental Laboratory
Client ID:	TRIP BLANK
Lab ID:	50233-03
Date Received:	7/20/95
Date Prepared:	7/27/95
Date Analyzed:	7/29/95
% Solids	-

Chlorinated Acids by USEPA Method 515.1

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
2,4,6 Tribromophenol	109		10	123

Analyte	Result (ug/L)	PQL	Flags
Dalapon	ND	0.087	
3,5-Dichlorobenzoic acid	ND	0.087	
4-Nitrophenol	ND	0.087	
Dicamba	ND	0.038	
Dichloroprop	ND	0.077	
2,4-D	ND	0.038	
Pentachlorophenol	ND	0.038	
Silvex (2,4,5-TP)	ND	0.067	
Chloramben	ND	0.077	
2,4,5-T	ND	0.038	
Dinoseb	ND	0.048	
2,4,-DB	ND	0.048	
Bentazon	ND	0.067	
Picloram	ND	0.029	
Acifluorfen	ND	0.048	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Philip Environmental Laboratory
Client ID:	595-0390
Lab ID:	50233-01
Date Received:	7/20/95
Date Prepared:	7/27/95
Date Analyzed:	7/31/95
% Solids	-

Synthetic Organic Compounds by USEPA Method 525.2

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Perylene - d12	93		50	150

Analyte	Result (ug/L)	PQL	Flags
Naphthalene	ND	0.02	
Acenaphthylene	ND	0.02	
Fluorene	ND	0.02	
Phenanthrene	ND	0.0099	
Anthracene	ND	0.02	
Fluoranthene	ND	0.02	
Pyrene	ND	0.02	
Benzo(a)anthracene	ND	0.02	
Chrysene	ND	0.04	
Benzo(b)fluoranthene	ND	0.04	
Benzo(k)fluoranthene	ND	0.02	
Benzo(a)pyrene	ND	0.02	
Indeno(1,2,3-cd)pyrene	ND	0.03	
Dibenzo(ah)anthracene	ND	0.03	
Benzo(ghi)perylene	ND	0.02	
Propachlor	ND	0.05	
Trifluralin	ND	0.03	
Prometon	ND	0.05	
Simazine	ND	0.05	
Atrazine	ND	0.02	
Lindane	ND	0.02	
Metribuzin	ND	0.03	
Alachlor	ND	0.02	
Heptachlor	ND	0.02	
Bromacil	ND	0.05	
Metolachlor	ND	0.05	

SOUND ANALYTICAL SERVICES, INC.

Synthetic Organic Compounds by USEPA Method 525.2 data for 50233-01 continued...

Analyte	Result (ug/L)	PQL	Flags
Aldrin	ND	0.03	
Heptachlor Epoxide	ND	0.02	
gamma-Chlordane	ND	0.03	
Butachlor	ND	0.05	
alpha-Chlordane	ND	0.02	
trans-Nonachlor	ND	0.04	
Dieldrin	ND	0.03	
Endrin	ND	0.03	
Methoxychlor	ND	0.0099	
Dimethylphthalate	ND	0.02	
Diethylphthalate	ND	0.059	
Di-n-butylphthalate	0.18	0.03	
Butylbenzylphthalate	ND	0.02	
bis(2-Ethylhexyl)adipate	ND	0.02	
bis(2-Ethylhexyl)phthalate	0.28	0.02	B1
Hexachlorocyclopentadiene	ND	0.0099	
Hexachlorobenzene	ND	0.03	
Pentachlorophenol	ND	0.099	
Toxaphene	ND	0.99	
PCB's	ND	0.99	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Philip Environmental Laboratory
Client ID:	595-0391
Lab ID:	50233-02
Date Received:	7/20/95
Date Prepared:	7/27/95
Date Analyzed:	7/31/95
% Solids	-

Synthetic Organic Compounds by USEPA Method 525.2

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Perylene - d12	97		50	150

Analyte	Result (ug/L)	PQL	Flags
Naphthalene	ND	0.02	
Acenaphthylene	ND	0.02	
Fluorene	ND	0.02	
Phenanthrene	ND	0.0099	
Anthracene	ND	0.02	
Fluoranthene	ND	0.02	
Pyrene	ND	0.02	
Benzo(a)anthracene	ND	0.02	
Chrysene	ND	0.04	
Benzo(b)fluoranthene	ND	0.04	
Benzo(k)fluoranthene	ND	0.02	
Benzo(a)pyrene	ND	0.02	
Indeno(1,2,3-cd)pyrene	ND	0.03	
Dibenzo(ah)anthracene	ND	0.03	
Benzo(ghi)perylene	ND	0.02	
Propachlor	ND	0.05	
Trifluralin	ND	0.03	
Prometon	ND	0.05	
Simazine	ND	0.05	
Atrazine	ND	0.02	
Lindane	ND	0.02	
Metribuzin	ND	0.03	
Alachlor	ND	0.02	
Heptachlor	ND	0.02	
Bromacil	ND	0.05	
Metolachlor	ND	0.05	

SOUND ANALYTICAL SERVICES, INC.

Synthetic Organic Compounds by USEPA Method 525.2 data for 50233-02 continued...

Analyte	Result (ug/L)	PQL	Flags
Aldrin	ND	0.03	
Heptachlor Epoxide	ND	0.02	
gamma-Chlordane	ND	0.03	
Butachlor	ND	0.05	
alpha-Chlordane	ND	0.02	
trans-Nonachlor	ND	0.04	
Dieldrin	ND	0.03	
Endrin	ND	0.03	
Methoxychlor	ND	0.0099	
Dimethylphthalate	ND	0.02	
Diethylphthalate	ND	0.059	
Di-n-butylphthalate	0.14	0.03	
Butylbenzylphthalate	ND	0.02	
bis(2-Ethylhexyl)adipate	ND	0.02	
bis(2-Ethylhexyl)phthalate	0.23	0.02	B1
Hexachlorocyclopentadiene	ND	0.0099	
Hexachlorobenzene	ND	0.03	
Pentachlorophenol	ND	0.099	
Toxaphene	ND	0.99	
PCB's	ND	0.99	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Philip Environmental Laboratory
Client ID:	TRIP BLANK
Lab ID:	50233-03
Date Received:	7/20/95
Date Prepared:	7/27/95
Date Analyzed:	7/31/95
% Solids	-

Synthetic Organic Compounds by USEPA Method 525.2

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Perylene - d12	96		50	150

Analyte	Result (ug/L)	PQL	Flags
Naphthalene	ND	0.02	
Acenaphthylene	ND	0.02	
Fluorene	ND	0.02	
Phenanthrene	ND	0.0099	
Anthracene	ND	0.02	
Fluoranthene	ND	0.02	
Pyrene	ND	0.02	
Benzo(a)anthracene	ND	0.02	
Chrysene	ND	0.04	
Benzo(b)fluoranthene	ND	0.04	
Benzo(k)fluoranthene	ND	0.02	
Benzo(a)pyrene	ND	0.02	
Indeno(1,2,3-cd)pyrene	ND	0.03	
Dibenzo(ah)anthracene	ND	0.03	
Benzo(ghi)perylene	ND	0.02	
Propachlor	ND	0.05	
Trifluralin	ND	0.03	
Prometon	ND	0.05	
Simazine	ND	0.05	
Atrazine	ND	0.02	
Lindane	ND	0.02	
Metribuzin	ND	0.03	
Alachlor	ND	0.02	
Heptachlor	ND	0.02	
Bromacil	ND	0.05	
Metolachlor	ND	0.05	

SOUND ANALYTICAL SERVICES, INC.

Synthetic Organic Compounds by USEPA Method 525.2 data for 50233-03 continued...

Analyte	Result (ug/L)	PQL	Flags
Aldrin	ND	0.03	
Heptachlor Epoxide	ND	0.02	
gamma-Chlordane	ND	0.03	
Butachlor	ND	0.05	
alpha-Chlordane	ND	0.02	
trans-Nonachlor	ND	0.04	
Dieldrin	ND	0.03	
Endrin	ND	0.03	
Methoxychlor	ND	0.0099	
Dimethylphthalate	ND	0.02	
Diethylphthalate	ND	0.059	
Di-n-butylphthalate	0.21	0.03	
Butylbenzylphthalate	ND	0.02	
bis(2-Ethylhexyl)adipate	ND	0.02	
bis(2-Ethylhexyl)phthalate	0.26	0.02	B1
Hexachlorocyclopentadiene	ND	0.0099	
Hexachlorobenzene	ND	0.03	
Pentachlorophenol	ND	0.099	
Toxaphene	ND	0.99	
PCB's	ND	0.99	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Philip Environmental Laboratory
Client ID:	595-0390
Lab ID:	50233-01
Date Received:	7/20/95
Date Prepared:	8/3/95
Date Analyzed:	8/15/95
% Solids	-

Carbamate Pesticides by USEPA Method 531.1

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
none	-		0	0

Analyte	Result (ug/L)	PQL	Flags
Aldicarb Sulfoxide	ND	1	
Aldicarb Sulfone	ND	1	
Oxamyl	ND	2	
Methomyl	ND	1	
3-Hydroxy Crabofuran	ND	2	
Aldicarb	ND	2	
Propoxur (Baygon)	ND	2	
Carbofuran	ND	2	
Carbaryl	ND	2	
Methiocarb	ND	2	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Philip Environmental Laboratory
Client ID:	595-0391
Lab ID:	50233-02
Date Received:	7/20/95
Date Prepared:	8/3/95
Date Analyzed:	8/15/95
% Solids	-

Carbamate Pesticides by USEPA Method 531.1

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
none	-		0	0

Analyte	Result (ug/L)	PQL	Flags
Aldicarb Sulfoxide	ND	1	
Aldicarb Sulfone	ND	1	
Oxamyl	ND	2	
Methomyl	ND	1	
3-Hydroxy Carbofuran	ND	2	
Aldicarb	ND	2	
Propoxur (Baygon)	ND	2	
Carbofuran	ND	2	
Carbaryl	ND	2	
Methiocarb	ND	2	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Philip Environmental Laboratory
Client ID:	TRIP BLANK
Lab ID:	50233-03
Date Received:	7/20/95
Date Prepared:	8/3/95
Date Analyzed:	8/15/95
% Solids	-

Carbamate Pesticides by USEPA Method 531.1

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
none	-		0	0

Analyte	Result (ug/L)	PQL	Flags
Aldicarb Sulfoxide	ND	1	
Aldicarb Sulfone	ND	1	
Oxamyl	ND	2	
Methomyl	ND	1	
3-Hydroxy Carbofuran	ND	2	
Aldicarb	ND	2	
Propoxur (Baygon)	ND	2	
Carbofuran	ND	2	
Carbaryl	ND	2	
Methiocarb	ND	2	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Philip Environmental Laboratory
Client ID:	595-0390
Lab ID:	50233-01
Date Received:	7/20/95
Date Prepared:	8/31/95
Date Analyzed:	9/1/95
% Solids	-

Glyphosate by USEPA Method 547

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
none	-		50	150

Analyte	Result (ug/L)	PQL	Flags
Glyphosate	ND	10	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Philip Environmental Laboratory
Client ID:	595-0391
Lab ID:	50233-02
Date Received:	7/20/95
Date Prepared:	8/31/95
Date Analyzed:	9/1/95
% Solids	-

Glyphosate by USEPA Method 547

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
none	-		50	150

Analyte	Result (ug/L)	PQL	Flags
Glyphosate	ND	10	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Philip Environmental Laboratory
Client ID:	TRIP BLANK
Lab ID:	50233-03
Date Received:	7/20/95
Date Prepared:	8/31/95
Date Analyzed:	9/1/95
% Solids	-

Glyphosate by USEPA Method 547

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
none	-		50	150

Analyte	Result (ug/L)	PQL	Flags
Glyphosate	ND	10	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Philip Environmental Laboratory
Client ID:	595-0390
Lab ID:	50233-01
Date Received:	7/20/95
Date Prepared:	8/1/95
Date Analyzed:	8/4/95
% Solids	-

Endothall by EPA Method 548.1

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High

Analyte	Result (ug/L)	PQL	Flags
Endothall	ND	1	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Philip Environmental Laboratory
Client ID:	595-0391
Lab ID:	50233-02
Date Received:	7/20/95
Date Prepared:	8/1/95
Date Analyzed:	8/4/95
% Solids	-

Endothall by EPA Method 548.1

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High

Analyte	Result (ug/L)	PQL	Flags
Endothall	ND	1	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Philip Environmental Laboratory
Client ID:	595-0390
Lab ID:	50233-01
Date Received:	7/20/95
Date Prepared:	8/12/95
Date Analyzed:	8/15/95
% Solids	-

Paraquat & Diquat by EPA Method 549

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High

Analyte	Result (ug/L)	PQL	Flags
Paraquat	ND	0.2	
Diquat	ND	0.2	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Philip Environmental Laboratory
Client ID:	595-0391
Lab ID:	50233-02
Date Received:	7/20/95
Date Prepared:	8/12/95
Date Analyzed:	8/15/95
% Solids	-

Paraquat & Diquat by EPA Method 549

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High

Analyte	Result (ug/L)	PQL	Flags
Paraquat	ND	0.2	
Diquat	ND	0.2	

TRIANGLE LABORATORIES OF RTP, INC.
Sample Result Summary for Project 33502
Method 1613A TCDD/TCDF Analysis (DB-5)

Page 1
08/08/95

Data File	P952671	P952672	P952673	P952693
Sample ID	OPR HPLC Water	TLI HPLC Water	S95-0391	S95-0390
		Blank		
Units	pg/L	pg/L	pg/L	pg/L
Analytes				
2378-TCDD	231	< 10	< 10	< 10
2378-TCDF	261	< 10	< 10	< 10

Other Standards Percent Recovery Summary (% Rec)

37C1-TCDD	78.6	92.8	86.7	97.9
-----------	------	------	------	------

Internal Standards Percent Recovery Summary (% Rec)

13C12-2378-TCDF	71.3	83.1	79.5	85.2
13C12-2378-TCDD	69.2	72.4	70.3	90.6

(Concentration of GC peaks out of theoretical isotopic abundance ratio range expressed as a detection limit).

Minimum levels are reported for non-detected GC peaks.

***** = INTERFERENCE

TRIANGLE LABORATORIES OF RTP, INC.
Ongoing Precision and Recovery - Sample Results

Project: 33502
Matrix: AQUEOUS
Method: 1613

File: P952671
SAS#:
Contract#: n/a

Extraction Date: 07/25/95
Analysis Date: 08/01/95
Analysis Time: 12:31

NOTE: Concentrations are concentrations in the final extract.
3rd Revision Table 7 Performance Specifications.

ISOMER	SPIKED. (ng/mL)	OBSERVED (ng/mL)	Perf.Specs.... from	to	%Recovery
2378-TCDD	10.0	11.5	6.9	13.8	115
2378-TCDF	10.0	13.1	6.9	15.2	131

Labeled Compound	SPIKED. (ng/mL)	OBSERVED (ng/mL)	Perf.Specs.... from	to	%Recovery
13C12-2378-TCDD	100.0	69.2	25.0	150.0	69.2
13C12-2378-TCDF	100.0	71.3	25.0	150.0	71.3
37Cl-2378-TCDD	10.0	7.9	2.5	15.0	78.6

=====

LARS 6.01.02
TLI_PSUM v2.04

Processed By: KJ

Date: 08/08/95

SOUND ANALYTICAL SERVICES, INC.

ANALYTICAL & ENVIRONMENTAL CHEMISTS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

QUALITY CONTROL REPORT

Total Metals

Client: Philip Environmental Laboratory
Lab No: 50233qcl
Units: mg/L

METHOD BLANK

Parameter	Result	PQL
Antimony	ND	0.006
Arsenic	ND	0.01
Barium	ND	0.005
Beryllium	ND	0.004
Boron	ND	0.05
Cadmium	ND	0.005
Calcium	ND	0.50
Chromium	ND	0.01
Copper	ND	0.025
Iron	ND	0.1
Lead	ND	0.003
Magnesium	ND	0.10
Manganese	ND	0.015
Mercury	ND	0.0002
Nickel	ND	0.04
Potassium	ND	0.50
Selenium	ND	0.005
Silica	ND	0.11
Sodium	ND	0.50
Thallium	ND	0.002
Zinc	ND	0.2

ND = Not Detected

PQL = Practical Quantitation Limit

SOUND ANALYTICAL SERVICES, INC.

ANALYTICAL & ENVIRONMENTAL CHEMISTS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

QUALITY CONTROL REPORT

General Chemistry

Client: Philip Environmental Laboratory
Lab No: 50233qc2

METHOD BLANKS

Parameter	Result	PQL
Bromide, mg/L	ND	0.05
Chloride, mg/L	ND	1.0
Cyanide, mg/L	ND	0.05
Fluoride, mg/L	ND	0.1
Nitrate Nitrogen, mg/L	ND	0.05
Nitrite Nitrogen, mg/L	ND	0.05
Sulfate, mg/L	ND	1.0
Hardness (as CaCO ₃), mg/L	ND	2
T-Alkalinity, mg/L	ND	2
P-Alkalinity, mg/L	ND	2
Specific Conductance, umhos/cm	ND	100
Sulfide, mg/L	ND	0.005
Total Dissolved Solids, mg/L	ND	5

ND = Not Detected

PQL = Practical Quantitation Limit

SOUND ANALYTICAL SERVICES, INC.

QUALITY CONTROL REPORT

General Chemistry

Client: Philip Environmental Laboratory
Lab No: 50233qc2

DUPLICATES

Parameter	Lab Sample No.	Sample Result	Duplicate Result	RPD
Bromide, mg/L	50238-1	ND	ND	NC
Chloride, mg/L	50238-1	ND	ND	NC
Cyanide	50281-1	ND	ND	NC
Fluoride, mg/L	50238-1	ND	ND	NC
Nitrate Nitrogen, mg/L	50238-1	3.68	3.66	0.5
Nitrite Nitrogen, mg/L	50238-1	ND	ND	NC
Sulfate, mg/L	50346-1	2.8	2.9	3.6
Hardness (as CaCO ₃), mg/L	50233-2	255	260	1.8
Bicarbonate, mg/L	50233-1	221	204	8.0
Sulfide, mg/L	50271-1	0.0050	0.0059	16.5
Total Dissolved Solids, mg/L	50233-2	288	288	0.0
Conductivity umhos/cm	50233-2	493	487	1.2

RPD = Relative Percent Difference

ND = Not Detected

NC = Not Calculated

SOUND ANALYTICAL SERVICES, INC.

QUALITY CONTROL REPORT

General Chemistry

Client: Philip Environmental Laboratory
Lab No: 50233qc2

MATRIX SPIKE

Parameter	Lab Sample No.	Sample Result	Spike Amount	Spike Result	%R
Bromide, mg/L	50238-1	ND	1.00	1.02	102
Chloride, mg/L	50238-1	9.87	10.0	20.3	104
Cyanide, mg/L	50281-1	ND	0.250	0.262	105
Fluoride, mg/L	50238-1	ND	2.00	2.01	100
Nitrite Nitrogen, mg/L	50238-1	ND	1.00	1.10	110
Sulfate, mg/L	50346-1	2.8	10.0	13.5	107
Sulfide, mg/L	50271-1	0.0050	0.050	0.0464	82.8

%R = Percent Recovery
ND = Not Detected

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - PE403
Date Received:	-
Date Prepared:	7/26/95
Date Analyzed:	7/29/95
% Solids	-

Organochlorine Pesticides and PCBs by USEPA Method 508

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	108		50	150
Decachlorobiphenyl	113		50	150

Analyte	Result (ug/L)	PQL	Flags
Aroclor 1016	ND	0.5	
Aroclor 1221	ND	0.5	
Aroclor 1232	ND	0.5	
Aroclor 1242	ND	0.5	
Aroclor 1248	ND	0.5	
Aroclor 1254	ND	0.5	
Aroclor 1260	ND	0.5	
Aldrin	ND	0.01	
alpha-BHC	ND	0.01	
beta-BHC	ND	0.01	
delta-BHC	ND	0.01	
gamma-BHC (Lindane)	ND	0.01	
Chlordane (technical)	ND	0.1	
4,4'-DDD	ND	0.02	
4,4'-DDE	ND	0.02	
4,4'-DDT	ND	0.02	
Dieldrin	ND	0.02	
Endosulfan I	ND	0.01	
Endosulfan II	ND	0.02	
Endosulfan sulfate	ND	0.02	
Endrin	ND	0.02	
Endrin aldehyde	ND	0.02	
Heptachlor	ND	0.01	
Heptachlor epoxide	ND	0.01	
Methoxychlor	ND	0.1	
Endrin ketone	ND	0.02	

SOUND ANALYTICAL SERVICES, INC.

Organochlorine Pesticides and PCBs by USEPA Method 508 data for PE403 continued...

Analyte	Result (ug/L)	PQL	Flags
Toxaphene	ND	1	

SOUND ANALYTICAL SERVICES, INC.

Blank Spike/Blank Spike Duplicate Report

Lab ID:	PE403
Date Prepared:	7/26/95
Date Analyzed:	7/29/95
QC Batch ID:	PE403

Organochlorine Pesticides and PCBs by USEPA Method 508

Compound Name	Blank Result (ug/L)	Spike Amount (ug/L)	BS Result (ug/L)	BS % Rec.	BSD Result (ug/L)	BSD % Rec.	RPD	Flag
Aldrin	0	0.2	0.19	97	0.18	88	9.1	
gamma-BHC (Lindane)	0	0.2	0.15	77	0.15	75	3.3	
4,4'-DDT	0	0.4	0.4	101	0.39	96	4.8	
Dieldrin	0	0.4	0.43	107	0.45	114	6.3	
Endrin	0	0.4	0.38	95	0.43	107	12.0	
Heptachlor	0	0.2	0.19	93	0.17	85	9.5	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:
Date Received:
Date Prepared:
Date Analyzed:
% Solids

Method Blank - SH043

-
7/27/95
7/28/95
-

Chlorinated Acids by USEPA Method 515.1

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
2,4,6 Tribromophenol	113		10	123

Analyte	Result (ug/L)	PQL	Flags
Dalapon	ND	0.09	
3,5-Dichlorobenzoic acid	ND	0.09	
4-Nitrophenol	ND	0.09	
Dicamba	ND	0.04	
Dichloroprop	ND	0.08	
2,4-D	ND	0.04	
Pentachlorophenol	ND	0.04	
Silvex (2,4,5-TP)	ND	0.07	
Chloramben	ND	0.08	
2,4,5-T	ND	0.04	
Dinoseb	ND	0.05	
2,4,-DB	ND	0.05	
Bentazon	ND	0.07	
Picloram	ND	0.03	
Acifluorfen	ND	0.05	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - SOC041
Date Received:	-
Date Prepared:	7/27/95
Date Analyzed:	7/31/95
% Solids	-

Synthetic Organic Compounds by USEPA Method 525.2

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
Perylene - d12	97		50	150

Analyte	Result (ug/L)	PQL	Flags
Naphthalene	ND	0.02	
Acenaphthylene	ND	0.02	
Fluorene	ND	0.02	
Phenanthrene	ND	0.01	
Anthracene	ND	0.02	
Fluoranthene	ND	0.02	
Pyrene	ND	0.02	
Benzo(a)anthracene	ND	0.02	
Chrysene	ND	0.04	
Benzo(b)fluoranthene	ND	0.04	
Benzo(k)fluoranthene	ND	0.02	
Benzo(a)pyrene	ND	0.02	
Indeno(1,2,3-cd)pyrene	ND	0.03	
Dibenzo(ah)anthracene	ND	0.03	
Benzo(ghi)perylene	ND	0.02	
Propachlor	ND	0.05	
Trifluralin	ND	0.03	
Prometon	ND	0.05	
Simazine	ND	0.05	
Atrazine	ND	0.02	
Lindane	ND	0.02	
Metribuzin	ND	0.03	
Alachlor	ND	0.02	
Heptachlor	ND	0.02	
Bromacil	ND	0.05	
Metolachlor	ND	0.05	

SOUND ANALYTICAL SERVICES, INC.

Synthetic Organic Compounds by USEPA Method 525.2 data for SOC041 continued...

Analyte	Result (ug/L)	PQL	Flags
Aldrin	ND	0.03	
Heptachlor Epoxide	ND	0.02	
gamma-Chlordane	ND	0.03	
Butachlor	ND	0.05	
alpha-Chlordane	ND	0.02	
trans-Nonachlor	ND	0.04	
Dieldrin	ND	0.03	
Endrin	ND	0.03	
Methoxychlor	ND	0.01	
Dimethylphthalate	ND	0.02	
Diethylphthalate	ND	0.06	
Di-n-butylphthalate	ND	0.03	
Butylbenzylphthalate	ND	0.02	
bis(2-Ethylhexyl)adipate	ND	0.02	
bis(2-Ethylhexyl)phthalate	0.23	0.02	
Hexachlorocyclopentadiene	ND	0.01	
Hexachlorobenzene	ND	0.03	
Pentachlorophenol	ND	0.1	
Toxaphene	ND	1	
PCB's	ND	1	

SOUND ANALYTICAL SERVICES, INC.

Blank Spike/Blank Spike Duplicate Report

Lab ID:	SOC041
Date Prepared:	7/27/95
Date Analyzed:	7/31/95
QC Batch ID:	SOC041

Synthetic Organic Compounds by USEPA Method 525.2

Compound Name	Blank Result (ug/L)	Spike Amount (ug/L)	BS Result (ug/L)	BS % Rec.	BSD Result (ug/L)	BSD % Rec.	RPD	Flag
Benzo(a)pyrene	0	2.5	2.8	113	2.3	91	22.0	
Propachlor	0	2.5	2.3	92	2.5	99	7.3	
Trifluralin	0	2.5	2.5	100	2.5	99	0.5	
Dieldrin	0	2.5	2.4	96	2	79	19.0	
Endrin	0	5	4.6	92	3.9	79	16.0	
bis(2-Ethylhexyl)phthalate	0.23	2.5	2.5	91	2.7	101	11.0	
Hexachlorocyclopentadiene	0	2.5	2.5	98	2.5	99	1.2	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - CAR107
Date Received:	-
Date Prepared:	8/3/95
Date Analyzed:	8/15/95
% Solids	-

Carbamate Pesticides by USEPA Method 531.1

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
none	-		0	0

Analyte	Result (ug/L)	PQL	Flags
Aldicarb Sulfoxide	ND	1	
Aldicarb Sulfone	ND	1	
Oxamyl	ND	2	
Methomyl	ND	1	
3-Hydroxy Carbofuran	ND	2	
Aldicarb	ND	2	
Propoxur (Baygon)	ND	2	
Carbofuran	ND	2	
Carbaryl	ND	2	
Methiocarb	ND	2	

SOUND ANALYTICAL SERVICES, INC.

Blank Spike/Blank Spike Duplicate Report

Lab ID: CAR107
Date Prepared: 8/3/95
Date Analyzed: 8/15/95
QC Batch ID: CAR107

Carbamate Pesticides by USEPA Method 531.1

Compound Name	Blank Result (ug/L)	Spike Amount (ug/L)	BS Result (ug/L)	BS % Rec.	BSD Result (ug/L)	BSD % Rec.	RPD	Flag
Aldicarb Sulfoxide	0	25	29	114	28	111	2.7	
Aldicarb Sulfone	0	25	24	97	24	95	2.1	
Oxamyl	0	25	24	94	23	93	1.4	
Methomyl	0	25	24	95	24	96	0.8	
3-Hydroxy Crabofuran	0	25	25	100	24	97	3.6	
Aldicarb	0	25	24	98	23	91	6.6	
Propoxur (Baygon)	0	25	21	84	22	88	4.2	
Carbofuran	0	25	20	78	19	75	3.6	
Carbaryl	0	25	19	74	17	69	6.6	
Methiocarb	0	25	18	73	18	73	0.0	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - GLY106
Date Received:	-
Date Prepared:	8/31/95
Date Analyzed:	9/1/95
% Solids	-

Glyphosate by USEPA Method 547

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
none	-		50	150

Analyte	Result (ug/L)	PQL	Flags
Glyphosate	ND	10	

SOUND ANALYTICAL SERVICES, INC.

Blank Spike/Blank Spike Duplicate Report

Lab ID:	GLY106
Date Prepared:	8/31/95
Date Analyzed:	9/1/95
QC Batch ID:	GLY106

Glyphosate by USEPA Method 547

Compound Name	Blank Result (ug/L)	Spike Amount (ug/L)	BS Result (ug/L)	BS % Rec.	BSD Result (ug/L)	BSD % Rec.	RPD	Flag
Glyphosate	0	100	95	95	96	96	0.8	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - END02
Date Received:	-
Date Prepared:	8/1/95
Date Analyzed:	8/4/95
% Solids	-

Endothall by EPA Method 548.1

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High

Analyte	Result (ug/L)	PQL	Flags
Endothall	ND	1	

SOUND ANALYTICAL SERVICES, INC.

Matrix Spike/Matrix Spike Duplicate Report

Client Sample ID: 595-0390
Lab ID: 50233-01
Date Prepared: 8/1/95
Date Analyzed: 8/4/95
QC Batch ID: END02

Endothall by EPA Method 548.1

Compound Name	Sample Result (ug/L)	Spike Amount (ug/L)	MS Result (ug/L)	MS % Rec.	MSD Result (ug/L)	MSD % Rec.	RPD	Flag
Endothall	0	10	4.7	47	3.8	38	21.0	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - PD2
Date Received:	-
Date Prepared:	8/12/95
Date Analyzed:	8/15/95
% Solids	-

Paraquat & Diquat by EPA Method 549

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High

Analyte	Result (ug/L)	PQL	Flags
Paraquat	ND	0.2	
Diquat	ND	0.2	

SOUND ANALYTICAL SERVICES, INC.

Matrix Spike/Matrix Spike Duplicate Report

Client Sample ID:	595-0390
Lab ID:	50233-01
Date Prepared:	8/12/95
Date Analyzed:	8/15/95
QC Batch ID:	PD2

Paraquat & Diquat by EPA Method 549

Compound Name	Sample Result (ug/L)	Spike Amount (ug/L)	MS Result (ug/L)	MS % Rec.	MSD Result (ug/L)	MSD % Rec.	RPD	Flag
Diquat	0	2	1	52	1.4	68	27.0	



18939 120th Avenue N.E., Suite 101 • Bothell, WA 98011-9508 (206) 481-9200 • FAX 485-2992
East 11115 Montgomery, Suite B • Spokane, WA 99206-4776 (509) 924-9200 • FAX 924-9290
9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

August 30, 1995

Sound Analytical Services, Inc.
4813 Pacific Hwy. East
Tacoma, WA 98424

Attention: AJ Riddell

RE: JOB # 50751
P.O.#
PROJECT - 50751

Enclosed are test results for your samples received in this lab on Aug. 14, 1995. For your reference, these analyses have been assigned our NCA # P508173.

Solid samples are reported on a dry weight basis except for Oregon DEQ Fuels Methods and where otherwise noted.

This report will be accompanied by a separate Quality Control Data Report, unless omitted by client request.

Please call if you have any questions.

Respectfully,

A handwritten signature in cursive script that reads 'Cindy Hetrick'.

Cindy Hetrick
Project Manager

Methane in water by GC/FID
Results In mg/L (ppm)

Client: Sound Analytical Services, Inc.
Project: 50751

NCA Project #: P508173
Matrix: water
Sampled: 07/19/95
Received: 08/14/95

Client ID	Lab ID	Analyte	Results	MRL	Date Prepared	Date Analyzed
95A13363 Smart Ranch	P508173-1	Methane	ND	0.50	08/23/95	08/23/95
95A13364 Washington Ranc	P508173-2	Methane	ND	0.50	08/23/95	08/23/95

MRL
ND
*

Method Reporting Level
None Detected at or above the method reporting level
See Comment Section at end of report

BATCH QUALITY CONTROL RESULTS
Methane in water by GC/FIDClient: Sound Analytical Services, Inc.
Project: 50751NCA Project #: P508173
Received: 08/14/95**METHOD BLANK**
Batch # SP95823
Results In mg/L (ppm)

Compound	Result	MRL
Methane	ND	0.50
Date Prepared	08/23/95	
Date Analyzed	08/23/95	

August 30, 1995

Sound Analytical Services, Inc.
4813 Pacific Hwy. East
Tacoma, WA 98424

Attention: AJ Riddell

Re: Quality Control Data
JOB # 50751
P.O.#
PROJECT - 50751

NCA project number P508173.

Note: Surrogate Recoveries are included in the final report.

QUALITY CONTROL DEFINITIONS

METHOD BLANK RESULTS

The method blank is an analyte-free matrix which is carried through the same analytical process as the samples. It is used to document contamination that may result from the analytical process.

SURROGATE STANDARD

A surrogate standard (i.e., a chemical compound not expected to occur in an environmental sample) is added to each sample, blank, and matrix spike sample just prior to extraction or processing. The recovery of the surrogate standard is used to monitor for unusual matrix effects, gross sample processing errors, etc. Surrogate recovery is evaluated for acceptance by determining whether the measured concentration falls within accepted limits.

Accuracy is measured by percent recovery as in:

$$\% \text{ Recovery} = \frac{(\text{Measured Concentration})}{(\text{Actual Concentration})} \times 100$$

Precision is measured using duplicate tests by relative percent difference.

$$\text{RPD} = \frac{(\text{Result of Test 1} - \text{Result of Test 2})}{(\text{Result of Test 1} + \text{Result of Test 2})/2} \times 100$$

If you should have any questions concerning this report, please contact me.

Sincerely,



Cindy Hetrick
Project Manager



To: North Creek

14813 Pacific Hwy. East
Tacoma, Washington 98424
(206) 922-2310 • FAX (206)

44813 Pacific Hwy. East
Tacoma, Washington 98424
(206) 922-2310 • FAX (206) 922-5047

CHAIN OF CUSTODY / REQUEST FOR LABORATORY ANALYSIS

[illegible]

SOUND ANALYTICAL SERVICES, INC.

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 • TELEPHONE 206-922-2310 • FAX 206-922-5047

DATA QUALIFIERS AND ABBREVIATIONS

- J:** The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.
- B1:** This analyte was also detected in the associated method blank. The reported sample results have been adjusted for moisture, final extract volume, and/or dilutions performed during extract preparation. The analyte concentration was evaluated prior to sample preparation adjustments, and was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).
- B2:** This analyte was also detected in the associated method blank. However, the analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).
- E:** The concentration of this analyte exceeded the instrument calibration range.
- D:** The reported result for this analyte is calculated based on a secondary dilution factor.
- X1:** Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.
- X2:** Contaminant does not appear to be "typical" product. Further testing is suggested for identification.
- X3:** Identification and quantification of peaks was complicated by matrix interference; GC/MS confirmation is recommended.
- X4:** RPD for duplicates outside advisory QC limits. Sample was re-analyzed with similar results.
- X4a:** RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit.
- X5:** Matrix spike was diluted out during analysis.
- X6:** Recovery of matrix spike outside advisory QC limits. Sample was re-analyzed with similar results.
- X7:** Recovery of matrix spike outside advisory QC limits. Matrix interference is indicated by blank spike recovery data.
- X7a:** Recovery and/or RPD values for MS/MSD outside advisory QC limits due to high contaminant levels.
- X8:** Surrogate was diluted out during analysis.
- X9:** Surrogate recovery outside advisory QC limits due to matrix composition.
- N:** See analytical narrative.
- ND:** Not Detected
- PQL:** Practical Quantitation Limit
- MCL:** Maximum Contaminant Level

CHAIN OF CUSTODY RECORD

[illegible]

**TRANSMISSION OPERATIONS LABORATORY
EL PASO NATURAL GAS COMPANY
8645 RAILROAD DRIVE
EL PASO, TEXAS 78904**

915-541-9228 FAX: 915-541-9335

Write - Testing Laboratory **Canary - EPNG Lab** **Pink - Field Sampler**

FM-08-0586 (Rev. 11-92)

P. 03

FAX NO. 2069222310

SOUND ANALYTICAL

SEP-11-95 MON 16:00

CHAIN OF CUSTODY / REQUEST FOR LABORATORY ANALYSIS

[illegible]



Analytical **Technologies**, Inc.

2709-D Pan American Freeway, NE Albuquerque, NM 87107
Phone (505) 344-3777 FAX (505) 344-4413

ATI I.D. 505357

June 13, 1995

NMOCB-Environmental Bureau
2400 S. Pacheco
Santa Fe, NM 87505

Project Name/Number: WASHINGTON RANCH

Attention: Mark Ashley

On 05/12/95, Analytical Technologies, Inc., (ADHS License No. AZ0015), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

Please note additional case narrative on wet chemistry results included in this report. Please note that Sulfate and Calcium results have been revised for select samples.

Hydrocarbon Distribution analyses were performed by West Coast Analytical, 9840 Alburdis Avenue, Santa Fe Springs, CA 90670. (See attachment 1)

EPA method 8010/8020 analyses were performed by Analytical Technologies, Inc., Albuquerque, NM.

Bromide analyses were performed by Analytical Technologies, Inc., 9830 S. 51st Street, Suite B-113, Phoenix, AZ.

All other analyses were performed by Analytical Technologies, Inc., 11 East Olive Road, Pensacola, FL.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

Letitia Krakowski, Ph.D.
Project Manager

H. Mitchell Rubenstein, Ph.D.
Laboratory Manager

MR:jt

Enclosure



Analytical **Technologies**, Inc.

CLIENT : OIL CONSERVATION DIVISION
PROJECT # : WASHINGTON RANCH
PROJECT NAME : (NONE)

DATE RECEIVED: 05/12/95

REPORT DATE : 06/13/95

ATI ID: 505357

	ATI PHOENIX ID #	ATI PENSACOLA ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	505804-01	505357-01	A.C. HOOD POND WELL	AQUEOUS	05/11/95
02	505804-02	505357-02	GEORGE SMART	AQUEOUS	05/11/95
03	505804-03	505357-03	JOHN BALLARD	AQUEOUS	05/11/95
04	505804-04	505357-04	A.C. HOOD	AQUEOUS	05/11/95
05	505804-05	505357-05	RATTLESNAKE SPRINGS (RS)	AQUEOUS	05/11/95
06	505804-06	505357-06	EPNG-WELL	AQUEOUS	05/11/95
07	505804-07	505357-07	HOOD HAND	AQUEOUS	05/11/95

---TOTALS---

<u>MATRIX</u>	<u>#SAMPLES</u>
AQUEOUS	7

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS/AROMATICS (EPA 601/602)
CLIENT : OIL CONSERVATION DIVISION ATI I.D.: 505357
PROJECT # : WASHINGTON RANCH
PROJECT NAME : (NONE)

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	A.C. HOOD POND WELL	AQUEOUS	05/11/95	NA	05/18/95	1
02	GEORGE SMART	AQUEOUS	05/11/95	NA	05/18/95	1
03	JOHN BALLARD	AQUEOUS	05/11/95	NA	05/18/95	1

PARAMETER	UNITS	01	02	03
BENZENE	UG/L	<0.5	<0.5	<0.5
BROMODICHLOROMETHANE	UG/L	<0.2	<0.2	<0.2
BROMOFORM	UG/L	<0.5	<0.5	<0.5
BROMOMETHANE	UG/L	<1.0	<1.0	<1.0
CARBON TETRACHLORIDE	UG/L	<0.2	<0.2	<0.2
CHLOROBENZENE	UG/L	<0.5	<0.5	<0.5
CHLOROETHANE	UG/L	<0.5	<0.5	<0.5
CHLOROFORM	UG/L	<0.5	<0.5	<0.5
CHLOROMETHANE	UG/L	<1.0	<1.0	<1.0
DIBROMOCHLOROMETHANE	UG/L	<0.2	<0.2	<0.2
1,2-DIBROMOETHANE (EDB)	UG/L	<0.2	<0.2	<0.2
1,2-DICHLOROBENZENE	UG/L	<0.5	<0.5	<0.5
1,3-DICHLOROBENZENE	UG/L	<0.5	<0.5	<0.5
1,4-DICHLOROBENZENE	UG/L	<0.5	<0.5	<0.5
1,1-DICHLOROETHANE	UG/L	<0.2	<0.2	<0.2
1,2-DICHLOROETHANE (EDC)	UG/L	<0.5	<0.5	<0.5
1,1-DICHLOROETHENE	UG/L	<0.2	<0.2	<0.2
CIS-1,2-DICHLOROETHENE	UG/L	<0.2	<0.2	<0.2
TRANS-1,2-DICHLOROETHENE	UG/L	<1.0	<1.0	<1.0
1,2-DICHLOROPROPANE	UG/L	<0.2	<0.2	<0.2
CIS-1,3-DICHLOROPROPENE	UG/L	<0.2	<0.2	<0.2
TRANS-1,3-DICHLOROPROPENE	UG/L	<0.2	<0.2	<0.2
ETHYLBENZENE	UG/L	<0.5	<0.5	<0.5
METHYL-t-BUTYL ETHER	UG/L	<2.5	<2.5	<2.5
METHYLENE CHLORIDE	UG/L	<2.0	<2.0	<2.0
1,1,2,2-TETRACHLOROETHANE	UG/L	<0.2	<0.2	<0.2
TETRACHLOROETHENE	UG/L	<0.5	<0.5	<0.5
TOLUENE	UG/L	<0.5	<0.5	<0.5
1,1,1-TRICHLOROETHANE	UG/L	<1.0	<1.0	<1.0
1,1,2-TRICHLOROETHANE	UG/L	<0.2	<0.2	<0.2
TRICHLOROETHENE	UG/L	<0.2	<0.2	<0.2
TRICHLOROFLUOROMETHANE	UG/L	<0.2	<0.2	<0.2
VINYL CHLORIDE	UG/L	<0.5	<0.5	<0.5
TOTAL XYLENES	UG/L	<0.5	<0.5	<0.5

SURROGATES:

BROMOCHLOROMETHANE (%)	106	103	102
TRIFLUOROTOLUENE (%)	100	97	98



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS/AROMATICS (EPA 601/602)
CLIENT : OIL CONSERVATION DIVISION ATI I.D.: 505357
PROJECT # : WASHINGTON RANCH
PROJECT NAME : (NONE)

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	A.C. HOOD	AQUEOUS	05/11/95	NA	05/18/95	1
05	RATTLESNAKE SPRINGS (RS)	AQUEOUS	05/11/95	NA	05/18/95	1
06	EPNG - WELL	AQUEOUS	05/11/95	NA	05/18/95	1
PARAMETER			UNITS	04	05	06
BENZENE			UG/L	<0.5	<0.5	<0.5
BROMODICHLOROMETHANE			UG/L	<0.2	<0.2	<0.2
BROMOFORM			UG/L	<0.5	<0.5	<0.5
BROMOMETHANE			UG/L	<1.0	<1.0	<1.0
CARBON TETRACHLORIDE			UG/L	<0.2	<0.2	<0.2
CHLOROBENZENE			UG/L	<0.5	<0.5	<0.5
CHLOROETHANE			UG/L	<0.5	<0.5	<0.5
CHLOROFORM			UG/L	<0.5	<0.5	<0.5
CHLOROMETHANE			UG/L	<1.0	<1.0	<1.0
DIBROMOCHLOROMETHANE			UG/L	<0.2	<0.2	<0.2
1,2-DIBROMOETHANE (EDB)			UG/L	<0.2	<0.2	<0.2
1,2-DICHLOROBENZENE			UG/L	<0.5	<0.5	<0.5
1,3-DICHLOROBENZENE			UG/L	<0.5	<0.5	<0.5
1,4-DICHLOROBENZENE			UG/L	<0.5	<0.5	<0.5
1,1-DICHLOROETHANE			UG/L	<0.2	<0.2	<0.2
1,2-DICHLOROETHANE (EDC)			UG/L	<0.5	<0.5	<0.5
1,1-DICHLOROETHENE			UG/L	<0.2	<0.2	<0.2
CIS-1,2-DICHLOROETHENE			UG/L	<0.2	<0.2	<0.2
TRANS-1,2-DICHLOROETHENE			UG/L	<1.0	<1.0	<1.0
1,2-DICHLOROPROPANE			UG/L	<0.2	<0.2	<0.2
CIS-1,3-DICHLOROPROPENE			UG/L	<0.2	<0.2	<0.2
TRANS-1,3-DICHLOROPROPENE			UG/L	<0.2	<0.2	<0.2
ETHYLBENZENE			UG/L	<0.5	<0.5	<0.5
METHYL-t-BUTYL ETHER			UG/L	<2.5	<2.5	<2.5
METHYLENE CHLORIDE			UG/L	<2.0	<2.0	<2.0
1,1,2,2-TETRACHLOROETHANE			UG/L	<0.2	<0.2	<0.2
TETRACHLOROETHENE			UG/L	<0.5	<0.5	<0.5
TOLUENE			UG/L	<0.5	<0.5	<0.5
1,1,1-TRICHLOROETHANE			UG/L	<1.0	<1.0	<1.0
1,1,2-TRICHLOROETHANE			UG/L	<0.2	<0.2	<0.2
TRICHLOROETHENE			UG/L	<0.2	<0.2	<0.2
TRICHLOROFLUOROMETHANE			UG/L	<0.2	<0.2	<0.2
VINYL CHLORIDE			UG/L	<0.5	<0.5	<0.5
TOTAL XYLENES			UG/L	<0.5	<0.5	<0.5

SURROGATES:

BROMOCHLOROMETHANE (%)	104	96	99
TRIFLUOROTOLUENE (%)	97	97	96



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS/AROMATICS (EPA 601/602)
CLIENT : OIL CONSERVATION DIVISION ATI I.D.: 505357
PROJECT # : WASHINGTON RANCH
PROJECT NAME : (NONE)

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
07	HOOD HAND	AQUEOUS	05/11/95	NA	05/18/95	1
PARAMETER			UNITS	07		
BENZENE			UG/L	<0.5		
BROMODICHLOROMETHANE			UG/L	<0.2		
BROMOFORM			UG/L	<0.5		
BROMOMETHANE			UG/L	<1.0		
CARBON TETRACHLORIDE			UG/L	<0.2		
CHLOROBENZENE			UG/L	<0.5		
CHLOROETHANE			UG/L	<0.5		
CHLOROFORM			UG/L	<0.5		
CHLOROMETHANE			UG/L	<1.0		
DIBROMOCHLOROMETHANE			UG/L	<0.2		
1,2-DIBROMOETHANE (EDB)			UG/L	<0.2		
1,2-DICHLOROBENZENE			UG/L	<0.5		
1,3-DICHLOROBENZENE			UG/L	<0.5		
1,4-DICHLOROBENZENE			UG/L	<0.5		
1,1-DICHLOROETHANE			UG/L	<0.2		
1,2-DICHLOROETHANE (EDC)			UG/L	<0.5		
1,1-DICHLOROETHENE			UG/L	<0.2		
CIS-1,2-DICHLOROETHENE			UG/L	<0.2		
TRANS-1,2-DICHLOROETHENE			UG/L	<1.0		
1,2-DICHLOROPROPANE			UG/L	<0.2		
CIS-1,3-DICHLOROPROPENE			UG/L	<0.2		
TRANS-1,3-DICHLOROPROPENE			UG/L	<0.2		
ETHYLBENZENE			UG/L	<0.5		
METHYL-t-BUTYL ETHER			UG/L	<2.5		
METHYLENE CHLORIDE			UG/L	<2.0		
1,1,2,2-TETRACHLOROETHANE			UG/L	<0.2		
TETRACHLOROETHENE			UG/L	<0.5		
TOLUENE			UG/L	<0.5		
1,1,1-TRICHLOROETHANE			UG/L	<1.0		
1,1,2-TRICHLOROETHANE			UG/L	<0.2		
TRICHLOROETHENE			UG/L	<0.2		
TRICHLOROFLUOROMETHANE			UG/L	<0.2		
VINYL CHLORIDE			UG/L	<0.5		
TOTAL XYLENES			UG/L	<0.5		

SURROGATES:

BROMOCHLOROMETHANE (%)	96
TRIFLUOROTOLUENE (%)	100



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS - QUALITY CONTROL

REAGENT BLANK

TEST	: EPA 601/602	ATI I.D.	: 505357
BLANK I.D.	: 051795	MATRIX	: AQUEOUS
CLIENT	: OIL CONSERVATION DIVISION	DATE EXTRACTED	: N/A
PROJECT #	: WASHINGTON RANCH	DATE ANALYZED	: 05/17/95
PROJECT NAME	: (NONE)	DIL. FACTOR	: 1

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
BROMODICHLOROMETHANE	UG/L	<0.2
BROMOFORM	UG/L	<0.5
BROMOMETHANE	UG/L	<1.0
CARBON TETRACHLORIDE	UG/L	<0.2
CHLOROBENZENE	UG/L	<0.5
CHLOROETHANE	UG/L	<0.5
CHLOROFORM	UG/L	<0.5
CHLOROMETHANE	UG/L	<1.0
DIBROMOCHLOROMETHANE	UG/L	<0.2
1,2-DIBROMOETHANE (EDB)	UG/L	<0.2
1,2-DICHLOROBENZENE	UG/L	<0.5
1,3-DICHLOROBENZENE	UG/L	<0.5
1,4-DICHLOROBENZENE	UG/L	<0.5
1,1-DICHLOROETHANE	UG/L	<0.2
1,2-DICHLOROETHANE (EDC)	UG/L	<0.5
1,1-DICHLOROETHENE	UG/L	<0.2
CIS-1,2-DICHLOROETHENE	UG/L	<0.2
TRANS-1,2-DICHLOROETHENE	UG/L	<1.0
1,2-DICHLOROPROPANE	UG/L	<0.2
CIS-1,3-DICHLOROPROPENE	UG/L	<0.2
TRANS-1,3-DICHLOROPROPENE	UG/L	<0.2
ETHYLBENZENE	UG/L	<0.5
METHYL-t-BUTYL ETHER	UG/L	<2.5
METHYLENE CHLORIDE	UG/L	<2.0
1,1,2,2-TETRACHLOROETHANE	UG/L	<0.2
TETRACHLOROETHENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
1,1,1-TRICHLOROETHANE	UG/L	<1.0
1,1,2-TRICHLOROETHANE	UG/L	<0.2
TRICHLOROETHENE	UG/L	<0.2
TRICHLOROFLUOROMETHANE	UG/L	<0.2
VINYL CHLORIDE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5

SURROGATES:

BROMOCHLOROMETHANE (%)	100
TRIFLUOROTOLUENE (%)	99



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS - QUALITY CONTROL

REAGENT BLANK

TEST	: EPA 601/602	ATI I.D.	: 505357
BLANK I.D.	: 051795B	MATRIX	: AQUEOUS
CLIENT	: OIL CONSERVATION DIVISION	DATE EXTRACTED	: N/A
PROJECT #	: WASHINGTON RANCH	DATE ANALYZED	: 05/18/95
PROJECT NAME	: (NONE)	DIL. FACTOR	: 1

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
BROMODICHLOROMETHANE	UG/L	<0.2
BROMOFORM	UG/L	<0.5
BROMOMETHANE	UG/L	<1.0
CARBON TETRACHLORIDE	UG/L	<0.2
CHLOROBENZENE	UG/L	<0.5
CHLOROETHANE	UG/L	<0.5
CHLOROFORM	UG/L	<0.5
CHLOROMETHANE	UG/L	<1.0
DIBROMOCHLOROMETHANE	UG/L	<0.2
1,2-DIBROMOETHANE (EDB)	UG/L	<0.2
1,2-DICHLOROBENZENE	UG/L	<0.5
1,3-DICHLOROBENZENE	UG/L	<0.5
1,4-DICHLOROBENZENE	UG/L	<0.5
1,1-DICHLOROETHANE	UG/L	<0.2
1,2-DICHLOROETHANE (EDC)	UG/L	<0.5
1,1-DICHLOROETHENE	UG/L	<0.2
CIS-1,2-DICHLOROETHENE	UG/L	<0.2
TRANS-1,2-DICHLOROETHENE	UG/L	<1.0
1,2-DICHLOROPROPANE	UG/L	<0.2
CIS-1,3-DICHLOROPROPENE	UG/L	<0.2
TRANS-1,3-DICHLOROPROPENE	UG/L	<0.2
ETHYLBENZENE	UG/L	<0.5
METHYL-t-BUTYL ETHER	UG/L	<2.5
METHYLENE CHLORIDE	UG/L	<2.0
1,1,2,2-TETRACHLOROETHANE	UG/L	<0.2
TETRACHLOROETHENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
1,1,1-TRICHLOROETHANE	UG/L	<1.0
1,1,2-TRICHLOROETHANE	UG/L	<0.2
TRICHLOROETHENE	UG/L	<0.2
TRICHLOROFLUOROMETHANE	UG/L	<0.2
VINYL CHLORIDE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5

SURROGATES:

BROMOCHLOROMETHANE (%)	98
TRIFLUOROTOLUENE (%)	99



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - QUALITY CONTROL

MSMSD

TEST : PURGEABLE HALOCARBONS/AROMATICS (EPA 601/602)
MSMSD # : 50535705 ATI I.D. : 505357
CLIENT : OIL CONSERVATION DIVISION DATE EXTRACTED : NA
PROJECT # : WASHINGTON RANCH DATE ANALYZED : 05/18/95
PROJECT NAME : (NONE) SAMPLE MATRIX : AQUEOUS
REF. I.D. : 50535705 UNITS : UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD
BENZENE	<0.5	10	11	110	10	100	10
CHLOROBENZENE	<0.5	10	11	110	11	110	0
1,1-DICHLOROETHENE	<0.2	10	7.3	73	7.3	73	0
TOLUENE	<0.5	10	11	110	11	110	0
TRICHLOROETHENE	<0.2	10	11	110	10	100	10

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$



Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 505804

CLIENT : ANALYTICAL TECHNOLOGIES, INC-NM
PROJECT # : WASHINGTON RANCH
PROJECT NAME : (NONE)

DATE RECEIVED : 05/16/95

REPORT DATE : 06/13/95

PARAMETER	UNITS	01	02	03	04	05
BROMIDE (EPA 300.0)	MG/L	<0.3	<0.3	<0.3	<0.3	<0.3



Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 505804

CLIENT : ANALYTICAL TECHNOLOGIES, INC-NM
PROJECT # : WASHINGTON RANCH
PROJECT NAME : (NONE)

DATE RECEIVED : 05/16/95

REPORT DATE : 06/13/95

PARAMETER	UNITS	06	07
BROMIDE (EPA 300.0)	MG/L	<0.3	<0.3



Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : ANALYTICAL TECHNOLOGIES, INC-NM
PROJECT # : WASHINGTON RANCH
PROJECT NAME : (NONE)

ATI I.D. : 505804

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE CONC	SPIKE CONC	% REC
BROMIDE	MG/L	50580401	<0.3	<0.3	NA	1.5	2.0	75

% Recovery = $\frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$

RPD (Relative Percent Difference) = $\frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$

CASE NARRATIVE

LABORATORY NAME: Analytical Technologies, Inc.
PROJECT NAME: Oil Conservation Division
PROJECT NUMBER: 505357

<u>ATI-FC SAMPLE ID</u>	<u>ATI LABORATORY ACCESSION NUMBER</u>
505357-01	505358-001
505357-02	505358-002
505357-03	505358-003
505357-04	505358-004
505357-05	505358-005
505357-06	505358-006
505357-07	505358-007

The listed samples were received in good condition on May 13, 1995.

Analysis for metals and wet chemistry parameters were performed on all samples listed in order to perform a cation/anion balance. The report was originally sent on May 25, 1995 without the requested cation/anion balance calculation. The enclosed report has been revised (as noted below) and includes the cation/anion balance calculation requested.

Reanalysis and revised results are included for the following:

<u>Client ID</u>	<u>ATI Accession Number</u>	<u>Analysis revised</u>
505357-01	505358-001	Sulfate
505357-03	505358-003	Sulfate, Calcium
505357-05	505358-005	Sulfate, Calcium
505357-06	505358-006	Sulfate, Calcium

The requested 5% balance was not achieved for ATI Accession numbers 505358-001, -002, -004, -005, and -006.



Analytical Technologies, Inc.

Cation-Anion Balance Worksheet

Accession Number: 505358-1

<u>Anions</u>	<u>Result (mg/l)</u>	<u>Factor</u>	<u>Total (me/l)</u>
Alkalinity	210		
Chloride	6	0.02821	0.16926
Fluoride	0.5	0.05264	0.02632
Nitrate as N	0.8	0.01613	0.01290
Sulfate	500	0.02082	10.41000
Carbonate	0	0.03333	0.00000
Bi-Carbonate	210	0.01639	3.44190
Total Anions =			14.06038

<u>Cations</u>	<u>Result (mg/l)</u>	<u>Factor</u>	<u>Total (me/l)</u>
Calcium	280	0.04990	13.97200
Potassium	0	0.02558	0.00000
Magnesium	53	0.08229	4.36137
Sodium	19	0.04350	0.82650
Copper	0	0.03147	0.00000
Iron	0.03	0.05372	0.00161
Manganese	0	0.03640	0.00000
Zinc	0	0.03059	0.00000
Total Cations =			19.16148

Anion/Cation Balance (% difference) = 15.4%

Total Anions+Cations =	985 mg/l	(calculated)
Total Dissolved Solids =	1200 mg/l	(measured)
TDS/ion sum ratio =	1.22	
Electrical Cond =	1400 umh/cm	(measured)
TDS/EC ratio =	0.857	



Analytical Technologies, Inc.

Cation-Anion Balance Worksheet

Accession Number: 505358-2

<u>Anions</u>	<u>Result (mg/l)</u>	<u>Factor</u>	<u>Total (me/l)</u>
Alkalinity	230		
Chloride	12	0.02821	0.33852
Fluoride	0.3	0.05264	0.01579
Nitrate as N	1.5	0.01613	0.02420
Sulfate	75	0.02082	1.56150
Carbonate	1	0.03333	0.03333
Bi-Carbonate	230	0.01639	3.76970

Total Anions = 5.743037

<u>Cations</u>	<u>Result (mg/l)</u>	<u>Factor</u>	<u>Total (me/l)</u>
Calcium	81	0.04990	4.04190
Potassium	0	0.02558	0.00000
Magnesium	33	0.08229	2.71557
Sodium	8.8	0.04350	0.38280
Copper	0	0.03147	0.00000
Iron	0.03	0.05372	0.00161
Manganese	0	0.03640	0.00000
Zinc	0	0.03059	0.00000

Total Cations = 7.141882

Anion/Cation Balance (% difference) = 10.9%

Total Anions+Cations =	350 mg/l	(calculated)
Total Dissolved Solids =	390 mg/l	(measured)
TDS/ion sum ratio =	1.12	
Electrical Cond =	500 umh/cm	(measured)
TDS/EC ratio =	0.780	



Analytical Technologies, Inc.

Cation-Anion Balance Worksheet

Accession Number: 505358-3

<u>Anions</u>	<u>Result (mg/l)</u>	<u>Factor</u>	<u>Total (me/l)</u>
Alkalinity	200		
Chloride	7	0.02821	0.19747
Fluoride	0.6	0.05264	0.03158
Nitrate as N	0	0.01613	0.00000
Sulfate	680	0.02082	14.15760
Carbonate	0	0.03333	0.00000
Bi-Carbonate	200	0.01639	3.27800
Total Anions =			17.66465

<u>Cations</u>	<u>Result (mg/l)</u>	<u>Factor</u>	<u>Total (me/l)</u>
Calcium	320	0.04990	15.96800
Potassium	4	0.02558	0.10232
Magnesium	38	0.08229	3.12702
Sodium	10	0.04350	0.43500
Copper	0	0.03147	0.00000
Iron	0.46	0.05372	0.02471
Manganese	1	0.03640	0.03640
Zinc	0	0.03059	0.00000
Total Cations =			19.69345

Anion/Cation Balance (% difference) = 5.4%

Total Anions+Cations =	1181 mg/l	(calculated)
Total Dissolved Solids =	1200 mg/l	(measured)
TDS/ion sum ratio =	1.02	
Electrical Cond =	1400 umh/cm	(measured)
TDS/EC ratio =	0.857	



Analytical Technologies, Inc.

Cation-Anion Balance Worksheet

Accession Number: 505358-4

<u>Anions</u>	<u>Result (mg/l)</u>	<u>Factor</u>	<u>Total (me/l)</u>
Alkalinity	230		
Chloride	4	0.02821	0.11284
Fluoride	0.3	0.05264	0.01579
Nitrate as N	0.8	0.01613	0.01290
Sulfate	31	0.02082	0.64542
Carbonate	1	0.03333	0.03333
Bi-Carbonate	230	0.01639	3.76970

Total Anions = 4.589986

<u>Cations</u>	<u>Result (mg/l)</u>	<u>Factor</u>	<u>Total (me/l)</u>
Calcium	83	0.04990	4.14170
Potassium	3	0.02558	0.07674
Magnesium	31	0.08229	2.55099
Sodium	5.2	0.04350	0.22620
Copper	0	0.03147	0.00000
Iron	0.04	0.05372	0.00215
Manganese	0	0.03640	0.00000
Zinc	0	0.03059	0.00000

Total Cations = 6.997779

Anion/Cation Balance (% difference) = 20.8%

Total Anions+Cations =	296 mg/l	(calculated)
Total Dissolved Solids =	310 mg/l	(measured)
TDS/ion sum ratio =	1.05	
Electrical Cond =	450 umh/cm	(measured)
TDS/EC ratio =	0.689	



Analytical Technologies, Inc.

Cation-Anion Balance Worksheet

Accession Number: 505358-5

<u>Anions</u>	<u>Result (mg/l)</u>	<u>Factor</u>	<u>Total (me/l)</u>
Alkalinity	230		
Chloride	4	0.02821	0.11284
Fluoride	0.5	0.05264	0.02632
Nitrate as N	0.8	0.01613	0.01290
Sulfate	170	0.02082	3.53940
Carbonate	1	0.03333	0.03333
Bi-Carbonate	230	0.01639	3.76970

Total Anions = 7.494494

<u>Cations</u>	<u>Result (mg/l)</u>	<u>Factor</u>	<u>Total (me/l)</u>
Calcium	110	0.04990	5.48900
Potassium	4	0.02558	0.10232
Magnesium	32	0.08229	2.63328
Sodium	5.6	0.04350	0.24360
Copper	0	0.03147	0.00000
Iron	0.12	0.05372	0.00645
Manganese	0	0.03640	0.00000
Zinc	0.03	0.03059	0.00092

Total Cations = 8.475564

Anion/Cation Balance (% difference) = 6.1%

Total Anions+Cations =	465 mg/l	(calculated)
Total Dissolved Solids =	460 mg/l	(measured)
TDS/ion sum ratio =	0.99	
Electrical Cond =	680 umh/cm	(measured)
TDS/EC ratio =	0.676	



Analytical Technologies, Inc.

Cation-Anion Balance Worksheet

Accession Number: 505358-6

<u>Anions</u>	<u>Result (mg/l)</u>	<u>Factor</u>	<u>Total (me/l)</u>
Alkalinity	240		
Chloride	4	0.02821	0.11284
Fluoride	0.5	0.05264	0.02632
Nitrate as N	0.9	0.01613	0.01452
Sulfate	49	0.02082	1.02018
Carbonate	1	0.03333	0.03333
Bi-Carbonate	240	0.01639	3.93360

Total Anions = 5.140787

<u>Cations</u>	<u>Result (mg/l)</u>	<u>Factor</u>	<u>Total (me/l)</u>
Calcium	76	0.04990	3.79240
Potassium	4	0.02558	0.10232
Magnesium	30	0.08229	2.46870
Sodium	4.6	0.04350	0.20010
Copper	0	0.03147	0.00000
Iron	0.03	0.05372	0.00161
Manganese	0	0.03640	0.00000
Zinc	0.02	0.03059	0.00061

Total Cations = 6.565743

Anion/Cation Balance (% difference) = 12.2%

Total Anions+Cations =	313 mg/l	(calculated)
Total Dissolved Solids =	250 mg/l	(measured)
TDS/ion sum ratio =	0.80	
Electrical Cond =	530 umh/cm	(measured)
TDS/EC ratio =	0.472	



Analytical Technologies, Inc.

Cation-Anion Balance Worksheet

Accession Number: 505358-7

<u>Anions</u>	<u>Result (mg/l)</u>	<u>Factor</u>	<u>Total (me/l)</u>
Alkalinity	190		
Chloride	6	0.02821	0.16926
Fluoride	0.7	0.05264	0.03685
Nitrate as N	1.1	0.01613	0.01774
Sulfate	970	0.02082	20.19540
Carbonate	0	0.03333	0.00000
Bi-Carbonate	190	0.01639	3.11410
Total Anions =			23.53335

<u>Cations</u>	<u>Result (mg/l)</u>	<u>Factor</u>	<u>Total (me/l)</u>
Calcium	390	0.04990	19.46100
Potassium	5	0.02558	0.12790
Magnesium	37	0.08229	3.04473
Sodium	9.6	0.04350	0.41760
Copper	0	0.03147	0.00000
Iron	0.25	0.05372	0.01343
Manganese	0	0.03640	0.00000
Zinc	0	0.03059	0.00000
Total Cations =			23.06466

Anion/Cation Balance (% difference) = 1.0%

Total Anions+Cations =	1534 mg/l	(calculated)
Total Dissolved Solids =	1300 mg/l	(measured)
TDS/ion sum ratio =	0.85	
Electrical Cond =	1600 umh/cm	(measured)
TDS/EC ratio =	0.813	



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 505358
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505357
Project Name: OIL CONSERVATION DIVISION
Project Location: WASHINGTON RANCH
Test: Group of Single Wetchem
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 505357-01		Lab ID: 001			
CHLORIDE (325.2)	MG/L	6	2	CKW14B	
CONDUCTIVITY (120.1)	UMH/CM	1400	1	CDW036	
FLUORIDE (340.2)	MG/L	0.5	0.2	FLW039	
AMMONIA, NITROGEN (350.1)	MG/L	ND	0.05	AAW26B	
PH (150.1)	UNITS	7.2	NA	PHW102	
SULFATE (375.4)	MG/L	500	100	SEW058	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1200	5	TDW031	
TOTAL KJELDAHL NITROGEN (351.2)	MG/L	ND	0.5	TAW21Q	

Comments:

Client ID: 505357-02		Lab ID: 002			
CHLORIDE (325.2)	MG/L	12	2	CKW14B	
CONDUCTIVITY (120.1)	UMH/CM	500	1	CDW036	
FLUORIDE (340.2)	MG/L	0.3	0.2	FLW039	
AMMONIA, NITROGEN (350.1)	MG/L	ND	0.05	AAW26B	
PH (150.1)	UNITS	7.4	NA	PHW102	
SULFATE (375.4)	MG/L	75	25	SEW044	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	390	5	TDW031	
TOTAL KJELDAHL NITROGEN (351.2)	MG/L	ND	0.5	TAW21Q	

Comments:

Client ID: 505357-03		Lab ID: 003			
CHLORIDE (325.2)	MG/L	7	2	CKW14B	
CONDUCTIVITY (120.1)	UMH/CM	1400	1	CDW036	
FLUORIDE (340.2)	MG/L	0.6	0.2	FLW039	
AMMONIA, NITROGEN (350.1)	MG/L	ND	0.05	AAW26B	
PH (150.1)	UNITS	7.1	NA	PHW102	
SULFATE (375.4)	MG/L	680	200	SEW058	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1200	5	TDW031	
TOTAL KJELDAHL NITROGEN (351.2)	MG/L	ND	0.5	TAW21Q	

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 505358
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505357
Project Name: OIL CONSERVATION DIVISION
Project Location: WASHINGTON RANCH
Test: Group of Single Wetchem
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 505357-04		Lab ID: 004			
CHLORIDE (325.2)	MG/L	4	2	CKW14B	
CONDUCTIVITY (120.1)	UMH/CM	450	1	CDW036	
FLUORIDE (340.2)	MG/L	0.3	0.2	FLW039	
AMMONIA, NITROGEN (350.1)	MG/L	ND	0.05	AAW26B	
PH (150.1)	UNITS	7.6	NA	PHW102	
SULFATE (375.4)	MG/L	31	10	SEW044	
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	310	5	TDW031	
TOTAL KJELDAHL NITROGEN (351.2)	MG/L	ND	0.5	TAW21Q	

Comments:

Client ID: 505357-05		Lab ID: 005			
CHLORIDE (325.2)	MG/L	4	2	CKW14B	
CONDUCTIVITY (120.1)	UMH/CM	680	1	CDW036	
FLUORIDE (340.2)	MG/L	0.5	0.2	FLW039	
AMMONIA, NITROGEN (350.1)	MG/L	ND	0.05	AAW26B	
PH (150.1)	UNITS	7.4	NA	PHW102	
SULFATE (375.4)	MG/L	170	50	SEW058	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	460	5	TDW031	
TOTAL KJELDAHL NITROGEN (351.2)	MG/L	ND	0.5	TAW21Q	

Comments:

Client ID: 505357-06		Lab ID: 006			
CHLORIDE (325.2)	MG/L	4	2	CKW14B	
CONDUCTIVITY (120.1)	UMH/CM	530	1	CDW036	
FLUORIDE (340.2)	MG/L	0.5	0.2	FLW039	
AMMONIA, NITROGEN (350.1)	MG/L	ND	0.05	AAW26B	
PH (150.1)	UNITS	7.4	NA	PHW102	
SULFATE (375.4)	MG/L	49	10	SEW058	
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	250	5	TDW031	
TOTAL KJELDAHL NITROGEN (351.2)	MG/L	ND	0.5	TAW21Q	

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 505358
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505357
Project Name: OIL CONSERVATION DIVISION
Project Location: WASHINGTON RANCH
Test: Group of Single Wetchem
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 505357-07		Lab ID: 007			
CHLORIDE (325.2)	MG/L	6	2	CKW14B	
CONDUCTIVITY (120.1)	UMH/CM	1600	1	CDW036	
FLUORIDE (340.2)	MG/L	0.7	0.2	FLW039	
AMMONIA, NITROGEN (350.1)	MG/L	ND	0.05	AAW26B	
PH (150.1)	UNITS	7.2	NA	PHW102	
SULFATE (375.4)	MG/L	970	200	SEW044	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1300	5	TDW031	
TOTAL KJELDAHL NITROGEN (351.2)	MG/L	ND	0.5	TAW21Q	

Comments:



Analytical Technologies, Inc.

"Method Report Summary"

Accession Number: 505358
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505357
Project Name: OIL CONSERVATION DIVISION
Project Location: WASHINGTON RANCH
Test: Group of Single Wetchem

Client Sample Id:	Parameter:	Unit:	Result:
505357-01	CHLORIDE (325.2)	MG/L	6
	CONDUCTIVITY (120.1)	UMH/CM	1400
	FLUORIDE (340.2)	MG/L	0.5
	PH (150.1)	UNITS	7.2
	SULFATE (375.4)	MG/L	500
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1200
505357-02	CHLORIDE (325.2)	MG/L	12
	CONDUCTIVITY (120.1)	UMH/CM	500
	FLUORIDE (340.2)	MG/L	0.3
	PH (150.1)	UNITS	7.4
	SULFATE (375.4)	MG/L	75
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	390
505357-03	CHLORIDE (325.2)	MG/L	7
	CONDUCTIVITY (120.1)	UMH/CM	1400
	FLUORIDE (340.2)	MG/L	0.6
	PH (150.1)	UNITS	7.1
	SULFATE (375.4)	MG/L	680
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1200
505357-04	CHLORIDE (325.2)	MG/L	4
	CONDUCTIVITY (120.1)	UMH/CM	450
	FLUORIDE (340.2)	MG/L	0.3
	PH (150.1)	UNITS	7.6
	SULFATE (375.4)	MG/L	31
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	310
505357-05	CHLORIDE (325.2)	MG/L	4
	CONDUCTIVITY (120.1)	UMH/CM	680
	FLUORIDE (340.2)	MG/L	0.5
	PH (150.1)	UNITS	7.4
	SULFATE (375.4)	MG/L	170
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	460
505357-06	CHLORIDE (325.2)	MG/L	4
	CONDUCTIVITY (120.1)	UMH/CM	530
	FLUORIDE (340.2)	MG/L	0.5
	PH (150.1)	UNITS	7.4
	SULFATE (375.4)	MG/L	49
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	250
505357-07	CHLORIDE (325.2)	MG/L	6
	CONDUCTIVITY (120.1)	UMH/CM	1600
	FLUORIDE (340.2)	MG/L	0.7
	PH (150.1)	UNITS	7.2
	SULFATE (375.4)	MG/L	970
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1300



Analytical Technologies, Inc.

"WetChem Quality Control Report"

Parameter:	CHLORIDE	CONDUCT'Y	FLUORIDE	NH3-ALP	PH	SULFATE
Batch Id:	CKW14B	CDW036	FLW039	AAW26B	PHW102	SEW058
Blank Result:	<2	<1	<0.2	<0.05	N/A	<10
Anal. Method:	325.2	120.1	340.2	350.1	150.1	375.4
Prep. Method:	N/A	N/A	N/A	N/A	N/A	N/A
Analysis Date:	22-MAY-95	23-MAY-95	22-MAY-95	18-MAY-95	13-MAY-95	05-JUN-95
Prep. Date:	22-MAY-95	23-MAY-95	22-MAY-95	18-MAY-95	13-MAY-95	05-JUN-95

Sample Duplication

Sample Dup:	505358-1	505358-1	505331-1	505331-1	505358-1	505358-1
Rept Limit:	<2	<1	<0.2	<0.05	N/A	<100+
Sample Result:	6.2	1408	0.73	<0.05	7.21	498
Dup Result:	6.3	1406	0.74	<0.05	7.20	489
Sample RPD:	0.1G	0	0.01G	N/C	0.01	9G
Max RPD:	2	4	0.2	0.05	0.12	100
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A

Matrix Spike

Sample Spiked:	505358-1	N/A	505331-1	505331-1	N/A	505358-5
Rept Limit:	<2	N/A	<0.2	<0.05	N/A	<50+
Sample Result:	6.2		0.73	<0.05		166
Spiked Result:	27.9		1.53	0.58		255
Spike Added:	20.0		0.80	0.50		100
% Recovery:	109		100	116		89
% Rec Limits:	77-130		70-129	74-140		51-151
Dry Weight%	N/A		N/A	N/A		N/A

ICV

ICV Result:	54	1414	1.19	1.99	9.94	19.1
True Result:	55	1413	1.20	2.00	10.00	20.0
% Recovery:	98	100	99	100	99	96
% Rec Limits:	90-110	90-110	90-110	90-110	90-110	90-110

LCS

LCS Result:	316			6.74	
True Result:	303			6.87	
% Recovery:	104			98	
% Rec Limits:	84-110			97-103	



Analytical Technologies, Inc.

"WetChem Quality Control Report"

Parameter:	TDS	TKN ALP	SULFATE
Batch Id:	TDW031	TAW21Q	SEW044
Blank Result:	<5	<0.5	<10
Anal. Method:	160.1	351.2	375.4
Prep. Method:	N/A	N/A	N/A
Analysis Date:	17-MAY-95	19-MAY-95	18-MAY-95
Prep. Date:	17-MAY-95	17-MAY-95	18-MAY-95

Sample Duplication

Sample Dup:	505358-5	505282-5	505358-7
Rept Limit:	<5	<0.5	<200+
Sample Result:	460	0.8	970
Dup Result:	436	1.1	946
Sample RPD:	5	0.3G	24G
Max RPD:	16	0.5	200
Dry Weight%	N/A	N/A	N/A

Matrix Spike

Sample Spiked:	N/A	505282-5	505358-4
Rept Limit:	N/A	<0.5	<10
Sample Result:		0.8	31
Spiked Result:		4.8	52
Spike Added:		4.0	20
% Recovery:		100	105
% Rec Limits:		71-124	51-151
Dry Weight%		N/A	N/A

ICV

ICV Result:	10.3	19
True Result:	10.0	20
% Recovery:	103	95
% Rec Limits:	90-110	90-110

LCS

LCS Result:	289	10.0
True Result:	293	10.0
% Recovery:	99	100
% Rec Limits:	66-122	81-117



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 505358
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505357
Project Name: OIL CONSERVATION DIVISION
Project Location: WASHINGTON RANCH
Test: Group of Single Metals
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 505357-01		Lab ID:001			
SILVER (6010)	MG/L	ND	0.01	A6W105	
ALUMINUM (6010)	MG/L	ND	0.06	L6W105	
ARSENIC (6010)	MG/L	ND	0.05	R6W105	
BORON (6010)	MG/L	ND	0.09	O6W105	
BARIUM (6010)	MG/L	0.01	0.01	B6W105	
BERYLLIUM (6010)	MG/L	ND	0.004	Y6W105	
CALCIUM (6010)	MG/L	280	1	I6W105	
CADMIUM (6010)	MG/L	ND	0.005	C6W105	
COBALT (6010)	MG/L	ND	0.01	T6W105	
CHROMIUM (6010)	MG/L	ND	0.01	H6W105	
COPPER (6010)	MG/L	ND	0.01	F6W105	
IRON (6010)	MG/L	0.03	0.02	N6W105	
POTASSIUM (6010)	MG/L	ND	2	X6W105	
MAGNESIUM (6010)	MG/L	53	0.2	J6W105	
MANGANESE (6010)	MG/L	ND	0.01	G6W105	
MOLYBDENUM (6010)	MG/L	ND	0.01	D6W105	
SODIUM (6010)	MG/L	19	0.2	16W112	
NICKEL (6010)	MG/L	ND	0.02	E6W105	
LEAD (6010)	MG/L	ND	0.05	P6W105	
ANTIMONY (6010)	MG/L	ND	0.06	36W105	
SELENIUM (6010)	MG/L	ND	0.1	S6W105	
SILICON (6010)	MG/L	7.1	0.1	26W105	
THALLIUM (6010)	MG/L	ND	0.1	46W105	
VANADIUM (6010)	MG/L	ND	0.01	V6W105	
ZINC (6010)	MG/L	ND	0.02	56W105	

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 505358
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505357
Project Name: OIL CONSERVATION DIVISION
Project Location: WASHINGTON RANCH
Test: Group of Single Metals
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 505357-02			Lab ID:002		
SILVER (6010)	MG/L	ND	0.01	A6W105	
ALUMINUM (6010)	MG/L	ND	0.06	L6W105	
ARSENIC (6010)	MG/L	ND	0.05	R6W105	
BORON (6010)	MG/L	ND	0.09	O6W105	
BARIUM (6010)	MG/L	0.10	0.01	B6W105	
BERYLLIUM (6010)	MG/L	ND	0.004	Y6W105	
CALCIUM (6010)	MG/L	81	1	I6W105	
CADMIUM (6010)	MG/L	ND	0.005	C6W105	
COBALT (6010)	MG/L	ND	0.01	T6W105	
CHROMIUM (6010)	MG/L	ND	0.01	H6W105	
COPPER (6010)	MG/L	ND	0.01	F6W105	
IRON (6010)	MG/L	0.03	0.02	N6W105	
POTASSIUM (6010)	MG/L	ND	2	X6W105	
MAGNESIUM (6010)	MG/L	33	0.2	J6W105	
MANGANESE (6010)	MG/L	ND	0.01	G6W105	
MOLYBDENUM (6010)	MG/L	ND	0.01	D6W105	
SODIUM (6010)	MG/L	8.8	0.2	16W112	
NICKEL (6010)	MG/L	ND	0.02	E6W105	
LEAD (6010)	MG/L	ND	0.05	P6W105	
ANTIMONY (6010)	MG/L	ND	0.06	36W105	
SELENIUM (6010)	MG/L	ND	0.1	S6W105	
SILICON (6010)	MG/L	5.9	0.1	26W105	
THALLIUM (6010)	MG/L	ND	0.1	46W105	
VANADIUM (6010)	MG/L	ND	0.01	V6W105	
ZINC (6010)	MG/L	ND	0.02	56W105	

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 505358
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505357
Project Name: OIL CONSERVATION DIVISION
Project Location: WASHINGTON RANCH
Test: Group of Single Metals
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 505357-03		Lab ID:003			
SILVER (6010)	MG/L	ND	0.01	A6W105	
ALUMINUM (6010)	MG/L	ND	0.06	L6W105	
ARSENIC (6010)	MG/L	ND	0.05	R6W105	
BORON (6010)	MG/L	ND	0.09	O6W105	
BARIUM (6010)	MG/L	0.02	0.01	B6W105	
BERYLLIUM (6010)	MG/L	ND	0.004	Y6W105	
CALCIUM (6010)	MG/L	320	1	I6W105	
CADMIUM (6010)	MG/L	ND	0.005	C6W105	
COBALT (6010)	MG/L	ND	0.01	T6W105	
CHROMIUM (6010)	MG/L	ND	0.01	H6W105	
COPPER (6010)	MG/L	ND	0.01	F6W105	
IRON (6010)	MG/L	0.46	0.02	N6W105	
POTASSIUM (6010)	MG/L	4	2	X6W105	
MAGNESIUM (6010)	MG/L	38	0.2	J6W105	
MANGANESE (6010)	MG/L	1.0	0.01	G6W105	
MOLYBDENUM (6010)	MG/L	ND	0.01	D6W105	
SODIUM (6010)	MG/L	10	0.2	16W112	
NICKEL (6010)	MG/L	ND	0.02	E6W105	
LEAD (6010)	MG/L	ND	0.05	P6W105	
ANTIMONY (6010)	MG/L	ND	0.06	36W105	
SELENIUM (6010)	MG/L	ND	0.1	S6W105	
SILICON (6010)	MG/L	8.0	0.1	26W105	
THALLIUM (6010)	MG/L	ND	0.1	46W105	
VANADIUM (6010)	MG/L	ND	0.01	V6W105	
ZINC (6010)	MG/L	ND	0.02	56W105	

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 505358
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505357
Project Name: OIL CONSERVATION DIVISION
Project Location: WASHINGTON RANCH
Test: Group of Single Metals
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 505357-04		Lab ID:004			
SILVER (6010)	MG/L	ND	0.01	A6W105	
ALUMINUM (6010)	MG/L	ND	0.06	L6W105	
ARSENIC (6010)	MG/L	ND	0.05	R6W105	
BORON (6010)	MG/L	ND	0.09	O6W105	
BARIUM (6010)	MG/L	0.11	0.01	B6W105	
BERYLLIUM (6010)	MG/L	ND	0.004	Y6W105	
CALCIUM (6010)	MG/L	83	1	I6W105	
CADMIUM (6010)	MG/L	ND	0.005	C6W105	
COBALT (6010)	MG/L	ND	0.01	T6W105	
CHROMIUM (6010)	MG/L	ND	0.01	H6W105	
COPPER (6010)	MG/L	ND	0.01	F6W105	
IRON (6010)	MG/L	0.04	0.02	N6W105	
POTASSIUM (6010)	MG/L	3	2	X6W105	
MAGNESIUM (6010)	MG/L	31	0.2	J6W105	
MANGANESE (6010)	MG/L	ND	0.01	G6W105	
MOLYBDENUM (6010)	MG/L	ND	0.01	D6W105	
SODIUM (6010)	MG/L	5.2	0.2	L6W112	
NICKEL (6010)	MG/L	ND	0.02	E6W105	
LEAD (6010)	MG/L	ND	0.05	P6W105	
ANTIMONY (6010)	MG/L	ND	0.06	36W105	
SELENIUM (6010)	MG/L	ND	0.1	S6W105	
SILICON (6010)	MG/L	6.0	0.1	26W105	
THALLIUM (6010)	MG/L	ND	0.1	46W105	
VANADIUM (6010)	MG/L	ND	0.01	V6W105	
ZINC (6010)	MG/L	ND	0.02	56W105	

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 505358
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505357
Project Name: OIL CONSERVATION DIVISION
Project Location: WASHINGTON RANCH
Test: Group of Single Metals
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 505357-05			Lab ID:005		
SILVER (6010)	MG/L	ND	0.01	A6W105	
ALUMINUM (6010)	MG/L	ND	0.06	L6W105	
ARSENIC (6010)	MG/L	ND	0.05	R6W105	
BORON (6010)	MG/L	ND	0.09	O6W105	
BARIUM (6010)	MG/L	0.05	0.01	B6W105	
BERYLLIUM (6010)	MG/L	ND	0.004	Y6W105	
CALCIUM (6010)	MG/L	110	1	I6W105	
CADMIUM (6010)	MG/L	ND	0.005	C6W105	
COBALT (6010)	MG/L	ND	0.01	T6W105	
CHROMIUM (6010)	MG/L	ND	0.01	H6W105	
COPPER (6010)	MG/L	ND	0.01	F6W105	
IRON (6010)	MG/L	0.12	0.02	N6W105	
POTASSIUM (6010)	MG/L	4	2	X6W105	
MAGNESIUM (6010)	MG/L	32	0.2	J6W105	
MANGANESE (6010)	MG/L	ND	0.01	G6W105	
MOLYBDENUM (6010)	MG/L	ND	0.01	D6W105	
SODIUM (6010)	MG/L	5.6	0.2	16W112	
NICKEL (6010)	MG/L	ND	0.02	E6W105	
LEAD (6010)	MG/L	ND	0.05	P6W105	
ANTIMONY (6010)	MG/L	ND	0.06	36W105	
SELENIUM (6010)	MG/L	ND	0.1	S6W105	
SILICON (6010)	MG/L	6.1	0.1	26W105	
THALLIUM (6010)	MG/L	ND	0.1	46W105	
VANADIUM (6010)	MG/L	ND	0.01	V6W105	
ZINC (6010)	MG/L	0.03	0.02	56W105	

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 505358
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505357
Project Name: OIL CONSERVATION DIVISION
Project Location: WASHINGTON RANCH
Test: Group of Single Metals
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 505357-06			Lab ID:006		
SILVER (6010)	MG/L	ND	0.01	A6W105	
ALUMINUM (6010)	MG/L	ND	0.06	L6W105	
ARSENIC (6010)	MG/L	ND	0.05	R6W105	
BORON (6010)	MG/L	ND	0.09	O6W105	
BARIUM (6010)	MG/L	0.12	0.01	B6W105	
BERYLLIUM (6010)	MG/L	ND	0.004	Y6W105	
CALCIUM (6010)	MG/L	76	1	I6W105	
CADMIUM (6010)	MG/L	ND	0.005	C6W105	
COBALT (6010)	MG/L	ND	0.01	T6W105	
CHROMIUM (6010)	MG/L	ND	0.01	H6W105	
COPPER (6010)	MG/L	ND	0.01	F6W105	
IRON (6010)	MG/L	0.03	0.02	N6W105	
POTASSIUM (6010)	MG/L	4	2	X6W105	
MAGNESIUM (6010)	MG/L	30	0.2	J6W105	
MANGANESE (6010)	MG/L	ND	0.01	G6W105	
MOLYBDENUM (6010)	MG/L	ND	0.01	D6W105	
SODIUM (6010)	MG/L	4.6	0.2	L6W112	
NICKEL (6010)	MG/L	ND	0.02	E6W105	
LEAD (6010)	MG/L	ND	0.05	P6W105	
ANTIMONY (6010)	MG/L	ND	0.06	36W105	
SELENIUM (6010)	MG/L	ND	0.1	S6W105	
SILICON (6010)	MG/L	5.8	0.1	26W105	
THALLIUM (6010)	MG/L	ND	0.1	46W105	
VANADIUM (6010)	MG/L	ND	0.01	V6W105	
ZINC (6010)	MG/L	0.02	0.02	56W105	

Comments:



"FINAL REPORT FORMAT - MULTIPLE"

Accession: 505358
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505357
Project Name: OIL CONSERVATION DIVISION
Project Location: WASHINGTON RANCH
Test: Group of Single Metals
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 505357-07			Lab ID:007		
SILVER (6010)	MG/L	ND	0.01	A6W105	
ALUMINUM (6010)	MG/L	ND	0.06	L6W105	
ARSENIC (6010)	MG/L	ND	0.05	R6W105	
BORON (6010)	MG/L	ND	0.09	O6W105	
BARIUM (6010)	MG/L	0.02	0.01	B6W105	
BERYLLIUM (6010)	MG/L	ND	0.004	Y6W105	
CALCIUM (6010)	MG/L	390	1	I6W105	
CADMIUM (6010)	MG/L	ND	0.005	C6W105	
COBALT (6010)	MG/L	ND	0.01	T6W105	
CHROMIUM (6010)	MG/L	ND	0.01	H6W105	
COPPER (6010)	MG/L	0.04	0.01	F6W105	
IRON (6010)	MG/L	0.25	0.02	N6W105	
POTASSIUM (6010)	MG/L	5	2	X6W105	
MAGNESIUM (6010)	MG/L	37	0.2	J6W105	
MANGANESE (6010)	MG/L	ND	0.01	G6W105	
MOLYBDENUM (6010)	MG/L	ND	0.01	D6W105	
SODIUM (6010)	MG/L	9.6	0.2	16W112	
NICKEL (6010)	MG/L	ND	0.02	E6W105	
LEAD (6010)	MG/L	ND	0.05	P6W105	
ANTIMONY (6010)	MG/L	ND	0.06	36W105	
SELENIUM (6010)	MG/L	ND	0.1	S6W105	
SILICON (6010)	MG/L	7.7	0.1	26W105	
THALLIUM (6010)	MG/L	ND	0.1	46W105	
VANADIUM (6010)	MG/L	ND	0.01	V6W105	
ZINC (6010)	MG/L	ND	0.02	56W105	

Comments:



Analytical Technologies, Inc.

"Method Report Summary"

Accession Number: 505358
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505357
Project Name: OIL CONSERVATION DIVISION
Project Location: WASHINGTON RANCH
Test: Group of Single Metals

Client Sample Id:	Parameter:	Unit:	Result:
505357-01	BARIUM (6010)	MG/L	0.01
	CALCIUM (6010)	MG/L	280
	IRON (6010)	MG/L	0.03
	MAGNESIUM (6010)	MG/L	53
	SODIUM (6010)	MG/L	19
	SILICON (6010)	MG/L	7.1
505357-02	BARIUM (6010)	MG/L	0.10
	CALCIUM (6010)	MG/L	81
	IRON (6010)	MG/L	0.03
	MAGNESIUM (6010)	MG/L	33
	SODIUM (6010)	MG/L	8.8
	SILICON (6010)	MG/L	5.9
505357-03	BARIUM (6010)	MG/L	0.02
	CALCIUM (6010)	MG/L	320
	IRON (6010)	MG/L	0.46
	POTASSIUM (6010)	MG/L	4
	MAGNESIUM (6010)	MG/L	38
	MANGANESE (6010)	MG/L	1.0
	SODIUM (6010)	MG/L	10
	SILICON (6010)	MG/L	8.0
505357-04	BARIUM (6010)	MG/L	0.11
	CALCIUM (6010)	MG/L	83
	IRON (6010)	MG/L	0.04
	POTASSIUM (6010)	MG/L	3
	MAGNESIUM (6010)	MG/L	31
	SODIUM (6010)	MG/L	5.2
	SILICON (6010)	MG/L	6.0
505357-05	BARIUM (6010)	MG/L	0.05
	CALCIUM (6010)	MG/L	110
	IRON (6010)	MG/L	0.12
	POTASSIUM (6010)	MG/L	4
	MAGNESIUM (6010)	MG/L	32
	SODIUM (6010)	MG/L	5.6
	SILICON (6010)	MG/L	6.1
	ZINC (6010)	MG/L	0.03
505357-06	BARIUM (6010)	MG/L	0.12
	CALCIUM (6010)	MG/L	76
	IRON (6010)	MG/L	0.03
	POTASSIUM (6010)	MG/L	4
	MAGNESIUM (6010)	MG/L	30
	SODIUM (6010)	MG/L	4.6
	SILICON (6010)	MG/L	5.8
	ZINC (6010)	MG/L	0.02



Analytical Technologies, Inc.

"Method Report Summary"

Accession Number: 505358
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505357
Project Name: OIL CONSERVATION DIVISION
Project Location: WASHINGTON RANCH
Test: Group of Single Metals

Client Sample Id:	Parameter:	Unit:	Result:
505357-07	BARIUM (6010)	MG/L	0.02
	CALCIUM (6010)	MG/L	390
	COPPER (6010)	MG/L	0.04
	IRON (6010)	MG/L	0.25
	POTASSIUM (6010)	MG/L	5
	MAGNESIUM (6010)	MG/L	37
	SODIUM (6010)	MG/L	9.6
	SILICON (6010)	MG/L	7.7



Analytical Technologies, Inc.

"Metals Quality Control Report"

Parameter:	SILVER	ALUMINUM	ARSENIC	BORON	BARIUM	BERYLLIUM
Batch Id:	A6W105	L6W105	R6W105	O6W105	B6W105	Y6W105
Blank Result:	<0.01	<0.06	<0.05	<0.09	<0.01	<0.004
Anal. Method:	6010	6010	6010	6010	6010	6010
Prep. Method:	3010	3010	3010	3010	3010	3010
Analysis Date:	22-MAY-95	22-MAY-95	22-MAY-95	22-MAY-95	22-MAY-95	22-MAY-95
Prep. Date:	17-MAY-95	17-MAY-95	17-MAY-95	17-MAY-95	17-MAY-95	17-MAY-95

Sample Duplication

Sample Dup:	505358-1	505358-1	505358-1	505358-1	505358-1	505358-1
Rept Limit:	<0.01	<0.06	<0.05	<0.09	<0.01	<0.004
Sample Result:	2.1	2.1	2.2	2.1	2.0	2.0
Dup Result:	2.1	2.1	2.1	2.1	2.0	2.0
Sample RPD:	0	0	5	0	0	0
Max RPD:	20	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A

Matrix Spike

Sample Spiked:	505358-1	505358-1	505358-1	505358-1	505358-1	505358-1
Rept Limit:	<0.01	<0.06	<0.05	<0.09	<0.01	<0.004
Sample Result:	<0.01	<0.06	<0.05	<0.09	0.01	<0.004
Spiked Result:	2.1	2.1	2.2	2.1	2.0	2.0
Spike Added:	2.0	2.0	2.0	2.0	2.0	2.0
% Recovery:	105	105	110	105	100	100
% Rec Limits:	75-125	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A

ICV

ICV Result:	4.9	4.9	4.9	4.9	5.0	5.0
True Result:	5.0	5.0	5.0	5.0	5.0	5.0
% Recovery:	98	98	98	98	100	100
% Rec Limits:	90-110	90-110	90-110	90-110	90-110	90-110

LCS

LCS Result:	2.1	2.0	2.0	2.1	2.1	2.0
True Result:	2.0	2.0	2.0	2.0	2.0	2.0
% Recovery:	105	100	100	105	105	100
% Rec Limits:	80-120	80-120	80-120	80-120	80-120	80-120



Analytical Technologies, Inc.

"Metals Quality Control Report"

Parameter:	CALCIUM	CADMIUM	COBALT	CHROMIUM	COPPER	IRON
Batch Id:	I6W105	C6W105	T6W105	H6W105	F6W105	N6W105
Blank Result:	<1	<0.005	<0.01	<0.01	<0.01	<0.02
Anal. Method:	6010	6010	6010	6010	6010	6010
Prep. Method:	3010	3010	3010	3010	3010	3010
Analysis Date:	22-MAY-95	22-MAY-95	22-MAY-95	22-MAY-95	22-MAY-95	22-MAY-95
Prep. Date:	17-MAY-95	17-MAY-95	17-MAY-95	17-MAY-95	17-MAY-95	17-MAY-95

Sample Duplication

Sample Dup:	505358-1	505358-1	505358-1	505358-1	505358-1	505358-1
Rept Limit:	<1	<0.005	<0.01	<0.01	<0.01	<0.02
Sample Result:	300	2.1	2.0	2.0	2.0	2.1
Dup Result:	300	2.1	2.1	2.0	2.0	2.1
Sample RPD:	0	0	5	0	0	0
Max RPD:	20	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A

Matrix Spike

Sample Spiked:	505358-1	505358-1	505358-1	505358-1	505358-1	505358-1
Rept Limit:	<1	<0.005	<0.01	<0.01	<0.01	<0.02
Sample Result:	280	<0.005	<0.01	<0.01	<0.01	0.03
Spiked Result:	300	2.1	2.0	2.0	2.0	2.1
Spike Added:	20F	2.0	2.0	2.0	2.0	2.0
% Recovery:	100	105	100	100	100	104
% Rec Limits:	75-125	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A

ICV

ICV Result:	10.3	4.9	5.1	4.9	5.0	5.2
True Result:	10	5.0	5.0	5.0	5.0	5.0
% Recovery:	103	98	102	98	100	104
% Rec Limits:	90-110	90-110	90-110	90-110	90-110	90-110

LCS

LCS Result:	22	2.0	2.1	2.0	2.0	2.1
True Result:	20	2.0	2.0	2.0	2.0	2.0
% Recovery:	110	100	105	100	100	105
% Rec Limits:	80-120	80-120	80-120	80-120	80-120	80-120



Analytical Technologies, Inc.

"Metals Quality Control Report"

Parameter:	POTASSIUM	MAGNESIUM	MANGANESE	MOLYBDENUM	SODIUM	NICKEL
Batch Id:	X6W105	J6W105	G6W105	D6W105	16W112	E6W105
Blank Result:	<2	<0.2	<0.01	<0.01	<0.2	<0.02
Anal. Method:	6010	6010	6010	6010	6010	6010
Prep. Method:	3010	3010	3010	3010	3010	3010
Analysis Date:	22-MAY-95	22-MAY-95	22-MAY-95	22-MAY-95	24-MAY-95	22-MAY-95
Prep. Date:	17-MAY-95	17-MAY-95	17-MAY-95	17-MAY-95	24-MAY-95	17-MAY-95

Sample Duplication

Sample Dup:	505358-1	505358-1	505358-1	505358-1	505385-1	505358-1
Rept Limit:	<2	<0.2	<0.01	<0.01	<0.2	<0.02
Sample Result:	22	74	2.1	2.1	19	2.0
Dup Result:	22	73	2.1	2.1	19	2.1
Sample RPD:	0	1	0	0	0	5
Max RPD:	20	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A

Matrix Spike

Sample Spiked:	505358-1	505358-1	505358-1	505358-1	505385-1	505358-1
Rept Limit:	<2	<0.2	<0.01	<0.01	<0.2	<0.02
Sample Result:	<2	53	<0.01	<0.01	<0.2	<0.02
Spiked Result:	22	74	2.1	2.1	19	2.0
Spike Added:	20	20	2.0	2.0	20	2.0
% Recovery:	110	105	105	105	95	100
% Rec Limits:	75-125	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A

ICV

ICV Result:	50	5.1	5.0	4.8	9.5	4.9
True Result:	50	5.0	5.0	5.0	10	5.0
% Recovery:	100	102	100	96	95	98
% Rec Limits:	90-110	90-110	90-110	90-110	90-110	90-110

LCS

LCS Result:	20	21	2.1	2.1	19	2.1
True Result:	20	20	2.0	2.0	20	2.0
% Recovery:	100	105	105	105	95	105
% Rec Limits:	80-120	80-120	80-120	80-120	80-120	80-120



Analytical Technologies, Inc.

"Metals Quality Control Report"

Parameter:	LEAD	ANTIMONY	SELENIUM	SILICON	THALLIUM	VANADIUM
Batch Id:	P6W105	36W105	S6W105	26W105	46W105	V6W105
Blank Result:	<0.05	<0.06	<0.1	<0.1	<0.1	<0.01
Anal. Method:	6010	6010	6010	6010	6010	6010
Prep. Method:	3010	3010	3010	3010	3010	3010
Analysis Date:	22-MAY-95	22-MAY-95	22-MAY-95	22-MAY-95	22-MAY-95	22-MAY-95
Prep. Date:	17-MAY-95	17-MAY-95	17-MAY-95	17-MAY-95	17-MAY-95	17-MAY-95

Sample Duplication

Sample Dup:	505358-1	505358-1	505358-1	505358-1	505358-1	505358-1
Rept Limit:	<0.05	<0.06	<0.1	<0.1	<0.1	<0.01
Sample Result:	2.1	2.2	2.2	9.0	2.1	2.1
Dup Result:	2.2	2.2	2.2	9.0	2.2	2.1
Sample RPD:	5	0	0	0	5	0
Max RPD:	20	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A

Matrix Spike

Sample Spiked:	505358-1	505358-1	505358-1	505358-1	505358-1	505358-1
Rept Limit:	<0.05	<0.06	<0.1	<0.1	<0.1	<0.01
Sample Result:	<0.05	<0.06	<0.1	7.1	<0.1	<0.01
Spiked Result:	2.1	2.2	2.2	9.0	2.1	2.1
Spike Added:	2.0	2.0	2.0	2.0	2.0	2.0
% Recovery:	105	110	110	95	105	105
% Rec Limits:	75-125	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A

ICV

ICV Result:	5.0	5.2	4.9	4.5	5.0	5.0
True Result:	5.0	5.0	5.0	5.0	5.0	5.0
% Recovery:	100	104	98	90	100	100
% Rec Limits:	90-110	90-110	90-110	90-110	90-110	90-110

LCS

LCS Result:	2.1	2.1	2.1	1.8	2.1	2.1
True Result:	2.0	2.0	2.0	2.0	2.0	2.0
% Recovery:	105	105	105	90	105	105
% Rec Limits:	80-120	80-120	80-120	80-120	80-120	80-120



Analytical Technologies, Inc.

"Metals Quality Control Report"

Parameter:	ZINC
Batch Id:	56W105
Blank Result:	<0.02
Anal. Method:	6010
Prep. Method:	3010
Analysis Date:	22-MAY-95
Prep. Date:	17-MAY-95

Sample Duplication

Sample Dup:	505358-1
Rept Limit:	<0.02

Sample Result:	2.1
Dup Result:	2.1
Sample RPD:	0
Max RPD:	20
Dry Weight%	N/A

Matrix Spike

Sample Spiked:	505358-1
Rept Limit:	<0.02

Sample Result:	<0.02
Spiked Result:	2.1
Spike Added:	2.0
% Recovery:	105
% Rec Limits:	75-125
Dry Weight%	N/A

ICV

ICV Result:	5.1
True Result:	5.0
% Recovery:	102
% Rec Limits:	90-110

LCS

LCS Result:	2.0
True Result:	2.0
% Recovery:	100
% Rec Limits:	80-120



Analytical Technologies, Inc.

"Quality Control Comments"

Batch Id: Comments:

	Batch Id:	Comments:
A6W105	ANALYST: JRR	
A6W105	The results reported under "Sample Duplication" are the MS/MSD.	
L6W105	ANALYST: JRR	
L6W105	The results reported under "Sample Duplication" are the MS/MSD.	
R6W105	ANALYST: JRR	
R6W105	The results reported under "Sample Duplication" are the MS/MSD.	
O6W105	ANALYST: JRR	
O6W105	The results reported under "Sample Duplication" are the MS/MSD.	
B6W105	ANALYST: JRR	
B6W105	The results reported under "Sample Duplication" are the MS/MSD.	
Y6W105	ANALYST: JRR	
Y6W105	The results reported under "Sample Duplication" are the MS/MSD.	
I6W105	ANALYST: JRR	
I6W105	The results reported under "Sample Duplication" are the MS/MSD.	
C6W105	ANALYST: JRR	
C6W105	The results reported under "Sample Duplication" are the MS/MSD.	
T6W105	ANALYST: JRR	
T6W105	The results reported under "Sample Duplication" are the MS/MSD.	
H6W105	ANALYST: JRR	
H6W105	The results reported under "Sample Duplication" are the MS/MSD.	
F6W105	ANALYST: JRR	
F6W105	The results reported under "Sample Duplication" are the MS/MSD.	
N6W105	ANALYST: JRR	
N6W105	The results reported under "Sample Duplication" are the MS/MSD.	
X6W105	ANALYST: JRR	
X6W105	The results reported under "Sample Duplication" are the MS/MSD.	
J6W105	ANALYST: JRR	
J6W105	The results reported under "Sample Duplication" are the MS/MSD.	
G6W105	ANALYST: JRR	
G6W105	The results reported under "Sample Duplication" are the MS/MSD.	
D6W105	ANALYST: JRR	
D6W105	The results reported under "Sample Duplication" are the MS/MSD.	
16W112	ANALYST: JRR	
16W112	The results reported under "Sample Duplication" are the MS/MSD.	
E6W105	ANALYST: JRR	
E6W105	The results reported under "Sample Duplication" are the MS/MSD.	
P6W105	ANALYST: JRR	
P6W105	The results reported under "Sample Duplication" are the MS/MSD.	
36W105	ANALYST: JRR	
36W105	The results reported under "Sample Duplication" are the MS/MSD.	
S6W105	ANALYST: JRR	
S6W105	The results reported under "Sample Duplication" are the MS/MSD.	
26W105	ANALYST: JRR	
26W105	The results reported under "Sample Duplication" are the MS/MSD.	
46W105	ANALYST: JRR	
46W105	The results reported under "Sample Duplication" are the MS/MSD.	
V6W105	ANALYST: JRR	
V6W105	The results reported under "Sample Duplication" are the MS/MSD.	
56W105	ANALYST: JRR	
56W105	The results reported under "Sample Duplication" are the MS/MSD.	



CHAIN OF CUSTODY

DATE: 5/12/05 PAGE 1 OF 1

ATI LAB I.D.

555

ANALYSIS REQUEST

ALL CONSERVATION DIVISION

827-7152

827-8177

ROBER ANDERSON

NMDCJ - ENVIRONMENTAL DIVISION

2400 S. ACNEC RD

SANTA FE, NM 87505

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
AS-400P FORD WELL	5-11-95	4:20P	H ₂ O	01
GEORGE SMITH	"	2:40P	"	02
JOHN BALLARD	"	3:15P	"	03
AS-400D	"	12:50P	"	04
RATTLESNAKE SPRINGS (RS)	"	6:05P	"	05
EPAB - WELL	"	5:25P	"	06
HOOD HAVID	"	4:55P	"	07

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJ. NO.: W-154361000		NO. CONTAINERS	49
PROJ. NAME:		CUSTODY SEALS	Y (N) NA
P.O. NO.:		RECEIVED INTACT	☒
SHIPPED VIA:		RECEIVED COLD	☒

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☐ 2 WEEK

Comments:
 * Al, An, Ar, Ba, Be, Bi, Cd, Ca, Cr, Co,
 Cu, Fe, Pb, Mg, Mn, Mo, Ni, Pt, Se,
 Si, Ag, Na, Ti, V, Zn

[illegible]

SAMPLED & RELINQUISHED BY: 1.		RELINQUISHED BY: 2.		RELINQUISHED BY: 3.	
Signature: <i>[Signature]</i>	Time: 11:25 AM	Signature:	Time:	Signature:	Time:
Printed Name: NNAK ASHLEY	Date: 6-12-96	Printed Name:	Date:	Printed Name:	Date:
Company: NMOCA	Phone: 827-7155	Company:		Company:	
RECEIVED BY: 1.		RECEIVED BY: 2.		RECEIVED BY: (LAB) 3.	
Signature:	Time:	Signature:	Time:	Signature: <i>[Signature]</i>	Time: 11:25
Printed Name:	Date:	Printed Name:	Date:	Printed Name: <i>[Signature]</i>	Date: 6/12/96
Company:		Company:		Analytical Technologies, Inc.	

ATI | abs: San Diego (619) 458-9141 • Phoenix (602) 498-4400 • Seattle (206) 228-8335 • Pensacola (904) 474-1001 • Portland (503) 884-0447 • Albuquerque (505) 344-3777
DISTRIBUTION: White, Canary • ATI • Pink • Pink - ORIGINATOR



DATE 5/25 PAGE 1 OF 1

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DISTRIBUTION: White, Canary • ATI • Pink • ORIGINATOR



Analytical Technologies, Inc. Albuquerque, NM

Chain of Custody

DATE 5/12/05 PAGE 1 OF 1

NETWORK PROJECT MANAGER: LETITIA KRAKOWSKI				ANALYSIS REQUEST																									
COMPANY: Analytical Technologies, Inc.																													
ADDRESS: 2709-D Pan American Freeway, NE Albuquerque, NM 87107																													
CLIENT PROJECT MANAGER:																													
SAMPLE ID	DATE	TIME	MATRIX	LAB ID	TOX	ORGANIC LEAD	SULFIDE	SURFACTANTS (MBAS)	NO ₂ , NO ₂ , NH ₃ , TRN	632/632 MOD	619/619 MOD	610/8310	AL. 5.0 AS. 3.0 RE. 0.0 CH. 0.0	NO. 0.0 CH. 0.0 RE. 0.0	8240 (TCLP 1311) ZHE	IN. 0.0 K. 0.0 SE. 0.0 A. 0.0 NA.	Diesel/Gasoline/BTXE/MTBE/ (MOD 8015/8020)	Volatile Organics GC/MS (624/8240)	TH. V. 1.7H	NACE	ASBESTOS	BOD	TOTAL COLIFORM	FECAL COLIFORM	GROSS ALPHA/BETA	RADIUM 226/228	AIR - 02, CO ₂ , METHANE	AIR/Diesel/Gasoline/BTXE/ (MOD 8015/8020)	NUMBER OF CONTAINERS
505357-01	5/11	11:20	FLX																										
-02		11:10																											
-03		15:15																											
-04		12:50																											
-05		18:05																											
-06		17:25																											
-07		16:55	✓																										

PROJECT INFORMATION		SAMPLE RECEIPT				SAMPLES SENT TO:		RELINQUISHED BY: 1.		RELINQUISHED BY: 2.							
PROJECT NUMBER:	505357	TOTAL NUMBER OF CONTAINERS	CHAIN OF CUSTODY SEALS	INTACT?	RECEIVED GOOD COND. COLD	LAB NUMBER	SAN DIEGO	FT. COLLINS	RENTON	PENSACOLA	PORTLAND	PHOENIX	FIBERQUANT	Signature:	Time:	Signature:	Time:
PROJECT NAME:	OCID																
QC LEVEL:	(STD) IV																
QC REQUIRED:	MS MSD BLANK																
TAT:	STANDARD RUSHI																
DUE DATE: <u>5/20</u> RUSH SURCHARGE: <u>0</u> CLIENT DISCOUNT: <u>See Quote</u>																	

RECEIVED BY: (LAB) 1.		RECEIVED BY: (LAB) 2.	
Signature:	Time:	Signature:	Time:
Printed Name:	Date:	Printed Name:	Date:
Analytical Technologies, Inc.	5/12/05		
Albuquerque			



Analytical Technologies, Inc., Albuquerque, NM
San Diego • Phoenix • Seattle • Pensacola • Ft. Collins • Portland • Albuquerque

505 358

CHAIN OF CUSTODY

DATE: 5/12/95 PAGE 1 OF 1

ATI - Phoenix: 505 804

ATILAB ID: 505351

PROJECT MANAGER: MARK ASHLEY

COMPANY: JIL CONSERVATION DIVISION
ADDRESS:
PHONE: 827-7152
FAX: 827-8177

BILL TO: ROGER ANDERSON
COMPANY: NMOCO - ENVIRONMENTAL BUREAU
ADDRESS: 2400 S. ANKENY
SANTA FE, NM 87505

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
AS-4000 AVO WELL	5-11-95	4:20P	H ₂ O	01
GEORGE SMITH	"	2:40P	"	02
JOHN BALLARD	"	3:15P	"	03
AS-4000	"	12:50P	"	04
RATTLESNAKE SPRINGS (RS)	"	6:05P	"	05
EAGLE - WELL	"	5:25P	"	06
HOOD HAVO	"	4:55P	"	07

PROJECT INFORMATION

PROJ. NO.: WASHINGTON RANCH 49

PROJ. NAME:

P.O. NO.:

SHIPPED VIA:

NO. CONTAINERS

CUSTODY SEALS Y (N) NA

RECEIVED INTACT

RECEIVED COLD

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☐ 2 WEEK

Comments: * Al, Ar, As, Ba, Be, Bi, Cd, Cu, Cr, Co, Fe, Pb, Mg, Mn, Mo, Ni, Pt, Se, Si, Ag, Na, Ti, V, Zn

ANALYSIS REQUEST										NUMBER OF CONTAINERS	
Petroleum Hydrocarbons (418.1)	(MOD 8015) Gas/Diesel	X	X	X	X	X	X	X	X	7	
Diesel/Gasoline/BTXE/MTBE (MOD 8015/8020)		X	X	X	X	X	X	X	X	7	
BTXE/MTBE (8020)		X	X	X	X	X	X	X	X	7	
Chlorinated Hydrocarbons (601/8010)		X	X	X	X	X	X	X	X	7	
Aromatic Hydrocarbons (602/8020)		X	X	X	X	X	X	X	X	7	
SDWA Volatiles (502.1/503.1), 502.2 Reg. & Unreg.		X	X	X	X	X	X	X	X	7	
Herbicides (615/8150)		X	X	X	X	X	X	X	X	7	
Pesticides/PCB (608/8080)		X	X	X	X	X	X	X	X	7	
Base/Neutral/Acid Compounds GC/MS (625/8270)		X	X	X	X	X	X	X	X	7	
Volatile Organics GC/MS (624/8240)		X	X	X	X	X	X	X	X	7	
Polyuclear Aromatics (610/8310)		X	X	X	X	X	X	X	X	7	
SDWA Primary Standards - Arizona		X	X	X	X	X	X	X	X	7	
SDWA Secondary Standards - Arizona		X	X	X	X	X	X	X	X	7	
SDWA Primary Standards - Federal		X	X	X	X	X	X	X	X	7	
SDWA Secondary Standards - Federal		X	X	X	X	X	X	X	X	7	
The 13 Priority Pollutant Metals		X	X	X	X	X	X	X	X	7	
RCRA Metals by Total Digestion		X	X	X	X	X	X	X	X	7	
RCRA Metals by TCLP (1311)		X	X	X	X	X	X	X	X	7	

SAMPLED & RELINQUISHED BY: 1. RELINQUISHED BY: 2. RELINQUISHED BY: 3.

Signature: Mark Ashley Time: 11:25 AM Signature: Anita Johnson Time: 11:33 Signature: Time: Time: 3.

Printed Name: MARK ASHLEY Date: 5-12-95 Printed Name: ANITA JOHNSON Date: 5/15/95 Printed Name: Date: Date: 3.

Company: NMOCO Phone: 827-7152 Company: ATI-Pensacola Company: Company: 3.

RECEIVED BY: 1. RECEIVED BY: 2. RECEIVED BY: (LAB) 3.

Signature: Signature: Signature: Time: Time: Time: 3.

Printed Name: Printed Name: Printed Name: Date: Date: Date: 3.

Company: Company: Company: Analytical Technologies, Inc. 3.



Analytical Technologies, Inc. ----- Common Footnotes Wet Chem -----

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW ATI REPORTING LIMIT; THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
ND = NOT DETECTED ABOVE REPORTING LIMIT.
DISS. OR D = DISSOLVED
T & D = TOTAL AND DISSOLVED
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X ATI REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW ATI REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".
Q = THE ANALYTICAL (POST-DIGESTION) SPIKE IS REPORTED DUE TO THE MATRIX (PRE-DIGESTION) SPIKE BEING OUTSIDE ACCEPTANCE LIMITS.
= ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE.
+ = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
* = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE.
@ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX (DILUTION PRIOR TO PREPARATION).
P = ANALYTICAL (POST-DIGESTION) SPIKE
I = DUPLICATE INJECTION
& = AUTOMATED
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
N/C+ = NOT CALCULABLE
N/C* = NOT CALCULABLE; SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
H = SAMPLE AND/OR DUPLICATE IS BELOW 5 X ATI REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE ATI REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW REPORTING LIMIT. HOWEVER, THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
NH = SAMPLE AND / OR DUPLICATE RESULT IS BELOW 5 X ATI REPORTING LIMIT AND THE RESULTS EXCEED THE ATI REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL" SAMPLE IS NON-HOMOGENOUS.
(*) = DETECTION LIMITS RAISED DUE TO CLP METHOD NOT REQUIRING A CONCENTRATION STEP FOR CN.
(CA) = SEE CORRECTIVE ACTIONS FORM.

SW-846, 3RD EDITION, SEPTEMBER 1986 AND REVISION 1, JULY 1992.
EPA 600/4-79-020, REVISED MARCH 1983.
STANDARD METHODS, 17TH ED., 1989
NIOSH MANUAL OF ANALYTICAL METHODS, 3RD EDITION.
ANNUAL BOOK OF ASTM STANDARDS, VOLUME 11.01, 1991.

1. COLIFORM. COLIFORM PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE LOGARITHM OF COLONIES PER 100 MLS OF SAMPLE ON DUPLICATE PLATES.
2. PH. PH PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND THE DUPLICATE ANALYSIS.
3. FLASHPOINT. FLASHPOINT PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE ANALYSIS. IF FLASHPOINT IS LESS THAN 25 DEGREES CELSIUS, THE DETECTION LIMIT BECOMES THE INITIAL STARTING TEMPERATURE.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION).

RPT LIMIT = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

DPH = DOLLY P. HWANG	RB = REBECCA BROWN	CD = CHRISTY DRAPER
DBH = DONALD B. HAND	BF = BLANCA FACH	SL = STEPHANIE LOWRY
TT = TONY TINEO	NB = NANCY L. BRASCH	FB = FREDDIE BROWN
JHS = JOSEPH SAUNDERS	MM = MARY MOLONEY	
NSB = NANCY S. BUTLER	CF = CHRISTINE FOSTER	



Analytical Technologies, Inc.

----- Common Footnotes Metals -----

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW ATI REPORTING LIMIT;
THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
N/D = NOT DETECTED.
DISS. OR D = DISSOLVED
T & D = TOTAL AND DISSOLVED
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X ATI REPORTING LIMIT AND
THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT
OR BELOW ATI REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".
Q = THE ANALYTICAL (POST-DIGESTION) SPIKE IS REPORTED DUE TO PERCENT RECOVERY
BEING OUTSIDE ACCEPTANCE LIMITS ON THE MATRIX (PRE-DIGESTION) SPIKE.
= ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE.
+ = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
* = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE. (DILUTION PRIOR
TO ANALYSIS)
@ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX. (DILUTION PRIOR TO
DIGESTION)
P = ANALYTICAL (POST DIGESTION) SPIKE.
I = DUPLICATE INJECTION.
& = AUTOMATED
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
N/C+ = NOT CALCULABLE
N/C* = NOT CALCULABLE; SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
H = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X ATI REPORTING LIMIT AND THE
ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE ATI REPORTING
LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW THE REPORTING LIMIT. HOWEVER,
THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
NH= SAMPLE AND / OR DUPLICATE RESULT IS BELOW 5 X ATI REPORTING LIMIT
AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE ATI
REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
SAMPLE IS NON-HOMOGENEOUS.
J = (FLORIDA DEP 'J' FLAG) - MATRIX SPIKE AND POST SPIKE RECOVERY IS OUT OF
THE ACCEPTABLE RANGE. SEE OUT OF CONTROL EVENTS FORM.
S = METHOD OF STANDARD ADDITIONS (MSA) WAS PERFORMED ON THIS SAMPLE.

FROM ANALYSIS REPORT:

RL= REPORTING LIMIT BASED ON METHOD DETECTION LIMIT STUDIES.

Q= QUALIFIER (FOOTNOTE)

FROM QUALITY CONTROL REPORT:

RPD= RELATIVE PERCENT DEVIATION.

RPT LIMIT= REPORTING LIMIT BASED ON METHOD DETECTION LIMIT STUDIES.

NOTE: THE UNITS REPORTED ON THE QUALITY CONTROL REPORT ARE REPORTED ON AN AS
RUN BASIS.

SW-846, 3rd Edition, September 1986 and Revision 1, July 1992.

EPA 600/4-79-020, Revised March 1983.

NIOSH Manual of Analytical Methods, 3rd Edition.

JP = JAY PEREZ
GJ = GARY JACOBS
JLH = JAMES L. HERED
CD = CHRISTY DRAPER

JRR = JOHN R. ROWE
JR = JOHN REED
SL = STEPHANIE LOWRY

ATTACHMENT 1

May 19, 1995

ANALYTICAL TECHNOLOGIES
2709-D Pan American
Freeway NE
Albuquerque, NM 87106

Attn: Tish Krakowski

JOB NO. 29387

S

WCAS

**WEST COAST
ANALYTICAL
SERVICE, INC.**

ANALYTICAL CHEMISTS

LABORATORY REPORT

Samples Received: Six (6) Water Samples Received 5-17-95 and One (1)
Water Sample Received 5-18-95

Project: #505357/OCD

The samples were analyzed as follows:

<u>Samples Analyzed</u>	<u>Analysis</u>	<u>Page</u>
Seven (7) samples	Hydrocarbon Distribution by GC/FID	2

Page 1 of 2


Michael Shelton
Technical Director


B. Michael Hovanec
Senior Staff Chemist

This report is to be reproduced in its entirety.

WEST COAST ANALYTICAL SERVICE, INC.

ANALYTICAL TECHNOLOGIES
Ms. Tish KrakowskiJob # 29387
May 19, 1995

LABORATORY REPORT

Hydrocarbon Distribution by GC/FIDParts Per Billion (ug/l)

<u>Sample ID</u>	<u>Methane</u>	<u>Ethane</u>	<u>Propane</u>	<u>Butane</u>	<u>Pentane</u>
505357-01	ND	ND	ND	ND	ND
505357-02	ND	ND	ND	ND	ND
505357-03	280	23	ND	ND	ND
505357-03 (Dup)	270	20	ND	ND	ND
505357-04	ND	ND	ND	ND	ND
505357-05	ND	ND	ND	ND	ND
505357-06	ND	ND	ND	ND	ND
505357-07	ND	ND	ND	ND	ND
Detection Limit	0.5	0.5	0.5	0.5	0.5

Date Analyzed: 5-18-95 & 5-19-95

Matrix Spike Recovery Summary

Sample: 505357-06
Date Analyzed: 05-19-95Matrix: WATER
Date Extracted: 05-19-95, headspace
Units: PPB(UG/L)

<u>Analyte</u>	<u>Sample Result</u>	<u>Amount Spiked</u>	<u>MS Result</u>	<u>% Rec MS</u>
Methane	ND	180	205	114

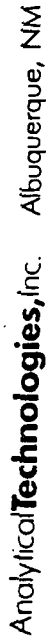
Abbreviations Summary

General Reporting Abbreviations:

- B Blank - Indicates that the compound was found in both the sample and the blank. The sample value is reported without blank subtraction. If the sample value is less than 10X the blank value times the sample dilution factor, the compound may be present as a laboratory contaminant.
- D Indicates that the sample was diluted, and consequently the surrogates were too dilute to accurately measure.
- DL Detection Limit - Is the minimum value which we believe can be detected in the sample with a high degree of confidence, taking into account dilution factors and interferences. The reported detection limits are equal to or greater than Method Detection Limits (MDL) to allow for day to day and instrument to instrument variations in sensitivity.
- J Indicates that the value is an estimate.
- ND Not Detected - Indicates that the compound was not found in the sample at or above the detection limit.
- ppm parts per million (billion) in liquids is usually equivalent to mg/l (ug/l), or in solids to mg/kg (ug/kg). In the gas phase it is equivalent to ul/l (ul/m³).
- ppb
- TR Trace - Indicates that the compound was observed at a value less than our normal reported Detection Limit (DL), but we feel its presence may be important to you. These values are subject to large errors and low degrees of confidence.
- | | | | |
|-------------|--------------|---------------|---------|
| kg kilogram | mg milligram | l liter | m meter |
| g gram | ug microgram | ul microliter | |

QC Abbreviations:

- Control Control Limits are determined from historical data for a QC parameter. The test value must be within this acceptable range for the test to be considered in control. Usually this range corresponds to the 99% confidence interval for the historical data.
- % Error Percent Error - This is a measure of accuracy based on the analysis of a Laboratory Control Standard (LCS). An LCS is a reference sample of known value such as an NIST Standard Reference Material (SRM). The % Error is expressed in percent as the difference between the known value and the experimental value, divided by the known value. The LCS may simply be a solution based standard which confirms calibration (ICV or CCV - initial or continuing calibration verification), or it may be a reference sample taken through preparation and analysis.



DATE 2/10/05 PAGE 1 OF 1

ATI Labst. San Diego (619) 458-9141 • Phoenix (602) 496-4400 • Seattle (206) 228-8335 • Pensacola (904) 474-1001 • Portland (503) 684-0447 • Albuquerque (505) 344-3777
DISTRIBUTION: White, Canary • ATI • Pink • ORIGINATOR



Analytical Technologies, Inc.

NM CONSERVATION DIVISION
RECEIVED

ORIGINAL
INVOICE
AL 73905

Albuquerque Office: 2709-D Pan American Fwy., N E
Albuquerque, NM 87107
(505) 344-3777

Remit To: 05 JUN 1995 PM 8 52
Analytical Technologies, Inc.
P. O. Box 840436
Dallas, Texas 75284-0436

Billed to: NM OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NM 87505
Accession No.: 9505-357
Date: 06/14/95
Client No.: 810-134
810
Attention: ROGER ANDERSON
Telephone: 505-827-7152
Authorized by: MARK ASHLEY
P.O. Number:
Samples: 7 received 05/12/95
Project: (NONE)
Project No.: WASHINGTON RANCH

RECEIVED

JUN 21 1995

Environmental Bureau
Oil Conservation Division

TEST DESCRIPTION	QUANTITY	PRICE	TOTAL
EPA Method 8010/8020	7	100.00	700.00
Aqueous Digestion	7	16.00	112.00
OCD METHOD SLD 753	7	110.00	770.00
General Chemistry	7	160.00	1120.00
Metals 6010	7	200.00	1400.00
NM GROSS RECEIPTS TAX	1	238.43	238.43

Amount due:			4340.43

TERMS: Net 30 Days - 1½% Finance Charge on Balance Due over 30 days.			

OIL CONSERVATION DIVISION
RECEIVED

'95 JUL 13 AM 8 52



Analytical **Technologies**, Inc.

2709-D Pan American Freeway, NE Albuquerque, NM 87107
Phone (505) 344-3777 FAX (505) 344-4413

ATI I.D. 506413

July 11, 1995

NM Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

Project Name/Number: WASHINGTON RANCH

Attention: Mark Ashley

On 06/23/95, Analytical Technologies, Inc., (ADHS License No. AZ0015), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

All analyses were performed by West Coast Analytical Services Inc., 9840 Alburdis Avenue, Santa Fe Springs, CA 90670.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph.D.
Laboratory Manager

MR:jt

Enclosure



Analytical Technologies, Inc.

CLIENT : NMOCD
PROJECT # : (NONE)
PROJECT NAME : WASHINGTON RANCH

DATE RECEIVED : 06/23/95

REPORT DATE : 07/11/95

ATI ID: 506413

	ATI WCAS ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	506413-01	2206951340	AQUEOUS	06/22/95
02	506413-02	2206951405	AQUEOUS	06/22/95

---TOTALS---

MATRIX
AQUEOUS

#SAMPLES
2

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

July 7, 1995

ANALYTICAL TECHNOLOGIES
2709-D Pan American Freeway NE
Albuquerque, NM 87107

Attn: Kim McNeill

JOB NO. 29697

S

WCAS

**WEST COAST
ANALYTICAL
SERVICE, INC.**

ANALYTICAL CHEMISTS

LABORATORY REPORT

Samples Received: Two (2) Waters in Duplicate
Date Received: 6-27-95
Project: #506413/Washington Ranch

The samples were analyzed as follows:

<u>Samples Analyzed</u>	<u>Analysis</u>	<u>Page</u>
Two (2) samples	Hydrocarbon Distribution by GC/FID (Headspace)	2

Page 1 of 2


Michael Shelton
Technical Director


D. J. Northington, Ph.D.
President

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WEST COAST ANALYTICAL SERVICE, INC.

ANALYTICAL TECHNOLOGIES
Ms. Kim McNeillJob # 29697
July 7, 1995

LABORATORY REPORT

Hydrocarbon Distribution by GC/FID (Headspace)*Parts Per Million (mg/l)

<u>Sample ID</u>	<u>506413-01</u>	<u>506413-02</u>	<u>506413-02 (Dup)</u>	<u>Detection Limit</u>
Methane	0.0005	0.16	0.18	0.0005
Ethane	ND	0.013	0.013	0.0005
Propane	ND	ND	ND	0.0005
iso-Butane	ND	ND	ND	0.0005
n-Butane	ND	ND	ND	0.0005
iso-Pentane	ND	ND	ND	0.0005
n-Pentane	ND	ND	ND	0.0005
Hexane	ND	ND	ND	0.0003
Heptane	ND	ND	ND	0.0005
Octane	ND	ND	ND	0.0005

Date Analyzed: 7-6-95

* - Since these results are based on a single column and a non-specific detector, they are subject to interferences.

Matrix Spike Recovery Summary

Sample: 506413-01
Date
Analyzed: 07/06/95Matrix: WATER
Date
Extracted: 07/06/95, HEADSPACE
Units: PPM (MG/L)

<u>Analyte</u>	<u>Sample Result</u>	<u>Amount Spiked</u>	<u>MS Result</u>	<u>% Rec MS</u>
Methane	0.0005	0.0008	0.0011	75
Ethane	ND	0.0015	0.0017	113
Propane	ND	0.0023	0.0025	109
iso-Butane	ND	0.003	0.0034	113
iso-Pentane	ND	0.0037	0.0045	122

Abbreviations Summary

General Reporting Abbreviations:

- B Blank - Indicates that the compound was found in both the sample and the blank. The sample value is reported without blank subtraction. If the sample value is less than 10X the blank value times the sample dilution factor, the compound may be present as a laboratory contaminant.
- D Indicates that the sample was diluted, and consequently the surrogates were too dilute to accurately measure.
- DL Detection Limit - Is the minimum value which we believe can be detected in the sample with a high degree of confidence, taking into account dilution factors and interferences. The reported detection limits are equal to or greater than Method Detection Limits (MDL) to allow for day to day and instrument to instrument variations in sensitivity.
- J Indicates that the value is an estimate.
- ND Not Detected - Indicates that the compound was not found in the sample at or above the detection limit.
- ppm parts per million (billion) in liquids is usually equivalent to mg/l (ug/l), or in solids to mg/kg (ug/kg). In the gas phase it is equivalent to ul/l (ul/m³).
- TR Trace - Indicates that the compound was observed at a value less than our normal reported Detection Limit (DL), but we feel its presence may be important to you. These values are subject to large errors and low degrees of confidence.

kg kilogram	mg milligram	l liter	m meter
g gram	ug microgram	ul microliter	

QC Abbreviations:

- Control Control Limits are determined from historical data for a QC parameter. The test value must be within this acceptable range for the test to be considered in control. Usually this range corresponds to the 99% confidence interval for the historical data.
- % Error Percent Error - This is a measure of accuracy based on the analysis of a Laboratory Control Standard (LCS). An LCS is a reference sample of known value such as an NIST Standard Reference Material (SRM). The % Error is expressed in percent as the difference between the known value and the experimental value, divided by the known value. The LCS may simply be a solution based standard which confirms calibration (ICV or CCV - initial or continuing calibration verification), or it may be a reference sample taken through preparation and analysis.

QC Abbreviations (continued):

MS(D) Matrix Spike (Duplicate) - This refers to a quality control sample. It may be a real sample or blank sample spiked with representative target analytes.

% Rec Percent Recovery - This is a measure of the accuracy of the analysis. It is expressed in percent as the difference between the result of an MS sample and the unspiked sample, divided by the amount spiked.

RPD Relative Percent Difference - This is a measure of the precision of the analysis. It is the difference between duplicate results divided by the mean of the duplicates.

Warning Warning limits are determined from historical data, usually representing a 95% confidence interval. This serves to alert the analyst to problems before reaching the control limits. Data "Out of-Warning" is still considered in control.

Environmental Abbreviations:

BNA Base-Neutral/Acid Fraction - Also called the Extractable Semivolatile fraction, represents the pollutants which can be extracted from a sample, but which boil higher than 120 C and still pass through a gas chromatography column.

CAM California Assessment Manual - The original draft containing the CA hazardous waste rules, one of which was a list of 17 toxic metals. "CAM Metals" is used to refer to this list.

STLC Soluble Threshold Limit Concentration - According to California's hazardous waste regulations, a waste is considered hazardous if the concentration in the leachate from the Waste Extraction Test (WET) exceeds this limit.

TCLP Toxicity Characteristic Leaching Procedure - According to EPA regulations, a waste is considered hazardous if the leachate from the TCLP extraction exceeds certain limits.

TTLC Total Threshold Limit Concentration - According to California's hazardous waste regulations, a waste exceeding this concentration is considered a hazardous waste.

VOA Volatile Organics Analysis - Represents a group of volatile organic solvents with a boiling range from below room temperature to approximately 150 C.

WET Waste Extraction Test - See STLC.



ATLABID.

50615

ANALYSIS REQUEST

COMPANY: W/M OIL CONSERVATION DIVISION
 ADDRESS: 2040 SOUTH ACHECO
SANTA FE NM 87506
 PHONE: 827-7165
 FAX: 827-8177

BILL TO: ROGER ANDERSON
 COMPANY: SAME
 ADDRESS: _____

[illegible]

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJ. NO.:		NO. CONTAINERS	4
PROJ. NAME:	WDSHANGJOU ANCH	CUSTODY SEALS	Y/N/NA
P.O. NO.:		RECEIVED INTACT	Y
SHIPPED VIA:		RECEIVED COLD	Y

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☐ 2 WEEK

Comments:

SAMPLED & RELINQUISHED BY: 1.		RELINQUISHED BY: 2.		RELINQUISHED BY: 3.	
Signature: <i>[Signature]</i>	Time: 3:10 AM	Signature:	Time:	Signature:	Time:
Printed Name: MARK ASHLEY	Date: 6-23-95	Printed Name:	Date:	Printed Name:	Date:
Company: AMOCO	Phone: 827-7155	Company:		Company:	
RECEIVED BY: 1.		RECEIVED BY: 2.		RECEIVED BY: (LAB) 3.	
Signature:	Time:	Signature:	Time:	Signature: <i>[Signature]</i>	Time: 3:10 AM
Printed Name:	Date:	Printed Name:	Date:	Printed Name: <i>[Signature]</i>	Date: 6/23/95
Company:		Company:		Analytical Technologies, Inc.	

ATI Labs: San Diego (619) 458-9141 • Phoenix (602) 498-4400 • Seattle (206) 228-8335 • Pensacola (904) 474-1001 • Portland (503) 684-0447 • Albuquerque (505) 344-3777
DISTRIBUTION: White, Canary • ATI • Pink • ORIGINATOR



Chain of Custody

NETWORK PROJECT MANAGER: -LETHIA-KBAKOWSKI				ANALYSIS REQUEST											
COMPANY: Analytical Technologies, Inc.				NUMBER OF CONTAINERS											
ADDRESS: 2709-D Pan American Freeway, NE Albuquerque, NM 87107				AIR - O2, CO2, METHANE											
CLIENT PROJECT MANAGER: <i>Ryan McNeil</i>				RADIUM 226/228											
SAMPLE ID				GROSS ALPHA/BETA											
DATE				FECAL COLIFORM											
TIME				TOTAL COLIFORM											
MATRIX				BOD											
LAB ID				ASBESTOS											
506413-01				8240 (TCLP 1311) ZHE											
" -02				Volatile Organics GC/MS (624/8240)											
				Diesel/Gasoline/BTEX/MTBE/ (MOD 8015/8020)											
				NACE											
				610/8310											
				619/619 MOD											
				632/632 MOD											
				Hydrocarbon Distribution											
				SURFACTANTS (MBAS)											
				SULFIDE											
				ORGANIC LEAD											
				TOC											
				TOX											

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJECT NUMBER: 506413	TOTAL NUMBER OF CONTAINERS	CHAIN OF CUSTODY SEALS	
PROJECT NAME: Washington Ranch	CHAIN OF CUSTODY SEALS	INTACT?	
QC LEVEL: STD. IV	RECEIVED GOOD COND./COLD	LAB NUMBER	
QC REQUIRED: MS MSD BLANK	LAB NUMBER		
TAT: STANDARD RUSHI			
DUE DATE: _____		10 2 9 6 9 7	
RUSH SURCHARGE: _____			
CLIENT DISCOUNT: _____ %			

RELINQUISHED BY: 1.		RELINQUISHED BY: 2.	
Signature: <i>Ryan McNeil</i>	Time: 5:40	Signature:	Time:
Printed Name: Ryan McNeil	Date: 6/26	Printed Name:	Date:
Analytical Technologies, Inc.		Company:	
Albuquerque			
RECEIVED BY: (LAB) 1.		RECEIVED BY: (LAB) 2.	
Signature:	Time:	Signature: <i>Ryan McNeil</i>	Time: 10:30 A.M.
Printed Name:	Date:	Printed Name: Ryan McNeil	Date: 6-27-15
Company:		Company: WCA	

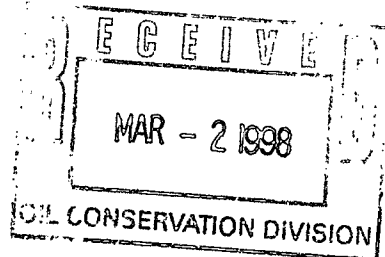
American Environmental Network, Inc.

AEN I.D.

801376

February 26, 1998

NM-OCD
2040 S. PACHEO
SANTA FE, NM 87505



Project Name WASHINGTON RANCH
Project Number (none)

Attention: MARK ASHLEY

On 1/28/98 American Environmental Network (NM), Inc. (ADHS License No. AZ0015), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

Aliphatic hydrocarbon analyses were analyzed by West Coast Analytical Service, Inc., Santa Fe Springs, CA.

Metals were analyzed by American Environmental Network (OR) Inc., Portland, OR.

EPA method 150.1 was analyzed by American Environmental Network (NM) Inc., Albuquerque, NM.

All other parameters were analyzed by American Environmental Network (AZ) Inc., Phoenix, AZ.

If you have any questions or comments, please do not hesitate to contact us at (505)344-3777.

Handwritten signature of Kimberly D. McNeill.

Kimberly D. McNeill
Project Manager

Handwritten signature of H. Mitchell Rubenstein.

H. Mitchell Rubenstein, Ph. D.
General Manager

MR: mt

American Environmental Network, Inc.

CLIENT	: NM-OCD	AEN I.D.	: 801376
PROJECT #	: (none)	DATE RECEIVED	: 1/28/98
PROJECT NAME	: WASHINGTON RANCH	REPORT DATE	: 2/27/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	RATTLESNAKE SPRINGS	AQ	1/27/98
02	BALLARD WELL	AQ	1/27/98
03	EPNG WELL	AQ	1/27/98
04	HOOD HOUSE	AQ	1/27/98
05	HOOD POND	AQ	1/27/98
06	TRIP BLANK	AQ	1/26/98
07	FIELD BLANK	AQ	1/26/98

American Environmental Network, Inc.

GENERAL CHEMISTRY RESULTS

CLIENT : NM-OCD AEN I.D. : 801376
PROJECT # : (none) DATE RECEIVED : 1/28/98
PROJECT NAME : WASHINGTON RANCH

SAMPLE			DATE	DATE		
ID. #	CLIENT I.D.	MATRIX	SAMPLED	ANALYZED		
01	RATTLESNAKE SPRINGS	AQUEOUS	1/27/98	1/28/98		
02	BALLARD WELL	AQUEOUS	1/27/98	1/28/98		
03	EPNG WELL	AQUEOUS	1/27/98	1/28/98		
PARAMETER			UNITS	01	02	03
PH (150.1)			UNITS	7.31	7.02	7.42

CHEMIST NOTES:

N/A

American Environmental Network, Inc.

GENERAL CHEMISTRY RESULTS

CLIENT : NM- OCD AEN I.D. : 801376
PROJECT # : (none) DATE RECEIVED : 1/28/98
PROJECT NAME : WASHINGTON RANCH

SAMPLE			DATE	DATE	
ID. #	CLIENT I.D.	MATRIX	SAMPLED	ANALYZED	
04	HOOD HOUSE	AQUEOUS	1/27/98	1/28/98	
05	HOOD POND	AQUEOUS	1/27/98	1/28/98	
PARAMETER			UNITS	04	05
PH (150.1)			UNITS	7.35	7.05

CHEMIST NOTES:

N/A

American Environmental Network, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : NM-OCD AEN I.D. : 801376
PROJECT # : (none) SAMPLE MATRIX : AQUEOUS
PROJECT NAME : WASHINGTON RANCH

PARAMETER	UNITS	AEN I.D.	SAMPLE RESULT	DUP. RESULT	% RPD
PH	UNITS	801372-01	7.24	7.25	0

CHEMIST NOTES:
N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

AEN I.D. 801435

February 26, 1998

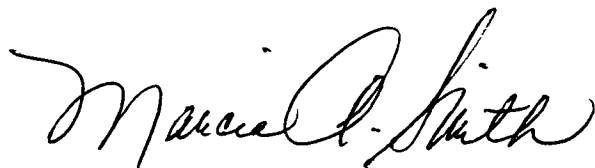
American Environmental Network-NM
2709-D Pan American Frwy, NE
Albuquerque, NM 87107

Project Name/Number: N.M.OCD/801376

Attention: Kimberly D. McNeill

On 01/29/98, American Environmental Network (Arizona), Inc., received a request to analyze aqueous sample(s). The sample(s) were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

If you have any questions or comments, please do not hesitate to contact us at (602) 496-4400.

A handwritten signature in cursive script, appearing to read "Marcia A. Smith".

Marcia A. Smith
Project Manager
MS/acc
Enclosure

ADHS License No. AZ0061
Alan Kleinschmidt, Regional General Manager

DATE RECEIVED : 01/29/98

PROJECT # : 801376

PROJECT NAME : N.M. OCD

REPORT DATE : 02/26/98

ATI I.D. : 801435

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	801376-01	AQUEOUS	01/27/98
02	801376-02	AQUEOUS	01/27/98
03	801376-03	AQUEOUS	01/27/98
04	801376-04	AQUEOUS	01/27/98
05	801376-05	AQUEOUS	01/27/98

- - - - - TOTALS - - - - -

MATRIX	# SAMPLES
-----	-----
AQUEOUS	5

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 801435

CLIENT : AMERICAN ENV. NETWORK OF NM, INC.
PROJECT # : 801376
PROJECT NAME : N.M. OCD

DATE RECEIVED : 01/29/98

REPORT DATE : 02/26/98

PARAMETER	UNITS	01	02	03	04	05
CARBONATE (CACO3)	MG/L	<1	<1	<1	<1	<1
BICARBONATE (CACO3)	MG/L	227	195	235	237	216
HYDROXIDE (CACO3)	MG/L	<1	<1	<1	<1	<1
TOTAL ALKALINITY (AS CACO3)	MG/L	227	195	235	237	216
BROMIDE (EPA 300.0)	MG/L	<0.3	<0.3	<0.3	<0.3	<0.3
CHLORIDE (EPA 325.2)	MG/L	4.2	7.5	3.5	4.0	7.2
CONDUCTIVITY, (UMHOS/CM)		615	1420	498	495	1250
FLUORIDE (EPA 340.2)	MG/L	0.20	0.48	0.17	0.17	0.34
SULFATE (EPA 300.0)	MG/L	130	750	37	34	720
T. DISSOLVED SOLIDS (160.1)	MG/L	360	1190	270	280	1000

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : AMERICAN ENV. NETWORK OF NM, INC.
PROJECT # : 801376
PROJECT NAME : N.M. OCD

ATI I.D. : 801435

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
CARBONATE	MG/L	80138001	<1	<1	NA	NA	NA	NA
BICARBONATE	MG/L		180	188	4	NA	NA	NA
HYDROXIDE	MG/L		<1	<1	NA	NA	NA	NA
TOTAL ALKALINITY	MG/L		180	188	4	NA	NA	NA
CARBONATE	MG/L	80299915	<1	<1	NA	NA	NA	NA
BICARBONATE	MG/L		302	298	1	NA	NA	NA
HYDROXIDE	MG/L		<1	<1	NA	NA	NA	NA
TOTAL ALKALINITY	MG/L		302	298	1	NA	NA	NA
BROMIDE	MG/L	80202001	22370	24460	9	77040	50000	109
CHLORIDE	MG/L	80142601	120	120	0	220	100	100
CONDUCTIVITY (UMHOS/CM)		80143501	615	618	0.5	NA	NA	NA
FLUORIDE	MG/L	80299901	3.80	3.88	2	7.77	4.00	99
SULFATE	MG/L	80143505	720	720	0	1420	700	100
TOTAL DISSOLVED SOLIDS	MG/L	80143501	360	390	8	NA	NA	NA

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

DATE OF ANALYSIS REPORT**AEN ID: 801435**

26-Feb-98

METHOD	SAMPLE #	DATE	ANALYST
ALKALINITY (EPA 310.1)	01	02/02/98	PAUL STRICKLER
	02	02/02/98	PAUL STRICKLER
	03	02/02/98	PAUL STRICKLER
	04	02/02/98	PAUL STRICKLER
	05	02/03/98	PAUL STRICKLER
BROMIDE (EPA 300.0)	01	02/10/98	CARLENE MCCUTCHEON
	02	02/10/98	CARLENE MCCUTCHEON
	03	02/10/98	CARLENE MCCUTCHEON
	04	02/10/98	CARLENE MCCUTCHEON
	05	02/10/98	CARLENE MCCUTCHEON
CHLORIDE (EPA 325.2)	01	02/15/98	CARLENE MCCUTCHEON
	02	02/15/98	CARLENE MCCUTCHEON
	03	02/15/98	CARLENE MCCUTCHEON
	04	02/15/98	CARLENE MCCUTCHEON
	05	02/15/98	CARLENE MCCUTCHEON
CONDUCTIVITY, (UMHOS/CM)	01	02/04/98	PAUL STRICKLER
	02	02/04/98	PAUL STRICKLER
	03	02/04/98	PAUL STRICKLER
	04	02/04/98	PAUL STRICKLER
	05	02/04/98	PAUL STRICKLER
FLUORIDE (EPA 340.2)	01	02/04/98	DIPTI A. SHAH
	02	02/04/98	DIPTI A. SHAH
	03	02/04/98	DIPTI A. SHAH
	04	02/04/98	DIPTI A. SHAH
	05	02/04/98	DIPTI A. SHAH
SULFATE (EPA 300.0)	01	02/17/98	MARLA WILSON
	02	02/17/98	MARLA WILSON
	03	02/17/98	MARLA WILSON
	04	02/17/98	MARLA WILSON
	05	02/17/98	MARLA WILSON
T. DISSOLVED SOLIDS (160.1)	01	01/30/98	MARLA WILSON
	02	01/30/98	MARLA WILSON
	03	01/30/98	MARLA WILSON

Methods for Chemical Analysis of Water and Wastes, EPA-600 4-79-020, March 1983

Methods for the Determination of Inorganic Substances in Environmental Samples, EPA-600-R-93/100

METHOD	SAMPLE #	DATE	ANALYST
T. DISSOLVED SOLIDS (160.1)	04	01/30/98	MARLA WILSON
	05	01/30/98	MARLA WILSON

Methods for Chemical Analysis of Water and Wastes, EPA-600 4-79-020, March 1983

Methods for the Determination of Inorganic Substances in Environmental Samples, EPA-600-R-93/100



American Environmental Network
Albuquerque, New Mexico

Interlab Chain of Custody

DATE: 1-28 PAGE: 1 OF 7

NETWORK PROJECT MANAGER: KIMBERLY D. MCNEILL

ANALYSIS REQUEST

COMPANY: American Environmental Network
ADDRESS: 2709-D Pan American Freeway, NE
Albuquerque, NM 87107

CLIENT PROJECT MANAGER:

Kim McNeill

SAMPLE ID DATE TIME MATRIX LAB ID

801376-01 1-27-98 8:05 AQ 1

-02 8:50 2

-03 9:40 3

-04 10:30 4

-05 11:00 5

Metals - TAL

Metals - PP List

Metals - RCRA

RCRA Metals by TCLP (1311)

TOX

TOC

Gen Chemistry & Anions: FL Br
ALK, CL, SO₄, TDS, ECOD

Oil and Grease

BOD

COD

Pesticides/PCB (608/8080)

Herbicides (615/8150)

Base/Neutral Acid Compounds GC/MS (625/8270)

Volatile Organics GC/MS (824/8240)

Polynuclear Aromatics (610/8310)

8240 (TCLP 1311) ZHE

8270 (TCLP 1311)

TO-14

Gross Alpha/Beta

NUMBER OF CONTAINERS

PROJECT INFORMATION

SAMPLE RECEIPT

SAMPLES SENT TO:

RELINQUISHED BY:

1.

RELINQUISHED BY:

2.

PROJECT NUMBER: 801376

TOTAL NUMBER OF CONTAINERS: 5

SAN DIEGO

Signature: [Signature] Time: 1:00

Signature: [Signature] Time: 09:52

PROJECT NAME: NM. OCO

CHAIN OF CUSTODY SEALS

Paragon

Printed Name: Michael Date: 1-28-98

Printed Name: Michael Date: 1-28-98

OC LEVEL: STD IV

INTACT?

RENTON

Signature: [Signature] Time: 1:00

Signature: [Signature] Time: 09:52

OC REQUIRED: MS MSD BLANK

RECEIVED GOOD COND/COLD

PENSACOLA

Signature: [Signature] Time: 1:00

Signature: [Signature] Time: 09:52

TAI: STANDARD RUSH

LAB NUMBER 801435

PORTLAND

Signature: [Signature] Time: 1:00

Signature: [Signature] Time: 09:52

ONE DATE:

2-10-98 For Cotton Arson Balance

RUSH SURCHARGE:

PH 08 ALK, BR, CL, SO₄, TDS, ECOD

CLIENT DISCOUNT:

PH 08 ALK, BR, CL, SO₄, TDS, ECOD

SPECIAL CERTIFICATION REQUIRED: ☐ YES ☐ NO

CHAIN OF CUSTODY

DATE: 1-28-98 PAGE: 1 of 1

AEN LAB ID: 801376

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: MARK ASHLEY		COMPANY: AVM OIL CASE/SEALATION (PUSHION) ADDRESS: 2040 S. ACHECO PHONE: (505) 827-7155 FAX: (505) 827-8177 BILL TO: ROGER ANDERSON COMPANY: SAME ADDRESS:	
PROJECT INFORMATION		PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS	
PROJ. NO.: WASHINGTOW AVAL	PUSHION ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK ☒ (NORMAL)	RELINQUISHED BY: 1. Signature: <i>Mark Ashley</i> Time: 1:00 PM Printed Name: MARK ASHLEY Date: 1-28-98	
PROJ. NAME: WASHINGTON AVAL	CERTIFICATION REQUIRED: ☐ ENM ☐ OSDMA ☐ LOTHER	RELINQUISHED BY: 2. Signature: _____ Time: _____ Printed Name: _____ Date: _____	
P.O. NO.:	METHANOL PRESERVATION:	RECEIVED BY: 1. Signature: _____ Time: _____ Printed Name: _____ Date: _____	
SHIPPED VIA:	COMMENTS: FIXED FEE 1	RECEIVED BY: 2. Signature: _____ Time: _____ Printed Name: _____ Date: _____	
SAMPLE RECEIPT	ANALYSIS REQUEST		
NO. CONTAINERS: 35	Petroleum Hydrocarbons (418.1) TRPH (MOD.8015) Diesel/Direct/Inject (M8015) Gas/Purge & Trap Gasoline/BTEX & MTBE (M8015/8020) BTEX/MTBE (8020) BTEX & Chlorinated Aromatics (602/8020) BTEX/MTBE/EDC & EDB (8020/8010/Short) Chlorinated Hydrocarbons (601/8010) 504 EDB ☐ / DBCP ☐ Polynuclear Aromatics (610/8310) Volatile Organics (624/8240) GC/MS Volatile Organics (8260) GC/MS Pesticides/PCB (608/8080) Herbicides (615/8150) Base/Neutral/Acid Compounds GC/MS (625/8270) General Chemistry: (ITEM #25) HFO/SAE (ITEM #4) Priority Pollutant Metals (13) Target Analyte List Metals (23) RCRA Metals (8) RCRA Metals by TCLP (Method 1311) Metals:		
CUSTODY SEALS: Y/N/NA	General Chemistry: (ITEM #25) HFO/SAE (ITEM #4) Priority Pollutant Metals (13) Target Analyte List Metals (23) RCRA Metals (8) RCRA Metals by TCLP (Method 1311) Metals:		
RECEIVED INTACT: YES	General Chemistry: (ITEM #25) HFO/SAE (ITEM #4) Priority Pollutant Metals (13) Target Analyte List Metals (23) RCRA Metals (8) RCRA Metals by TCLP (Method 1311) Metals:		
BLUE EVIDENCE: YES	General Chemistry: (ITEM #25) HFO/SAE (ITEM #4) Priority Pollutant Metals (13) Target Analyte List Metals (23) RCRA Metals (8) RCRA Metals by TCLP (Method 1311) Metals:		
NUMBER OF CONTAINERS		General Chemistry: (ITEM #25) HFO/SAE (ITEM #4) Priority Pollutant Metals (13) Target Analyte List Metals (23) RCRA Metals (8) RCRA Metals by TCLP (Method 1311) Metals:	

American Environmental Network, Inc.

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Kim McNeill
AEN - Albuquerque
2709-D Pan American Fwy NE
Albuquerque, NM 87107

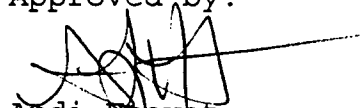
Date: 02/03/1998
AEN Account No.: 90147
AEN Job Number: 98.00173

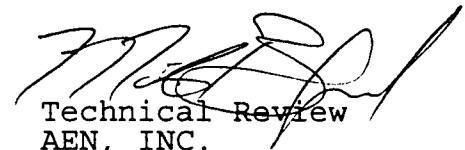
Project: 801376 (Washington Ranch)
Location: Washington Ranch 801376

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Sample Number	Sample Description	Matrix Type	Date Taken	Date Received
89818	801376-01	Water	01/27/1998	01/29/1998
89819	801376-02	Water	01/27/1998	01/29/1998
89820	801376-03	Water	01/27/1998	01/29/1998
89821	801376-04	Water	01/27/1998	01/29/1998
89822	801376-05	Water	01/27/1998	01/29/1998

Approved by:


Andi Hoevet
Project Manager
AEN, INC.


Technical Review
AEN, INC.

The results from these samples relate only to the items tested. This report shall not be reproduced, except in full, without the written approval of the laboratory.

ANALYTICAL SERVICES FOR THE ENVIRONMENT

ANALYTICAL REPORT

Kim McNeill
AEN - Albuquerque
2709-D Pan American Fwy NE
Albuquerque, NM 87107

02/03/1998
Job No.: 98.00173

Page: 2

Project Name: 801376 (Washington Ranch)
Date Received: 01/29/1998

Sample Number Sample Description
89818 801376-01

<u>PARAMETERS</u>	<u>METHODS</u>	<u>RESULTS</u>	<u>REPORT LIMIT</u>	<u>UNITS</u>	<u>DATE ANALYZED</u>	<u>FLAG</u>
ICP/AA Digestion - Water	ICP	-			01/30/1998	
Calcium, ICP	6010	96	0.05	mg/L	02/03/1998	
Magnesium, ICP	6010	27	0.05	mg/L	02/03/1998	
Potassium, ICP	6010	1.0	0.2	mg/L	02/03/1998	
Sodium, ICP	6010	5.5	0.2	mg/L	02/03/1998	

Sample Number Sample Description
89819 801376-02

<u>PARAMETERS</u>	<u>METHODS</u>	<u>RESULTS</u>	<u>REPORT LIMIT</u>	<u>UNITS</u>	<u>DATE ANALYZED</u>	<u>FLAG</u>
ICP/AA Digestion - Water	ICP	-			01/30/1998	
Calcium, ICP	6010	350	0.05	mg/L	02/03/1998	
Magnesium, ICP	6010	35	0.05	mg/L	02/03/1998	
Potassium, ICP	6010	1.4	0.2	mg/L	02/03/1998	
Sodium, ICP	6010	11	0.2	mg/L	02/03/1998	

Sample Number Sample Description
89820 801376-03

<u>PARAMETERS</u>	<u>METHODS</u>	<u>RESULTS</u>	<u>REPORT LIMIT</u>	<u>UNITS</u>	<u>DATE ANALYZED</u>	<u>FLAG</u>
ICP/AA Digestion - Water	ICP	-			01/30/1998	
Calcium, ICP	6010	67	0.05	mg/L	02/03/1998	
Magnesium, ICP	6010	25	0.05	mg/L	02/03/1998	
Potassium, ICP	6010	0.90	0.2	mg/L	02/03/1998	
Sodium, ICP	6010	4.7	0.2	mg/L	02/03/1998	

Sample Number Sample Description
89821 801376-04

<u>PARAMETERS</u>	<u>METHODS</u>	<u>RESULTS</u>	<u>REPORT LIMIT</u>	<u>UNITS</u>	<u>DATE ANALYZED</u>	<u>FLAG</u>
ICP/AA Digestion - Water	ICP	-			01/30/1998	
Calcium, ICP	6010	67	0.05	mg/L	02/03/1998	

A sample result of ND indicates the parameter was Not Detected at the reporting limit.

ANALYTICAL REPORT

Kim McNeill
AEN - Albuquerque
2709-D Pan American Fwy NE
Albuquerque, NM 87107

02/03/1998
Job No.: 98.00173

Page: 3

Project Name: 801376 (Washington Ranch)
Date Received: 01/29/1998

Sample Number Sample Description
89821 801376-04

<u>PARAMETERS</u>	<u>METHODS</u>	<u>RESULTS</u>	<u>REPORT LIMIT</u>	<u>UNITS</u>	<u>DATE ANALYZED</u>	<u>FLAG</u>
Magnesium, ICP	6010	25	0.05	mg/L	02/03/1998	
Potassium, ICP	6010	0.94	0.2	mg/L	02/03/1998	
Sodium, ICP	6010	4.8	0.2	mg/L	02/03/1998	

Sample Number Sample Description
89822 801376-05

<u>PARAMETERS</u>	<u>METHODS</u>	<u>RESULTS</u>	<u>REPORT LIMIT</u>	<u>UNITS</u>	<u>DATE ANALYZED</u>	<u>FLAG</u>
ICP/AA Digestion - Water	ICP	-			01/30/1998	
Calcium, ICP	6010	280	0.05	mg/L	02/03/1998	
Magnesium, ICP	6010	40	0.05	mg/L	02/03/1998	
Potassium, ICP	6010	1.4	0.2	mg/L	02/03/1998	
Sodium, ICP	6010	13	0.2	mg/L	02/03/1998	

A sample result of ND indicates the parameter was Not Detected at the reporting limit.

American Environmental Network, Inc. (503) 684-0447 (503) 620-0393 FAX
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QUALITY CONTROL REPORT CONTINUING CALIBRATION VERIFICATION

AEN - Albuquerque
2709-D Pan American Fwy NE
Albuquerque, NM 87107

Date: 02/03/1998

Job Number: 98.00173

Contact: Kim McNeill
Project: 801376 (Washington Ranch)

Analyte	CCV			
	True Concentration	Concentration Found	Percent Recovery	Date Analyzed
Calcium, ICP	25.0	23.5	94.0	02/03/1998
Magnesium, ICP	25.0	23.1	92.4	02/03/1998
Potassium, ICP	5.00	5.15	103.0	02/03/1998
Sodium, ICP	5.00	4.93	98.6	02/03/1998

CCV - Continuing Calibration Verification

American Environmental Network, Inc. (503)684-0447 (503)620-0393 FAX
17400 SW Upper Boones Ferry Rd., Suite 270, Portland, OR 97224

QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

AEN - Albuquerque
2709-D Pan American Fwy NE
Albuquerque, NM 87107

Date: 02/03/1998

Job Number: 98.00173

Contact: Kim McNeill
Project: 801376 (Washington Ranch)

Analyte	LCS		LCS % Recovery	Flags	Date Analyzed
	True Concentration	Concentration Found			
Calcium, ICP	5.00	4.73	94.6		02/03/1998
Magnesium, ICP	5.00	4.96	99.2		02/03/1998
Potassium, ICP	5.00	5.14	102.8		02/03/1998
Sodium, ICP	5.00	5.18	103.6		02/03/1998

LCS - Laboratory Control Standard

American Environmental Network, Inc. (503) 684-0447 (503) 620-0393 FAX
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QUALITY CONTROL REPORT MATRIX SPIKE/MATRIX SPIKE DUPLICATE

AEN - Albuquerque
2709-D Pan American Fwy NE
Albuquerque, NM 87107

Date: 02/03/1998
Job Number: 98.00173

Contact: Kim McNeill
Project: 801376 (Washington Ranch)

Analyte	Matrix	Sample	Spike	Units	Percent	MSD	MSD		Percent	MS/MSD		Flags
	Spike						Spike	Amount		Recovery	RPD	
	Result	Result	Amount		Recovery	Result	Amount	Units	Recovery			
Calcium, ICP		110	5.00	mg/L			5.00	mg/L				MD
Magnesium, ICP	17.8	13	5.00	mg/L	96.0	17.8	5.00	mg/L	96.0	0.0		
Potassium, ICP	19.9	14	5.00	mg/L	118.0	19.8	5.00	mg/L	116.0	1.7		
Sodium, ICP		230	5.00	mg/L			5.00	mg/L				DIL,Q,

QC Sample:

NOTE: Matrix Spike Samples may not be samples from this job.

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
dil. = Diluted Out

American Environmental Network, Inc. (503) 684-0447 (503) 620-0393 FAX
17400 SW Upper Boones Ferry Rd., Portland, OR 97224

QUALITY CONTROL REPORT BLANKS

AEN - Albuquerque
2709-D Pan American Fwy NE
Albuquerque, NM 87107

Date: 02/03/1998

Job Number: 98.00173

Contact: Kim McNeill
Project: 801376 (Washington Ranch)
Location: Washington Ranch 801376

Analyte	Blank Analysis	Report Limit	Units	Date Analyzed
Calcium, ICP	ND	0.05	mg/L	02/03/1998
Magnesium, ICP	ND	0.05	mg/L	02/03/1998
Potassium, ICP	ND	0.2	mg/L	02/03/1998
Sodium, ICP	ND	0.2	mg/L	02/03/1998

FLAG GLOSSARY

A	This sample does not have a typical gasoline pattern.
B1	This sample does not have a typical diesel pattern.
B	Analyte found in the associated blank as well as the sample.
C	The sample contains a lighter hydrocarbon than gasoline.
CN	See case narrative
CS	Outside control limits or unusual matrix; see case narrative.
D	The sample extends to a heavier hydrocarbon range than gasoline.
d	Results on a dry weight basis
DIL	Result was calculated from dilution.
E	The sample extends to a lighter hydrocarbon range than diesel.
F	The sample extends to a heavier hydrocarbon range than diesel.
G	The positive result for gasoline is due to single component contamination.
I	The oil pattern for this sample is not typical.
J	The result for this compound is an estimated concentration.
L	The LCS recovery exceeded control limits. See the LCS page of this report.
LM	The LCS recovery exceeded control limits; the MS/MSD were in control validating the batch.
M	MS and/or MSD percent recovery exceeds control limits.
MD	Unable to calculate MS/MSD recovery due to high amount of analyte; greater than 4 times spike level.
MR	The MS/MSD RPD is greater than method criteria. The sample was re-extracted and re-analyzed with similar results indicating a non-homogeneous sample.
MM	The Matrix Spike exceeded control limits; LCS/LCS-D were in control validating the batch.
MI	Outside control limits due to matrix interference.
N	Manual integration performed on sample for quantification.
N/A	Not Applicable.
NC	Not calculable.
NO	Not Analyzed.
P	A post digestion spike was analyzed, and recoveries were within control limits.
Q	Detection limits elevated due to sample matrix.
Q1	Detection limits elevated due to high levels of non-target compounds. Sample(s) run at a dilution.
R	The duplicate RPD was greater than 20%. The sample was re-extracted and re-analyzed with similar results. This indicates a matrix interference in the sample, likely a non-homogeneity of the sample.
RD	RPD not applicable for results less than five times the reporting limit.
RP	MS/MSD RPD is greater than 20%
SR	Surrogate recovery outside control limits. See the surrogate page of the report.
SD	Unable to quantitate surrogate due to sample dilution.
SC	Sample not provided to laboratory in proper sampling container.
V	Volatile analysis was requested, sample container received with headspace.
X1	The duplicate RPD was greater than 20%. Due to insufficient sample, re-analysis was not possible.
X	Sample was analyzed outside recommended holding times.
Y	The result for this parameter was greater than the TCLP regulatory limit.
Z	The pattern seen for the parameter being analyzed is not typical.



American Environmental Network
Albuquerque, New Mexico

Interlab Chain of Custody

DATE: 1-28-98 PAGE: 1 of 1

NETWORK PROJECT MANAGER: KIMBERLY D. MCNEILL

ANALYSIS REQUEST

COMPANY: American Environmental Network
ADDRESS: 2709-D Pan American Freeway, NE
Albuquerque, NM 87107

98.00173

CLIENT PROJECT MANAGER:

Kim McNeill

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
801376 - 01	1-27-98	8:05	RA	81818
-02		8:50		89819
-03		9:40		820
-04		10:30		821
-05		11:00		822

Metals - TAL	
Metals - PP List	
Metals - RCRA	
RCRA Metals by TCLP (1311)	
Cations: Ca, K, Mg, Na	
TOX	
TOC	
Gen Chemistry	
Oil and Grease	
BOD	
COD	
Pesticides/PCB (608/8080)	
Herbicides (615/8150)	
Base/Neutral Acid Compounds GC/MS (825/8270)	
Volatile Organics GC/MS (624/8240)	
Polynuclear Aromatics (610/8310)	
8240 (TCLP 1311) ZHE	
8270 (TCLP 1311)	
TO-14	
Gross Alpha/Beta	
NUMBER OF CONTAINERS	

PROJECT INFORMATION

SAMPLE RECEIPT

SAMPLES SENT TO:

RELINQUISHED BY:

1.

RELINQUISHED BY:

2.

PROJECT NUMBER: 801376

TOTAL NUMBER OF CONTAINERS

SAN DIEGO

Signature: [Signature]

Time: 1700

Signature: [Signature]

Time: [Time]

PROJECT NAME: NM OCD

CHAIN OF CUSTODY SEALS

M.C.

Printed Name: [Name]

Date: 1-28-98

Printed Name: [Name]

Date: [Date]

QC LEVEL: IV

INTACT?

RENTON

Signature: [Signature]

Date: [Date]

Signature: [Signature]

Time: [Time]

QC REQUIRED: MS MSD BLANK

RECEIVED GOOD COND/COLD

PENSACOLA

Signature: [Signature]

Date: [Date]

Signature: [Signature]

Time: [Time]

TAT: STANDARD RUSH

LAB NUMBER

PHOENIX

Signature: [Signature]

Date: [Date]

Signature: [Signature]

Time: [Time]

DUE DATE: 2-10-98

RUSH SURCHARGE: []

CLIENT DISCOUNT: []

SPECIAL CERTIFICATION REQUIRED: [] YES [] NO

Lab: San Diego (619) 458-9141 • Phoenix (602) 496-4400 • Seattle (206) 228-8335 • Pensacola (904) 474-1001 • Portland (503) 684-0447 • Albuquerque (505) 344-3777

CHAIN OF CUSTODY

AEN LAB ID:
801376

DATE: 1-28-98 PAGE: 1 of 1

PLEASE FILL THIS FORM IN COMPLETELY.

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PROJECT MANAGER: MARK ASHLEY		COMPANY: AEM OIL CASE/REMITTANCE (QUESTON)		ADDRESS: 2040 S. ASHLEY		PHONE: (505) 827-7155		FAX: (505) 827-8177		BILL TO: ADGER ANDERSON		COMPANY: SAME		ADDRESS:			
SAMPLE ID		DATE		TIME		MATRIX		LAB ID		ANALYSIS REQUEST							
BATES LAKE SPRINGS		1-27-98		8:05 AM		H ₂ O		-01		Petroleum Hydrocarbons (418.1) TRPH							
BALDARD WEL		"		8:50 AM		"		-02		(MOD.8015) Diesel/Direct/Inject							
BENT WEL		"		9:30 AM		"		-03		(M8015) Gas/Purge & Trap							
HOOO HOOSE		"		10:30 AM		"		-04		Gasoline/BTEX & MTBE (M8015/8020)							
HOOO FOUO		"		11:00 AM		"		-05		BTXE/MTBE (8020)							
TRIP BLANK		1-26-98		7:44		"		-06		BTEX & Chlorinated Aromatics (602/8020)							
FIELD BLANK		"		7:44		"		-07		BTEX/MTBE/EDC & EDB (8020/8010/Short)							
										Chlorinated Hydrocarbons (601/8010)							
										504 EDB / DBCPL							
										Polynuclear Aromatics (610/8310)							
										Volatile Organics (624/8240) GC/MS							
										Volatile Organics (8260) GC/MS							
										Pesticides/PCB (608/8080)							
										Herbicides (615/8150)							
										Base/Neutral/Acid Compounds GC/MS (625/8270)							
										General Chemistry: (ITEM #25)							
										HEADSPACE (ITEM #4)							
										Priority Pollutant Metals (13)							
										Target Analyte List Metals (23)							
										RCRA Metals (8)							
										RCRA Metals by TCLP (Method 1311)							
										Metals:							
										NUMBER OF CONTAINERS							
PROJECT INFORMATION		PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS		RELINQUISHED BY: 1.		RELINQUISHED BY: 2.											
PROJECT NO:		(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK ☒ (NORMAL)		Signature: Mark Ashley		Signature:		Time: 1:00 PM		Signature:		Signature:		Time:		Time:	
PROJECT NAME: WASHINGTON ROAD		CERTIFICATION REQUIRED: ☐ NMI ☐ SDWA ☐ OTHER		Printed Name: Mark Ashley		Printed Name:		Date: 1-28-98		Printed Name:		Printed Name:		Date:		Date:	
P.O. NO:		METHODS: PRESERVATION		Company: AEM OCO		Company:				Company:		Company:					
SHIPPED VIA:		COMMENTS: FUEL PUMP		RECEIVED BY: 1.		RECEIVED BY: (LAB) 2.											
SAMPLE RECEIPT				Signature: [Signature]		Signature:		Time: 1:00 PM		Signature:		Signature:		Time:		Time:	
NO. CONTAINERS		35		Printed Name: [Signature]		Printed Name:		Date: 1-28-98		Printed Name:		Printed Name:		Date:		Date:	
CUSTODY SEALS		Y/N/NA		Company: American Environmental Network (AEN), Inc.		Company:				Company:		Company:					
RECEIVED IMPACT		YES															
BLUE ID/CE		49															



WEST COAST
ANALYTICAL
SERVICE, INC.
Analytical Chemists

February 5, 1998

AEN
2709-D Pan American
Freeway NE
Albuquerque, NM 87107

Attn: Kim McNeill

Job No: 37197

S

LABORATORY REPORT

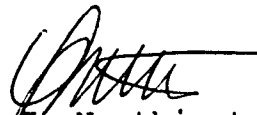
Samples Received: Seven (7) Liquids
Date Received: 01/29/98
Purchase Order No: COD

The samples were analyzed as follows:

<u>Analysis</u>	<u>Page</u>
C1-C5 Hydrocarbons by GC/FID (headspace)	2



Charles Jacks, Ph.D.
Senior Staff Chemist



D.J. Northington, Ph.D.
President

This report is to be reproduced in its entirety.

Page 1 of 2

WEST COAST ANALYTICAL SERVICE, INC.

AEN
Attn: Kim McNeill

Job No: 37197
February 5, 1998

LABORATORY REPORT

C1-C5 Hydrocarbons by GC/FID (headspace)*

Parts per Million (mg/L)

<u>Sample ID</u>	<u>Methane</u>	<u>Ethane</u>	<u>Ethylene</u>	<u>C3 - C5 Hydrocarbons</u>
801376-01	ND	ND	ND	ND
801376-02	0.22	0.015	ND	ND
801376-03	ND	ND	ND	ND
801376-04	ND	ND	ND	ND
801376-05	ND	ND	ND	ND
801376-06	ND	ND	ND	ND
801376-07	ND	ND	ND	ND
801376-02 (dup)	0.25	0.015	ND	ND
Detection limit	.001	.001	.001	.001

Date Analyzed 02-02-98 to 02-04-98

* Since these results are based on a single column and non-specific detector, they are subject to interferences.

Matrix Spike Recovery Summary

Sample:	801376-04	Matrix:	WATER
Date		Date	
Analyzed:	02-04-98	Extracted:	02-04-98, HEADSPACE
		Units:	PPM(MG/L)

<u>Analyte</u>	<u>Sample Result</u>	<u>Amount Spiked</u>	<u>MS Result</u>	<u>% Rec MS</u>
Methane	ND	0.16	0.17	106

This report is to be reproduced in its entirety.

Page 2 of 2

WCAS

QC Abbreviations (continued):

MS (D)	Matrix Spike (Duplicate) - This refers to a quality control sample. It may be a real sample or blank sample spiked with representative target analytes.
% Rec	Percent recovery - This is a measure of the accuracy of the analysis. It is expressed in percent as the difference between the result of an MS sample and the unspiked sample, divided by the amount spiked.
RPD	Relative Percent Difference - This is a measure of the precision of the analysis. It is the difference between duplicate results divided by the mean of the duplicates.
Note	QC limits for % recovery only apply when the spiked amount is greater than the original concentration. QC Limits for RPD only apply when the concentration is greater than 20X the detection limit.

Environmental Abbreviations:

BNA	Base-Neutral/Acid Fraction - Also called the Extractable Semivolatile fraction, represents the pollutants which can be extracted from a sample, but which boil higher than 120°C and still pass through a gas chromatography column.
CAM	California Assessment Manual - The original draft containing the CA hazardous waste rules, one of which was a list of 17 toxic metals. "CAM Metals" is used to refer to this list.
STLC	Soluble Threshold Limit Concentration - According to California's hazardous waste regulations, a waste is considered hazardous if the concentration in the leachate from the Waste Extraction Test (WET) exceeds this limit.
TCLP	Toxicity Characteristic Leaching Procedure - According to EPA regulations, a waste is considered hazardous if the leachate from the TCLP extraction exceeds certain limits.
TTLC	Total Threshold Limit Concentration - According to California's hazardous waste regulations, a waste exceeding this concentration is considered a hazardous waste.
VOA	Volatile Organics Analysis - Represents a group of volatile organic solvents with a boiling range from below room temperature to approximately 150°C.
WET	Waste Extraction Test - See STLC.

QC Abbreviations (continued):

MS (D)	Matrix Spike (Duplicate) - This refers to a quality control sample. It may be a real sample or blank sample spiked with representative target analytes.
% Rec	Percent recovery - This is a measure of the accuracy of the analysis. It is expressed in percent as the difference between the result of an MS sample and the unspiked sample, divided by the amount spiked.
RPD	Relative Percent Difference - This is a measure of the precision of the analysis. It is the difference between duplicate results divided by the mean of the duplicates.
Note	QC limits for % recovery only apply when the spiked amount is greater than the original concentration. QC Limits for RPD only apply when the concentration is greater than 20X the detection limit.

Environmental Abbreviations:

BNA	Base-Neutral/Acid Fraction - Also called the Extractable Semivolatile fraction, represents the pollutants which can be extracted from a sample, but which boil higher than 120°C and still pass through a gas chromatography column.
CAM	California Assessment Manual - The original draft containing the CA hazardous waste rules, one of which was a list of 17 toxic metals. "CAM Metals" is used to refer to this list.
STLC	Soluble Threshold Limit Concentration - According to California's hazardous waste regulations, a waste is considered hazardous if the concentration in the leachate from the Waste Extraction Test (WET) exceeds this limit.
TCLP	Toxicity Characteristic Leaching Procedure - According to EPA regulations, a waste is considered hazardous if the leachate from the TCLP extraction exceeds certain limits.
TTLC	Total Threshold Limit Concentration - According to California's hazardous waste regulations, a waste exceeding this concentration is considered a hazardous waste.
VOA	Volatile Organics Analysis - Represents a group of volatile organic solvents with a boiling range from below room temperature to approximately 150°C.
WET	Waste Extraction Test - See STLC.

CHAIN OF CUSTODY

DATE: 1-28-98 PAGE: 1 of 1

AEN LAB I.D.
 801376

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: MARK ASHLEY				COMPANY: NM OIL CONSERVATION ASSOCIATION ADDRESS: 2040 S. ASHMEAD PHONE: (505) 827-7155 FAX: (505) 827-8177 BILL TO: ROGER ANDERSON COMPANY: SAME ADDRESS:					
SAMPLE ID		DATE		TIME		MATRIX		LAB I.D.	
ANTLESNAKE SPRINGS		1-27-98		8:05AM		H ₂ O		-01	
BALDARD WELL		"		8:50AM		"		-02	
BIVB WELL		"		9:40AM		"		-03	
HODD HOUSE		"		10:30AM		"		-04	
HODD POND		"		11:00AM		"		-05	
TRIP BLANK		1-26-98		7:44		"		-06	
FIELD BLANK		"		7:44		"		-07	
PROJECT INFORMATION		PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS (RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒							
PROJ. NO.: WASHN1604 RWD4 PROJ. NAME: P.O. NO.: SHIPPED VIA: SAMPLE RECEIPT: NO. CONTAINERS: 35 CUSTODY SEALS: Y/N/NA RECEIVED INTACT: yes BLUE ICE/ICE: 4.8		CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER METHANOL PRESERVATION: ☐ COMMENTS: FIXED FEE ☐							
RELINQUISHED BY: Signature: Mark Ashley Printed Name: MARK ASHLEY Date: 1-28-98 Company: NM OCO		RELINQUISHED BY: Signature: [Signature] Printed Name: [Name] Date: [Date] Company: [Company]							
RECEIVED BY: Signature: [Signature] Printed Name: [Name] Date: [Date] Company: [Company]		RECEIVED BY: (LAB) Signature: [Signature] Printed Name: [Name] Date: 1-28-98 Company: American Environmental Network (NM), Inc.							
ANALYSIS REQUEST		Petroleum Hydrocarbons (418.1) TRPH (MOD.8015) Diesel/Direct/Inject (M8015) Gas/Purge & Trap Gasoline/BTEX & MTBE (M8015/8020) BTXE/MTBE (8020) BTEX & Chlorinated Aromatics (602/8020) BTEX/MTBE/EDC & EDB (8020/8010/Short) Chlorinated Hydrocarbons (601/8010) 504 EDB ☐ / DBCP ☐ Polynuclear Aromatics (610/8310) Volatile Organics (624/8240) GC/MS Volatile Organics (8260) GC/MS Pesticides/PCB (608/8080) Herbicides (615/8150) Base/Neutral/Acid Compounds GC/MS (625/8270) General Chemistry: (ITEM #25) HEROSPEC (ITEM #4) Priority Pollutant Metals (13) Target Analyte List Metals (23) RCRA Metals (8) RCRA Metals by TCLP (Method 1311) Metals: NUMBER OF CONTAINERS							

American Environmental Network, Inc.

AEN I.D. 707386

August 29, 1997

N.M. Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

SEP - 2 1997

Project Name/Number: WASHINGTON RANCH (NONE)

Attention: Mark Ashley

On 707386, American Environmental Network (NM), Inc., (ADHS License No. AZ0015) received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

Aliphatic Hydrocarbons was performed by West Coast Analytical Service 9840 Alburtis Avenue, Santa Fe Springs, CA.

All other analyses were performed by American Environmental Network (AZ), Inc., 9830 S. 51st Street, Suite B-113, Phoenix, AZ.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.



Kimberly D. McNeill
Project Manager



H. Mitchell Rubenstein, Ph.D.
General Manager

MR:ft

Enclosure

American Environmental Network, Inc.

CLIENT : N.M. OIL CONSERVATION DATE RECEIVED : 707386
PROJECT # : (NONE)
PROJECT NAME : WASHINGTON RANCH REPORT DATE : 08/29/97

AEN ID: 707386

	AEN ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	707386-01	2907970945 ANTWERP SPR.	AQUEOUS	07/29/97
02	707386-02	2907971015 BALCONY	AQUEOUS	07/29/97
03	707386-03	2907971130 WOOD HAND	AQUEOUS	07/29/97
04	707386-04	2907971225 EMBL	AQUEOUS	07/29/97
05	707386-05	2907971450 WOOD HOUSE	AQUEOUS	07/29/97
06	707386-06	TRIP BLANK	AQUEOUS	07/28/97

--- TOTAL ---

<u>MATRIX</u>	<u>#SAMPLES</u>
AQUEOUS	6

AEN STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

American Environmental Network, Inc.

AEN I.D. 708013

August 28, 1997

American Environmental Network-NM
2709-D Pan American Frwy, Ne
Albuquerque, NM 87107

Project Name/Number: 707386

Attention: Kimberly D. McNeill

On 08/01/97, American Environmental Network (Arizona), Inc., received a request to analyze aqueous sample(s). The sample(s) were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

If you have any questions or comments, please do not hesitate to contact us at (602) 496-4400.



Linda Eshelman
Project Manager
LE/acc
Enclosure

ADHS License No. AZ0061
Sherman McCutcheon, General Manager

American Environmental Network, Inc.

CLIENT : AMERICAN ENV. NETWORK OF NM, INC.
PROJECT # : 707386
PROJECT NAME : (NONE)

DATE RECEIVED : 08/01/97

REPORT DATE : 08/28/97

ATI I.D. : 708013

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	707386-01	AQUEOUS	07/29/97
02	707386-02	AQUEOUS	07/29/97
03	707386-03	AQUEOUS	07/29/97
04	707386-04	AQUEOUS	07/29/97
05	707386-05	AQUEOUS	07/29/97
06	707386-06	AQUEOUS	07/28/97

----- TOTALS -----

MATRIX	# SAMPLES
-----	-----
AQUEOUS	6

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

American Environmental Network, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 708013

CLIENT : AMERICAN ENV. NETWORK OF NM, INC.

DATE RECEIVED : 08/01/97

PROJECT # : 707386

PROJECT NAME : (NONE)

REPORT DATE : 08/28/97

PARAMETER	UNITS	01	02	03	04	05
CARBONATE (CACO3)	MG/L	<1	<1	<1	<1	<1
BICARBONATE (CACO3)	MG/L	244	209	200	246	242
HYDROXIDE (CACO3)	MG/L	<1	<1	<1	<1	<1
TOTAL ALKALINITY (AS CACO3)	MG/L	244	209	200	246	242
BROMIDE (EPA 300.0)	MG/L	<0.3	<0.3	<0.3	<0.3	<0.3
CHLORIDE (EPA 325.2)	MG/L	3.5	7.6	6.3	3.0	3.6
CONDUCTIVITY, (UMHOS/CM)		599	1490	1510	495	508
FLUORIDE (EPA 340.2)	MG/L	0.24	0.51	0.53	0.21	0.22
NO2/NO3-N, TOTAL (353.2)	MG/L	0.61	0.14	1.08	0.80	0.77
PH (EPA 150.1)	UNITS	7.5	7.2	7.2	7.6	7.6
SULFATE (EPA 375.2)	MG/L	90	760	780	36	40
T. DISSOLVED SOLIDS (160.1)	MG/L	410	1400	1400	440	310

American Environmental Network, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 708013

CLIENT : AMERICAN ENV. NETWORK OF NM, INC.
PROJECT # : 707386
PROJECT NAME : (NONE)

DATE RECEIVED : 08/01/97

REPORT DATE : 08/28/97

PARAMETER	UNITS	06
CARBONATE (CACO3)	MG/L	<1
BICARBONATE (CACO3)	MG/L	154
HYDROXIDE (CACO3)	MG/L	<1
TOTAL ALKALINITY (AS CACO3)	MG/L	154
BROMIDE (EPA 300.0)	MG/L	<0.3
CHLORIDE (EPA 325.2)	MG/L	9.5
CONDUCTIVITY, (UMHOS/CM)		352
FLUORIDE (EPA 340.2)	MG/L	0.59
NO2/NO3-N, TOTAL (353.2)	MG/L	1.37
PH (EPA 150.1)	UNITS	7.9
SULFATE (EPA 375.2)	MG/L	17
T. DISSOLVED SOLIDS (160.1)	MG/L	230

American Environmental Network, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : AMERICAN ENV. NETWORK OF NM, INC.

PROJECT # : 707386

PROJECT NAME : (NONE)

ATI I.D. : 708013

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
CARBONATE	MG/L	70801301	<1	<1	NA	NA	NA	NA
BICARBONATE	MG/L		244	244	0	NA	NA	NA
HYDROXIDE	MG/L		<1	<1	NA	NA	NA	NA
TOTAL ALKALINITY	MG/L		244	244	0	NA	NA	NA
BROMIDE	MG/L	70801301	<0.3	<0.3	NA	2.1	2.0	105
BROMIDE	MG/L	70820501	<0.3	<0.3	NA	1.2	1.0	120
CHLORIDE	MG/L	70801301	3.5	3.4	3	14	10	105
CONDUCTIVITY (UMHOS/CM)		70801201	615	618	0.5	NA	NA	NA
FLUORIDE	MG/L	70801301	0.24	0.24	0	0.44	0.20	100
FLUORIDE	MG/L	70801304	0.21	0.21	0	0.42	0.20	105
FLUORIDE	MG/L	70746901	13.7	13.7	0	44.9	30.0	104
NITRITE/NITRATE-N	MG/L	70801305	0.77	0.78	1	2.93	2.00	108
NITRITE/NITRATE-N	MG/L	70801306	1.37	1.43	4	3.78	2.00	120
PH	UNITS	70801301	7.5	7.5	0	NA	NA	NA
SULFATE	MG/L	70801201	130	140	7	230	100	100
SULFATE	MG/L	70801304	36	37	3	60	20	120
TOTAL DISSOLVED SOLIDS	MG/L	70899915	340	330	3	NA	NA	NA

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

American Environmental Network, Inc.

METALS RESULTS

ATI I.D. : 708013

CLIENT : AMERICAN ENV. NETWORK OF NM, INC.

DATE RECEIVED : 08/01/97

PROJECT # : 707386

PROJECT NAME : (NONE)

REPORT DATE : 08/28/97

PARAMETER	UNITS	01	02	03	04	05
CALCIUM (EPA 200.7/6010)	MG/L	96.0	300	344	67.9	67.8
POTASSIUM (EPA 200.7/6010)	MG/L	<1.0	1.5	1.5	<1.0	<1.0
MAGNESIUM (EPA 200.7/6010)	MG/L	26.3	31.8	30.4	24.3	25.0
SODIUM (EPA 200.7/6010)	MG/L	5.5	9.3	9.8	4.5	5.1
SILICON (EPA 200.7/6010)	MG/L	5.8	6.8	6.7	5.5	5.6

American Environmental Network, Inc.

METALS RESULTS

ATI I.D. : 708013

CLIENT : AMERICAN ENV. NETWORK OF NM, INC.
PROJECT # : 707386
PROJECT NAME : (NONE)

DATE RECEIVED : 08/01/97

REPORT DATE : 08/28/97

PARAMETER	UNITS	06
CALCIUM (EPA 200.7/6010)	MG/L	43.2
POTASSIUM (EPA 200.7/6010)	MG/L	3.1
MAGNESIUM (EPA 200.7/6010)	MG/L	8.1
SODIUM (EPA 200.7/6010)	MG/L	18.7
SILICON (EPA 200.7/6010)	MG/L	10.7

American Environmental Network, Inc.

METALS - QUALITY CONTROL

CLIENT : AMERICAN ENV. NETWORK OF NM, INC.

PROJECT # : 707386

PROJECT NAME : (NONE)

ATI I.D. : 708013

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
CALCIUM	MG/L	70801305	67.8	67.7	0.1	114	50.0	92
POTASSIUM	MG/L	70801305	<1.0	1.1	NA	42.2	50.0	84
MAGNESIUM	MG/L	70801305	25.0	24.7	1	46.6	25.0	86
SODIUM	MG/L	70801305	5.1	4.9	4	52.0	50.0	94
SILICON	MG/L	70801305	5.6	5.5	2	15.1	10.0	95

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

American Environmental Network, Inc.

DATE: 08-29-97

ION BALANCE

AEN ACCESSION NUMBER: 70801301
SAMPLE IDENTIFICATION: 707386-01
CLIENT: AMERICAN ENVIRONMENTAL OF NM, INC.

ANIONS	RESULT MG/L	FACTOR ME/L	TOTAL
ALKALINITY (AS CaCO ₃)	244.000	0.02000	4.88000
CHLORIDE	3.500	0.02821	0.09874
FLUORIDE	0.240	0.05264	0.01263
NITRATE AS N (NO ₃ (NO ₃ -N X 4.43)	0.610	0.01613	0.04359
SiO ₃ (SILICON X 2.71)	5.800	0.02629	0.15248
SULFATE	90.000	0.02082	1.87380

TOTAL ANIONS 7.061239

CATIONS	RESULT	FACTOR	TOTAL
CALCIUM	96.000	0.04990	4.7904
POTASSIUM	<1.0	0.02558	0.00000
MAGNESIUM	26.300	0.08229	2.16423
SODIUM	5.500	0.04350	0.23925

TOTAL CATIONS 7.193877

		%RPD (<10%)*	-1.86
TOTAL ANIONS/CATIONS	(CALCULATED)	374.350	
TOTAL DISSOLVED SOLIDS	(ANALYZED)	410	%RPD (<15%)* -9.09
ELECTRICAL COND.		599	TDS/EC RATIO (0.65+/-0.10) 0.68

* If either Total Cations or Total Anions <10, then the %RPD Limit is not applicable.

American Environmental Network, Inc.

DATE: 08-29-97

ION BALANCE

AEN ACCESSION NUMBER: 70801302
SAMPLE IDENTIFICATION: 707386-02
CLIENT: AMERICAN ENVIRONMENTAL OF NM, INC.

ANIONS	RESULT MG/L	FACTOR ME/L	TOTAL
ALKALINITY (AS CaCO_3)	209.000	0.02000	4.18000
CHLORIDE	7.600	0.02821	0.21440
FLUORIDE	0.510	0.05264	0.02685
NITRATE AS N ($\text{NO}_3(\text{NO}_3\text{-N} \times 4.43)$)	0.140	0.01613	0.01000
SiO_3 (SILICON $\times 2.71$)	6.800	0.02629	0.17877
SULFATE	760.000	0.02082	15.82320

TOTAL ANIONS 20.43322

CATIONS	RESULT	FACTOR	TOTAL
CALCIUM	300.000	0.04990	14.97
POTASSIUM	1.500	0.02558	0.03837
MAGNESIUM	31.800	0.08229	2.61682
SODIUM	9.300	0.04350	0.40455

TOTAL CATIONS 18.02974

		%RPD (<10%)*	12.50
TOTAL ANIONS/CATIONS	(CALCULATED)	1243.050	
TOTAL DISSOLVED SOLIDS	(ANALYZED)	1400	%RPD (<15%)* -11.88
ELECTRICAL COND.		1490	TDS/EC RATIO (0.65+/-0.10) 0.94

* If either Total Cations or Total Anions <10, then the %RPD Limit is not applicable.

American Environmental Network, Inc.

DATE: 08-29-97

ION BALANCE

AEN ACCESSION NUMBER: 70801303
SAMPLE IDENTIFICATION: 707386-03
CLIENT: AMERICAN ENVIRONMENTAL OF NM, INC.

ANIONS	RESULT MG/L	FACTOR ME/L	TOTAL
ALKALINITY (AS CaCO_3)	200.000	0.02000	4.00000
CHLORIDE	0.530	0.02821	0.01495
FLUORIDE	0.400	0.05264	0.02106
NITRATE AS N (NO_3 ($\text{NO}_3\text{-N} \times 4.43$))	1.080	0.01613	0.07717
SiO_3 (SILICON $\times 2.71$)	6.700	0.02629	0.17614
SULFATE	780.000	0.02082	16.23960

TOTAL ANIONS 20.52892

CATIONS	RESULT	FACTOR	TOTAL
CALCIUM	344.000	0.04990	17.1656
POTASSIUM	1.500	0.02558	0.03837
MAGNESIUM	30.400	0.08229	2.50162
SODIUM	9.800	0.04350	0.42630

TOTAL CATIONS 20.13189

		%RPD (<10%)*	1.95
TOTAL ANIONS/CATIONS	(CALCULATED)	1294.410	
TOTAL DISSOLVED SOLIDS	(ANALYZED)	1400	%RPD (<15%)* -7.84
ELECTRICAL COND.		1510	TDS/EC RATIO (0.65+/-0.10) 0.93

* If either Total Cations or Total Anions <10, then the %RPD Limit is not applicable.

American Environmental Network, Inc.

DATE: 08-29-97

ION BALANCE

AEN ACCESSION NUMBER: 70801304
 SAMPLE IDENTIFICATION: 707386-04
 CLIENT: AMERICAN ENVIRONMENTAL OF NM, INC.

ANIONS	RESULT MG/L	FACTOR ME/L	TOTAL
ALKALINITY (AS CaCO_3)	246.000	0.02000	4.92000
CHLORIDE	0.210	0.02821	0.00592
FLUORIDE	0.440	0.05264	0.02316
NITRATE AS N ($\text{NO}_3(\text{NO}_3\text{-N} \times 4.43)$)	0.800	0.01613	0.05716
SiO_2 (SILICON $\times 2.71$)	5.500	0.02629	0.14460
SULFATE	36.000	0.02082	0.74952

TOTAL ANIONS 5.900365

CATIONS	RESULT	FACTOR	TOTAL
CALCIUM	67.900	0.04990	3.38821
POTASSIUM	<1.0	0.02558	0.00000
MAGNESIUM	24.300	0.08229	1.99965
SODIUM	4.500	0.04350	0.19575

TOTAL CATIONS 5.583607

		%RPD (<10%)*	5.52
TOTAL ANIONS/CATIONS	(CALCULATED)	287.250	
TOTAL DISSOLVED SOLIDS	(ANALYZED)	440	%RPD (<15%)* -42.01
ELECTRICAL COND.		495	TDS/EC RATIO (0.65+/-0.10) 0.89

* If either Total Cations or Total Anions <10, then the %RPD Limit is not applicable.

American Environmental Network, Inc.

DATE: 08-29-97

ION BALANCE

AEN ACCESSION NUMBER: 70801305
SAMPLE IDENTIFICATION: 707386-05
CLIENT: AMERICAN ENVIRONMENTAL OF NM, INC.

ANIONS	RESULT MG/L	FACTOR ME/L	TOTAL
ALKALINITY (AS CaCO_3)	242.000	0.02000	4.84000
CHLORIDE	0.220	0.02821	0.00621
FLUORIDE	0.400	0.05264	0.02106
NITRATE AS N ($\text{NO}_3(\text{NO}_3\text{-N} \times 4.43)$)	0.770	0.01613	0.05502
SiO_3 (SILICON $\times 2.71$)	5.600	0.02629	0.14722
SULFATE	40.000	0.02082	0.83280

TOTAL ANIONS 5.902307

CATIONS	RESULT	FACTOR	TOTAL
CALCIUM	67.800	0.04990	3.38322
POTASSIUM	<1.0	0.02558	0.00000
MAGNESIUM	25.000	0.08229	2.05725
SODIUM	5.100	0.04350	0.22185

TOTAL CATIONS 5.66232

		%RPD (<10%)*	4.15
TOTAL ANIONS/CATIONS	(CALCULATED)	290.090	
TOTAL DISSOLVED SOLIDS	(ANALYZED)	310	%RPD (<15%)* -6.64
ELECTRICAL COND.		508	TDS/EC RATIO (0.65+/-0.10) 0.61

* If either Total Cations or Total Anions <10, then the %RPD Limit is not applicable.

American Environmental Network, Inc.

DATE: 08-29-97

ION BALANCE

AEN ACCESSION NUMBER: 70801306
SAMPLE IDENTIFICATION: 707386-06
CLIENT: AMERICAN ENVIRONMENTAL OF NM, INC.

ANIONS	RESULT MG/L	FACTOR ME/L	TOTAL
ALKALINITY (AS CaCO_3)	154.000	0.02000	3.08000
CHLORIDE	9.500	0.02821	0.26800
FLUORIDE	0.590	0.05264	0.03106
NITRATE AS N ($\text{NO}_3\text{-(NO}_3\text{-N X 4.43)}$)	1.370	0.01613	0.09789
SiO_3 (SILICON X 2.71)	10.700	0.02629	0.28130
SULFATE	17.000	0.02082	0.35394
TOTAL ANIONS			4.11219

CATIONS	RESULT	FACTOR	TOTAL
CALCIUM	43.200	0.04990	2.15568
POTASSIUM	3.100	0.02558	0.07930
MAGNESIUM	8.100	0.08229	0.66655
SODIUM	18.700	0.04350	0.81345
TOTAL CATIONS			3.714977

		%RPD (<10%)*	10.15
TOTAL ANIONS/CATIONS	(CALCULATED)	204.660	
TOTAL DISSOLVED SOLIDS	(ANALYZED)	230	%RPD (<15%)* -11.66
ELECTRICAL COND.		352	TDS/EC RATIO (0.65+/-0.10) 0.65

* If either Total Cations or Total Anions <10, then the %RPD Limit is not applicable.

DATE OF ANALYSIS REPORT

AEN ID: 708013

28-Aug-97

METHOD	SAMPLE #	DATE	ANALYST
ALKALINITY (EPA 310.1)	01	08/06/97	PAUL STRICKLER
	02	08/06/97	PAUL STRICKLER
	03	08/06/97	PAUL STRICKLER
	04	08/06/97	PAUL STRICKLER
	05	08/06/97	PAUL STRICKLER
	06	08/06/97	PAUL STRICKLER
BROMIDE (EPA 300.0)	01	08/15/97	MELISSA HUGHES
	02	08/15/97	MELISSA HUGHES
	03	08/15/97	MELISSA HUGHES
	04	08/15/97	MELISSA HUGHES
	05	08/15/97	MELISSA HUGHES
	06	08/15/97	MELISSA HUGHES
CALCIUM (EPA 200.7/6010)	01	08/15/97	JACKIE L. CLEMENT
	02	08/15/97	JACKIE L. CLEMENT
	03	08/15/97	JACKIE L. CLEMENT
	04	08/15/97	JACKIE L. CLEMENT
	05	08/15/97	JACKIE L. CLEMENT
	06	08/15/97	JACKIE L. CLEMENT
CHLORIDE (EPA 325.2)	01	08/11/97	CARLENE MCCUTCHEON
	02	08/11/97	CARLENE MCCUTCHEON
	03	08/11/97	CARLENE MCCUTCHEON
	04	08/11/97	CARLENE MCCUTCHEON
	05	08/11/97	CARLENE MCCUTCHEON
	06	08/11/97	CARLENE MCCUTCHEON
CONDUCTIVITY, (UMHOS/CM)	01	08/01/97	PAUL STRICKLER
	02	08/01/97	PAUL STRICKLER
	03	08/01/97	PAUL STRICKLER
	04	08/01/97	PAUL STRICKLER
	05	08/01/97	PAUL STRICKLER
	06	08/01/97	PAUL STRICKLER
FLUORIDE (EPA 340.2)	01	08/11/97	DIPTI A. SHAH
	02	08/11/97	DIPTI A. SHAH
	03	08/11/97	DIPTI A. SHAH

Methods for Chemical Analysis of Water and Wastes, EPA-600 4-79-020, March 1983

Methods for the Determination of Inorganic Substances in Environmental Samples, EPA-600-R-93/100

American Environmental Network, Inc.

METHOD	SAMPLE #	DATE	ANALYST
FLUORIDE (EPA 340.2)	04	08/08/97	DIPTI A. SHAH
	05	08/11/97	DIPTI A. SHAH
	06	08/14/97	DIPTI A. SHAH
MAGNESIUM (EPA 200.7/6010)	01	08/15/97	JACKIE L. CLEMENT
	02	08/15/97	JACKIE L. CLEMENT
	03	08/15/97	JACKIE L. CLEMENT
	04	08/15/97	JACKIE L. CLEMENT
	05	08/15/97	JACKIE L. CLEMENT
	06	08/15/97	JACKIE L. CLEMENT
NO2/NO3-N, TOTAL (353.2)	01	08/11/97	MELISSA HUGHES
	02	08/11/97	MELISSA HUGHES
	03	08/11/97	MELISSA HUGHES
	04	08/11/97	MELISSA HUGHES
	05	08/11/97	MELISSA HUGHES
	06	08/11/97	MELISSA HUGHES
PH (EPA 150.1)	01	08/06/97	PAUL STRICKLER
	02	08/06/97	PAUL STRICKLER
	03	08/06/97	PAUL STRICKLER
	04	08/06/97	PAUL STRICKLER
	05	08/06/97	PAUL STRICKLER
	06	08/06/97	PAUL STRICKLER
POTASSIUM (EPA 200.7/6010)	01	08/15/97	JACKIE L. CLEMENT
	02	08/15/97	JACKIE L. CLEMENT
	03	08/15/97	JACKIE L. CLEMENT
	04	08/15/97	JACKIE L. CLEMENT
	05	08/15/97	JACKIE L. CLEMENT
	06	08/15/97	JACKIE L. CLEMENT
SILICON (EPA 200.7/6010)	01	08/15/97	JACKIE L. CLEMENT
	02	08/15/97	JACKIE L. CLEMENT
	03	08/15/97	JACKIE L. CLEMENT
	04	08/15/97	JACKIE L. CLEMENT
	05	08/15/97	JACKIE L. CLEMENT
	06	08/15/97	JACKIE L. CLEMENT
SODIUM (EPA 200.7/6010)	01	08/15/97	JACKIE L. CLEMENT
	02	08/15/97	JACKIE L. CLEMENT
	03	08/15/97	JACKIE L. CLEMENT

Methods for Chemical Analysis of Water and Wastes, EPA-600 4-79-020, March 1983

Methods for the Determination of Inorganic Substances in Environmental Samples, EPA-600-R-93/100

American Environmental Network, Inc.

METHOD	SAMPLE #	DATE	ANALYST
SODIUM (EPA 200.7/6010)	04	08/15/97	JACKIE L. CLEMENT
	05	08/15/97	JACKIE L. CLEMENT
	06	08/15/97	JACKIE L. CLEMENT
SULFATE (EPA 375.2)	01	08/18/97	CARLENE MCCUTCHEON
	02	08/18/97	CARLENE MCCUTCHEON
	03	08/18/97	CARLENE MCCUTCHEON
	04	08/18/97	CARLENE MCCUTCHEON
	05	08/18/97	CARLENE MCCUTCHEON
	06	08/18/97	CARLENE MCCUTCHEON
T. DISSOLVED SOLIDS (160.1)	01	08/01/97	CARLENE MCCUTCHEON
	02	08/01/97	CARLENE MCCUTCHEON
	03	08/01/97	CARLENE MCCUTCHEON
	04	08/01/97	CARLENE MCCUTCHEON
	05	08/01/97	CARLENE MCCUTCHEON
	06	08/01/97	CARLENE MCCUTCHEON

Methods for Chemical Analysis of Water and Wastes, EPA-600 4-79-020, March 1983

Methods for the Determination of Inorganic Substances in Environmental Samples, EPA-600-R-93/100



American Environmental Network
Albuquerque, New Mexico

Interlab Chain of Custody

DATE: 7-30-97 PAGE: 1 OF 1

NETWORK PROJECT MANAGER: **KIMBERLY D. McNEILL**

COMPANY:

ADDRESS:

American Environmental Network
2709-D Pan American Freeway, NE
Albuquerque, NM 87107

CLIENT PROJECT MANAGER:

Kim McNeill

SAMPLE ID DATE TIME MATRIX LAB ID

707386-01 7-29 9:45 AQ

-02

10:15

1

-03

11:30

2

-04

12:35

3

-05

2:55

4

-06

7-29-97

5

6

Metals - TAL

Metals - PP List

Metals - RCRA

RCRA Metals by TCLP (1311)

Cation/Anions Seelist

TOX

TOC

Gen Chemistry

SILICON

Oil and Grease

BOD

COD

Pesticides/PCB (608/8080)

Herbicides (615/8150)

Base/Neutral Acid Compounds GC/MS (625/8270)

Volatile Organics GC/MS (624/8240)

Polynuclear Aromatics (610/8310)

8240 (TCLP 1311) ZHE

8270 (TCLP 1311)

TO-14

Gross Alpha/Beta

NUMBER OF CONTAINERS

PROJECT INFORMATION

PROJECT NUMBER: 707386

PROJECT NAME:

QC LEVEL: STD IV

QC REQUIRED: MS MSD BLANK

LAB: STANDARD RUSH

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS

CHAIN OF CUSTODY SEALS

INTACT?

RECEIVED GOOD COND/COLD

LAB NUMBER

708013

SAMPLES SENT TO:

SAN DIEGO

Paragon

RENTON

PENSACOLA

PORTLAND

PHOENIX

RELINQUISHED BY:

Signature: [Signature] Time: 1:00

Printed Name: Ben Price Date: 7-30-97

Albuquerque

RECEIVED BY: [Signature] Time: 1:00

Printed Name: [Signature] Date: 7-30-97

Albuquerque

RELINQUISHED BY:

Signature: [Signature] Time: 1:00

Printed Name: [Signature] Date: 7-30-97

Albuquerque

RECEIVED BY: (LAB) [Signature] Time: 1:00

Printed Name: [Signature] Date: 7-30-97

Albuquerque

DUE DATE:

8-12-97

RUSH SURCHARGE:

CLIENT DISCOUNT:

SPECIAL CERTIFICATION REQUIRED: [] YES [] NO

Labs: San Diego (619) 458-9141 • Phoenix (602) 496-4400 • Seattle (206) 228-8335 • Pensacola (904) 474-1001 • Portland (503) 684-0447 • Albuquerque (505) 344-3777

22

DISTRIBUTION: White, Canary - AEN Pmk - ORIGINATOR

ITEM
PRICE

ITEM ANALYSIS DESCRIPTION

025 Cations and Anions
(General Chemistry)Method:
From 40 CFR 136.3
List of approved
inorganic test
procedures.AnalysisMethod

Fluoride	340.2
Bromide	300.0
Calcium	200.7
Potassium	200.7
Magnesium	200.7
Sodium	200.7
Bicarbonate	310.1
Carbonate	310.1
Chloride	325.2
Sulfate	375.2
Total dissolved solids	160.1
Cation/Anion Balance (5%)	--
Ph	150.1
Conductivity	120.1
Nitrate	
Silicon	

AIK GRP
+ pH

In Water \$ 160.00

026 Nitrogen

Method: SDWA

Nitrate

Nitrite

Ammonia

Total Kjeldahl Nitrogen

Cost for Suite:

In Water \$ 81.00

HMR

CHAIN OF CUSTODY

DATE: 7-30-97 PAGE: 1 OF 1

AEN LAB ID: 707

386

BP 7-30-97

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: MARK ASHLEY				ANALYSIS REQUEST			
COMPANY: N/M QIL CONSERVATION ASSOCIATION ADDRESS: 2040 S. PACIFIC SANTA FE, NM 87505 PHONE: (505) 822-7155 FAX: (505) 822-8177 BILL TO: ROBERT ANDERSON COMPANY: SAME ADDRESS:				Petroleum Hydrocarbons (418.1) TRPH (MOD.8015) Diesel/Direct/Inject GENERAL CHEM (ITEM # 25) (M8015) Gas/Purge & Trap Gasoline/BTEX & MTBE (M8015/8020) BTXE/MTBE (8020) BTEX & Chlorinated Aromatics (602/8020) BTEX/MTBE/EDC & EDB (8020/8010/Short) Chlorinated Hydrocarbons (601/8010) HEADSPACE (ITEM # 4) 504 EDB ☐ / DBCP ☐ Polynuclear Aromatics (610/8310) Volatile Organics (624/8240) GC/MS Volatile Organics (8260) GC/MS Pesticides/PCB (608/8080) Herbicides (615/8150) Base/Neutral/Acid Compounds GC/MS (625/8270) General Chemistry: Priority Pollutant Metals (13) Target Analyte List Metals (23) RCRA Metals (8) RCRA Metals by TCLP (Method 1311) Metals: NUMBER OF CONTAINERS			
SAMPLE ID	DATE	TIME	MATRIX	LAB ID			
2907970945	7-28-97	9:45AM	h ₂ O	-01	☒	☐	☐
2907971015	"	10:15AM	"	-02	☒	☐	☐
2907971130	"	11:30AM	"	-03	☒	☐	☐
2907971225	"	12:25PM	"	-04	☒	☐	☐
2907971450	"	2:50PM	"	-05	☒	☐	☐
TRSP ABOVE	7-28-97	"	"	-06	☒	☐	☐
PROJECT INFORMATION				PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS:			
PROJ. NO.:	(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒						
PROJ. NAME:	WASTEWATER ANALYSIS			CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER			
P.O. NO.:				METHANOL PRESERVATION ☐			
SHIPPED VIA:				COMMENTS: FIXED FEE ☐			
SAMPLE RECEIPT 34 NO CONTAINERS 36 ANALYSIS 1452 3				Not to be run NO ₂ /NO ₃ to be bottle for NO ₂ /NO ₃ used for calibration/analysis as needed			
RELINQUISHED BY: 1.				RELINQUISHED BY: 2.			
Signature: Mark Ashley Printed Name: Mark Ashley Date: 7-30-97 Company: N/M QIL				Signature: [Signature] Printed Name: [Name] Date: [Date] Company: [Company]			
RECEIVED BY: 1.				RECEIVED BY (LAB): 2.			
Signature: [Signature] Printed Name: [Name] Date: [Date] Company: [Company]				Signature: [Signature] Printed Name: [Name] Date: [Date] Company: [Company]			

August 12, 1997

AEN
2709-D Pan American
Freeway NE
Albuquerque, NM 87107

Attn: Kim McNeill

Job No: 35618

M

LABORATORY REPORT

Samples Received: Six (6) Liquids
Date Received: 8-1-97
Purchase Order No: PAID IN FULL, Check # 600207

The samples were analyzed as follows:

<u>Samples Analyzed</u>	<u>Analysis</u>	<u>Page</u>
Six (6) samples	C1-C5 Aliphatic Hydrocarbons by GC/FID (Headspace)	2

Page 1 of 2


Michael Shelton
Technical Director


B. Michael Hovanec
Senior Staff Chemist

This report is to be reproduced in its entirety.

WEST COAST ANALYTICAL SERVICE, INC.

AEN
Attn: Kim McNeill

Job No: 35618
August 12, 1997

LABORATORY REPORT

C1 - C5 Aliphatic Hydrocarbons by GC/FID (Headspace)

Parts Per Billion (ug/l)

<u>Compound</u>	<u>707386-01</u>	<u>707386-02</u>	<u>707386-02 Dup</u>	<u>707386-03</u>	<u>707386-04</u>	<u>707386-05</u>	<u>707386-06</u>
Methane	ND	120	140	0.8	ND	ND	ND
Ethane	ND	7	7	ND	ND	ND	ND
Ethylene	ND	ND	ND	ND	ND	ND	ND
Propane	ND	ND	ND	ND	ND	ND	ND
Propylene	ND	ND	ND	ND	ND	ND	ND
iso-Butane	ND	ND	ND	ND	ND	ND	ND
n-Butane	ND	ND	ND	ND	ND	ND	ND
Butene	ND	ND	ND	ND	ND	ND	ND
iso-Pentane	ND	ND	ND	ND	ND	ND	ND
n-Pentane	ND	ND	ND	ND	ND	ND	ND
Pentene	ND	ND	ND	ND	ND	ND	ND

Detection Limit - 0.5 ppb for all compounds

Matrix Spike Recovery Summary

Sample: 707386-02
Date
Analyzed: 08-08-97

Matrix: WATER
Date
Extracted: 08-08-97, HEADSPACE
Units: PPB (UG/L)

<u>Analyte</u>	<u>Sample Result</u>	<u>Amount Spiked</u>	<u>MS Result</u>	<u>% Rec MS</u>
Methane	130	164	300	104

Abbreviations Summary

General Reporting Abbreviations:

- B Blank - Indicates that the compound was found in both the sample and the blank. The sample value is reported without blank subtraction. If the sample value is less than 10X the blank value times the sample dilution factor, the compound may be present as a laboratory contaminant.
- D Indicates that the sample was diluted, and consequently the surrogates were too dilute to accurately measure.
- DL Detection Limit - Is the minimum value which we believe can be detected in the sample with a high degree of confidence, taking into account dilution factors and interferences. The reported detection limits are equal to or greater than Method Detection Limits (MDL) to allow for day to day and instrument to instrument variations in sensitivity.
- J Indicates that the value is an estimate.
- ND Not Detected - Indicates that the compound was not found in the sample at or above the detection limit.
- ppm Parts per million (billion) in liquids is usually equivalent to mg/l (ug/l), or in solids to mg/kg (ug/kg). In the gas phase it is equivalent to ul/l (ul/m³).
- ppb
- TR Trace - Indicates that the compound was observed at a value less than our normal reported Detection Limit (DL), but we feel its presence may be important to you. These values are subject to large errors and low degrees of confidence.

kg	kilogram	mg	milligram	l	liter	m	meter
g	gram	ug	microgram	ul	microliter		

QC Abbreviations:

- Control & Warning Limits QC Limits are determined from historical data. The test value must be within the Control Limits for the test to be considered valid. Based on historical data, the confidence intervals are 95% for warning limits and 99% for control limits.
- % Error Percent Error - This is a measure of accuracy based on the analysis of a Laboratory Control Standard (LCS). An LCS is a reference sample of known value such as an NIST Standard Reference Material (SRM). The % Error is expressed in percent as the difference between the known value and the experimental value, divided by the known value. The LCS may simply be a solution based standard which confirms calibration (ICV or CCV - initial or continuing calibration verification), or it may be a reference sample taken through preparation and analysis.

Interlab Chain of Custody

NETWORK PROJECT MANAGER: KIMBERLY D. MCNEILL

COMPANY: American Environmental Network
ADDRESS: 2709-D Pan American Freeway, NE
 Albuquerque, NM 87107

PROJECT MANAGER: Kim McNeill

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
707386-01	7-28-97	9:45	AR	
-02		10:15		
-03		11:30		
-04		12:25		
-05		1:50		
-06	7-28-97			

Metals - TAL	
Metals - PP List	
Metals - RCRA	
RCRA Metals by TCLP (1311)	
Aliphatic Hydrocarbon Heptadecane (C ₁ -C ₆ constituents in heptadecane)	
TOX	
TOC	
Gen Chemistry	
Oil and Grease	
BOD	
COD	
Pesticides/PCB (608/8080)	
Herbicides (615/8150)	
Base/Neutral Acid Compounds GC/MS (625/8270)	
Volatile Organics GC/MS (624/8240)	
Polynuclear Aromatics (610/8310)	
8240 (TCLP 1311) ZHE	
8270 (TCLP 1311)	
TO-14	
Gross Alpha/Beta	
NUMBER OF CONTAINERS	

PROJECT INFORMATION

SAMPLE RECEIPT

SAMPLES SENT TO:

RELINQUISHED BY:

RELINQUISHED BY:

PROJECT NUMBER: 707386

SAN DIEGO

Signature: [Signature] Time: 1:00

Signature: [Signature] Time: 11:54am

PROJECT NAME: NMED-0C1

PARAGON

Printed Name: [Name] Date: 7-31-97

Printed Name: [Name] Date: 8-1-97

OC LEVEL: IV

RENTON

Signature: [Signature] Time: 1:00

Signature: [Signature] Time: 11:54am

OC LEVEL: MS MSD BLANK

PENSACOLA

Signature: [Signature] Time: 1:00

Signature: [Signature] Time: 11:54am

OC LEVEL: STANDARD RUSHI

PORTLAND

Signature: [Signature] Time: 1:00

Signature: [Signature] Time: 11:54am

DUE DATE: 8-13-97

PHOENIX

Signature: [Signature] Time: 1:00

Signature: [Signature] Time: 11:54am

RUSH SURCHARGE:

WEST COAST ANALYTICAL

Signature: [Signature] Time: 1:00

Signature: [Signature] Time: 11:54am

CUSTOMER DISCOUNT:

ALBUQUERQUE

Signature: [Signature] Time: 1:00

Signature: [Signature] Time: 11:54am

SPECIAL CERTIFICATION REQUIRED: [] YES [] NO

LAB: San Diego (619) 458-9141 • Phoenix (602) 496-4400 • Seattle (206) 228-8335 • Pensacola (904) 474-1001 • Portland (503) 684-0447 • Albuquerque (505) 344-3777

To: H. Van

Date: June 22, 1995

From: Darrell Campbell

Place: PSE/LS

Re: Washington Ranch Area Water Wells

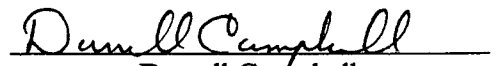
Sample Description	A. C. Hood Domestic/ Irrigation	G. Smart Domestic	J. Ballard Domestic/ Irrigation	A. C. Hood Pond/ Irrigation	A. C. Hood Hand/Pond/ Irrigation
Sample Date	05/11/95	05/11/95	05/11/95	05/11/95	05/11/95
Sample Time	1252	1445	1515	1620	1650
Sample Number	S95-0206	S95-0207	S95-0208	S95-0209	S95-0210
pH	7.7	7.5	7.2	7.2	7.3
P-Alkalinity	0	0	0	0	0
M-Alkalinity	249	246	220	229	206
Chloride	<10	13	<10	10	<10
Sulfate	43	58	648	594	740
Total Hardness	298	311	887	855	1017
Calcium	184	190	761	657	850
Magnesium	114	121	126	198	167
Sodium	5	8	10	18	10
Potassium	0.8	1.1	1.5	1.5	1.3
Fluoride	0.14	0.11	0.23	0.18	0.23
Silica	11	12	6	5	6
Total Dissolved Solids	469	504	1276	1219	1396
Specific Conductance	529	588	1453	1442	1586
Nitrate	<1.25	1.5	<1.25	<1.25	<1.25
Bromide	<1.25	<1.25	<1.25	<1.25	<1.25
Chromium, Hexavalent	<0.002	<0.002	<0.002	<0.002	<0.002
Methane	<0.2	<0.2	4.4	NR	NR
Hydrogen Sulfide	<0.1	<0.1	NR	<0.1	<0.1
Benzene	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Toluene	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Ethyl Benzene	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Total Xylenes	<0.0075	<0.0075	<0.0075	<0.0075	<0.0075

All results are in mg/l

Sample Description	EPNG Water Well	Rattlesnake Springs Well	Rattlesnake Springs Well Duplicate
Sample Date	05/11/95	05/11/95	05/11/95
Sample Time	1730	1810	1811
Sample Number	S95-0253	S95-0254	S95-0255
pH	7.5	7.5	7.5
P-Alkalinity	0	0	0
M-Alkalinity	249	243	243
Chloride	<10	<10	<10
Sulfate	41	128	125
Total Hardness	294	357	357
Calcium	179	257	252
Magnesium	115	100	105
Sodium	5	6	6
Potassium	0.8	0.9	0.9
Fluoride	0.11	0.11	0.11
Silica	11	12	12
Total Dissolved Solids	465	574	571
Specific Conductance	527	673	673
Nitrate	<1.25	<1.25	<1.25
Bromide	<1.25	<1.25	<1.25
Chromium, Hexavalent	<0.002	<0.002	<0.002
Methane	NR	NR	NR
Hydrogen Sulfide	<0.1	<0.1	NR
Benzene	<0.0025	<0.0025	<0.0025
Toluene	<0.0025	<0.0025	<0.0025
Ethyl Benzene	<0.0025	<0.0025	<0.0025
Total Xylenes	<0.0075	<0.0075	<0.0075

All results are in mg/l

cc: D. Siddall
G. Garibay
File


Darrell Campbell

To: H. Van

Date: June 22, 1995

From: Darrell Campbell

Place: PSE/LS

Re: Washington Ranch Area Water Wells

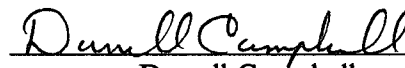
Sample Description	A. C. Hood Domestic/ Irrigation	G. Smart Domestic	J. Ballard Domestic/ Irrigation	A. C. Hood Pond/ Irrigation	A. C. Hood Hand/Pond/ Irrigation
Sample Date	05/11/95	05/11/95	05/11/95	05/11/95	05/11/95
Sample Time	1252	1445	1515	1620	1650
Sample Number	S95-0206	S95-0207	S95-0208	S95-0209	S95-0210
pH	7.7	7.5	7.2	7.2	7.3
P-Alkalinity	0	0	0	0	0
M-Alkalinity	249	246	220	229	206
Chloride	<10	13	<10	10	<10
Sulfate	43	58	648	594	740
Total Hardness	298	311	887	855	1017
Calcium	184	190	761	657	850
Magnesium	114	121	126	198	167
Sodium	5	8	10	18	10
Potassium	0.8	1.1	1.5	1.5	1.3
Fluoride	0.14	0.11	0.23	0.18	0.23
Silica	11	12	6	5	6
Total Dissolved Solids	469	504	1276	1219	1396
Specific Conductance	529	588	1453	1442	1586
Nitrate	<1.25	1.5	<1.25	<1.25	<1.25
Bromide	<1.25	<1.25	<1.25	<1.25	<1.25
Chromium, Hexavalent	<0.002	<0.002	<0.002	<0.002	<0.002
Methane	<0.2	<0.2	4.4	NR	NR
Hydrogen Sulfide	<0.1	<0.1	NR	<0.1	<0.1
Benzene	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Toluene	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Ethyl Benzene	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Total Xylenes	<0.0075	<0.0075	<0.0075	<0.0075	<0.0075

All results are in mg/l

Sample Description	EPNG Water Well	Rattlesnake Springs Well	Rattlesnake Springs Well Duplicate
Sample Date	05/11/95	05/11/95	05/11/95
Sample Time	1730	1810	1811
Sample Number	S95-0253	S95-0254	S95-0255
pH	7.5	7.5	7.5
P-Alkalinity	0	0	0
M-Alkalinity	249	243	243
Chloride	<10	<10	<10
Sulfate	41	128	125
Total Hardness	294	357	357
Calcium	179	257	252
Magnesium	115	100	105
Sodium	5	6	6
Potassium	0.8	0.9	0.9
Fluoride	0.11	0.11	0.11
Silica	11	12	12
Total Dissolved Solids	465	574	571
Specific Conductance	527	673	673
Nitrate	<1.25	<1.25	<1.25
Bromide	<1.25	<1.25	<1.25
Chromium, Hexavalent	<0.002	<0.002	<0.002
Methane	NR	NR	NR
Hydrogen Sulfide	<0.1	<0.1	NR
Benzene	<0.0025	<0.0025	<0.0025
Toluene	<0.0025	<0.0025	<0.0025
Ethyl Benzene	<0.0025	<0.0025	<0.0025
Total Xylenes	<0.0075	<0.0075	<0.0075

All results are in mg/l

cc: D. Siddall
G. Garibay
File


Darrell Campbell

WASHINGTON RANCH GRAPH BACKUP

WELL I.D.	DATE	SAMPLE NUMBER	pH	ALKALINITY/ mg/l	CHLORIDE/ mg/l	SULFATE/ mg/l	HARDNESS/ mg/l	CALCIUM/ mg/l	SPECIFIC CONDUCTANCE/ umho/cm	TDS/mg/l
SMART/I	5/15/52								1310	
EPNG-WW-1	3/26/82		7.6	225	16	144	351	160	518	421
G. SMART/D	8/5/87			0	62	29			878	
G. SMART/D	8/10/88		7.16	252	9	65	184	26	544	295
G. SMART/I	8/10/88		6.9	217	55.7	211	406	82	796	520
SMART HOUSE	8/10/88		7.16	252	9.00	65	184	26	544	295
SMART/I	8/10/88		6.9	217	55.7	211	406	82	796	520
G. SMART/D	3/13/89		7.29	252	7.3	88	175	24	509	283
G. SMART/I	3/13/89		7.17	215	9.2	368	482	132	862	626
SMART/D	3/13/89		7.29	252	7.3	88	175	24	509	283
SMART/I	3/13/89		7.17	215	61.4	368	482	132	862	626
G. SMART/D	11/28/90		6.5	210	140	340			1396	900
G. SMART/D	2/5/91		7.35		134	315	580	120	1382	1015
G. SMART/I	2/5/91		7.53		57.8	49.6	370	80	774	520
EPNG-WW-1	8/30/94		7.4	241	4	37	276	170	488	450
EPNG-WW-1	5/8/95	S95-0201	7.5	0	0	40	292	179	525	462
G. SMART/D	5/9/95	S95-0204	7.5		10	52	305	182	565	490
G. SMART/D/DUP	5/9/95	S95-0205	7.5		10	52	307	182	565	496
EPNG-WW-1	5/11/95	S95-0253	7.5	0	0	41	294	179	527	465
G. SMART/D	5/11/95	S95-0207	7.5		13	58	311	190	588	504

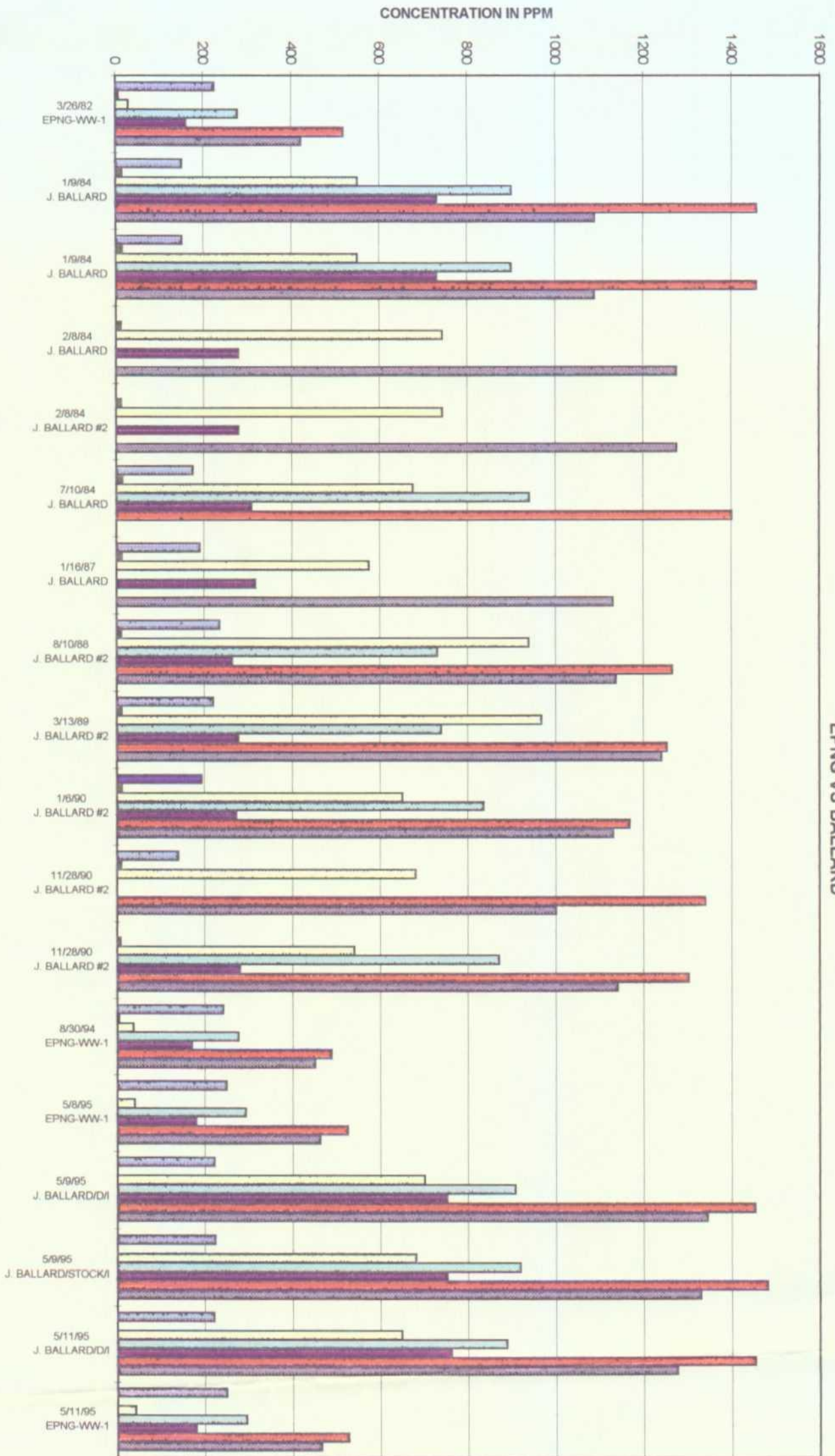
BALLARD GRAPH BACKUP

WELL I.D.	DATE	SAMPLE NUMBER	pH	ALKALINITY/ mg/l	CHLORIDE/ mg/l	SULFATE/ mg/l	HARDNESS/ mg/l	CALCIUM /mg/l	SPECIFIC CONDUCTANCE/ umho/cm	TDS/mg/l
EPNG-W	3/26/82		7.6	225	7	29	278	160	518	421
J. BALLA	1/9/84		7.3	150	14	550	900	730	1457	1089
J. BALLA	1/9/84		7.3	150	14	550	900	730	1457	1089
J. BALLA	2/8/84				11.4	742.6		279		1276
J. BALLA	2/8/84				11.4	742.6		279		1276
J. BALLA	7/10/84			175	14	675	940.8	307.9	1401	
J. BALLA	1/16/87	9293-2	8	190	12.6	575		316		1130
J. BALLA	8/10/88		6.85	234	11	938	730	263	1265	1137
J. BALLA	3/13/89		6.99	220	11.2	967	739	277	1253	1240
J. BALLA	1/6/90		7.89	193	12	650	835	272	1168	1130
J. BALLA	11/28/90		6.2	140	10	680			1340	1000
J. BALLA	11/28/90		7.37		7.5	540	870	280	1302	1140
EPNG-W	8/30/94		7.4	241	4	37	276	170	488	450
EPNG-W	5/8/95	S95-0201	7.5	249	0	40	292	179	525	462
J. BALLA	5/9/95	S95-0202	7.2	221	0	700	907	751	1452	1344
J. BALLA	5/9/95	S95-0203	7.1	223	0	680	918	751	1481	1329
J. BALLA	5/11/95	S95-0208	7.2	220	0	648	887	761	1453	1276
EPNG-W	5/11/95	S95-0253	7.5	249	0	41	294	179	527	465

EPNG VS SMART



WELL ID & DATE



EPNG VS BALLARD



WATER CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION

700 CAMINO DE SALUD, ALBUQUERQUE, NM 87106

Water Chemistry Section - Telephone: (505) 841-2555

SLD No.

1

WC-1445

Date

Received:

5-11-90

2 User Code #: 1812121315		3 Request ID No.:		Request ID No. 000638-B		4 Priority Code #:		7 City:		8 State:	
5 Facility Name: JOHN BALLARD		County: Eddy									
9 Sample Location:											
10 Collected By: JOHN ROBINSON On: 5/11/90 At: 110110 hrs. First Last Date: (YY/MM/DD) Time: 24 hr. clock 3:00 pm = 1500 hrs.											
11 Codes: Submitter WSS # Organization						12 Latitude (DDMMSS) Longitude (DDMMSS) 2 Digit ID (if needed)					
13 Report To: David G. Boyer Address: New Mexico Oil Conservation Division P. O. Box 2088 City, State Zip: Santa Fe, New Mexico 87504-2088						14 Phone #: (505) 827-5812					
15 Sampling Information: Sample Purpose: ☒ Grab ☐ Composite (Composite Time Period) ☐ Compliance ☐ Flow Proportioned ☐ Check ☐ Equal Aliquot ☐ Monitoring ☐ Sample Split w/Permittee ☒ Special ☐ Chain of Custody											
16 Field Data: pH: , Conductivity: umhos @ °C, Temperature: °C, Chlorine Residual: mg/l, Flow:											
17 Sample Source: ☐ Stream ☐ Lake ☐ Drain ☐ Pool ☐ WWTP ☐ Well; Depth: ☐ Spring ☐ Distribution ☐ Point-of-Entry ☒ Other: DITCH						18 Field Notes/ Sample #: 9005011010					
19 Sample Type: ☒ Water, ☐ Soil, ☐ Food, ☐ Wastewater, ☐ Other This form accompanies a single sample consisting of: / - 1 liter cubitainers (1 quart) - 4 liter cubitainers (1 gallon)						20 Preservation: ☐ WNF Water Not Preserved; Filtered ☒ WNN Water Not Preserved; Not Filtered ☐ WPF Water Preserved with Sulfuric Acid (H2SO4); Filtered ☐ WPN Water Preserved with Sulfuric Acid; Not Filtered ☐ WNL Water Not Preserved in Field; Please Add H2SO4 at Lab ☐ ICE Water Iced ☐ Other					
21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analyses required.											
Group Analyses: ☐ (854) SDWA Group II (Nitrate as N) ☐ (861) SDWA Group III (Fluoride) ☐ (860) SDWA Complete Secondary ☐ (859) SWQB SS Anion - Cation Group + ☐ (868) SWQB NPS Anion, Cation, Physical + TSS ☐ (869) SWQB Nutrient Analysis Group + ☒ (867) Major Anions & Cations											
Cations: ☒ Calcium (as Ca) 268 ☒ Magnesium (as Mg) 35.3 ☒ Potassium (as K) 3 ☒ Sodium (as Na) 12 ☒ Total Hardness (as CaCO3) 815 Anions: ☒ Alkalinity (as CaCO3) 179 ☒ Bicarbonate (as HCO3) 218 ☒ Carbonate (as CO3) 0 ☒ Chloride (as Cl) 12.4 ☒ Fluoride (as F) 0.57 ☒ Sulfate (as SO4) 675 ☒ Ion Charge Balance				Physical Parameters: ☐ Color ☒ Conductance (micromhos @ 25 C) 1205 ☐ Odor ☒ pH 7.97 ☐ Surfactants ☒ Total Dissolved Solids 1140 ☐ Turbidity Other:				Surface and Waste Water: ☐ Biological Oxygen Demand ☐ Total Suspended Solids ☐ Chemical Oxygen Demand ☐ Total Organic Carbon ☐ Cyanide Nutrients: ☐ Nitrate + Nitrite (as N) ☐ Ammonia (as N) ☐ Total Kjeldahl (as N) ☐ Nitrite (as N) ☐ Orthophosphate (as P) ☐ Total Phosphorus (as P)			
Remarks: BD 6/28/90											

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud, NE
Albuquerque, NM 87106 [505]-841-2500
WATER CHEMISTRY SECTION [505]-841-2555

June 28, 1990

Request
ID No. 000638

ANALYTICAL REPORT
SLD Accession No. WC-90-1445

Distribution

(■) User 82235
(☒) Submitter 260
(☒) Client
(☒) SLD Files

David G. Boyer
To: NM Oil Conservation Division
State Land Office Bldg.
P. O. Box 2088
Santa Fe, NM 87504-2088

From: Water Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: A water, Nonpres/No sample submitted to this laboratory on May 11, 1990

RECEIVED

JUL 05 1990

OIL CONSERVATION DIV.
SANTA FE

Submitter:

David G. Boy
NM Oil Conserv. Div.
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504-2088

DEMOGRAPHIC DATACOLLECTIONLOCATION

On: 1-May-90 By: Rob ...
At: 10:10 hrs. In/Near:

ANALYTICAL RESULTS

Analysis	Value	D. Lmt.	Units
calcium	268.00		mg/L
magnesium	35.30		mg/L
potassium	3.00		mg/L
sodium	12.00		mg/L
hardness	815.00		mg/L
alkalinity	179.00		mg/L
bicarbonate	218.00		mg/L
chloride	12.40		mg/L
fluoride	0.57		mg/L
sulfate	675.00		mg/L
conductance	1205.00		mg/L
pH	7.97		mg/L
total diss resid	1140.00		mg/L
carbonate	0.00		mg/L

Reviewed By:

CD 7/3/90
Chris Dean 06/28/90
Supervisor, Water Chemistry Section

ION BALANCE WORKSHEET

CATIONS				ANIONS			
Analyte	Meq	PPM	Det Limit	Analyte	Meq	PPM	Det Limit
Ca	13.3733	268	<5.0	HCO3	3.5726	218	<0.1
Mg	2.8994	35.3	<0.3	SO4	14.0625	675	<5.0
Na	0.5220	12	<5.0	Cl	0.3498	12.4	<5.0
K	0.0767	3	<5.0				
Mn	0.0000	0		NO3	0.0000	0	
Fe	0.0000	0		CO3	0.0000	0	
				NH3	0.0000	0	
				PO4	0.0000	0	
SUMS +	16.8713	318.3		SUMS +	17.9849	905.4	
Total Dissolved Solids = 1800				Sticker# 638			
Ion Balance = 93.80837				WC# 1445			
				Date out 900628			

RECEIVED

JUL 05 1990
OIL CONSERVATION DIV.
SANTA FE

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700

700 Camino de Salud, NE
[505]-841-2500

ORGANIC CHEMISTRY SECTION [505]-841-2570

March 5, 1991

Request
ID No. 007168

ANALYTICAL REPORT

SLD Accession No. OR-91-0469

Distribution

☐ User 70320
☒ Submitter 995
☒ SLD Files

To: David G. Boyer
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87504-2088

From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: A water, purgeable sample submitted to this laboratory on February 15, 1991

DEMOGRAPHIC DATA

COLLECTION		LOCATION
On: 5-Feb-91	By: Rob . . .	Pump House (Domestic Well)
At: 10:55 hrs.	In/Near: Eddy County	Smart Residence

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable [EPA-601/2] Screen {754}

Parameter	Value	Note	MDL	Units
EPA 601/2 Volatiles (60)	0.00	N	1.00	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:

MDL = Minimal Detectable Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;

T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.

Evidentiary Seals: Not Sealed ☒; Intact: No ☐, Yes ☐ & Broken By: _____ Date: _____Laboratory Remarks:

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: NM SCIENTIFIC LABORATORY DIVISION	Contract: N/A
Lab Code: N/A Case No.: N/A	SAS No.: N/A SDG No.: N/A
Matrix: (soil/water) Water	Lab Sample ID: OR-91-0469
Sample wt/vol: 5.0 (g/mL) mL	Lab File ID: _____
Level: (low/med) Low	Date Received: 2/15/91
% Moisture: not dec. N/A dec. N/A	Date Extracted: N/A
Extraction: (SepF/Cont/Sonc) N/A	Date Analyzed: 2/20/91
GPC Cleanup: (Y/N) No pH: _____	Dilution Factor: 1
	CONCENTRATION UNITS:
	(ug/L or ug/Kg): _____ ug/L

This sample was analyzed for the following compounds
using EPA Methods 601 & 602

CAS NO.	COMPOUND	CONC.	QUALIFIER
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(Continued on page 2.)

ANALYTICAL REPORT
 SLD Accession No. OR-91-0469
 Continuation, Page 2 of 3

67-64-1	Acetone	5.0	U
71-43-2	Benzene	1.0	U
108-86-1	Bromobenzene	1.0	U
74-97-5	Bromochloromethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
78-93-3	2-Butanone (MEK)	5.0	U
104-51-8	n-Butylbenzene	1.0	U
135-98-8	sec-Butylbenzene	1.0	U
98-06-6	tert-Butylbenzene	1.0	U
1634-04-4	tert-Butyl methyl ether (MTBE)	5.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
67-66-3	Chloroform	1.0	U
95-49-8	2-Chlorotoluene	1.0	U
106-43-4	4-Chlorotoluene	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
74-95-3	Dibromomethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-4	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
590-20-7	2,2-Dichloropropane	1.0	U
563-58-6	1,1-Dichloropropene	1.0	U
1006-01-5	cis-1,3-Dichloropropene	1.0	U
1006-02-6	trans-1,3-Dichloropropene	1.0	U
100-41-4	Ethylbenzene	1.0	U
87-68-3	Hexachlorobutadiene	1.0	U
98-82-8	Isopropylbenzene	1.0	U
99-87-6	4-Isopropyltoluene	1.0	U
75-09-2	Methylene chloride	5.0	U
91-20-3	Naphthalene	1.0	U
103-65-1	Propylbenzene	1.0	U

(Continued on page 3.)

100-42-5	Styrene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
109-99-9	Tetrahydrofuran (THF)	5.0	U
108-88-3	Toluene	1.0	U
87-61-5	1,2,3-Trichlorobenzene	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
96-18-4	1,2,3-Trichloropropane	1.0	U
95-63-6	1,2,4-Trimethylbenzene	1.0	U
108-67-8	1,3,5-Trimethylbenzene	1.0	U
75-01-4	Vinyl chloride	1.0	U
95-47-6	o-Xylene	1.0	U
N/A	p- & m-Xylene	1.0	U

Qualifier Definitions:

- B - Indicates compound was detected in the Lab Blank as well as in the sample.
- D - Indicates value taken from a secondary (diluted) sample analysis.
- E - Indicates compound concentration exceeded the range of the standard curve.
- J - Indicates an estimated value for tentatively identified compounds, or for compounds detected and identified but present at a concentration less than the quantitation limit.
- N - Indicates that more than one peak was used for quantitation.
- U - Indicates compound was analyzed for, but not detected above the concentration listed (Quantitation Limit).

QUALITY CONTROL SUMMARY FOR VOLATILES SCREEN

METHOD BLANK: A laboratory method blank was analyzed along with this sample to assure the absence of interfering contaminants from lab reagents, instruments, or the general laboratory environment. Unless listed below, no contaminants were detected in this blank above the reported detection limit.

COMPOUND DETECTED	CONCENTRATION (PPB)
No Compounds Detected	

(Continued on page 4.)

SURROGATE RECOVERIES:

SURROGATE	CONCENTRATION	% RECOVERY
Fluorobenzene	25.0 ppb	96.
2-Bromo-1-chloropropane	15.0 ppb	120.

SPIKE RECOVERY: The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:

COMPOUND	CONCENTRATION	% RECOVERY
No exceptions	. ppb	.

Analyst:

Gary C. Eden
Gary C. Eden
Analyst, Organic Chemistry

Reviewed By:

Mark F. Meyerhein
Richard F. Meyerhein 02/28/91
Supervisor, Organic Chemistry Section

WATER CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION

700 CAMINO DE SALUD, ALBUQUERQUE, NM 87106

Water Chemistry Section - Telephone: (505) 841-2555

SLD No.

1

WC-1444

Date

Received: 5-11-90

2. User Code #: 18 12 12 13 15	3. Request ID No.: 000639-B	4. Priority Code #:	5. Facility Name: JOHN BALLARD	6. City:	7. State:
--------------------------------	-----------------------------	---------------------	--------------------------------	----------	-----------

9. Sample Location:

10. Collected By: JOHN ROBINSON	On: 5/11/90	At: 11:00 hrs.
---------------------------------	-------------	----------------

11. Codes:	12. Latitude (DDMMSS):	Longitude (DDMMSS):
------------	------------------------	---------------------

13. Report To: David G. Boyer	14. Phone #: (505) 827-5812
Address: New Mexico Oil Conservation Division P. O. Box 2088 City, State Zip: Santa Fe, New Mexico 87504-2088	

16. Field Data: pH:	Conductivity: umhos @	C. Temperature:	Chlorine Residual: mg/l. Flow:
---------------------	-----------------------	-----------------	--------------------------------

17. Sample Source: ☐ Stream ☒ Well; Depth: ☐ Lake ☐ Spring ☐ Drain ☐ Distribution ☐ Pool ☐ Point-of-Entry ☐ WWTP ☐ Other:	18. Field Notes/ Sample #: DOMESTIC WELL - small sample #9005011000 Super-Dregs much as possible
---	---

19. Sample Type: ☒ Water, ☐ Soil, ☐ Food, ☐ Wastewater, ☐ Other	20. Preservation: ☐ WNF Water Not Preserved; Filtered ☒ WNN Water Not Preserved; Not Filtered ☐ WPF Water Preserved with Sulfuric Acid (H2SO4); Filtered ☐ WPN Water Preserved with Sulfuric Acid; Not Filtered ☐ WNL Water Not Preserved in Field; Please Add H2SO4 at Lab ☐ ICE Water Iced ☐ Other
---	---

21. Analyses Requested: Please check the appropriate box(es) below to indicate the type of analyses required.
Group Analyses: ☐ (854) SDWA Group II (Nitrate as N) ☐ (861) SDWA Group III (Fluoride) ☐ (860) SDWA Complete Secondary ☐ (859) SWQB SS Anion - Cation Group + ☐ (868) SWQB NPS Anion, Cation, Physical + TSS ☐ (869) SWQB Nutrient Analysis Group + ☒ (867) Major Anions & Cations

Cations: ☒ Calcium (as Ca) 272 ☒ Magnesium (as Mg) 37.2 ☒ Potassium (as K) 3 ☒ Sodium (as Na) 12 ☒ Total Hardness (as CaCO3) 835 Anions: ☒ Alkalinity (as CaCO3) 193 ☒ Bicarbonate (as HCO3) 235 ☒ Carbonate (as CO3) 0 ☒ Chloride (as Cl) 12.0 ☒ Fluoride (as F) 0.48 ☒ Sulfate (as SO4) 650 ☒ Ion Charge Balance	Physical Parameters: ☐ Color ☒ Conductance (micromhos @ 25 C) 1168 ☐ Odor ☒ pH 7.89 ☐ Surfactants ☒ Total Dissolved Solids 1130 ☐ Turbidity Other:	Surface and Waste Water: ☐ Biological Oxygen Demand ☐ Total Suspended Solids ☐ Chemical Oxygen Demand ☐ Total Organic Carbon ☐ Cyanide Nutrients: ☐ Nitrate + Nitrite (as N) ☐ Ammonia (as N) ☐ Total Kjeldahl (as N) ☐ Nitrite (as N) ☐ Orthophosphate (as P) ☐ Total Phosphorus (as P)
---	--	---

Remarks:

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud, NE
Albuquerque, NM 87106 [505]-841-2500
WATER CHEMISTRY SECTION [505]-841-2555

June 28, 1990

Request
ID No. 000639

ANALYTICAL REPORT
SLD Accession No. WC-90-1444

Distribution

(■) User 82235
(☒) Submitter 260
(☒) Client
(☒) SLD Files

To: *David G. Boyer*
NM Oil Conservation Division
State Land Office Bldg.
P. O. Box 2088
Santa Fe, NM 87504-2088

From: Water Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: A water, Nonpres/No sample submitted to this laboratory on May 11, 1990

RECEIVED

JUL 05 1990
OIL CONSERVATION DIV.
SANTA FE

Submitter:

David G. Boy
NM Oil Conserv. Div.
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504-2088

DEMOGRAPHIC DATA

<u>COLLECTION</u>	<u>LOCATION</u>
On: 1-May-90 By: Rob ...	
At: 10:00 hrs. In/Near:	

ANALYTICAL RESULTS

<u>Analysis</u>	<u>Value</u>	<u>D. Lmt.</u>	<u>Units</u>
calcium	272.00		mG/L
magnesium	37.70		mG/L
potassium	3.00		mG/L
sodium	12.00		mG/L
hardness	835.00		mG/L
alkalinity	193.00		mG/L
bicarbonate	235.00		mG/L
chloride	12.00		mG/L
fluoride	0.48		mG/L
sulfate	650.00		mG/L
conductance	1168.00		mG/L
pH	7.89		mG/L
total diss resid	1130.00		mG/L
carbonate	0.00		mG/L

Reviewed By: BD

7/3/90
Chris Dean 06/28/90
Supervisor, Water Chemistry Section

ION BALANCE WORKSHEET

CATIONS

ANIONS

Analyte	Meq	PPM	Det Limit	Analyte	Meq	PPM	Det Limit
Ca	13.5729	272	<5.0	HCO3	3.8512	235	<0.1
Mg	3.0965	37.7	<0.3	SO4	13.5417	650	<5.0
Na	0.5220	12	<5.0	Cl	0.3385	12	<5.0
K	0.0767	3	<5.0				
Mn	0.0000	0		NO3	0.0000	0	
Fe	0.0000	0		CO3	0.0000	0	
				NH3	0.0000	0	
				PO4	0.0000	0	
SUMS +	17.2681	324.7		SUMS +	17.7314	897	

Total Dissolved Solids = 1800

Ion Balance = 97.38705

Sticker# 639
WC# 1444
Date out 900628

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OIL CONSERVATION DIV.
SANTA FE

tion-water limit of 100 $\mu\text{g/L}$ for continuous use on all soils and of 500 $\mu\text{g/L}$ for use on "neutral to alkaline fine textured soils for a 20 year period" has been suggested (NAS-NAE, 1972). Very few data on beryllium concentrations in natural freshwater exist. Durum and Haffty (1963) found no beryllium in the water they examined. Durfor and Becker (1964) reported finding only one sample with a detectable concentration (0.75 $\mu\text{g/L}$). Beryllium concentrations were below the detection limit (0.3 $\mu\text{g/L}$) in all samples analyzed by Silvey (1967). From these results and some others reported by Hormann (1969) it appears that river waters normally can be expected to carry no more than a few tenths of a microgram per liter of Be in solution. Whether prevailing low levels are brought about by adsorption and coprecipitation or are more a result of the element's scarcity is uncertain.

Strontium

The chemistry of strontium is similar to that of calcium. Strontium is a fairly common element, replacing calcium or potassium in igneous-rock minerals in minor amounts, although apparently favoring those species that are typical of granitic and syenitic rocks rather than ultrabasic rocks (Rankama and Sahama, 1950, p. 476). The carbonate (strontianite) and the sulfate (celestite) are common in sediments. According to Kulp and others (1952), the strontium-to-calcium ratio in most limestone is less than 1:1,000, although fossils in the limestone tend to be enriched in strontium.

The usual wet-chemical analysis methods for calcium also are sensitive to strontium but register any strontium present as an equivalent amount of calcium. As a result, the presence of small to moderate amounts of strontium does not cause analytical problems when these methods are used, but the strontium would go unreported unless special attention were given to determining strontium separately.

Spectrographic procedures are convenient for determining strontium in the concentration range normally seen in natural water. Radioactive isotopes of strontium, especially ^{90}Sr , are among the more common products of ^{235}U fission, and concern about the escape of such material into the environment was partly responsible for an increased interest in the levels of nonradioactive strontium that can be expected in natural water. A substantial amount of data has been obtained on this subject since 1950.

From free-energy data given by Parker and others (1971) for strontianite, the value of K in the relationship

$$\frac{[\text{HCO}_3^-][\text{Sr}^{2+}]}{[\text{H}^+]} = K$$

is calculated to be $10^{1.08}$. Thus, at a pH of 8.0, when the activity of bicarbonate is 10^{-3} molal (about 61 mg/L), strontium activity would be about 10 mg/L. The activity of calcium at equilibrium with calcite under these conditions would be about 32 mg/L. Thus, strontianite is considerably less soluble than calcite.

Solubility products for strontium sulfate quoted by Sillen and Martell (1964, p. 236) are mostly near $10^{-6.50}$ at 25°C. This value is nearly two log units more negative than the corresponding solubility product for gypsum and suggests that celestite solubility might be an important control on strontium concentrations. For example, a sulfate activity of 100 mg/L would permit only 28 mg/L for strontium activity. The analytical value for sulfate concentration in such a solution could be considerably greater owing to the effects of ionic strength and formation of sulfate ion-pairs.

The strontium concentration in most natural waters does not approach the solubility limit of either strontianite or celestite. Ground water in certain areas of the United States, however, contains rather large concentrations of strontium. Analysis 1, table 20, represents water from a well in Waukesha, Wis. The strontium in this water (52 mg/L) is one of the highest reported for potable water, although some brines (analysis 4, footnote table 15) contain much more. Nichols and McNall (1957) found that many wells in the eastern part of Wisconsin yielded water containing more than 1 mg/L of strontium. Rather high concentrations also are known to be present in ground water at certain localities in Ohio (Feulner and Hubble, 1960) and in Florida (Odum, 1951). Feulner and Hubble attributed the strontium in the Ohio waters to dissolution of celestite, which they stated occurred in evaporite rock formations of Silurian age in that region.

Calculations taking into account the effects of ionic strength and ion pairing show that the water from the Waukesha well (analysis 1, table 20) is close to saturation with respect to strontium sulfate. Equilibrium with respect to strontianite cannot be verified closely because the pH reported in the analysis is a laboratory value. The data given in the analysis indicated moderate supersaturation. Durum and Haffty (1963) found the median value for strontium in major North American rivers to be 0.06 mg/L. Skougstad and Horr (1963) published an intensive study of the occurrence of strontium in natural water, both surface and underground, in the United States. Their paper contains more than 200 analyses. The median content of strontium for the larger U.S. public water supplies is 0.11 mg/L.

Barium

Table 1 indicates that barium is somewhat more abundant in igneous rocks than strontium, but that the carbonate rocks contain considerably less barium than

Table 20. Analyses of waters containing unusual concentrations of metals and other constituents

[Analyses by U.S. Geological Survey. Date below sample number is date of collection. Sources of data: 1, Lohr and Love (1954a); 2 and 3, Emmons (1917); 4, Goldblatt and others (1963); 5, U.S. Geological Survey, unpublished data]

Constituent	1		2		3		4		5	
	May 2, 1952		About 1911		About 1917		Mar. 29, 1963		Dec. 8, 1934	
	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L
Silica (SiO ₂)	8.7		56		23		10		21	
Aluminum (Al)			433	48.65	12	1.32				
Iron (Fe)	.37		2,178	77.99	143		.10		.04	
Manganese (Mn)	.05		.2	.01						
Copper (Cu)			312	9.82						
Zinc (Zn)			200	6.12	345	10.55				
Calcium (Ca)	60	2.99	68	3.39	260	12.97	5.0	0.25	452	22.55
Magnesium (Mg)	31	2.55	41	3.37	49	4.03	1.0	.08	555	45.64
Strontium (Sr)	52	1.19								
Sodium (Na)	12	.52	23	1.00	13	.57	136	5.92	1,900	82.65
Potassium (K)	4.0	.10	20	.51	3.2	.08	1.2	.03	17	.43
Carbonate (CO ₃)							10	.33		
Bicarbonate										
(HCO ₃)	285	4.67	0		0		296	4.85	476	7.80
Sulfate (SO ₄)	111	2.31	6,600	138.65	1,650	34.35	10	.21	6,330	131.79
Chloride (Cl)	12	.34	.1	.00	3.7	.10	34	.96	288	8.12
Fluoride (F)	.5	.03					.8	.04		
Nitrate (NO ₃)	.8	.01					.7	.01	244	3.94
Orthophosphate										
(PO ₄)							2.6			
Arsenic (As)							1.3			
Selenium (Se)									1.98	
Boron (B)							4.6			
Dissolved solids:										
Calculated	440		9,990		2,500		363		10,900	
Residue on evaporation										
Hardness as										
CaCO ₃	337						17		3,410	
Noncarbonate	104						0			
Specific conductance	658						594			
(micromhos at 25°C).										
pH	7.6						8.5			
Acidity as H ₂ SO ₄			130		252					

1. North Street well, Waukesha, Wis.- Public supply. Depth, 1,907 ft. Water-bearing formation, sandstone of Cambrian and Ordovician age.
2. Water from first level below black copper workings, Burra-Burra mine, Ducktown, Tenn.
3. Water from Victor mine, Joplin district, Mo.
4. Well, NW1/4 SW1/4 sec. 11, T. 19 S., R. 3 W., Lane County, Oreg. Depth, 150 ft. Water-bearing formation, Fisher Formation.
5. New drainage ditch about 4 mi north of Mack, Mesa County, Colo.

strontium. Barium ions have a larger radius than strontium ions and probably cannot as readily enter the crystal lattices of the carbonates of lighter alkaline-earth metals. The solubility of barium carbonate is about the same as that of calcite (Sillen and Martell, 1964, p. 138).

A likely control over the concentration of barium in natural water is the solubility of barite (BaSO₄), which is a fairly common mineral. The solubility product for this

material is near 10^{-10} (Sillen and Martell, 1964, p. 236) and at sulfate molar activities near 10^{-4} (~10 mg/L) or 10^{-3} (~100 mg/L) the corresponding equilibrium molar activities of Ba²⁺ would be 10^{-6} or 10^{-7} (~0.14 mg/L) or (~0.014 mg/L), respectively.

Another factor that seems likely to influence the concentration of barium in natural water is adsorption by metal oxides or hydroxides. Barium seems commonly

METALS ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION

OIL CONSERVATION DIVISION

SAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106

RECEIVED

Air & Heavy Metals Section - Telephone: (505) 841-2553

SLD No.

1
CAP 141

Date

Received: 5/11/90

2 User Code #: 822315	3 Request ID No.: 90 JUL 15 8 14	4 Priority Code #: 1	(If "1" or "2", call EID-SLD Coordinator)
5 Facility Name: John Ballard	6 County: Eddy	7 City:	8 State:

9 Sample Location:

10 Collected By: John ROBINSON On: 90 105/01 At: 11020 hrs.
First Last Date: (YY/MM/DD) Time: 24 hr. clock 3:00 pm = 1500 hrs.

11 Codes: Submitter WSS # Organization

13 Report To: David Bayer 14 Phone #:

Address: NM Oil Conservation Division P.O. Box 2088

City, State Zip: Santa Fe NM 87504-2088

16 Field Data: pH: , Conductivity: umhos @ °C, Temperature: °C, Chlorine Residual: mg/l, Flow:

17 Sample Source: ☐ Stream ☒ Well; Depth: ☐ Lake ☐ Spring ☐ Drain ☐ Distribution ☐ Pool ☐ Point-of-Entry ☐ WWTP ☐ Other:

18 Field Notes/ Sample #: 9005011025 Brown iron-like scale w/crystals, fizzes w/HCl & H₂S odor

Sample Type: ☐ Water, ☐ Soil, ☐ Food, ☐ Wastewater, ☒ Other Scale

20 Preservation: ☐ WNF Water Not Preserved; Filtered ☐ WNN Water Not Preserved; Not Filtered ☐ WPF Water Preserved with Nitric Acid (HNO₃); Filtered ☐ WPN Water Preserved with Nitric Acid; Not Filtered ☐ WNL Water Not Preserved in Field; Please Add HNO₃ at Lab ☐ ICE Water Iced ☐ Other

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analyses required.

☒ - (704) ICAP Scan	☐ - (721) SDWA Group I + other parameter(s) marked below
☐ - (720) SDWA Group I Only	
☐ - Aluminum	☐ - Lead
☐ - Arsenic	☐ - Manganese
☐ - Barium	☐ - Mercury
☐ - Cadmium	☐ - Molybdenum
☐ - Chromium	☐ - Nickel
☐ - Cobalt	☐ - Selenium
☐ - Copper	☐ - Silver
☐ - Iron	☐ - Uranium
	☐ - Vanadium
	☐ - Zinc

Remarks:

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud, NE
Albuquerque, NM 87106 [505]-841-2500
AIR & HEAVY METALS SECTION [505]-841-2553

July 11, 1990

ANALYTICAL REPORT
SLD Accession No. IC-90-0141

Distribution

(☒) User 82235
(☐) Submitter 260
(☒) SLD Files

To: David Boyer
NM Oil Conserv. Div.
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504-2088

From: Air & Heavy Metals Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: A soil sample submitted to this laboratory on May 11, 1990

User:

NM Oil Conservation Division
State Land Office Bldg.
P. O. Box 2088
Santa Fe, NM 87504-2088

DEMOGRAPHIC DATA

COLLECTION		LOCATION	
On: 1-May-90	By: Rob ...	John Ballard	Scale sample
At: 10:20 hrs.	In/Near:		

ANALYTICAL RESULTS in uG/Gram

Analysis	Value	Analysis	Value	Analysis	Value
Aluminum	760.00	Cobalt	17.00	Nickel	120.00
Barium	29.00	Copper	56.00	Silicon	57.00
Beryllium	< 5.00	Iron	>9999.99	Silver	< 5.00
Boron	< 5.00	Lead	< 5.00	Strontium	530.00
Cadmium	< 5.00	Magnesium	3600.00	Tin	< 5.00
Calcium	>9999.99	Manganese	9300.00	Vanadium	13.00
Chromium	7.00	Molybdenum	18.00	Zinc	< 5.00

Laboratory Remarks: Ca = 344000.uG/G; Fe=35300.uG/G

DIGESTED JFA

Reviewed By: JFA

Jim F. Ashby 07/11/90
Lab. Scientist, Air & Heavy Metals Section

RECEIVED

JUL 16 1990

OIL CONSERVATION DIV.
SANTA FE

Memo

From

DAVID G. BOYER

Hydrogeologist

7/20

To Mike Williams

These finally came back
from the lab.

① The water from both
the ditch and well is
identical - essentially
gyp water (Calcium sulfate).

② The first scale sample
~~has~~ is mainly calcium/
magnesium with some
iron and aluminum -
It appears natural

③ The second sample
has heavy metals that may
come from the well screen
(see sheet)

David

HEAVY METALS ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION

700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106

Air & Heavy Metals Section - Telephone: (505) 841-2553

SLD No.

1
ICAP-192

Date

Received: 5/11/98

2 User Code #: 1812121315		3 Request ID No.:		Place Form ID Sticker Here		4 Priority Code #:		[11] or [12] call EID-SLD Coordinator	
5 Facility Name: JOHN BALLARD				6 County: Eddy		7 City:		8 State:	
9 Sample Location:									
10 Collected By: JOHN ROBINSON On: 901511 At: 110120 hrs. First Last Date: (YY/MM/DD) Time: 24 hr. clock 3:00 pm - 1500 hrs.									
11 Codes: Submitter WSS # Organization						12 Latitude (DDMMSS) Longitude (DDMMSS) 2 Digit ID (if needed)			
13 Report Name To: David G. Boyer Address: New Mexico Oil Conservation Division P. O. Box 2088 City, State Zip: Santa Fe, New Mexico 87504-2088						14 Phone #: (505) 827-5812			
15 Sample Purpose: ☐ Compliance ☐ Check ☐ Monitoring ☒ Special ☐ Grab ☐ Composite (Composite Time Period) ☐ Flow Proportioned ☐ Equal Aliquot ☐ Sample Split w/Permittee ☐ Chain of Custody						Sampling Information:			
16 Field Data: pH: Conductivity: umhos @ C. Temperature: C. Residual: mg/l. Flow:									
17 Sample Source: ☐ Stream ☒ Well; Depth: ☐ Lake ☐ Spring ☐ Drain ☐ Distribution ☐ Pool ☐ Point-of-Entry ☐ WWTP ☐ Other:					18 Field Notes/ Sample #: 9005011020 1st, Massive block, 5.33g heavily w/ HCl				
19 Sample Type: ☐ Water, ☐ Soil, ☐ Food, ☐ Wastewater, ☒ Other SCALE This form accompanies a single sample consisting of: - 1 liter cubitainers (1 quart) - 4 liter cubitainers (1 gallon) 1 - BAG					20 Preservation: ☐ WNF Water Not Preserved; Filtered ☐ WNN Water Not Preserved; Not Filtered ☐ WPF Water Preserved with Nitric Acid (HNO3); Filtered ☐ WPN Water Preserved with Nitric Acid; Not Filtered ☐ WNL Water Not Preserved in Field; Please Add HNO3 at Lab ☐ ICE Water Iced ☐ Other				

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analyses required.

- ☒ (704) ICAP Scan
☐ (720) SDWA Group I Only

☐ (721) SDWA Group I + other parameter(s) marked below

- ☐ Aluminum
☐ Arsenic
☐ Barium
☐ Cadmium
☐ Chromium
☐ Cobalt
☐ Copper
☐ Iron

- ☐ Lead
☐ Manganese
☐ Mercury
☐ Molybdenum
☐ Nickel
☐ Selenium
☐ Silver
☐ Uranium

- ☐ Vanadium
☐ Zinc

Remarks:

RECEIVED

JUL 16 1998

OIL CONSERVATION DIV.
SANTA FE

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud, NE

Albuquerque, NM 87106 [505]-841-2500

AIR & HEAVY METALS SECTION [505]-841-2553

IL CONSERVATION DIVISION
RECEIVED
JUL 18 1990
9 14

ANALYTICAL REPORT

SLD Accession No. IC-90-0142

Distribution

(X) User 82235

(X) Submitter 260

(X) SLD Files

To: David Boyer
NM Oil Conserv. Div.
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504-2088

From: Air & Heavy Metals Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: A soil sample submitted to this laboratory on May 11, 1990

User:

NM Oil Conservation Division
State Land Office Bldg.
P. O. Box 2088
Santa Fe, NM 87504-2088

DEMOGRAPHIC DATA

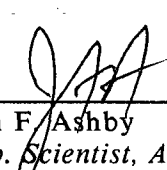
COLLECTION		LOCATION	
On: 1-May-90	By: Rob ...	John Ballard	Scale sample
At: 10:20 hrs.	In/Near:		

ANALYTICAL RESULTS in uG/Gram

Analysis	Value	Analysis	Value	Analysis	Value
Aluminum	1200.00	Cobalt	4.20	Nickel	< 5.00
Barium	89.00	Copper	< 5.00	Silicon	63.00
Beryllium	< 5.00	Iron	2900.00	Silver	< 5.00
Boron	< 5.00	Lead	< 5.00	Strontium	63.00
Cadmium	< 5.00	Magnesium	>9999.99	Tin	< 5.00
Calcium	>9999.99	Manganese	300.00	Vanadium	< 5.00
Chromium	7.00	Molybdenum	< 5.00	Zinc	< 5.00

Laboratory Remarks: Ca=380000uG/G; Mg=16900uG/G

DIGESTED. JAA

Reviewed By: 

Jim F. Ashby 07/11/90
Lab. Scientist, Air & Heavy Metals Section



COOPERATIVE EXTENSION SERVICE

NEW MEXICO STATE UNIVERSITY

887-6595

COLLEGE OF AGRICULTURE AND HOME ECONOMICS

COUNTY EXTENSION OFFICE

1304 West Stevens
Carlsbad, NM 88220

June 19, 1995

Mr. George Smart
190 Frijole Road
Carlsbad, NM 88220

Dear Mr. Smart:

At your request, on 5 June 1995, Dr. Goldberg, Extension Plant Pathologist, Mr. Matthew Goff, student, and myself visited your ranch to investigate possible cause of vegetation disease and sample your water well. Enclosed is a copy of Dr. Goldberg's report. She indicated that the cause of the vegetation problems were not pathogenic nor infectious. She listed a number of common possibilities including chemical injury.

The water sample did give us some interesting information. Enclosed is a copy of our field book entries. We took four purged samples in a 500 ml container leaving approximately 100 ml of head space to collect out gassing from the water. The samples were warmed and readings taken at 16:20 on 7 June 1995. Dr. John Townsend of NMSU-C, Mr. Jack Snow, student, and my self conducted three tests on all four samples. The amount of consistency was quite remarkable.

The combustible gas detector indicated that 2.5 part per 100 or 2.5% of the gases in the head space were combustible. This indicated that 2.5 % of the gas in the head space was made up of various combustible gases. A small amount of hydrogen sulfide gas was detected in this head space by the hydrogen sulfide gas detector. This was confirmed by a tube sampler. The Flame Ionization Detector indicated that a petroleum fraction contamination at 40 ppm to 57 ppm. These are screening test detectors.

We also took two samples from Mr. John Ballard's well with the hydrogen sulfide detector which indicated greater than 10 ppm hydrogen sulfide gas. The FID indicated 57 ppm hydrogen sulfide gas.

I would recommend sampling using sampling protocol for purgeable organics. This would be a VOA vial with Teflon-lined septum lids. These should be cool at 4 C with HCL to pH < 2 and should be analyzed in less than 7 days. To test for sulfide you

would need a polyethylene bottle with a preservative of zinc acetate sodium hydroxide to $\text{pH} > 9$ and cool to 4 C. The analysis should be completed in 7 days or less. These samples should be collected by an EPA certified technician and sent to an independent EPA certified laboratory.

I must note that while Dr. Townsend and myself teach environmental sampling for contamination, I am not currently certified with EPA, and the analysis was not conducted at a EPA certified laboratory. We did follow standard EPA protocol as outlined in the Handbook for Sampling and Sample Preservation of Water and Wastewater. U.S. EPA-600 /-76-049.

It is the conclusion of the entire sampling team, Professor Dr. John Townsend, Associate Professor Mr. Woods Houghton, student Mr. Matthew Goff, and student Mr. Jack Snow, that there is adequate evidence that your well is contaminated with an undetermined petroleum fraction, and is worth of an indepth investigation under the Clean Water Act of 1974.

We would also like to thank you for allowing us to use your unfortunate situation as a class exercise with our students.

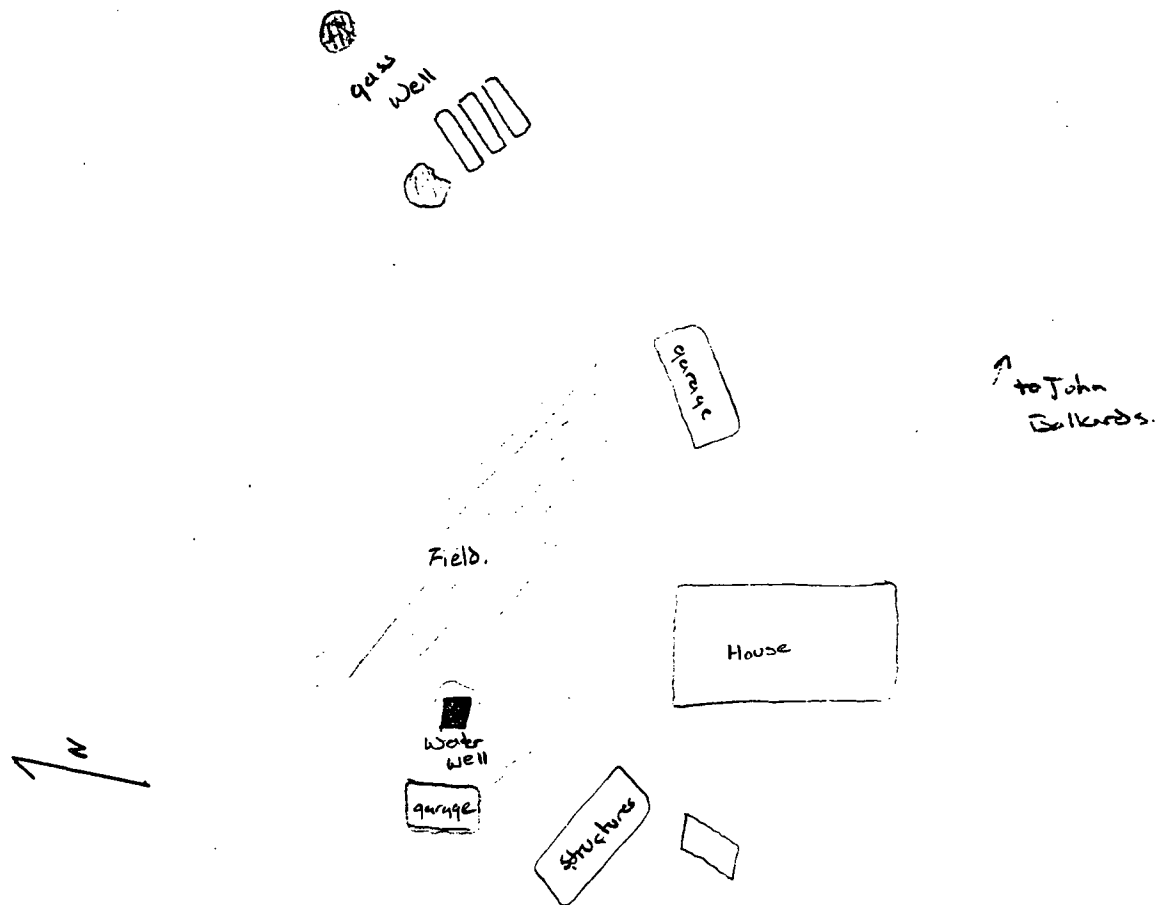
Sincerely,



Woods E. Houghton
Eddy County Agriculture Extension Agent

Enclosure

Site layout



gas well 82° E of N
with respect to water well
 $2\frac{3}{8}$ mile

with left

June 5, 1995

General Information:

Weather: Clear skies, Temp. $\approx 85^{\circ}\text{F}$, NE winds 25 mph

Time: 11:05 a.

Location: George Smarts Ranch S Int. Parks HWY to Washington
Ranch turnoff $\rightarrow$ on Bulker Ranch Road, $\approx 5\text{mi}$

Purpose: To determine possible presence of natural gas
in well water used for irrigation.

Plan: Trees and surrounding vegetation will be checked
for natural gas damage. Samples will be taken
from the well before and after purging.

On site: Water has been running since early this morning. (7am)
No pre purged samples will be pulled today.

3 Vol Bottles

4 Plastic labeled

G. Smart
Goff

6/5/95 -

Time

Vol bottles were taken consecutively
from 11:44 - 11:47 am. 6/5/95

at a faucet at the well head.

M. L. H.

Location: John Ballards off Ballard ranch road.

On site: complaint of pumping drilling mud out of well
when first turned on. Strong sulfur smell
when pump was turned on. Sulfur traces could be
seen on rocks below pipe outlet.

2 500 ml Bottles + 1 Voc bottle filled here.

= $\frac{1}{4}$ bottle left unfilled for settling in hopes of
retrieving volatized gasses in water.

Sampling & Analysis team

Woods Houghton

Matthew Goff

Dr. Nadally Goldberg

Refer to report by Dr. Goldberg for information
on Effects on vegetation.

Results of Analysis of Water samples

G. Smart. 6/7, 16:20 > 10 ppm N. H₂S
2 40 ppm Combustible gas

FID #1 - 15.5

FID #2 - 12.2

Combustible gas Mach - 2.5%

J. Ballard 6/7 #2 > 10 ppm
#2 3-4 ppm H₂S

FID 57

W. Houghton



COOPERATIVE EXTENSION SERVICE

NEW MEXICO STATE UNIVERSITY

BOX 3AE, LAS CRUCES, NEW MEXICO 88003-0031
COLLEGE OF AGRICULTURE AND HOME ECONOMICS

DIAGNOSIS RECORD

Date Sample Received: June 5, 1995

Date Diagnosis Sent: June 13, 1995

Received From:

Mr. Woods Houghton
County Extension Agent
1304 W. Stevens
Carlsbad, NM 88220

Grower:

Smart

Sample Number: 950617, 950618

Sample Type: Blackberry and Peach

Symptoms:

1. Dieback of blackberry canes.
2. Immature fruit dries and falls from the trees.

Procedure:

1. Visual and microscopic observation of affected plant tissue.
2. Plated material on artificial growing medium.
3. Isolation and identification of associated microorganisms.

Diagnosis:

No pathogenic organisms were isolated from either of these two samples. There are many non-infectious factors which could cause the type of symptoms that are occurring. Some of the more common possibilities are: freeze injury, drought, heat stress, wind stress, lack of fertilizer, and chemical injury.

A handwritten signature in cursive script that reads 'Natalie P. Goldberg'.

Natalie P. Goldberg
Extension Plant Pathologist

CC: Mr. Smart

SCIENTIFIC LABORATORY DIVISION

SCIENTIFIC LABORATORY DIVISION
RECEIVED

P.O. Box 4700

700 Camino de Salud, NE

Albuquerque, NM 87196-4700

[505]-841-2500

ORGANIC CHEMISTRY SECTION [505]-841-2570

RECEIVED

95 MAY 24 AM 8 52
May 9, 1995Requested Priority 2
ID No. 114861ANALYTICAL REPORT
SLD Accession No. OR-95-2219

MAY 12 1995

Distribution

User 55321

Submitter 51

SLD Files

To: Ms. Marcy Leavitt
Chief, GWB, NMED-SF
PO Box 26110
Santa Fe, NM 87502From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, N.E.
P.O. Box 4700
Albuquerque, NM 87196-4700

Re: A water, Purgeable sample submitted to this laboratory on May 4, 1995

DEMOGRAPHIC DATA

COLLECTION	LOCATION
On: 3-May-95 By: Bir . . .	Ballard Ranch Rd 1.5 mi
At: 14:54 hrs. In/Near: Eddy County	

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable [EPA-601/2] Screen {754}

Parameter	Value	Qual	PQL	Units
EPA 601/602 Volatiles	0.00	U	1.00	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:

Evidentiary Seals: Not Sealed ☒; Intact: No ☐; Yes ☐ & Broken By: _____ Date: _____

Laboratory Remarks:

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: NM SCIENTIFIC LABORATORY DIVISION	Contract: N/A
Lab Code: N/A Case No.: N/A	SAS No.: N/A SDG No.: N/A
Matrix: (soil/water) Water	Lab Sample ID: OR-95-2219
Sample wt/vol: 5.0 (g/mL) mL	SLD Batch No: 211
Level: (low/med) Low	Date Received: 05/04/95
% Moisture: not dec. N/A dec. N/A	Date Extracted: N/A
Extraction: (SepF/Cont/Sonc) N/A	Date Analyzed: 05/05/95
GPC Cleanup: (Y/N) No pH: 5	Dilution Factor: 1
	CONCENTRATION UNITS:
	(ug/L or ug/Kg): ug/L

This sample was analyzed for the following compounds
using EPA Methods 601 & 602

CAS NO.	COMPOUND	CONC.	Q	PQL
67-64-1	Acetone		U	5.0
71-43-2	Benzene		U	1.0

(Continued on page 2.)

ANALYTICAL REPORT
 SLD Accession No. OR-95-2219
 Continuation, Page 2 of 4

108-86-1	Bromobenzene		U	1.0
74-97-5	Bromochloromethane		U	1.0
75-27-4	Bromodichloromethane		U	1.0
75-25-2	Bromoform		U	1.0
74-83-9	Bromomethane		U	1.0
78-93-3	2-Butanone (MEK)		U	5.0
104-51-8	n-Butylbenzene		U	1.0
135-98-8	sec-Butylbenzene		U	1.0
98-06-6	tert-Butylbenzene		U	1.0
1634-04-4	tert-Butyl methyl ether (MTBE)		U	5.0
56-23-5	Carbon tetrachloride		U	1.0
108-90-7	Chlorobenzene		U	1.0
75-00-3	Chloroethane		U	1.0
67-66-3	Chloroform		U	1.0
74-87-3	Chloromethane		U	1.0
95-49-8	2-Chlorotoluene		U	1.0
106-43-4	4-Chlorotoluene		U	1.0
96-12-8	1,2-Dibromo-3-chloropropane		U	1.0
124-48-1	Dibromochloromethane		U	1.0
106-93-4	1,2-Dibromoethane		U	1.0
74-95-3	Dibromomethane		U	1.0
95-50-1	1,2-Dichlorobenzene		U	1.0
541-73-1	1,3-Dichlorobenzene		U	1.0
106-46-7	1,4-Dichlorobenzene		U	1.0
75-71-8	Dichlorodifluoromethane		U	1.0
75-34-3	1,1-Dichloroethane		U	1.0
107-06-2	1,2-Dichloroethane		U	1.0
75-35-4	1,1-Dichloroethene		U	1.0
156-59-4	cis-1,2-Dichloroethene		U	1.0
156-60-5	trans-1,2-Dichloroethene		U	1.0
78-87-5	1,2-Dichloropropane		U	1.0
142-28-9	1,3-Dichloropropane		U	1.0
590-20-7	2,2-Dichloropropane		U	1.0
563-58-6	1,1-Dichloropropene		U	1.0
1006-01-5	cis-1,3-Dichloropropene		U	1.0
1006-02-6	trans-1,3-Dichloropropene		U	1.0
100-41-4	Ethylbenzene		U	1.0
87-58-3	Hexachlorobutadiene		U	1.0
98-82-8	Isopropylbenzene		U	1.0
99-87-6	4-Isopropyltoluene		U	1.0
75-09-2	Methylene chloride		U	1.0
90-12-0	1-Methylnaphthalene		U	1.0

(Continued on page 3.)

ANALYTICAL REPORT
 SLD Accession No. OR-95-2219
 Continuation, Page 3 of 4

91-57-6	2-Methylnaphthalene		U	1.0
91-20-3	Naphthalene		U	1.0
103-65-1	n-Propylbenzene		U	1.0
100-42-5	Styrene		U	1.0
630-20-6	1,1,1,2-Tetrachloroethane		U	1.0
79-34-5	1,1,2,2-Tetrachloroethane		U	1.0
127-18-4	Tetrachloroethene		U	1.0
109-99-9	Tetrahydrofuran (THF)		U	5.0
108-88-3	Toluene		U	1.0
87-61-5	1,2,3-Trichlorobenzene		U	1.0
120-82-1	1,2,4-Trichlorobenzene		U	1.0
71-55-6	1,1,1-Trichloroethane		U	1.0
79-00-5	1,1,2-Trichloroethane		U	1.0
79-01-6	Trichloroethene		U	1.0
75-69-4	Trichlorofluoromethane		U	1.0
96-18-4	1,2,3-Trichloropropane		U	1.0
76-13-1	1,1,2-Trichloro-2,2,1-			
	Trifluoroethane		U	1.0
95-63-6	1,2,4-Trimethylbenzene		U	1.0
108-67-8	1,3,5-Trimethylbenzene		U	1.0
75-01-4	Vinyl chloride		U	1.0
95-47-6	o-Xylene		U	1.0
N/A	p- & m-Xylene		U	1.0

* CONC = CONCENTRATION DETERMINED

PQL = Practical Quantitation Limit (Approximately 10 times MDL)

* Q = Qualifier Definitions:

B - Indicates compound was detected in the Lab Blank as well as in the sample.

D - Indicates value taken from a secondary (diluted) sample analysis.

E - Indicates compound concentration exceeded the range of the standard curve.

J - Indicates an estimated value for tentatively identified compounds, or for compounds detected and identified but present at a concentration less than the quantitation limit.

N - Indicates that more than one peak was used for quantitation.

U - Indicates compound was analyzed for, but not detected above the concentration listed (Quantitation Limit).

QUALITY CONTROL SUMMARY FOR VOLATILES SCREEN

(Continued on page 4.)

ANALYTICAL REPORT

SLD Accession No. OR-95-2219

Continuation, Page 4 of 4

METHOD BLANK: A laboratory method blank was analyzed along with this sample to assure the absence of interfering contaminants from lab reagents, instruments, or the general laboratory environment. Unless listed below, no contaminants were detected in this blank above the reported detection limit.

COMPOUND DETECTED	CONCENTRATION (PPB)
None Detected	

SURROGATE RECOVERIES:

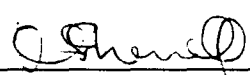
SURROGATE	CONCENTRATION	% RECOVERY
Bromofluorobenzene (PID Surr)	25.0 ppb	99.0
Bromofluorobenzene (Hall Surr)	25.0 ppb	88.0

SPIKE RECOVERY: The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:

COMPOUND	CONCENTRATION	% RECOVERY
No exceptions	. ppb	.

Analyst: 

Nancy DeWitt
Analyst, Organic Chemistry

Reviewed By: 

Richard F. Meyerhein 05/05/95
Supervisor, Organic Chemistry Section

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION

700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106

Organic Chemistry Section - Telephone: (505) 841-2570

SLD No. OR95 2219 C

Date

Received: 5/4/95

Request |||||

ID No. 114861-C

2 User Code #: 5,5,3,2,1	3 Request ID No.:	4 Priority: [REDACTED] (1" or 2" call ED-SLD Coordinator)	
5 Facility Name: SMART RANCH	6 County: EDDY	7 City:	8 State: NM
9 Sample Location: BALLARD RANCH RD, 1.5 MI			
10 Collected By: BARRY BIRCH		On: 95/05/03	At: 1454 hrs.
First: [REDACTED] (505) 885-9023		Date: (YY/MM/DD)	Time: 24 hr. clock 3:00 pm - 1500 hrs.
11 Codes: 051 - Submitter	WSS #	WS0012 - Organization	12 Latitude (DDMMSS)
13 Report To: MS MARCY LEAVITT			14 Phone #: (505) 827-2919
Address: CHIEF, GWB, NMED-SF			15 Sampling Information:
PO BOX 26110			Sample Purpose: ☒ Grab ☐ Composite (Composite Time Period)
City, State Zip: SANTA FE, NM 87502			☐ Compliance ☐ Flow Proportioned
			☐ NMED Monitoring ☐ Equal Aliquot
			☐ Confirmation ☐ Sample Split w/Permittee
			☒ Special ☐ Chain of Custody
16 Field Data: pH: Conductivity: umhos/cm @ Temperature: °C. Chlorine Residual: mg/l. Flow:			
17 Sample Source: ☐ Stream ☐ Lake ☐ Drain ☐ Pool ☐ WWTP		18 Field Remarks: PRIVATE WELL AT WELL HEAD	
☐ Entry Point to Distribution ☒ Well; Depth: 112 FT ☐ Spring ☐ Distribution ☐ Other:			
19 Sample Type: ☒ Water ☐ Wastewater ☐ Soil, ☐ Food, ☐ Other		20 Preservation: ☐ NP No Preservation; Sample stored at room temperature	
☒ Unchlorinated ☐ Chlorinated		☒ P-Ice Sample stored in an ice bath (Not Frozen)	
This form accompanies a single sample consisting of:		☐ P-TS Sample Preserved with Sodium Thiosulfate to remove chlorine residual	
2 - septum vial(s) (volume = 40 ml ea.)		☒ P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)	
- glass jug(s) (volume = ml ea.)		☐ P-HgCl ₂ Sample Preserved with 20 mg/l Mercuric Chloride	
(volume =)		☐ Other	

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required, and note below whenever highly contaminated samples are suspected.

Volatile Screens:

- ☐ - (753) Aliphatic Headspace (Qualitative Screen)
☒ - (754) Aromatic & Halogenated Purgeables (EPA 601/2)
☐ - (765) Mass Spectrometer Purgeables (EPA 624)
☐ - (766) SDWA Total Trihalomethanes (EPA 501.1)
☐ - (774) SDWA VOC's I [21 REGULATED +] (EPA 502.2)
☐ - (775) SDWA VOC's II [EDB & DBCP] (EPA 504)
☐ - (790) Composite Sample for Analysis No. _____

Other Specific Compounds or Classes:

- ☒ - () NATURAL GAS
☐ - ()

Semivolatile Screens:

- ☐ - (755) Base/Neutral Extractables (EPA 625)
☐ - (756) Base/Neutral/Acid Extractables (EPA 8270)
☐ - (772) Carbamate Pesticides (EPA 531.1)
☐ - (758) Herbicides, Chlorophenoxy Acid (EPA 515.1)
☐ - (759) Herbicides, Triazine (EPA 507)
☐ - (751) Hydrocarbon Fuel Screen (EPA M-8015)
☐ - (760) Organochlorine Pesticides (EPA 505)
☐ - (761) Organophosphate Pesticides (EPA 507)
☐ - (767) Polychlorinated Biphenyls (PCB's) in Oil
☐ - (762) SDWA Synthetic Org. Cmpds. (SLD 758/760)
☐ - (782) Total Petroleum Hydrocarbons (EPA 418.1)

Remarks:

COPY FOR: NMED-C

400 N. Guadalupe

Carlsbad, NM 88220

10 PPM METHANE

12 PPM IN W.B. WATER

PH ~ 5

3.5% GMBASIDES FROM EXTENSION ROSET

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SLD No. 1

SCIENTIFIC LABORATORY DIVISION
700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106
Organic Chemistry Section - Telephone: (505) 841-2570

Date Received: _____

2 User Code #: <u>7 0 3 2 0</u>	3 Request ID No.: _____	4 Priority Code #: _____	(If "1" or "2" call EID-SLB Coordinator)
5 Facility Name: <u>BALLARD Ranch</u>		6 County: <u>Edley</u>	7 City: _____
8 State: <u>NM</u>			

9 Sample Location: well #3 DOMESTIC

10 Collected By: DAVID G. BOYER On: 90/11/28 At: 12:35 hrs.
First Last Initial Date: (YY/MM/DD) Time: 24 hr. clock 3:00 pm = 1500 hrs.

11 Codes: Submitter _____ WSS # _____ Organization _____	12 Latitude (DDMMSS) _____ Longitude (DDMMSS) _____ 2 Digit ID (if needed) _____
13 Report To: <u>David G. Boyer</u> Address: <u>New Mexico Oil Conservation Division</u> <u>P. O. Box 2088</u> City, State Zip: <u>Santa Fe, New Mexico 87504-2088</u>	14 Phone #: <u>(505) 827-5812</u>
15 Sampling Information: Sample Purpose: ☒ Grab ☐ Composite (Composite Time Period) ☐ Compliance ☐ Flow Proportioned ☐ Check ☐ Equal Aliquot ☒ Monitoring ☐ Sample Split w/Permittee ☐ Special ☐ Chain of Custody	

16 Field Data: pH: 6.5, Conductivity: 1100 umhos @ 22°C, Temperature: _____ °C, Chlorine Residual: _____ mg/l, Flow: _____

17 Sample Source: ☐ Stream ☒ Well; Depth: <u>130</u> ☐ Lake ☐ Spring ☐ Drain ☐ Distribution ☐ Pool ☐ Point-of-Entry ☐ WWTP ☐ Other: _____	18 Field Notes/ Sample #: <u>T255, R24E, Sec 34.130</u>
---	--

19 Sample Type: ☒ Water, ☐ Soil, ☐ Food, ☐ Wastewater, ☐ Other _____ This form accompanies a <u>single sample</u> consisting of: <u>2</u> - septum vial(s) (volume = <u>40ml</u>) _____ - glass jugs (volume = _____) _____ (volume = _____)	20 Preservation: ☐ NP No Preservation; Sample stored at room temperature ☒ P-ice Sample stored in an ice bath (Not Frozen) ☐ P-TS Sample Preserved with Sodium Thiosulfate to remove chlorine residual ☐ P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml) ☐ Other _____
---	---

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required.

Volatile Screens:

- ☐ - (753) Aliphatic Headspace (1-5 Carbons)
- ☒ - (754) Aromatic & Halogenated Purgeables (EPA 601 & 602)
- ☐ - (765) Mass Spectrometer Purgeables (EPA 624)
- ☐ - (766) SDWA Total Trihalomethanes (EPA 501.1)
- ☐ - (774) SDWA VOC's I [8 Regulated +] (EPA 502.2)
- ☐ - (775) SDWA VOC's II [EDB & DBCP] (EPA 504)

Other Specific Compounds or Classes:

- ☒ - { Headspace Natural Gas }
- ☐ - { _____ }
- ☐ - { _____ }

Semivolatile Screens:

- ☐ - (763) Acid Extractables
- ☐ - (751) Aliphatic Hydrocarbons
- ☐ - (755) Base/Neutral Extractables (EPA 625)
- ☐ - (756) Base/Neutral/Acid Extractables (EPA 8270)
- ☐ - (758) Herbicides, Chlorophenoxy Acid
- ☐ - (759) Herbicides, Triazines
- ☐ - (760) Organochlorine Pesticides
- ☐ - (761) Organophosphate Pesticides
- ☐ - (767) Polychlorinated Biphenyls (PCB's)
- ☐ - (764) Polynuclear Aromatic Hydrocarbons
- ☐ - (762) SDWA Pesticides & Herbicides

Remarks:

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700700 Camino de Salud, NE
[505]-841-2500

ORGANIC CHEMISTRY SECTION [505]-841-2570

'90 DEC 27 AM 8 54

December 14, 1990

Request
ID No. 012060**ANALYTICAL REPORT**
SLD Accession No. OR-90-3309Distribution☐ User 70320
☒ Submitter 260
☒ SLD FilesTo: David Boyer
NM Oil Conserv. Div.
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504-2088From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: A water, Purgeable sample submitted to this laboratory on November 30, 1990

DEMOGRAPHIC DATA

COLLECTION		LOCATION
On: 28-Nov-90	By: Roy ...	Well #3 Domestic
At: 12:35 hrs.	In/Near: Eddy County	

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable [EPA-601/2] Screen {754}

Parameter	Value	Note	MDL	Units
Halogenated Purgeables (33)	0.00	N	1.00	ppb
Aromatic Purgeables (6)	0.00	N	1.00	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:

MDL = Minimal Detectable Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;
T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.Evidentiary Seals: Not Sealed ☒; Intact: No ☐, Yes ☐ & Broken By: _____ Date: _____Laboratory Remarks:

QUALITY CONTROL SUMMARY FOR VOLATILES SCREEN

METHOD BLANK: A laboratory method blank was analyzed along with this sample to assure the absence of interfering contaminants from lab reagents, instruments, or the general laboratory environment. Unless listed below, no contaminants were detected in this blank above the reported detection limit.

COMPOUND DETECTED
None detectedCONCENTRATION (PPB)
.

SURROGATE RECOVERIES:

SURROGATE	CONCENTRATION	% RECOVERY
Fluorobenzene	25.0 ppb	89.0

RECEIVED

(Continued on page 2.)

DEC 27 1990

OIL CONSERVATION DIV.
SANTA FE

ANALYTICAL REPORT
SLD Accession No. OR-90-3309
Continuation, Page 2 of 2

2-Bromo-1-chloropropane 15.0 ppb 99.0

SPIKE RECOVERY: The % recoveries for compounds in the batch
spike were from 80% to 120% with the exception of the compounds
listed below:

COMPOUND	CONCENTRATION	% RECOVERY
Vinyl chloride	25.0 ppb	52.4

Analyst: *Gary C. Eden* *12/14/90*
Gary C. Eden Analysis
Analyst, Organic Chemistry Date

Reviewed By: *Mark J. Jurek* *12/18/90*
Richard F. Meyerhein 12/14/90
Supervisor, Organic Chemistry Section

RECEIVED

DEC 27 1990

OIL CONSERVATION DIV.
SANTA FE

WATER CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION

700 CAMINO DE SALUD, ALBUQUERQUE, NM 87106

Water Chemistry Section - Telephone: (505) 841-2555

SLD No. 1

Date Received: _____

Request ID No. 11111111
012061-D

2 User Code #: 710131210

3 Request ID No.: _____

4 Priority Code #: 3

(If "1" or "2", call EIO-SLD Coordinator)

5 Facility Name: Ballard Ranch

6 County: El Paso

7 City: _____

8 State: NM

9 Sample Location: Well #3 DOMESTIC

10 Collected By: DAVID BOYER
First Last

On: 90/11/28 At: 12:15 hrs.
Date: (YY/MM/DD) Time: 24 hr. clock
3:00 pm = 1500 hrs.

11 Codes: _____
Submitter WSS # Organization

12 Latitude (DDMMSS) _____
Longitude (DDMMSS) _____
2 Digit ID (if needed)

13 Report To: David G. Boyer

14 Phone #: (505) 827-5812

Address: New Mexico Oil Conservation Division

P. O. 2088

City, State Zip: Santa Fe, New Mexico 87504-2088

15 Sampling Information:
Sample Purpose: ☒ Grab ☐ Composite (Composite Time Period)
☐ Compliance ☐ Flow Proportioned
☐ Check ☐ Equal Aliquot
☒ Monitoring ☐ Sample Split w/Permittee
☐ Special ☐ Chain of Custody

16 Field Data: pH: 6.5, Conductivity: 1100 umhos @ 20 °C, Temperature: _____ °C, Chlorine Residual: _____ mg/l, Flow: _____

17 Sample Source:
☐ Stream ☒ Well; Depth: 130
☐ Lake ☐ Spring
☐ Drain ☐ Distribution
☐ Pool ☐ Point-of-Entry
☐ WWTP ☐ Other: _____

18 Field Notes/
Sample #: T25 S, R24 E, Sec 34.130

19 Sample Type: ☒ Water, ☐ Soil, ☐ Food, ☐ Wastewater, ☐ Other
This form accompanies a single sample consisting of:
____ - 1 liter cubitainers (1 quart)
____ - 4 liter cubitainers (1 gallon)

20 Preservation:
☐ WNF Water Not Preserved; Filtered
☒ WNN Water Not Preserved; Not Filtered
☐ WPF Water Preserved with Sulfuric Acid (H2SO4); Filtered
☐ WPN Water Preserved with Sulfuric Acid; Not Filtered
☐ WNL Water Not Preserved in Field; Please Add H2SO4 at Lab
☐ ICE Water Iced
☐ Other _____

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analyses required.

Group Analyses:

- ☐ (854) SDWA Group II (Nitrate as N)
☐ (861) SDWA Group III (Fluoride)
☐ (860) SDWA Complete Secondary

- ☐ (859) SWQB SS Anion - Cation Group +
☐ (868) SWQB NPS Anion, Cation, Physical + TSS
☐ (869) SWQB Nutrient Analysis Group +
☒ (867) Major Anions & Cations

Cations:

- ☐ Calcium (as Ca) _____
☐ Magnesium (as Mg) _____
☐ Potassium (as K) _____
☐ Sodium (as Na) _____
☐ Total Hardness (as CaCO3) _____

Anions:

- ☐ Alkalinity (as CaCO3) _____
☐ Bicarbonate (as HCO3) _____
☐ Carbonate (as CO3) _____
☐ Chloride (as Cl) _____
☐ Fluoride (as F) _____
☐ Sulfate (as SO4) _____

☒ Ion Charge Balance _____

Physical Parameters:

- ☐ Color _____
☒ Conductance (Micromhos @ 25 °C) _____
☐ Odor _____
☒ pH _____
☐ Surfactants _____
☒ Total Dissolved Solids _____
☐ Turbidity _____
Other:
☐ _____
☐ _____
☐ _____

Surface and Waste Water:

- ☐ Biological Oxygen Demand _____
☐ Total Suspended Solids _____
☐ Chemical Oxygen Demand _____
☐ Total Organic Carbon _____
☐ Cyanide _____
Nutrients:
☐ Nitrate + Nitrite (as N) _____
☐ Ammonia (as N) _____
☐ Total Kjeldahl (as N) _____
☐ Nitrite (as N) _____
☐ Orthophosphate (as P) _____
☐ Total Phosphorus (as P) _____

Remarks: _____

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700700 Camino de Salud, NE
[505]-841-2500

WATER CHEMISTRY SECTION [505]-841-2555

January 9, 1991

Request
ID No. 012061**ANALYTICAL REPORT**
SLD Accession No. WC-90-4107Distribution☐ User 70320
☒ Submitter 995
☒ SLD Files

To: D. Boyer

~~Auto. Assign from WSS Table~~~~by Update Program (cron)~~~~when wss > 99 & dtout < 800000~~~~WSS's Field Off, NM 87106~~

From:

Water Chemistry Section

Scientific Laboratory Div.

700 Camino de Salud, NE

Albuquerque, NM 87106

~~Box 2088~~
~~Santa Fe, NM 87504-2088~~

Re: A water, Nonpres/No sample submitted to this laboratory on November 30, 1990

DEMOGRAPHIC DATA

COLLECTION		LOCATION
On: 28-Nov-90	By: Boy ...	Well #3 Domestic
At: 12:35 hrs.	In/Near: Eddy County	

ANALYTICAL RESULTS

Analysis	Value	D. Lmt.	Units
calcium	264.00		mG/L
magnesium	36.50		mG/L
potassium	3.00		mG/L
sodium	10.00		mG/L
hardness	810.00		mG/L
bicarbonate	248.00		mG/L
carbonate	0.00		mG/L
chloride	6.50		mG/L
sulfate	356.00		mG/L
Ion Balance	143.00		%
conductance	1231.00		uS/cm
pH	7.48		pH units
total diss resid	1065.00		mG/L

Reviewed By: 

John A. Finney 01/09/91

Supervisor, Water Chemistry Section

RECEIVED

JAN 15 1991

OIL CONSERVATION DIV.
SANTA FE

AIR & HEAVY METALS ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION

700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106

Air & Heavy Metals Section - Telephone: (505) 841-2553

SLD No. 1

Date

Received:

2 User Code #: <u>7103210</u>	3 Request ID No.: <u>012061-C</u>	4 Priority Code #: <u>3</u> (If "1" or "2" call EID-SLD Coordinator)
5 Facility Name: <u>Bellard Ranch</u>	6 County: <u>Eddy</u>	7 City: <u></u> 8 State: <u>NM</u>
9 Sample Location: <u>Well #3, DOMESTIC</u>		
10 Collected By: <u>DAVID BOYER</u> On: <u>90/11/28</u> At: <u>12:35</u> hrs. First Last Date: (YY/MM/DD) Time: 24 hr. clock 3:00 pm = 1500 hrs.		
11 Codes: <u></u> Submitter <u></u> WSS # <u></u> Organization <u></u>		12 Latitude (DDMMSS) <u></u> Longitude (DDMMSS) <u></u> 2 Digit ID (if needed) <u></u>
13 Report To: <u>David Boyer</u> 14 Phone #: <u>847-5812</u>		15 Sampling Information: ☒ Grab ☐ Composite (Composite Time Period) ☐ Compliance ☐ Flow Proportioned ☐ Check ☐ Equal Aliquot ☒ Monitoring ☐ Sample Split w/Permittee ☐ Special ☐ Chain of Custody
Address: <u>NM Oil Conservation Division</u> <u>P.O. Box 2088</u> City, State Zip: <u>Santa Fe NM 87504</u>		16 Field Data: pH: <u>7.6</u> Conductivity: <u>100</u> umhos @ <u>25</u> C. Temperature: <u>20.5</u> Chlorine Residual: <u></u> mg/l. Flow: <u></u>
17 Sample Source: ☐ Stream ☒ Well; Depth: <u>130</u> ☐ Lake ☐ Spring ☐ Drain ☐ Distribution ☐ Pool ☐ Point-of-Entry ☐ WWTP ☐ Other: <u></u>	18 Field Notes/ Sample #: <u>T25S, R24E, Sec 34, 130</u>	
19 Sample Type: ☒ Water, ☐ Soil, ☐ Food, ☐ Wastewater, ☐ Other This form accompanies a <u>single sample</u> consisting of: <u>1</u> - 1 liter cubitainers (1 quart) <u>1</u> - 4 liter cubitainers (1 gallon) <u>1</u> - <u>250 ml</u>	20 Preservation: ☐ WNF Water Not Preserved; Filtered ☐ WNN Water Not Preserved; Not Filtered ☐ WPF Water Preserved with Nitric Acid (HNO3); Filtered ☒ WPN Water Preserved with Nitric Acid; Not Filtered ☐ WNL Water Not Preserved in Field; Please Add HNO3 at Lab ☐ ICE Water Iced ☐ Other <u></u>	

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analyses required.

☒ - (704) ICAP Scan	☐ - (721) SDWA Group I + other parameter(s) marked below
☐ - (720) SDWA Group I Only	

☐ - Aluminum	☐ - Lead	☐ - Vanadium
☐ - Arsenic	☐ - Manganese	☐ - Zinc
☐ - Barium	☐ - Mercury	☐ -
☐ - Cadmium	☐ - Molybdenum	☐ -
☐ - Chromium	☐ - Nickel	☐ -
☐ - Cobalt	☐ - Selenium	☐ -
☐ - Copper	☐ - Silver	☐ -
☐ - Iron	☐ - Uranium	☐ -

Remarks:

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700700 Camino de Salud, NE
[505]-841-2500

AIR & HEAVY METALS SECTION [505]-841-2553

January 23, 1991

Request
ID No. 012061**ANALYTICAL REPORT**
SLD Accession No. IC-90-0267Distribution☒ User 70320
☐ Submitter 0
☒ SLD FilesTo: David Boyer
NM Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87504From: Air & Heavy Metals Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: A water, Pres/Nonfi sample submitted to this laboratory on November 30, 1990

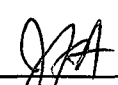
Submitter:David Boyer
Use codes 1 - 998
NM

DEMOGRAPHIC DATA

COLLECTION		LOCATION
On: 28-Nov-90	By: Boy . . .	Well #3 Domestic
At: 12:35 hrs.	In/Near: Eddy County	

ANALYTICAL RESULTS in mg/L

Analysis	Value	Analysis	Value	Analysis	Value
Aluminum	< 0.10	Cobalt	< 0.05	Nickel	< 0.10
Barium	< 0.10	Copper	< 0.10	Silicon	3.40
Beryllium	< 0.10	Iron	0.50	Silver	< 0.10
Boron	< 0.10	Lead	< 0.10	Strontium	2.00
Cadmium	< 0.10	Magnesium	25.00	Tin	< 0.10
Calcium	250.00	Manganese	0.63	Vanadium	< 0.10
Chromium	< 0.10	Molybdenum	< 0.10	Zinc	< 0.10

Laboratory Remarks: Digested.Reviewed By: Jim F. Ashby 01/23/91
Lab. Scientist, Air & Heavy Metals Section



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551

Analytical Chemistry • Utility Operations • Equipment Sales

01/18/91

Environmental Bureau NM Oil D.
PO Box 2088
Santa Fe, NM 87504

Sample Identification: #9011281235 Ballard #3
Collected By: Boyer/
Date & Time Taken: 11/28/90 1235
On Site Data: Well At Old Ranch House
Other:

pH 6.5 Temp. 20oC Cond 1100

Lab Sample Number: 177413

Received: 12/03/90

Client: SNM1

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Alkalinity	200	mg/l	0800	12/19/90	EPA Method 310.1	DG
Boron	.326	mg/l	0610	12/06/90	EPA Method 212.3	SW
Cation-Anion Balance	16.90/ 17.11	meq/meq	1500	01/18/91		NT
Carbonate	< .05	mg/l	1500	12/26/90	APHA Method 263	DG
Chloride	9	mg/l	1000	12/12/90	EPA Method 325.3	DG
Specific Conductance	1276	Micromhos	1620	12/12/90	EPA Method 120.1	GS
Bicarbonate	190	mg/l	1500	12/26/90	APHA Method 263	DG
Sulfate	550	mg/l	1400	12/27/90	EPA Method 375.4	DG
Total Dissolved Solids	1100	mg/l	1400	12/21/90	EPA Method 160.1	HG
pH	6.4	SU	1200	12/11/90	EPA Method 150.1	CSL
Silver	<.03	mg/l	1930	12/14/90	EPA Method 6010	GK
Aluminum	<.1	mg/l	0830	12/14/90	EPA Method 6010	GDG
Arsenic	<.1	mg/l	1930	12/14/90	EPA Method 6010	GK
Barium	<.1	mg/l	1930	12/14/90	EPA Method 6010	GK
Beryllium	<.001	mg/l	2200	12/13/90	EPA Method 6010	GK

Continued

91 JAN 22 PM 4 24
DIVISION



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551

Analytical Chemistry • Utility Operations • Equipment Sales

177413 Continued

Page 2

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Dissolved Calcium	280	mg/l	1030	12/13/90	EPA Method 215.1	NT
Cadmium	<.001	mg/l	2000	12/07/90	EPA Method 213.2	GK
Cobolt	<.05	mg/l	2200	12/13/90	EPA Method 6010	GK
Chromium	<.03	mg/l	0930	12/10/90	EPA Method 6010	NT
Copper	<.03	mg/l	0930	12/10/90	EPA Method 6010	NT
Dissolved Iron	<.1	mg/l	1030	12/13/90	EPA Method 236.1	NT
Dissolved Potassium	1.0	mg/l	2100	12/11/90	EPA Method 258.1	GK
Dissolved Magnesium	30	mg/l	1030	12/13/90	EPA Method 242.1	NT
Manganese	.79	mg/l	2100	12/18/90	EPA Method 6010	GK
Molybdenum	<.05	mg/l	2200	12/13/90	EPA Method 6010	GK
Dissolved Sodium	10	mg/l	1030	12/13/90	EPA Method 273.1	NT
Nickel	<.05	mg/l	0930	12/10/90	EPA Method 6010	NT
Lead	.002	mg/l	1500	12/07/90	EPA Method 239.2	GDG
Antimony	<.05	mg/l	2200	12/13/90	EPA Method 6010	GK
Selenium	<.1	mg/l	1930	12/14/90	EPA Method 6010	GK
Silicon	6.7	mg/l	2200	12/13/90	EPA Method 6010	GK
Thallium	<.05	mg/l	2200	12/13/90	EPA Method 6010	GK
Vanadium	<.05	mg/l	2200	12/13/90	EPA Method 6010	GK
Zinc	.10	mg/l	0930	12/10/90	EPA Method 6010	NT
Benzene	<.2	ppb	0800	01/03/91	EPA Method 8020	KB
Ethyl benzene	<.4	ppb	0800	01/03/91	EPA Method 8020	KB

Continued



177413 Continued

Page 3

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Toluene	<.2	ppb	0800	01/03/91	EPA Method 8020	KB
Xylenes	<.2	ppb	0800	01/03/91	EPA Method 8020	KB
Acrolein	ND(100) *	ug/l	2053	12/19/90	EPA Method 8240	PM
Acrylonitrile	ND(100) *	ug/l	2053	12/19/90	EPA Method 8240	PM
Benzene	ND(4.4) *	ug/l	2053	12/19/90	EPA Method 8240	PM
Bromoform	ND(4.7) *	ug/l	2053	12/19/90	EPA Method 8240	PM
Bromomethane	ND(10) *	ug/l	2053	12/19/90	EPA Method 8240	PM
Carbon Tetrachloride	ND(2.8) *	ug/l	2053	12/19/90	EPA Method 8240	PM
Chlorobenzene	ND(6.0) *	ug/l	2053	12/19/90	EPA Method 8240	PM
Chloroethane	ND(10) *	ug/l	2053	12/19/90	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND(10) *	ug/l	2053	12/19/90	EPA Method 8240	PM
Chloroform	ND(1.6) *	ug/l	2053	12/19/90	EPA Method 8240	PM
Chloromethane	ND(10) *	ug/l	2053	12/19/90	EPA Method 8240	PM
Dibromochloromethane	ND(3.1) *	ug/l	2053	12/19/90	EPA Method 8240	PM
Bromodichloromethane	ND(2.2) *	ug/l	2053	12/19/90	EPA Method 8240	PM
1,1-Dichloroethane	ND(4.7) *	ug/l	2053	12/19/90	EPA Method 8240	PM
1,2-Dichloroethane	ND(2.8) *	ug/l	2053	12/19/90	EPA Method 8240	PM
1,1-Dichloroethene	ND(2.8) *	ug/l	2053	12/19/90	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND(1.6) *	ug/l	2053	12/19/90	EPA Method 8240	PM
1,2-Dichloropropane	ND(6.0) *	ug/l	2053	12/19/90	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND(5.0) *	ug/l	2053	12/19/90	EPA Method 8240	PM

Continued



PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Ethyl benzene	ND(7.2) *	ug/l	2053	12/19/90	EPA Method 8240	PM
Methylene Chloride	ND(2.8) *	ug/l	2053	12/19/90	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND(6.9) *	ug/l	2053	12/19/90	EPA Method 8240	PM
Tetrachloroethene	ND(4.1) *	ug/l	2053	12/19/90	EPA Method 8240	PM
Toluene	ND(6.0) *	ug/l	2053	12/19/90	EPA Method 8240	PM
1,1,1-Trichloroethane	ND(3.8) *	ug/l	2053	12/19/90	EPA Method 8240	PM
1,1,2-Trichloroethane	ND(5.0) *	ug/l	2053	12/19/90	EPA Method 8240	PM
Trichloroethene	ND(1.9) *	ug/l	2053	12/19/90	EPA Method 8240	PM
Vinyl Chloride	ND(10) *	ug/l	2053	12/19/90	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND(10) *	ug/l	2053	12/19/90	EPA Method 8240	PM
Xylenes	ND(10) *	ug/l	2053	12/19/90	EPA Method 8240	PM

* Reported detection limits are EPA published detection limits. Actual limits may vary with matrix.

Quality Assurance for the SET with Sample 177413

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Alkalinity									
177411	Standard	2245	mg/l	2358		105	0800	12/19/90	DG
177411	Duplicate	230	mg/l	230		100	0800	12/19/90	DG
177411	Spike		mg/l		2	98	0800	12/19/90	DG
Boron									
	Standard	1.0	mg/l	1.0		100	0610	12/06/90	SW
Chloride									
177139	Standard	71	mg/l	71		100	1000	12/12/90	DG
177168	Duplicate	138	mg/l	139		101	1000	12/12/90	DG
177168	Duplicate	42	mg/l	42		100	1000	12/12/90	DG
Specific Conductance									
177411	Standard	1441	Micromhos	1413		102	1620	12/12/90	GS
177411	Duplicate	507	Micromhos	499		102	1620	12/12/90	GS
Sulfate									
	Standard	110	mg/l	100		110	1400	12/27/90	DG



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551

Analytical Chemistry • Utility Operations • Equipment Sales

Quality Assurance for the SET with Sample 177413

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
177411	Duplicate	30	mg/l	29		103	1400	12/27/90	DG
	Total Dissolved Solids								
	Blank	-.0003	mg/l				1400	12/21/90	HG
	Standard	100	mg/l	100		100	1400	12/21/90	HG
	pH								
	Standard	Calibrate	SU	7.0			1200	12/11/90	CSL
	Standard	Calibrate	SU	4.0			1200	12/11/90	CSL
	Standard	6.0	SU	6.0		100	1200	12/11/90	CSL
	Silver								
	Blank	<.03	mg/l				1930	12/14/90	GK
	Standard	.20	ppm	.20		100	1930	12/14/90	GK
	Standard	1.0	ppm	1.0		100	1930	12/14/90	GK
177412	Duplicate	<.03	mg/l	<.03		100	1930	12/14/90	GK
177935	Spike		mg/l		1.0	99	1930	12/14/90	GK
	Aluminum								
	Blank	<.1	mg/l				0830	12/14/90	GDG
	Standard	1.0	mg/l	1.0		100	0830	12/14/90	GDG
	Standard	5.1	mg/l	5.0		102	0830	12/14/90	GDG
177340	Duplicate	<.1	mg/l	<.1		100	0830	12/14/90	GDG
177412	Duplicate	<.1	mg/l	<.1		100	0830	12/14/90	GDG
177340	Spike		mg/l		2.0	98	0830	12/14/90	GDG
177411	Spike		mg/l		1.5	91	0830	12/14/90	GDG
	Arsenic								
	Blank	<.1	mg/l				1930	12/14/90	GK
	Standard	.99	ppm	1.0		101	1930	12/14/90	GK
	Standard	5.0	ppm	5.0		100	1930	12/14/90	GK
177412	Duplicate	<.1	mg/l	<.1		100	1930	12/14/90	GK
177935	Spike		mg/l		1.0	104	1930	12/14/90	GK
	Barium								
	Blank	<.1	mg/l				1930	12/14/90	GK
	Blank	<.1	mg/l				1930	12/14/90	GK
	Standard	1.1	ppm	1.0		110	1930	12/14/90	GK
	Standard	5.2	ppm	5.0		104	1930	12/14/90	GK
177412	Duplicate	<.1	mg/l	<.1		100	1930	12/14/90	GK
177935	Duplicate	.22	mg/l	.21		105	1930	12/14/90	GK
177935	Spike		mg/l		1.0	104	1930	12/14/90	GK
	Beryllium								
	Blank	<.001	mg/l				2200	12/13/90	GK
	Standard	.41	mg/l	.40		102	2200	12/13/90	GK
	Standard	2.0	mg/l	2.0		100	2200	12/13/90	GK
177412	Duplicate	<.001	mg/l	<.001		100	2200	12/13/90	GK
	Dissolved Calcium								
	Blank	.2	mg/l				1030	12/13/90	NT

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
177411	Standard	10	mg/l	10		100	1030	12/13/90	NT
	Standard	50	mg/l	50		100	1030	12/13/90	NT
	Duplicate	72	mg/l	72		100	1030	12/13/90	NT
Cadmium									
177255	Blank	<.001	mg/l				2000	12/07/90	GK
	Standard	.002	mg/l	.002		100	2000	12/07/90	GK
	Duplicate	<.001	mg/l	<.001		100	2000	12/07/90	GK
Cobolt									
177412	Blank	<.05	mg/l				2200	12/13/90	GK
	Standard	1.0	mg/l	1.0		100	2200	12/13/90	GK
	Standard	5.0	mg/l	5.0		100	2200	12/13/90	GK
	Duplicate	<.05	mg/l	<.05		100	2200	12/13/90	GK
Chromium									
177816	Blank	<.01	mg/l				0930	12/10/90	NT
	Blank	<.03	mg/l				0930	12/10/90	NT
	Blank	<.03	mg/l				0930	12/10/90	NT
	Standard	1.0	mg/l	1.0		100	0930	12/10/90	NT
	Standard	5.0	mg/l	5.0		100	0930	12/10/90	NT
	Standard	<.03	mg/l	<.03		100	0930	12/10/90	NT
	Duplicate	.12	dg/l	.12		100	0930	12/10/90	NT
	Duplicate	<.03	mg/l	<.03		100	0930	12/10/90	NT
	Spike		dg/l		.80	98	0930	12/10/90	NT
	Spike		mg/l		2.0	102	0930	12/10/90	NT
Copper									
177816	Blank	<.01	mg/l				0930	12/10/90	NT
	Blank	<.03	mg/l				0930	12/10/90	NT
	Blank	<.03	mg/l				0930	12/10/90	NT
	Standard	1.0	mg/l	1.0		100	0930	12/10/90	NT
	Standard	5.0	mg/l	5.0		100	0930	12/10/90	NT
	Duplicate	.01	mg/l	.02		167	0930	12/10/90	NT
	Duplicate	<.03	mg/l	<.03		100	0930	12/10/90	NT
	Spike		mg/l		.80	95	0930	12/10/90	NT
Dissolved Iron									
177411	Blank	<.1	mg/l				1030	12/13/90	NT
	Standard	1.0	mg/l	1.0		100	1030	12/13/90	NT
	Standard	5.1	mg/l	5.0		102	1030	12/13/90	NT
	Duplicate	<.1	mg/l	<.1		100	1030	12/13/90	NT
Dissolved Potassium									
177411	Blank	<.04	mg/l				2100	12/11/90	GK
	Standard	.51	mg/l	.50		102	2100	12/11/90	GK
	Duplicate	.86	mg/l	.86		100	2100	12/11/90	GK
177412	Spike		mg/l		.50	107	2100	12/11/90	GK
Dissolved Magnesium									



THE COMPLETE SERVICE LAB

2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551

Analytical Chemistry • Utility Operations • Equipment Sales

Quality Assurance for the SET with Sample 177413

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
177411	Blank	<.1	mg/l				1030	12/13/90	NT
	Standard	10	mg/l	10		100	1030	12/13/90	NT
	Standard	50	mg/l	50		100	1030	12/13/90	NT
	Duplicate	27	mg/l	27		100	1030	12/13/90	NT
Manganese									
177412	Blank	<.03	mg/l				2100	12/18/90	GK
	Blank	<.03	mg/l				2100	12/18/90	GK
	Standard	1.0	mg/l	1.0		100	2100	12/18/90	GK
	Standard	5.1	mg/l	5.0		102	2100	12/18/90	GK
177543	Duplicate	2.0	mg/l	1.9		105	2100	12/18/90	GK
177935	Duplicate	.13	mg/l	.13		100	2100	12/18/90	GK
177935	Duplicate	.26	mg/l	.25		104	2100	12/18/90	GK
177411	Spike		mg/l		1.5	104	2100	12/18/90	GK
177543	Spike		mg/l		1.0	103	2100	12/18/90	GK
177935	Spike		mg/l		1.0	95	2100	12/18/90	GK
Molybdenum									
177412	Blank	<.05	mg/l				2200	12/13/90	GK
	Standard	9.8	mg/l	10		102	2200	12/13/90	GK
	Duplicate	<.05	mg/l	<.05		100	2200	12/13/90	GK
Dissolved Sodium									
177411	Blank	<1	mg/l				1030	12/13/90	NT
	Standard	10	mg/l	10		100	1030	12/13/90	NT
	Standard	50	mg/l	50		100	1030	12/13/90	NT
	Duplicate	6.0	mg/l	5.6		107	1030	12/13/90	NT
Nickel									
177816	Blank	<.02	mg/l				0930	12/10/90	NT
	Blank	<.05	mg/l				0930	12/10/90	NT
	Blank	<.05	mg/l				0930	12/10/90	NT
	Standard	1.0	mg/l	1.0		100	0930	12/10/90	NT
177412	Standard	5.1	mg/l	5.0		102	0930	12/10/90	NT
	Duplicate	.09	mg/l	.09		100	0930	12/10/90	NT
177816	Duplicate	<.05	mg/l	<.05		100	0930	12/10/90	NT
177816	Spike		mg/l		.80	99	0930	12/10/90	NT
Lead									
177255	Blank	.001	mg/l				1500	12/07/90	GDG
	Blank	.002	mg/l				1500	12/07/90	GDG
	Standard	.025	mg/l	.025		100	1500	12/07/90	GDG
	Standard	.026	mg/l	.025		104	1500	12/07/90	GDG
176209	Duplicate	.001	mg/l	.001		100	1500	12/07/90	GDG
177411	Duplicate	.004	mg/l	.005		122	1500	12/07/90	GDG
177411	Spike		mg/l		.020	95	1500	12/07/90	GDG
Antimony									
	Blank	<.05	mg/l				2200	12/13/90	GK



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551

Analytical Chemistry • Utility Operations • Equipment Sales

Quality Assurance for the SET with Sample 177413

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
177412	Standard	1.1	mg/l	1.0		110	2200	12/13/90	GK
	Standard	5.1	mg/l	5.0		102	2200	12/13/90	GK
	Duplicate	<.05	mg/l	<.05		100	2200	12/13/90	GK
Selenium									
	Blank	<.1	mg/l				1930	12/14/90	GK
	Standard	1.0	ppm	1.0		100	1930	12/14/90	GK
	Standard	4.9	ppm	5.0		102	1930	12/14/90	GK
177412	Duplicate	<.1	mg/l	<.1		100	1930	12/14/90	GK
177935	Spike		mg/l		1.0	98	1930	12/14/90	GK
Silicon									
	Blank	.4	mg/l				2200	12/13/90	GK
	Standard	10	mg/l	10		100	2200	12/13/90	GK
177412	Duplicate	7.0	mg/l	7.0		100	2200	12/13/90	GK
Thallium									
	Blank	<.05	mg/l				2200	12/13/90	GK
	Standard	1.1	mg/l	1.0		110	2200	12/13/90	GK
	Standard	4.8	mg/l	5.0		104	2200	12/13/90	GK
177412	Duplicate	<.05	mg/l	<.05		100	2200	12/13/90	GK
Vanadium									
	Blank	<.05	mg/l				2200	12/13/90	GK
	Standard	1.0	mg/l	1.0		100	2200	12/13/90	GK
	Standard	5.0	mg/l	5.0		100	2200	12/13/90	GK
177412	Duplicate	<.05	mg/l	<.05		100	2200	12/13/90	GK
Zinc									
	Blank	.004	mg/l				0930	12/10/90	NT
	Blank	<.01	mg/l				0930	12/10/90	NT
	Blank	<.01	mg/l				0930	12/10/90	NT
	Standard	1.0	mg/l	1.0		100	0930	12/10/90	NT
	Standard	5.1	mg/l	5.0		102	0930	12/10/90	NT
177816	Duplicate	.016	mg/l	.014		113	0930	12/10/90	NT
177255	Duplicate	.05	mg/l	.05		100	0930	12/10/90	NT
177412	Duplicate	<.01	mg/l	<.01		100	0930	12/10/90	NT
177816	Spike		mg/l		.80	94	0930	12/10/90	NT
177255	Spike		mg/l		2.0	82	0930	12/10/90	NT
Benzene									
	Blank	<5	ppb				0800	01/03/91	KB
	Standard	97	ppb	100		103	0800	01/03/91	KB
177418	Duplicate	<.2	ppb	<.2		100	0800	01/03/91	KB
177418	Spike		ppb		50	117	0800	01/03/91	KB
Ethyl benzene									
	Blank	<5	ppb				0800	01/03/91	KB
	Standard	109	ppb	100		109	0800	01/03/91	KB
177418	Duplicate	<.4	ppb	<.4		100	0800	01/03/91	KB



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551

Analytical Chemistry • Utility Operations • Equipment Sales

Quality Assurance for the SET with Sample 177413

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
177418	Spike		ppb		50	104	0800	01/03/91	KB
					Toluene				
	Blank	<5	ppb				0800	01/03/91	KB
	Standard	104	ppb	100		104	0800	01/03/91	KB
177418	Duplicate	<.2	ppb	<.2		100	0800	01/03/91	KB
177418	Spike		ppb		50	119	0800	01/03/91	KB
					Xylenes				
	Blank	<5	ppb				0800	01/03/91	KB
	Standard	113	ppb	100		112	0800	01/03/91	KB
177418	Duplicate	<.2	ppb	<.2		100	0800	01/03/91	KB
177418	Spike		ppb		50	94	0800	01/03/91	KB

Bill Peery

C. H. Whiteside, Ph.D., President

AIR & HEAVY METALS ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION

700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106

Air & Heavy Metals Section - Telephone: (505) 841-2553

SLD No. 1

Date

Received:

2 User Code #: <u>719320</u>	3 Request ID No.: _____	Request ID No. <u>012063-C</u>
-------------------------------------	--------------------------------	--------------------------------

5 Facility Name: <u>Ballard Ranch</u>	6 County: <u>Eddy</u>	7 City: _____	8 State: <u>NM</u>
--	------------------------------	----------------------	---------------------------

9 Sample Location: Well #2, IRR/DIOM

10 Collected By: DAVID BOYER On: 90/11/28 At: 11:50 hrs.
 First Last Date: (YY/MM/DD) Time: 24 hr. clock 3:00 pm - 1500 hrs.

11 Codes: _____

Submitter	WSS #	Organization
-----------	-------	--------------

13 Report To: DAVID BOYER **14** Phone #: 827-5812

Address: NM Oil Conservation Division
P.O. Box 2088

City, State Zip: San Fe NM 87504

16 Field Data: pH: 7.0, Conductivity: 1000 umhos @ 20.5°C, Temperature: _____°C, Chlorine Residual: _____ mg/l, Flow: _____

17 Sample Source:

☐ -Stream	☒ -Well; Depth: <u>150</u>
☐ -Lake	☐ -Spring
☐ -Drain	☐ -Distribution
☐ -Pool	☐ -Point-of-Entry
☐ -WWTP	☐ -Other: _____

18 Field Notes/
 Sample #: T55, R34E, Sec 34.112
H₂S 11 ppm
490 Explosive gas

19 Sample Type: ☒ -Water, ☐ -Soil, ☐ -Food, ☐ -Wastewater, ☐ -Other

This form accompanies a single sample consisting of:

- 1 liter cubitainers (1 quart)
- 4 liter cubitainers (1 gallon)

1 - 250 ml

20 Preservation:

☐ - WNF	Water Not Preserved; Filtered
☐ - WNN	Water Not Preserved; Not Filtered
☐ - WPF	Water Preserved with Nitric Acid (HNO ₃); Filtered
☒ - WPN	Water Preserved with Nitric Acid; Not Filtered
☐ - WNL	Water Not Preserved in Field; Please Add HNO ₃ at Lab
☐ - ICE	Water Iced
☐ - Other	_____

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analyses required.

- | | |
|---|---|
| ☒ - (704) ICAP Scan | ☐ - (721) SDWA Group I + other parameter(s) marked below |
| ☐ - (720) SDWA Group I Only | |
- | | | |
|--|---|--|
| ☐ - Aluminum
☐ - Arsenic
☐ - Barium
☐ - Cadmium
☐ - Chromium
☐ - Cobalt
☐ - Copper
☐ - Iron | ☐ - Lead
☐ - Manganese
☐ - Mercury
☐ - Molybdenum
☐ - Nickel
☐ - Selenium
☐ - Silver
☐ - Uranium | ☐ - Vanadium
☐ - Zinc

☐ - _____
☐ - _____
☐ - _____
☐ - _____
☐ - _____ |
|--|---|--|

Remarks:

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700700 Camino de Salud, NE
[505]-841-2500

AIR & HEAVY METALS SECTION [505]-841-2553

January 23, 1991

Request
ID No. 012063ANALYTICAL REPORT
SLD Accession No. IC-90-0266Distribution☒ User 70320
☐ Submitter 0
☒ SLD FilesTo: David Boyer
NM Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87504From: Air & Heavy Metals Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: A water, Pres/Nonfi sample submitted to this laboratory on November 30, 1990

Submitter:David Boyer
Use codes 1 - 998
NM

DEMOGRAPHIC DATA

COLLECTION		LOCATION
On: 28-Nov-90	By: Boy . . .	Well #2 IRR/DOM
At: 11:50 hrs.	In/Near: Eddy County	

ANALYTICAL RESULTS in mg/L

Analysis	Value	Analysis	Value	Analysis	Value
Aluminum	< 0.10	Cobalt	< 0.05	Nickel	< 0.10
Barium	< 0.10	Copper	< 0.10	Silicon	1.30
Beryllium	< 0.10	Iron	< 0.10	Silver	< 0.10
Boron	< 0.10	Lead	< 0.10	Strontium	2.10
Cadmium	< 0.10	Magnesium	29.00	Tin	< 0.10
Calcium	270.00	Manganese	1.60	Vanadium	< 0.10
Chromium	< 0.10	Molybdenum	< 0.10	Zinc	< 0.10

Laboratory Remarks: Digested.Reviewed By: Jim F. Ashby 01/23/91
Lab. Scientist, Air & Heavy Metals Section



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551

Analytical Chemistry • Utility Operations • Equipment Sales

01/18/91

Environmental Bureau NM Oil D.
PO Box 2088
Santa Fe, NM 87504

Sample Identification: #9011281150 Ballard #2

Collected By: Boyer/OCS

Date & Time Taken: 11/28/90 1150

On Site Data: At Tanks On Hill Above House

Other:

pH 7.0 Temp. 20.5 Cond. 1000

Lab Sample Number: 177412 Received: 12/03/90

Client: SNM1

91 JAN 22 PM 4 24
DIVISION

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Alkalinity	140	mg/l	0800	12/19/90	EPA Method 310.1	DG
Boron	.337	mg/l	0610	12/06/90	EPA Method 212.3	SW
Cation-Anion Balance	18.23/ 19.01	meq/meq	1500	01/18/91		NT
Carbonate	< .05	mg/l	1500	12/26/90	APHA Method 263	DG
Chloride	10	mg/l	1330	01/17/91	EPA Method 325.3	DG
Specific Conductance	1340	Micromhos	1620	12/12/90	EPA Method 120.1	GS
Bicarbonate	110	mg/l	1500	12/26/90	APHA Method 263	DG
Sulfate	680	mg/l	1400	12/27/90	EPA Method 375.4	DG
Total Dissolved Solids	1000	mg/l	1400	12/21/90	EPA Method 160.1	HG
pH	6.2	SU	1200	12/11/90	EPA Method 150.1	CSL
Silver	<.03	mg/l	1930	12/14/90	EPA Method 6010	GK
Aluminum	<.1	mg/l	0830	12/14/90	EPA Method 6010	GDG
Arsenic	<.1	mg/l	1930	12/14/90	EPA Method 6010	GK
Barium	<.1	mg/l	1930	12/14/90	EPA Method 6010	GK
Beryllium	<.001	mg/l	2200	12/13/90	EPA Method 6010	GK

Continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551

Analytical Chemistry • Utility Operations • Equipment Sales

177412 Continued

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PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Dissolved Calcium	300	mg/l	1030	12/13/90	EPA Method 215.1	NT
Cadmium	<.001	mg/l	2000	12/07/90	EPA Method 213.2	GK
Cobolt	<.05	mg/l	2200	12/13/90	EPA Method 6010	GK
Chromium	<.03	mg/l	0930	12/10/90	EPA Method 6010	NT
Copper	<.03	mg/l	0930	12/10/90	EPA Method 6010	NT
Dissolved Iron	<.1	mg/l	1030	12/13/90	EPA Method 236.1	NT
Dissolved Potassium	1.0	mg/l	2100	12/11/90	EPA Method 258.1	GK
Dissolved Magnesium	33	mg/l	1030	12/13/90	EPA Method 242.1	NT
Manganese	2.0	mg/l	2100	12/18/90	EPA Method 6010	GK
Molybdenum	<.05	mg/l	2200	12/13/90	EPA Method 6010	GK
Dissolved Sodium	12	mg/l	1030	12/13/90	EPA Method 273.1	NT
Nickel	<.05	mg/l	0930	12/10/90	EPA Method 6010	NT
Lead	<.001	mg/l	1500	12/07/90	EPA Method 239.2	GDG
Antimony	<.05	mg/l	2200	12/13/90	EPA Method 6010	GK
Selenium	<.1	mg/l	1930	12/14/90	EPA Method 6010	GK
Silicon	7.0	mg/l	2200	12/13/90	EPA Method 6010	GK
Thallium	<.05	mg/l	2200	12/13/90	EPA Method 6010	GK
Vanadium	<.05	mg/l	2200	12/13/90	EPA Method 6010	GK
Zinc	<.01	mg/l	0930	12/10/90	EPA Method 6010	NT
Benzene	<.2	ppb	0800	01/03/91	EPA Method 8020	KB
Ethyl benzene	<.4	ppb	0800	01/03/91	EPA Method 8020	KB

Continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551

Analytical Chemistry • Utility Operations • Equipment Sales

177412 Continued

Page 3

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Toluene	<.2	ppb	0800	01/03/91	EPA Method 8020	KB
Xylenes	<.2	ppb	0800	01/03/91	EPA Method 8020	KB
Acrolein	ND(100) *	ug/l	1305	12/28/90	EPA Method 8240	PM
Acrylonitrile	ND(100) *	ug/l	1305	12/28/90	EPA Method 8240	PM
Benzene	ND(4.4) *	ug/l	1305	12/28/90	EPA Method 8240	PM
Bromoform	ND(4.7) *	ug/l	1305	12/28/90	EPA Method 8240	PM
Bromomethane	ND(10) *	ug/l	1305	12/28/90	EPA Method 8240	PM
Carbon Tetrachloride	ND(2.8) *	ug/l	1305	12/28/90	EPA Method 8240	PM
Chlorobenzene	ND(6.0) *	ug/l	1305	12/28/90	EPA Method 8240	PM
Chloroethane	ND(10) *	ug/l	1305	12/28/90	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND(10) *	ug/l	1305	12/28/90	EPA Method 8240	PM
Chloroform	ND(1.6) *	ug/l	1305	12/28/90	EPA Method 8240	PM
Chloromethane	ND(10) *	ug/l	1305	12/28/90	EPA Method 8240	PM
Dibromochloromethane	ND(3.1) *	ug/l	1305	12/28/90	EPA Method 8240	PM
Bromodichloromethane	ND(2.2) *	ug/l	1305	12/28/90	EPA Method 8240	PM
1,1-Dichloroethane	ND(4.7) *	ug/l	1305	12/28/90	EPA Method 8240	PM
1,2-Dichloroethane	ND(2.8) *	ug/l	1305	12/28/90	EPA Method 8240	PM
1,1-Dichloroethene	ND(2.8) *	ug/l	1305	12/28/90	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND(1.6) *	ug/l	1305	12/28/90	EPA Method 8240	PM
1,2-Dichloropropane	ND(6.0) *	ug/l	1305	12/28/90	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND(5.0) *	ug/l	1305	12/28/90	EPA Method 8240	PM

Continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551

Analytical Chemistry • Utility Operations • Equipment Sales

Quality Assurance for the SET with Sample 177412

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	-.0003	mg/l				1400	12/21/90	HG
	Standard	100	mg/l	100		100	1400	12/21/90	HG
					pH				
	Standard	Calibrate	SU	7.0			1200	12/11/90	CSL
	Standard	Calibrate	SU	4.0			1200	12/11/90	CSL
	Standard	6.0	SU	6.0		100	1200	12/11/90	CSL
					Silver				
	Blank	<.03	mg/l				1930	12/14/90	GK
	Standard	.20	ppm	.20		100	1930	12/14/90	GK
	Standard	1.0	ppm	1.0		100	1930	12/14/90	GK
177412	Duplicate	<.03	mg/l	<.03		100	1930	12/14/90	GK
177935	Spike		mg/l		1.0	99	1930	12/14/90	GK
					Aluminum				
	Blank	<.1	mg/l				0830	12/14/90	GDG
	Standard	1.0	mg/l	1.0		100	0830	12/14/90	GDG
	Standard	5.1	mg/l	5.0		102	0830	12/14/90	GDG
177340	Duplicate	<.1	mg/l	<.1		100	0830	12/14/90	GDG
177412	Duplicate	<.1	mg/l	<.1		100	0830	12/14/90	GDG
177340	Spike		mg/l		2.0	98	0830	12/14/90	GDG
177411	Spike		mg/l		1.5	91	0830	12/14/90	GDG
					Arsenic				
	Blank	<.1	mg/l				1930	12/14/90	GK
	Standard	.99	ppm	1.0		101	1930	12/14/90	GK
	Standard	5.0	ppm	5.0		100	1930	12/14/90	GK
177412	Duplicate	<.1	mg/l	<.1		100	1930	12/14/90	GK
177935	Spike		mg/l		1.0	104	1930	12/14/90	GK
					Barium				
	Blank	<.1	mg/l				1930	12/14/90	GK
	Blank	<.1	mg/l				1930	12/14/90	GK
	Standard	1.1	ppm	1.0		110	1930	12/14/90	GK
	Standard	5.2	ppm	5.0		104	1930	12/14/90	GK
177412	Duplicate	<.1	mg/l	<.1		100	1930	12/14/90	GK
177935	Duplicate	.22	mg/l	.21		105	1930	12/14/90	GK
177935	Spike		mg/l		1.0	104	1930	12/14/90	GK
					Beryllium				
	Blank	<.001	mg/l				2200	12/13/90	GK
	Standard	.41	mg/l	.40		102	2200	12/13/90	GK
	Standard	2.0	mg/l	2.0		100	2200	12/13/90	GK
177412	Duplicate	<.001	mg/l	<.001		100	2200	12/13/90	GK
					Dissolved Calcium				
	Blank	.2	mg/l				1030	12/13/90	NT
	Standard	10	mg/l	10		100	1030	12/13/90	NT
	Standard	50	mg/l	50		100	1030	12/13/90	NT

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
177411	Duplicate	72	mg/l	72		100	1030	12/13/90	NT
					Cadmium				
	Blank	<.001	mg/l				2000	12/07/90	GK
	Standard	.002	mg/l	.002		100	2000	12/07/90	GK
177255	Duplicate	<.001	mg/l	<.001		100	2000	12/07/90	GK
					Cobolt				
	Blank	<.05	mg/l				2200	12/13/90	GK
	Standard	1.0	mg/l	1.0		100	2200	12/13/90	GK
	Standard	5.0	mg/l	5.0		100	2200	12/13/90	GK
177412	Duplicate	<.05	mg/l	<.05		100	2200	12/13/90	GK
					Chromium				
	Blank	<.01	mg/l				0930	12/10/90	NT
	Blank	<.03	mg/l				0930	12/10/90	NT
	Blank	<.03	mg/l				0930	12/10/90	NT
	Standard	1.0	mg/l	1.0		100	0930	12/10/90	NT
	Standard	5.0	mg/l	5.0		100	0930	12/10/90	NT
	Standard	<.03	mg/l	<.03		100	0930	12/10/90	NT
177816	Duplicate	.12	dg/l	.12		100	0930	12/10/90	NT
177340	Duplicate	<.03	mg/l	<.03		100	0930	12/10/90	NT
177816	Spike		dg/l		.80	98	0930	12/10/90	NT
177340	Spike		mg/l		2.0	102	0930	12/10/90	NT
					Copper				
	Blank	<.01	mg/l				0930	12/10/90	NT
	Blank	<.03	mg/l				0930	12/10/90	NT
	Blank	<.03	mg/l				0930	12/10/90	NT
	Standard	1.0	mg/l	1.0		100	0930	12/10/90	NT
	Standard	5.0	mg/l	5.0		100	0930	12/10/90	NT
177816	Duplicate	.01	mg/l	.02		167	0930	12/10/90	NT
177412	Duplicate	<.03	mg/l	<.03		100	0930	12/10/90	NT
177816	Spike		mg/l		.80	95	0930	12/10/90	NT
					Dissolved Iron				
	Blank	<.1	mg/l				1030	12/13/90	NT
	Standard	1.0	mg/l	1.0		100	1030	12/13/90	NT
	Standard	5.1	mg/l	5.0		102	1030	12/13/90	NT
177411	Duplicate	<.1	mg/l	<.1		100	1030	12/13/90	NT
					Dissolved Potassium				
	Blank	<.04	mg/l				2100	12/11/90	GK
	Standard	.51	mg/l	.50		102	2100	12/11/90	GK
177411	Duplicate	.86	mg/l	.86		100	2100	12/11/90	GK
177412	Spike		mg/l		.50	107	2100	12/11/90	GK
					Dissolved Magnesium				
	Blank	<.1	mg/l				1030	12/13/90	NT
	Standard	10	mg/l	10		100	1030	12/13/90	NT



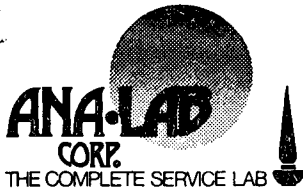
2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551

Analytical Chemistry • Utility Operations • Equipment Sales

Quality Assurance for the SET with Sample 177412

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
177411	Standard	50	mg/l	50		100	1030	12/13/90	NT
	Duplicate	27	mg/l	27		100	1030	12/13/90	NT
Manganese									
	Blank	<.03	mg/l				2100	12/18/90	GK
	Blank	<.03	mg/l				2100	12/18/90	GK
	Standard	1.0	mg/l	1.0		100	2100	12/18/90	GK
	Standard	5.1	mg/l	5.0		102	2100	12/18/90	GK
177412	Duplicate	2.0	mg/l	1.9		105	2100	12/18/90	GK
177543	Duplicate	.13	mg/l	.13		100	2100	12/18/90	GK
177935	Duplicate	.26	mg/l	.25		104	2100	12/18/90	GK
177411	Spike		mg/l		1.5	104	2100	12/18/90	GK
177543	Spike		mg/l		1.0	103	2100	12/18/90	GK
177935	Spike		mg/l		1.0	95	2100	12/18/90	GK
Molybdenum									
	Blank	<.05	mg/l				2200	12/13/90	GK
	Standard	9.8	mg/l	10		102	2200	12/13/90	GK
177412	Duplicate	<.05	mg/l	<.05		100	2200	12/13/90	GK
Dissolved Sodium									
	Blank	<1	mg/l				1030	12/13/90	NT
	Standard	10	mg/l	10		100	1030	12/13/90	NT
	Standard	50	mg/l	50		100	1030	12/13/90	NT
177411	Duplicate	6.0	mg/l	5.6		107	1030	12/13/90	NT
Nickel									
	Blank	<.02	mg/l				0930	12/10/90	NT
	Blank	<.05	mg/l				0930	12/10/90	NT
	Blank	<.05	mg/l				0930	12/10/90	NT
	Standard	1.0	mg/l	1.0		100	0930	12/10/90	NT
	Standard	5.1	mg/l	5.0		102	0930	12/10/90	NT
177816	Duplicate	.09	mg/l	.09		100	0930	12/10/90	NT
177412	Duplicate	<.05	mg/l	<.05		100	0930	12/10/90	NT
177816	Spike		mg/l		.80	99	0930	12/10/90	NT
Lead									
	Blank	.001	mg/l				1500	12/07/90	GDG
	Blank	.002	mg/l				1500	12/07/90	GDG
	Standard	.025	mg/l	.025		100	1500	12/07/90	GDG
	Standard	.026	mg/l	.025		104	1500	12/07/90	GDG
177255	Duplicate	.001	mg/l	.001		100	1500	12/07/90	GDG
176209	Duplicate	.004	mg/l	.005		122	1500	12/07/90	GDG
177411	Spike		mg/l		.020	95	1500	12/07/90	GDG
Antimony									
	Blank	<.05	mg/l				2200	12/13/90	GK
	Standard	1.1	mg/l	1.0		110	2200	12/13/90	GK
	Standard	5.1	mg/l	5.0		102	2200	12/13/90	GK

Toluene



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551

Analytical Chemistry • Utility Operations • Equipment Sales

Quality Assurance for the SET with Sample 177412

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	<5	ppb				0800	01/03/91	KB
	Standard	104	ppb	100		104	0800	01/03/91	KB
177418	Duplicate	<.2	ppb	<.2		100	0800	01/03/91	KB
177418	Spike		ppb		50	119	0800	01/03/91	KB
Xylenes									
	Blank	<5	ppb				0800	01/03/91	KB
	Standard	113	ppb	100		112	0800	01/03/91	KB
177418	Duplicate	<.2	ppb	<.2		100	0800	01/03/91	KB
177418	Spike		ppb		50	94	0800	01/03/91	KB

Bill Peay

C. H. Whiteside, Ph.D., President

in extrusion technology led to a broad range of casing diameters and wall thicknesses. The development of ABS (acrylonitrile butadiene styrene) and PVC (polyvinyl chloride) now provides thermoplastic pipe of much higher strength than earlier plastic materials. Corrosion resistance, light weight, relatively low cost, easy installation, and resistance to acid treatment make plastic casing desirable for many installations where high strength is not required.

Standardization of thermoplastic well casing is covered under ASTM Standard F-480 entitled Thermoplastic Water Well Casing, Pipe and Couplings Made in Standard Dimension Ratios (SDR). Under this standard specification, the minimum physical and chemical characteristics of ABS, PVC, and SR (rubber-modified polystyrene) materials are defined (Appendix 13.C). Unlike steel casing, plastic pipe is built to a physical standard called the standard dimension ratio (SDR). SDR is defined as the outside diameter divided by the minimum wall thickness. As the diameter increases, the wall thickness also increases. In this way, the collapse resistance remains the same

Table 13.8. Basic Composition and Suggested Applications of Various Metals for Water Well Casing and Screens

Metal	Composition	Suggested Applications
Low-Carbon Steel	Carbon 0.8% max Iron Balance	Not corrosion resistant. Will give satisfactory service life where waters are noncorrosive and nonincrusting.
Type 405 Stainless Steel	Chromium 11.5% min Aluminum 0.3% max Iron Balance	Moderate corrosion resistance. Applicable for potable waters of low to medium corrosivity. May exhibit slight surface rusting in oxygenated environments.
Type 304 Stainless Steel	Chromium 18% min Nickel 8% min Manganese 2% max Carbon 0.08% max Iron Balance	Excellent corrosion resistance. Most widely used stainless steel material for water well screens. Occasionally specified for casing in high-capacity wells in corrosive environments.
Type 316L Stainless Steel	Chromium 16% min Nickel 10% min Molybdenum 2% min Carbon 0.03% max Iron Balance	For use in groundwaters having a moderate salt content. Molybdenum content helps resist pitting and crevice corrosion in moderate saline solutions. Better resistance to stress-corrosion cracking than Type 304 stainless steel.
Carpenter 20Cb-3	Nickel 32% min Chromium 19% min Copper 3% min Molybdenum 2% min Manganese 2% max Iron Balance	Strong resistance to stress-corrosion cracking, pitting, and crevice corrosion. Will provide satisfactory service in very saline waters and at water temperatures over 100°F (38°C).
Monel 400	Nickel (plus Cobalt) 63% min Copper 28% min Iron 2.5% max Manganese 2% max	Will provide satisfactory service in sea water where a high sodium chloride content is combined with dissolved oxygen. Material is sensitive to hydrogen sulfide.
Incoloy 825	Nickel (plus Cobalt) 38% min Iron 22% min Chromium 19.5% min Molybdenum 2.5% min Copper 1.5% min	Material has a low corrosion potential in high chloride water and resists cracking, pitting, and crevice corrosion. Satisfactory for use in geothermal, oil and gas, and injection wells.
Inconel 600	Nickel (plus Cobalt) 72% min Chromium 14% min Iron 6-10%	For use in geothermal, oil and gas, and injection well applications. Strong resistance to stress-corrosion cracking.
Hastelloy C	Nickel 51% min Molybdenum 15% min Chromium 14.5% min Iron 4% min Tungsten 3% min Cobalt 2.5% max Vanadium 0.35% max	Extremely corrosion-resistant alloy used only in most aggressive environments, such as brine, corrosive gases, and where temperatures exceed 200°F (93°C). Used for geothermal, oil and gas, and injection wells.

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION

700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106

Organic Chemistry Section - Telephone: (505) 841-2570

SLD No. 1

Date Received:

2 User Code #: 70320	3 Request ID No.:	Request ID No. 012062-C	4 Priority Code #: 3	(If "1" or "2", call EID-SLD Coordinator)
5 Facility Name: Ballard Ranch	6 County: Eddy	7 City:	8 State: NM	
9 Sample Location: Well #2, I.R.R./DDM				
10 Collected By: DAVID BOYER		On: 90/11/28	At: 11150 hrs.	Time: 24 hr. clock 3:00 pm = 1500 hrs.
11 Codes:		12 Latitude (DDMMSS)		
Submitter WSS # Organization		Longitude (DDMMSS) 2 Digit ID (if needed)		
13 Report To: David G. Boyer		14 Phone #: (505) 827-5812		
Address: New Mexico Oil Conservation Division		15 Sampling Information:		
P. O. Box 2088		☒ Grab ☐ Composite (Composite Time Period)		
City, State Zip: Santa Fe, New Mexico 87504-2088		☐ Compliance ☐ Flow Proportioned		
		☐ Check ☐ Equal Aliquot		
		☒ Monitoring ☐ Sample Split w/Permittee		
		☐ Special ☐ Chain of Custody		
16 Field Data: pH: 7.0, Conductivity: 1000 umhos @ 25°C, Temperature: °C, Chlorine Residual: mg/l, Flow:				
17 Sample Source:		18 Field Notes/ Sample #:		
☐ Stream ☐ Well; Depth: ☐ Lake ☐ Spring ☐ Drain ☐ Distribution ☐ Pool ☐ Point-of-Entry ☐ WWTP ☐ Other:		T 255, R 24E, Sec 24, 112 H25-11 PM 490 Explosive Gases		
19 Sample Type: ☒ Water, ☐ Soil, ☐ Food, ☐ Wastewater, ☐ Other		20 Preservation:		
This form accompanies a <u>single sample</u> consisting of:		☐ NP No Preservation; Sample stored at room temperature		
2 - septum vial(s) (volume = 40 ml)		☒ P-ice Sample stored in an ice bath (Not Frozen)		
- glass jugs (volume =)		☐ P-TS Sample Preserved with Sodium Thiosulfate to remove chlorine residual		
(volume =)		☐ P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)		
		☐ Other		

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required.

Volatile Screens:

- ☐ - (753) Aliphatic Headspace (1-5 Carbons)
☒ - (754) Aromatic & Halogenated Purgeables (EPA 601 & 602)
☐ - (765) Mass Spectrometer Purgeables (EPA 624)
☐ - (766) SDWA Total Trihalomethanes (EPA 501.1)
☐ - (774) SDWA VOC's I [8 Regulated +] (EPA 502.2)
☐ - (775) SDWA VOC's II [EDB & DBCP] (EPA 504)

Other Specific Compounds or Classes:

- ☒ - () Heavyside Natural Gas
☐ - ()
☐ - ()

Semivolatile Screens:

- ☐ - (763) Acid Extractables
☐ - (751) Aliphatic Hydrocarbons
☐ - (755) Base/Neutral Extractables (EPA 625)
☐ - (756) Base/Neutral/Acid Extractables (EPA 8270)
☐ - (758) Herbicides, Chlorophenoxy Acid
☐ - (759) Herbicides, Triazines
☐ - (760) Organochlorine Pesticides
☐ - (761) Organophosphate Pesticides
☐ - (767) Polychlorinated Biphenyls (PCB's)
☐ - (764) Polynuclear Aromatic Hydrocarbons
☐ - (762) SDWA Pesticides & Herbicides

Remarks:

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700700 Camino de Salud, NE
[505]-841-2500

ORGANIC CHEMISTRY SECTION [505]-841-2570

December 14, 1990

Request
ID No. 012062**ANALYTICAL REPORT**
SLD Accession No. OR-90-3311Distribution☐ User 70320
☒ Submitter 260
☒ SLD FilesTo: David Boyer
NM Oil Conserv. Div.
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504-2088From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: A water, Purgeable sample submitted to this laboratory on November 30, 1990

DEMOGRAPHIC DATA

COLLECTION		LOCATION
On: 28-Nov-90	By: Roy . . .	Well #2, irrigation/domestic
At: 11:50 hrs.	In/Near: Eddy County	

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable [EPA-601/2] Screen {754}

Parameter	Value	Note	MDL	Units
Halogenated Purgeables (33)	0.00	N	1.00	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:

MDL = Minimal Detectable Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;
T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.Evidentiary Seals: Not Sealed ☒; Intact: No ☐, Yes ☐ & Broken By: _____ Date: _____Laboratory Remarks:

Two late eluting compounds in the C3 substituted benzene region at 2 to 12 ppb detected by the photoionization detector, but not identified.

QUALITY CONTROL SUMMARY FOR VOLATILES SCREEN

METHOD BLANK: A laboratory method blank was analyzed along with this sample to assure the absence of interfering contaminants from lab reagents, instruments, or the general laboratory environment. Unless listed below, no contaminants were detected in this blank above the reported detection limit.

COMPOUND DETECTED
None detectedCONCENTRATION (PPB)
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OIL CONSERVATION DIV.
SANTA FE

(Continued on page 2.)

ANALYTICAL REPORT
SLD Accession No. OR-90-3311
Continuation, Page 2 of 2

SURROGATE RECOVERIES:

SURROGATE	CONCENTRATION	% RECOVERY
Fluorobenzene	25.0 ppb	92.0
2-Bromo-1-chloropropane	15.0 ppb	108.0

SPIKE RECOVERY: The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:

COMPOUND	CONCENTRATION	% RECOVERY
Vinyl chloride	25.0 ppb	52.4

Analyst: *Gary C. Eden* *12/10/90*
Gary C. Eden Analysis
Analyst, Organic Chemistry Date

Reviewed By: *Richard F. Meyerhein* *12/18/90*
Richard F. Meyerhein 12/14/90
Supervisor, Organic Chemistry Section

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SANTA FE

WATER CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION

700 CAMINO DE SALUD, ALBUQUERQUE, NM 87106

Water Chemistry Section - Telephone: (505) 841-2555

SLD No. 1

Date Received:

2 User Code #: 710131210		3 Request ID No.:		Request ID No. 012063-D		4 Priority Code #: 13		(If "1" or "2", call EIO-SLD Coordinator)	
5 Facility Name: Ballar Ranch				6 County: Eddy		7 City:		8 State: NM	
9 Sample Location: Well #2, TIRA/IDOM									
10 Collected By: DAVID BOYER				On: 90/11/28		At: 11150 hrs.		Time: 24 hr. clock 3:00 pm = 1500 hrs.	
11 Codes: Submitter WSS # Organization									
13 Report To: David G. Boyer				14 Phone #: (505) 827-5812		12 Latitude (DDMMSS) Longitude (DDMMSS) 2 Digit ID (if needed)			
Address: New Mexico Oil Conservation Division P. O. 2088 City, State Zip: Santa Fe, New Mexico 87504-2088						15 Sampling Information: Sample Purpose: ☒ - Compliance ☐ - Check ☒ - Monitoring ☐ - Special ☒ - Grab ☐ - Composite (Composite time Period) ☐ - Flow Proportioned ☐ - Equal Aliquot ☐ - Sample Split w/Permittee ☐ - Chain of Custody			
16 Field Data: pH: 7.0, Conductivity: 1000 umhos @ 20.5°C, Temperature: °C, Chlorine Residual: mg/l, Flow: _____									
17 Sample Source: ☐ - Stream ☐ - Lake ☐ - Drain ☐ - Pool ☐ - WWTP ☒ - Well; Depth: 150 ☐ - Spring ☐ - Distribution ☐ - Point-of-Entry ☐ - Other:					18 Field Notes/ Sample #: T 255 R24E, Sec 34.112 H ₂ S - 11 PPM 490 Explosive gases				
19 Sample Type: ☒ - Water, ☐ - Soil, ☐ - Food, ☐ - Wastewater, ☐ - Other This form accompanies a <u>single sample</u> consisting of: ____ - 1 liter cubitainers (1 quart) ____ - 4 liter cubitainers (1 gallon)					20 Preservation: ☐ - WNF Water Not Preserved; Filtered ☒ - WNN Water Not Preserved; Not Filtered ☐ - WPF Water Preserved with Sulfuric Acid (H ₂ SO ₄); Filtered ☐ - WPN Water Preserved with Sulfuric Acid; Not Filtered ☐ - WNL Water Not Preserved in Field; Please Add H ₂ SO ₄ at Lab ☐ - ICE Water Iced ☐ - Other				
21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analyses required.									
Group Analyses: ☐ - (854) SDWA Group II (Nitrate as N) ☐ - (861) SDWA Group III (Fluoride) ☐ - (860) SDWA Complete Secondary					☐ - (859) SWQB SS Anion - Cation Group + ☐ - (868) SWQB NPS Anion, Cation, Physical + TSS ☐ - (869) SWQB Nutrient Analysis Group + ☒ - (867) Major Anions & Cations				
Cations: ☐ - Calcium (as Ca) ☐ - Magnesium (as Mg) ☐ - Potassium (as K) ☐ - Sodium (as Na) ☐ - Total Hardness (as CaCO ₃)			Physical Parameters: ☐ - Color ☒ - Conductance (micromhos @ 25°C) ☐ - Odor ☒ - pH ☐ - Surfactants ☒ - Total Dissolved Solids ☐ - Turbidity			Surface and Waste Water: ☐ - Biological Oxygen Demand ☐ - Total Suspended Solids ☐ - Chemical Oxygen Demand ☐ - Total Organic Carbon ☐ - Cyanide			
Anions: ☐ - Alkalinity (as CaCO ₃) ☐ - Bicarbonate (as HCO ₃) ☐ - Carbonate (as CO ₃) ☐ - Chloride (as Cl) ☐ - Fluoride (as F) ☐ - Sulfate (as SO ₄)			Other: ☐ - ☐ - ☐ - ☐ -			Nutrients: ☐ - Nitrate + Nitrite (as N) ☐ - Ammonia (as N) ☐ - Total Kjeldahl (as N) ☐ - Nitrite (as N) ☐ - Orthophosphate (as P) ☐ - Total Phosphorus (as P)			
☒ - Ion Charge Balance									
Remarks:									

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700700 Camino de Salud, NE
[505]-841-2500

WATER CHEMISTRY SECTION [505]-841-2555

January 9, 1991

Request
ID No. 012063ANALYTICAL REPORT
SLD Accession No. WC-90-4108Distribution☐ User 70320
☒ Submitter 995
☒ SLD Files

To: D. Boyer

From:

Water Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106~~Auto. Assign from WSS Table~~
~~by Update Program (cron)~~
~~when wss > 99 & dtout < 800000~~
~~WSS's Field Off, NM 87106~~NM OCD
Box 2088
Santa Fe, NM

87504-2088

Re: A water, Nonpres/No sample submitted to this laboratory on November 30, 1990

DEMOGRAPHIC DATA

COLLECTION		LOCATION
On: 28-Nov-90	By: Boy ...	Well #2 Irry Dom
At: 11:50 hrs.	In/Near:	

ANALYTICAL RESULTS

Analysis	Value	D. Lmt.	Units
calcium	280.00		mg/L
magnesium	41.30		mg/L
potassium	3.00		mg/L
sodium	11.00		mg/L
hardness	870.00		mg/L
bicarbonate	246.00		mg/L
carbonate	0.00		mg/L
chloride	7.50		mg/L
sulfate	540.00		mg/L
Ion Balance	116.00		%
conductance	1302.00		uS/cm
pH	7.37		pH units
total diss resid	1144.00		mg/L

Reviewed By:

John A. Finney 01/09/91
Supervisor, Water Chemistry Section

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JAN 15 1991

OIL CONSERVATION DIV.
SANTA FE



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551

Analytical Chemistry • Utility Operations • Equipment Sales

01/18/91

Environmental Bureau NM Oil D.
PO Box 2088
Santa Fe, NM 87504

Sample Identification: #9011281240 Field Blank
Collected By: Boyer/OCS
Date & Time Taken: 11/28/90 1240

Lab Sample Number: 177415 Received: 12/03/90

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ANALYTICAL DIVISION
JAN 22 PM 4 24
Client: SNM1

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Benzene	<.2	ppb	0800	01/03/91	EPA Method 8020	KB
Ethyl benzene	<.4	ppb	0800	01/03/91	EPA Method 8020	KB
Toluene	<.2	ppb	0800	01/03/91	EPA Method 8020	KB
Xylenes	<.2	ppb	0800	01/03/91	EPA Method 8020	KB
Acrolein	ND(100) *	ug/l	2221	12/19/90	EPA Method 8240	PM
Acrylonitrile	ND(100) *	ug/l	2221	12/19/90	EPA Method 8240	PM
Benzene	ND(4.4) *	ug/l	2221	12/19/90	EPA Method 8240	PM
Bromoform	ND(4.7) *	ug/l	2221	12/19/90	EPA Method 8240	PM
Bromomethane	ND(10) *	ug/l	2221	12/19/90	EPA Method 8240	PM
Carbon Tetrachloride	ND(2.8) *	ug/l	2221	12/19/90	EPA Method 8240	PM
Chlorobenzene	ND(6.0) *	ug/l	2221	12/19/90	EPA Method 8240	PM
Chloroethane	ND(10) *	ug/l	2221	12/19/90	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND(10) *	ug/l	2221	12/19/90	EPA Method 8240	PM
Chloroform	ND(1.6) *	ug/l	2221	12/19/90	EPA Method 8240	PM
Chloromethane	ND(10) *	ug/l	2221	12/19/90	EPA Method 8240	PM
Dibromochloromethane	ND(3.1) *	ug/l	2221	12/19/90	EPA Method 8240	PM
Bromodichloromethane	ND(2.2) *	ug/l	2221	12/19/90	EPA Method 8240	PM

Continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551

Analytical Chemistry • Utility Operations • Equipment Sales

177415 Continued

Page 2

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
1,1-Dichloroethane	ND(4.7) *	ug/l	2221	12/19/90	EPA Method 8240	PM
1,2-Dichloroethane	ND(2.8) *	ug/l	2221	12/19/90	EPA Method 8240	PM
1,1-Dichloroethene	ND(2.8) *	ug/l	2221	12/19/90	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND(1.6) *	ug/l	2221	12/19/90	EPA Method 8240	PM
1,2-Dichloropropane	ND(6.0) *	ug/l	2221	12/19/90	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND(5.0) *	ug/l	2221	12/19/90	EPA Method 8240	PM
Ethyl benzene	ND(7.2) *	ug/l	2221	12/19/90	EPA Method 8240	PM
Methylene Chloride	ND(2.8) *	ug/l	2221	12/19/90	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND(6.9) *	ug/l	2221	12/19/90	EPA Method 8240	PM
Tetrachloroethene	ND(4.1) *	ug/l	2221	12/19/90	EPA Method 8240	PM
Toluene	ND(6.0) *	ug/l	2221	12/19/90	EPA Method 8240	PM
1,1,1-Trichloroethane	ND(3.8) *	ug/l	2221	12/19/90	EPA Method 8240	PM
1,1,2-Trichloroethane	ND(5.0) *	ug/l	2221	12/19/90	EPA Method 8240	PM
Trichloroethene	ND(1.9) *	ug/l	2221	12/19/90	EPA Method 8240	PM
Vinyl Chloride	ND(10) *	ug/l	2221	12/19/90	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND(10) *	ug/l	2221	12/19/90	EPA Method 8240	PM
Xylenes	ND(10) *	ug/l	2221	12/19/90	EPA Method 8240	PM

* Reported detection limits are EPA published detection limits. Actual limits may vary with matrix.

Quality Assurance for the SET with Sample 177415

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Benzene									
	Blank	<5	ppb				0800	01/03/91	KB
	Standard	97	ppb	100		103	0800	01/03/91	KB



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551

Analytical Chemistry • Utility Operations • Equipment Sales

Quality Assurance for the SET with Sample 177415

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
177418	Duplicate	<.2	ppb	<.2		100	0800	01/03/91	KB
177418	Spike		ppb		50	117	0800	01/03/91	KB
				Ethyl benzene					
	Blank	<5	ppb				0800	01/03/91	KB
	Standard	109	ppb	100		109	0800	01/03/91	KB
177418	Duplicate	<.4	ppb	<.4		100	0800	01/03/91	KB
177418	Spike		ppb		50	104	0800	01/03/91	KB
				Toluene					
	Blank	<5	ppb				0800	01/03/91	KB
	Standard	104	ppb	100		104	0800	01/03/91	KB
177418	Duplicate	<.2	ppb	<.2		100	0800	01/03/91	KB
177418	Spike		ppb		50	119	0800	01/03/91	KB
				Xylenes					
	Blank	<5	ppb				0800	01/03/91	KB
	Standard	113	ppb	100		112	0800	01/03/91	KB
177418	Duplicate	<.2	ppb	<.2		100	0800	01/03/91	KB
177418	Spike		ppb		50	94	0800	01/03/91	KB

Bill Peery

C. H. Whiteside, Ph.D., President



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01/21/91 JAN 22 PM 4 23

Environmental Bureau NM Oil D.
PO Box 2088
Santa Fe, NM 87504

Sample Identification: #9011281010 Hood Ranch

Collected By: Boyer/OCS

Date & Time Taken: 11/28/90 1010

On Site Data: Hood Water Well

Other:

pH 6.5 Temp. 20oC Cond. 370

Location: T25S, R24E
Sec 27, 1243

Lab Sample Number: 177411

Received: 12/03/90

Client: SNM1

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Alkalinity	230	mg/l	0800	12/19/90	EPA Method 310.1	DG
Boron	.141	mg/l	0610	12/06/90	EPA Method 212.3	SW
Cation-Anion Balance	5.87/ 5.64	meq/meq	1500	01/18/91		NT
Carbonate	< .05	mg/l	1500	12/26/90	APHA Method 263	DG
Chloride	10	mg/l	1330	01/17/91	EPA Method 325.3	DG
Specific Conductance	503	Micromhos	1620	12/12/90	EPA Method 120.1	GS
Bicarbonate	220	mg/l	1500	12/26/90	APHA Method 263	DG
Sulfate	70	mg/l	1400	12/27/90	EPA Method 375.4	DG
Total Dissolved Solids	400	mg/l	1400	12/21/90	EPA Method 160.1	BC
pH	6.2	SU	1200	12/11/90	EPA Method 150.1	LW
Silver	<.03	mg/l	1930	12/14/90	EPA Method 6010	NT
Aluminum	<.1	mg/l	0830	12/14/90	EPA Method 6010	NT
Arsenic	<.1	mg/l	1930	12/14/90	EPA Method 6010	NT
Barium	.1	mg/l	1930	12/14/90	EPA Method 6010	NT
Beryllium	<.001	mg/l	2200	12/13/90	EPA Method 6010	NT

Continued



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Analytical Chemistry • Utility Operations • Equipment Sales

177411 Continued

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PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Dissolved Calcium	70	mg/l	1030	12/13/90	EPA Method 215.1	NT
Cadmium	<.001	mg/l	2000	12/07/90	EPA Method 213.2	NT
Cobolt	<.05	mg/l	2200	12/13/90	EPA Method 6010	NT
Chromium	<.03	mg/l	0930	12/10/90	EPA Method 6010	NT
Copper	<.03	mg/l	0930	12/10/90	EPA Method 6010	NT
Dissolved Iron	<.1	mg/l	1030	12/13/90	EPA Method 236.1	NT
Dissolved Potassium	.86	mg/l	2100	12/11/90	EPA Method 258.1	NT
Dissolved Magnesium	26	mg/l	1030	12/13/90	EPA Method 242.1	NT
Manganese	<.03	mg/l	2100	12/18/90	EPA Method 6010	NT
Molybdenum	<.05	mg/l	2200	12/13/90	EPA Method 6010	NT
Dissolved Sodium	5	mg/l	1030	12/13/90	EPA Method 273.1	NT
Nickel	<.05	mg/l	0930	12/10/90	EPA Method 6010	NT
Lead	<.001	mg/l	1500	12/07/90	EPA Method 239.2	NT
Antimony	<.05	mg/l	2200	12/13/90	EPA Method 6010	NT
Selenium	<.1	mg/l	1930	12/14/90	EPA Method 6010	NT
Silicon	5.0	mg/l	2200	12/13/90	EPA Method 6010	NT
Thallium	<.1	mg/l	2200	12/13/90	EPA Method 6010	NT
Vanadium	<.05	mg/l	2200	12/13/90	EPA Method 6010	NT
Zinc	.03	mg/l	0930	12/10/90	EPA Method 6010	NT
Benzene	<.2	ppb	0800	01/03/91	EPA Method 8020	KB
Ethyl benzene	<.4	ppb	0800	01/03/91	EPA Method 8020	KB

Continued



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Analytical Chemistry • Utility Operations • Equipment Sales

177411 Continued

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PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Toluene	<.2	ppb	0800	01/03/91	EPA Method 8020	KB
Xylenes	<.2	ppb	0800	01/03/91	EPA Method 8020	KB
Acrolein	ND(100) *	mg/l	1620	12/20/90	EPA Method 8240	MS
Acrylonitrile	ND(100) *	mg/l	1620	12/20/90	EPA Method 8240	MS
Benzene	ND(4.4) *	mg/l	1620	12/20/90	EPA Method 8240	MS
Bromoform	ND(4.7) *	mg/l	1620	12/20/90	EPA Method 8240	MS
Bromomethane	ND(10) *	mg/l	1620	12/20/90	EPA Method 8240	MS
Carbon Tetrachloride	ND(2.8) *	mg/l	1620	12/20/90	EPA Method 8240	MS
Chlorobenzene	ND(6.0) *	mg/l	1620	12/20/90	EPA Method 8240	MS
Chloroethane	ND(10) *	mg/l	1620	12/20/90	EPA Method 8240	MS
2-Chloroethylvinyl ether	ND(10) *	mg/l	1620	12/20/90	EPA Method 8240	MS
Chloroform	ND(1.6) *	mg/l	1620	12/20/90	EPA Method 8240	MS
Chloromethane	ND(10) *	mg/l	1620	12/20/90	EPA Method 8240	MS
Dibromochloromethane	ND(3.1) *	mg/l	1620	12/20/90	EPA Method 8240	MS
Bromodichloromethane	ND(2.2) *	mg/l	1620	12/20/90	EPA Method 8240	MS
1,1-Dichloroethane	ND(4.7) *	mg/l	1620	12/20/90	EPA Method 8240	MS
1,2-Dichloroethane	ND(2.8) *	mg/l	1620	12/20/90	EPA Method 8240	MS
1,1-Dichloroethene	ND(2.8) *	mg/l	1620	12/20/90	EPA Method 8240	MS
trans-1,2-Dichloroethene	ND(1.6) *	mg/l	1620	12/20/90	EPA Method 8240	MS
1,2-Dichloropropane	ND(6.0) *	mg/l	1620	12/20/90	EPA Method 8240	MS
cis-1,3-Dichloropropene	ND(5.0) *	mg/l	1620	12/20/90	EPA Method 8240	MS

Continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551

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Quality Assurance for the SET with Sample 177411

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
177411	Blank	.2	mg/l				1030	12/13/90	NT
	Standard	10	mg/l	10		100	1030	12/13/90	NT
	Standard	50	mg/l	50		100	1030	12/13/90	NT
	Duplicate	72	mg/l	72		100	1030	12/13/90	NT
Chromium									
177816	Blank	<.01	mg/l				0930	12/10/90	NT
	Blank	<.03	mg/l				0930	12/10/90	NT
	Blank	<.03	mg/l				0930	12/10/90	NT
	Standard	1.0	mg/l	1.0		100	0930	12/10/90	NT
177340	Standard	5.0	mg/l	5.0		100	0930	12/10/90	NT
	Standard	<.03	mg/l	<.03		100	0930	12/10/90	NT
	Duplicate	.12	dg/l	.12		100	0930	12/10/90	NT
	Duplicate	<.03	mg/l	<.03		100	0930	12/10/90	NT
177816	Spike		dg/l		.80	98	0930	12/10/90	NT
177340	Spike		mg/l		2.0	102	0930	12/10/90	NT
Copper									
177816	Blank	<.01	mg/l				0930	12/10/90	NT
	Blank	<.03	mg/l				0930	12/10/90	NT
	Blank	<.03	mg/l				0930	12/10/90	NT
	Standard	1.0	mg/l	1.0		100	0930	12/10/90	NT
177412	Standard	5.0	mg/l	5.0		100	0930	12/10/90	NT
	Duplicate	.01	mg/l	.02		167	0930	12/10/90	NT
	Duplicate	<.03	mg/l	<.03		100	0930	12/10/90	NT
	Spike		mg/l		.80	95	0930	12/10/90	NT
Dissolved Iron									
177411	Blank	<.1	mg/l				1030	12/13/90	NT
	Standard	1.0	mg/l	1.0		100	1030	12/13/90	NT
	Standard	5.1	mg/l	5.0		102	1030	12/13/90	NT
	Duplicate	<.1	mg/l	<.1		100	1030	12/13/90	NT
Dissolved Magnesium									
177411	Blank	<.1	mg/l				1030	12/13/90	NT
	Standard	10	mg/l	10		100	1030	12/13/90	NT
	Standard	50	mg/l	50		100	1030	12/13/90	NT
	Duplicate	27	mg/l	27		100	1030	12/13/90	NT
Dissolved Sodium									
177411	Blank	<1	mg/l				1030	12/13/90	NT
	Standard	10	mg/l	10		100	1030	12/13/90	NT
	Standard	50	mg/l	50		100	1030	12/13/90	NT
	Duplicate	6.0	mg/l	5.6		107	1030	12/13/90	NT
Nickel									
	Blank	<.02	mg/l				0930	12/10/90	NT
	Blank	<.05	mg/l				0930	12/10/90	NT
	Blank	<.05	mg/l				0930	12/10/90	NT



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Quality Assurance for the SET with Sample 177411

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Standard	1.0	mg/l	1.0		100	0930	12/10/90	NT
	Standard	5.1	mg/l	5.0		102	0930	12/10/90	NT
177816	Duplicate	.09	mg/l	.09		100	0930	12/10/90	NT
177412	Duplicate	<.05	mg/l	<.05		100	0930	12/10/90	NT
177816	Spike		mg/l		.80	99	0930	12/10/90	NT
Zinc									
	Blank	.004	mg/l				0930	12/10/90	NT
	Blank	<.01	mg/l				0930	12/10/90	NT
	Blank	<.01	mg/l				0930	12/10/90	NT
	Standard	1.0	mg/l	1.0		100	0930	12/10/90	NT
	Standard	5.1	mg/l	5.0		102	0930	12/10/90	NT
177816	Duplicate	.016	mg/l	.014		113	0930	12/10/90	NT
177255	Duplicate	.05	mg/l	.05		100	0930	12/10/90	NT
177412	Duplicate	<.01	mg/l	<.01		100	0930	12/10/90	NT
177816	Spike		mg/l		.80	94	0930	12/10/90	NT
177255	Spike		mg/l		2.0	82	0930	12/10/90	NT
Benzene									
	Blank	<5	ppb				0800	01/03/91	KB
	Standard	97	ppb	100		103	0800	01/03/91	KB
177418	Duplicate	<.2	ppb	<.2		100	0800	01/03/91	KB
177418	Spike		ppb		50	117	0800	01/03/91	KB
Ethyl benzene									
	Blank	<5	ppb				0800	01/03/91	KB
	Standard	109	ppb	100		109	0800	01/03/91	KB
177418	Duplicate	<.4	ppb	<.4		100	0800	01/03/91	KB
177418	Spike		ppb		50	104	0800	01/03/91	KB
Toluene									
	Blank	<5	ppb				0800	01/03/91	KB
	Standard	104	ppb	100		104	0800	01/03/91	KB
177418	Duplicate	<.2	ppb	<.2		100	0800	01/03/91	KB
177418	Spike		ppb		50	119	0800	01/03/91	KB
Xylenes									
	Blank	<5	ppb				0800	01/03/91	KB
	Standard	113	ppb	100		112	0800	01/03/91	KB
177418	Duplicate	<.2	ppb	<.2		100	0800	01/03/91	KB
177418	Spike		ppb		50	94	0800	01/03/91	KB

Bill Peery

C. H. Whiteside, Ph.D., President



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01/21/91

Environmental Bureau NM Oil D.
PO Box 2088
Santa Fe, NM 87504

Sample Identification: #9011281055 Smart

Collected By: Boyer/OCS

Date & Time Taken: 11/28/90 1055

On Site Data: George Smart Well At House

Other:

pH 6.5 Temp. 20oC Cond. 1300

Location:
T25S, R24E
Sec 27, 1413

91 JAN 22 PM 4 24

NOISIAIC 100

Lab Sample Number: 177414

Received: 12/03/90

Client: SNM1

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Alkalinity	210	mg/l	0800	12/19/90	EPA Method 310.1	DG
Boron	.321	mg/l	0610	12/06/90	EPA Method 212.3	SW
Cation-Anion Balance	15.02/ 15.56	meq/meq	1500	01/18/91		NT
Carbonate	< .05	mg/l	1500	12/26/90	APHA Method 263	DG
Chloride	140	mg/l	1330	01/17/91	EPA Method 325.3	DG
Specific Conductance	1396	Micromhos	1620	12/12/90	EPA Method 120.1	GS
Bicarbonate	190	mg/l	1500	12/26/90	APHA Method 263	DG
Sulfate	340	mg/l	1400	12/27/90	EPA Method 375.4	DG
Total Dissolved Solids	900	mg/l	1400	12/21/90	EPA Method 160.1	HG
pH	6.5	SU	1200	12/11/90	EPA Method 150.1	CSL
Silver	<.03	mg/l	1930	12/14/90	EPA Method 6010	GK
Aluminum	.3	mg/l	0830	12/14/90	EPA Method 6010	GDG
Arsenic	<.1	mg/l	1930	12/14/90	EPA Method 6010	GK
Barium	<.1	mg/l	1930	12/14/90	EPA Method 6010	GK
Beryllium	<.001	mg/l	2200	12/13/90	EPA Method 6010	GK

Continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551

Analytical Chemistry • Utility Operations • Equipment Sales

177414 Continued

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PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Dissolved Calcium	120	mg/l	1030	12/13/90	EPA Method 215.1	NT
Cadmium	<.01	mg/l	0930	12/10/90	EPA Method 213.2	NT
Cobolt	<.05	mg/l	2200	12/13/90	EPA Method 6010	GK
Chromium	<.03	mg/l	0930	12/10/90	EPA Method 6010	NT
Copper	<.03	mg/l	0930	12/10/90	EPA Method 6010	NT
Dissolved Iron	<.1	mg/l	1030	12/13/90	EPA Method 236.1	NT
Dissolved Potassium	1.8	mg/l	2100	12/11/90	EPA Method 258.1	GK
Dissolved Magnesium	76	mg/l	1030	12/13/90	EPA Method 242.1	NT
Manganese	<.03	mg/l	2100	12/18/90	EPA Method 6010	GK
Molybdenum	<.05	mg/l	2200	12/13/90	EPA Method 6010	GK
Dissolved Sodium	63	mg/l	1030	12/13/90	EPA Method 273.1	NT
Nickel	<.05	mg/l	0930	12/10/90	EPA Method 6010	NT
Lead	<.001	mg/l	1500	12/07/90	EPA Method 239.2	GDG
Antimony	<.05	mg/l	2200	12/13/90	EPA Method 6010	GK
Selenium	<.1	mg/l	1930	12/14/90	EPA Method 6010	GK
Silicon	6.9	mg/l	2200	12/13/90	EPA Method 6010	GK
Thallium	<.05	mg/l	2200	12/13/90	EPA Method 6010	GK
Vanadium	<.05	mg/l	2200	12/13/90	EPA Method 6010	GK
Zinc	.03	mg/l	0930	12/10/90	EPA Method 6010	NT
Benzene	<.2	ppb	0800	01/03/91	EPA Method 8020	KB
Ethyl benzene	<.4	ppb	0800	01/03/91	EPA Method 8020	KB

Continued



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Analytical Chemistry • Utility Operations • Equipment Sales

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PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Toluene	<.2	ppb	0800	01/03/91	EPA Method 8020	KB
Xylenes	<.2	ppb	0800	01/03/91	EPA Method 8020	KB
Acrolein	ND(100) *	ug/l	1348	12/28/90	EPA Method 8240	PM
Acrylonitrile	ND(100) *	ug/l	1348	12/28/90	EPA Method 8240	PM
Benzene	ND(4.4) *	ug/l	1348	12/28/90	EPA Method 8240	PM
Bromoform	ND(4.7) *	ug/l	1348	12/28/90	EPA Method 8240	PM
Bromomethane	ND(10) *	ug/l	1348	12/28/90	EPA Method 8240	PM
Carbon Tetrachloride	ND(2.8) *	ug/l	1348	12/28/90	EPA Method 8240	PM
Chlorobenzene	ND(6.0) *	ug/l	1348	12/28/90	EPA Method 8240	PM
Chloroethane	ND(10) *	ug/l	1348	12/28/90	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND(10) *	ug/l	1348	12/28/90	EPA Method 8240	PM
Chloroform	ND(1.6) *	ug/l	1348	12/28/90	EPA Method 8240	PM
Chloromethane	ND(10) *	ug/l	1348	12/28/90	EPA Method 8240	PM
Dibromochloromethane	ND(3.1) *	ug/l	1348	12/28/90	EPA Method 8240	PM
Bromodichloromethane	ND(2.2) *	ug/l	1348	12/28/90	EPA Method 8240	PM
1,1-Dichloroethane	ND(4.7) *	ug/l	1348	12/28/90	EPA Method 8240	PM
1,2-Dichloroethane	ND(2.8) *	ug/l	1348	12/28/90	EPA Method 8240	PM
1,1-Dichloroethene	ND(2.8) *	ug/l	1348	12/28/90	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND(1.6) *	ug/l	1348	12/28/90	EPA Method 8240	PM
1,2-Dichloropropane	ND(6.0) *	ug/l	1348	12/28/90	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND(5.0) *	ug/l	1348	12/28/90	EPA Method 8240	PM

Continued



PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Ethyl benzene	ND(7.2) *	ug/l	1348	12/28/90	EPA Method 8240	PM
Methylene Chloride	ND(2.8) *	ug/l	1348	12/28/90	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND(6.9) *	ug/l	1348	12/28/90	EPA Method 8240	PM
Tetrachloroethene	ND(4.1) *	ug/l	1348	12/28/90	EPA Method 8240	PM
Toluene	ND(6.0) *	ug/l	1348	12/28/90	EPA Method 8240	PM
1,1,1-Trichloroethane	ND(3.8) *	ug/l	1348	12/28/90	EPA Method 8240	PM
1,1,2-Trichloroethane	ND(5.0) *	ug/l	1348	12/28/90	EPA Method 8240	PM
Trichloroethene	ND(1.9) *	ug/l	1348	12/28/90	EPA Method 8240	PM
Vinyl Chloride	ND(10) *	ug/l	1348	12/28/90	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND(10) *	ug/l	1348	12/28/90	EPA Method 8240	PM
Xylenes	ND(10) *	ug/l	1348	12/28/90	EPA Method 8240	PM

* Reported detection limits are EPA published detection limits. Actual limits may vary with matrix.

Quality Assurance for the SET with Sample 177414

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
Alkalinity									
177411	Standard	2245	mg/l	2358		105	0800	12/19/90	DG
177411	Duplicate	230	mg/l	230		100	0800	12/19/90	DG
177411	Spike		mg/l		2	98	0800	12/19/90	DG
Boron									
	Standard	1.0	mg/l	1.0		100	0610	12/06/90	SW
Chloride									
177411	Standard	72	mg/l	71		101	1330	01/17/91	DG
177411	Duplicate	8	mg/l	7		113	1330	01/17/91	DG
Specific Conductance									
177411	Standard	1441	Micromhos	1413		102	1620	12/12/90	GS
177411	Duplicate	507	Micromhos	499		102	1620	12/12/90	GS
Sulfate									
177411	Standard	110	mg/l	100		110	1400	12/27/90	DG
177411	Duplicate	30	mg/l	29		103	1400	12/27/90	DG

Total Dissolved Solids



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551

Analytical Chemistry • Utility Operations • Equipment Sales

Quality Assurance for the SET with Sample 177414

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	-.0003	mg/l				1400	12/21/90	HG
	Standard	100	mg/l	100		100	1400	12/21/90	HG
					pH				
	Standard	Calibrate	SU	7.0			1200	12/11/90	CSL
	Standard	Calibrate	SU	4.0			1200	12/11/90	CSL
	Standard	6.0	SU	6.0		100	1200	12/11/90	CSL
					Silver				
	Blank	<.03	mg/l				1930	12/14/90	GK
	Standard	.20	ppm	.20		100	1930	12/14/90	GK
	Standard	1.0	ppm	1.0		100	1930	12/14/90	GK
177412	Duplicate	<.03	mg/l	<.03		100	1930	12/14/90	GK
177935	Spike		mg/l		1.0	99	1930	12/14/90	GK
					Aluminum				
	Blank	<.1	mg/l				0830	12/14/90	GDG
	Standard	1.0	mg/l	1.0		100	0830	12/14/90	GDG
	Standard	5.1	mg/l	5.0		102	0830	12/14/90	GDG
177340	Duplicate	<.1	mg/l	<.1		100	0830	12/14/90	GDG
177412	Duplicate	<.1	mg/l	<.1		100	0830	12/14/90	GDG
177340	Spike		mg/l		2.0	98	0830	12/14/90	GDG
177411	Spike		mg/l		1.5	91	0830	12/14/90	GDG
					Arsenic				
	Blank	<.1	mg/l				1930	12/14/90	GK
	Standard	.99	ppm	1.0		101	1930	12/14/90	GK
	Standard	5.0	ppm	5.0		100	1930	12/14/90	GK
177412	Duplicate	<.1	mg/l	<.1		100	1930	12/14/90	GK
177935	Spike		mg/l		1.0	104	1930	12/14/90	GK
					Barium				
	Blank	<.1	mg/l				1930	12/14/90	GK
	Blank	<.1	mg/l				1930	12/14/90	GK
	Standard	1.1	ppm	1.0		110	1930	12/14/90	GK
	Standard	5.2	ppm	5.0		104	1930	12/14/90	GK
177412	Duplicate	<.1	mg/l	<.1		100	1930	12/14/90	GK
177935	Duplicate	.22	mg/l	.21		105	1930	12/14/90	GK
177935	Spike		mg/l		1.0	104	1930	12/14/90	GK
					Beryllium				
	Blank	<.001	mg/l				2200	12/13/90	GK
	Standard	.41	mg/l	.40		102	2200	12/13/90	GK
	Standard	2.0	mg/l	2.0		100	2200	12/13/90	GK
177412	Duplicate	<.001	mg/l	<.001		100	2200	12/13/90	GK
					Dissolved Calcium				
	Blank	.2	mg/l				1030	12/13/90	NT
	Standard	10	mg/l	10		100	1030	12/13/90	NT
	Standard	50	mg/l	50		100	1030	12/13/90	NT



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551

Analytical Chemistry • Utility Operations • Equipment Sales

Quality Assurance for the SET with Sample 177414

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
177411	Duplicate	72	mg/l	72		100	1030	12/13/90	NT
					Cobolt				
	Blank	<.05	mg/l				2200	12/13/90	GK
	Standard	1.0	mg/l	1.0		100	2200	12/13/90	GK
	Standard	5.0	mg/l	5.0		100	2200	12/13/90	GK
177412	Duplicate	<.05	mg/l	<.05		100	2200	12/13/90	GK
					Chromium				
	Blank	<.01	mg/l				0930	12/10/90	NT
	Blank	<.03	mg/l				0930	12/10/90	NT
	Blank	<.03	mg/l				0930	12/10/90	NT
	Standard	1.0	mg/l	1.0		100	0930	12/10/90	NT
	Standard	5.0	mg/l	5.0		100	0930	12/10/90	NT
	Standard	<.03	mg/l	<.03		100	0930	12/10/90	NT
177816	Duplicate	.12	dg/l	.12		100	0930	12/10/90	NT
177340	Duplicate	<.03	mg/l	<.03		100	0930	12/10/90	NT
177816	Spike		dg/l		.80	98	0930	12/10/90	NT
177340	Spike		mg/l		2.0	102	0930	12/10/90	NT
					Copper				
	Blank	<.01	mg/l				0930	12/10/90	NT
	Blank	<.03	mg/l				0930	12/10/90	NT
	Blank	<.03	mg/l				0930	12/10/90	NT
	Standard	1.0	mg/l	1.0		100	0930	12/10/90	NT
	Standard	5.0	mg/l	5.0		100	0930	12/10/90	NT
177816	Duplicate	.01	mg/l	.02		167	0930	12/10/90	NT
177412	Duplicate	<.03	mg/l	<.03		100	0930	12/10/90	NT
177816	Spike		mg/l		.80	95	0930	12/10/90	NT
					Dissolved Iron				
	Blank	<.1	mg/l				1030	12/13/90	NT
	Standard	1.0	mg/l	1.0		100	1030	12/13/90	NT
	Standard	5.1	mg/l	5.0		102	1030	12/13/90	NT
177411	Duplicate	<.1	mg/l	<.1		100	1030	12/13/90	NT
					Dissolved Potassium				
	Blank	<.04	mg/l				2100	12/11/90	GK
	Standard	.51	mg/l	.50		102	2100	12/11/90	GK
177411	Duplicate	.86	mg/l	.86		100	2100	12/11/90	GK
177412	Spike		mg/l		.50	107	2100	12/11/90	GK
					Dissolved Magnesium				
	Blank	<.1	mg/l				1030	12/13/90	NT
	Standard	10	mg/l	10		100	1030	12/13/90	NT
	Standard	50	mg/l	50		100	1030	12/13/90	NT
177411	Duplicate	27	mg/l	27		100	1030	12/13/90	NT
					Manganese				
	Blank	<.03	mg/l				2100	12/18/90	GK



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551

Analytical Chemistry • Utility Operations • Equipment Sales

Quality Assurance for the SET with Sample 177414

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	<.03	mg/l				2100	12/18/90	GK
	Standard	1.0	mg/l	1.0		100	2100	12/18/90	GK
	Standard	5.1	mg/l	5.0		102	2100	12/18/90	GK
177412	Duplicate	2.0	mg/l	1.9		105	2100	12/18/90	GK
177543	Duplicate	.13	mg/l	.13		100	2100	12/18/90	GK
177935	Duplicate	.26	mg/l	.25		104	2100	12/18/90	GK
177411	Spike		mg/l		1.5	104	2100	12/18/90	GK
177543	Spike		mg/l		1.0	103	2100	12/18/90	GK
177935	Spike		mg/l		1.0	95	2100	12/18/90	GK
Molybdenum									
	Blank	<.05	mg/l				2200	12/13/90	GK
	Standard	9.8	mg/l	10		102	2200	12/13/90	GK
177412	Duplicate	<.05	mg/l	<.05		100	2200	12/13/90	GK
Dissolved Sodium									
	Blank	<1	mg/l				1030	12/13/90	NT
	Standard	10	mg/l	10		100	1030	12/13/90	NT
	Standard	50	mg/l	50		100	1030	12/13/90	NT
177411	Duplicate	6.0	mg/l	5.6		107	1030	12/13/90	NT
Nickel									
	Blank	<.02	mg/l				0930	12/10/90	NT
	Blank	<.05	mg/l				0930	12/10/90	NT
	Blank	<.05	mg/l				0930	12/10/90	NT
	Standard	1.0	mg/l	1.0		100	0930	12/10/90	NT
	Standard	5.1	mg/l	5.0		102	0930	12/10/90	NT
177816	Duplicate	.09	mg/l	.09		100	0930	12/10/90	NT
177412	Duplicate	<.05	mg/l	<.05		100	0930	12/10/90	NT
177816	Spike		mg/l		.80	99	0930	12/10/90	NT
Lead									
	Blank	.001	mg/l				1500	12/07/90	GDG
	Blank	.002	mg/l				1500	12/07/90	GDG
	Standard	.025	mg/l	.025		100	1500	12/07/90	GDG
	Standard	.026	mg/l	.025		104	1500	12/07/90	GDG
177255	Duplicate	.001	mg/l	.001		100	1500	12/07/90	GDG
176209	Duplicate	.004	mg/l	.005		122	1500	12/07/90	GDG
177411	Spike		mg/l		.020	95	1500	12/07/90	GDG
Antimony									
	Blank	<.05	mg/l				2200	12/13/90	GK
	Standard	1.1	mg/l	1.0		110	2200	12/13/90	GK
	Standard	5.1	mg/l	5.0		102	2200	12/13/90	GK
177412	Duplicate	<.05	mg/l	<.05		100	2200	12/13/90	GK
Selenium									
	Blank	<.1	mg/l				1930	12/14/90	GK
	Standard	1.0	ppm	1.0		100	1930	12/14/90	GK



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551

Analytical Chemistry • Utility Operations • Equipment Sales

Quality Assurance for the SET with Sample 177414

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	<5	ppb				0800	01/03/91	KB
	Standard	113	ppb	100		112	0800	01/03/91	KB
177418	Duplicate	<.2	ppb	<.2		100	0800	01/03/91	KB
177418	Spike		ppb		50	94	0800	01/03/91	KB

Bill Peery

C. H. Whiteside, Ph.D., President

WATER CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION

700 CAMINO DE SALUD, ALBUQUERQUE, NM 87106

Water Chemistry Section - Telephone: (505) 841-2555

Request ID No. 007167-B

SLD No.

Date Received:

2 User Code #: 7 0 1 3 1 2 1 0		3 Request ID No.:		Place Form ID Sticker Here		4 Priority Code #:		(If "1" or "2", call EID-SLD Coordinator)	
5 Facility Name: Smart Ranch				6 County: Eddy		7 City:		8 State: NM	
9 Sample Location: IRRIGATION WELL									
10 Collected By: Johnny Robinson		On: 9/10/05		At: 11/25		hrs.		Date: (YY/MM/DD) Time: 24 hr. clock 3:00 pm = 1500 hrs.	
11 Codes:				12 Latitude (DDMMSS)					
Submitter WSS # Organization				Longitude (DDMMSS) 2 Digit ID (if needed)					
13 Report To: David G. Boyer				14 Phone #: (505) 827-5812					
Address: New Mexico Oil Conservation Division				15 Sampling Information:					
P. O. 2088				Sample Purpose: ☒ Grab ☐ Composite (Composite Time Period)					
City, State Zip: Santa Fe, New Mexico 87504-2088				☐ Compliance ☐ Flow Proportioned ☐ Equal Aliquot ☒ Check ☐ Monitor ☐ Sample Split w/Permittee ☐ Special ☐ Chain of Custody					
16 Field Data: pH: , Conductivity: umhos @ °C, Temperature: °C, Chlorine Residual: mg/l, Flow:									
17 Sample Source: ☐ Stream ☒ Well; Depth: ☐ Lake ☐ Spring ☐ Drain ☐ Distribution ☐ Pool ☐ Point-of-Entry ☐ WWTP ☐ Other:					18 Field Notes/ Sample #:				
19 Sample Type: ☒ Water, ☐ Soil, ☐ Food, ☐ Wastewater, ☐ Other					20 Preservation: ☐ WNF Water Not Preserved; Filtered ☒ WNN Water Not Preserved; Not Filtered ☐ WPF Water Preserved with Sulfuric Acid (H2SO4); Filtered ☐ WPN Water Preserved with Sulfuric Acid; Not Filtered ☐ WNL Water Not Preserved in Field; Please Add H2SO4 at Lab ☐ ICE Water Iced ☐ Other				
21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analyses required.									
Group Analyses:					☐ (859) SWQB SS Anion - Cation Group + ☐ (868) SWQB NPS Anion, Cation, Physical + TSS ☐ (861) SDWA Group III (Fluoride) ☐ (869) SWQB Nutrient Analysis Group + ☐ (860) SDWA Complete Secondary ☒ (867) Major Anions & Cations				
Cations:			Physical Parameters:			Surface and Waste Water:			
☐ Calcium (as Ca) ☐ Magnesium (as Mg) ☐ Potassium (as K) ☐ Sodium (as Na) ☐ Total Hardness (as CaCO3)			☐ Color ☒ Conductance (Micromhos @ 25 C) ☐ Odor ☒ pH ☐ Surfactants ☒ Total Dissolved Solids ☐ Turbidity			☐ Biological Oxygen Demand ☐ Total Suspended Solids ☐ Chemical Oxygen Demand ☐ Total Organic Carbon ☐ Cyanide			
Anions:			Other:			Nutrients:			
☐ Alkalinity (as CaCO3) ☐ Bicarbonate (as HCO3) ☐ Carbonate (as CO3) ☐ Chloride (as Cl) ☐ Fluoride (as F) ☐ Sulfate (as SO4)			☐ ☐ ☐ ☐ ☐			☐ Nitrate + Nitrite (as N) ☐ Ammonia (as N) ☐ Total Kjeldahl (as N) ☐ Nitrite (as N) ☐ Orthophosphate (as P) ☐ Total Phosphorus (as P)			
☒ Ion Charge Balance									
Remarks:									

DEFINITIONS:

The term **SDWA Group II** shall mean that the following parameter will be determined: Nitrate only (as N). Minimum sample quantity, one liter (1 quart). Preserve with sulfuric acid (H_2SO_4).

The term **SDWA Group III** shall mean that the following parameter will be determined: Fluoride only. Minimum sample quantity, one liter (1 quart). No preservatives.

The term **SDWA Complete Secondary** shall mean that the following parameters will be determined: Calcium, Iron, Manganese, Magnesium, Potassium, Sodium, Total Hardness, Alkalinity, Bicarbonate, Carbonate, Chloride, Sulfate, Color, Conductance, Odor, pH, Surfactants, Total Dissolved Solids (Total Filterable Residue), and Turbidity. Minimum sample quantity, four liters (1 gallon). No preservatives.

The term **SWQB SS Anion - Cation Group +** shall mean that the following parameters will be determined: Calcium, Magnesium, Potassium, Sodium, Total Hardness, Total Alkalinity, Bicarbonate, Chloride, Sulfate, Total Organic Carbon, Total Dissolved Solids (Total Filterable Residue), Total Suspended Solids (Total Non-filterable Residue) plus any other parameters which may be marked. Minimum sample quantity, one liter (1 quart). No preservatives.

The term **SWQB NPS Anion, Cation, Physical & TSS** shall mean that the following parameters will be determined: Calcium, Magnesium, Potassium, Sodium, Total Hardness, Total Alkalinity, Bicarbonate, Carbonate, Chloride, Fluoride, Sulfate, Color, Conductance, pH, Total Dissolved Solids (Total Filterable Residue), and Total Suspended Solids (Total Non-filterable Residue). Minimum sample quantity, one liter (1 quart). No preservatives.

The term **Major Anion & Cations** shall mean that the following parameters will be determined: Calcium, Magnesium, Potassium, Sodium, Bicarbonate, Carbonate, Chloride, Nitrate, and Sulfate. Minimum sample quantity, one liter (1 quart). No preservatives.

The term **SWQB Nutrient Analysis Group +** shall mean that the following parameters will be determined: Ammonia, Nitrate + Nitrite, Total Kjeldahl Nitrogen, and Total Phosphorus. Minimum sample quantity, one liter (1 quart). Preserve with sulfuric acid (H_2SO_4).

//////////////////// Use Only When Necessary //////////////////////////////////////
CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____
at (location) _____ on _____ Date at _____ Time

Evidentiary Seals: ☐ -Not Sealed Seals Intact: ☐ -Yes ☐ -No

Signatures _____

and from (if applicable) _____ to _____

at (location) _____ on _____ Date at _____ Time

Evidentiary Seals: ☐ -Not Sealed Seals Intact: ☐ -Yes ☐ -No

Signatures _____

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700700 Camino de Salud, NE
[505]-841-2500

WATER CHEMISTRY SECTION [505]-841-2555

February 22, 1991

Request
ID No. 007167**ANALYTICAL REPORT**
SLD Accession No. WC-91-0223Distribution

() User 70320

(■) Submitter 905

(※) SLD Files

To: David G. Boyer
New Mexico Oil Conservation Division
P.O. 2088
Santa Fe, New Mexico 87504-2088

From: Water Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: A water, Nonpres/No sample submitted to this laboratory on February 15, 1991

DEMOGRAPHIC DATA

COLLECTION		LOCATION
On: 5-Feb-91	By: Rob ...	Irrigation Well
At: 11:25 hrs.	In/Near:	

ANALYTICAL RESULTS

Analysis	Value	D. Lmt.	Units
calcium	80.00		mG/L
magnesium	41.00		mG/L
potassium	5.00		mG/L
sodium	17.00		mG/L
hardness	370.00		mG/L
bicarbonate	311.00		mG/L
carbonate	0.00		mG/L
chloride	57.80		mG/L
sulfate	49.60		mG/L
Ion Balance	105.00		%
conductance	774.00		uS/cm
pH	7.53		pH units
total diss resid	520.00		mG/L

Reviewed By: 

John A. Finney 02/21/91

Supervisor, Water Chemistry Section

ION BALANCE WORKSHEET

CATIONS				ANIONS			
	Meq	PPM	Det Limit	Analyte	Meq	PPM	Det Limit
Ca	3.9920	80	<5.0	HCO3	5.0967	311	<0.1
Mg	3.3676	41	<0.3	SO4	1.0333	49.6	<5.0
Na	0.7395	17	<5.0	Cl	1.6305	57.8	<5.0
K	0.1279	5	<5.0				
Mn	0.0000	0		NO3	0.0535	0.75	
Fe	0.0000	0		CO3	0.0000	0	
				NH3	0.0000	0	
				PO4	0.0000	0	
SUMS +	8.2269	143		SUMS +	7.8140	419.15	
Total Dissolved Solids =				Sticker# 7167			
Ion Balance =				WC# 9100223			
				Date out by			

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION

700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106

Organic Chemistry Section - Telephone: (505) 841-2570

Request ID No. 007169-C

SLD No.

Date Received:

2 User Code #: 7103210		3 Request ID No.:		Place Form ID Sticker Here		4 Priority Code #:		(If "1" or "2", call EID-SLD Coordinator)	
5 Facility Name: Smart Ranch				6 County: Eddy		7 City: —		8 State: NM	
9 Sample Location: PUMP HOUSE (DOMESTIC WELL)									
10 Collected By: Johnny ROBINSON On: 9/10/2005 At: 11055 hrs. First Last Date: (YY/MM/DD) Time: 24 hr. clock 3:00 pm = 1500 hrs.									
11 Codes: Submitter WSS # Organization						12 Latitude (DDMMSS) Longitude (DDMMSS) 2 Digit ID (if needed)			
13 Report To: David G. Boyer Address: New Mexico Oil Conservation Division P. O. Box 2088 Santa Fe, New Mexico 87504-2088						14 Phone #: (505) 827-5812			
15 Sampling Information: Sample Purpose: ☒ Compliance ☐ Check ☐ Monitoring ☐ Special ☒ Grab ☐ Composite (Composite Time Period) ☐ Flow Proportioned ☐ Equal Aliquot ☐ Sample Split w/Permittee ☐ Chain of Custody									
16 Field Data: pH: — Conductivity: — umhos @ — °C Temperature: — °C Chlorine Residual: — mg/l Flow: —									
17 Sample Source: ☐ Stream ☒ Well; Depth: ☐ Lake ☐ Spring ☐ Drain ☐ Distribution ☐ Pool ☐ Point-of-Entry ☐ WWTP ☐ Other:						18 Field Notes/Sample #:			
19 Sample Type: ☒ Water, ☐ Soil, ☐ Food, ☐ Wastewater, ☐ Other This form accompanies a <u>single sample</u> consisting of: <u>2</u> - septum vial(s) (volume = <u>40ml</u>) <u>—</u> - glass jugs (volume = <u>—</u>) <u>—</u> - (volume = <u>—</u>)						20 Preservation: ☐ NP No Preservation; Sample stored at room temperature ☒ P-ice Sample stored in an ice bath (Not Frozen) ☐ P-TS Sample Preserved with Sodium Thiosulfate to remove chlorine residual ☒ P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml) ☒ Other <u>P-HCL</u>			
21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required.									
Volatile Screens: ☒ (753) Aliphatic Headspace (1-5 Carbons) ☐ (754) Aromatic & Halogenated Purgeables (EPA 601 & 602) ☐ (765) Mass Spectrometer Purgeables (EPA 624) ☐ (766) SDWA Total Trihalomethanes (EPA 501.1) ☐ (774) SDWA VOC's I [8 Regulated +] (EPA 502.2) ☐ (775) SDWA VOC's II [EDB & DBCP] (EPA 504) <u>Other Specific Compounds or Classes:</u> ☐ - () ☐ - () ☐ - ()					Semivolatile Screens: ☐ (763) Acid Extractables ☐ (751) Aliphatic Hydrocarbons ☐ (755) Base/Neutral Extractables (EPA 625) ☐ (756) Base/Neutral/Acid Extractables (EPA 8270) ☐ (758) Herbicides, Chlorophenoxy Acid ☐ (759) Herbicides, Triazines ☐ (760) Organochlorine Pesticides ☐ (761) Organophosphate Pesticides ☐ (767) Polychlorinated Biphenyls (PCB's) ☐ (764) Polynuclear Aromatic Hydrocarbons ☐ (762) SDWA Pesticides & Herbicides				
Remarks:									

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700700 Camino de Salud, NE
[505]-841-2500

ORGANIC CHEMISTRY SECTION [505]-841-2570

March 1, 1991

Request
ID No. 007169**ANALYTICAL REPORT**
SLD Accession No. OR-91-0468Distribution☐ User 70320
☒ Submitter 260
☒ SLD Files

To: David Boyer
NM Oil Consv. Div.
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504-2088

From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: A water sample submitted to this laboratory on February 15, 1991

DEMOGRAPHIC DATA

<u>COLLECTION</u>		<u>LOCATION</u>
On: 5-Feb-91	By: Rob . . .	Pump House (Domestic Well)
At: 10:55 hrs.	In/Near: Eddy County	

ANALYTICAL RESULTS: Aliphatic Headspace (1-5 Carbons) Screen {753}

<u>Parameter</u>	<u>Value</u>	<u>Note</u>	<u>MDL</u>	<u>Units</u>
Aliphatic HC (< 5 Carbons)	0.00	N	3000.00	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:

MDL = Minimal Detectable Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;
T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.Evidentiary Seals: Not Sealed ☒; Intact: No ☐, Yes ☐ & Broken By: _____ Date: _____Laboratory Remarks:

The peak detected by FID in the sample headspace corresponds in magnitude to that of the laboratory area space which is approximately 3000 ppb.

Analyst: _____

Michael J. Owen
Analyst, Organic Chemistry

Reviewed By: _____

Richard F. Meyerhein 03/01/91
Supervisor, Organic Chemistry Section

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION

700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106

Organic Chemistry Section - Telephone: (505) 841-2570

Request ID No. 007168-C

SLD No.

Date Received:

2 User Code #: 7103210		3 Request ID No.:		4 Priority Code #:		8 State: NM	
5 Facility Name: Smart Ranch				6 County: Eddy		7 City:	
9 Sample Location: PUMP HOUSE (DOMESTIC WELL)							
10 Collected By: Johnny ROBINSON On: 9/10/05 At: 1105 hrs. Date: (YY/MM/DD) Time: 24 hr. clock 3:00 pm = 1500 hrs.							
11 Codes: Submitter WSS # Organization				12 Latitude (DDMMSS) Longitude (DDMMSS) 2 Digit ID (if needed)			
13 Report To: David G. Boyer Address: New Mexico Oil Conservation Division P. O. Box 2088 City, State Zip: Santa Fe, New Mexico 87504-2088				14 Phone #: (505) 827-5812			
15 Sample Purpose: ☒ Compliance ☒ Check ☒ Monitoring ☒ Special ☐ Grab ☐ Composite ☐ Flow Proportioned ☐ Equal Aliquot ☐ Sample Split w/Permittee ☐ Chain of Custody				Sampling Information: (Composite Time Period)			
16 Field Data: pH: , Conductivity: umhos @ °C, Temperature: °C, Chlorine Residual: mg/l, Flow:							
17 Sample Source: ☐ Stream ☒ Well; Depth: ☐ Lake ☐ Spring ☐ Drain ☐ Distribution ☐ Pool ☐ Point-of-Entry ☐ WWTP ☐ Other:				18 Field Notes/ Sample #:			
19 Sample Type: ☒ Water, ☐ Soil, ☐ Food, ☐ Wastewater, ☐ Other. This form accompanies a single sample consisting of: 2 septum vial(s) (volume = 40 ml) glass jugs (volume =) (volume =)				20 Preservation: ☐ NP No Preservation; Sample stored at room temperature ☐ P-ice Sample stored in an ice bath (Not Frozen) ☐ P-TS Sample Preserved with Sodium Thiosulfate to remove chlorine residual ☐ P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml) ☒ Other P Hg Cl			
21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required.							
Volatile Screens: ☐ (753) Aliphatic Headspace (1-5 Carbons) ☒ (754) Aromatic & Halogenated Purgeables (EPA 601 & 602) ☐ (765) Mass Spectrometer Purgeables (EPA 624) ☐ (766) SDWA Total Trihalomethanes (EPA 501.1) ☐ (774) SDWA VOC's I [8 Regulated +] (EPA 502.2) ☐ (775) SDWA VOC's II [EDB & DBCP] (EPA 504) Other Specific Compounds or Classes: ☐ - { } ☐ - { } ☐ - { }				Semivolatile Screens: ☐ (763) Acid Extractables ☐ (751) Aliphatic Hydrocarbons ☐ (755) Base/Neutral Extractables (EPA 625) ☐ (756) Base/Neutral/Acid Extractables (EPA 8270) ☐ (758) Herbicides, Chlorophenoxy Acid ☐ (759) Herbicides, Triazines ☐ (760) Organochlorine Pesticides ☐ (761) Organophosphate Pesticides ☐ (767) Polychlorinated Biphenyls (PCB's) ☐ (764) Polynuclear Aromatic Hydrocarbons ☐ (762) SDWA Pesticides & Herbicides			
Remarks:							

DEFINITIONS:

The term **SDWA Pesticides & Herbicides** shall mean that the following parameters will be determined: Endrin, Lindane, Methoxychlor, Toxaphene, 2, 4-D, and 2, 4, 5-TP (Silvex). Special container(s) required. Sample should be refrigerated.

The term **SDWA VOC's I** shall mean that the following parameters shall be determined: Aromatic and Halogenated purgeables to determine the presence of Benzene, Carbon tetrachloride, 1,1-Dichloroethylene, 1,2-Dichloroethane, para-Dichlorobenzene, Trichloroethylene, and Vinyl chloride plus 49 unregulated contaminants. Special container(s) required. Sample should be refrigerated.

The term **SDWA VOC's II** shall mean that the following parameters shall be determined: Ethylene dibromide (EDB) and 1,2-Dibromo-3-chloropropane (DBCP). Special container(s) required. Sample should be refrigerated.

The term **SDWA Total Trihalomethanes** that the following parameters shall be determined: Total Trihalomethanes. Special container(s) required. Sample should be refrigerated.

SAMPLE CONTAINERS:

All Volatile Screens require two 40 ml VOC Septum Vials.

All Semivolatile Screens (except 762) require two 1-liter bottles filled approximately 4/5ths full.

SDWA Pesticides & Herbicides Screen (762) requires three 1-liter bottles filled approximately 4/5ths full.

Refrigerated means keep cool (0-4 °C), but do not freeze.

Please contact the Organic Section with questions on sampling or interpretation of data/results.

//////////////////////////////////// Use Only When Necessary //////////////////////////////////////
CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on _____ Date at _____ Time

Evidentiary Seals: ☐ -Not Sealed

Seals Intact: ☐ -Yes ☐ -No

Signatures _____

and from (if applicable) _____ to _____

at (location) _____ on _____ Date at _____ Time

Evidentiary Seals: ☐ -Not Sealed

Seals Intact: ☐ -Yes ☐ -No

Signatures _____

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700700 Camino de Salud, NE
[505]-841-2500

ORGANIC CHEMISTRY SECTION [505]-841-2570

March 5, 1991

Request
ID No. 007168**ANALYTICAL REPORT**
SLD Accession No. OR-91-0469Distribution☐ User 70320
☒ Submitter 995
☒ SLD FilesTo: David G. Boyer
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87504-2088From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: A water, purgeable sample submitted to this laboratory on February 15, 1991

DEMOGRAPHIC DATA

COLLECTION		LOCATION
On: 5-Feb-91	By: Rob ...	Pump House (Domestic Well)
At: 10:55 hrs.	In/Near: Eddy County	

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable [EPA-601/2] Screen {754}

Parameter	Value	Note	MDL	Units
EPA 601/2 Volatiles (60)	0.00	N	1.00	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:

MDL = Minimal Detectable Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;
T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.Evidentiary Seals: Not Sealed ☒; Intact: No ☐, Yes ☐ & Broken By: _____ Date: _____Laboratory Remarks:

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: NM SCIENTIFIC LABORATORY DIVISION	Contract: N/A
Lab Code: N/A Case No.: N/A	SAS No.: N/A SDG No.: N/A
Matrix: (soil/water) Water	Lab Sample ID: OR-91-0469
Sample wt/vol: 5.0 (g/mL) mL	Lab File ID: _____
Level: (low/med) Low	Date Received: 2/15/91
% Moisture: not dec. N/A dec. N/A	Date Extracted: N/A
Extraction: (SepF/Cont/Sonc) N/A	Date Analyzed: 2/20/91
GPC Cleanup: (Y/N) No pH: _____	Dilution Factor: 1
	CONCENTRATION UNITS:
	(ug/L or ug/Kg): _____ ug/L

This sample was analyzed for the following compounds
using EPA Methods 601 & 602

CAS NO.	COMPOUND	CONC.	QUALIFIER
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(Continued on page 2.)

ANALYTICAL REPORT
 SLD Accession No. OR-91-0469
 Continuation, Page 2 of 3

67-64-1	Acetone	5.0	U
71-43-2	Benzene	1.0	U
108-86-1	Bromobenzene	1.0	U
74-97-5	Bromochloromethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
78-93-3	2-Butanone (MEK)	5.0	U
104-51-8	n-Butylbenzene	1.0	U
135-98-8	sec-Butylbenzene	1.0	U
98-06-6	tert-Butylbenzene	1.0	U
1634-04-4	tert-Butyl methyl ether (MTBE)	5.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
67-66-3	Chloroform	1.0	U
95-49-8	2-Chlorotoluene	1.0	U
106-43-4	4-Chlorotoluene	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
74-95-3	Dibromomethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-4	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
590-20-7	2,2-Dichloropropane	1.0	U
563-58-6	1,1-Dichloropropene	1.0	U
1006-01-5	cis-1,3-Dichloropropene	1.0	U
1006-02-6	trans-1,3-Dichloropropene	1.0	U
100-41-4	Ethylbenzene	1.0	U
87-68-3	Hexachlorobutadiene	1.0	U
98-82-8	Isopropylbenzene	1.0	U
99-87-6	4-Isopropyltoluene	1.0	U
75-09-2	Methylene chloride	5.0	U
91-20-3	Naphthalene	1.0	U
103-65-1	Propylbenzene	1.0	U

(Continued on page 3.)

ANALYTICAL REPORT
 SLD Accession No. OR-91-0469
 Continuation, Page 3 of 3

100-42-5	Styrene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
109-99-9	Tetrahydrofuran (THF)	5.0	U
108-88-3	Toluene	1.0	U
87-61-5	1,2,3-Trichlorobenzene	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
96-18-4	1,2,3-Trichloropropane	1.0	U
95-63-6	1,2,4-Trimethylbenzene	1.0	U
108-67-8	1,3,5-Trimethylbenzene	1.0	U
75-01-4	Vinyl chloride	1.0	U
95-47-6	o-Xylene	1.0	U
N/A	p- & m-Xylene	1.0	U

Qualifier Definitions:

- B - Indicates compound was detected in the Lab Blank as well as in the sample.
- D - Indicates value taken from a secondary (diluted) sample analysis.
- E - Indicates compound concentration exceeded the range of the standard curve.
- J - Indicates an estimated value for tentatively identified compounds, or for compounds detected and identified but present at a concentration less than the quantitation limit.
- N - Indicates that more than one peak was used for quantitation.
- U - Indicates compound was analyzed for, but not detected above the concentration listed (Quantitation Limit).

QUALITY CONTROL SUMMARY FOR VOLATILES SCREEN

METHOD BLANK: A laboratory method blank was analyzed along with this sample to assure the absence of interfering contaminants from lab reagents, instruments, or the general laboratory environment. Unless listed below, no contaminants were detected in this blank above the reported detection limit.

COMPOUND DETECTED	CONCENTRATION (PPB)
No Compounds Detected	

(Continued on page 4.)

SURROGATE RECOVERIES:

SURROGATE	CONCENTRATION	% RECOVERY
Fluorobenzene	25.0 ppb	96.
2-Bromo-1-chloropropane	15.0 ppb	120.

SPIKE RECOVERY: The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:

COMPOUND	CONCENTRATION	% RECOVERY
No exceptions	. ppb	.

Analyst:

Gary C. Eden
Gary C. Eden
Analyst, Organic Chemistry

Reviewed By:

Richard F. Meyerhein 02/28/91
Supervisor, Organic Chemistry Section

WATER CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION
700 CAMINO DE SALUD, ALBUQUERQUE, NM 87106
Water Chemistry Section - Telephone: (505) 841-2555

Request 1111
ID No. 007106-B

SLD No. 1

Date
Received:

2 User Code #: <u>710131210</u>		3 Request ID No.: _____		4 Priority Code #: _____	
5 Facility Name: <u>Smart Ranch</u>		6 County: <u>Edgy</u>		7 City: _____	
8 State: <u>NM</u>					
9 Sample Location: <u>PHMP HOUSE (DOMESTIC WELL)</u>					
10 Collected By: <u>Johnny Robinson</u> On: <u>9/10/05</u> At: <u>110515</u> hrs.					
11 Codes: _____					
12 Latitude (DDMMSS): _____		2 Digit ID (if needed): _____			
13 Report To: <u>David G. Boyer</u>		14 Phone #: <u>(505) 827-5812</u>			
Address: <u>New Mexico Oil Conservation Division</u>		15 Sampling Information:			
P. O. <u>2088</u>		☒ - Grab ☐ - Composite (Composite Time Period)			
City, State Zip: <u>Santa Fe, New Mexico 87504-2088</u>		☐ - Compliance ☐ - Flow Proportioned			
		☒ - Check ☐ - Equal Aliquot			
		☐ - Monitoring ☐ - Sample Split w/Permittee			
		☐ - Special ☐ - Chain of Custody			
16 Field Data: pH: _____, Conductivity: _____ umhos @ _____ °C, Temperature: _____ °C, Chlorine Residual: _____ mg/l, Flow: _____					
17 Sample Source: ☐ - Stream ☒ - Well; Depth: _____					
☐ - Lake ☐ - Spring					
☐ - Drain ☐ - Distribution					
☐ - Pool ☐ - Point-of-Entry					
☐ - WWTP ☐ - Other: _____					
18 Field Notes/ Sample #: _____					
19 Sample Type: ☒ - Water, ☐ - Soil, ☐ - Food, ☐ - Wastewater, ☐ - Other _____					
20 Preservation: ☐ - WNF Water Not Preserved; Filtered					
☒ - WNN Water Not Preserved; Not Filtered					
☐ - WPF Water Preserved with Sulfuric Acid (H2SO4); Filtered					
☐ - WPN Water Preserved with Sulfuric Acid; Not Filtered					
☐ - WNL Water Not Preserved in Field; Please Add H2SO4 at Lab					
☐ - ICE Water Iced					
☐ - Other _____					
21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analyses required.					
Group Analyses:					
☐ - (854) SDWA Group II (Nitrate as N)					
☐ - (861) SDWA Group III (Fluoride)					
☐ - (860) SDWA Complete Secondary					
☐ - (859) SWQB SS Anion - Cation Group +					
☐ - (868) SWQB NPS Anion, Cation, Physical + TSS					
☐ - (869) SWQB Nutrient Analysis Group +					
☒ - (867) Major Anions & Cations					
Cations:					
☐ - Calcium (as Ca) _____					
☐ - Magnesium (as Mg) _____					
☐ - Potassium (as K) _____					
☐ - Sodium (as Na) _____					
☐ - Total Hardness (as CaCO3) _____					
Anions:					
☐ - Alkalinity (as CaCO3) _____					
☐ - Bicarbonate (as HCO3) _____					
☐ - Carbonate (as CO3) _____					
☐ - Chloride (as Cl) _____					
☐ - Fluoride (as F) _____					
☐ - Sulfate (as SO4) _____					
☒ - Ion Charge Balance _____					
Physical Parameters:					
☐ - Color _____					
☒ - Conductance (Micromhos @ 25 °C) _____					
☐ - Odor _____					
☒ - pH _____					
☐ - Surfactants _____					
☒ - Total Dissolved Solids _____					
☐ - Turbidity _____					
Other: _____					
Surface and Waste Water:					
☐ - Biological Oxygen Demand _____					
☐ - Total Suspended Solids _____					
☐ - Chemical Oxygen Demand _____					
☐ - Total Organic Carbon _____					
☐ - Cyanide _____					
Nutrients:					
☐ - Nitrate + Nitrite (as N) _____					
☐ - Ammonia (as N) _____					
☐ - Total Kjeldahl (as N) _____					
☐ - Nitrite (as N) _____					
☐ - Orthophosphate (as P) _____					
☐ - Total Phosphorus (as P) _____					
Remarks: _____					

DEFINITIONS:

The term **SDWA Group II** shall mean that the following parameter will be determined: Nitrate only (as N). Minimum sample quantity, one liter (1 quart). Preserve with sulfuric acid (H_2SO_4).

The term **SDWA Group III** shall mean that the following parameter will be determined: Fluoride only. Minimum sample quantity, one liter (1 quart). No preservatives.

The term **SDWA Complete Secondary** shall mean that the following parameters will be determined: Calcium, Iron, Manganese, Magnesium, Potassium, Sodium, Total Hardness, Alkalinity, Bicarbonate, Carbonate, Chloride, Sulfate, Color, Conductance, Odor, pH, Surfactants, Total Dissolved Solids (Total Filterable Residue), and Turbidity. Minimum sample quantity, four liters (1 gallon). No preservatives.

The term **SWQB SS Anion - Cation Group** + shall mean that the following parameters will be determined: Calcium, Magnesium, Potassium, Sodium, Total Hardness, Total Alkalinity, Bicarbonate, Chloride, Sulfate, Total Organic Carbon, Total Dissolved Solids (Total Filterable Residue), Total Suspended Solids (Total Non-filterable Residue) plus any other parameters which may be marked. Minimum sample quantity, one liter (1 quart). No preservatives.

The term **SWQB NPS Anion, Cation, Physical & TSS** shall mean that the following parameters will be determined: Calcium, Magnesium, Potassium, Sodium, Total Hardness, Total Alkalinity, Bicarbonate, Carbonate, Chloride, Fluoride, Sulfate, Color, Conductance, pH, Total Dissolved Solids (Total Filterable Residue), and Total Suspended Solids (Total Non-filterable Residue). Minimum sample quantity, one liter (1 quart). No preservatives.

The term **Major Anion & Cations** shall mean that the following parameters will be determined: Calcium, Magnesium, Potassium, Sodium, Bicarbonate, Carbonate, Chloride, Nitrate, and Sulfate. Minimum sample quantity, one liter (1 quart). No preservatives.

The term **SWQB Nutrient Analysis Group** + shall mean that the following parameters will be determined: Ammonia, Nitrate + Nitrite, Total Kjeldahl Nitrogen, and Total Phosphorus. Minimum sample quantity, one liter (1 quart). Preserve with sulfuric acid (H_2SO_4).

//////////////////// Use Only When Necessary //////////////////////////////////////
CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on _____ Date at _____ Time

Evidentiary Seals: ☐ -Not Sealed

Seals Intact: ☐ -Yes ☐ -No

Signatures _____

and from (if applicable) _____ to _____

at (location) _____ on _____ Date at _____ Time

Evidentiary Seals: ☐ -Not Sealed

Seals Intact: ☐ -Yes ☐ -No

Signatures _____

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700700 Camino de Salud, NE
[505]-841-2500

WATER CHEMISTRY SECTION [505]-841-2555

February 22, 1991

Request
ID No. 007166**ANALYTICAL REPORT**
SLD Accession No. WC-91-0224Distribution☐ User 70320
☒ Submitter 905
☒ SLD Files

To: David G. Boyer
New Mexico Oil Conservation Division
P.O. 2088
Santa Fe, New Mexico 87504-2088

From: Water Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

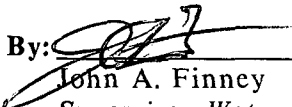
Re: A water, Nonpres/No sample submitted to this laboratory on February 15, 1991

DEMOGRAPHIC DATA

<u>COLLECTION</u>		<u>LOCATION</u>
On: 5-Feb-91	By: Rob ...	Pump House Domestic Well
At: 10:55 hrs.	In/Near:	

ANALYTICAL RESULTS

<u>Analysis</u>	<u>Value</u>	<u>D. Lmt.</u>	<u>Units</u>
calcium	120.00		mG/L
magnesium	68.00		mG/L
potassium	4.00		mG/L
sodium	69.00		mG/L
hardness	580.00		mG/L
bicarbonate	258.00		mG/L
carbonate	0.00		mG/L
chloride	134.00		mG/L
sulfate	315.00		mG/L
Ion Balance	101.00		%
conductance	1382.00		uS/cm
pH	7.35		pH units
total diss resid	1015.00		mG/L

Reviewed By: John A. Finney 02/21/91
Supervisor, Water Chemistry Section

ION BALANCE WORKSHEET

CATIONS

ANIONS

	Meq	PPM	Det Limit	Analyte	Meq	PPM	Det Limit
Ca	5.9880	120	<5.0	HCO3	4.2281	258	<0.1
Mg	5.5852	68	<0.3	SO4	6.5625	315	<5.0
Na	3.0013	69	<5.0	Cl	3.7800	134	<5.0
K	0.1023	4	<5.0				
Mn	0.0000	0		NO3	0.0000	0	
Fe	0.0000	0		CO3	0.0000	0	
				NH3	0.0000	0	
				PO4	0.0000	0	
SUMS +	14.6768	261		SUMS +	14.5706	707	

Total Dissolved Solids = 1015

Ion Balance = 100.7292

Sticker# 7166

WC# 9100224

Date out by _____

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION
700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106
Organic Chemistry Section - Telephone: (505) 841-2570

SLD No. 1Date
Received:

2 User Code #: <u>7 0 3 2 0</u>		3 Request ID No.: <u>022221-B</u>		4 Priority Code #: <u> </u>		(If "1" or "2", call EIO-STD Coordinator)	
5 Facility Name: <u>Washington Ranch-EPNG</u>		6 County: <u>Eddy</u>		7 City: <u>Carlsbad</u>		8 State: <u>NM</u>	
9 Sample Location: <u>WRGS NO. 9</u>							
10 Collected By: <u>Kathy Brown</u> First Last		On: <u>91/08/27</u> Date: (YY/MM/DD)		At: <u>11100</u> hrs. Time: 24 hr. clock 3:00 pm = 1500 hrs.			
11 Codes: Submitter: <u> </u> WSS #: <u> </u> Organization: <u> </u>				12 Latitude (DDMMSS): <u> </u> Longitude (DDMMSS): <u> </u> 2 Digit ID (if needed): <u> </u>			
13 Report To: <u>David G. Boyer</u> Name: <u>David G. Boyer</u> Address: <u>New Mexico Oil Conservation Division</u> <u>P. O. Box 2088</u> City, State Zip: <u>Santa Fe, New Mexico 87504-2088</u>				14 Phone #: <u>(505) 827-5812</u>			
				15 Sampling Information: Sample Purpose: ☒ Grab ☐ Composite (Composite Time Period) ☐ Compliance ☐ Check ☐ Flow Proportioned ☐ Equal Aliquot ☒ Monitoring ☒ Sample Split w/Permittee ☐ Special ☐ Chain of Custody			
16 Field Data: pH: <u> </u> , Conductivity: <u> </u> umhos @ <u> </u> °C, Temperature: <u> </u> °C, Chlorine Residual: <u> </u> mg/l, Flow: <u> </u>							
17 Sample Source: ☐ Stream ☒ Well; Depth: <u>bradenhead</u> ☐ Lake ☐ Spring ☐ Drain ☐ Distribution ☐ Pool ☐ Point-of-Entry ☐ WWTP ☐ Other: <u> </u>				18 Field Notes/ Sample #: <u> </u>			
19 Sample Type: ☒ Water, ☐ Soil, ☐ Food, ☐ Wastewater, ☒ Other <u>bradenhead sample</u> This form accompanies a <u>single sample</u> consisting of: <u>1</u> - septum vial(s) (volume = <u>40ml</u>) <u> </u> - glass jugs (volume = <u> </u>) <u> </u> - <u> </u> (volume = <u> </u>)				20 Preservation: ☐ NP No Preservation; Sample stored at room temperature ☒ P-ice Sample stored in an ice bath (Not Frozen) ☐ P-TS Sample Preserved with Sodium Thiosulfate to remove chlorine residual ☐ P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml) ☒ Other <u>HgCl</u>			

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required.

Volatile Screens:Semivolatile Screens:

- ☐ - (753) Aliphatic Headspace (1-5 Carbons)
☒ - (754) Aromatic & Halogenated Purgeables (EPA 601 & 602)
☐ - (765) Mass Spectrometer Purgeables (EPA 624)
☐ - (766) SDWA Total Trihalomethanes (EPA 501.1)
☐ - (774) SDWA VOC's I [8 Regulated +] (EPA 502.2)
☐ - (775) SDWA VOC's II [EDB & DBCP] (EPA 504)

Other Specific Compounds or Classes:

- ☐ - (763) Acid Extractables
☐ - (751) Aliphatic Hydrocarbons
☐ - (755) Base/Neutral Extractables (EPA 625)
☐ - (756) Base/Neutral/Acid Extractables (EPA 8270)
☐ - (758) Herbicides, Chlorophenoxy Acid
☐ - (759) Herbicides, Triazines
☐ - (760) Organochlorine Pesticides
☐ - (761) Organophosphate Pesticides
☐ - (767) Polychlorinated Biphenyls (PCB's)
☐ - (764) Polynuclear Aromatic Hydrocarbons
☐ - (762) SDWA Pesticides & Herbicides

Remarks:

WATER CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION

700 CAMINO DE SALUD, ALBUQUERQUE, NM 87106

Water Chemistry Section - Telephone: (505) 841-2555

SLD No. 1

Date

Received: _____

2 User Code #: <u>710131210</u>		3 Request ID No.: _____		Request ID No. <u>022220-B</u>		4 Priority Code #: _____		(If "1" or "2", call EIO-SLD Coordinator)	
5 Facility Name: <u>Washington Ranch-EPNG</u>				6 County: <u>Eddy</u>		7 City: <u>Carlsbad</u>		8 State: <u>N.M.</u>	
9 Sample Location: <u>WRGS No. 9</u>									
10 Collected By: <u>Kathy Birnawn</u> First Last				On: <u>91108127</u> Date: (YY/MM/DD)		At: <u>111010</u> hrs. Time: 24 hr. clock 3:00 pm = 1500 hrs.			
11 Codes: _____ Submitter WSS # Organization						12 Latitude (DDMMSS) _____ Longitude (DDMMSS) _____ 2 Digit ID (if needed)			
13 Report To: <u>David G. Boyer</u> Address: <u>New Mexico Oil Conservation Division</u> <u>P. O. 2088</u> City, State Zip: <u>Santa Fe, New Mexico 87504-2088</u>				14 Phone #: <u>(505) 827-5812</u>		15 Sampling Information: Sample Purpose: ☒ Grab ☐ Composite (Composite Time Period) ☐ Compliance ☐ Flow Proportioned ☒ Check ☐ Equal Aliquot ☒ Monitoring ☒ Sample Split w/Permittee ☐ Special ☐ Chain of Custody			
16 Field Data: pH: _____, Conductivity: _____ umhos @ _____ °C, Temperature: _____ °C, Chlorine Residual: _____ mg/l, Flow: _____									
17 Sample Source: ☐ -Stream ☒ -Well; Depth: _____ ☐ -Lake ☐ -Spring ☐ -Drain ☐ -Distribution ☐ -Pool ☐ -Point-of-Entry ☐ -WWTP ☐ -Other: _____					18 Field Notes/ Sample #: _____				
19 Sample Type: ☐ -Water, ☐ -Soil, ☐ -Food, ☐ -Wastewater, ☒ -Other <u>bradenhead sample</u> This form accompanies a <u>single sample</u> consisting of: <u>/</u> - 1 liter cubitainers (1 quart) <u> </u> - 4 liter cubitainers (1 gallon)					20 Preservation: ☐ - WNF Water Not Preserved; Filtered ☒ - WNN Water Not Preserved; Not Filtered ☐ - WPF Water Preserved with Sulfuric Acid (H2SO4); Filtered ☐ - WPN Water Preserved with Sulfuric Acid; Not Filtered ☐ - WNL Water Not Preserved in Field; Please Add H2SO4 at Lab ☐ - ICE Water Iced ☐ - Other _____				
21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analyses required.									
Group Analyses: ☐ - (854) SDWA Group II (Nitrate as N) ☐ - (861) SDWA Group III (Fluoride) ☐ - (860) SDWA Complete Secondary					☐ - (859) SWQB SS Anion - Cation Group + ☐ - (868) SWQB NPS Anion, Cation, Physical + TSS ☐ - (869) SWQB Nutrient Analysis Group + ☒ - (867) Major Anions & Cations				
Cations: ☐ - Calcium (as Ca) _____ ☐ - Magnesium (as Mg) _____ ☐ - Potassium (as K) _____ ☐ - Sodium (as Na) _____ ☐ - Total Hardness (as CaCO3) _____			Physical Parameters: ☐ - Color _____ ☐ - Conductance (Micromhos @ 25 °C) _____ ☐ - Odor _____ ☐ - pH _____ ☐ - Surfactants _____ ☐ - Total Dissolved Solids _____ ☐ - Turbidity _____			Surface and Waste Water: ☐ - Biological Oxygen Demand _____ ☐ - Total Suspended Solids _____ ☐ - Chemical Oxygen Demand _____ ☐ - Total Organic Carbon _____ ☐ - Cyanide _____ Nutrients: ☐ - Nitrate + Nitrite (as N) _____ ☐ - Ammonia (as N) _____ ☐ - Total Kjeldahl (as N) _____ ☐ - Nitrite (as N) _____ ☐ - Orthophosphate (as P) _____ ☐ - Total Phosphorus (as P) _____			
Anions: ☐ - Alkalinity (as CaCO3) _____ ☐ - Bicarbonate (as HCO3) _____ ☐ - Carbonate (as CO3) _____ ☐ - Chloride (as Cl) _____ ☐ - Fluoride (as F) _____ ☐ - Sulfate (as SO4) _____ ☐ - Ion Charge Balance _____			Other: ☐ _____ ☐ _____ ☐ _____						
Remarks: _____									

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700700 Camino de Salud, NE
[505]-841-2500
WATER CHEMISTRY SECTION [505]-841-2555SCIENTIFIC LABORATORY DIVISION
RECEIVED

September 17, 1991

Request
ID No. 022220**ANALYTICAL REPORT**
SLD Accession No. WC-91-3129

'91 OCT 4 AM 8 40

Distribution

() User 70320

(■) Submitter 995

(※) SLD Files

To: David G. Boyer
New Mexico Oil Conservation Division
P.O. 2088
Santa Fe, New Mexico 87504-2088

From: Water Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: A water, Nonpres/No sample submitted to this laboratory on August 28, 1991

DEMOGRAPHIC DATA

COLLECTION		LOCATION
On: 27-Aug-91	By: Bro ...	WRGS No 9
At: 11:00 hrs.	In/Near: Carlsbad	

ANALYTICAL RESULTS

Analysis	Value	D. Lmt.	Units
see lab remarks	0.00		mg/L

Laboratory Remarks:

Reviewed By:

John A. Finney
John A. Finney 09/12/91
Supervisor, Water Chemistry Section

This sample was totally organic.
There was no aqueous phase in
the sample, so we did not analyze
it. Sample pH = 6 by dipstick
test paper.

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700700 Camino de Salud, NE
[505]-841-2500

ORGANIC CHEMISTRY SECTION [505]-841-2570

September 9, 1991

Request
ID No. 022221**ANALYTICAL REPORT**
SLD Accession No. OR-91-2845Distribution☐ User 70320
☒ Submitter 260
☒ SLD FilesTo: David Boyer
NM Oil Conserv. Div.
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504-2088From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: An other sample submitted to this laboratory on August 28, 1991

DEMOGRAPHIC DATA

COLLECTION		LOCATION
On: 27-Aug-91	By: Bro . . .	WRGS No 9
At: 11:00 hrs.	In/Near: Carlsbad	

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable [EPA-601/2] Screen {754}

Parameter	Value	Note	MDL	Units
Halogenated Volatiles (42)	0.00	N	5000.00	ppb
Benzene	73820.00		5000.00	ppb
Toluene	500000.00		5000.00	ppb
Ethylbenzene	80320.00		5000.00	ppb
p- & m-Xylene	800000.00		5000.00	ppb
1,2-Dimethylbenzene	300000.00		5000.00	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:

MDL = Minimal Detectable Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;
T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.Evidentiary Seals: Not Sealed ☒; Intact: No ☐, Yes ☐ & Broken By: _____ Date: _____Laboratory Remarks:

Forty compounds eluting from near Ethylbenzene through Naphthalene at 50,000 to 500,000 ppb detected by the photoionization detector but not identified.

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: NM SCIENTIFIC LABORATORY DIVISION	Contract: N/A
Lab Code: N/A Case No.: N/A	SAS No.: N/A SDG No.: N/A
Matrix: (soil/water) _____ Product _____	Lab Sample ID: OR-91-2845
Sample wt/vol: 5.0 (g/mL) mL	Lab File ID: _____
Level: (low/med) Low	Date Received: 8/28/91
% Moisture: not dec. N/A dec. N/A	Date Extracted: N/A
Extraction: (SepF/Cont/Sonc) N/A	Date Analyzed: 9/6/91

RECEIVED

(Continued on page 2.)

SEP 19 1991

OIL CONSERVATION DIV.
SANTA FE

ANALYTICAL REPORT
 SLD Accession No. OR-91-2845
 Continuation, Page 2 of 4

GPC Cleanup: (Y/N) No pH: _____ Dilution Factor: 5000
 CONCENTRATION UNITS:
 (ug/L or ug/Kg): ug/L

This sample was analyzed for the following compounds
 using EPA Methods 601 & 602

CAS NO.	COMPOUND	CONC.	QUALIFIER
67-64-1	Acetone	25000	U
71-43-2	Benzene	73820	
108-86-1	Bromobenzene	5000	U
74-97-5	Bromochloromethane	5000	U
75-27-4	Bromodichloromethane	5000	U
75-25-2	Bromoform	5000	U
78-93-3	2-Butanone (MEK)	25000	U
104-51-8	n-Butylbenzene	5000	U
135-98-8	sec-Butylbenzene	5000	U
98-06-6	tert-Butylbenzene	5000	U
1634-04-4	tert-Butyl methyl ether (MTBE)	25000	U
56-23-5	Carbon tetrachloride	5000	U
108-90-7	Chlorobenzene	5000	U
67-66-3	Chloroform	5000	U
95-49-8	2-Chlorotoluene	5000	U
106-43-4	4-Chlorotoluene	5000	U
96-12-8	1,2-Dibromo-3-chloropropane	5000	U
124-48-1	Dibromochloromethane	5000	U
106-93-4	1,2-Dibromoethane	5000	U
74-95-3	Dibromomethane	5000	U
95-50-1	1,2-Dichlorobenzene	5000	U
541-73-1	1,3-Dichlorobenzene	5000	U
106-46-7	1,4-Dichlorobenzene	5000	U
75-71-8	Dichlorodifluoromethane	5000	U
75-34-3	1,1-Dichloroethane	5000	U
107-06-2	1,2-Dichloroethane	5000	U
75-35-4	1,1-Dichloroethene	5000	U
156-59-4	cis-1,2-Dichloroethene	5000	U
156-60-5	trans-1,2-Dichloroethene	5000	U
78-87-5	1,2-Dichloropropane	5000	U
142-28-9	1,3-Dichloropropane	5000	U
590-20-7	2,2-Dichloropropane	5000	U
563-58-6	1,1-Dichloropropene	5000	U
1006-01-5	cis-1,3-Dichloropropene	5000	U
1006-02-6	trans-1,3-Dichloropropene	5000	U

(Continued on page 3.)

ANALYTICAL REPORT
 SLD Accession No. OR-91-2845
 Continuation, Page 3 of 4

100-41-4	Ethylbenzene	5000	U
87-68-3	Hexachlorobutadiene	5000	U
98-82-8	Isopropylbenzene	5000	U
99-87-6	4-Isopropyltoluene	5000	U
75-09-2	Methylene chloride	25000	U
90-12-0	1-Methylnaphthalene	5000	U
91-57-6	2-Methylnaphthalene	5000	U
91-20-3	Naphthalene	5000	U
103-65-1	Propylbenzene	5000	U
100-42-5	Styrene	5000	U
630-20-6	1,1,1,2-Tetrachloroethane	5000	U
79-34-5	1,1,2,2-Tetrachloroethane	5000	U
127-18-4	Tetrachloroethene	5000	U
109-99-9	Tetrahydrofuran (THF)	25000	U
108-88-3	Toluene	500000	
87-61-5	1,2,3-Trichlorobenzene	5000	U
120-82-1	1,2,4-Trichlorobenzene	5000	U
71-55-6	1,1,1-Trichloroethane	5000	U
79-00-5	1,1,2-Trichloroethane	5000	U
79-01-6	Trichloroethene	5000	U
75-69-4	Trichlorofluoromethane	5000	U
96-18-4	1,2,3-Trichloropropane	5000	U
95-63-6	1,2,4-Trimethylbenzene	5000	U
108-67-8	1,3,5-Trimethylbenzene	5000	U
75-01-4	Vinyl chloride	5000	U
95-47-6	o-Xylene	300000	
N/A	p- & m-Xylene	800000	

Qualifier Definitions:

- B - Indicates compound was detected in the Lab Blank as well as in the sample.
- D - Indicates value taken from a secondary (diluted) sample analysis.
- E - Indicates compound concentration exceeded the range of the standard curve.
- J - Indicates an estimated value for tentatively identified compounds, or for compounds detected and identified but present at a concentration less than the quantitation limit.
- N - Indicates that more than one peak was used for quantitation.
- U - Indicates compound was analyzed for, but not detected above the concentration listed (Quantitation Limit).

QUALITY CONTROL SUMMARY FOR VOLATILES SCREEN

(Continued on page 4.)

ANALYTICAL REPORT
SLD Accession No. OR-91-2845
Continuation, Page 4 of 4

METHOD BLANK: A laboratory method blank was analyzed along with this sample to assure the absence of interfering contaminants from lab reagents, instruments, or the general laboratory environment. Unless listed below, no contaminants were detected in this blank above the reported detection limit.

COMPOUND DETECTED
No Compounds Detected

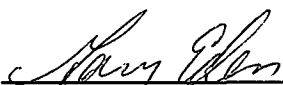
CONCENTRATION (PPB)

SURROGATE RECOVERIES:

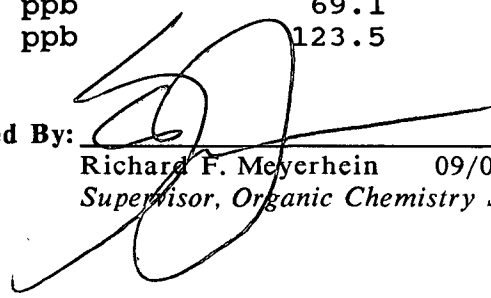
SURROGATE	CONCENTRATION	% RECOVERY
Fluorobenzene	50.0 ppb	97.7
2-Bromo-1-chloropropane	30.0 ppb	98.

SPIKE RECOVERY: The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:

COMPOUND	CONCENTRATION	% RECOVERY
Vinyl chloride	50. ppb	69.1
1,1-Dichloroethene	50. ppb	123.5

Analyst: 

Gary C. Eden
Analyst, Organic Chemistry

Reviewed By: 

Richard F. Meyerhein 09/09/91
Supervisor, Organic Chemistry Section

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

LABORATORY SAMPLE RECORD

[illegible]

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

7ms

Analysis Request and Chain of Custody Record

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services
1703 West Industrial • P.O. Box 2150, Midland, Texas 79702 • 915/683-3349

[illegible]

SOUTHWESTERN LABORATORIES

Analysis Request and Chain of Custody Record

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services
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[illegible]



SOUTHWESTERN LABORATORIES CONSERVATION DIVISION
RECEIVED

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services
2575 LONE STAR DRIVE * P.O. BOX 224227, DALLAS, TEXAS 75222 * 214/631-2700

SEP 11 1992 PM 8 50

Client OIL CONSERVATION DIVISION
P.O. BOX 2088,
SANTA FE, NEW MEXICO
87504-2088
Attn: KATHY M. BROWN

Client No.
Report No. D2-01-187
Report Date 02/10/92 15:38

Project SMART RANCH

The headspace analysis of the sample revealed no volatiles
present at the detection limit of 1 mg/l.

Date Sampled 01/10/92

Sampled By CHRIS EUSTICE

Sample Type WATER

Transported by LSO

P.O. # CONTRACT#80-521.07-140

Date Received 01/14/92

Lab No.
D2-01-187-01

Sample Identification
DOMESTIC WELL

SOUTHWESTERN LABORATORIES

William J. Hare
Reviewed By

Bob Garrett
Bob Garrett, Mgr., EAS

SOUTHWESTERN LABORATORIES

Order # D2-01-187
02/10/92 15:38
Client: OIL CONSERVATION DIVISION

Page 2

TEST RESULTS BY SAMPLE

Sample: 01A DOMESTIC WELL

Collected: 01/10/92 11:00

<u>Test Name</u>	<u>Method</u>	<u>Result</u>	<u>Units</u>	<u>Detection Limit</u>	<u>Date Started</u>	<u>Analyst</u>
Ammonia as Nitrogen	EPA 350.2	0.13	MG/L	0.05	01/22/92	KC
Total Kjeldahl Nitrogen	420A	0.21	MG/L	0.05	01/22/92	KC

Sample: 01B DOMESTIC WELL

Collected: 01/10/92 11:00

<u>Test Name</u>	<u>Method</u>	<u>Result</u>	<u>Units</u>	<u>Detection Limit</u>	<u>Date Started</u>	<u>Analyst</u>
Nitrate as Nitrogen	418F	14.8	MG/L	0.1	01/31/92	MID
Nitrite	418F	<0.10	MG/L		01/31/92	MID

Sample: 01C DOMESTIC WELL

Collected: 01/10/92 11:00

<u>Test Name</u>	<u>Method</u>	<u>Result</u>	<u>Units</u>	<u>Detection Limit</u>	<u>Date Started</u>	<u>Analyst</u>
Specific Conductance	EPA 120.1	80	UMHOS/CM		01/10/92	CE
Temperature		15	Degree C		01/10/92	CE
pH	EPA 150.1	6.2	pH units		01/10/92	CE

Sample: 01D DOMESTIC WELL

Collected: 01/10/92 11:00

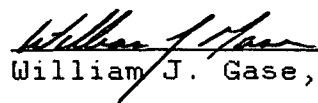
<u>Test Name</u>	<u>Method</u>	<u>Result</u>	<u>Units</u>	<u>Detection Limit</u>	<u>Date Started</u>	<u>Analyst</u>
Volatile Organic Compounds	8010 & 8020	Enclosure	Date Com		01/22/92	MD

Lab Name: SOUTHWESTERN LABORATORIES
Lab Code: 54-55
Client: Oil Conservation Division/State Of New Mexico
Date Analyzed: 1/22/92
Instrument ID: 70 1

THE FOLLOWING SAMPLES WERE ANALYZED:

LAB NUMBER	SAMPLE ID	LAB FILE ID
=====	=====	=====
9201187-1	Domestic Well	>AF035


Mina Dave, GC/MS Chemist


William J. Gase, Lab Supervisor, EAS

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 601/602

Lab Name: SOUTHWESTERN LABORATORIES
Lab Code: 54-55 Dallas
Matrix: (soil/water) Water
Sample wt/vol: 5.0 mL
Level: (low/med) LOW
Dilution Factor: 1

Lab Number: 9201187-1
Client: Oil Conservation
Sample ID: Domestic Well
Lab File ID: >AF035
Date Received: 1/14/92
Date Analyzed: 1/22/92

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
75-71-8-----	Dichlorodifluoromethane_____	10.	U
74-87-3-----	Chloromethane_____	10.	U
74-83-9-----	Bromomethane_____	10.	U
75-01-4-----	Vinyl Chloride_____	10.	U
75-69-4-----	Trichlorofluoromethane_____	10.	U
75-00-3-----	Chloroethane_____	10.	U
75-35-4-----	1,1-Dichloroethene_____	5.	U
75-34-3-----	1,1-Dichloroethane_____	5.	U
156-60-5-----	trans-1,2-Dichloroethene_____	5.	U
67-66-3-----	Chloroform_____	5.	U
107-02-2-----	1,2-Dichloroethane_____	5.	U
71-55-6-----	1,1,1-Trichloroethane_____	5.	U
56-23-5-----	Carbon Tetrachloride_____	5.	U
74-95-3-----	Dibromomethane_____	5.	U

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 601/602

Lab Name: SOUTHWESTERN LABORATORIES
Lab Code: 54-55 Dallas
Matrix: (soil/water) Water
Sample wt/vol: 5.0 mL
Level: (low/med) LOW
Dilution Factor: 1

Lab Number: 9201187
Client: Oil Conservation
Sample ID: Domestic Well
Lab File ID: >AF035
Date Received: 1/14/92
Date Analyzed: 1/22/92

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/Kg	
75-27-4-----	Bromodichloromethane_____	5.	U	
78-87-5-----	1,2-Dichloropropane_____	5.	U	
10061-01-5-----	cis-1,3-Dichloropropene_____	5.	U	
79-01-6-----	Trichloroethene_____	5.	U	
124-48-1-----	Dibromochloromethane_____	5.	U	
79-00-5-----	1,1,2-Trichloroethane_____	5.	U	
71-43-2-----	Benzene_____	5.	U	
10061-02-6-----	trans-1,3-Dichloropropene_____	5.	U	
75-25-2-----	Bromoform_____	5.	U	
127-18-4-----	Tetrachloroethene_____	5.	U	
79-34-5-----	1,1,2,2-Tetrachloroethane_____	5.	U	
108-88-3-----	Toluene_____	5.	U	
108-90-7-----	Chlorobenzene_____	5.	U	
100-41-4-----	Ethylbenzene_____	5.	U	
100-42-5-----	Styrene_____	5.	U	
541-73-1-----	1,3-Dichlorobenzene_____	5.	U	
106-46-7-----	1,4-Dichlorobenzene_____	5.	U	
95-50-1-----	1,2-Dichlorobenzene_____	5	U	

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

7mS

SOUTHWESTERN LABORATORIES

Analysis Request and Chain of Custody Record

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services
1703 West Industrial • P.O. Box 2150, Midland, Texas 79702 • 915/683-3349

[illegible]



SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services
1703 West Industrial Avenue • P.O. Box 2150 • Midland, Texas 79702

Report of tests on Water
Client New Mexico Oil Conservation Division
Delivered by Chris Eustice

File No. 6603500
Report No. 78742
Report Date 9-15-92
Date Received 8-18-92

Identification Smart Ranch, Sample No. 081819921030, Sampled
8-18-92 by Chris Eustice

REPORT OF CHEMICAL ANALYSIS

<u>Parameters</u>	<u>Results mg/L</u>	<u>Date Performed</u>	<u>Analyst</u>	<u>Standard Methods, 17th Edition</u>
Calcium	27	8-20-92	L. Church	3500-Ca, D
Magnesium	79	8-20-92	L. Church	3500-Mg, E
Sodium	22	8-21-92	G. Bunch	3500-Na, D
Potassium	1	8-21-92	G. Bunch	3500-K, D
Carbonate	0	8-20-92	L. Church	2320-B
Bicarbonate	275	8-20-92	L. Church	2320-B
Sulfate	103	8-21-92	L. Church	4500-SO ₄ , C
Chloride	71	9-9-91	A. Johnston	4500-Cl, B
Nitrate as N	2.9	8-21-91	A. Johnston	4500-NO ₃ , F
Total Dissolved Solids, @ 180°C	462	8-20-92	L. Church	2540-C
Total Hardness as CaCO ₃	392	8-20-92	L. Church	2340-C
pH	7.11	8-20-92	L. Church	4500-H

Copies: New Mexico Oil Conservation Division, Santa Fe, NM, Attn: Roger Anderson
New Mexico Oil Conservation Division, Hobbs, NM, Attn: Chris Eustice

YLC
Reviewed by

SOUTHWESTERN LABORATORIES



SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services
1703 West Industrial Avenue • P.O. Box 2150 • Midland, Texas 79702

Report of tests on Water
Client New Mexico Oil Conservation Division
Delivered by Chris Eustice

File No. 6603500
Report No. 78742
Report Date 9-15-92
Date Received 8-18-92

Identification Smart Ranch, Sample No. 081819921030, Sampled
8-18-92 by Chris Eustice

REPORT OF ORGANICS ANALYSIS

Date of Analysis	8-21-92	Method	EPA 624
Technique	Purge and Trap GC/MS	Analyst	L. Koehler
Compound			ug/L
Chloromethane			* 10
Bromomethane			* 10
Vinyl Chloride			* 10
Trichlorofluoromethane			* 10
Chloroethane			* 10
Methylene Chloride			* 5
1,1-Dichloroethene			* 5
1,1-Dichloroethane			* 5
trans-1,2-Dichloroethene			* 5
Chloroform			* 5
1,2-Dichloroethane			* 5
1,1,1-Trichloroethane			* 5
Carbon Tetrachloride			* 5
Bromodichloromethane			* 5
1,2-Dichloropropane			* 5
Toluene			* 5
2-Chloroethylvinyl Ether			* 10
cis-1,3-Dichloropropene			* 5
Trichloroethene			* 5
Dibromochloromethane			* 5
1,1,2-Trichloroethane			* 5
trans-1,2-Dichloropropene			* 5
Benzene			* 5
Bromoform			* 5
Tetrachloroethene			* 5
Ethylbenzene			* 5
1,1,2,2-Tetrachloroethane			* 5
Chlorobenzene			* 5
1,3-Dichlorobenzene			* 5
1,4-Dichlorobenzene			* 5
1,2-Dichlorobenzene			* 5
Dichlorodifluoromethane			* 10

*Denotes "less than"

Copies: New Mexico Oil Conservation Division, Santa Fe, Attn: Roger Anderson
1cc: New Mexico Oil Conservation Division, Hobbs, NM, Attn: Chris Eustice

Reviewed by

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Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services
1703 West Industrial Avenue • P.O. Box 2150 • Midland, Texas 79702

Report of tests on Water
Client New Mexico Oil Conservation Division
Delivered by Chris Eustice

File No. 6603500
Report No. 78742
Report Date 9-15-92
Date Received 8-18-92

Identification Smart Ranch, Sample No. 081819921030, Sampled
8-18-92 by Chris Eustice

REPORT OF
CHEMICAL ANALYSIS

<u>Constituent</u>	<u>Results</u> <u>mg/L</u>	<u>Date</u> <u>Performed</u>	<u>Analyst</u>
Methane	* 25	8-25-92	L. Duty
Ethane	* 25	8-25-92	L. Duty
Propane	* 25	8-25-92	L. Duty
i-Butane	* 25	8-25-92	L. Duty
n-Butane	* 25	8-25-92	L. Duty
i-Pentane	* 25	8-25-92	L. Duty
n-Pentane	* 25	8-25-92	L. Duty

Copies: New Mexico Oil Conservation Division, Santa Fe, NM, Attn: Roger Anderson
New Mexico Oil Conservation Division, Hobbs, NM, Attn: Chris Eustice

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Identification Smart Ranch, Sample No. 081819921030, Sampled
8-18-92 by Chris Eustice

REPORT OF TOTAL METALS

<u>Parameters</u>	<u>Results</u> <u>mg/L</u>	<u>Date</u> <u>Performed</u>	<u>Analyst</u>	<u>Test Method</u>
Arsenic	*0.10	9-3-92	G. Bunch	SW846, 7061
Barium	*1.0	9-2-92	G. Bunch	SW846, 7080
Cadmium	*0.10	9-2-92	G. Bunch	SW846, 7130
Chromium	*0.50	9-2-92	G. Bunch	SW846, 7190
Lead	*0.50	9-2-92	G. Bunch	SW846, 7420
Mercury	*0.010	9-1-92	G. Bunch	SW846, 7471
Selenium	*0.10	9-3-92	G. Bunch	SW846, 7741
Silver	*0.20	9-2-92	G. Bunch	SW846, 7760

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MEMORANDUM OF MEETING OR CONVERSATION

☒ Telephone☐ Personal

Time

Date

4/7/92

Originating PartyOther Parties

Mike Williams - OCD Artesia

K.M. Brown - OCD Santa Fe

Subject

Smart Well Sample taken Jan. 1992

Discussion

Mike said that Chris was wrong. He was with Chris when they sampled the well & Smart well together. Mike says that they only sampled the domestic well and not the irrigation well.

Mike & Chris were going down this afternoon to relay the results to the Smarts personally.

Mike asked if I would write the Smarts a letter & let them hear from a second source the results.

Conclusions or AgreementsDistribution

Signed

Kathy Brown



MEMORANDUM OF MEETING OR CONVERSATION

☒ Telephone ☐ Personal

Time

2:30 P.M.

Date

March 9, 1992

Originating Party

K.M. Brown - OCD

Other Parties

Lorri Church -

Southwest Labs. Midland

Subject

Samples from Smart Wells. Have only received one of the analyses back. Chris said he sampled both the domestic & irrigation wells.

Discussion

Discussed this issue and came to the conclusion that Chris did sample both wells and bring them in. However, the lab tech understood Chris as saying that they were duplicates of the same well - mass confusion. Lori stated that she'd go back & search the storage and try to find the samples & determine which well was actually analyzed.

Conclusions or Agreements

Cannot send the Smarts a letter concerning the high nitrates until ~~if~~ we know which well it is from. May need to resample their well.

Distribution

Signed

Kathy Brown