

NM - 2

INSPECTIONS & DATA



NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

January 7, 1998

Mr. Larry Sugano
Tipperary Corporation
633 Seventeenth St., Suite 1550
Denver, Colorado 80202

**RE: GROUND WATER ANALYSES
LANE SALT LAKE FACILITY AND TATUM PIT CLOSURES**

Dear Mr. Sugano:

Enclosed you will find copies of the New Mexico Oil Conservation Division's (OCD) August 28, 1997, September 4, 1997 and September 5, 1997 laboratory analytical results of soil and ground water samples taken at Tipperary Corporation's (TC) Lane Salt Lake facility and seven of TC's Tatum pit closure sites.

If you have any questions, please call me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrologist
Environmental Bureau

Enclosures

xc w/enclosures: Wayne Price, OCD Hobbs District Office
Mike Griffin, Whole Earth Environmental, Inc.

American Environmental Network, Inc.

AEN I.D. 709313

September 26, 1997

RECEIVED

OCT 03 1997

NMOCD
2040 S. PACHEO
SANTA FE, NM 87505

Environmental Bureau
Oil Conservation Division

Project Name LANE SALT LAKE
Project Number (none)

Attention: BILL OLSON

On 9/8/97 American Environmental Network (NM), Inc. (ADHS License No. AZ0015), received a request to analyze **aqueous and non-aq** 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.

EPA method 8310 was performed by American Environmental Network (FL), Inc., Pensacola, FL.

All other parameters were performed by American Environmental Network (NM) Inc., Albuquerque, NM.

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: mt

Enclosure

American Environmental Network, Inc.

CLIENT	: NMOCD	AEN I.D.	: 709313
PROJECT #	: (none)	DATE RECEIVED	: 9/8/97
PROJECT NAME	: LANE SALT LAKE	REPORT DATE	: 9/26/97

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	SITE 1	NA	9/4/97
02	SITE 2	NA	9/4/97
03	SITE 3	NA	9/4/97
04	SEEP POND	AQ	9/4/97
05	LSLDG	AQ	9/5/97
06	TRIP BLANK	AQ	9/4/97

American Environmental Network, Inc.

GENERAL CHEMISTRY RESULTS

418.1

CLIENT : NMOCD AEN I.D. : 709313
PROJECT # : (none) DATE RECEIVED : 9/8/97
PROJECT NAME : LANE SALT LAKE

SAMPLE			DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
01	SITE 1	NON-AQ	9/4/97	9/10/97	9/10/97	10
02	SITE 2	NON-AQ	9/4/97	9/10/97	9/10/97	50
03	SITE 3	NON-AQ	9/4/97	9/10/97	9/10/97	5
PARAMETER		DET. LIMIT	UNITS	01	02	03
PETROLEUM HYDROCARBONS, IR		20	MG/KG	2400	8100	790

CHEMIST NOTES:

N/A

American Environmental Network, Inc.

GENERAL CHEMISTRY - REAGENT BLANK

418.1

CLIENT	: NMOCD	AEN I.D.	: 709313
PROJECT #	: (none)	SAMPLE MATRIX	: NON-AQ
PROJECT NAME	: LANE SALT LAKE	UNITS	: MG/KG

PARAMETER	AEN I.D.	SAMPLE RESULT
PETROLEUM HYDROCARBONS	091097	<20

CHEMIST NOTES:

N/A

American Environmental Network, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL
418.1

CLIENT	: NMOCD	AEN I.D.	: 709313
PROJECT #	: (none)	SAMPLE MATRIX	: NON-AQ
PROJECT NAME	: LANE SALT LAKE	UNITS	: MG/KG

PARAMETER	AEN I.D.	SAMPLE RESULT	DUP. RESULT	% RPD	SPIKED SAMPLE	SPIKE CONC.	% REC
PETROLEUM HYDROCARBONS	091097	<20	<20	NA	138	150	92%

CHEMIST NOTES:
N/A

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

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

GAS CHROMATOGRAPHY RESULTS

TEST : BTEX, MTBE (EPA 8020)
CLIENT : NMOCD
PROJECT # : (none)
PROJECT NAME : LANE SALT LAKE

AEN I.D.: 709313

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	SITE 1	NON-AQ	9/4/97	9/8/97	9/9/97	1
02	SITE 2	NON-AQ	9/4/97	9/8/97	9/9/97	10
03	SITE 3	NON-AQ	9/4/97	9/8/97	9/8/97	1

PARAMETER	DET. LIMIT	UNITS	01	02	03
BENZENE	0.025	MG/KG	0.19	0.53	< 0.025
TOLUENE	0.025	MG/KG	0.17	0.25	< 0.025
ETHYLBENZENE	0.025	MG/KG	0.82	1.4	0.029
TOTAL XYLENES	0.025	MG/KG	2.0	4.0	0.19
METHYL-t-BUTYL ETHER	0.13	MG/KG	< 0.13	< 1.3	< 0.13

SURROGATE:

BROMOFLUOROBENZENE (%)

109

114

89

SURROGATE LIMITS (65 - 120)

CHEMIST NOTES:

N/A

GAS CHROMATOGRAPHY RESULTS

TEST : BTEX, MTBE (EPA 8020)
CLIENT : NMOCD
PROJECT # : (none)
PROJECT NAME : LANE SALT LAKE

AEN I.D.: 709313

SAMPLE			DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
04	SEEP POND	AQUEOUS	9/4/97	NA	9/8/97	1
05	LSLDG	AQUEOUS	9/5/97	NA	9/8/97	100
06	TRIP BLANK	AQUEOUS	9/4/97	NA	9/8/97	1
PARAMETER		DET. LIMIT	UNITS	04	05	06
BENZENE		0.5	UG/L	< 0.5	1100	< 0.5
TOLUENE		0.5	UG/L	< 0.5	60	< 0.5
ETHYLBENZENE		0.5	UG/L	< 0.5	98	< 0.5
TOTAL XYLENES		0.5	UG/L	< 0.5	460	< 0.5
METHYL-t-BUTYL ETHER		2.5	UG/L	< 2.5	< 250	< 2.5

SURROGATE:

BROMOFLUOROBENZENE (%) 103 111 105
SURROGATE LIMITS (80 - 120)

CHEMIST NOTES:

N/A

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: BTEX, MTBE (EPA 8020)	AEN I.D.	: 709313
BLANK I. D.	: 090897	DATE EXTRACTED	: NA
CLIENT	: NMOCD	DATE ANALYZED	: 9/8/97
PROJECT #	: (none)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: LANE SALT LAKE		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5
METHYL-t-BUTYL ETHER	UG/L	<2.5

SURROGATE:

BROMOFLUOROBENZENE (%)	100
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SURROGATE LIMITS: (80 - 120)

CHEMIST NOTES:

N/A

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: BTEX, MTBE (EPA 8020)	AEN I.D.	: 709313
BLANK I. D.	: 090897	DATE EXTRACTED	: 9/8/97
CLIENT	: NMOCD	DATE ANALYZED	: 9/8/97
PROJECT #	: (none)	SAMPLE MATRIX	: NON-AQ
PROJECT NAME	: LANE SALT LAKE		

PARAMETER	UNITS	
BENZENE	MG/KG	<0.025
TOLUENE	MG/KG	<0.025
ETHYLBENZENE	MG/KG	<0.025
TOTAL XYLENES	MG/KG	<0.025
METHYL-t-BUTYL ETHER	MG/KG	<0.13

SURROGATE:

BROMOFLUOROBENZENE (%)	94
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SURROGATE LIMITS: (80 - 120)

CHEMIST NOTES:

N/A

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: BTEX, MTBE (EPA 8020)	AEN I.D.	: 709313
BLANK I. D.	: 090997	DATE EXTRACTED	: NA
CLIENT	: NMOCD	DATE ANALYZED	: 9/9/97
PROJECT #	: (none)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: LANE SALT LAKE		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5
METHYL-t-BUTYL ETHER	UG/L	<2.5

SURROGATE:
BROMOFLUOROBENZENE (%) 104
SURROGATE LIMITS: (80 - 120)
CHEMIST NOTES:
N/A

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST	: BTEX, MTBE (EPA 8020)	AEN I.D.	: 709313
MSMSD #	: 709308-01	DATE EXTRACTED	: 9/8/97
CLIENT	: NMOCD	DATE ANALYZED	: 9/8/97
PROJECT #	: (none)	SAMPLE MATRIX	: NON-AQ
PROJECT NAME	: LANE SALT LAKE	UNITS	: MG/KG

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.025	1.00	0.88	88	0.87	87	1	(68 - 120)	20
TOLUENE	<0.025	1.00	0.85	85	0.83	83	2	(64 - 120)	20
ETHYLBENZENE	<0.025	1.00	0.89	89	0.87	87	2	(49 - 127)	20
TOTAL XYLENES	<0.025	3.00	2.65	88	2.60	87	2	(58 - 120)	20
METHYL-t-BUTYL ETHER	<0.13	2.00	1.68	84	1.62	81	4	(66 - 120)	20

CHEMIST NOTES:
N/A

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

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

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST	: BTEX, MTBE (EPA 8020)	AEN I.D.	: 709313
MSMSD #	: 709309-03	DATE EXTRACTED	: NA
CLIENT	: NMOCD	DATE ANALYZED	: 9/8/97
PROJECT #	: (none)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: LANE SALT LAKE	UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.5	10.0	10.6	106	10.4	104	2	(80 - 120)	20
TOLUENE	<0.5	10.0	9.2	92	9.2	92	0	(80 - 120)	20
ETHYLBENZENE	<0.5	10.0	9.9	99	9.8	98	1	(80 - 120)	20
TOTAL XYLENES	<0.5	30.0	30.3	101	30.0	100	1	(80 - 120)	20
METHYL-t-BUTYL ETHER	<2.5	20.0	22.3	112	21.7	109	3	(70 - 133)	20

CHEMIST NOTES:
N/A

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

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

American Environmental Network

11 East Olive Road • Pensacola • Florida • 32514 • Phone (904) 474-1001 • Fax (904) 478-2671

CASE NARRATIVE

LABORATORY NAME: American Environmental Network of Florida
PROJECT NAME: Lane Salt Lake
PROJECT NUMBER: 709313

AEN-NM Sample ID	AEN Accession Number
709313-04	709035-001
709313-05	709035-002

The listed samples were received in good condition on September 19, 1997.

METHOD 8310

Sample 709313-05 (AEN-FL Accession #709035-002) exceeds the range of the calibration curve for 1-Methylnaphthalene and 2-Methylnaphthalene, therefore, it is an estimated value.

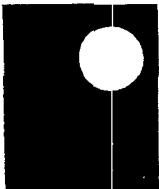
AEN-FL only performs a 1point calibration curve for these two analytes since they are not required in the method 8310.

No other problems were associated with the analyses of these samples.



Linda Lofton
Project Manager

September 25, 1997



American Environmental Network, Inc.

11 EAST OLIVE ROAD • PENSACOLA, FL 32514 • (904) 474-1001

SIGNATURE PAGE

Reviewed by:

Linda Repton
AEN Project Manager

Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
ALBUQUERQUE, NEW MEXICO

Project Name: NM OIL CONSERVATION DIVISION
Project Number: 709313
Project Location: LANE SALT LAKE
Accession Number: 709035

Project Manager: KIMBERLY D. MCNEILL
Sampled By: N/S

Analysis Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	709035
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	709313
Project Name:	NM OIL CONSERVATION DIVISION
Project Location:	LANE SALT LAKE
Department:	SEMI-VOLATILE FUELS

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Date 24-Sep-97

"FINAL REPORT FORMAT - SINGLE"

Accession: 709035
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 709313
Project Name: NM OIL CONSERVATION DIVISION
Project Location: LANE SALT LAKE
Test: POLYNUCLEAR AROMATICS BY 8310
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 001 Sample Date/Time: 04-SEP-97 1515
Client Sample Id: 709313-04 Received Date: 09-SEP-97

Batch: PAW172 Extraction Date: 09-SEP-97
Blank: A Dry Weight %: N/A Analysis Date: 18-SEP-97

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ACENAPHTHENE	UG/L	ND	1	
ACENAPHTHYLENE	UG/L	4	1	
ANTHRACENE	UG/L	ND	1	
BENZO (a) ANTHRACENE	UG/L	ND	1	
BENZO (a) PYRENE	UG/L	ND	1	
BENZO (b) FLUORANTHENE	UG/L	ND	1	
BENZO (g, h, i) PERYLENE	UG/L	ND	1	
BENZO (k) FLUORANTHENE	UG/L	ND	1	
CHRYSENE	UG/L	ND	1	
DIBENZO (a, h) ANTHRACENE	UG/L	ND	1	
FLUORANTHENE	UG/L	ND	1	
FLUORENE	UG/L	ND	1	
INDENO (1, 2, 3-cd) PYRENE	UG/L	ND	1	
NAPHTHALENE	UG/L	6	1	
PHENANTHRENE	UG/L	ND	1	
PYRENE	UG/L	ND	1	
1-METHYLNAPHTHALENE	UG/L	ND	1	
2-METHYLNAPHTHALENE	UG/L	ND	1	
2-CHLOROANTHRACENE	%REC/SURR	73	28-138	
ANALYST	INITIALS	JO		

Comments:

[0] Page 2
Date 24-Sep-97

"FINAL REPORT FORMAT - SINGLE"

Accession: 709035
 Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
 Project Number: 709313
 Project Name: NM OIL CONSERVATION DIVISION
 Project Location: LANE SALT LAKE
 Test: POLYNUCLEAR AROMATICS BY 8310
 Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
 Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
 Matrix: WATER
 QC Level: II

Lab Id:	002	Sample Date/Time:	04-SEP-97 1330
Client Sample Id:	709313-05	Received Date:	09-SEP-97
Batch: PAW172		Extraction Date:	09-SEP-97
Blank: A	Dry Weight %: N/A	Analysis Date:	24-SEP-97

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ACENAPHTHENE	UG/L	ND	20	
ACENAPHTHYLENE	UG/L	56	20	
ANTHRACENE	UG/L	38	20	
BENZO(a) ANTHRACENE	UG/L	120	20	
BENZO(a) PYRENE	UG/L	15	20	
BENZO(b) FLUORANTHENE	UG/L	30	20	
BENZO(g,h,i) PERYLENE	UG/L	ND	20	
BENZO(k) FLUORANTHENE	UG/L	ND	20	
CHRYSENE	UG/L	130	20	
DIBENZO(a,h) ANTHRACENE	UG/L	11	20	
FLUORANTHENE	UG/L	310	20	
FLUORENE	UG/L	56	20	
INDENO(1,2,3-cd) PYRENE	UG/L	ND	20	
NAPHTHALENE	UG/L	320	20	
PHENANTHRENE	UG/L	210	20	
PYRENE	UG/L	520	20	
1-METHYLNAPHTHALENE	UG/L	2800	20	E
2-METHYLNAPHTHALENE	UG/L	1600	20	E
2-CHLOROANTHRACENE	%REC/SURR	D	28-138	
ANALYST	INITIALS	JO		

Comments:

E = EXCEEDS THE RANGE OF THE CALIBRATION CURVE, THEREFORE, IT IS AN ESTIMATED VALUE.
 D = DILUTED OUT.

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Date 24-Sep-97

"Method Report Summary"

Accession Number: 709035
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 709313
Project Name: NM OIL CONSERVATION DIVISION
Project Location: LANE SALT LAKE
Test: POLYNUCLEAR AROMATICS BY 8310

Client Sample Id:	Parameter:	Unit:	Result:
709313-04	ACENAPHTHYLENE	UG/L	4
	NAPHTHALENE	UG/L	6
709313-05	ACENAPHTHYLENE	UG/L	56
	ANTHRACENE	UG/L	38
	BENZO (a) ANTHRACENE	UG/L	120
	BENZO (a) PYRENE	UG/L	15
	BENZO (b) FLUORANTHENE	UG/L	30
	CHRYSENE	UG/L	130
	DIBENZO (a, h) ANTHRACENE	UG/L	11
	FLUORANTHENE	UG/L	310
	FLUORENE	UG/L	56
	NAPHTHALENE	UG/L	320
	PHENANTHRENE	UG/L	210
	PYRENE	UG/L	520
	1-METHYLNAPHTHALENE	UG/L	2800
	2-METHYLNAPHTHALENE	UG/L	1600

Quality Control Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	709035
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	709313
Project Name:	NM OIL CONSERVATION DIVISION
Project Location:	LANE SALT LAKE
Department:	SEMI-VOLATILE FUELS

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Date 24-Sep-97

"QC Report"

Title: Water Blank
Batch: PAW172
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Blank Id: A Date Analyzed: 13-SEP-97 Date Extracted: 09-SEP-97

Parameters:	Units:	Results:	Reporting Limits:
ACENAPHTHENE	UG/L	ND	1
ACENAPHTHYLENE	UG/L	ND	1
ANTHRACENE	UG/L	ND	1
BENZO (a) ANTHRACENE	UG/L	ND	1
BENZO (a) PYRENE	UG/L	ND	1
BENZO (b) FLUORANTHENE	UG/L	ND	1
BENZO (g, h, i) PERYLENE	UG/L	ND	1
BENZO (k) FLUORANTHENE	UG/L	ND	1
CHRYSENE	UG/L	ND	1
DIBENZO (a, h) ANTHRACENE	UG/L	ND	1
FLUORANTHENE	UG/L	ND	1
FLUORENE	UG/L	ND	1
INDENO (1, 2, 3-cd) PYRENE	UG/L	ND	1
NAPHTHALENE	UG/L	ND	1
PHENANTHRENE	UG/L	ND	1
PYRENE	UG/L	ND	1
1-METHYLNAPHTHALENE	UG/L	ND	1
2-METHYLNAPHTHALENE	UG/L	ND	1
2-CHLOROANTHRACENE	%REC/SURR	94	28-138
ANALYST	INITIALS	JO	

Comments:

[0] Page 2
Date 24-Sep-97

"QC Report"

Title: Water Reagent
Batch: PAW172
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

RS Date Analyzed: 16-SEP-97
RSD Date Analyzed: 16-SEP-97

RS Date Extracted: 09-SEP-97
RSD Date Extracted: 09-SEP-97

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	RSD Conc	RSD %Rec	RPD	RPD Lmts	Rec Lmts
ACENAPHTHYLENE	10.0	<1	5.4	54	6.8	68	23	35	45-127
BENZO (k) FLUORANTHENE	10.0	<1	8.8	88	9.1	91	3	23	68-131
CHRYSENE	10.0	<1	8.6	86	9.0	90	5	24	69-131
PHENANTHRENE	10.0	<1	8.1	81	8.4	84	4	26	63-124
PYRENE	10.0	<1	7.3	73	6.1	61	18	25	61-126
Surrogates:									
2-CHLOROANTHRACENE				80		88			28-138

Comments:

Notes:

N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

[0] Page 3
Date 24-Sep-97

"QC Report"

Title: Water Matrix
Batch: PAW172
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Dry Weight %: N/A MS Date Analyzed: 18-SEP-97 MS Date Extracted: 09-SEP-97
Sample Spiked: 709030-1 MSD Date Analyzed: 18-SEP-97 MSD Date Extracted: 09-SEP-97

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	Rec Lmts
ACENAPHTHYLENE	10.0	<1	3.7	37	3.5	35	6	51 18-146
BENZO (k) FLUORANTHENE	10.0	<1	7.2	72	7.3	73	1	40 26-137
CHRYSENE	10.0	<1	7.1	71	7.2	72	1	69 16-156
PHENANTHRENE	10.0	<1	6.8	68	6.7	67	1	36 30-145
PYRENE	10.0	<1	6.0	60	5.1	51	16	41 39-137

Surrogates:
2-CHLOROCANTHRACENE 66 69 28-138

Comments:

Notes:

N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common Notation for Organic Reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
UG = MICROGRAMS
UG/L = PARTS PER BILLION
UG/KG = PARTS PER BILLION
MG/M3 = MILLIGRAM PER CUBIC METER
PPMV = PART PER MILLION BY VOLUME
MG/KG = PARTS PER MILLION
MG/L = PARTS PER MILLION
< = LESS THAN
ND = NOT DETECTED

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRYWEIGHT BASIS.

RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

AEN/GC/FID

AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME IONIZATION DETECTOR (FID).

AEN/GC/FIX

AEN GAS CHROMATOGRAPHIC METHOD FOR ANALYSIS OF FIXED GASES EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD) AND FLAME IONIZATION DETECTOR (FID).

AEN/GC/FPD

AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME PHOTOMETRIC DETECTOR (FPD) IN SULFUR-SPECIFIC MODE.

AEN/GC/PID

AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH PHOTOIONIZATION DETECTOR (PID).

AEN/GC/TCD

AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD).

SW-846 METHOD 9020

PARTICULATE MATTER IS REMOVED BY ALLOWING PARTICULATES TO SETTLE IN THE SAMPLE CONTAINER AND DECANTING THE SUPERNATANT LIQUID. EXCESSIVE PARTICULATES ARE REMOVED BY FILTRATION OF THE SUPERNATANT LIQUID.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

SW = STEVE WILHITE
RW = ROBERT WOLFE
KS = KENDALL SMITH
KL = KERRY LEMONT
JO = JENNIFER O'NEAL
LP = LEVERNE PETERSON
PLD = PAULA DOUGHTY

American Environmental Network of Florida

PROJECT SAMPLE INSPECTION FORM

Lab Accession #: 709035

Date Received: 09-Sep-97

- | | |
|---|--|
| <p>1. Was there a Chain of Custody? ☒ Yes ☐ No*</p> <p>2. Was Chain of Custody properly filled out and relinquished? ☒ Yes ☐ No*</p> <p>3. Were samples received cold? ☒ Yes ☐ No* N/A
(Criteria: 1° - 4°C: AEN-SOP 1055)</p> <p>4. Were all samples properly labeled and identified? ☒ Yes ☐ No*</p> <p>5. Did samples require splitting? Yes* ☒ No
Req By: PM Client Other*</p> <p>6. Were samples received in proper containers for analysis requested? ☒ Yes ☐ No*</p> <p>7. Were all sample containers received intact? ☒ Yes ☐ No*</p> | <p>8. Were samples checked for preservative? ☒ Yes ☐ No* N/A
(Check pH of all H₂O requiring preservative except VOA vials that require zero headspace)*</p> <p>9. Is there sufficient volume for analysis requested? ☒ Yes ☐ No*</p> <p>10. Were samples received within Holding Time? ☒ Yes ☐ No*
(REFER TO AEN-SOP 1040)</p> <p>11. Is Headspace visible > ¼" in diameter in VOA vials? Yes* ☐ No ☒ N/A
If any headspace is evident, comment in out-of-control section.</p> <p>12. If sent, were matrix spike bottles returned? Yes ☐ No* ☒ N/A</p> <p>13. Was Project Manager notified of problems? (initials: <u> </u>) Yes ☐ No* ☒ N/A</p> |
|---|--|

Airbill Number(s): 302 8126 141

Shipped By: Yed

Cooler Number(s): N/A

Shipping Charges: N/A

Cooler Weight(s): N/A

Cooler Temp(s) (°C): 10C

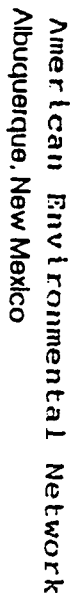
PCIL1
(LIST THERMOMETER NUMBER(S) FOR VERIFICATION)

Out of Control Events and Inspection Comments:

(USE BACK OF THIS FORM FOR ADDITIONAL NOTES AND COMMENTS)

Inspected By: [Signature] Date: 09-Sep-97 Logged By: [Signature] Date: 09-Sep-97

- * Note all Out-of-Control and/or questionable events on Comment Section of this form.
- * Note who requested the splitting of samples on the Comment Section of this form.
- * All preservatives for the State of North Carolina, the State of New York, and other requested samples are to be recorded on the sheet provided to record pH results (AEN-SOP 938, section 2.2.9).
- * According to EPA, ¼" of headspace is allowed in 40 ml vials requiring volatile analysis, however, AEN makes it policy to record any headspace as out-of-control (AEN-SOP 938, section 2.2.12).



Interlab Chain of Custody

DATE: 9-8-97 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 McNeil

709035

[illegible]

PROJECT INFORMATION		SAMPLE RECEIPT		SAMPLES SENT TO:		RELINQUISHED BY: 1.		RELINQUISHED BY: 2.	
PROJECT NUMBER:	709313	TOTAL NUMBER OF CONTAINERS		SAN DIEGO		Signature:	<i>[Signature]</i>	Signature	
PROJECT NAME:	N.M. OCD	CHAIN OF CUSTODY SEALS		Paragon		Printed Name:		Printed Name	
O.C. LEVEL:	STD IV	INACT?		RENTON		Date:	9-8-97	Date	
RECEIVED	MS MSD BLANK	RECEIVED GOOD COND/COLD		PENSACOLA	X	Buenos Aires 9-8-97			
IAI	STANDARD RUSH#	LAB NUMBER		PORTLAND		Abbuquerque			
				PHOENIX		RECEIVED BY:	1.	RECEIVED BY: (LAB)	2.
FILE DATE:	9-21-97					Signature:	<i>[Signature]</i>	Signature:	
RUSH SURCHARGE:						Time:	0818	Time:	
CLIENT DISCOUNT:						Printed Name:	<i>[Signature]</i>	Printed Name:	
SPECIAL CERTIFICATION REQUIRED:	I YES I NO					Date:	9/9/97	Date:	
						Company:	Birdie Hill	Company:	

CHAIN OF CUSTODY

DATE: 9-8-97 PAGE: 1 OF 1
 AEN LAB ID: 7000313

PLEASE FILL THIS FORM IN COMPLETELY.

SHADED AREAS ARE FOR LAB USE ONLY

PROJECT MANAGER: Bill Olson
 COMPANY: NM Oil Conservation Division
 ADDRESS: 2040 S. Pacheco
 PHONE: Santa Fe, NM 87505
 FAX: (505) 827-7154
 (505) 827-8177
 BILL TO: Same
 COMPANY:
 ADDRESS:

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	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: Priority Pollutant Metals (13) Target Analyte List Metals (23) RCRA Metals (8) RCRA Metals by TCLP (Method 1311) Metals:
Site 1	9/4/97	1440	soil	-01	1	
Site 2	9/4/97	1450	soil	-02	1	
Site 3	9/4/97	1500	soil	-03	1	
Seep pond	9/4/97	1515	water	-04	2	
LSLDG	9/5/97	1330	water	-05	2	
TRIP Blank	9-4-97	9:07	AA	-06	X	

PROJECT INFORMATION
 PROJ. NO.:
 PROJ. NAME: Lane SCH Lake
 P.O. NO.:
 SHIPPED VIA:
 SAMPLE RECEIPT
 PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS
 (RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒
 CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER
 METHANOL PRESERVATION ☐
 COMMENTS: FIXED FEE ☐
 RELINQUISHED BY: Signature: Bill Olson Date: 9/8/97
 COMPANY: NMDCO
 RECEIVED BY: Signature: [Signature] Date: 9/8/97
 COMPANY: [Signature]
 RECEIVED BY: Signature: [Signature] Date: 9/8/97
 COMPANY: [Signature]

OF

NUMBER OF CONTAINERS

PLEASE FILL THIS FORM IN COMPLETELY.

4/1/96 AEN Inc.: American Environmental Network (NM), Inc. • 2709-D Pan American Freeway, NE • Albuquerque, New Mexico 87107

DISTRIBUTION: White, Canary - AEN Pink - ORIGINATOR

American Environmental Network, Inc.

AEN I.D. 606337

July 15, 1996

NM Oil Conservation Division
2040 South Pacheco
Santa Fe, NM 87505

RECEIVED

JUL 15 1996

Environmental Bureau
Oil Conservation Division

Project Name/Number: B&E LAGUNA QUATRO (NONE)

Attention: Bill Olson

On 06/21/96, 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.

EPA Method 8310 analyses were performed by Paragon Analytics Inc., 225 Commerce Drive, Fort Collins, CO.

All other analyses were performed by American Environmental Network (NM), Inc., Albuquerque, NM.

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 : NM OIL CONSERVATION DIV. DATE RECEIVED : 06/21/96
PROJECT # : (NONE)
PROJECT NAME : B&E LAGUNA QUATRO REPORT DATE : 07/15/96

AEN ID: 606337

AEN #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	SOUTH 1 SEEP	AQUEOUS	06/20/96
02	NORTH 2 SEEP	AQUEOUS	06/20/96
03	TRIP BLANK	AQUEOUS	06/19/96

---TOTALS---

<u>MATRIX</u>	<u>#SAMPLES</u>
AQUEOUS	3

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.

Interlab Chain of Custody

96-06189

DATE: 6/20/96 PAGE: 1 OF 1

NETWORK PROJECT MANAGER: KIMBERLY D. MCNEILL

COMPANY: Analytical Technologies of New Mexico, Inc.

ADDRESS: 2709-D Pan American Freeway, NE
Albuquerque, NM 87107

CLIENT PROJECT MANAGER:

Kim McNeill

SAMPLE ID DATE TIME MATRIX LAB ID

606337-01 6/20 10:35 AQ 01

-02 11:00 02

Metals - TAL

Metals - PP List

Metals - RCRA

RCRA Metals by TCLP (1311)

8310 - see list

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

PROJECT NUMBER: 606337

PROJECT NAME: NMCD

OC LEVEL: STD IV

OC REQUIRED: MS MSD BLANK

TAT: STANDARD RUSHI

DUE DATE: 7/8

RUSH SURCHARGE: 0

CLIENT DISCOUNT: 0

SPECIAL CERTIFICATION REQUIRED: YES NO

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS

CHAIN OF CUSTODY SEALS

INTACT?

RECEIVED GOOD COND (COLD)

LAB NUMBER

SAMPLES SENT TO:

SAN DIEGO

FT. COLLINS

RENTON

PENSACOLA

PORTLAND

PHOENIX

RELINQUISHED BY:

Signature: Kim McNeill

Printed Name: Kim McNeill

Date: 6/20/96

Analytical Technologies of New Mexico, Inc.
Albuquerque

RECEIVED BY: 1.

Signature: [Signature]

Printed Name: [Name]

Date: [Date]

Company: Felix

RELINQUISHED BY:

Signature: [Signature]

Printed Name: [Name]

Date: [Date]

Company: Felix

RECEIVED BY: (LAB) 2.

Signature: [Signature]

Printed Name: [Name]

Date: [Date]

Company: D.J.

American Environmental Network, Inc.

AEN I.D. 603376

April 15, 1996

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

Project Name/Number: LAGUNA QUATRO LAGUNA GATUNA

Attention: Bill Olson

On 03/28/96, American Environmental Network (NM), Inc., (ADHS License No. AZ0015) (formerly ATI-NM), 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.

For EPA method 8020, sample "9603261300", Benzene is an estimated value above linear range. Sufficient sample was not available for re-analysis due to headspace in sample vial.

EPA method 8020 analyses were performed by American Environmental Network (NM), Inc., Albuquerque, NM.

All other analyses were performed by American Environmental Network (FL) 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.



Kimberly D. McNeill
Project Manager



H. Mitchell Rubenstein, Ph.D.
Laboratory Manager

MR:jt

Enclosure

American Environmental Network, Inc.

CLIENT : NMOCD
PROJECT # : LAGUNA GATUNA
PROJECT NAME : LAGUNA QUATRO

DATE RECEIVED : 03/28/96
REPORT DATE : 04/15/96

AEN ID: 603376

	AEN ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	603376-01	9603261100	AQUEOUS	03/26/96
02	603376-02	9603261300	AQUEOUS	03/26/96

---TOTALS---

<u>MATRIX</u>	<u>#SAMPLES</u>
AQUEOUS	2

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.

"FINAL REPORT FORMAT - SINGLE"

Accession: 603590
Client: AMERICAN ENVIRONMENTAL NETWORK OF NEW MEXICO
Project Number: 603376
Project Name: NM OIL CONSERVATION DIV.
Project Location: LAGUNA QUATRO
Test: Group of Single Metals
Matrix: WATER
QC Level: II

Lab Id: 001 Sample Date/Time: 26-MAR-96 1100
Client Sample Id: 603376-01 Received Date: 29-MAR-96

Parameters:	Units:	Results:	Rpt Lmts:	Q:	Batch:	Analyst:
SILVER (6010)	MG/L	ND	0.05	*	A6W070	JR
ALUMINUM (6010)	MG/L	ND	0.3	*	L6W070	JR
ARSENIC (6010)	MG/L	ND	0.25	*	R6W070	JR
BORON (6010)	MG/L	2.3	0.45	*	O6W070	JR
BARIUM (6010)	MG/L	0.03	0.01	*	B6W070	JR
BERYLLIUM (6010)	MG/L	ND	0.02	*	Y6W070	JR
CALCIUM (6010)	MG/L	1300	5	+	I6W070	JR
CADMIUM (6010)	MG/L	0.040	0.025	*	C6W070	JR
COBALT (6010)	MG/L	ND	0.05	*	T6W070	JR
CHROMIUM (6010)	MG/L	ND	0.05	*	H6W070	JR
COPPER (6010)	MG/L	ND	0.05	*	F6W070	JR
IRON (6010)	MG/L	0.1	0.1	*	N6W070	JR
POTASSIUM (6010)	MG/L	7400	40	+	X6W070	JR
MAGNESIUM (6010)	MG/L	2400	1	+	J6W070	JR
MANGANESE (6010)	MG/L	0.20	0.05	*	G6W070	JR
MOLYBDENUM (6010)	MG/L	ND	0.05	*	D6W070	JR
SODIUM (6010)	MG/L	36000	20	+	16W070	JR
NICKEL (6010)	MG/L	ND	0.1	*	E6W070	JR
LEAD (6010)	MG/L	ND	0.25	*	P6W070	JR
ANTIMONY (6010)	MG/L	ND	0.3	*	36W070	JR
SELENIUM (6010)	MG/L	ND	0.5	*	S6W070	JR
SILICON (6010)	MG/L	24	0.5	+	26W070	JR
THALLIUM (6010)	MG/L	ND	0.5	*	46W070	JR
VANADIUM (6010)	MG/L	0.2	0.05	*	V6W070	JR
ZINC (6010)	MG/L	ND	0.1	*	56W070	JR

Comments:

American Environmental Network, Inc.

"Method Report Summary"

Accession Number: 603590
Client: AMERICAN ENVIRONMENTAL NETWORK OF NEW MEXICO
Project Number: 603376
Project Name: NM OIL CONSERVATION DIV.
Project Location: LAGUNA QUATRO
Test: Group of Single Metals

Client Sample Id:	Parameter:	Unit:	Result:
603376-01	BORON (6010)	MG/L	2.3
	BARIUM (6010)	MG/L	0.03
	CALCIUM (6010)	MG/L	1300
	CADMIUM (6010)	MG/L	0.040
	IRON (6010)	MG/L	0.1
	POTASSIUM (6010)	MG/L	7400
	MAGNESIUM (6010)	MG/L	2400
	MANGANESE (6010)	MG/L	0.20
	SODIUM (6010)	MG/L	36000
	SILICON (6010)	MG/L	24
	VANADIUM (6010)	MG/L	0.2

American Environmental Network, Inc.

"Metals Quality Control Report"						
Parameter:	SILVER	ALUMINUM	ARSENIC	BORON	BARIUM	BERYLLIUM
Batch Id:	A6W070	L6W070	R6W070	O6W070	B6W070	Y6W070
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:	04-APR-96	04-APR-96	04-APR-96	04-APR-96	04-APR-96	04-APR-96
Prep. Date:	04-APR-96	04-APR-96	04-APR-96	04-APR-96	04-APR-96	04-APR-96

Sample Duplication

Sample Dup:	604015-1	604015-1	604015-1	604015-1	604015-1	604015-1
Rept Limit:	<0.01	<0.06	<0.05	<0.09	<0.01	<0.004
Sample Result:	2.0	2.1	1.8	2.2	2.2	2.0
Dup Result:	2.0	2.0	1.9	2.2	2.2	1.9
Sample RPD:	0	5	5	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:	604015-1	604015-1	604015-1	604015-1	604015-1	604015-1
Rept Limit:	<0.01	<0.06	<0.05	<0.09	<0.01	<0.004
Sample Result:	<0.01	<0.06	<0.05	0.18	0.13	<0.004
Spiked Result:	2.0	2.1	1.8	2.2	2.2	2.0
Spike Added:	2.0	2.0	2.0	2.0	2.0	2.0
% Recovery:	100	105	90	101	104	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:	5.0	4.9	5.0	5.0	5.0	5.0
True Result:	5.0	5.0	5.0	5.0	5.0	5.0
% Recovery:	100	98	100	100	100	100
% Rec Limits:	90-110	90-110	90-110	90-110	90-110	90-110

LCS

LCS Result:	2.0	2.0	1.9	1.9	2.1	2.0
True Result:	2.0	2.0	2.0	2.0	2.0	2.0
% Recovery:	100	100	95	95	105	100
% Rec Limits:	80-120	80-120	80-120	80-120	80-120	80-120

American Environmental Network, Inc.

"Metals Quality Control Report"						
Parameter:	CALCIUM	CADMIUM	COBALT	CHROMIUM	COPPER	IRON
Batch Id:	I6W070	C6W070	T6W070	H6W070	F6W070	N6W070
Blank Result:	<1	<0.004	<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:	04-APR-96	04-APR-96	04-APR-96	04-APR-96	04-APR-96	04-APR-96
Prep. Date:	04-APR-96	04-APR-96	04-APR-96	04-APR-96	04-APR-96	04-APR-96

Sample Duplication

Sample Dup:	604015-1	604015-1	604015-1	604015-1	604015-1	604015-1
Rept Limit:	<1	<0.004	<0.01	<0.01	<0.01	<0.02
Sample Result:	130	2.0	2.0	2.0	2.0	2.1
Dup Result:	130	2.0	2.0	2.0	2.0	2.1
Sample RPD:	0	0	0	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:	604015-1	604015-1	604015-1	604015-1	604015-1	604015-1
Rept Limit:	<1	<0.004	<0.01	<0.01	<0.01	<0.02
Sample Result:	110	<0.004	<0.01	<0.01	<0.01	0.11
Spiked Result:	130	2.0	2.0	2.0	2.0	2.1
Spike Added:	20F	2.0	2.0	2.0	2.0	2.0
% Recovery:	100	100	100	100	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:	10.1	5.0	5.1	5.0	5.1	5.1
True Result:	10	5.0	5.0	5.0	5.0	5.0
% Recovery:	101	100	102	100	102	102
% Rec Limits:	90-110	90-110	90-110	90-110	90-110	90-110

LCS

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

American Environmental Network, Inc.

"Metals Quality Control Report"						
Parameter:	POTASSIUM	MAGNESIUM	MANGANESE	MOLYBDENUM	SODIUM	NICKEL
Batch Id:	X6W070	J6W070	G6W070	D6W070	16W070	E6W070
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:	04-APR-96	04-APR-96	04-APR-96	04-APR-96	04-APR-96	04-APR-96
Prep. Date:	04-APR-96	04-APR-96	04-APR-96	04-APR-96	04-APR-96	04-APR-96

Sample Duplication

Sample Dup:	604015-1	604015-1	604015-1	604015-1	604015-1	604015-1
Rept Limit:	<2	<0.2	<0.01	<0.01	<0.2	<0.02
Sample Result:	22	43	2.0	1.8	78	2.0
Dup Result:	22	42	2.0	1.8	76	2.0
Sample RPD:	0	2	0	0	3	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:	604015-1	604015-1	604015-1	604015-1	604015-1	604015-1
Rept Limit:	<2	<0.2	<0.01	<0.01	<0.2	<0.02
Sample Result:	2	22	0.04	0.01	58	<0.02
Spiked Result:	22	43	2.0	1.8	78	2.0
Spike Added:	20	20	2.0	2.0	20	2.0
% Recovery:	100	105	98	90	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:	50	5.0	5.1	5.0	9.8	4.9
True Result:	50	5.0	5.0	5.0	10	5.0
% Recovery:	100	100	102	100	98	98
% Rec Limits:	90-110	90-110	90-110	90-110	90-110	90-110

LCS

LCS Result:	20	21	2.0	1.9	20	2.0
True Result:	20	20	2.0	2.0	20	2.0
% Recovery:	100	105	100	95	100	100
% Rec Limits:	80-120	80-120	80-120	80-120	80-120	80-120

American Environmental Network, Inc.

"Metals Quality Control Report"						
Parameter:	LEAD	ANTIMONY	SELENIUM	SILICON	THALLIUM	VANADIUM
Batch Id:	P6W070	36W070	S6W070	26W070	46W070	V6W070
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:	04-APR-96	04-APR-96	04-APR-96	04-APR-96	04-APR-96	04-APR-96
Prep. Date:	04-APR-96	04-APR-96	04-APR-96	04-APR-96	04-APR-96	04-APR-96

Sample Duplication

Sample Dup:	604015-1	604015-1	604015-1	604015-1	604015-1	604015-1
Rept Limit:	<0.05	<0.06	<0.1	<0.1	<0.1	<0.01
Sample Result:	2.0	1.9	2.0	6.1	1.8	2.1
Dup Result:	2.0	1.9	2.0	6.0	1.8	2.0
Sample RPD:	0	0	0	2	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:	604015-1	604015-1	604015-1	604015-1	604015-1	604015-1
Rept Limit:	<0.05	<0.06	<0.1	<0.1	<0.1	<0.01
Sample Result:	<0.05	<0.06	<0.1	4.3	<0.1	<0.01
Spiked Result:	2.0	1.9	2.0	6.1	1.8	2.1
Spike Added:	2.0	2.0	2.0	2.0	2.0	2.0
% Recovery:	100	95	100	90	90	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:	5.2	4.9	5.1	4.6	5.0	5.0
True Result:	5.0	5.0	5.0	5.0	5.0	5.0
% Recovery:	104	98	102	92	100	100
% Rec Limits:	90-110	90-110	90-110	90-110	90-110	90-110

LCS

LCS Result:	2.0	1.8	2.0	1.9	1.9	2.1
True Result:	2.0	2.0	2.0	2.0	2.0	2.0
% Recovery:	100	90	100	95	95	105
% Rec Limits:	80-120	80-120	80-120	80-120	80-120	80-120

American Environmental Network, Inc.

"Metals Quality Control Report"

Parameter:	ZINC
Batch Id:	56W070
Blank Result:	<0.02
Anal. Method:	6010
Prep. Method:	3010
Analysis Date:	04-APR-96
Prep. Date:	04-APR-96

Sample Duplication

Sample Dup:	604015-1
Rept Limit:	<0.02

Sample Result:	2.0
Dup Result:	2.0
Sample RPD:	0
Max RPD:	20
Dry Weight%	N/A

Matrix Spike

Sample Spiked:	604015-1
Rept Limit:	<0.02
Sample Result:	<0.02
Spiked Result:	2.0
Spike Added:	2.0
% Recovery:	100
% Rec Limits:	75-125
Dry Weight%	N/A

ICV

ICV Result:	5.2
True Result:	5.0
% Recovery:	104
% Rec Limits:	90-110

LCS

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

American Environmental Network, Quality Control Comments"

Batch Id: Comments:

A6W070	ANALYST: JR	
A6W070	The results reported under "Sample Duplication"	are the MS/MSD.
L6W070	ANALYST: JR	
L6W070	The results reported under "Sample Duplication"	are the MS/MSD.
R6W070	ANALYST: JR	
R6W070	The results reported under "Sample Duplication"	are the MS/MSD.
O6W070	ANALYST: JR	
O6W070	The results reported under "Sample Duplication"	are the MS/MSD.
B6W070	ANALYST: JR	
B6W070	The results reported under "Sample Duplication"	are the MS/MSD.
Y6W070	ANALYST: JR	
Y6W070	The results reported under "Sample Duplication"	are the MS/MSD.
I6W070	ANALYST: JR	
I6W070	The results reported under "Sample Duplication"	are the MS/MSD.
C6W070	ANALYST: JR	
C6W070	The results reported under "Sample Duplication"	are the MS/MSD.
T6W070	ANALYST: JR	
T6W070	The results reported under "Sample Duplication"	are the MS/MSD.
H6W070	ANALYST: JR	
H6W070	The results reported under "Sample Duplication"	are the MS/MSD.
F6W070	ANALYST: JR	
F6W070	The results reported under "Sample Duplication"	are the MS/MSD.
N6W070	ANALYST: JR	
N6W070	The results reported under "Sample Duplication"	are the MS/MSD.
X6W070	ANALYST: JR	
X6W070	The results reported under "Sample Duplication"	are the MS/MSD.
J6W070	ANALYST: JR	
J6W070	The results reported under "Sample Duplication"	are the MS/MSD.
G6W070	ANALYST: JR	
G6W070	The results reported under "Sample Duplication"	are the MS/MSD.
D6W070	ANALYST: JR	
D6W070	The results reported under "Sample Duplication"	are the MS/MSD.
16W070	ANALYST: JR	
16W070	The results reported under "Sample Duplication"	are the MS/MSD.
E6W070	ANALYST: JR	
E6W070	The results reported under "Sample Duplication"	are the MS/MSD.
P6W070	ANALYST: JR	
P6W070	The results reported under "Sample Duplication"	are the MS/MSD.
36W070	ANALYST: JR	
36W070	The results reported under "Sample Duplication"	are the MS/MSD.
S6W070	ANALYST: JR	
S6W070	The results reported under "Sample Duplication"	are the MS/MSD.
26W070	ANALYST: JR	
26W070	The results reported under "Sample Duplication"	are the MS/MSD.
46W070	ANALYST: JR	
46W070	The results reported under "Sample Duplication"	are the MS/MSD.
V6W070	ANALYST: JR	
V6W070	The results reported under "Sample Duplication"	are the MS/MSD.
56W070	ANALYST: JR	
56W070	The results reported under "Sample Duplication"	are the MS/MSD.

American Environmental Network, 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.
U = (FLORIDA DEP 'U' FLAG) - THE COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED.
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.

GJ = GARY JACOBS
JLH = JAMES L. HERED
CD = CHRISTY DRAPER

JR = JOHN REED
LV = LASSANDRA VON APPEN

American Environmental Network, Inc.

GAS CHROMATOGRAPHY RESULTS

TEST : PURGEABLE AROMATICS (EPA 8020)
CLIENT : NMCD AEN I.D.: 603376
PROJECT # : LAGUNA GATUNA
PROJECT NAME : LAGUNA QUATRO

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	9603261100	AQUEOUS	03/26/96	NA	04/03/96	1
02	9603261300	AQUEOUS	03/26/96	NA	04/03/96	1
PARAMETER			UNITS	01	02	
BENZENE			UG/L	<0.5	120 E	
CHLOROBENZENE			UG/L	<0.5	<0.5	
1,2-DICHLOROBENZENE			UG/L	<0.5	<0.5	
1,3-DICHLOROBENZENE			UG/L	<0.5	<0.5	
1,4-DICHLOROBENZENE			UG/L	<0.5	<0.5	
ETHYLBENZENE			UG/L	<0.5	<0.5	
METHYL-t-BUTYL ETHER			UG/L	<2.5	<2.5	
TOLUENE			UG/L	<0.5	<0.5	
TOTAL XYLENES			UG/L	<0.5	<0.5	

SURROGATES:

TRIFLUOROTOLUENE (%) 86 87

E=ESTIMATED VALUE, OVER RANGE

GAS CHROMATOGRAPHY RESULTS - QUALITY CONTROL

REAGENT BLANK

TEST	: EPA 8020	AEN I.D.	: 603376
BLANK I.D.	: 040396	MATRIX	: AQUEOUS
CLIENT	: NMOCD	DATE EXTRACTED	: NA
PROJECT #	: LAGUNA GATUNA	DATE ANALYZED	: 04/03/96
PROJECT NAME	: LAGUNA QUATRO	DIL. FACTOR	: 1

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
CHLOROBENZENE	UG/L	<0.5
1,2-DICHLOROBENZENE	UG/L	<0.5
1,3-DICHLOROBENZENE	UG/L	<0.5
1,4-DICHLOROBENZENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
METHYL-t-BUTYL ETHER	UG/L	<2.5
TOLUENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5

SURROGATES:

TRIFLUOROTOLUENE (%)

98

GAS CHROMATOGRAPHY RESULTS - QUALITY CONTROL

REAGENT BLANK

TEST	: EPA 8020	AEN I.D.	: 603376
BLANK I.D.	: 040296B	MATRIX	: AQUEOUS
CLIENT	: NMOC	DATE EXTRACTED	: NA
PROJECT #	: LAGUNA GATUNA	DATE ANALYZED	: 04/03/96
PROJECT NAME	: LAGUNA QUATRO	DIL. FACTOR	: 1

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
CHLOROBENZENE	UG/L	<0.5
1,2-DICHLOROBENZENE	UG/L	<0.5
1,3-DICHLOROBENZENE	UG/L	<0.5
1,4-DICHLOROBENZENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
METHYL-t-BUTYL ETHER	UG/L	<2.5
TOLUENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5

SURROGATES:

TRIFLUOROTOLUENE (%)	102
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GAS CHROMATOGRAPHY - QUALITY CONTROL

MSMSD

TEST : (EPA 8020)
MSMSD # : 60336101 AEN I.D. : 603376
CLIENT : NMOCD DATE EXTRACTED : NA
PROJECT # : LAGUNA GATUNA DATE ANALYZED : 04/01/96
04/02/96
PROJECT NAME : LAGUNA QUATRO SAMPLE MATRIX : AQUEOUS
REF. I.D. : 60336101 UNITS : UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD
BENZENE	<0.5	10.0	12.0	120	11.7	117	3
ETHYLBENZENE	<0.5	10.0	12.5	125	12.1	121	3
TOLUENE	<0.5	10.0	12.0	120	11.8	118	2
TOTAL XYLENES	<0.5	30.0	36.9	123	35.9	120	3
METHYL-t-BUTYL ETHER	<2.5	10.0	11.2	112	11.0	110	2

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

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



Analytical Technologies of New Mexico, Inc.
Albuquerque, New Mexico

Interlab Chain of Custody

DATE: 3-28-98 PAGE: 1 OF 1

NETWORK PROJECT MANAGER: KIMBERLY D. McNEILL				ANALYSIS REQUEST															
COMPANY: Analytical Technologies of New Mexico, Inc.																			
ADDRESS: 2709-D Pan American Freeway, NE Albuquerque, NM 87107																			
CLIENT PROJECT MANAGER: Kim McNeill																			
SAMPLE ID: 60337C-01				DATE: 3-26-98	TIME: 1100	MATRIX: AG	LAB ID: 1	Metals - TAL											
								Metals - PP List											
								Metals - RCRA											
								RCRA Metals by TCLP (1311)											
								ICAP METALS (6010)											
								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															
PROJECT NUMBER: 603376				TOTAL NUMBER OF CONTAINERS															
PROJECT NAME: Laguna Pueblo (OCD)				CHAIN OF CUSTODY SEALS															
OC LEVEL: STD IV				INTACT?															
OC REQUIRED: MS MSD BLANK				RECEIVED GOOD COND./COLD															
TAT: STANDARD RUSH:				LAB NUMBER 603590															
DUE DATE: 4-2-98				See attached list of metals for analysis															
RUSH SURCHARGE: Quote				SC															
CLIENT DISCOUNT: YES NO																			
SPECIAL CERTIFICATION REQUIRED: YES NO																			
SAMPLES SENT TO:				RELINQUISHED BY: 1.				RELINQUISHED BY: 2.											
SAN DIEGO				Signature: [Signature] Time: 5:00				Signature: [Signature] Time: [Blank]											
FT. COLLINS				Printed Name: John C. [Blank] Date: 3-28-98				Printed Name: [Blank] Date: [Blank]											
RENTON				Analytical Technologies of New Mexico, Inc. Albuquerque				RECEIVED BY: 1.											
PENSACOLA				Signature: [Signature] Time: [Blank]				Signature: [Signature] Time: 1005											
PORTLAND				Printed Name: [Blank] Date: [Blank]				Printed Name: K. ELS [Blank] Date: 3/29/98											
PHOENIX				Company: [Blank]				Company: ALEN-FL											

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

PROJECT MANAGER: Bill Olson

COMPANY: N.M. Oil Conservation Div.
ADDRESS: 2040 S. Pacheco
 Suite 12 NM 87505
PHONE: (505) 827-7154
FAX:
BILL TO: Same
COMPANY:
ADDRESS:

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
9603261100	3/26/96	1100	water	-01
9603261300	3/26/96	1300	water	-02

PROJECT INFORMATION

PROJ. NO.: Laguna Gutierrez
 PROJ. NAME: Laguna Quattro
 P.O. NO.:
 SHIPPED VIA: RECEIVED COLD

SAMPLE RECEIPT

NO. CONTAINERS: 5
 CUSTODY SEALS: 1 DNA
 RECEIVED INTACT: Y
 RECEIVED COLD: Y

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS
 (RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒ 2 WEEK

Comments:

ANALYSIS REQUEST

Petroleum Hydrocarbons (418.1)
 (MOD 8015) Gas/Diesel
 Diesel/Gasoline/BTXE/MTBE (MOD 8015/8020)
 BTXE/MTBE (8020)

Chlorinated Hydrocarbons (601/8010)
 Aromatic Hydrocarbons (602/8020)
 SDWA Volatiles (502.1/503.1), 502.2 Reg. & Unreg.

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)

SDWA Primary Standards - Arizona
 SDWA Secondary Standards - Arizona
 SDWA Primary Standards - Federal
 SDWA Secondary Standards - Federal

ICAP Metals (6010)
 The 13 Priority Pollutant Metals
 RCRA Metals by Total Digestion
 RCRA Metals by TCLP (1311)

SAMPLED & RELINQUISHED BY:

1. Signature: Bill Olson Date: 3/27/96 Time: 1650
 Printed Name: Bill Olson Date: 3/27/96
 Company: NMCCO Phone: 827-7154

2. Signature: Bill Olson Date: 10:05
 Printed Name: Bill Olson Date: 3/28
 Company: AEN

3. Signature: Bill Olson Date: 10:06
 Printed Name: Bill Olson Date: 3-28-96
 Company: Analytical Technologies, Inc.

RECEIVED BY:

1. Signature: Bill Olson Date: 3/27/96 Time: 1650
 Printed Name: Bill Olson Date: 3/27/96
 Company: AEN

2. Signature: Bill Olson Date: 10:05
 Printed Name: Bill Olson Date: 3/28
 Company: AEN

3. Signature: Bill Olson Date: 10:06
 Printed Name: Bill Olson Date: 3-28-96
 Company: Analytical Technologies, Inc.

NUMBER OF CONTAINERS

3
 2

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700700 Camino de Salud, NE
[505]-841-2500

WATER CHEMISTRY SECTION [505]-841-2555

May 15, 1992

Request
ID No. 022226**ANALYTICAL REPORT**
SLD Accession No. WC-92-0289Distribution☐ User 70320
☒ Submitter 995
☒ SLD FilesTo: R. Anderson
N.M. Oil Conservation Div.
P.O. Box 2088
Santa Fe, N.M. 87504-2088From: Water Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: A water, Nonpres, Fi sample submitted to this laboratory on February 17, 1992

DEMOGRAPHIC DATA

COLLECTION		LOCATION
On: 12-Feb-92	By: Bro ...	Lake Outside Berm
At: 12:15 hrs.	In/Near: Carlsbad	

ANALYTICAL RESULTS

Analysis	Value	D. Lmt.	Units
calcium	710.00		mG/L
magnesium	1807.00		mG/L
potassium	17000.00		mG/L
sodium	28733.00		mG/L
bicarbonate	194.00		mG/L
carbonate	0.00		mG/L
chloride	133000.00		mG/L
sulfate	11300.00		mG/L
total diss resid	247370.00		mG/L

Reviewed By:

JDR
John D. Ritts05/12/92
05/12/92

Analyst, Water 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.

OR92 0322

Date

Received: 2/17/92

Request ID No. 022227-C

2 User Code #: 17103210		3 Request ID No.:		4 Priority Code #:		[If "1" or "2", call EID-SLD Coordinator]	
5 Facility Name: BSE Laguna Quatro				6 County: Eddy		7 City: Carlsbad	
8 State: NM							
9 Sample Location: LAKE, MOUNTAIN, BERM							
10 Collected By: Kathy BIRIO On: 02/02/92 At: 11:21:15 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: Roger C. Anderson 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				15 Sampling Information: Sample Purpose: ☒ Grab ☐ Composite ☐ Compliance ☐ Check ☐ Monitoring ☒ Special ☐ 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				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 Ag Cl ₂			
This form accompanies a single sample consisting of: 2 - septum vial(s) (volume = 40ml each) - glass jugs (volume =) (volume =)							

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:

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700700 Camino de Salud, NE
[505]-841-2500

WATER CHEMISTRY SECTION [505]-841-2555

April 24, 1992

Request
ID No. 022224**ANALYTICAL REPORT**
SLD Accession No. WC-92-0292Distribution☐ User 70320
☒ Submitter 0
☒ SLD FilesTo: R. Anderson
NM oil conservation Division
P.O. Box 2088
Santa Fe, NM 87504From: Water Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

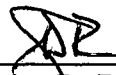
Re: This laboratory on February 17, 1992

DEMOGRAPHIC DATA

COLLECTION		LOCATION
On: 12-Feb-92	By: Bro . . .	Inside Berm
At: 12:00 hrs.	In/Near: Carlsbad	

ANALYTICAL RESULTS

Analysis	Value	D. Lmt.	Units
calcium	1192.00		mG/L
magnesium	4800.00		mG/L
potassium	18000.00		mG/L
sodium	69958.00		mG/L
bicarbonate	217.00		mG/L
carbonate	0.00		mG/L
chloride	141500.00		mG/L
sulfate	12000.00		mG/L
total diss resid	264010.00		mG/L

Reviewed By: John D. Ritts 04/24/92
Analyst, Water Chemistry Section

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, 1992

Request
ID No. 022227**ANALYTICAL REPORT**
SLD Accession No. OR-92-0322Distribution☐ User 70320
☒ Submitter 260
☒ SLD FilesTo: R. Anderson
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 February 17, 1992

DEMOGRAPHIC DATA

COLLECTION		LOCATION
On: 12-Feb-92	By: Bro . . .	Lake Outside Berm
At: 12:15 hrs.	In/Near: Carlsbad	

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable [EPA-601/2] Screen {754}

Parameter	Value	Note	MDL	Units
EPA 601/2 Volatiles (60)	0.00	N	10.00	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:

This sample was analyzed first on 2/19/92 and was judged unacceptable by the analyst. It was re-analyzed on 2/20/92 with the results reported.

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-92-0322
Sample wt/vol: 5.0 (g/mL) mL	SLD Batch No: 36
Level: (low/med) Low	Date Received: 2/17/92
% Moisture: not dec. N/A dec. N/A	Date Extracted: N/A
Extraction: (SepF/Cont/Sonc) N/A	Date Analyzed: 2/20/92
GPC Cleanup: (Y/N) No pH: _____	Dilution Factor: 10
	CONCENTRATION UNITS:
	(ug/L or ug/Kg): ug/L

(Continued on page 2.)

ANALYTICAL REPORT
 SLD Accession No. OR-92-0322
 Continuation, Page 2 of 4

This sample was analyzed for the following compounds
 using EPA Methods 601 & 602

CAS NO.	COMPOUND	CONC.	QUALIFIER
67-64-1	Acetone	50.0	U
71-43-2	Benzene	10.0	U
108-86-1	Bromobenzene	10.0	U
74-97-5	Bromochloromethane	10.0	U
75-27-4	Bromodichloromethane	10.0	U
75-25-2	Bromoform	10.0	U
78-93-3	2-Butanone (MEK)	50.0	U
104-51-8	n-Butylbenzene	10.0	U
135-98-8	sec-Butylbenzene	10.0	U
98-06-6	tert-Butylbenzene	10.0	U
1634-04-4	tert-Butyl methyl ether (MTBE)	50.0	U
56-23-5	Carbon tetrachloride	10.0	U
108-90-7	Chlorobenzene	10.0	U
67-66-3	Chloroform	10.0	U
95-49-8	2-Chlorotoluene	10.0	U
106-43-4	4-Chlorotoluene	10.0	U
96-12-8	1,2-Dibromo-3-chloropropane	10.0	U
124-48-1	Dibromochloromethane	10.0	U
106-93-4	1,2-Dibromoethane	10.0	U
74-95-3	Dibromomethane	10.0	U
95-50-1	1,2-Dichlorobenzene	10.0	U
541-73-1	1,3-Dichlorobenzene	10.0	U
106-46-7	1,4-Dichlorobenzene	10.0	U
75-71-8	Dichlorodifluoromethane	10.0	U
75-34-3	1,1-Dichloroethane	10.0	U
107-06-2	1,2-Dichloroethane	10.0	U
75-35-4	1,1-Dichloroethene	10.0	U
156-59-4	cis-1,2-Dichloroethene	10.0	U
156-60-5	trans-1,2-Dichloroethene	10.0	U
78-87-5	1,2-Dichloropropane	10.0	U
142-28-9	1,3-Dichloropropane	10.0	U
590-20-7	2,2-Dichloropropane	10.0	U
563-58-6	1,1-Dichloropropene	10.0	U
1006-01-5	cis-1,3-Dichloropropene	10.0	U
1006-02-6	trans-1,3-Dichloropropene	10.0	U
100-41-4	Ethylbenzene	10.0	U
87-68-3	Hexachlorobutadiene	10.0	U
98-82-8	Isopropylbenzene	10.0	U
99-87-6	4-Isopropyltoluene	10.0	U

(Continued on page 3.)

ANALYTICAL REPORT
 SLD Accession No. OR-92-0322
 Continuation, Page 3 of 4

75-09-2	Methylene chloride	10.0	U
90-12-0	1-Methylnaphthalene	10.0	U
91-57-6	2-Methylnaphthalene	10.0	U
91-20-3	Naphthalene	10.0	U
103-65-1	Propylbenzene	10.0	U
100-42-5	Styrene	10.0	U
630-20-6	1,1,1,2-Tetrachloroethane	10.0	U
79-34-5	1,1,2,2-Tetrachloroethane	10.0	U
127-18-4	Tetrachloroethene	10.0	U
109-99-9	Tetrahydrofuran (THF)	50.0	U
108-88-3	Toluene	10.0	U
87-61-5	1,2,3-Trichlorobenzene	10.0	U
120-82-1	1,2,4-Trichlorobenzene	10.0	U
71-55-6	1,1,1-Trichloroethane	10.0	U
79-00-5	1,1,2-Trichloroethane	10.0	U
79-01-6	Trichloroethene	10.0	U
75-69-4	Trichlorofluoromethane	10.0	U
96-18-4	1,2,3-Trichloropropane	10.0	U
95-63-6	1,2,4-Trimethylbenzene	10.0	U
108-67-8	1,3,5-Trimethylbenzene	10.0	U
75-01-4	Vinyl chloride	10.0	U
95-47-6	o-Xylene	10.0	U
N/A	p- & m-Xylene	10.0	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

(Continued on page 4.)

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	

SURROGATE RECOVERIES:

SURROGATE	CONCENTRATION	% RECOVERY
4-Bromofluorobenzene	251.4 ppb	100.6
2-Bromo-1-chloropropane	247.3 ppb	98.9

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
Trichloroethene	30.4 ppb	121.6

Analyst: _____

Gary C. Eden
Gary C. Eden
Analyst, Organic Chemistry

Reviewed By: _____

Richard F. Meyerhein
Richard F. Meyerhein 03/04/92
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.

1 DR92 0321 C

Date

Received: 2/17/92

2 User Code #: 7103210		3 Request ID No.:		Request ID No. 022225-C		4 Priority Code #:		[If "1" or "2", call EID-SLD Coordinator]	
5 Facility Name: B+E Laguna Quatro				6 County: Eddy		7 City: Carlsbad		8 State: NM	
9 Sample Location: INSIDE BERM									
10 Collected By: Kathy		10 Collected By: BROWN		On: 92/02/12		At: 2:00		hrs.	
First		Last		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: Roger C. Anderson David G. Boyer				14 Phone #: (505) 827-5812					
Address: New Mexico Oil Conservation Division				15 Sampling Information:					
P. O. Box 2088				Sample Purpose: ☒ 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: , Conductivity: umhos @ °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:									
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 ☐ 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 MgCl2					
2 - septum vial(s) (volume = 40ml each)									
- glass jugs (volume =)									
- (volume =)									
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)					☐ - (763) Acid Extractables				
☒ - (754) Aromatic & Halogenated Purgeables (EPA 601 & 602)					☐ - (751) Aliphatic Hydrocarbons				
☐ - (765) Mass Spectrometer Purgeables (EPA 624)					☐ - (755) Base/Neutral Extractables (EPA 625)				
☐ - (766) SDWA Total Trihalomethanes (EPA 501.1)					☐ - (756) Base/Neutral/Acid Extractables (EPA 8270)				
☐ - (774) SDWA VOC's I [8 Regulated +] (EPA 502.2)					☐ - (758) Herbicides, Chlorophenoxy Acid				
☐ - (775) SDWA VOC's II [EDB & DBCP] (EPA 504)					☐ - (759) Herbicides, Triazines				
<u>Other Specific Compounds or Classes:</u>					☐ - (760) Organochlorine Pesticides				
☐ - ()					☐ - (761) Organophosphate Pesticides				
☐ - ()					☐ - (767) Polychlorinated Biphenyls (PCB's)				
☐ - ()					☐ - (764) Polynuclear Aromatic Hydrocarbons				
					☐ - (762) SDWA Pesticides & Herbicides				
Remarks:									

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	

SURROGATE RECOVERIES:

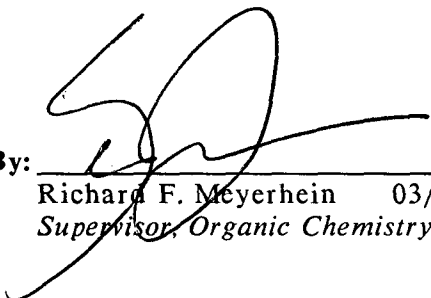
SURROGATE	CONCENTRATION	% RECOVERY
4-Bromofluorobezene	10.0 ppb	100.4
2-Bromo-1-chloropropane	10.0 ppb	100.5

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
Trichloroethene	30.4 ppb	121.6

Analyst: 

Gary C. Eden
Analyst, Organic Chemistry

Reviewed By: 

Richard F. Meyerhein 03/04/92
Supervisor, Organic Chemistry Section

ANALYTICAL REPORT
 SLD Accession No. OR-92-0321
 Continuation, Page 3 of 4

563-58-6	1,1-Dichloropropene	10.0	U
1006-01-5	cis-1,3-Dichloropropene	10.0	U
1006-02-6	trans-1,3-Dichloropropene	10.0	U
100-41-4	Ethylbenzene	10.0	U
87-68-3	Hexachlorobutadiene	10.0	U
98-82-8	Isopropylbenzene	10.0	U
99-87-6	4-Isopropyltoluene	10.0	U
75-09-2	Methylene chloride	10.0	U
90-12-0	1-Methylnaphthalene	10.0	U
91-57-6	2-Methylnaphthalene	10.0	U
91-20-3	Naphthalene	22.4	
103-65-1	Propylbenzene	10.0	U
100-42-5	Styrene	10.0	U
630-20-6	1,1,1,2-Tetrachloroethane	10.0	U
79-34-5	1,1,2,2-Tetrachloroethane	10.0	U
127-18-4	Tetrachloroethene	10.0	U
109-99-9	Tetrahydrofuran (THF)	50.0	U
108-88-3	Toluene	3.7	J
87-61-5	1,2,3-Trichlorobenzene	10.0	U
120-82-1	1,2,4-Trichlorobenzene	10.0	U
71-55-6	1,1,1-Trichloroethane	10.0	U
79-00-5	1,1,2-Trichloroethane	10.0	U
79-01-6	Trichloroethene	10.0	U
75-69-4	Trichlorofluoromethane	10.0	U
96-18-4	1,2,3-Trichloropropane	10.0	U
95-63-6	1,2,4-Trimethylbenzene	10.0	U
108-67-8	1,3,5-Trimethylbenzene	10.0	U
75-01-4	Vinyl chloride	10.0	U
95-47-6	o-Xylene	10.0	U
N/A	p- & m-Xylene	4.2	J

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

(Continued on page 4.)

ANALYTICAL REPORT
SLD Accession No. OR-92-0321
Continuation, Page 2 of 4

Level: (low/med) Low
% Moisture: not dec. N/A dec. N/A
Extraction: (SepF/Cont/Sonc) N/A
GPC Cleanup: (Y/N) No pH:

Date Received: 2/17/92
Date Extracted: N/A
Date Analyzed: 2/26/92
Dilution Factor: 10
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	50.0	U
71-43-2	Benzene	10.0	U
108-86-1	Bromobenzene	10.0	U
74-97-5	Bromochloromethane	10.0	U
75-27-4	Bromodichloromethane	10.0	U
75-25-2	Bromoform	10.0	U
78-93-3	2-Butanone (MEK)	50.0	U
104-51-8	n-Butylbenzene	10.0	U
135-98-8	sec-Butylbenzene	10.0	U
98-06-6	tert-Butylbenzene	10.0	U
1634-04-4	tert-Butyl methyl ether (MTBE)	50.0	U
56-23-5	Carbon tetrachloride	10.0	U
108-90-7	Chlorobenzene	10.0	U
67-66-3	Chloroform	10.0	U
95-49-8	2-Chlorotoluene	10.0	U
106-43-4	4-Chlorotoluene	10.0	U
96-12-8	1,2-Dibromo-3-chloropropane	10.0	U
124-48-1	Dibromochloromethane	10.0	U
106-93-4	1,2-Dibromoethane	10.0	U
74-95-3	Dibromomethane	10.0	U
95-50-1	1,2-Dichlorobenzene	10.0	U
541-73-1	1,3-Dichlorobenzene	10.0	U
106-46-7	1,4-Dichlorobenzene	10.0	U
75-71-8	Dichlorodifluoromethane	10.0	U
75-34-3	1,1-Dichloroethane	10.0	U
107-06-2	1,2-Dichloroethane	10.0	U
75-35-4	1,1-Dichloroethene	10.0	U
156-59-4	cis-1,2-Dichloroethene	10.0	U
156-60-5	trans-1,2-Dichloroethene	10.0	U
78-87-5	1,2-Dichloropropane	10.0	U
142-28-9	1,3-Dichloropropane	10.0	U
590-20-7	2,2-Dichloropropane	10.0	U

(Continued on page 3.)

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, 1992

Request
ID No. 022225**ANALYTICAL REPORT**
SLD Accession No. OR-92-0321Distribution☐ User 70320
☒ Submitter 260
☒ SLD FilesTo: R. Anderson
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 February 17, 1992

DEMOGRAPHIC DATA

COLLECTION		LOCATION
On: 12-Feb-92	By: Bro . . .	Inside Berm
At: 12:00 hrs.	In/Near: Carlsbad	

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable [EPA-601/2] Screen (754)

Parameter	Value	Note	MDL	Units
Toluene	3.70	T	10.00	ppb
p- & m-Xylene	4.20	T	10.00	ppb
Naphthalene	22.40		10.00	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: [Signature] Date: _____Laboratory Remarks:

Four late eluting compounds in the C3 substituted benzene region at trace-20 ppb were detected by the photoionization detector, but not identified.

This sample was analyzed first on 2/19/92 and was judged unacceptable by the analyst. It was re-analyzed on 2/26/92 with the results reported.

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-92-0321
Sample wt/vol: 5.0 (g/mL) mL	SLD Batch No: 36

(Continued on page 2.)



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received 11/9/89 Lab No. ICP-19 User Code ☒ 82235 ☐ Other:

COLLECTION DATE & TIME: yy mm dd hh mm
09 01 13 12 20

COLLECTION SITE DESCRIPTION

Laguna Cuarta

S. Side Highway 128

OWNER: _____

SITE LOCATION:

County: El Paso

Township, Range, Section, Tract: (10N06E24342)

23S+30E+06+231

COLLECTED BY: Boyer/Landerson OCS

TO:

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg., PO Box 2088
SANTA FE, NM 87504-2088

ATTN: D. Boyer
TELEPHONE: 827-5812

STATION/ WELL CODE: _____

LATITUDE, LONGITUDE: _____

SAMPLING CONDITIONS:

☐ Bailed ☐ Pump ☐ Water Level: ☐ Discharge: ☐ Sample Type: Grab
☒ Dipped ☐ Tap

pH(00400) 7 Conductivity(Uncorr.) >50,000 μmho Water Temp.(00010) $^{\circ}\text{C}$ Conductivity at 25 $^{\circ}\text{C}$ (00094) μmho

FIELD COMMENTS: _____

SAMPLE FIELD TREATMENT

Check proper boxes:

☒ WPN: Water Preserved w/HNO₃ Non-Filtered
☐ WPF: Water Preserved w/HNO₃ Filtered

LAB ANALYSIS REQUESTED:

☒ ICAP Scan
Mark box next to metal if AA is required.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	<1.0		Silicon	7.7	
Barium	<1.0		Silver	<1.0	☐
Beryllium	<1.0		Strontium	<u>4.9</u>	
Boron	10.		Tin	6	
Cadmium	<1.0	☐	Vanadium	1.8	
Calcium	680.		Zinc	<1.0	
Chromium	<1.0	☐	Arsenic		☒ <0.5
Cobalt	<0.5		Selenium		☐
Copper	<1.0		Mercury		☒ <0.0005
Iron	<1.0				☐
Lead	<1.0	☐			☐
Magnesium	5020				☐
Manganese	0.87				☐
Molybdenum	<1.0				☐
Nickel	<1.0				☐

LAB COMMENTS: _____

DIGEST

For OCD Use:

Date Owner Notified: _____

Phone or Letter? _____

Initials: _____

ICAP Analyst JFA

Date Analyzed 2/27/89

Reviewer John L. Meyer

Date Received 3/13/89

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	46.91	940.00	<3.0
Mg	476.96	5807.00	<0.3
Na	4038.71	92850.00	<10.0
K	473.66	18520.00	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	

SUMS 5036.24 118117.00

Total Dissolved Solids = >100000
Ion Balance = 111.78%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	3.82	233.00	<1.0
SO4	594.79	28550.00	<10.0
CL	3906.91	#####	<5.0
		(138,500)	
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	4505.52	#####	

WC No. = 8800092
Date out/By Deen 2/16/89

RECEIVED
FEB 23 1989
OIL CONSERVATION DIVISION
SANTA FE



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

859
Wmn

RECEIVED
FEB 22 1989
GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS
CONSERVATION

DATE RECEIVED	1/19/89	LAB NO.	WC-92	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	09/01/83	SITE INFORMATION	Sample location		
Collection TIME	1220		Laguna Cuarto		
Collected by: Person/Agency		Collection site description			
Boyer/Anderson/OCD		S. Side, Highway 128			

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5312

Station/
well code 235-30E-0623
Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped	☐ Pump ☐ Tap	Water level	Discharge	Sample type
				Grab
pH (00400)	7	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		> 50,000 µmho	°C	µmho
Field comments				

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	1	☒ NF: Whole sample (Non-filtered)	☐ F: Filtered in field with 0.45 µm membrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
☒ NA: No acid added		☐ Other-specify: ☐ A: 5ml conc. HNO ₃ added ☐ A: 4ml fuming HNO ₃ added		

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From	NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	µmho	1/27	W5	Calcium	1/23/89
☐ Total non-filterable residue (suspended) (00530)	mg/l			Potassium	1/24
☒ Other: Lab pH		1/23		Magnesium	1/23/89
☐ Other:				Sodium	1/24
☐ Other:				Bicarbonate	1/23
A-H₂SO₄				Chloride	2/2
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l			Sulfate	2/2
☐ Ammonia-N total (00610)	mg/l			Total Solids	2/9
☐ Total Kjeldahl-N ()	mg/l			BR	2/07
☐ Chemical oxygen demand (00340)	mg/l			CO ₂	1/23
☐ Total organic carbon ()	mg/l			Cation/Anion Balance	
☐ Other:			Analyst	Date Reported	Reviewed by
☐ Other:				2/16/89	C. Dean
Laboratory remarks					
170100					

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initials _____

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud, NE
Albuquerque, NM 87106 [505]-841-2500
ORGANIC CHEMISTRY SECTION [505]-841-2570

February 1, 1989

ANALYTICAL REPORT
SLD Accession No. OR-89-0042

Distribution

(■) Submitter

(☒) SLD Files

To: NM Oil Conserv. 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 purgeable water sample submitted to this laboratory on January 19, 1989

User:

OIL CONSERVATION DIV
State Land Office Bldg.
P. O. Box 2088
Santa Fe, NM 87504-2088

DEMOGRAPHIC DATA

COLLECTION		LOCATION	
On: 13-Jan-89	By: Boy . . .	Township: 23S	Section: 06
At: 12:20 hrs.	In/Near: Carlsbad	Range: 30E	Tract: 23

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable Screen

Parameter	Value	Note	MDL	Units
Aromatic Purgeables (6)	0.00	N	100.00	ppb
Halogenated Purgeables (33)	0.00	N	100.00	ppb

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.

Seals: Not Sealed ☒ Intact: No ☐ Yes ☐ & Broken By: _____ Date: _____Laboratory Remarks: Laguna QuartoAnalyst: Gary C. Eden

Gary C. Eden
Analyst, Organic Chemistry

1/21/89
Analysis
Date

Reviewed By: R. Meyerhein

Richard F. Meyerhein 02/01/89
Supervisor, Organic Chemistry Section



SCIENTIFIC LABORATORY DIVISION
ORGANIC ANALYSIS REQUEST FORM
Organic Section - Phone: 841-2570

754
WPU

89-42 C

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088
S.L.D. No. OR-
DATE REC. 1-19-89
PRIORITY 5
PHONE(S): 827-5812
COLLECTION CITY: E. of Cortez; COUNTY: Eddy
COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) 09/01/113/1220
LOCATION CODE: (Township-Range-Section-Tracts) 23S+30E+06+234 (10N06E24342)
USER CODE: 82235 SUBMITTER: David Boyer CODE: 260
SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: ☐

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
☒ P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

RECEIVED

APR 27 1989

OIL CONSERVATION DIV.
SANTA FE

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
☐ (774) SDWA VOC's I (8 Regulated +)
☐ (775) SDWA VOC's II (EDB & DBCP)
Other Specific Compounds or Classes

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (755) Base/Neutral Extractables
☐ (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: Halogenated 10ppb or less if possible

FIELD DATA:

pH= 7; Conductivity= 750,000 umho/cm at °C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate

Depth to water ft.; Depth of well ft.; Perforation Interval - ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Laguna Quarta - S. Side State Highway 12B

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector) David A. Boyer Method of Shipment to the Lab: State Car

CHAIN OF CUSTODY

I certify that this sample was transferred from to

at (location) on - and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ OR Seals Intact: Yes ☐ No ☐

Signatures

For OCD use: Date owner notified: 6/20/89 Phone or Letter? Initials JAB

ANALYSES PERFORMED

LAB. No.: OR-

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
☐ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
☐ (774) SDWA VOC's I (8 Regulated +)
☐ (775) SDWA VOC's II (EDB & DBCP)
 Other Specific Compounds or Classes

Other Specific Compounds or Classes

EXTRACTABLE SCREENS

- | | |
|--------------------------|---|
| ☐ | (751) Aliphatic Hydrocarbons |
| ☐ | (755) Base/Neutral Extractables |
| ☐ | (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 |

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
• DETECTION LIMIT • *		+ DETECTION LIMIT + †	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

| RESULTS IN BRACKETS | ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: _____

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Not Sealed ☐ Intact: Yes ☐ No ☐ Seal(s) broken by: _____ date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: _____ . Analyst's signature: _____

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewer's signature: _____

LAB NUMBER
DATE RECEIVED
DATE REPORTED

RC 0140

04/12/89

REPORT TO: Energy, Minerals and Natural Resource Dept.
Oil Conservation Division
P. O. Box 2088
310 Old Santa Fe Trail
Santa Fe, New Mexico 87504

User Code 59300

RECEIVED

Attention: David G. Boyer

JUL 26 1989

OIL CONSERVATION DIV.

☒ Water () Soil () Sediment () Vegetation () Air Filter ()

Sample Location BFE Sample # 8903301440

Purpose

Date Collected 3/30/89 Time 1440 Name BOYER/ANDERSON

Remarks by Collector LAGUNA CUARTO - SOUTH OF HIGHWAY

Sample Preparation

() Filtered ☒ Non Filtered ☒ HNO₃ () H₂SO₄ ()

pH Temp.

Conductivity umho Conductivity at 25°C umho

ANALYSES REQUESTED

	Units	±	Counting Error	Date Analysed
☒ Gross Alpha (Rel to U 238)				
☒ Gross Alpha (Rel to Am 241)				
☒ Gross Beta				
() Uranium 238				
() Uranium 235				
() Uranium 234				
() Thorium 232				
() Thorium 230				
() Thorium 228				
☒ Radium 226				
☒ Radium 228				
() Lead 210				
() Polonium 210				
() Radon 222				
() Gamma Spectroscopy				
☒ Other BIS 214				

REMARKS BY ANALYST

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud, NE

Albuquerque, NM 87106 [505]-841-2500

RADIOCHEMISTRY SECTION [505]-841-2574

July 24, 1989

ANALYTICAL REPORT
SLD Accession No. RC-89-0140Distribution

(■) Submitter

To: Mr. David G. Boyer
NM Oil Conservation Div.
P. O. Box 2088
Santa Fe, NM 87504

From: Radiochemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: A water sample submitted to this laboratory on April 12, 1989

DEMOGRAPHIC DATA

COLLECTION		LOCATION
On: 30-Mar-89	By: Boy ...	Laguna Cuarto - South of Highway
At: 14:40 hrs.	In/Near:	B&E

ANALYTICAL RESULTS

Analysis	Value	Sigma	D. Lmt.	Units	Analyst
G-Alpha w/ Am-241 ref.	200.00	300.00	700.00	pCi/L	Cress
G-Alpha w/ U -nat ref.	300.00	400.00	900.00	pCi/L	Cress
G-Beta w/ Cs-137 ref.	17.30	1.80	0.60	nCi/L !	Cress
G-Beta w/ Sr/Y90 ref.	19.50	1.90	0.60	nCi/L !	Cress
Ra-226, non-SDWA Mth'd	31.40	2.40	1.00	pCi/L	Cress
Ra-228, non-SDWA Mth'd	80.00	45.00	70.00	pCi/L	Bay
U -238, non-SDWA Mth'd	38.00	6.00		pCi/L	Lusk
U -234, non-SDWA Mth'd	74.00	8.00		pCi/L	Lusk
Th-230, non-SDWA Mth'd	0.00	5.00		pCi/L	Lusk
Pb-210, non-SDWA Mth'd	21.00	6.00		pCi/L	Bay

Notations & Comments:

Uncertainties, sigmas, are expressed as +- one standard deviation, i.e. one standard error.

Small negative or positive values which are less than two(2) standard deviations should be interpreted as: including 'zero'; as 'not detected'; as 'less than the detection limit (<D. Lmt.)' when reported; or 'less than twice the standard deviation'.

Laboratory Remarks:

- Reported uncertainties represent those do to counting statistics (sample background, calibration, etc.), but do NOT include that contributed to the "chemical separation reproducibility" by such briney water.
- The Ra-228 result has been corrected for a discovered reagent (K2[S04]) contribution of 1.2 +- 0.3 pCi/G of K2[S04].

Reviewed By: Loren A. Berge
Loren A. Berge, Ph.D. 07/24/89
Supervisor, Radiochemistry Section

RECEIVED

JUL 26 1989
OIL CONSERVATION DIV.
SANTA FE

May 9, 1989
Page 16 of 18

Accu-Labs Research, Inc.

Mr. David Boyer
NM Oil Conservation Division

RE: 9649-29859-20
Date Samples Rec'd: 4-5-89
P.O. No. 77-521.07-123

RECEIVED

MAY 17 1989
OIL CONSERVATION DIV.
SANTA FE

REPORT OF ANALYSIS

ALR Designation
Sponsor Designation

9649-29859-20-16	9649-29859-20-17	9649-29859-20-18
8903301440	8903311255	8904032115
3-30-89	3-31-89	Trip Blank
		4-3-89

Determination: µg/L

Toluene	<5	<5	<5
Chlorobenzene	<5	<5	<5
Ethyl benzene	<5	<5	<5
Total Dichlorobenzenes	<5	<5	<5
Total Xylenes	<5	<5	<5

May 9, 1989
Page 15 of 18

Accu-Labs Research, Inc.

Mr. David Boyer
NM Oil Conservation Division

RECEIVED

RE: 9649-29859-20
Date Samples Rec'd: 4-5-89
P.O. No. 77-521.07-123

MAY 17 1989
OIL CONSERVATION DIV.
SANTA FE

REPORT OF ANALYSIS

ALR Designation	9649-29859-20-16	9649-29859-20-17	9649-29859-20-18
Sponsor Designation	8903301440	8903311255	8904032115
	3-30-89	3-31-89	Trip Blank
			4-3-89

GC/MS VOLATILE ORGANICS, µg/L:

Chloromethane	<10	<10	<10
Bromomethane	<10	<10	<10
Vinyl chloride	<10	<10	<10
Chloroethane	<10	<10	<10
Methylene chloride	<5	<5	<5
1,1-Dichloroethene	<5	<5	<5
1,1-Dichloroethane	<5	<5	<5
Total 1,2-Dichloroethene	<5	<5	<5
Chloroform	<5	<5	<5
1,2-Dichloroethane	<5	<5	<5
1,1,1-Trichloroethane	<5	<5	<5
Carbon tetrachloride	<5	<5	<5
Bromodichloromethane	<5	<5	<5
1,2-Dichloropropane	<5	<5	<5
c-1,3-Dichloropropene	<5	<5	<5
Trichloroethene	<5	<5	<5
Benzene	<5	<5	<5
Dibromochloromethane	<5	<5	<5
1,1,2-Trichloroethane	<5	<5	<5
t-1,3-Dichloropropene	<5	<5	<5
2-Chloroethylvinyl ether	<5	<5	<5
Bromoform	<5	<5	<5
1,1,2,2-Tetrachloroethane	<5	<5	<5
Tetrachloroethene	<5	<5	<5

Lab
No.

Accu LABS

77-521.07-123

ORGANIC ANALYSIS REQUEST FORM

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

Sample No. 8903301440
DATE REC. _____
PRIORITY _____
PHONE(S): 827-5812

COLLECTION CITY: Carlsbad; COUNTY: Eddy
COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) 89101310114410
LOCATION CODE: (Township-Range-Section-Tracts) 21315+310E+016+21314 (10N06E24S42)

SUBMITTER: David Boyer

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: _____

This form accompanies 2 Septum Vials, _____ Glass Jugs, and/or _____
Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice: Sample stored in an ice bath (Not Frozen).
☐ P-AA: Sample Preserved with Ascorbic Acid to remove chlorine residual.
☒ P-HCl: Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
☐ (774) SDWA VOC's I (8 Regulated +)
☐ (775) SDWA VOC's II (EDB & DBCP)
Other Specific Compounds or Classes

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (755) Base/Neutral Extractables
☐ (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: _____

FIELD DATA:

>50,000
pH= _____; Conductivity= _____ umho/cm at _____ °C; Chlorine Residual= _____ mg/l
Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate= _____ / _____
Depth to water _____ ft.; Depth of well _____ ft.; Perforation Interval _____ - _____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Sample from Natural salt lake, S. side Highway
Laguna Cuarta

I certify that the results in this block accurately reflect the results of my field analyses, observations and freight activities. (signature collector): David H Boyer Method of Shipment to the Lab: Express

CHAIN OF CUSTODY

I certify that this sample was transferred from DB to DM
at (location) ALR on 4.5.89 - 12:25 and that
the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ OR Seals Intact: Yes ☒ No ☐
Signatures: L. G. Smith A. M. Lander

For OCD use: Date owner notified: 6/26/89 Phone or Letter? Initials: DB

Accu-Labs Research, Inc.

February 7, 1989
Page 2 of 2

Mr. David Boyer
NM Oil Conservation Division

RE: 9649-29142-3
Date Samples Rec'd: 1-20-89
P.O. No. 77-521.07-123

REPORT OF ANALYSIS

ALR Designation	9649-29142-3-1	9649-29142-3-2	9649-29142-3-3 ✓
Sponsor Designation	8901121115	8901121645	8901131205
	<u>1-12-89</u>	<u>1-12-89</u>	<u>1-13-89</u>
Determination: mg/L			
Chloride	230,000	--	110,000
Sulfate (as SO ₄)	240	--	770
Ion Balance	103	--	85

* Higher detection limit due to sample matrix interference.

These samples are scheduled to be discarded 30 days after the date of this report.

MF/dh *dh*

Mary Fabisiak
Mary Fabisiak
Water Laboratory
Supervisor

B & E Disposal

Accu-Labs Research, Inc.

11485 W. 48th Avenue Wheat Ridge, Colorado 80033 (303) 423-2766

February 7, 1989

Page 1 of 2

Mr. David Boyer
 NM Oil Conservation Division
 State Land Office Bldg.
 P.O. Box 2088
 Santa Fe, NM 87504-2088

RE: 9649-29142-3

Date Samples Rec'd: 1-20-89

P.O. No. 77-521.07-123

REPORT OF ANALYSIS

ALR Designation	9649-29142-3-1	9649-29142-3-2	9649-29142-3-3 ✓
Sponsor Designation	8901121115	8901121645	8901131205
	1-12-89	1-12-89	1-13-89
Determination: mg/L			
Aluminum, total	<1.0*	<1.0*	<1.0*
Barium, total	3.0	10	0.6
Boron, total	190	38	8.2
Cadmium, total	<0.05*	<0.05*	<0.05*
Calcium, total	64,000	--	8900
Chromium, total	<0.05*	<0.05*	<0.05*
Iron, total	<0.1*	7.4	210
Lead, total	<0.5*	<0.5*	<0.5*
Magnesium, total	21,000	--	1400
Manganese, total	4.3	3.8	5.2
Mercury, total	0.0072	0.0060	0.0060
Potassium, total	12,000	--	1100
Sodium, total	34,000	--	47,000
Total Alkalinity, (as CaCO ₃ to pH 4.5)	280	--	170
Carbonate (as CO ₃)	<5	--	<5
Bicarbonate (as HCO ₃)	340	--	210
pH	5.5	--	7.0
Specific Conductance, µmhos/cm	900,000	--	340,000
Arsenic, total	0.24	0.13	2.4
Selenium, total	<0.25*	<0.25*	--
Total Solids	540,000	--	200,000
Bromide	2000	--	310

B & E Disposal



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received 1/19/89 Lab No. ICP-18 User Code 82235 ☒ 82235 ☐ Other:

COLLECTION DATE & TIME: 89 01 13 12 05 COLLECTION SITE DESCRIPTION BFE Disposal

COLLECTED BY: Boyer/Anderson OWNER: Final Effluent

TO: ENVIRONMENTAL BUREAU CONSERVATION DIVISION SANTA FE State Land Office Bldg., PO Box 2088 SANTA FE, NM 87504-2088

ATTN: S. Boyer TELEPHONE: 827-5812 STATION/ WELL CODE:

LATITUDE, LONGITUDE: -

SAMPLING CONDITIONS: ☐ Bailed ☐ Pump ☒ Dipped ☐ Tap Water Level: Discharge: Sample Type: Grab

pH(00400) 7 Conductivity(Uncorr.) > 50,000 umho Water Temp.(00010) °C Conductivity at 25°C (00094) umho

FIELD COMMENTS:

SAMPLE FIELD TREATMENT Check proper boxes: ☒ WPN: Water Preserved w/HNO₃ ☒ WPF: Water Preserved w/HNO₃ ☒ ICAP Scan Mark box next to metal if AA is required.

ANALYTICAL RESULTS (MG/L)					
ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	<1.0		Silicon	5.1	
Barium	6.5		Silver	<1.0	☐
Beryllium	<1.0		Strontium	760.	
Boron	34.		Tin	3.2	
Cadmium	<1.0	☐	Vanadium	<1.0	
Calcium	12900.		Zinc	<1.0	
Chromium	<1.0	☐	Arsenic		☒ <0.5
Cobalt	<0.5		Selenium		☒ <0.0005
Copper	<1.0		Mercury		☐
Iron	5.0				☐
Lead	<1.0	☐			☐
Magnesium	2370.				☐
Manganese	2.5				☐
Molybdenum	<1.0				☐
Nickel	<1.0				☐

LAB COMMENTS: DIGEST

For OCD Use: Date Owner Notified: ICAP Analyst JAA Reviewer John L. Meyer Phone or Letter? Date Analyzed 2/27/89 Date Received 3/13/89 Initials:



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS

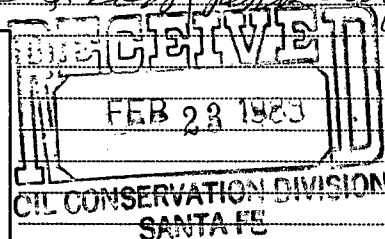
DATE RECEIVED 11/19/89 LAB NO. WC-98 USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE 03/10/13 SITE INFORMATION Sample location B & E - Final Effluent
Collection TIME 1205 Collection site description Sample from tank outfall
Collected by Person/Agency Boyer, Anderson / OCD

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812



Station/well code 235-30E-06.424
Owner B & E Disposal

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped	☐ Pump ☐ Tap	Water level	Discharge	Sample type Grab
pH (00400) 7	Conductivity (Uncorrected) 750,000 μ mho	Water Temp. (00010) °C	Conductivity at 25°C (00094) μ mho	
Field comments				

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted 1	☒ NF: Whole sample (Non-filtered)	☐ F: Filtered in field with 0.45 μ m membrane filter	☒ A: 2 ml H ₂ SO ₄ /L added
☐ NA: No acid added		☐ Other-specify:	☐ A: 5ml conc. HNO ₃ added ☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	μ mho	
☐ Total non-filterable residue (suspended) (00530)	mg/l	
☐ Other:		
☐ Other:		
☐ Other:		
A-H ₂ SO ₄		
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l	
☐ Ammonia-N total (00610)	mg/l	
☐ Total Kjeldahl-N ()	mg/l	
☐ Chemical oxygen demand (00340)	mg/l	
☐ Total organic carbon ()	mg/l	
☒ Other: oil & grease 41.0	mg/l	02/15/89
☐ Other:		
From _____, NA Sample: _____ Date Analyzed _____		
☐ Calcium	mg/l	
☐ Potassium	mg/l	
☐ Magnesium	mg/l	
☐ Sodium	mg/l	
☐ Bicarbonate	mg/l	
☐ Chloride	mg/l	
☐ Sulfate	mg/l	
☐ Total Solids	mg/l	
☐ _____		
☐ _____		
☐ Cation/Anion Balance		
Analyst	Date Reported	Reviewed by
Laboratory remarks		

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initials _____

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	703.59	14100.00	<3.0
Mg	205.34	2500.00	<0.3
Na	2207.48	50750.00	<10.0
K	18.93	740.00	<0.3

Mn	0.00	0.00
Fe	0.00	0.00

SUMS 3135.34 68090.00

Total Dissolved Solids = > 100,000.
 Ion Balance = 108.97%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	2.49	152.00	<1.0
SO4	25.67	1232.00	<10.0
CL	2849.08	#####	<5.0
		101,000	
NO3	0.00	0.00	< 0.
CO3	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	2877.24	#####	

WC No. = 8800097
 Date out/By Quinn 2/16/89

RECEIVED
 FEB 23 1989
 OIL CONSERVATION DIVISION
 SANTA FE

859
WNN



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS

DATE RECEIVED	1/19/89	LAB NO.	WC-97	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	02/01/89	SITE INFORMATION	Sample location		
Collection TIME	1205		B & E Disposal - Serial Effluent		
Collected by		Person/Agency			
Boyer, Andrew		OCD			
		Collection site description			
		Sample from outfall			

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

OIL CONSERVATION DIVISION
SANTA FE

Attn: David Boyer

Phone: 827-5812

Station/
well code 235-30606.A24
Owner

SAMPLING CONDITIONS

☐ Bailed	☐ Pump	Water level	Discharge	Sample type
☒ Dipped	☐ Tap			Grab
pH (00400)		Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
7		> 50,000 µmho	°C	µmho

Field comments

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	1	☒ NF: Whole sample (Non-filtered)	☐ F: Filtered in field with 0.45 µmembrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
☐ NA: No acid added		☐ Other-specify:		☐ A: 5ml conc. HNO ₃ added ☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From	NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	µmho	1/27	NF	NA Sample:	1/26/89
☐ Total non-filterable residue (suspended) (00530)	mg/l			Calcium	14,100 mg/l 1/24
☒ Other: Lab pH		6.81		Potassium	740 mg/l 1/26/89
☐ Other:				Magnesium	2500 mg/l 1/24
☐ Other:				Sodium	50750 mg/l 1/23
A-H₂SO₄				Bicarbonate	152 mg/l 2/2
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l			Chloride	10000 mg/l 2/2
☐ Ammonia-N total (00610)	mg/l			Sulfate	1232 mg/l 2/9
☐ Total Kjeldahl-N ()	mg/l			Total Solids	> 10 ⁵ mg/l 2/07
☐ Chemical oxygen demand (00340)	mg/l			B ₅	242 mg/l 1/23
☐ Total organic carbon ()	mg/l			CO ₂	ø
☐ Other:				☒ Cation/Anion Balance	
☐ Other:			Analyst	Date Reported	Reviewed by
				2/15/89	Clear

Laboratory remarks

122050

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud, NE

Albuquerque, NM 87106 [505]-841-2500

ORGANIC CHEMISTRY SECTION [505]-841-2570

February 1, 1989

ANALYTICAL REPORT
SLD Accession No. OR-89-0040Distribution

(■) Submitter

(※) SLD Files

To: NM Oil Conserv. 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 purgeable water sample submitted to this laboratory on January 19, 1989

User:

STATE PARKS & RECREATION

DEMOGRAPHIC DATA

COLLECTION		LOCATION	
On: 13-Jan-89	By: Boy . . .	Township: 23S	Section: 06
At: 12:05 hrs.	In/Near: Carlsbad	Range: 30E	Tract: 244

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable Screen

Parameter	Value	Note	MDL	Units
Halogenated Purgeables (33)	0.00	N	100.00	ppb
Benzene	520.00		100.00	ppb
Toluene	750.00		100.00	ppb
Ethylbenzene	0.00	T	100.00	ppb
p- & m-Xylene	500.00		100.00	ppb
1,2-Dimethylbenzene	100.00		100.00	ppb

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.

Seals: Not Sealed ☒ Intact: No ☐ Yes ☐ & Broken By: _____ Date: _____Laboratory Remarks: B & E Disposal

Analyst: _____

Gary C. Eden

Analyst, Organic Chemistry

1/21/89

Analysis
Date

Reviewed By: _____

Richard F. Meyerhein

Supervisor, Organic Chemistry Section

02/01/89



SCIENTIFIC LABORATORY DIVISION
ORGANIC ANALYSIS REQUEST FORM
Organic Section - Phone: 841-2570

754
WPU

89-40 C

REPORT TO: DAVID BOYER S.L.D. No. OR-
N.M. OIL CONSERVATION DIVISION DATE REC. 1-19-89
P.O. Box 2088 PRIORITY 3
Santa Fe, NM 87504-2088 PHONE(S): 827-5812
COLLECTION CITY: E of Carlisbad; COUNTY: Elk
COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) 89091131205
LOCATION CODE: (Township-Range-Section-Tracts) 23S+30E+06+4+24 (10N06E24342)
USER CODE: 82235 SUBMITTER: David Boyer CODE: 2610
SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: _____

This form accompanies 2 Septum Vials, _____ Glass Jugs, and/or _____
Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice: Sample stored in an ice bath (Not Frozen).
☐ P-AA: Sample Preserved with Ascorbic Acid to remove chlorine residual.
☒ P-HCl: Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analysis required. Whenever possible list specific compounds suspected or required.

- PURGEABLE SCREENS**
- ☐ (753) Aliphatic Headspace (1-5 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
☐ (774) SDWA VOC's I (8 Regulated +)
☐ (775) SDWA VOC's II (EDB & DBCP)
Other Specific Compounds or Classes _____

- EXTRACTABLE SCREENS**
- ☐ (751) Aliphatic Hydrocarbons
☐ (755) Base/Neutral Extractables
☐ (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: Halogenated 10ppb or less if possible

FIELD DATA:

pH= 7; Conductivity= >50,000 umho/cm at _____ °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____ / _____

Depth to water _____ ft.; Depth of well _____ ft.; Perforation Interval _____ - _____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

REE Disposal, Final Effluent, outfall from tank

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector) David Boyer Method of Shipment to the Lab: Stolce

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____
at (location) _____ on _____ - _____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ OR Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD use: Date owner notified: 6/20/89 Phone or Letter? Initials ATB

LAB. No.: OR-

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
☐ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
☐ (774) SDWA VOC's I (8 Regulated +)
☐ (775) SDWA VOC's II (EDB & DBCP)
 Other Specific Compounds or Classes

EXTRACTABLE SCREENS

- | | |
|--------------------------|---|
| ☐ | (751) Aliphatic Hydrocarbons |
| ☐ | (755) Base/Neutral Extractables |
| ☐ | (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 |

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
* DETECTION LIMIT *	*	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Not Sealed ☐ Intact: Yes ☐ No ☐ Seal(s) broken by: _____ date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: _____ . Analyst's signature: _____

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: _____

LAB NUMBER RC 0152
DATE RECEIVED 04/12/89
DATE REPORTED _____
User Code 59300

REPORT TO: Energy, Minerals and Natural Resource Dept.
Oil Conservation Division
P. O. Box 2088
310 Old Santa Fe Trail
Santa Fe, New Mexico 87504

Attention: David G. Boyer

☒ Water () Soil () Sediment () Vegetation () Air Filter ()

Sample Location B & E Sample # 8903301355

Purpose _____

Date Collected 3/30/89 Time 1355 Name BOYER/ANDERSON

Remarks by Collector EFFLUENT FROM OUTLET TO FLUMK

Sample Preparation

() Filtered ☒ Non Filtered ☒ HNO₃ () H₂SO₄ () _____

pH _____ Temp. _____

Conductivity _____ umho Conductivity at 25°C _____ umho

ANALYSES REQUESTED

	Units	+	Counting Error	Date Analysed
☒ Gross Alpha (Rel to U 238)	_____	_____	_____	_____
☒ Gross Alpha (Rel to Am 241)	_____	_____	_____	_____
☒ Gross Beta	_____	_____	_____	_____
() Uranium 238	_____	_____	_____	_____
() Uranium 235	_____	_____	_____	_____
() Uranium 234	_____	_____	_____	_____
() Thorium 232	_____	_____	_____	_____
() Thorium 230	_____	_____	_____	_____
() Thorium 228	_____	_____	_____	_____
☒ Radium 226	_____	_____	_____	_____
☒ Radium 228	_____	_____	_____	_____
() Lead 210	_____	_____	_____	_____
() Polonium 210	_____	_____	_____	_____
() Radon 222	_____	_____	_____	_____
() Gamma Spectroscopy	_____	_____	_____	_____
☒ Other <u>BIS 214</u>	_____	_____	_____	_____

REMARKS BY ANALYST _____

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud, NE
Albuquerque, NM 87106 [505]-841-2500
RADIOCHEMISTRY SECTION [505]-841-2574

July 24, 1989

ANALYTICAL REPORT
SLD Accession No. RC-89-0152

Distribution

(■) Submitter

To: Mr. David G. Boyer
NM Oil Conservation Div.
P. O. Box 2088
Santa Fe, NM 87504

From: Radiochemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: A water sample submitted to this laboratory on April 12, 1989

DEMOGRAPHIC DATA

COLLECTION		LOCATION
On: 30-Mar-89	By: Boy ...	Effluent From Outlet to Flumk
At: 13:55 hrs.	In/Near:	B & E

ANALYTICAL RESULTS

Analysis	Value	Sigma	D. Lmt.	Units	Analyst
G-Alpha w/ Am-241 ref.	600.00	200.00	400.00	pCi/L	Cress
G-Alpha w/ U -nat ref.	800.00	300.00	600.00	pCi/L	Cress
G-Beta w/ Cs-137 ref.	1600.00	300.00	400.00	pCi/L	Cress
G-Beta w/ Sr/Y90 ref.	1800.00	300.00	500.00	pCi/L	Cress
Ra-226, non-SDWA Mth'd	470.00	30.00	1.00	pCi/L	Cress
Ra-228, non-SDWA Mth'd	450.00	60.00	70.00	pCi/L	Bay
U -238, non-SDWA Mth'd	15.00	4.00		pCi/L	Lusk
U -234, non-SDWA Mth'd	5.00	4.00		pCi/L	Lusk
Th-230, non-SDWA Mth'd	2.00	4.00		pCi/L	Lusk

Notations & Comments:

Uncertainties, sigmas, are expressed as $\pm$ one standard deviation, i.e. one standard error.

Small negative or positive values which are less than two(2) standard deviations should be interpreted as: including 'zero'; as 'not detected'; as 'less than the detection limit (<D. Lmt.)' when reported; or 'less than twice the standard deviation'.

Laboratory Remarks:

-Reported uncertainties represent those due to counting statistics (sample background, calibration, etc.), but do NOT include that contributed to the "chemical separation reproducibility" by such briney water.

-The Ra-228 result has been corrected for a discovered reagent ($K_2[SO_4]$) contribution of 1.2 ± 0.3 pCi/G of $K_2[SO_4]$.

Reviewed By: Loren A. Berge
Loren A. Berge, Ph.D. 07/24/89
Supervisor, Radiochemistry Section

RECEIVED

JUL 26 1989
OIL CONSERVATION DIV.
SANTA FE

May 9, 1989
Page 10 of 18

Accu-Labs Research, Inc.

RECEIVED

Mr. David Boyer
NM Oil Conservation Division

MAY 17 1989

RE: 9649-29859-20
Date Samples Rec'd: 4-5-89
P.O. No. 77-521.07-123

OIL CONSERVATION DIV.
SANTA FE

REPORT OF ANALYSIS

ALR Designation	9649-29859-20-10	9649-29859-20-11	9649-29859-20-12 ✓
Sponsor Designation	8903291420	8903301000	8903301355
	3-29-89	3-30-89	3-30-89

GC/MS VOLATILE ORGANICS, µg/L:

Chloromethane	Not Analyzed	Not Analyzed	<100
Bromomethane			<100
Vinyl chloride			<100
Chloroethane			<100
Methylene chloride			<50
1,1-Dichloroethene			<50
1,1-Dichloroethane			<50
Total 1,2-Dichloroethene			<50
Chloroform			<50
1,2-Dichloroethane			<50
1,1,1-Trichloroethane			<50
Carbon tetrachloride			<50
Bromodichloromethane			<50
1,2-Dichloropropane			<50
c-1,3-Dichloropropene			<50
Trichloroethene			<50
Benzene			380
Dibromochloromethane			<50
1,1,2-Trichloroethane			<50
t-1,3-Dichloropropene			<50
2-Chloroethylvinyl ether			<50
Bromoform			<50
1,1,2,2-Tetrachloroethane			<50
Tetrachloroethene			<50

May 9, 1989
Page 11 of 18

Accu-Labs Research, Inc.

Mr. David Boyer
NM Oil Conservation Division

RECEIVED

RE: 9649-29859-20
Date Samples Rec'd: 4-5-89
P.O. No. 77-521.07-123

MAY 17 1989
OIL CONSERVATION DIV.
SANTA FE

REPORT OF ANALYSIS

ALR Designation
Sponsor Designation

9649-29859-20-10	9649-29859-20-11	9649-29859-20-12 ✓
8903291420	8903301000	8903301355
3-29-89	3-30-89	3-30-89

Determination: µg/L

Toluene	580
Chlorobenzene	<50
Ethyl benzene	<50
Total Dichlorobenzenes	<50
Total Xylenes	390

Determination: mg/L

Aluminum, total	0.3	--	--
Barium, total	0.09	--	--
Boron, total	0.1	--	--
Cadmium, total	<0.005	--	--
Calcium, total	170	52	--
Chromium, total	0.005	--	--
Cobalt, total	<0.005	--	--
Copper, total	0.041	--	--
Iron, total	0.88	--	--
Magnesium, total	23	48	--
Manganese, total	0.028	--	--
Mercury, total	<0.001*	--	--
Molybdenum, total	0.007	--	--
Nickel, total	0.02	--	--
Potassium, total	50	6.2	--
Silver, total	<0.005	--	--
Sodium, total	1100	2300	--
Strontium, total	0.88	--	--
Zinc, total	0.019	--	--
Total Alkalinity, (as CaCO ₃ to pH 4.5)	110	1600	--

May 9, 1989
Page 12 of 18

Accu-Labs Research, Inc.

Mr. David Boyer
NM Oil Conservation Division

RE: 9649-29859-20
Date Samples Rec'd: 4-5-89
P.O. No. 77-521.07-123

RECEIVED

MAY 17 1989

OIL CONSERVATION DIV.
SANTA FE

REPORT OF ANALYSIS

ALR Designation
Sponsor Designation

9649-29859-20-10	9649-29859-20-11	9649-29859-20-12 ✓
8903291420	8903301000	8903301355
3-29-89	3-30-89	3-30-89

Determination: mg/L

Carbonate (as CO ₃)	<5	31	--
Bicarbonate (as HCO ₃)	130	1900	--
pH	8.3	8.4	--
Specific Conductance, µmhos/cm	5900	12,000	--
Arsenic, total	<0.005	--	--
Lead, total	<0.005	--	--
Selenium, total	<0.005	--	--
Total Solids	3100	5800	--
Bromide	<2*	<200*	--
Chloride	1500	2400	--
Sulfate (as SO ₄)	500	270	--
Ion Balance	108	101	--

Lab
No.

AccuLABS
77-52107-123

ORGANIC ANALYSIS REQUEST FORM

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. BOX 2088
Santa Fe, NM 87504-2088

Sample No. 8903301355
DATE REC. _____
PRIORITY _____
PHONE(S): 827-5812

COLLECTION CITY: Carlisle; COUNTY: Eddy
COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) 89103131515
LOCATION CODE: (Township-Range-Section-Tracts) 23S+30E+06+424 (10N06E24S42)

SUBMITTER: David Boyer

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: _____

This form accompanies 2 Septum Vials, _____ Glass Jugs, and/or _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice: Sample stored in an ice bath (Not Frozen).
☐ P-AA: Sample Preserved with Ascorbic Acid to remove chlorine residual.
☒ P-HCl: Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
☐ (774) SDWA VOC's I (8 Regulated +)
☐ (775) SDWA VOC's II (EDB & DBCP)
Other Specific Compounds or Classes

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (755) Base/Neutral Extractables
☐ (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: _____

FIELD DATA:

pH= _____; Conductivity= >50,000 umho/cm at _____ °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate= _____

Depth to water _____ ft.; Depth of well _____ ft.; Perforation Interval _____ - _____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

B & E Disposal * Effluent outfall to Lake
(Produced water) * Oil field waste disposal

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David Boyer Method of Shipment to the Lab: Freight Express

CHAIN OF CUSTODY

I certify that this sample was transferred from DB to DM
at (location) ALR on 4/5/89 - 12:25 and that
the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ OR Seals Intact: Yes ☒ No ☐
Signatures: David Boyer

For OCD use: Date owner notified: 6/30/89 Phone or Letter? Letter Initials: DB



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

June 23, 1989

Mr. Phil Withrow
B & E, INC.
P. O. Box 756
Carlsbad, New Mexico 88220

Dear Mr. Withrow:

Enclosed are copies of the chemical analyses for your facility taken during our last two sampling trips. Also enclosed is a listing of state and federal water quality standards. The listing is provided for information and comparison purposes only; specific limitations for your facility, if any, are provided in your discharge permit.

If you have any questions, please contact me at 827-5812.

Sincerely,

David Engle for David Boyer

David G. Boyer, Hydrogeologist
Environmental Bureau Chief

DGB/sl

Enclosures

**COMPARISON OF N.M.WQCC GROUND-WATER STANDARDS AND U.S.EPA
DRINKING-WATER STANDARDS & HEALTH ADVISORIES, OCTOBER 1988.**

All units are mg/L unless otherwise specified. All standards listed are based upon health concerns except for the parameters followed by (a) aesthetic standard or (i) irrigation standard.

PARAMETER	N.M.WQCC	U.S.EPA Existing MCL	U.S.EPA MCLG	U.S.EPA Lifetime HA or Risk Level*
Inorganics				
Aluminum (i)	5.0			
Arsenic	0.1	0.05		0.05
Barium	1.0	1.0	1.5	1.5
Boron (i)	0.75			
Cadmium	0.01	0.01	0.005	0.005
Chloride (a)	250.	250.		
Chromium	0.05	0.05	0.12	0.12
Cobalt (i)	0.05			
Copper (a)	1.0	1.0	1.3	
Fluoride	1.6	4.0		
Gross Alpha (pCi/L)		15.		
Gross Beta (pCi/L)		50.		
Iron (a)	1.0	0.3		
Lead	0.05	0.05	0.02	0.02
Manganese (a)	0.2	0.05		
Mercury	0.002	0.002	0.003	0.003
Molybdenum (i)	1.0			
Nickel (i)	0.2			0.15
Nitrate-N	10.0	10.		10.0
Nitrite-N			1.0	1.0
pH (units) (a)	6-9	6.5-8.5		
Radium (226 & 228; pCi/L)	30.0	5.		
Selenium	0.05	0.01	0.045	
Silver	0.05	0.05		
Sulfate (a)	600.	250.		
TDS (a)	1000.	500.		
Uranium	5.0			
Zinc (a)	10.0	5.		
Benzenes				
Benzene	0.01	0.005		0.007*
Toluene	0.75		2.0	2.0
Ethylbenzene	0.75		0.68	0.68
Xylenes	0.62		0.44	0.44
Styrene			0.14	0.14*
Chlorobenzene			0.06	0.6
o-Dichlorobenzene			0.62	0.62
m-Dichlorobenzene				0.62
p-Dichlorobenzene		0.075		0.75
Hexachlorobenzene				0.0002*
Pentachlorophenol			0.22	0.22
Phenols (a)	0.005			

NOTE: 1 ppb = 1 ug/l = 1 microgram per liter (ppb = part per billion)
1000 ug/l = 1 mg/l = 1 ppm (ppm = part per million)

PARAMETER	N.M.WQCC	U.S.EPA Existing MCL	U.S.EPA MCLG	U.S.EPA Lifetime HA or Risk Level*
Methanes				
Methylene Chloride	0.1			0.048*
Chloroform	0.1			
Trihalomethanes**		0.1		
Carbon Tetrachloride	0.01	0.005		0.0027*
Formaldehyde				0.031
Ethanes				
1,1-Dichloroethane	0.025			
1,2-Dichloroethane (EDC)	0.01	0.005		0.0095*
1,2-Dibromoethane (EDB)	0.0001		Zero	0.000005*
1,1,1-Trichloroethane	0.06	0.2		0.2
1,1,2-Trichloroethane	0.01			
1,1,2,2-Tetrachloroethane	0.01			
Ethylene Glycol				5.5 (7 year)
Ethenes (Ethylenes)				
Vinyl Chloride	0.001	0.002		0.00015*
1,1-Dichloroethylene	0.005	0.007		0.0024*
cis-1,2-Dichloroethylene			0.07	0.07
trans-1,2-Dichloroethylene			0.07	0.07
Trichloroethylene (TCE)	0.1	0.005		0.028*
Tetrachloroethylene (PCE)	0.02			0.035*
Propanes				
1,2-Dichloropropane (PDC)			0.006	0.0056
DBCP			Zero	0.00025*
Epichlorohydrin			Zero	0.0354*
Polycyclics				
PCBs	0.001			
Naphthalenes***	0.03			0.00079*
Benzo-a-pyrene	0.0007			
Misc.				
Acrylamide			Zero	0.0001*
Cyanide	0.2			0.75
p-Dioxane				0.568 (10 day)
n-Hexane				4.0 (7 year)
MEK				0.172
Other Pesticides				
Acifluorfen				0.009
Alachlor			Zero	0.0015*
Aldicarb			0.009	0.01
Aldicarb Sulfoxide				0.01
Aldicarb Sulfone				0.01 - 0.042
Ametryn				0.06

PARAMETER	N.M.WQCC	U.S.EPA Existing MCL	U.S.EPA MCLG	U.S.EPA Lifetime HA or Risk Level*
Other Pesticides continued				
Ammonium Sulfamate				1.5
Atrazine				0.003
Baygon				0.003
Bentazon				0.0175
Bromacil				0.08
Butylate				0.05
Carbaryl				0.7
Carbofuran			0.036	0.036
Carboxin				0.7
Chloramben				0.105
Chlordane			Zero	0.00027*
Chlorothalonil				0.015*
Cyanazine				0.009
2,4-D		0.1	0.07	0.07
Dacthal				3.5
Dalapon				0.56
Diazinon				0.00063
Dicamba				0.009
1,3-Dichloropropene				0.002*
Dieldrin				0.0000219
Dimethrin				2.1
Dinoseb				0.007
"Dioxin"				0.0000000022
Diphenamid				0.2
Disulfoton				0.0003
Diuron				0.014
Endothall				0.14
Endrin		0.0002		0.0002
Ethylene Thiourea				0.0024*
Fenamiphos				0.0018
Fluometuron				0.09
Fonofos				0.014
Glyphosate				0.7
Heptachlor			Zero	0.00076*
Heptachlor Epoxide			Zero	0.00038*
Hexazinone				0.21
Lindane		0.004	0.0002	0.002
Maleic Hydrazide				3.5
MCPA				0.0036
Methomyl				0.175
Methoxychlor		0.1	0.34	0.34
Methyl Parathion				0.002
Metolachlor				0.01
Metribuzin				0.175
Oxamyl				0.175
Paraquat				0.003
Picloram				0.49
Prometon				0.1
Pronamide				0.052
Propachlor				0.092

PARAMETER	N.M.WQCC	U.S.EPA Existing MCL	U.S.EPA MCLG	U.S.EPA Lifetime HA or Risk Level*
Other Pesticides continued				
Propham				0.12
Propazine				0.014
Simazine				0.035
2,4,5-T				0.021
Tebuthiuron				0.035
Terbacil				0.09
Terbufos				0.00018
Toxaphene		0.005	Zero	0.00031*
2,4,5-TP (Silvex)		0.01	0.052	0.052
Trifluralin				0.002

EXPLANATION FOR STANDARDS COMPARISON TABLE

Footnotes

- * The concentration listed presents a theoretical additional lifetime cancer risk of one per 100,000 persons. The U.S. EPA Health Advisory documents also provide various concentrations posing risks of one per 10,000 through one per 10,000,000.
- ** The four regulated trihalomethanes are chloroform, dichlorobromomethane, dibromochloromethane and bromoform.
- *** Naphthalene and monomethylnaphthalene isomers.

Abbreviations

2,4-D	2,4-dichlorophenoxyacetic acid
DBCP	1,2-dibromo-3-chloropropane
Dioxin	2,3,7,8-tetrachlorodibenzo-p-dioxin
EDB	ethylene dibromide, a synonym for 1,2-dibromoethane
EDC	ethylene dichloride, a synonym for 1,2-dichloroethane
HA	health advisory
MCL	maximum contaminant level
MCLG	maximum contaminant level goal
MEK	methyl ethyl ketone
mg/L	milligrams per liter
N	nitrogen
N.M.WQCC	New Mexico Water Quality Control Commission
o	ortho
p	para
PCE	perchloroethylene, a synonym for tetrachloroethylene
pCi/L	picocuries per liter
PCBs	polychlorinated biphenyls
PDC	propylene dichloride, a synonym for 1,2-dichloropropane
TCE	trichloroethylene
TDS	total dissolved solids
2,4,5-T	2,4,5,-trichlorophenoxyacetic acid
2,4,5-TP	2,4,5-trichlorophenoxypropionic acid
U.S. EPA	United States Environmental Protection Agency

Use and Applicability of Standards

All N.M.WQCC standards are enforceable, including aesthetic and irrigation standards. The aesthetic standards of U.S.EPA are merely recommended limits.

U.S.EPA's MCLGs are set at levels that would result in no known or anticipated adverse health effects with an adequate margin of safety. MCLGs do not take treatment costs into consideration and are not enforceable. Final MCLs are enforceable. In addition to having set MCLGs for presently unregulated contaminants, the U.S. EPA has proposed to modify several existing MCLs.

U.S. EPA's HAs serve as informal technical guidance to assist Federal, State and local officials responsible for protecting public health when emergency spills or contamination situations occur. They are not to be construed as legally enforceable Federal standards and are subject to change as new information becomes available. HAs are developed for one-day, ten-day, 7-year and lifetime exposures. All HAs listed above are for lifetime exposure unless otherwise indicated. Lifetime HAs are not recommended by U.S. EPA for known or potential carcinogens. Instead, chemical concentrations are correlated with hypothetical excess lifetime cancer risks. See footnote (*) above.

Compiled by Dennis McQuillan
N.M. Health & Environment Dept.
Environmental Improvement Division
Ground Water Bureau
Santa Fe, NM 87503

Lab Accu LABS
No. 77-521.07-123

ORGANIC ANALYSIS REQUEST FORM

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

Sample No. 8903301440
DATE REC. _____
PRIORITY _____
PHONE(S): 827-5812

COLLECTION CITY: Carlsbad; COUNTY: Eddy
COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) 891033011440
LOCATION CODE: (Township-Range-Section-Tracts) _____ (10N06E24S42)

SUBMITTER: David Boyer

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: _____

This form accompanies 2 Septum Vials, _____ Glass Jugs, and/or _____
Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
☒ P-HCl Sample Preserved with Hydrochloric Acid (3 drops/40 ml)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-6 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (755) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
☐ (774) SDWA VOC's I (8 Regulated +)
☐ (775) SDWA VOC's II (EDB & DBCP)
Other Specific Compounds or Classes _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (755) Base/Neutral Extractables
☐ (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: _____

FIELD DATA:

> 56,000
pH= _____; Conductivity= _____ umho/cm at _____ °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate= _____

Depth to water _____ ft.; Depth of well _____ ft.; Perforation Interval _____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Sample from Natural salt lake, S. side Highway
Laguna Cuarta

I certify that the results in this block accurately reflect the results of my field analyses, observations and Freight
activities. (signature collector): David H. Boyer Method of Shipment to the Lab: Express

CHAIN OF CUSTODY

I certify that this sample was transferred from DB to DM
at (location) ALR on 4.5.89 - 12:25 and that
the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ OR Seals Intact: Yes ☒ No ☐
Signatures: [Signature]

For OCD use: Date owner notified: _____ Phone or Letter? Initials _____

May 9, 1989
Page 15 of 18

Mr. David Boyer
NM Oil Conservation Division

RE: 9649-29859-20
Date Samples Rec'd: 4-5-89
P.O. No. 77-521.07-123

RECEIVED

MAY 17 1989

OIL CONSERVATION DIV.
SANTA FE

REPORT OF ANALYSIS

ALR Designation
Sponsor Designation

9649-29859-20-16	9649-29859-20-17	9649-29859-20-18
8903301440	8903311255	8904032115
3-30-89	3-31-89	Trip Blank
		4-3-89

GC/MS VOLATILE ORGANICS, µg/L:

Chloromethane	<10	<10	<10
Bromomethane	<10	<10	<10
Vinyl chloride	<10	<10	<10
Chloroethane	<10	<10	<10
Methylene chloride	<5	<5	<5
1,1-Dichloroethene	<5	<5	<5
1,1-Dichloroethane	<5	<5	<5
Total 1,2-Dichloroethene	<5	<5	<5
Chloroform	<5	<5	<5
1,2-Dichloroethane	<5	<5	<5
1,1,1-Trichloroethane	<5	<5	<5
Carbon tetrachloride	<5	<5	<5
Bromodichloromethane	<5	<5	<5
1,2-Dichloropropane	<5	<5	<5
c-1,3-Dichloropropene	<5	<5	<5
Trichloroethene	<5	<5	<5
Benzene	<5	<5	<5
Dibromochloromethane	<5	<5	<5
1,1,2-Trichloroethane	<5	<5	<5
t-1,3-Dichloropropene	<5	<5	<5
2-Chloroethylvinyl ether	<5	<5	<5
Bromoform	<5	<5	<5
1,1,2,2-Tetrachloroethane	<5	<5	<5
Tetrachloroethene	<5	<5	<5

May 9, 1989
Page 16 of 18

Mr. David Boyer
NM Oil Conservation Division

RE: 9649-29859-20
Date Samples Rec'd: 4-5-89
P.O. No. 77-521.07-123

RECEIVED

MAY 17 1989
OIL CONSERVATION DIV.
SANTA FE

REPORT OF ANALYSIS

ALR Designation
Sponsor Designation

9649-29859-20-16	9649-29859-20-17	9649-29859-20-18
8903301440	8903311255	8904032115
3-30-89	3-31-89	Trip Blank 4-3-89

Determination: µg/L

Toluene	<5	<5	<5
Chlorobenzene	<5	<5	<5
Ethyl benzene	<5	<5	<5
Total Dichlorobenzenes	<5	<5	<5
Total Xylenes	<5	<5	<5



SCIENTIFIC LABORATORY DIVISION

ORGANIC ANALYSIS REQUEST FORM

Organic Section - Phone: 841-2570

754
WPU

89-42 C

REPORT TO: DAVID BOYER S.L.D. No. OR-
N.M. OIL CONSERVATION DIVISION DATE REC. 1-19-89
P.O. Box 2088 PRIORITY 3
Santa Fe, NM 87504-2088 PHONE(S): 827-5812
COLLECTION CITY: E. of Coorsville; COUNTY: eddy
COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) 01/11/13/12/20
LOCATION CODE: (Township-Range-Section-Tracts) 235+30E+016+231- (10N06E24342)
USER CODE: 82235 SUBMITTER: David Boyer CODE: 2610
SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: _____

This form accompanies 2 Septum Vials, _____ Glass Jugs, and/or _____
Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice: Sample stored in an ice bath (Not Frozen).
☐ P-AA: Sample Preserved with Ascorbic Acid to remove chlorine residual.
☒ P-HCl: Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

RECEIVED

APR 27 1989

OIL CONSERVATION DIV.
SANTA FE

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
☐ (774) SDWA VOC's I (8 Regulated +)
☐ (775) SDWA VOC's II (EDB & DBCP)
Other Specific Compounds or Classes _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (755) Base/Neutral Extractables
☐ (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: Halogenated 10ppb or less if possible

FIELD DATA:

pH= 7; Conductivity= 750,000 umho/cm at _____ °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____

Depth to water _____ ft.; Depth of well _____ ft.; Perforation Interval _____ - _____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Laguna Quarta - S. Side State Highway 128

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector) David Boyer Method of Shipment to the Lab: State Car

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on _____ - _____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ OR Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD use: Date owner notified: _____ Phone or Letter? Initials _____

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud, NE

Albuquerque, NM 87106 [505]-841-2500

ORGANIC CHEMISTRY SECTION [505]-841-2570

February 1, 1989

ANALYTICAL REPORT
SLD Accession No. OR-89-0042Distribution

(■) Submitter

(※) SLD Files

To: 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 purgeable water sample submitted to this laboratory on January 19, 1989

User:

OIL CONSERVATION DIV
State Land Office Bldg.
P. O. Box 2088
Santa Fe, NM 87504-2088

DEMOGRAPHIC DATA

COLLECTION		LOCATION	
On: 13-Jan-89	By: Boy . . .	Township: 23S	Section: 06
At: 12:20 hrs.	In/Near: Carlsbad	Range: 30E	Tract: 23

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable Screen

Parameter	Value	Note	MDL	Units
Aromatic Purgeables (6)	0.00	N	100.00	ppb
Halogenated Purgeables (33)	0.00	N	100.00	ppb

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.

Seals: Not Sealed ☒, Intact: No ☐, Yes ☐ & Broken By: _____ Date: _____Laboratory Remarks: Laguna QuartoAnalyst: Gary C. Eden

Gary C. Eden
Analyst, Organic Chemistry

1/21/89
Analysis
Date

Reviewed By: R. Meyerhein

Richard F. Meyerhein 02/01/89
Supervisor, Organic Chemistry Section



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

854
WAA

GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS

RECEIVED
FEB 23 1989

DATE RECEIVED	1/19/89	LAB NO.	WC-92	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	02/10/13	SITE INFORMATION	Sample location	Laguna Cuarto	
Collection TIME	1200		Collection site description	S. Side, Highway 128	
Collected by	Person/Agency Boyer/Anderson OCD				

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/
well code 235-30E-0623
Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped	☐ Pump ☐ Tap	Water level	Discharge	Sample type	Grab
pH (00400)	7	Conductivity (Uncorrected)	> 50,000 μ mho	Water Temp. (00010)	°C
Field comments		Conductivity at 25°C (00094) μ mho			

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	1	☒ NF: Whole sample (Non-filtered)	☐ F: Filtered in field with 0.45 μ membrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
☒ NA: No acid added		☐ Other-specify:	☐ A: 5ml conc. HNO ₃ added	☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From	NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	μ mho	1/27	WF	Calcium	940 mg/l 1/23/89
☐ Total non-filterable residue (suspended) (00530)	mg/l			Potassium	18520 mg/l 1/24
☒ Other: Lab pH		7.28 1/23		Magnesium	5807 mg/l 1/23/89
☐ Other:				Sodium	92850 mg/l 1/24
☐ Other:				Bicarbonate	233 mg/l 1/23
A-H ₂ SO ₄				Chloride	138500 mg/l 2/2
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l			Sulfate	28550 mg/l 2/2
☐ Ammonia-N total (00610)	mg/l			Total Solids	> 10 ⁵ mg/l 2/9
☐ Total Kjeldahl-N ()	mg/l			BR	191 mg/l 2/07
☐ Chemical oxygen demand (00340)	mg/l			CO ₂	0 1/23
☐ Total organic carbon ()	mg/l			☒ Cation/Anion Balance	
☐ Other:			Analyst	Date Reported	Reviewed by
☐ Other:				2/16/89	C. J. J.

Laboratory remarks

170100

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initials _____

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	46.91	940.00	<3.0
Mg	476.96	5807.00	<0.3
Na	4038.71	92850.00	<10.0
K	473.66	18520.00	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	

SUMS 5036.24 118117.00

Total Dissolved Solids=>100000
Ion Balance = 111.78%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	3.82	233.00	<1.0
SO4	594.79	28550.00	<10.0
CL	3906.91	#####	<5.0
		(138,500)	
NO3	0.00	0.00	< 0.
CO3	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	4505.52	#####	

WC No. = 8800092
Date out/By Dean 2/16/89

RECEIVED
FEB 23 1989
OIL CONSERVATION DIVISION
SANTA FE



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received	11/9/89	Lab No.	ICP-19	User Code	82235	Other:		
COLLECTION DATE & TIME:				yy	mm	dd	hh	mm
				09	01	13	12	20
COLLECTED BY:				Boyer/Anderson OCS				
TO:				ENVIRONMENTAL BUREAU NM OIL CONSERVATION DIVISION State Land Office Bldg., PO Box 2088 SANTA FE, NM 87504-2088				
				SITE LOCATION: County: <u>Fredrick</u> Township, Range, Section, Tract: (10N06E24342) <u>23S+30E+06+231-</u>				
ATTN: <u>D. Boyer</u>				STATION/ WELL CODE:				
TELEPHONE: 827-5812								

SAMPLING CONDITIONS:				LATITUDE, LONGITUDE:			
☐ Bailed	☐ Pump	Water Level:	Discharge:	Sample Type:			
☒ Dipped	☐ Tap			<u>Grab</u>			
pH(00400)	Conductivity(Uncorr.)	Water Temp.(00010)	Conductivity at 25°C				
<u>7</u>	<u>>50,000</u> μ mho	<u>0</u> °C	<u>—</u> μ mho				
FIELD COMMENTS:							

SAMPLE FIELD TREATMENT		LAB ANALYSIS REQUESTED:	
Check proper boxes:			
☒ WPN: Water Preserved w/HNO ₃ Non-Filtered	☐ WPF: Water Preserved w/HNO ₃ Filtered	☒ ICAP Scan	
		Mark box next to metal if AA is required.	

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	<1.0		Silicon	7.7	
Barium	<1.0		Silver	<1.0	☐
Beryllium	<1.0		Strontium	~1.9	
Boron	10.		Tin	6	
Cadmium	<1.0	☐	Vanadium	1.8	
Calcium	680.		Zinc	<1.0	
Chromium	<1.0	☐	Arsenic		☒ <0.5
Cobalt	<0.5		Selenium		☐
Copper	<1.0		Mercury		☒ <0.0005
Iron	<1.0				☐
Lead	<1.0	☐			☐
Magnesium	5020				☐
Manganese	0.87				☐
Molybdenum	<1.0				☐
Nickel	<1.0				☐

LAB COMMENTS:		DIGEST	
For OCD Use:			
Date Owner Notified:	ICAP Analyst <u>JTA</u>	Reviewer <u>Alan S. Meyer</u>	
Phone or Letter?	Date Analyzed <u>2/27/89</u>	Date Received <u>3/13/89</u>	
Initials:			

Lab
No.

12
ACQUA LABS
77-52107-123

ORGANIC ANALYSIS REQUEST FORM

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

Sample No. 8903301355
DATE REC. _____
PRIORITY _____
PHONE(S): 827-5812

COLLECTION CITY: Carlisle; COUNTY: Eddy
COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) 8910313155
LOCATION CODE: (Township-Range-Section-Tracts) _____ (10N06E24S42)

SUBMITTER: David Boyer

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: _____

This form accompanies 2 Septum Vials, _____ Glass Jugs, and/or _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice: Sample stored in an ice bath (Not Frozen).
☐ P-AA: Sample Preserved with Ascorbic Acid to remove chlorine residual.
☒ P-HCl: Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-6 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
☐ (774) SDWA VOC's I (8 Regulated +)
☐ (775) SDWA VOC's II (EDB & DBCP)
Other Specific Compounds or Classes

EXTRACTABLE SCREENS

- ☐ (781) Aliphatic Hydrocarbons
☐ (785) Base/Neutral Extractables
☐ (788) Herbicides, Chlorophenoxy acid
☐ (789) Herbicides, Triazines
☐ (780) Organochlorine Pesticides
☐ (781) Organophosphate Pesticides
☐ (787) Polychlorinated Biphenyls (PCB's)
☐ (784) Polynuclear Aromatic Hydrocarbons
☐ (783) SDWA Pesticides & Herbicides

Remarks: _____

FIELD DATA:

>50,000
pH= _____; Conductivity= _____ umho/cm at _____ °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate= _____

Depth to water _____ ft.; Depth of well _____ ft.; Perforation Interval _____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

B & E Disposal * Effluent outfall to Lake
(Produced water) * Oil field waste disposal

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David A. Boyer Method of Shipment to the Lab: Express

CHAIN OF CUSTODY

I certify that this sample was transferred from DB to DM
at (location) ALR on 4.5.89. 12.25 and that
the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ OR Seals Intact: Yes ☒ No ☐
Signature: [Signature]

For OCD use: Date owner notified: _____ Phone or Letter? Initials _____

May 9, 1989
Page 10 of 18

Mr. David Boyer
NM Oil Conservation Division

RE: 9649-29859-20
Date Samples Rec'd: 4-5-89
P.O. No. 77-521.07-123

RECEIVED

MAY 17 1989

OIL CONSERVATION DIV.
SANTA FEREPORT OF ANALYSIS

ALR Designation
Sponsor Designation

9649-29859-20-10	9649-29859-20-11	9649-29859-20-12
8903291420	8903301000	8903301355
3-29-89	3-30-89	3-30-89

GC/MS VOLATILE ORGANICS, µg/L:

	9649-29859-20-10	9649-29859-20-11	9649-29859-20-12
Chloromethane	Not Analyzed	Not Analyzed	<100
Bromomethane			<100
Vinyl chloride			<100
Chloroethane			<100
Methylene chloride			<50
1,1-Dichloroethene			<50
1,1-Dichloroethane			<50
Total 1,2-Dichloroethene			<50
Chloroform			<50
1,2-Dichloroethane			<50
1,1,1-Trichloroethane			<50
Carbon tetrachloride			<50
Bromodichloromethane			<50
1,2-Dichloropropane			<50
c-1,3-Dichloropropene			<50
Trichloroethene			<50
Benzene			380
Dibromochloromethane			<50
1,1,2-Trichloroethane			<50
t-1,3-Dichloropropene			<50
2-Chloroethylvinyl ether			<50
Bromoform			<50
1,1,2,2-Tetrachloroethane			<50
Tetrachloroethene			<50

May 9, 1989
Page 11 of 18

Mr. David Boyer
NM Oil Conservation Division

RE: 9649-29859-20
Date Samples Rec'd: 4-5-89
P.O. No. 77-521.07-123

RECEIVED

MAY 17 1989
OIL CONSERVATION DIV.
SANTA FE

REPORT OF ANALYSIS

ALR Designation
Sponsor Designation

9649-29859-20-10	9649-29859-20-11	9649-29859-20-12
8903291420	8903201000	8903301355
3-29-89	3-30-89	3-30-89

Determination: µg/L

Toluene	580
Chlorobenzene	<50
Ethyl benzene	<50
Total Dichlorobenzenes	<50
Total Xylenes	390

Determination: mg/L

Aluminum, total	0.3	--	--
Barium, total	0.09	--	--
Boron, total	0.1	--	--
Cadmium, total	<0.005	--	--
Calcium, total	170	52	--
Chromium, total	0.005	--	--
Cobalt, total	<0.005	--	--
Copper, total	0.041	--	--
Iron, total	0.88	--	--
Magnesium, total	23	48	--
Manganese, total	0.028	--	--
Mercury, total	<0.001*	--	--
Molybdenum, total	0.007	--	--
Nickel, total	0.02	--	--
Potassium, total	50	6.2	--
Silver, total	<0.005	--	--
Sodium, total	1100	2300	--
Strontium, total	0.88	--	--
Zinc, total	0.019	--	--
Total Alkalinity, (as CaCO ₃ to pH 4.5)	110	1600	--

May 9, 1989
Page 12 of 18

Mr. David Boyer
NM Oil Conservation Division

RE: 9649-29859-20
Date Samples Rec'd: 4-5-89
P.O. No. 77-521.07-123

RECEIVED

MAY 17 1989

OIL CONSERVATION DIV.
SANTA FE

REPORT OF ANALYSIS

ALR Designation
Sponsor Designation

9649-29859-20-10	9649-29859-20-11	9649-29859-20-12
8903291420	8903301000	8903301355
3-29-89	3-30-89	3-30-89

Determination: mg/L

Carbonate (as CO ₃)	<5	31	--
Bicarbonate (as HCO ₃)	130	1900	--
pH	8.3	8.4	--
Specific Conductance, µmhos/cm	5900	12,000	--
Arsenic, total	<0.005	--	--
Lead, total	<0.005	--	--
Selenium, total	<0.005	--	--
Total Solids	3100	5800	--
Bromide	<2*	<200*	--
Chloride	1500	2400	--
Sulfate (as SO ₄)	500	270	--
Ion Balance	108	101	--



SCIENTIFIC LABORATORY DIVISION

ORGANIC ANALYSIS REQUEST FORM

Organic Section - Phone: 841-2570

754
wpu

89-40 C

REPORT TO: DAVID BOYER S.L.D. No. OR-
N.M. OIL CONSERVATION DIVISION DATE REC. 1-19-89
P.O. Box 2088 PRIORITY 3
Santa Fe, NM 87504-2088 PHONE(S): 827-5812
COLLECTION CITY: E of Carlisle; COUNTY: Elk
COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) 890911131205
LOCATION CODE: (Township-Range-Section-Tracts) 23S+30E+016+244 (10N06E24342)
USER CODE: 82235 SUBMITTER: David Boyer CODE: 21610
SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: _____

This form accompanies 2 Septum Vials, _____ Glass Jugs, and/or _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
☒ P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analyses required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
☐ (774) SDWA VOC's I (8 Regulated +)
☐ (775) SDWA VOC's II (EDB & DBCP)
Other Specific Compounds or Classes _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (755) Base/Neutral Extractables
☐ (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: Halogenated 10ppb or less if possible

FIELD DATA:

pH= 7; Conductivity= >50,000 umho/cm at _____ °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____ / _____

Depth to water _____ ft.; Depth of well _____ ft.; Perforation Interval _____ - _____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

B&E Disposal, Final Effluent, outfall
from tank

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector) David A. Boyer Method of Shipment to the Lab: Stalder

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on _____ - _____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ OR Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD use: Date owner notified: _____ Phone or Letter? Initials _____

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud, NE
Albuquerque, NM 87106 [505]-841-2500
ORGANIC CHEMISTRY SECTION [505]-841-2570

February 1, 1989

ANALYTICAL REPORT
SLD Accession No. OR-89-0040

Distribution

(■) Submitter
(*) SLD Files

To: 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 purgeable water sample submitted to this laboratory on January 19, 1989

User: _____
STATE PARKS & RECREATION

DEMOGRAPHIC DATA

COLLECTION		LOCATION	
On: 13-Jan-89	By: Boy . . .	Township: 23S	Section: 06
At: 12:05 hrs.	In/Near: Carlsbad	Range: 30E	Tract: 244

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable Screen

Parameter	Value	Note	MDL	Units
Halogenated Purgeables (33)	0.00	N	100.00	ppb
Benzene	520.00		100.00	ppb
Toluene	750.00		100.00	ppb
Ethylbenzene	0.00	T	100.00	ppb
p- & m-Xylene	500.00		100.00	ppb
1,2-Dimethylbenzene	100.00		100.00	ppb

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.

Seals: Not Sealed ☒ Intact: No ☐ Yes ☐ & Broken By: _____ Date: _____

Laboratory Remarks: B & E Disposal

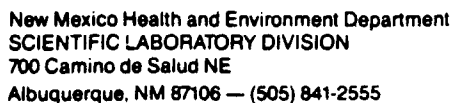
Analyst: _____

Gary C. Eden
Analyst, Organic Chemistry

1/21/89
Analysis
Date

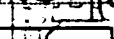
Reviewed By: _____

Richard F. Meyerhein 02/01/89
Supervisor, Organic Chemistry Section



GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

859
wnr

DATE RECEIVED 1/19/89		LAB NO. WC-97	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE 02/10/13	SITE INFORMATION	Sample location B & R Disposal - Serial Effluent	
Collection TIME 1205		Collection site description Sample from outfall	
Collected by Person/Agency 1825/1/Amherst/OCD		 FEB 23 1989 OIL CONSERVATION DIVISION SANTA FE	
ENVIRONMENTAL BUREAU NM OIL CONSERVATION DIVISION State Land Office Bldg, PO Box 2088 Santa Fe, NM 87504-2088		Station/ well code 235-30606.244 Owner	

SEND FINAL REPORT TO

Attn: David Boyer

Phone: 827-5812

SAMPLING CONDITIONS

**SEND
FINAL
REPORT
TO**

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped	☐ Pump ☐ Tap	Water level	Discharge	Sample type <i>Grab</i>
pH (00400) <i>7</i>	Conductivity (Uncorrected) <i>> 50,800</i> μmho	Water Temp. (00010) $^{\circ}\text{C}$	Conductivity at 25 $^{\circ}\text{C}$ (00094) μmho	
Field comments				

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted	1	☒ NF: Whole sample (Non-filtered)	☐ F: Filtered in field with 0.45 μ m membrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
☐ NA: No acid added		☐ Other-specify:	☐ A: 5ml conc. HNO ₃ added	☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA		Units Date analyzed	
☒ Conductivity (Corrected) 25°C (00095)	121317 μ mho	1/27	
☐ Total non-filterable residue (suspended) (00530)	_____ mg/l	_____	_____
☒ Other: Lab pH	6.81	1/23	
☐ Other: _____	_____	_____	_____
☐ Other: _____	_____	_____	_____
A-H ₂ SO ₄			
☐ Nitrate-N + , Nitrate-N total (00630)	_____ mg/l	_____	_____
☐ Ammonia-N total (00610)	_____ mg/l	_____	_____
☐ Total Kjeldahl-N ()	_____ mg/l	_____	_____
☐ Chemical oxygen demand (00340)	_____ mg/l	_____	_____
☐ Total organic carbon ()	_____ mg/l	_____	_____
☐ Other: _____	_____	_____	_____
☐ Other: _____	_____	_____	_____

From <u>NE</u> , NA Sample:		Date Analyzed
☒ Calcium	14,100 mg/l	1/26/89
☒ Potassium	740 mg/l	1/24
☒ Magnesium	2500 mg/l	1/26/89
☒ Sodium	50750 mg/l	1/24
☒ Bicarbonate	152 mg/l	1/23
☒ Chloride	10000 mg/l	2/2
☒ Sulfate	1232 mg/l	2/2
☒ Total Solids	> 10 ⁵ mg/l	2/9
☒ B ₇	242 mg/l	2/07
☒ CO ₂	0	1/23
☒ Cation/Anion Balance		_____
Analyst	Date Reported	Reviewed by
	2/15/89	[Signature]

Laboratory remarks

122050

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initials _____

Phone or Letter?

Initials

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	703.59	14100.00	<3.0
Mg	205.34	2500.00	<0.3
Na	2207.48	50750.00	<10.0
K	18.93	740.00	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	3135.34	68090.00	

Total Dissolved Solids = > 100,000
 Ion Balance = 108.97%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	2.49	152.00	<1.0
SO4	25.67	1232.00	<10.0
CL	2849.08	#####	<5.0
		101,000	
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	2877.24	#####	

WC No. = 8800097
 Date out/By Quinn 2/16/89

RECEIVED
 FEB 23 1989
 OIL CONSERVATION DIVISION
 SANTA FE

350 WPN



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS

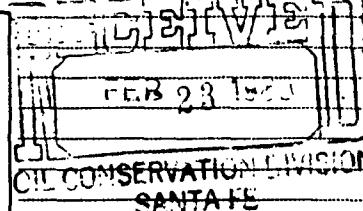
DATE RECEIVED 1/19/89	LAB NO. WC-98	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE 09/10/13	SITE INFORMATION	Sample location B&E-Final Effluent
Collection TIME 1205		Collection site description Sample from Tank outfall
Collected by Person/Agency Boyer, Anderson/OCD		

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812



Station/well code: 235-30E-06-214
Owner: B&E Disposal

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped	☐ Pump ☐ Tap	Water level	Discharge	Sample type Grab
pH (00400) 7	Conductivity (Uncorrected) 750,000 μ mho	Water Temp. (00010) °C	Conductivity at 25°C (00094) μ mho	
Field comments				

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1	☒ NF: Whole sample (Non-filtered)	☐ F: Filtered in field with 0.45 μ m membrane filter	☒ A: 2 ml H ₂ SO ₄ /L added
☐ NA: No acid added		☐ Other-specify:	☐ A: 5ml conc. HNO ₃ added ☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From _____, NA Sample:	Date Analyzed
☐ Conductivity (Corrected) 25°C (00095)	μ mho		☐ Calcium	mg/l
☐ Total non-filterable residue (suspended) (00530)	mg/l		☐ Potassium	mg/l
☐ Other:			☐ Magnesium	mg/l
☐ Other:			☐ Sodium	mg/l
☐ Other:			☐ Bicarbonate	mg/l
A-H₂SO₄			☐ Chloride	mg/l
☐ Nitrate-N + Nitrate-N total (00630)	mg/l		☐ Sulfate	mg/l
☐ Ammonia-N total (00610)	mg/l		☐ Total Solids	mg/l
☐ Total Kjeldahl-N	mg/l		☐	
☐ Chemical oxygen demand (00340)	mg/l		☐	
☐ Total organic carbon	mg/l		☐ Cation/Anion Balance	
☒ Other: Oil & Grease 4.0	mg/l	02/15/89	Analyst	Date Reported
☐ Other:				Reviewed by
Laboratory remarks				

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initials _____



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received	1/19/89	Lab No.	ICP-18	User Code	☒ 82235	☐ Other:		
COLLECTION DATE & TIME:				yy	mm	dd	hh	mm
				89	01	13	12	05

COLLECTED BY: Boyer/Anderson

TO:

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg., PO Box 2088
SANTA FE, NM 87504-2088

ATTN: S. Boyer
TELEPHONE: 827-5812

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☐ Bailed	☐ Pump	Water Level:	Discharge:	Sample Type:
☒ Dipped	☐ Tap			<u>Grab</u>
pH(00400)	Conductivity(Uncorr.)	Water Temp.(00010)	Conductivity at 25°C	
<u>7</u>	<u>> 50,000</u> μ mho	<u> </u> °C	<u> </u> μ mho	

FIELD COMMENTS:

SAMPLE FIELD TREATMENT

Check proper boxes:

☒ WPN: Water Preserved w/HNO ₃	☒ WPF: Water Preserved w/HNO ₃
☐ Non-Filtered	☐ Filtered

LAB ANALYSIS REQUESTED:

☒ ICAP Scan
Mark box next to metal if AA is required.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	<1.0		Silicon	5.1	
Barium	6.5		Silver	<1.0	☐
Beryllium	<1.0		Strontium	760.	
Boron	34.		Tin	3.2	
Cadmium	<1.0	☐	Vanadium	<1.0	
Calcium	12900.		Zinc	<1.0	
Chromium	<1.0	☐	Arsenic		☒ <0.5
Cobalt	<0.5		Selenium		☐
Copper	<1.0		Mercury		☒ <0.0005
Iron	5.0				☐
Lead	<1.0	☐			☐
Magnesium	2370.				☐
Manganese	2.5				☐
Molybdenum	<1.0				☐
Nickel	<1.0				☐

LAB COMMENTS:

For OCD Use:

Date Owner Notified:
Phone or Letter?
Initials:

ICAP Analyst JA

Date Analyzed 2/27/89

Reviewer John L. Meyer

Date Received 3/13/89

B & E Disposal



Accu-Labs Research, Inc.

11485 W. 48th Avenue Wheat Ridge, Colorado 80033 (303) 423-2766

 February 7, 1989
 Page 1 of 2

 Mr. David Boyer
 NM Oil Conservation Division
 State Land Office Bldg.
 P.O. Box 2088
 Santa Fe, NM 87504-2088

 RECEIVED
 FEB - 9 1989
 OIL CONSERVATION DIVISION
 SANTA FE

 RE: 9649-29142-3
 Date Samples Rec'd: 1-20-89
 P.O. No. 77-521.07-123

REPORT OF ANALYSIS

ALR Designation	9649-29142-3-1	9649-29142-3-2	9649-29142-3-3
Sponsor Designation	8901121115	8901121645	8901131205
	1-12-89	1-12-89	1-13-89
Determination: mg/L			
Aluminum, total	<1.0*	<1.0*	<1.0*
Barium, total	3.0	10	0.6
Boron, total	190	38	8.2
Cadmium, total	<0.05*	<0.05*	<0.05*
Calcium, total	64,000	--	8900
Chromium, total	<0.05*	<0.05*	<0.05*
Iron, total	<0.1*	7.4	210
Lead, total	<0.5*	<0.5*	<0.5*
Magnesium, total	21,000	--	1400
Manganese, total	4.3	3.8	5.2
Mercury, total	0.0072	0.0060	0.0060
Potassium, total	12,000	--	1100
Sodium, total	34,000	--	47,000
Total Alkalinity, (as CaCO ₃ to pH 4.5)	280	--	170
Carbonate (as CO ₃)	<5	--	<5
Bicarbonate (as HCO ₃)	340	--	210
pH	5.5	--	7.0
Specific Conductance, µmhos/cm	900,000	--	340,000
Arsenic, total	0.24	0.13	2.4
Selenium, total	<0.25*	<0.25*	--
Total Solids	540,000	--	200,000
Bromide	2000	--	310

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	<u>1-12-89</u>	<u>1-12-89</u>	<u>1-13-89</u>
Determination: mg/L			
Chloride	230,000	--	110,000
Sulfate (as SO ₄)	240	--	770
Ion Balance	103	--	85

* Higher detection limit due to sample matrix interference.

These samples are scheduled to be discarded 30 days after the date of this report.

Mary Fabisiak
Mary Fabisiak
Water Laboratory
Supervisor

MF/dh *dh*



1/11/89 B+E Carlsbad



1/11/89 B+E Carlsbad



1/11/89 BVE Carlsbad



1st/89 B+E Carlsbad



1/11/89 B+E Carlsbad



1/11/89

B & E

Carlsbad



7/11/89

B+E Carlsbad



1/11/88

B+E Carlsbad



1/11/89 B+E Carlsbad



Laguna Toston

3/14/90

WQ



1/10/85 B+E Carobad



B9 E

8-26-97



B+E

8-26-97



B+E

8-26-97



B & E

8/26/97



B+E 8/26/97



B4E 8/26/97



4 E Laguna Quatro lambfarm
3/17/95

10 03 80 17 11 00 00



B4E Laguna Quatro land farm

3/17/95

19 97-03 11111 000



B4 E Lagunc Quetro landfarm
3/17/95

2000 11/16/01 20:20 00



B+E Laguna Quatro Level farm

3/17/95

07 47 00 11111 112



Laguna Quetro B4 E Landfarm
3/17/95

0000 1111 0000
00 00 00 00 00 00



B & E Laguna Quatro looking west
3/17/95

0000 1111 00 1111 000



3/17/95 ^{Magline} Quatro looking west

[illegible]



Tanks at discharge point
for B+E Inc. (Tuzlu
Kopuk) into Laguna
Quarto, Eddy County,
NM on S side NM Rte 128.

11-20-91 C. Shuen



Culvert linking Laguna
Arriba w/ Laguna Trés,
Eddy County, NM

~~8/1~~

11-21-91 C. Shroy



Laguna Quarto w/ Br E
Inc. in for background;
NM Rte 128 to left +
off of photo.

11-21-91

C. Shuey
