

WATER CONTAMINATION STUDY



NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Jennifer A. Salisbury
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

November 30, 2000

Mr. J.R. Brinkley
P.O. Box 5153
Hobbs, New Mexico 88241

RE: WATER WELL SAMPLE ANALYSES

Dear Mr. Brinkley:

Enclosed you will find a copy of the laboratory analytical results of the water samples that the New Mexico Oil Conservation Division (OCD) obtained from your water well southeast of Hobbs, New Mexico on September 28, 2000. The sample analyses did not detect any petroleum hydrocarbon contaminants in the well water. However, elevated levels of nitrate, chloride and total dissolved solids were found to be present in the water. Nitrate was present at a concentration of 7.0 mg/l which is below the New Mexico Water Quality Control Commission (WQCC) drinking water standard of 10.0 mg/l, but is still elevated compared to natural background levels in the Hobbs area. Chloride was present at a concentration of 1600 mg/l which is above the WQCC drinking water standard of 250 mg/l. Total dissolved solids were found to be present at a concentration of 3100 mg/l which is above the WQCC standard of 1000 mg/l for drinking water. The presence of nitrate contaminants in your well water indicates that the water has been contaminated by something other than an oilfield activity since nitrates are not an oilfield contaminant. It is possible that the salt contamination in the water is also a result of the same source that is causing the nitrate contamination of your water.

The OCD Hobbs District Office is continuing to investigate oil contamination related to the nearby Pierce Production Company House #1 well site and the OCD will copy you on all correspondence that they send out regarding this matter. If you have any questions regarding the laboratory analyses of your water, please feel free to call me at (505) 827-7154. If you have any questions regarding OCD's investigations at the Pierce Production Company House #1 well site, please contact Donna Williams of the OCD Hobbs District Office at (505) 393-6161 ext. 113.

Sincerely,

William C. Olson
Hydrologist
Environmental Bureau

Enclosure

xc w/enclosure: Chris Williams, OCD Hobbs District Supervisor



TRACE ANALYSIS, INC.

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Analytical and Quality Control Report

Bill Olson
OCD
2040 S. Pacheco
Santa Fe, NM 87505

Report Date: October 27, 2000

Order ID Number: A00100221

Project Number: N/A
Project Name: Brinkley
Project Location: Water Well

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
154673	0009281330 Brinkley	Water	9/28/00	13:30	9/30/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 3 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.



Dr. Blair Leftwich, Director

Analytical and Quality Control Report

Sample: 154673 - 0009281330 Brinkley

Analysis: NO3 Analytical Method: SM 4500-NO3 E QC Batch: QC05931 Date Analyzed: 10/23/00
Analyst: JS Preparation Method: N/A Prep Batch: PB05188 Date Prepared: 10/23/00

Param	Flag	Result	Units	Dilution	RDL
NO3-NO2-N		7.0	mg/L	1	0.10

Quality Control Report Method Blank

Sample: Method Blank QCBatch: QC05931

Param	Flag	Results	Units	Reporting Limit
NO3-NO2-N		<0.10	mg/L	0.10

Quality Control Report Matrix Spikes and Duplicate Spikes

Sample: MS QC Batch: QC05931

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
NO3-NO2-N		7.89	mg/L	1	4	3.5	109		57 - 132	20

Sample: MSD QC Batch: QC05931

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
NO3-NO2-N		8.11	mg/L	1	4	3.5	115	5	57 - 132	20

Quality Control Report Continuing Calibration Verification Standards

Sample: CCV (1) QC Batch: QC05931

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
NO3-NO2-N		mg/L	0.16	0.170	106	80 - 120	10/23/00

Sample: ICV (1) QC Batch: QC05931

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
NO3-NO2-N		mg/L	0.16	0.153	95	80 - 120	10/23/00

TRACE ANALYSIS, INC.

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Analytical and Quality Control Report

Bill Olson
OCD
2040 S. Pacheco
Santa Fe, NM 87505

Report Date: October 18, 2000

Order ID Number: A00100221

Project Number: N/A
Project Name: Brinkley
Project Location: Water Well

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace Analysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
154673	0009281330 Brinkley	Water	9/28/00	13:30	9/30/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 16 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.


Dr. Blair Leftwich, Director

Analytical and Quality Control Report

Sample: 154673 - 0009281330 Brinkley

Analysis: Alkalinity Analytical Method: E 310.1 QC Batch: QC05424 Date Analyzed: 10/6/00
Analyst: RS Preparation Method: N/A Prep Batch: PB04729 Date Prepared: 10/6/00

Param	Flag	Result	Units	Dilution	RDL
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1	1
Bicarbonate Alkalinity		214	mg/L as CaCo3	1	1
Total Alkalinity		214	mg/L as CaCo3	1	1

Sample: 154673 - 0009281330 Brinkley

Analysis: BTEX Analytical Method: S 8021B QC Batch: QC05383 Date Analyzed: 10/4/00
Analyst: RC Preparation Method: 5035 Prep Batch: PB04690 Date Prepared: 10/4/00

Param	Flag	Result	Units	Dilution	RDL
Benzene		<0.001	mg/L	1	0.001
Toluene		<0.001	mg/L	1	0.001
Ethylbenzene		<0.001	mg/L	1	0.001
M,P,O-Xylene		<0.001	mg/L	1	0.001
Total BTEX		<0.001	mg/L	1	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT		0.102	mg/L	1	0.10	102	72 - 128
4-BFB		0.078	mg/L	1	0.10	78	72 - 128

Sample: 154673 - 0009281330 Brinkley

Analysis: Conductivity Analytical Method: SM 2510B QC Batch: QC05257 Date Analyzed: 10/2/00
Analyst: JS Preparation Method: N/A Prep Batch: PB04587 Date Prepared: 10/2/00

Param	Flag	Result	Units	Dilution	RDL
Specific Conductance		5400	uMHOS/cm	1	

Sample: 154673 - 0009281330 Brinkley

Analysis: Dissolved Metals Analytical Method: E 200.7 QC Batch: QC05668 Date Analyzed: 10/4/00
Analyst: RR Preparation Method: E 3005A Prep Batch: PB04956 Date Prepared: 10/2/00

Param	Flag	Result	Units	Dilution	RDL
Dissolved Calcium		490	mg/L	1	1
Dissolved Magnesium		85	mg/L	1	1
Dissolved Potassium		36	mg/L	1	1
Dissolved Sodium		572	mg/L	1	1

Sample: 154673 - 0009281330 Brinkley

Analysis: Hg, Total Analytical Method: S 7470A QC Batch: QC05673 Date Analyzed: 10/13/00
Analyst: MS Preparation Method: N/A Prep Batch: PB04964 Date Prepared: 10/2/00

Param	Flag	Result	Units	Dilution	RDL
Total Mercury		0.00041	mg/L	1	0.0002

Sample: 154673 - 0009281330 Brinkley

Analysis: Ion Chromatography (IC) Analytical Method: E 300.0 QC Batch: QC05456 Date Analyzed: 10/2/00
Analyst: JS Preparation Method: N/A Prep Batch: PB04739 Date Prepared: 10/2/00

Param	Flag	Result	Units	Dilution	RDL
CL		1600	mg/L	1	0.50
Fluoride		0.91	mg/L	1	0.20
Nitrate-N	1	6.2	mg/L	1	0.20
Sulfate		200	mg/L	1	0.50

Sample: 154673 - 0009281330 Brinkley

Analysis: TDS Analytical Method: E 160.1 QC Batch: QC05422 Date Analyzed: 10/5/00
Analyst: RS Preparation Method: N/A Prep Batch: PB04731 Date Prepared: 10/4/00

Param	Flag	Result	Units	Dilution	RDL
Total Dissolved Solids		3100	mg/L	1	10

Sample: 154673 - 0009281330 Brinkley

Analysis: Total Metals Analytical Method: S 6010B QC Batch: QC05669 Date Analyzed: 10/6/00
Analyst: RR Preparation Method: E 3010A Prep Batch: PB04649 Date Prepared: 10/5/00

Param	Flag	Result	Units	Dilution	RDL
Total Aluminum		<0.50	mg/L	1	0.50
Total Arsenic		<0.05	mg/L	1	0.05
Total Barium		0.16	mg/L	1	0.10
Total Boron		0.57	mg/L	1	0.50
Total Cadmium		<0.01	mg/L	1	0.01
Total Chromium		<0.01	mg/L	1	0.01
Total Cobalt		<0.05	mg/L	1	0.05
Total Copper		<0.10	mg/L	1	0.10
Total Iron		<0.10	mg/L	1	0.10
Total Lead		<0.01	mg/L	1	0.01
Total Manganese		<0.01	mg/L	1	0.01
Total Molybdenum		<0.01	mg/L	1	0.01
Total Nickel		<0.01	mg/L	1	0.01
Total Selenium		<0.05	mg/L	1	0.05
Total Silver		<0.01	mg/L	1	0.01
Total Zinc		<0.10	mg/L	1	0.10

¹ Sample came in already out of holding time for NO3.

Sample: 154673 - 0009281330 Brinkley

Analysis: pH Analytical Method: E 150.1 QC Batch: QC05321 Date Analyzed: 10/2/00
Analyst: RS Preparation Method: N/A Prep Batch: PB04641 Date Prepared: 10/2/00

Param	Flag	Result	Units	Dilution	RDL
pH	²	7.3	s.u.	1	1

Quality Control Report Method Blank

Sample: Method Blank QCBatch: QC05257

Param	Flag	Results	Units	Reporting Limit
Specific Conductance		3.4	uMHOS/cm	

Sample: Method Blank QCBatch: QC05383

Param	Flag	Results	Units	Reporting Limit
Benzene		<0.001	mg/L	0.001
Toluene		<0.001	mg/L	0.001
Ethylbenzene		<0.001	mg/L	0.001
M,P,O-Xylene		<0.001	mg/L	0.001
Total BTEX		<0.001	mg/L	0.001

Surrogate	Flag	Result	Units	Spike Amount	Percent Recovery	Recovery Limit
TFT		0.104	mg/L	0.10	104	72 - 128
4-BFB		0.106	mg/L	0.10	106	72 - 128

Sample: Method Blank QCBatch: QC05422

Param	Flag	Results	Units	Reporting Limit
Total Dissolved Solids		<10	mg/L	10

Sample: Method Blank QCBatch: QC05424

²the sample was received out of holding time.

Param	Flag	Results	Units	Reporting Limit
Hydroxide Alkalinity		<1.0	mg/L as CaCo3	1
Carbonate Alkalinity		<1.0	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.0	mg/L as CaCo3	1
Total Alkalinity		<4.0	mg/L as CaCo3	1

Sample: Method Blank QCBatch: QC05456

Param	Flag	Results	Units	Reporting Limit
CL		<0.5	mg/L	0.50
Fluoride		<0.2	mg/L	0.20
Nitrate-N		<0.5	mg/L	0.20
Sulfate		<0.5	mg/L	0.50

Sample: Method Blank QCBatch: QC05668

Param	Flag	Results	Units	Reporting Limit
Dissolved Calcium		<1.0	mg/L	1
Dissolved Magnesium		<1.0	mg/L	1
Dissolved Potassium		<1.0	mg/L	1
Dissolved Sodium		<1.0	mg/L	1

Sample: Method Blank QCBatch: QC05669

Param	Flag	Results	Units	Reporting Limit
Total Aluminum		<0.50	mg/L	0.50
Total Arsenic		<0.05	mg/L	0.05
Total Barium		<0.10	mg/L	0.10
Total Boron		<0.50	mg/L	0.50
Total Cadmium		<0.01	mg/L	0.01
Total Chromium		<0.01	mg/L	0.01
Total Cobalt		<0.05	mg/L	0.05
Total Copper		<0.10	mg/L	0.10
Total Iron		<0.10	mg/L	0.10
Total Lead		<0.01	mg/L	0.01
Total Manganese		<0.01	mg/L	0.01
Total Molybdenum		<0.01	mg/L	0.01
Total Nickel		<0.01	mg/L	0.01
Total Selenium		<0.05	mg/L	0.05
Total Silver		<0.01	mg/L	0.01
Total Zinc		<0.10	mg/L	0.10

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1069	mg/L	1	1000	<1.0	106		75 - 125	20
Dissolved Magnesium		1062	mg/L	1	1000	<1.0	106		75 - 125	20
Dissolved Potassium		1062	mg/L	1	1000	<1.0	106		75 - 125	20
Dissolved Sodium		1033	mg/L	1	1000	<1.0	103		75 - 125	20

Sample: LCSD

QC Batch: QC05668

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1079	mg/L	1	1000	<1.0	107	1	75 - 125	20
Dissolved Magnesium		1036	mg/L	1	1000	<1.0	103	2	75 - 125	20
Dissolved Potassium		1095	mg/L	1	1000	<1.0	109	3	75 - 125	20
Dissolved Sodium		1013	mg/L	1	1000	<1.0	101	2	75 - 125	20

Sample: LCS

QC Batch: QC05669

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		1.98	mg/L	1	2	<0.50	99		75 - 125	20
Total Arsenic		0.96	mg/L	1	1	<0.05	96		75 - 125	20
Total Barium		2.08	mg/L	1	2	<0.10	104		75 - 125	20
Total Boron		1.08	mg/L	1	1	<0.50	108		75 - 125	20
Total Cadmium		0.20	mg/L	1	0.20	<0.01	100		75 - 125	20
Total Chromium		0.42	mg/L	1	0.40	<0.01	105		75 - 125	20
Total Cobalt		1.02	mg/L	1	1	<0.05	102		75 - 125	20
Total Copper		0.40	mg/L	1	0.40	<0.10	100		75 - 125	20
Total Iron		2.08	mg/L	1	2	<0.10	104		75 - 125	20
Total Lead		1.01	mg/L	1	1	<0.01	101		75 - 125	20
Total Manganese		0.21	mg/L	1	0.20	<0.01	105		75 - 125	20
Total Molybdenum		1.06	mg/L	1	1	<0.01	106		75 - 125	20
Total Nickel		0.98	mg/L	1	1	<0.01	98		75 - 125	20
Total Selenium		0.87	mg/L	1	1	<0.05	87		75 - 125	20
Total Silver		0.20	mg/L	1	0.20	<0.01	100		75 - 125	20
Total Zinc		0.23	mg/L	1	0.20	<0.10	115		75 - 125	20

Sample: LCSD

QC Batch: QC05669

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.01	mg/L	1	2	<0.50	100	2	75 - 125	20
Total Arsenic		0.94	mg/L	1	1	<0.05	94	2	75 - 125	20

Continued ...

Sample: Method Blank QC Batch: QC05673

Param	Flag	Results	Units	Reporting Limit
Total Mercury		<0.0002	mg/L	0.0002

Quality Control Report Lab Control Spikes and Duplicate Spikes

Sample: LCS QC Batch: QC05383

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
MTBE		0.098	mg/L	1	0.10	<0.001	98		80 - 120	20
Benzene		0.1	mg/L	1	0.10	<0.001	100		80 - 120	20
Toluene		0.1	mg/L	1	0.10	<0.001	100		80 - 120	20
Ethylbenzene		0.101	mg/L	1	0.10	<0.001	101		80 - 120	20
M,P,O-Xylene		0.3	mg/L	1	0.30	<0.001	100		80 - 120	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
TFT		0.099	mg/L	1	0.10	99	72 - 128
4-BFB		0.099	mg/L	1	0.10	99	72 - 128

Sample: LCSD QC Batch: QC05383

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
MTBE		0.094	mg/L	1	0.10	<0.001	94	22	80 - 120	20
Benzene		0.09	mg/L	1	0.10	<0.001	90	9	80 - 120	20
Toluene		0.085	mg/L	1	0.10	<0.001	85	5	80 - 120	20
Ethylbenzene		0.098	mg/L	1	0.10	<0.001	98	16	80 - 120	20
M,P,O-Xylene		0.266	mg/L	1	0.30	<0.001	88	8	80 - 120	20

Surrogate	Flag	Result	Units	Dil.	Spike Amount	% Rec.	% Rec. Limit
TFT		0.099	mg/L	1	0.10	99	72 - 128
4-BFB		0.099	mg/L	1	0.10	99	72 - 128

Sample: LCS QC Batch: QC05668

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Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Barium		2.04	mg/L	1	2	<0.10	102	2	75 - 125	20
Total Boron		1.17	mg/L	1	1	<0.50	117	8	75 - 125	20
Total Cadmium		0.20	mg/L	1	0.20	<0.01	100	0	75 - 125	20
Total Chromium		0.41	mg/L	1	0.40	<0.01	102	2	75 - 125	20
Total Cobalt		1.01	mg/L	1	1	<0.05	101	1	75 - 125	20
Total Copper		0.40	mg/L	1	0.40	<0.10	100	0	75 - 125	20
Total Iron		2.04	mg/L	1	2	<0.10	102	2	75 - 125	20
Total Lead		0.98	mg/L	1	1	<0.01	98	3	75 - 125	20
Total Manganese		0.20	mg/L	1	0.20	<0.01	100	5	75 - 125	20
Total Molybdenum		1.03	mg/L	1	1	<0.01	103	3	75 - 125	20
Total Nickel		0.97	mg/L	1	1	<0.01	97	1	75 - 125	20
Total Selenium		0.86	mg/L	1	1	<0.05	86	1	75 - 125	20
Total Silver		0.20	mg/L	1	0.20	<0.01	100	0	75 - 125	20
Total Zinc		0.24	mg/L	1	0.20	<0.10	120	4	75 - 125	20

Sample: LCS

QC Batch: QC05673

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Mercury		0.00081	mg/L	1	0.001	<0.0002	81		80 - 120	20

Sample: LCSD

QC Batch: QC05673

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Mercury		0.00085	mg/L	1	0.001	<0.0002	85	5	80 - 120	20

Quality Control Report Matrix Spikes and Duplicate Spikes

Sample: MS

QC Batch: QC05456

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
CL		987.91	mg/L	1	625	460	84		80 - 120	20
Fluoride		123.62	mg/L	1	125	2.5	96		80 - 120	20
Nitrate-N		122.13	mg/L	1	125	<1.0	97		80 - 120	20
Sulfate		846.21	mg/L	1	625	250	95		80 - 120	20

Sample: MSD QC Batch: QC05456

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
CL		991.26	mg/L	1	625	460	85	1	80 - 120	20
Fluoride		123.68	mg/L	1	125	2.5	96	0	80 - 120	20
Nitrate-N		120.50	mg/L	1	125	<1.0	96	1	80 - 120	20
Sulfate		834.07	mg/L	1	625	250	93	2	80 - 120	20

Sample: MS QC Batch: QC05668

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1128	mg/L	1	1000	63	106		75 - 125	20
Dissolved Magnesium		1071	mg/L	1	1000	14	105		75 - 125	20
Dissolved Potassium		1128	mg/L	1	1000	11	111		75 - 125	20
Dissolved Sodium		1085	mg/L	1	1000	37	104		75 - 125	20

Sample: MSD QC Batch: QC05668

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Dissolved Calcium		1127	mg/L	1	1000	63	106	0	75 - 125	20
Dissolved Magnesium		1058	mg/L	1	1000	14	104	1	75 - 125	20
Dissolved Potassium		1117	mg/L	1	1000	11	110	1	75 - 125	20
Dissolved Sodium		1078	mg/L	1	1000	37	104	1	75 - 125	20

Sample: MS QC Batch: QC05669

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.14	mg/L	1	2	<0.50	107		75 - 125	20
Total Arsenic		0.89	mg/L	1	1	<0.05	89		75 - 125	20
Total Barium		1.92	mg/L	1	2	0.16	88		75 - 125	20
Total Boron		1.37	mg/L	1	1	0.57	80		75 - 125	20
Total Cadmium		0.17	mg/L	1	0.20	<0.01	85		75 - 125	20
Total Chromium		0.35	mg/L	1	0.40	<0.01	87		75 - 125	20
Total Cobalt		0.83	mg/L	1	1	<0.05	83		75 - 125	20
Total Copper		0.36	mg/L	1	0.40	<0.10	90		75 - 125	20
Total Iron		1.77	mg/L	1	2	<0.10	88		75 - 125	20
Total Lead		0.81	mg/L	1	1	<0.01	81		75 - 125	20
Total Manganese		0.17	mg/L	1	0.20	<0.01	85		75 - 125	20
Total Molybdenum		0.90	mg/L	1	1	<0.01	90		75 - 125	20

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Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Nickel		0.85	mg/L	1	1	<0.01	85		75 - 125	20
Total Selenium		0.82	mg/L	1	1	<0.05	82		75 - 125	20
Total Silver		0.18	mg/L	1	0.20	<0.01	90		75 - 125	20
Total Zinc		0.19	mg/L	1	0.20	<0.10	95		75 - 125	20

Sample: MSD

QC Batch: QC05669

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Aluminum		2.15	mg/L	1	2	<0.50	107	0	75 - 125	20
Total Arsenic		0.90	mg/L	1	1	<0.05	90	1	75 - 125	20
Total Barium		1.95	mg/L	1	2	0.16	89	2	75 - 125	20
Total Boron		1.40	mg/L	1	1	0.57	83	4	75 - 125	20
Total Cadmium		0.17	mg/L	1	0.20	<0.01	85	0	75 - 125	20
Total Chromium		0.35	mg/L	1	0.40	<0.01	87	0	75 - 125	20
Total Cobalt		0.84	mg/L	1	1	<0.05	84	1	75 - 125	20
Total Copper		0.36	mg/L	1	0.40	<0.10	90	0	75 - 125	20
Total Iron		1.80	mg/L	1	2	<0.10	90	2	75 - 125	20
Total Lead		0.83	mg/L	1	1	<0.01	83	2	75 - 125	20
Total Manganese		0.17	mg/L	1	0.20	<0.01	85	0	75 - 125	20
Total Molybdenum		0.91	mg/L	1	1	<0.01	91	1	75 - 125	20
Total Nickel		0.85	mg/L	1	1	<0.01	85	0	75 - 125	20
Total Selenium		0.83	mg/L	1	1	<0.05	83	1	75 - 125	20
Total Silver		0.18	mg/L	1	0.20	<0.01	90	0	75 - 125	20
Total Zinc		0.20	mg/L	1	0.20	<0.10	100	5	75 - 125	20

Sample: MS

QC Batch: QC05673

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Mercury		0.00086	mg/L	1	0.001	<0.0002	86		80 - 120	20

Sample: MSD

QC Batch: QC05673

Param	Flag	Sample Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec.	RPD	% Rec. Limit	RPD Limit
Total Mercury		0.00097	mg/L	1	0.001	<0.0002	97	12	80 - 120	20

Quality Control Report Duplicate Samples

Sample: Duplicate

QC Batch: QC05257

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance		2286		uMHOS/cm	1	1	20
Specific Conductance		2286	2300	uMHOS/cm	1	1	20

Sample: Duplicate

QC Batch: QC05321

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH		7.6	7.6	s.u.	1	0	20

Sample: Duplicate

QC Batch: QC05422

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids		1326	1400	mg/L	1	5	20

Sample: Duplicate

QC Batch: QC05424

Param	Flag	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	20
Carbonate Alkalinity		<1.0	<1.0	mg/L as CaCo3	1	0	20
Bicarbonate Alkalinity		212	214	mg/L as CaCo3	1	1	20
Total Alkalinity		212	214	mg/L as CaCo3	1	1	20

Quality Control Report Continuing Calibration Verification Standards

Sample: CCV (1)

QC Batch: QC05257

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		uMHOS/cm	1413	1399	99	80 - 120	10/2/00

Sample: ICV (1) QC Batch: QC05257

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		uMHOS/cm	1413	1413	100	80 - 120	10/2/00

Sample: CCV (1) QC Batch: QC05321

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	80 - 120	10/2/00

Sample: ICV (1) QC Batch: QC05321

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7	7.0	100	80 - 120	10/2/00

Sample: CCV (1) QC Batch: QC05383

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.10	0.104	104	80 - 120	10/4/00
Toluene		mg/L	0.10	0.104	104	80 - 120	10/4/00
Ethylbenzene		mg/L	0.10	0.105	105	80 - 120	10/4/00
M,P,O-Xylene		mg/L	0.30	0.313	104	80 - 120	10/4/00

Sample: CCV (2) QC Batch: QC05383

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.10	0.1	100	80 - 120	10/4/00
Toluene		mg/L	0.10	0.101	101	80 - 120	10/4/00
Ethylbenzene		mg/L	0.10	0.104	104	80 - 120	10/4/00
M,P,O-Xylene		mg/L	0.30	0.304	101	80 - 120	10/4/00

Sample: ICV (1) QC Batch: QC05383

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.10	0.099	99	80 - 120	10/4/00
Toluene		mg/L	0.10	0.099	99	80 - 120	10/4/00
Ethylbenzene		mg/L	0.10	0.1	100	80 - 120	10/4/00
M,P,O-Xylene		mg/L	0.30	0.299	99	80 - 120	10/4/00

Sample: CCV (1)

QC Batch: QC05422

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	972	97	80 - 120	10/5/00

Sample: ICV (1)

QC Batch: QC05422

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	953	95	80 - 120	10/5/00

Sample: CCV (1)

QC Batch: QC05424

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	8.0	0	80 - 120	10/6/00
Carbonate Alkalinity		mg/L as CaCo3	0	220	0	80 - 120	10/6/00
Bicarbonate Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	10/6/00
Total Alkalinity		mg/L as CaCo3	250	228	91	80 - 120	10/6/00

Sample: ICV (1)

QC Batch: QC05424

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	10/6/00
Carbonate Alkalinity		mg/L as CaCo3	0	240	0	80 - 120	10/6/00
Bicarbonate Alkalinity		mg/L as CaCo3	0	<1.0	0	80 - 120	10/6/00
Total Alkalinity		mg/L as CaCo3	250	240	96	80 - 120	10/6/00

Sample: CCV (1)

QC Batch: QC05456

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
CL		mg/L	12.50	11.43	91	80 - 120	10/2/00
Fluoride		mg/L	2.50	2.40	96	80 - 120	10/2/00
Nitrate-N		mg/L	2.50	2.30	92	80 - 120	10/2/00
Sulfate		mg/L	12.50	11.71	93	80 - 120	10/2/00

Sample: ICV (1)

QC Batch: QC05456

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
CL		mg/L	12.50	11.53	92	80 - 120	10/2/00
Fluoride		mg/L	2.50	2.40	96	80 - 120	10/2/00
Nitrate-N		mg/L	2.50	2.30	92	80 - 120	10/2/00
Sulfate		mg/L	12.50	11.73	93	80 - 120	10/2/00

Sample: CCV (1)

QC Batch: QC05668

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	125	135	108	75 - 125	10/4/00
Dissolved Magnesium		mg/L	125	133	106	75 - 125	10/4/00
Dissolved Potassium		mg/L	125	134	107	75 - 125	10/4/00
Dissolved Sodium		mg/L	125	126	100	75 - 125	10/4/00

Sample: ICV (1)

QC Batch: QC05668

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Calcium		mg/L	125	126	100	75 - 125	10/4/00
Dissolved Magnesium		mg/L	125	125	100	75 - 125	10/4/00
Dissolved Potassium		mg/L	125	133	106	75 - 125	10/4/00
Dissolved Sodium		mg/L	125	123	98	75 - 125	10/4/00

Sample: CCV (1)

QC Batch: QC05669

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	5	4.75	95	75 - 125	10/6/00
Total Arsenic		mg/L	2.50	2.43	97	75 - 125	10/6/00

Continued ...

... Continued

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Barium		mg/L	5	4.92	98	75 - 125	10/6/00
Total Boron		mg/L	2.50	2.41	96	75 - 125	10/6/00
Total Cadmium		mg/L	0.50	0.49	98	75 - 125	10/6/00
Total Chromium		mg/L	1	0.98	98	75 - 125	10/6/00
Total Cobalt		mg/L	2.50	2.45	98	75 - 125	10/6/00
Total Copper		mg/L	1	0.96	96	75 - 125	10/6/00
Total Iron		mg/L	5	4.92	98	75 - 125	10/6/00
Total Lead		mg/L	2.50	2.46	98	75 - 125	10/6/00
Total Manganese		mg/L	0.50	0.49	98	75 - 125	10/6/00
Total Molybdenum		mg/L	2.50	2.45	98	75 - 125	10/6/00
Total Nickel		mg/L	2.50	2.43	97	75 - 125	10/6/00
Total Selenium		mg/L	2.50	2.43	97	75 - 125	10/6/00
Total Silver		mg/L	0.50	0.49	98	75 - 125	10/6/00
Total Zinc		mg/L	0.50	0.50	100	75 - 125	10/6/00

Sample: ICV (1)

QC Batch: QC05669

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Aluminum		mg/L	5	4.97	99	75 - 125	10/6/00
Total Arsenic		mg/L	2.50	2.49	99	75 - 125	10/6/00
Total Barium		mg/L	5	5.05	101	75 - 125	10/6/00
Total Boron		mg/L	2.50	2.54	101	75 - 125	10/6/00
Total Cadmium		mg/L	0.50	0.50	100	75 - 125	10/6/00
Total Chromium		mg/L	1	1.00	100	75 - 125	10/6/00
Total Cobalt		mg/L	2.50	2.51	100	75 - 125	10/6/00
Total Copper		mg/L	1	1.00	100	75 - 125	10/6/00
Total Iron		mg/L	5	5.05	101	75 - 125	10/6/00
Total Lead		mg/L	2.50	2.51	100	75 - 125	10/6/00
Total Manganese		mg/L	0.50	0.50	100	75 - 125	10/6/00
Total Molybdenum		mg/L	2.50	2.52	100	75 - 125	10/6/00
Total Nickel		mg/L	2.50	2.52	100	75 - 125	10/6/00
Total Selenium		mg/L	2.50	2.52	100	75 - 125	10/6/00
Total Silver		mg/L	0.50	0.50	100	75 - 125	10/6/00
Total Zinc		mg/L	0.50	0.50	100	75 - 125	10/6/00

Sample: CCV (1)

QC Batch: QC05673

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00082	82	80 - 120	10/13/00

Report Date: October 18, 2000
N/A

Order Number: A00100221
Brinkley

Page Number: 16 of 16
Water Well

Sample: ICV (1)

QC Batch: QC05673

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Mercury		mg/L	0.001	0.00090	90	80 - 120	10/13/00

Cation-Anion Balance Sheet

Sample #

154673

Date:

10/19/00 *MS*

Cations

	ppm	meq/L
Calcium	490	24.451
Magnesium	85	6.99465
Sodium	572	24.882
Potassium	36	0.92088

Total Cations

57.2485 in meq/L

Anions

	ppm	meq/L
Alkalinity	214	4.28
Sulfate	200	4.164
Chloride	1600	45.136
Nitrate as N	6.2	0.442618
Fluoride	0.91	0.0479024

Total Anions

54.0705 in meq/L

Percentage Error

5.70973 %

(needs to be <10%)

OTHER INFORMATION

TDS

0

EC

0

Measure EC and Cation Sums

5724.853

Range should be:

0

to

0

Measure EC and Anion Sums

5407.052

Range should be:

0

to

0

Calculated TDS/Conductivity

#DIV/0!

Range should be:

0.55

to

0.77

Measure TDS and Cation Sums

0

Range should be:

0.55

to

0.77

Measure TDS and Anion Sums

0

Range should be:

0.55

to

0.77

MEMORANDUM OF MEETING OR CONVERSATION



Telephone



Personal

Time

1000

Date

9/19/00

Originating Party

Other Parties

J.R. Brinkley

(505) 397-0504

Bill Olson - Envir. Bureau

Subject

Water Well Complaint

Discussion

Has water well at house east of Rhino Landform
8 miles south of Hobbs approx 1 1/2 - 2 miles east of
Hwy 18

Oil film on water on occasion

Has RO unit and carbon filter on for drinking purposes

Adjacent to tank battery with contamination

Oil runs out battery onto grass when rains

Originally reported to OCD approx 3-4 yrs. ago

Gary Wink (OCD Hobbs) stopped by yesterday

Conclusions or Agreements

I will be in vicinity next week and will stop by
to inspect & sample water well

Distribution

Signed



Chris Williams - OCD Hobbs



**NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT**

OIL CONSERVATION DIVISION
DISTRICT I HOBBS
PO BOX 1980, Hobbs, NM 88241
(505) 393-6161
FAX (505) 393-0720

Jennifer A. Salisbury
CABINET SECRETARY

November 22, 1997

Mr. J.R. Brinkley
P.O. 5153
Hobbs, NM 88241

Re: Complaint of Groundwater Contamination at House.
Approx. Nw/4 Sec 13-Ts20s-R38E

Dear Mr. Brinkley:

On August 22, 1997 as per your request the NMOCD inspected your property and water well for signs of possible oilfield contamination. The water sample taken from the house was noted to have no hydrocarbon odor, was water white clear but did have an objectionable taste quality.

The sample was taken to our Hobbs office where I ran a volatile organic head space scan for organic hydrocarbons using a field PID. The sample was non-detect. Per your instructions I let the sample set and there was no visible sheen or hydrocarbons visually observed.

The sample was checked using a TDS (Total Dissolved Solids) meter and a reading of 2800 umhos was recorded. Chlorides was ran and found to be 1207 ppm. For comparison Hobbs city water normally runs around 600-700 umhos and 80-120 ppm chlorides respectively. For your information any recent chlorination might have caused the elevated readings for chlorides.

The NMOCD discussed this issue with the NM Environment Department and they have indicated verbally to us that this area might have a high sulfate and nitrate problem, but this was not confirmed at this time.

The high chlorides might indicate an Oil & Gas problem, but at this time the NMOCD does not have any substantial evidence to demonstrate this. As per our discussion I would like to recommend to you to have your water tested by a laboratory to determine what is causing the taste problem.

The NMOCD will set up a file for your water well and as soon as any discover is made as to any contamination from a source caused by Oil & Gas activity we will notify you and re-investigate.

Please note we will continue our investigation as time and budgets allow. I have reviewed two oil well records on wells located nearest you. I did not see a problem but will let our resident geologist look at them. If we discover a problem we will let you know. Also please feel free to visit our office, as all of our records are public information.

Please contact the two agencies I referred you to for addition historical information on your area. NMED (505-393-4302) and the NMSEO (505-622-6521).

If you require any further information or assistance please do not hesitate to call (505-393-6161) or write this office.

Sincerely Yours,

Wayne Price-Environmental Engineer

cc: Chris Williams-NMOCD District I Supervisor
Roger Anderson-Environmental Bureau Chief, Santa Fe, NM