

BW - 2

**SUBSIDENCE
MONITORING
REPORTS**

DATE:

WASSERHUND, INC.
P.O. Box 2140
Lovington, NM 88260-2140

August 04, 2016

NM Oil Conservation Division
1220 S. Saint Francis Drive
Santa Fe, NM 87505

Fresh Water injected at the Tatum Brine Station (BW-022)

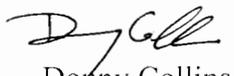
July 2016 1060

Brine Water Sold at the Tatum Brine Station (BW-02)

July 2016 1040

Pressure on Tatum Brine Station Averaged 260 psi

Sincerely Yours;


Donny Collins

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, July 21, 2016 12:12 PM
To: 'David.Alvarado@basicenergyservices.com'
Cc: Griswold, Jim, EMNRD
Subject: Annual Class II Brine Report (June 30, 2016) BW 2 & BW-25 Proposal for Subsidence Measurement at Brine Wells dated August 29, 2013

David:

Good afternoon.

OCD notices during the 11/30/15 and 1/4/16 Brine vs. fresh water tank sampling events that the tank contained ~ 63,900 ppm Cl and ~ 104,748 ppm TDS. TDS had been ~ 450 ppm TDS. The tank water later tested back to fresh drinking water quality. Does Basic know what happened to explain this?

Draft subsidence monitoring reports were submitted for the Eunice 1 (BW-2) and Salado 2 (BW-25) brine well facilities dated 8-29-2013. OCD approves the proposal for Subsidence Measurement at these brine well facilities.

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM
Environmental Engineer
Oil Conservation Division- Environmental Bureau
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
Phone: (505) 476-3490
Main Phone: (505) 476-3440
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: www.emnrd.state.nm.us/ocd

Why not prevent pollution, minimize waste, reduce operation costs, and move forward with the rest of the Nation? To see how, go to "Publications" and "Pollution Prevention" on the OCD Website.

RECEIVED

2008 NOV 26 PM 2 24

November 20, 2008

NMOCD Environmental
ATTN: Carl J. Chavez
1220 S. Saint Francis Dr.
Santa Fe, NM 87505

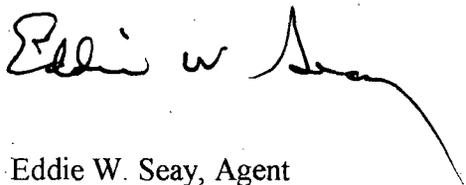
RE: Basic Energy Service
BW-25

Mr. Chavez:

Find attached answer to your question concerning running sonar test on the brine well. Although it is not available within thirty days, Basic is committed to doing the work.

If you can do anything further, please let me know.

Sincerely,



Eddie W. Seay, Agent
Eddie Seay Consulting
601 W. Illinois
Hobbs, NM 88242
575-392-2236
seay04@leaco.net

Eddie W. Seay

From: "Prather, Steve" <Steve.Prather@basicenergyservices.com>
To: <seay04@leaco.net>
Sent: Thursday, November 20, 2008 8:04 AM
Subject: Soar Test BW-2 & BW 25

Eddie,

I have been in conversation with Carl Chavez with OCD. I have been advised they want me to run a sonar test on each brine well within the next 30 days. After calling around about the availability of equipment and personnel. I see no way of being able to start before the first of January.



Steve Prather

Area Manager

Eunice, NM 88231

505-394-3235

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11/20/2008

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, November 14, 2008 4:38 PM
To: 'ziatransports@gmail.com'; 'jrmillett@gmail.com'; 'rharrisnm@aim.com'; 'gandy2@leaco.net'; 'seay04@leaco.net'; 'iwcarsbad@plateautel.net'; 'Patterson, Bob'; 'Dimas Herrera'; 'gil@mull.us'; 'David Pyeatt'; 'Wayne E Roberts'; Dennis L Shearer; 'garymschubert@aol.com'; 'dgibson@keyenergy.com'; 'Clay Wilson'; 'Prather, Steve'; Ronnie D Devore
Cc: Hill, Larry, EMNRD; Gum, Tim, EMNRD; Price, Wayne, EMNRD
Subject: Brine Well Moratorium Press Release Today
Attachments: PR-OCD Brine Well Moratorium.pdf

FYI, please see the attached NM OCD Press Release issued today. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/oed/index.htm>
(Pollution Prevention Guidance is under "Publications")



New Mexico Energy, Minerals and Natural Resources Department

Bill Richardson
Governor

Joanna Prukop
Cabinet Secretary
Reese Fullerton
Deputy Cabinet Secretary

Mark Fesmire
Division Director
Oil Conservation Division



November 14, 2008

NEWS RELEASE

Contact: Jodi McGinnis Porter,
Public Information Officer 505.476.3226

Energy, Minerals and Natural Resources Cabinet Secretary Prukop Orders a Six Month Moratorium on New Brine Wells ***Oil Conservation Division to Investigate Brine Well Collapses and Provide Recommendations***

SANTA FE, NM – Secretary Joanna Prukop today ordered the Oil Conservation Division to place a six month moratorium on any new brine well applications located in geologically sensitive areas. Secretary Prukop's action comes following the second brine well collapse in less than four months in southeastern New Mexico. The Secretary has also directed the Oil Conservation Division to work with the Environmental Protection Agency, other states, technical experts and oil and gas industry representatives to examine the causes of recent collapses, and provide a report with recommendations to the Oil Conservation Commission for a safe path forward. The report should be completed by May 1, 2009.

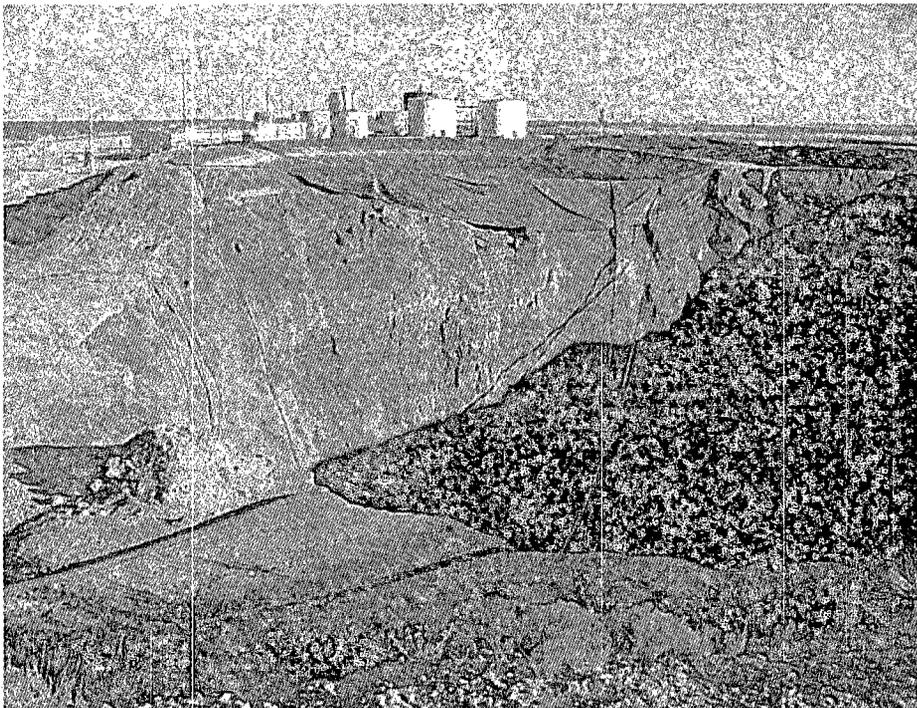
"I am deeply concerned by these two serious incidents and we are taking action to ensure the safety of our citizens and to protect the environment," stated Secretary Prukop.

Brine wells are an essential part of the oil and gas drilling industry, particularly in the southeastern part of the state. Oil and gas operators use brine water in the drilling process. Brine is saturated salt water which can be more salty than sea water. Brine is created by injecting fresh water into salt formations, allowing the water to absorb the salt and then pumping it out of the well. This method creates an underground cavity.

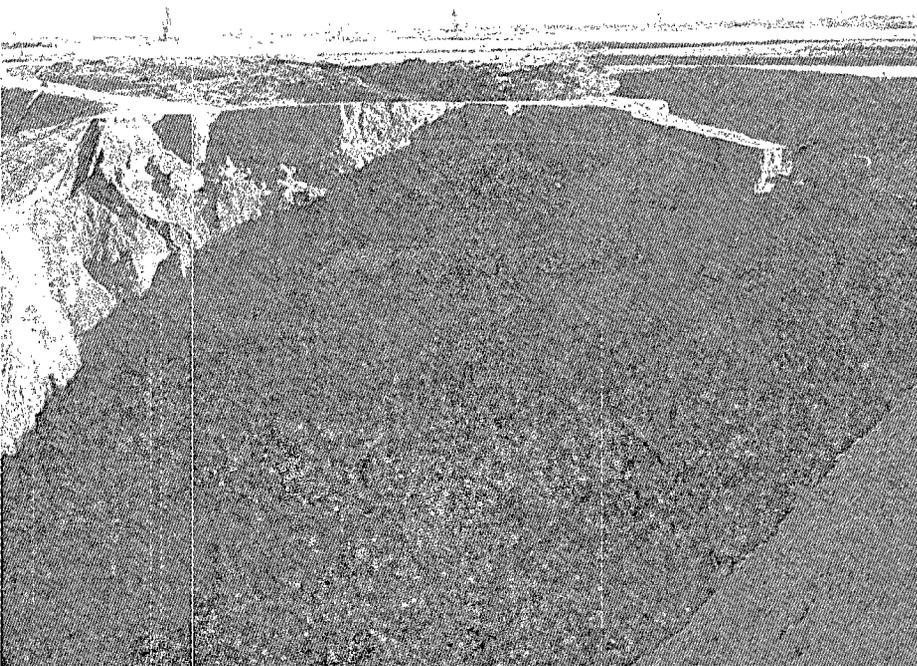
"The moratorium will provide time to properly evaluate the causes of the recent collapses and to discuss the development of new rules or guidelines to ensure the safety and stability of brine well systems," added Secretary Prukop.

The moratorium will only affect new wells and will not impact existing wells and facilities.

Below are photographs of the two recent collapses:



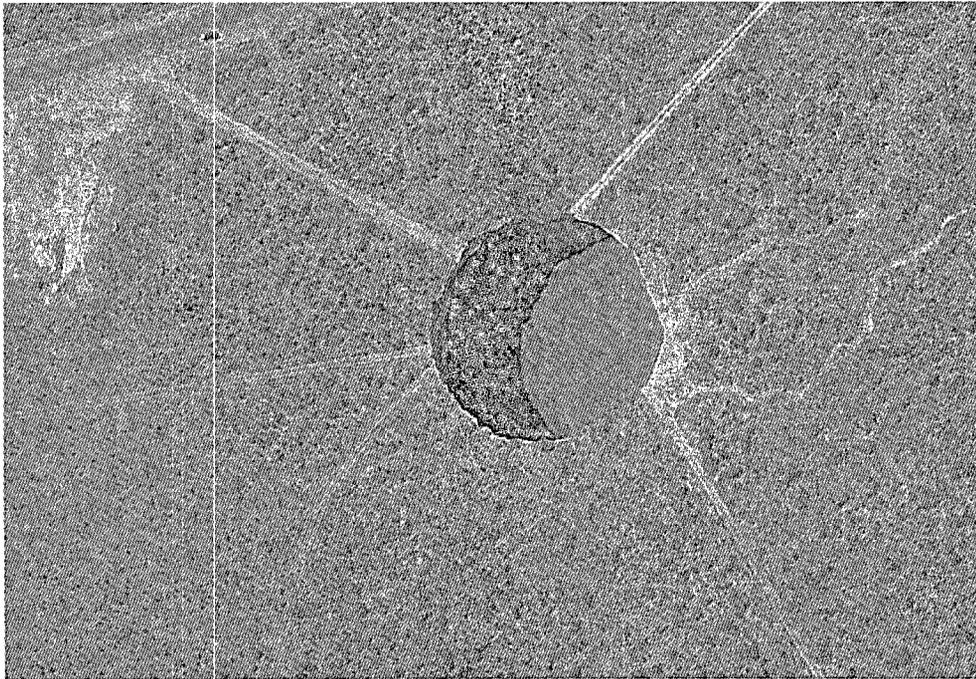
Loco Hills brine well collapse, morning, November 7, 2008, sinkhole with fresh water pond in foreground.
Photo courtesy of Oil Conservation Division



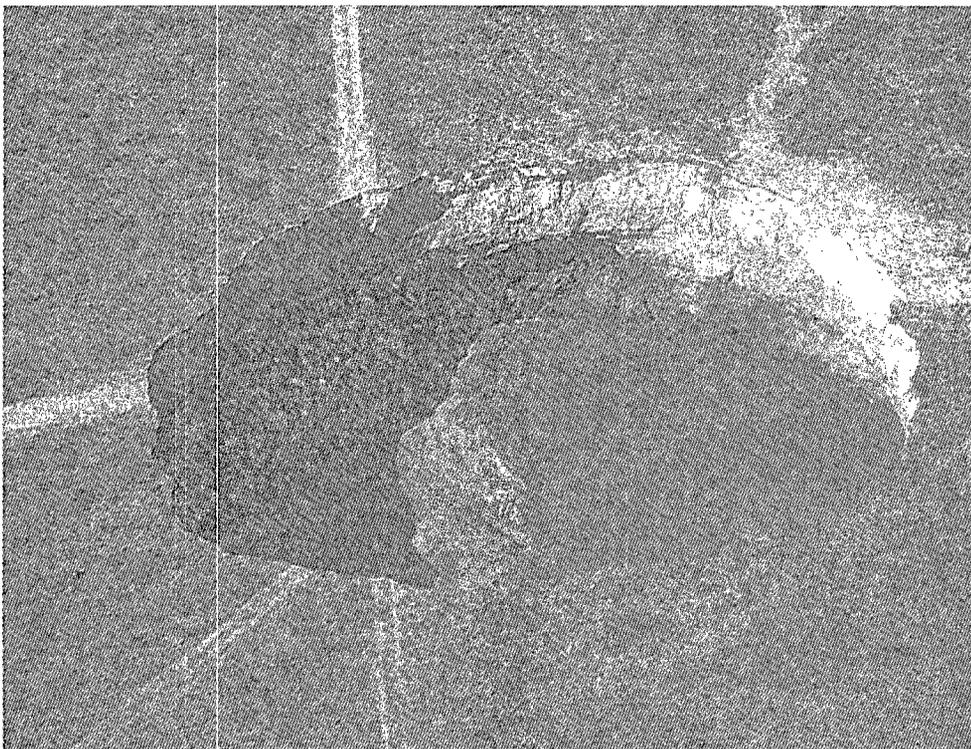
Loco Hills brine well collapse, morning, November 7, 2008 sinkhole.
Photo courtesy of Oil Conservation Division



Loco Hills brine well collapse, morning, November 7, 2008 status of fresh water pond.
Photo courtesy of Oil Conservation Division



Artesia brine well collapse, morning, July 20, 2008 at 10:44 am.
Photo courtesy of National Cave and Karst Research Institute



Artesia brine well collapse morning, July 22, 2008
Photo courtesy of National Cave and Karst Research Institute

#30#

*The Energy, Minerals and Natural Resources Department provides resource protection
and renewable energy resource development services to the public and other state agencies.*

Oil Conservation Division
1220 South St. Francis Drive • Santa Fe, New Mexico 87505
Phone (505) 476-3440 • Fax (505) 476-3462 • www.emnrd.state.nm.us/OCD



Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Wednesday, November 12, 2008 9:24 AM
To: 'Prather, Steve'
Cc: Price, Wayne, EMNRD
Subject: RE: BW-2 (Eunice No. 1) & BW-25 (Salado Brine Well No. 2) Upcoming MIT & Sonar Testing

Steve:

Yes, but if you are having scheduling difficulty, the OCD may approve an extension if needed? Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Prather, Steve [mailto:Steve.Prather@basicenergyservices.com]
Sent: Wednesday, November 12, 2008 9:30 AM
To: Chavez, Carl J, EMNRD
Subject: Re: BW-2 (Eunice No. 1) & BW-25 (Salado Brine Well No. 2) Upcoming MIT & Sonar Testing

Are you saying they have moved it up to thirty days from this date and not June 30th of 2009?

Sent using BlackBerry

-----Original Message-----

From: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>; Prather, Steve <Steve.Prather@basicenergyservices.com>
CC: Price, Wayne, EMNRD <wayne.price@state.nm.us>; Hill, Larry, EMNRD <larry.hill@state.nm.us>; Sanchez, Daniel J., EMNRD <daniel.sanchez@state.nm.us>
Sent: Wed Nov 12 10:12:50 2008
Subject: RE: BW-2 (Eunice No. 1) & BW-25 (Salado Brine Well No. 2) Upcoming MIT & Sonar Testing

Steve:

After speaking with my Supervisor Wayne Price, and under the current circumstances, the OCD is requiring your brine well to be sonar tested within 30 days of this notice. Since you will be performing this task, it may be prudent to conduct the MIT at the same time.

Please contact me if you have questions. Thank you.

11/12/2008

Carl J. Chavez, CHMM

New Mexico Energy, Minerals & Natural Resources Dept.

Oil Conservation Division, Environmental Bureau

1220 South St. Francis Dr., Santa Fe, New Mexico 87505

Office: (505) 476-3491

Fax: (505) 476-3462

E-mail: CarlJ.Chavez@state.nm.us

Website: <http://www.emnrd.state.nm.us/ocd/index.htm>

(Pollution Prevention Guidance is under "Publications")

From: Chavez, Carl J, EMNRD

Sent: Monday, November 10, 2008 1:50 PM

To: 'Prather, Steve'

Cc: Price, Wayne, EMNRD; Hill, Larry, EMNRD

Subject: FW: BW-2 (Eunice No. 1) & BW-25 (Salado Brine Well No. 2) Upcoming MIT & Sonar Testing

Steve:

Hi. BWs-2 and 25 will required the EPA 5-Yr. 30 minute test (pull tubing, set packer near casing shoe (<20 ft. from casing shoe) and pressure up from 300 to 500 psig +/- 10% to pass.

As indicated below, a sonar test is required at BWs-2 and 25, which will facilitate the EPA 5-Yr. MIT before reinstalling the tubing.

Please contact me with your preferred date and time for the MITs and sonar. Thank you.

Carl J. Chavez, CHMM

New Mexico Energy, Minerals & Natural Resources Dept.

Oil Conservation Division, Environmental Bureau

1220 South St. Francis Dr., Santa Fe, New Mexico 87505

Office: (505) 476-3491

11/12/2008

Fax: (505) 476-3462

E-mail: CarlJ.Chavez@state.nm.us

Website: <http://www.emnrd.state.nm.us/ocd/index.htm>

(Pollution Prevention Guidance is under "Publications")

From: Chavez, Carl J, EMNRD
Sent: Tuesday, October 21, 2008 2:38 PM
To: 'Prather, Steve'
Cc: Sanchez, Daniel J., EMNRD; Price, Wayne, EMNRD
Subject: BW-2 (Eunice No. 1) & BW-25 (Salado Brine Well No. 2) Upcoming MIT & Sonar Testing

Steve:

Re: OCD August 1, 2008 Letter w/ Brine Well Information Request (BWIR)

Good afternoon. The Oil Conservation Division (OCD) has reviewed Basic Energy Services, LLC responses to the BWIRs for the above subject OCD permitted brine wells. Based on the operational life and volume of brine produced from the above brine wells, sonar testing is required along with your MIT on or before July 31, 2009. According to OCD records, no sonar testing has been conducted on the above subject brine wells to date.

Please contact me within 8 working days to arrange the type, date and time for the MITs and corresponding date for sonar testing. Thank you.

Carl J. Chavez, CHMM

New Mexico Energy, Minerals & Natural Resources Dept.

Oil Conservation Division, Environmental Bureau

1220 South St. Francis Dr., Santa Fe, New Mexico 87505

Office: (505) 476-3491

Fax: (505) 476-3462

E-mail: CarlJ.Chavez@state.nm.us

Website: <http://www.emnrd.state.nm.us/ocd/index.htm>

(Pollution Prevention Guidance is under "Publications")

11/12/2008

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Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Wednesday, October 22, 2008 8:56 AM
To: Hill, Larry, EMNRD
Subject: FW: BW-2 (Eunice No. 1) & BW-25 (Salado Brine Well No. 2) Upcoming MIT & Sonar Testing

Buddy:

FYI.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
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Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")

10/22/2008

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2008 SEP 9 PM 2 55

August 30, 2008

NMOCD Environmental
ATTN: Wayne Price
1220 S. St. Francis Dr.
Santa Fe, NM 87505

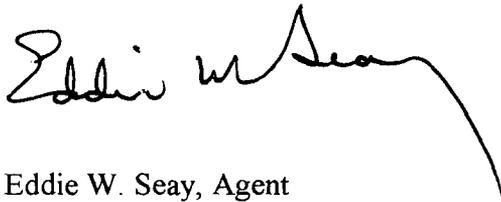
RE: Basic Energy Service
BW-002
BW-025

Mr. Price:

Find within the information requested on the two brine wells that Basic Energy operates. Information was obtained from operator personnel, well files and physical observation.

Should you need anything further, please call.

Sincerely,

A handwritten signature in black ink, appearing to read "Eddie W. Seay". The signature is fluid and cursive, with a long, sweeping underline that extends to the right.

Eddie W. Seay, Agent
Eddie Seay Consulting
601 W. Illinois
Hobbs, NM 88242
(575)392-2236
seay04@leaco.net

cc: Basic Energy Service

New Mexico Energy, Minerals and Natural Resources Department

Bill Richardson
Governor

Joanna Prukop
Cabinet Secretary
Reese Fullerton
Deputy Cabinet Secretary

Mark Fesmire
Division Director
Oil Conservation Division



OIL CONSERVATION DIVISION BRINE WELL INFORMATION REQUEST

GENERAL INFORMATION:	
Operator Name <u>Basic Energy Serv</u>	Well Name(s) <u>Eunice #1</u>
API Number <u>30-025-26884</u>	Brine Well Permit # <u>BW-002</u>
Date Permit Expires? <u>2012 Oct</u>	
Location: Section <u>34</u> Ts <u>21</u> Rg <u>37</u>	
FNL <u>230</u> FSL <u>2427</u> FEL _____ FWL _____	
GPS of well(s): Lat: <u>32° 25' 47"</u> Long: <u>103° 09' 58"</u>	
<u>Unit 0</u>	
Have you reviewed and understand all of your permit conditions? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Are you presently deficient of any condition in your permit? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Don't know <input type="checkbox"/>	
Do you operate below grade tanks or pits at the site? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Do all tanks, including fresh water tanks, have secondary containment? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <u>NEW</u>	
Do you think you have the expertise, knowledge and general understanding of what causes a brine well to collapse? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Do you think OCD should provide guidelines on subsidence and collapse issues? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
SITING INFORMATION: Please provide the following information and depict on 7.5 minute (1": 2000') USGS Quad Map. Limit search to one mile radius.	
Is the brine well located within a municipality or city limits? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Distance and direction to nearest permanent structure, house, school, etc. if less than one mile: <u>Attached</u>	
Distance and direction to nearest water well if less than one mile: <u>Attached</u>	
Distance to nearest watercourse(s), floodplain, playa lake(s), or man-made canal(s) or pond(s) if less than one mile: <u>Attached</u>	
Distance and direction to nearest known karst features or mines if less than one mile: <u>Attached</u>	



Distance and direction to nearest producing oil or gas well(s) <i>if less than one mile:</i> Provide API Number: Attached
Distance and direction to nearest tank battery(ies) <i>if less than one mile:</i> Attached
Distance and direction to nearest pipeline(s), including fresh water pipelines <i>if less than one mile:</i> Attached
Distance and direction to nearest paved or maintained road or railroad <i>if less than one mile:</i> Attached
Depth to ground water found above the Salado (salt section), regardless of yield: Attached
Name of aquifer(s): Attached
WELL CONSTRUCTION: Please provide the following information and attach a diagram depicting the brine well. Check box if attached: Copy of a current well diagram: Attached <input checked="" type="checkbox"/> Copy of formation record with tops: Attached <input checked="" type="checkbox"/> no logs Available Copy of geophysical well logs if available: Attached <input checked="" type="checkbox"/> If not, well logs within one mile <input checked="" type="checkbox"/> NO
Depth of the top of the salt below ground surface (feet): Attached
Depth to the bottom of the salt below ground surface (feet): Attached
Depth(s) to and thickness(es) of any anhydrite section(s) (located above the salt): Attached
Depth of casing(s) shoe below ground surface (feet): 1200 Is the casing shoe set in the anhydrite or other layer above the salt? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Is the casing shoe set into the salt? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, how far into the salt?
Depth of tubing(s): 1489 ft.
Do you suspect that your cavern has partially caved in? Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know <input checked="" type="checkbox"/>
OPERATIONS: Please provide the following information.
Start date of brine well operation: 7/1980
Total volume of fresh water injected into the brine well to date (bbls) and how determined: average 240,000 bl. per yr. X 28 yrs = 6,720,000 all fresh water purchased from City of Eureka

Total volume of brine water produced (bbls) to date and how determined: 761 ratio 960,000 bbls.
Have you ever lost casing or tubing? If yes, please provide details. Document attached <input type="checkbox"/> no
Do you maintain a surface pressure on your well during idle times? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Have you noticed large amounts of air built up during cavity pressurization? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Have you ever noticed fluids or air/gas bubbling up around the casing during testing or normal operations? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
MONITORING: Please provide the following information.
Are you currently monitoring ground water contamination from your brine well or system? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Have you ever run a sonar log? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, please provide last date: _____
Provide cavern configuration (dimensions and volume) and method(s) used to estimate: If sonar report please attach <input type="checkbox"/> If other, please specify and provide a sketch of cavern: <input type="checkbox"/>
Do you have a subsidence monitoring program in place? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Do you have any geophysical monitoring devices, such as a seismic device positioned near your brine well? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Have you submitted all of your monthly, quarterly, or annual reports to the OCD? Yes <input type="checkbox"/> No <input type="checkbox"/>
Have you failed a brine well mechanical integrity test (MIT)? If yes, please attach details and results. Attached <input type="checkbox"/> No
Have you ever had a casing leak? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Have you ever had a cavern leak? Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know <input checked="" type="checkbox"/>
Have you ever exceeded the cavern fracture pressure? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Don't know <input type="checkbox"/>
Do you know how to calculate your maximum pressure? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Don't know <input type="checkbox"/> <i>step Rate tool</i>
Have you routinely looked for cracks or fissures in the ground surface around your brine well? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> The facility is checked daily, looking for all problems
Do you have any minor or major cracks, fissures, tank settlement, line breakage from settlement or any minor subsidence. Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
During operations have you experienced any ground vibration, ground movement, or well movement after opening or shutting valves, pump start-up, shut-down, etc.? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Have you ever experienced unexpected pressure gain or loss in the cavern? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
If Yes, was there a difference in your normal flow rate? Yes <input type="checkbox"/> No <input type="checkbox"/>
Anytime during the past 5 years, have you experienced a noticeable difference between fresh water volume pumped into the well verses brine water produced? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Are you concerned about pulling the tubing due to the fact it may be difficult to re-enter the hole? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Are you concerned about running a sonar tool in fear of losing tool because of debris in hole? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <u>concerned about getting tubing in and out</u>
Have you ever conducted a fly over of your well site? No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> if yes, please provide photo. <input type="checkbox"/> Photo(s) attached
Calculation: Please divide your estimated total volume of produced brine by 180,000 and multiply by 50. Example: If you have produced a total of 18,000,000 bbls of brine in the life time of the well then your calculation would be $18,000,000/180,000 = 100 \times 50 = 5000$.
1. Provide the calculated number above here: <u>267</u>
2. Now provide the depth (ft) from the surface to your casing shoe: <u>1200</u>
Is the calculated number found in #1 above greater than #2? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Comments or recommendations for OCD:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment."

Basic Energy Services
Company Name-print name above

Eddie W Seay Agent
Company Representative- print name

Eddie W Seay
Company Representative- Signature

Title: Agent

Date: 8/30/2008

API NUMBER	30-025-26884
OPERATOR	BASIC ENERGY SERVICES
PROPERTY NAME	EUNICE # 1
LOCATION	O-34-T21S-R37E 630 FSL 2427 FEL
DEPTH TOP SALT BELOW G.L.	1245 FEET
DEPTH BASE SALT BELOW G.L.	2355 FEET
THICKNESS ANHYDRITE ABOVE SALT	90 FEET
LOGS WITHIN 1 MILE	All AVAILABLE ON OCD ONLINE 30-025-37322 30-025-38333
Pavement	
State HWY 18	0.08 miles E
Railroads	
Railroad	0.36 miles E
Water Line	
	25 feet W
Structure & Buildings	
Houses @ Warren Plt	0.21 miles S
Targa Middle Gas Plant	0.27 miles SSE
New RV Park Fence	0.02 miles N
Tank Batteries	
Chevron Bat	0.19 miles NE
John Hendrix Bat	0.32 miles SW
Pipe Lines	
Warren Pipe Line	0.08 miles E
DEPTH TO GROUND WATER	
SANTA ROSA	715-860 FEET

BRINE WELL

3002526884	EUNICE	1	BASIC ENERGY SERVICES	BSW	A	Lea	O	34	21 S	37 E	630 S	2427 E
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Wells within 1 mile of Basic Energy Services, Eunice # 1 brine well.

5280 5280

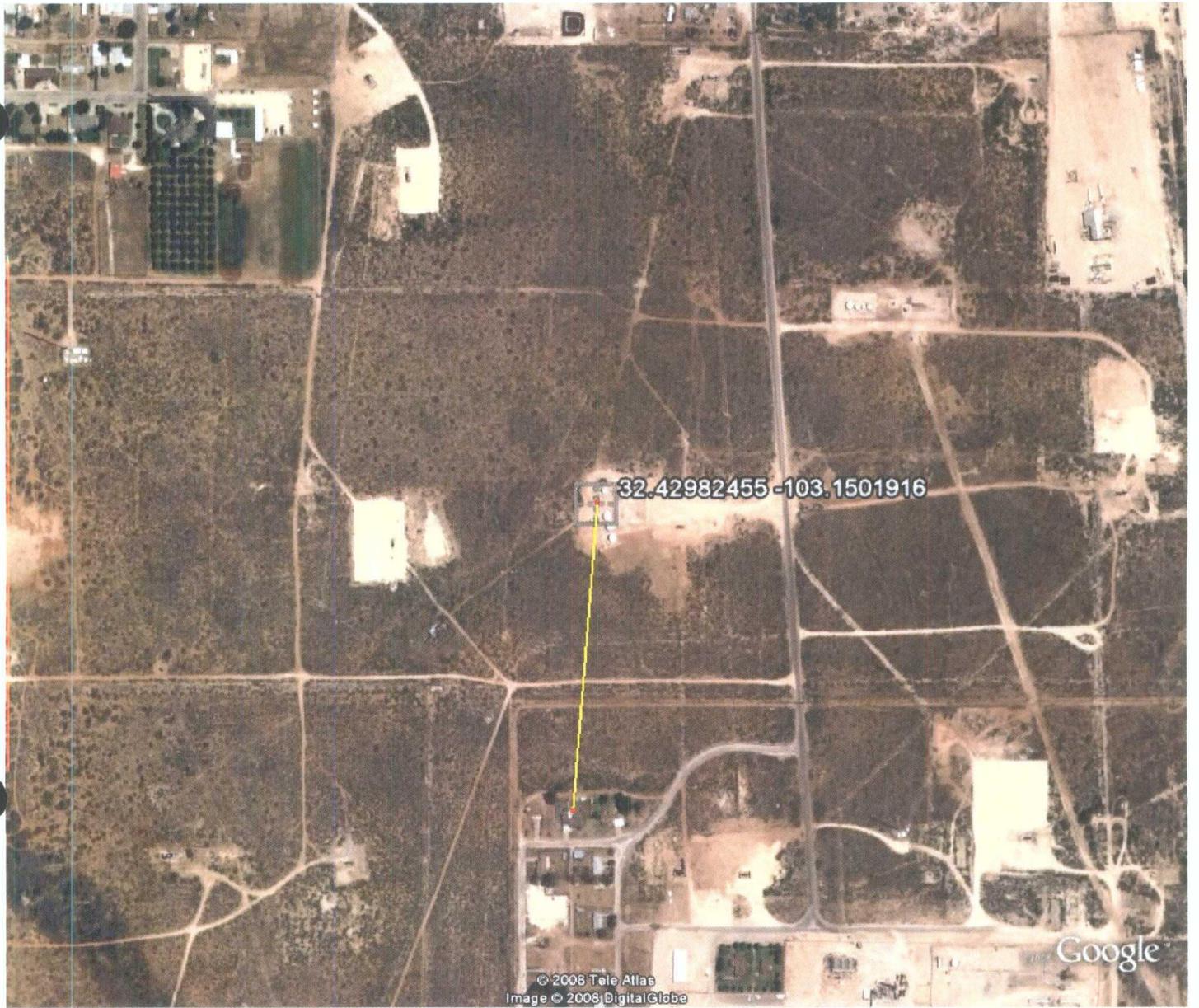
API #	PROPERTY NAME	#	OPERATOR	TD	TYPE	STAT	CO	L	U/L	SEC	TWN	RNG	N/S	E/W	Dist	Dir
3002506968	CENTRAL DRINKARD UNIT	145	JOHN H HENDRIX CORP	6603	O	A	Lea	P	I	33	21 S	37 E	1800 S	515 E	3565	WNW
3002506974	J N CARSON	1	STEPHENS & JOHNSON OP CO	6610	G	A	Lea	P	H	33	21 S	37 E	2080 N	660 E	4352	NW
3002506975	CARSON WATSON COM	2	STEPHENS & JOHNSON OP CO	7470	G	A	Lea	P	H	33	21 S	37 E	2176 N	994 E	4573	NW
3002506988	HUGH CORRIGAN	1	PURE RESOURCES, LP	7679	O	A	Lea	P	O	33	21 S	37 E	660 S	1974 E	4827	W
3002506989	CENTRAL DRINKARD UNIT	157	CHEVRON U S A INC	6600	O	P&A	Lea	P	P	33	21 S	37 E	660 S	660 E	3513	W
3002506990	HUGH CORRIGAN	3	PURE RESOURCES, LP	3758	G	A	Lea	P	J	33	21 S	37 E	1980 S	1980 E	5018	WNW
3002506991	CENTRAL DRINKARD UNIT	146	CHEVRON U S A INC	7659	O	P&A	Lea	P	J	33	21 S	37 E	1909 S	2051 E	5068	WNW
3002506992	H CORRIGAN	5	JOHN H HENDRIX CORP	6595	O	A	Lea	P	J	33	21 S	37 E	1980 S	2105 E	5138	WNW
3002506993	CORRIGAN	6	JOHN H HENDRIX CORP	6610	O	A	Lea	P	O	33	21 S	37 E	589 S	1909 E	4762	W
3002506994	CORRIGAN GAS COM	7	JOHN H HENDRIX CORP	7446	G	A	Lea	P	P	33	21 S	37 E	760 S	660 E	3515	W
3002506995	CORRIGAN	2	JOHN H HENDRIX CORP	7452	O	A	Lea	P	I	33	21 S	37 E	1980 S	660 E	3763	WNW
3002525235	CENTRAL DRINKARD UNIT	410	CHEVRON U S A INC	10107	G	A	Lea	P	O	33	21 S	37 E	340 S	1465 E	4327	W
3002525335	CENTRAL DRINKARD UNIT	406	CHEVRON U S A INC	6569	G	P&A	Lea	P	J	33	21 S	37 E	2200 S	1470 E	4599	WNW
3002525336	CENTRAL DRINKARD UNIT	407	CHEVRON U S A INC	6612	G	TA	Lea	P	P	33	21 S	37 E	1475 S	1440 E	4375	W
3002525337	CENTRAL DRINKARD UNIT	420	CHEVRON U S A INC	3779	G	P&A	Lea	P	H	33	21 S	37 E	2030 S	1520 E	4591	NW
3002506996	OWEN B	1	APACHE CORP	6614	G	A	Lea	P	M	34	21 S	37 E	990 S	330 W	2548	W
3002506997	OWEN B	2	APACHE CORP	6595	G	A	Lea	P	L	34	21 S	37 E	1980 S	420 W	2782	NW
3002506998	OWEN B	3	BP AMERICA PRODUCTI	6911	O	P&A	Lea	P	K	34	21 S	37 E	2240 S	2160 W	1752	NW
3002506999	OWEN B	4	APACHE CORP	6599	G	A	Lea	P	N	34	21 S	37 E	660 S	1980 W	873	W
3002507000	EVA OWEN B	5	BP AMERICA PRODUCTI	5335	O	P&A	Lea	L	L	34	21 S	37 E	1830 S	440 W	2694	NW
3002507001	MARK OWEN	1	CHEVRON U S A INC	3735	O	A	Lea	P	J	34	21 S	37 E	1980 S	1980 E	1422	N
3002507002	MARK OWEN	2	GULF OIL CORP	3740	O	P&A	Lea	P	O	34	21 S	37 E	660 S	1980 E	448	E
3002507003	MARK OWEN	4	CHEVRON U S A INC	6584	G	A	Lea	P	J	34	21 S	37 E	2068 S	2068 E	1482	N
3002507004	MARK OWEN	5	CHEVRON U S A INC	6545	G	A	Lea	P	P	34	21 S	37 E	660 S	660 E	1767	E
3002507005	MARK OWEN	6	CHEVRON U S A INC	6552	O	A	Lea	P	O	34	21 S	37 E	554 S	2086 E	349	W
3002507006	PADDOCK UNIT	2	JOHN H HENDRIX CORP	5180	G	A	Lea	P	P	34	21 S	37 E	764 S	554 E	1877	E
3002507007	HARDISON	1	J C CLOWER	3730	O	P&A	Lea	P	G	34	21 S	37 E	1980 N	1980 E	2707	N
3002507008	F F HARDISON B	1	EXXON MOBIL CORPORATION	6572	G	A	Lea	P	H	34	21 S	37 E	1980 N	440 E	3328	NE
3002507009	F F HARDISON B	2	EXXON MOBIL CORPORATION	6575	G	A	Lea	P	A	34	21 S	37 E	660 N	610 E	4384	NNE
3002507010	F F HARDISON B	3	EXXON MOBIL CORPORATION	6607	G	A	Lea	P	G	34	21 S	37 E	2015 N	1980 E	2672	N
3002507011	F F HARDISON B	4	EXXON MOBIL CORPORATION	6584	O	A	Lea	P	B	34	21 S	37 E	660 N	1980 E	4014	N
3002507012	MARSHALL COM	2	STEPHENS & JOHNSON OP CO	6620	O	A	Lea	P	F	34	21 S	37 E	1980 N	1980 W	2809	NNW

3002507013	MARSHALL COM	1	STEPHENS & JOHNSON OP CO	6430	G	A	Lea	P	E	34	21	S	37	E	1980	N	790	W	3374	NW
3002507014	MARSHALL COM	3	STEPHENS & JOHNSON OP CO	6590	O	A	Lea	P	D	34	21	S	37	E	660	N	660	W	4552	NW
3002507015	MARSHALL COM	4	MOBIL PRODUCING TX & NM	3743	O	P&A	Lea	P	C	34	21	S	37	E	660	N	1980	W	4084	NNW
3002507016	MARSHALL COM	5	STEPHENS & JOHNSON OP CO	6618	O	A	Lea	P	C	34	21	S	37	E	589	N	2051	W	4139	NNW
3002507017	MARSHALL COM	6	STEPHENS & JOHNSON OP CO	7477	O	A	Lea	P	E	34	21	S	37	E	2230	N	330	W	3495	NW
3002507018	MARSHALL COM	7	SOCONY MOBIL OIL CO	5181	O	P&A	Lea	P	C	34	21	S	37	E	660	N	2122	W	4056	NNW
3002507019	MARSHALL COM	8	STEPHENS & JOHNSON OP CO	5280	O	A	Lea	P	D	34	21	S	37	E	660	N	810	W	4482	NW
3002507020	HARDISON	2	J C CLOWER	3749	O	P&A	Lea	P	B	34	21	S	37	E	990	N	2310	E	3661	N
3002507022	MARK OWEN	3	CHEVRON U S A INC	6550	O	A	Lea	P	I	34	21	S	37	E	1980	S	960	E	1993	NE
3002524471	MARSHALL COM	9	STEPHENS & JOHNSON OP CO	6650	O	A	Lea	P	C	34	21	S	37	E	840	N	1606	W	4008	NNW
3002525929	F F HARDISON B	10	EXXON CORP	7679	O	P&A	Lea	P	A	34	21	S	37	E	990	N	450	E	4159	NNE
3002526053	MARK OWEN	8	CHEVRON U S A INC	7610	O	A	Lea	P	P	34	21	S	37	E	900	S	660	E	1787	E
3002534321	OWEN B	6	APACHE CORP	7500	O	A	Lea	P	K	34	21	S	37	E	1980	S	2180	W	1508	NW
3002534554	OWEN B	7	APACHE CORP	3950	O	A	Lea	P	K	34	21	S	37	E	1650	S	2310	W	1155	NW
3002534774	OWEN B	8	APACHE CORP	4050	O	A	Lea	P	N	34	21	S	37	E	560	S	2180	W	676	W
3002534775	OWEN B	9	APACHE CORP	4150	O	A	Lea	P	M	34	21	S	37	E	459	S	752	W	2107	W
3002535638	OWEN B	10	APACHE CORP	6036	O	A	Lea	P	M	34	21	S	37	E	1137	S	495	W	2411	W
3002535705	PIONEER	1	MCCASLAND DISPOSAL SYSTEM	9999	M	P&A	Lea	F	J	34	21	S	37	E	999	S	999	E	1474	N
3002537186	MARK OWEN	10	CHEVRON U S A INC	4323	O	A	Lea	P	O	34	21	S	37	E	400	S	1480	E	974	SE
3002537189	MARK OWEN	9	CHEVRON U S A INC	4320	O	A	Lea	P	J	34	21	S	37	E	1590	S	1340	E	1450	N
3002537239	OWEN B	12	APACHE CORP	7200	O	A	Lea	P	M	34	21	S	37	E	330	S	760	W	2114	W
3002537322	OWEN B	11	APACHE CORP	4600	G	A	Lea	S	N	34	21	S	37	E	990	S	1650	W	1255	W
3002538333	MARK OWEN	11	CHEVRON U S A INC	5612	O	A	Lea	P	P	34	21	S	37	E	430	S	560	E	1877	E
3002507030	LOCKHART A 35	1	CONOCOPHILLIPS COMPANY	6553	G	A	Lea	F	D	35	21	S	37	E	660	N	660	W	5044	NE
3002507031	LOCKHART A 35	2	CONOCOPHILLIPS COMPANY	7350	O	A	Lea	F	F	35	21	S	37	E	1980	N	1980	W	5152	NE
3002507036	E M ELLIOTT	1	JOHN H HENDRIX CORP	6549	G	A	Lea	F	E	35	21	S	37	E	1980	N	560	W	4006	NE
3002507037	MARK OWEN	1	MARATHON OIL CO	6550	G	A	Lea	F	L	35	21	S	37	E	1980	S	660	W	3369	ENE
3002507038	MARK OWEN	2	MARATHON OIL CO	6550	G	A	Lea	P	M	35	21	S	37	E	660	S	660	W	3087	E
3002507039	MARK OWEN	3	MARATHON OIL CO	6550	G	A	Lea	P	N	35	21	S	37	E	660	S	1980	W	4407	E
3002507040	MARK OWEN	4	MARATHON OIL CO	7435	G	A	Lea	P	K	35	21	S	37	E	1980	S	1980	W	4609	ENE
3002507041	PADDOCK UNIT	4	EXXON CORP	5200	O	P&A	Lea	P	N	35	21	S	37	E	711	S	2041	W	4468	E
3002507042	PADDOCK UNIT	3	EXXON CORP	5201	O	P&A	Lea	P	M	35	21	S	37	E	660	S	735	W	3162	E
3002525130	MARK OWEN	7	MARATHON OIL CO	7427	O	A	Lea	P	N	35	21	S	37	E	660	S	2310	W	4737	E
3002525481	MARK OWEN	8	MARATHON OIL CO	7506	O	A	Lea	P	M	35	21	S	37	E	760	S	760	W	3189	E
3002529468	MARK OWEN	9	MARATHON OIL CO	7500	O	A	Lea	P	L	35	21	S	37	E	1830	S	660	W	3312	ENE
3002537533	MARK OWEN	10	MARATHON OIL CO	4645	O	A	Lea	P	M	35	21	S	37	E	510	S	660	W	3089	E
3002537649	MARK OWEN	15	MARATHON OIL CO	5320	O	A	Lea	P	K	35	21	S	37	E	1650	S	1650	W	4202	ENE

3002510006	H CORRIGAN	4 APACHE CORP	6600	O	A	Lea	P	A	4	22	S	37	E	660	N	660	E	3742	WSW
3002510008	SOUTH PENROSE SKELLY	119 CHEVRON U S A INC	3822	O	P&A	Lea	P	H	4	22	S	37	E	2310	N	660	E	4580	SW
3002510011	H CORRIGAN	6 APACHE CORP	7698	O	A	Lea	P	B	4	22	S	37	E	721	N	2051	E	5086	WSW
3002510012	H CORRIGAN	7 APACHE CORP	7646	O	A	Lea	P	H	4	22	S	37	E	1980	N	990	E	4645	SW
3002510013	H CORRIGAN	8 APACHE CORP	6590	O	A	Lea	P	B	4	22	S	37	E	660	N	2080	E	5098	WSW
3002510015	H CORRIGAN	10 APACHE CORP	6574	O	A	Lea	P	H	4	22	S	37	E	1980	N	660	E	4376	SW
3002510017	H CORRIGAN	11 APACHE CORP	7750	O	A	Lea	P	A	4	22	S	37	E	660	N	990	E	4053	WSW
3002510019	BRUNSON B	5 OXY USA WTP LP	6580	G	A	Lea	P	I	4	22	S	37	E	1980	S	660	E	5271	SW
3002510038	TEXACO E A STICHER	1 CHEVRON U S A INC	8053	O	A	Lea	P	K	4	22	S	37	E	1980	S	660	E	5271	WSW
3002510048	SOUTH PENROSE SKELLY	101 GULF OIL CORP	3763	O	P&A	Lea	P	B	4	22	S	37	E	660	N	1980	E	5002	WSW
3002535136	H CORRIGAN	12 APACHE CORP	4200	O	A	Lea	P	A	4	22	S	37	E	728	N	410	E	3534	WSW
3002535137	H CORRIGAN	13 APACHE CORP	4210	O	A	Lea	P	B	4	22	S	37	E	936	N	1986	E	5086	WSW
3002537264	H CORRIGAN	15 APACHE CORP	4685	O	A	Lea	P	H	4	22	S	37	E	1890	N	990	E	4595	SW
3002537326	H CORRIGAN	14 APACHE CORP	4650	O	A	Lea	P	A	4	22	S	37	E	330	N	940	E	3912	WSW
3002537654	H CORRIGAN	16 APACHE CORP	4375	O	A	Lea	P	B	4	22	S	37	E	430	N	2310	E	5270	WSW
3002538009	H CORRIGAN	18 APACHE CORP	6815	O	A	Lea	P	A	4	22	S	37	E	330	N	330	E	3324	WSW
3002538213	R L BRUNSON 4	1 CHESAPEAKE OPERATING, INC.	3946	O	A	Lea	P	I	4	22	S	37	E	2310	S	500	E	4919	SW
3002538219	H CORRIGAN	20 APACHE CORP	6840	O	A	Lea	P	H	4	22	S	37	E	1480	N	330	E	3818	SW
3002509974	R L BRUNSON TR 2	5 CHESAPEAKE OPERATING, INC.	3960	O	A	Lea	P	K	3	22	S	37	E	2080	S	1980	W	3928	SSW
3002509975	BRUNSON B	2 CITIES SERVICE CO	3615	O	P&A	Lea	P	K	3	22	S	37	E	1980	S	1980	W	4025	SSW
3002509979	MARK	1 CHEVRON U S A INC	3860	O	A	Lea	P	B	3	22	S	37	E	660	N	1980	E	1365	S
3002509981	PADDOCK UNIT	25 EXXON CORP	5185	O	P&A	Lea	P	K	3	22	S	37	E	1908	S	1987	W	4094	SSW
3002509983	BRUNSON	2 RANGE OPERATING NM INC	3724	O	A	Lea	P	L	3	22	S	37	E	2310	S	990	W	4053	SW
3002509984	PADDOCK UNIT	27 EXXON CORP	5155	O	P&A	Lea	P	I	3	22	S	37	E	1980	S	660	E	4308	SSE
3002509985	PADDOCK UNIT	39 EXXON CORP	5161	O	P&A	Lea	P	O	3	22	S	37	E	660	S	1980	E	5268	S
3002509986	BRUNSON C	4 JOHN H HENDRIX CORP	6561	O	A	Lea	P	J	3	22	S	37	E	1980	S	1980	E	3955	S
3002509988	BRUNSON C	6 JOHN H HENDRIX CORP	6550	G	A	Lea	P	I	3	22	S	37	E	2080	S	560	E	4280	SSE
3002509990	PADDOCK UNIT	26 EXXON CORP	5185	O	P&A	Lea	P	J	3	22	S	37	E	1980	S	1880	E	3967	S
3002509991	MARK	2 CHEVRON U S A INC	6554	G	A	Lea	P	B	3	22	S	37	E	454	N	2086	E	1136	S
3002509992	OWEN A	2 BEC CORP	6606	O	A	Lea	P	F	3	22	S	37	E	1980	N	1980	W	2752	SSW
3002509993	PADDOCK UNIT	24 JOHN H HENDRIX CORP	6585	O	A	Lea	P	L	3	22	S	37	E	1980	S	510	W	4575	SW
3002509994	PADDOCK UNIT	9 JOHN H HENDRIX CORP	5240	G	A	Lea	P	A	3	22	S	37	E	554	N	554	E	2215	SE
3002509995	MARK	3 CHEVRON U S A INC	6550	O	A	Lea	P	G	3	22	S	37	E	1980	N	1980	E	2648	S
3002509996	MARK	4 CHEVRON U S A INC	5192	G	A	Lea	P	H	3	22	S	37	E	1980	N	660	E	3151	SE
3002509997	MARK	7 CHEVRON U S A INC	6525	G	A	Lea	P	H	3	22	S	37	E	1980	N	760	E	3096	SE
3002509998	MARK	8 CHEVRON U S A INC	7693	O	A	Lea	P	B	3	22	S	37	E	554	N	1874	E	1306	S
3002509999	EVA OWEN	1 JOHN H HENDRIX CORP	7370	O	A	Lea	P	D	3	22	S	37	E	660	N	660	W	2544	WSW

3002510000	OWENS	2	SUNRAY DX OIL CO	5255	O	P&A	Lea	C	3	22	S	37	E	660	N	1980	W	1557	SW	
3002510001	EVA OWEN	3	JOHN H HENDRIX CORP	6590	O	A	Lea	P	C	3	22	S	37	E	510	N	2310	W	1262	SW
3002510004	R L BRUNSON	8	CHESAPEAKE OPERATING, INC.	7434	O	A	Lea	P	L	3	22	S	37	E	1650	S	330	W	4951	SW
3002510005	OWEN A	1	BEC CORP	7356	O	A	Lea	P	E	3	22	S	37	E	1980	N	660	W	3409	SW
3002510049	MARK	5	CHEVRON U S A INC	6521	G	A	Lea	P	A	3	22	S	37	E	660	N	660	E	2187	SSE
3002512573	BRUNSON B	2	OXY USA WTP LP	6567	G	A	Lea	P	K	3	22	S	37	E	1912	S	1912	W	4107	SSW
3002522583	EUNICE PLANT 161	1	TARGA MIDSTREAM SERV LP	4900	S	A	Lea	P	H	3	22	S	37	E	2255	N	908	E	3260	SE
3002523425	BRUNSON C	9	OXY USA WTP LP	4000	O	A	Lea	P	J	3	22	S	37	E	1880	S	1980	E	4054	SSE
3002523486	BRUNSON C	10	OXY USA WTP LP	4000	O	A	Lea	P	O	3	22	S	37	E	660	S	2130	E	5258	S
3002523549	BRUNSON C	12	OXY USA WTP LP	4350	O	A	Lea	P	I	3	22	S	37	E	1980	S	810	E	4249	SSE
3002524584	MARK	9	CHEVRON U S A INC	3948	O	A	Lea	P	G	3	22	S	37	E	2172	N	1972	E	2838	S
3002525785	MARK	10	CHEVRON U S A INC	7571	O	A	Lea	P	H	3	22	S	37	E	1650	N	340	E	3090	SE
3002526051	MARK	11	CHEVRON U S A INC	7618	O	A	Lea	P	A	3	22	S	37	E	430	N	960	E	1809	SE
3002526052	MARK	12	CHEVRON U S A INC	7600	O	A	Lea	P	G	3	22	S	37	E	2227	N	1948	E	2896	S
3002526639	BRUNSON C	13	OXY USA WTP LP	7504	O	A	Lea	P	I	3	22	S	37	E	2080	S	760	E	4177	SSE
3002536201	MARK LPG	1	GULF OIL CORP	2000	M	P&A	Lea	P	G	3	22	S	37	E	2365	N	1320	E	3193	S
3002536202	MARK LPG	2	GULF OIL CORP	2000	M	P&A	Lea	P	G	3	22	S	37	E	1887	N	1320	E	2749	S
3002536316	R L BRUNSON TR 2	6	CHESAPEAKE OPERATING, INC.	3950	O	A	Lea	P	M	3	22	S	37	E	990	S	965	W	5269	SW
3002536925	R L BRUNSON TR 2	7	CHESAPEAKE OPERATING, INC.	3965	O	A	Lea	P	K	3	22	S	37	E	1650	S	2250	W	4302	SSW
3002537385	MARK	13	CHEVRON U S A INC	4490	O	A	Lea	P	H	3	22	S	37	E	1881	N	1183	E	2802	SE
3002537401	BRUNSON	7	RANGE OPERATING NM INC	4437	O	A	Lea	P	L	3	22	S	37	E	1650	S	810	W	4724	SW
3002537539	BRUNSON	6	RANGE OPERATING NM INC	4395	O	A	Lea	P	L	3	22	S	37	E	2310	S	330	W	4396	SW
3002509960	PADDOCK UNIT	18	JOHN H HENDRIX CORP	5218	O	A	Lea	P	F	2	22	S	37	E	1980	N	1980	W	5121	ESE
3002509963	NEW MEXICO S STATE	14	EXXON MOBIL CORP	6502	O	A	Lea	S	C	2	22	S	37	E	660	N	1980	W	4591	ESE
3002509964	PADDOCK UNIT	11	EXXON CORP	5185	O	P&A	Lea	S	C	2	22	S	37	E	660	N	2055	W	4663	ESE
3002509965	PADDOCK UNIT	10	JOHN H HENDRIX CORP	6534	O	A	Lea	S	D	2	22	S	37	E	660	N	660	W	3345	ESE
3002509967	PADDOCK UNIT	28	JOHN H HENDRIX CORP	5215	O	A	Lea	S	L	2	22	S	37	E	1980	S	660	W	4997	SE
3002509968	PADDOCK UNIT	17	JOHN H HENDRIX CORP	5215	O	A	Lea	S	E	2	22	S	37	E	1980	N	660	W	4042	SE
3002509969	NEW MEXICO S STATE	20	EXXON MOBIL CORP	6501	G	A	Lea	S	E	2	22	S	37	E	2100	N	500	W	4002	SE
3002509970	NEW MEXICO S STATE	21	EXXON MOBIL CORP	6520	G	A	Lea	S	L	2	22	S	37	E	1980	S	500	W	4900	SE
3002509973	HUMBLE C STATE	2	PARKER DRILLING CO	3773	O	P&A	Lea	S	L	2	22	S	37	E	1650	S	660	W	5260	SE
3002523211	NEW MEXICO S STATE	26	EXXON CORP	4151	S	P&A	Lea	S	L	2	22	S	37	E	2310	S	400	W	4577	SE
3002524399	BLINEBRY DRINKARD	2	RICE OPERATING CO	4950	S	A	Lea	S	C	2	22	S	37	E	660	N	2305	W	4904	ESE
3002525268	NEW MEXICO S STATE	28	EXXON MOBIL CORP	7200	O	A	Lea	S	F	2	22	S	37	E	2160	N	1800	W	5064	ESE
3002525276	NEW MEXICO S STATE	29	EXXON MOBIL CORP	7200	O	A	Lea	S	L	2	22	S	37	E	1700	S	660	W	5220	SE
3002525457	NEW MEXICO S STATE	37	EXXON MOBIL CORP	7500	O	A	Lea	S	C	2	22	S	37	E	330	N	1980	W	4510	ESE
3002525508	NEW MEXICO S STATE	38	EXXON MOBIL CORP	7600	G	A	Lea	S	E	2	22	S	37	E	2100	N	660	W	4120	SE

3002525513	NEW MEXICO S STATE	39	EXXON MOBIL CORP	7800	O	A	Lea	S	D	2	22	S	37	E	330	N	550	W	3127	ESE
3002537245	NEW MEXICO S STATE	42	APACHE CORP	4685	O	A	Lea	S	D	2	22	S	37	E	870	N	590	W	3369	ESE
3002537335	NEW MEXICO S STATE	43	APACHE CORP	4675	O	A	Lea	S	L	2	22	S	37	E	2140	S	950	W	5061	SE
3002537603	NEW MEXICO S STATE	46	APACHE CORP	4672	O	A	Lea	S	D	2	22	S	37	E	330	N	990	W	3549	ESE
3002537607	NEW MEXICO S STATE	47	APACHE CORP	4670	O	A	Lea	S	E	2	22	S	37	E	1830	N	440	W	3777	SE
3002537608	NEW MEXICO S STATE	48	APACHE CORP	4655	O	A	Lea	S	F	2	22	S	37	E	1880	N	1650	W	4787	ESE
3002537668	NEW MEXICO S STATE	50	APACHE CORP	4672	O	A	Lea	S	E	2	22	S	37	E	2170	N	990	W	4417	SE
3002537671	NEW MEXICO S STATE	53	APACHE CORP	4645	O	A	Lea	S	L	2	22	S	37	E	1650	S	430	W	5129	SE
3002538120	NEW MEXICO S STATE	56	APACHE CORP	4410	O	A	Lea	S	C	2	22	S	37	E	990	N	1650	W	4387	ESE

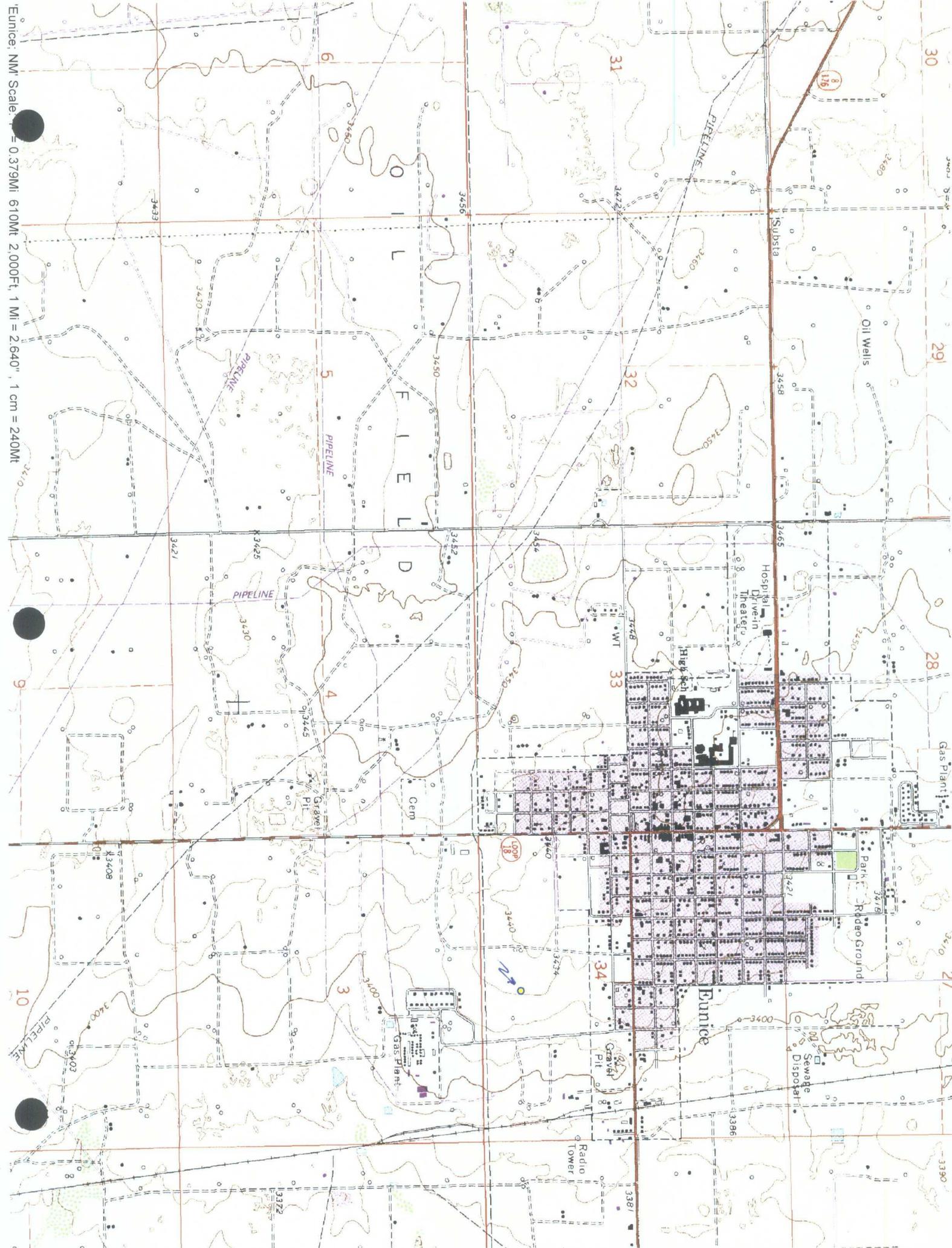


32.42982455 -103.1501916

Google

© 2008 Tele Atlas
Image © 2008 DigitalGlobe

Scale: 1" = 0.379Mi, 610M, 2,000Ft, 1 Mi = 2,640', 1 cm = 240M



30 29 28 27 31 32 33 34 18 116 109

9 10

New Mexico Office of the State Engineer
POD Reports and Downloads

Township: 21S Range: 37E Sections: 34

NAD27 X: Y: Zone: Search Radius:

County: LE Basin: Number: Suffix:

Owner Name: (First) (Last) Non-Domestic Domestic All

WATER COLUMN REPORT 10/08/2008

(quarters are 1=NW 2=NE 3=SW 4=SE)
 (quarters are biggest to smallest)

POD Number	Tws	Rng	Sec	q	q	q	Zone	X	Y	Depth Well	Depth Water	Water (in feet) Column
CP 00943 POD1	21S	37E	34	1	3	1				142		
CP 00835	21S	37E	34	3	2	3				145		

Record Count: 2

New Mexico Energy, Minerals and Natural Resources Department

Bill Richardson

Governor

Joanna Prukop
Cabinet Secretary
Reese Fullerton
Deputy Cabinet Secretary

Mark Fesmire
Division Director
Oil Conservation Division



Certified Receipt/Return Requested:

August 01, 2008

Attention Brine Well Operator(s):

One of the permitted brine wells has experienced a total collapse and created an enormous sinkhole. The well was located approximately 17 miles SE of Artesia, NM, on State Trust Land. The operator was Jim's Water Service and the brine well permit is BW-005. OCD has enclosed a press release with photos of the event.

The magnitude of this event warrants an immediate investigation of all brine wells in the state. Therefore, please find enclosed a "BRINE WELL INFORMATION REQUEST" form to be filled out and returned to this office no later than September 05, 2008. Failure to properly fill out and return the form in a timely manner may result in OCD requesting you shut down your operations until further notice. If you have any questions please do not hesitate to call me at 505-476-3490 or E-mail wayne.price@state.nm.us.

Sincerely,

A handwritten signature in black ink, appearing to be "WP", written over a horizontal line.

Wayne Price
Environmental Bureau Chief
Oil Conservation Division

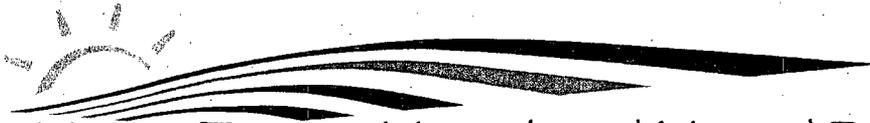
Attachments: (2)

Cc: EMNRD Cabinet Secretary-Joanna Prukop
OCD Director-Mark Fesmire
NMSLO- Brian Henington SF, Jim Carr-Carlsbad
BLM-Carlsbad Office- Dave Herrell
Eddy Co. Emergency Management-Joel Arnwine
NM State Police -Roswell Sgt. Les Clements
National Cave and Karst Research Institute- Dr. George Veni
NMOSE-John Stewart
Solution Mining Research Institute-John Voigt



Price, Wayne, EMNRD

From: Porter, Jodi, EMNRD
Sent: Wednesday, July 23, 2008 5:00 PM
Subject: PR-Secretary Prukop Proposes Stricter Conditions on Brine Wells State-wide
Attachments: PR-OCD.Brine.Wells07.23.08.pdf



New Mexico Energy, Minerals and Natural Resources Department

Bill Richardson
Governor

Joanna Prukop
Cabinet Secretary
Reese Fullerton
Deputy Cabinet Secretary

Mark Fesmire
Division Director
Oil Conservation Division



July 23, 2008

NEWS RELEASE

Contact: Jodi McGinnis Porter,
Public Information Officer 505.476.3226

Energy, Minerals and Natural Resources Cabinet Secretary Joanna Prukop Proposes Stricter Conditions on Brine Wells State-wide

Artesia brine well collapse prompts statewide review

SANTA FE, NM – Secretary Joanna Prukop has directed the Oil Conservation Division (OCD) to conduct a complete evaluation of the rules and regulations concerning brine wells, a method of creating saturated salt water used in oil and gas production. The OCD evaluation will include an internal audit and inspection of all existing brine wells in New Mexico. Secretary Prukop is considering strengthening oversight of brine wells to protect against well failures such as the recent collapse in Artesia that created a huge sinkhole and forced the closure of an Eddy County road.

“There are several brine wells in New Mexico and we must ensure that they are all properly monitored to ensure safety and stability,” stated Cabinet Secretary Joanna Prukop. “We have now seen that these wells can collapse and the extensive damage such a collapse can generate.”

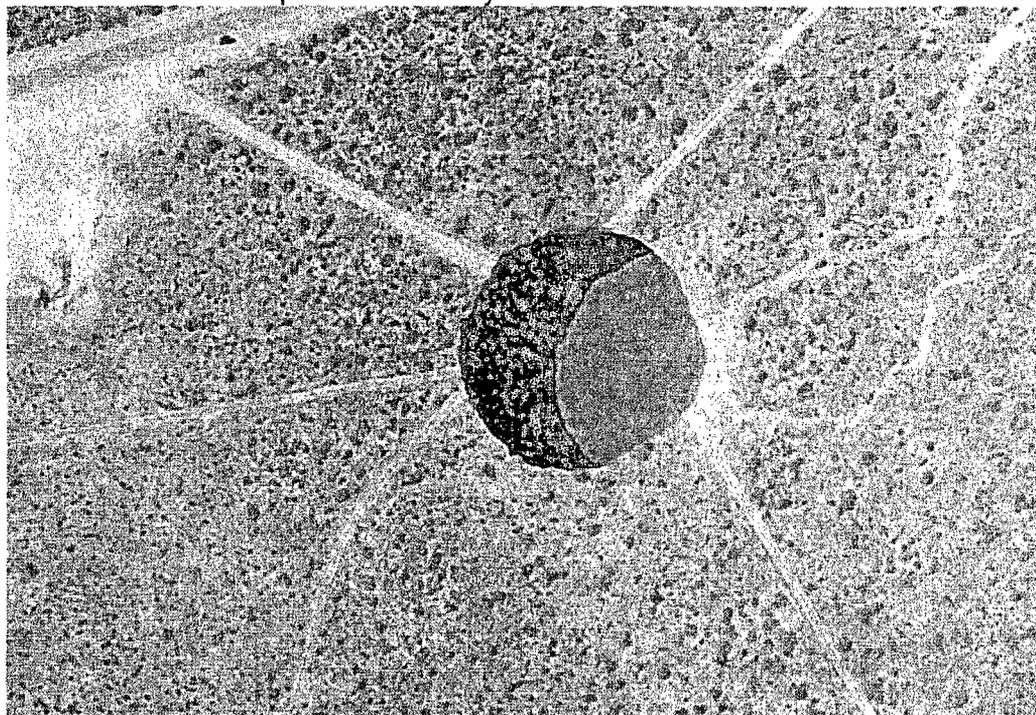
The Oil Conservation Division is continuing to monitor and investigate the collapse of the brine well, located on state trust land 17.3 miles southeast of Artesia, which is still active. The well is owned by Jim’s Water Service. County Road 217 remains closed as a safety precaution, and a command center is on site. Division engineers estimate that the well is approximately 300 to 400 feet in diameter, 70 feet to the water level, and the actual depth to the bottom is unknown.

Scientists from the Oil Conservation Division, the Bureau of Land Management, State Land Office, the New Mexico

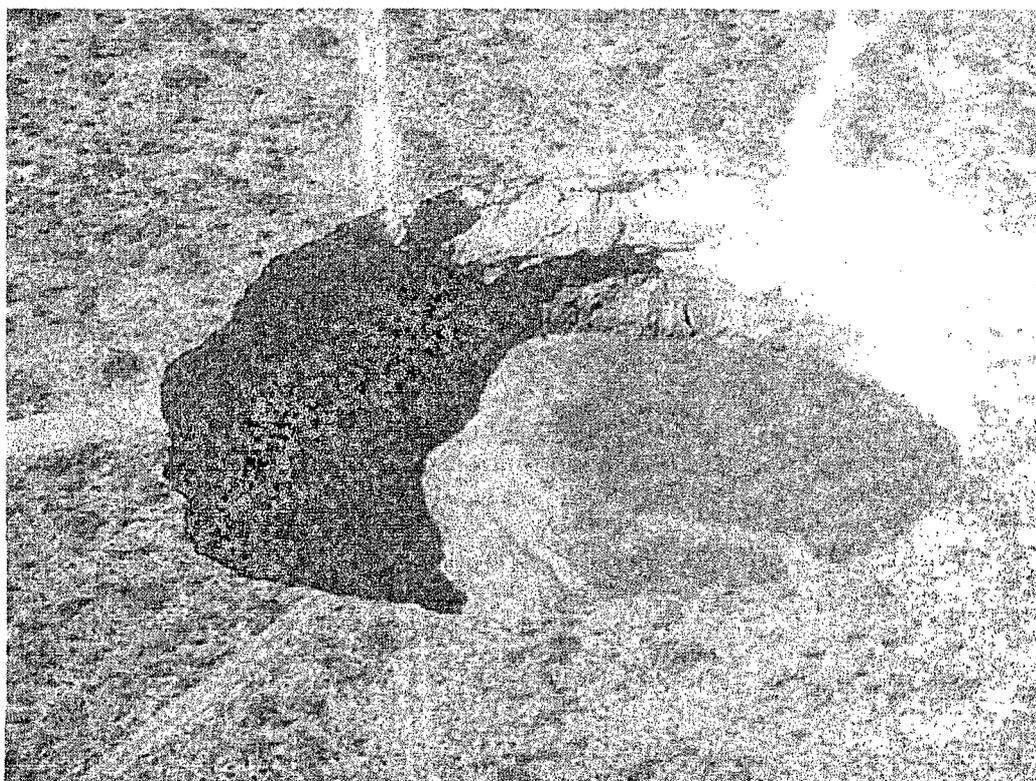
Bureau of Geology and Mineral Resources, and the National Cave & Karst Research Institute are all working together to assess horizontal and vertical movements to project any future subsidence. Work on a protective fence and keep-out signage began yesterday with completion expected on Friday.

In a related issue, the Oil Conservation Division has also been closely monitoring a brine well operated by I & W, Inc located in Carlsbad, NM. Yesterday, following ongoing inquiries from OCD the operator decided voluntarily to stop operation of the well. The division will work with I & W, Inc. to ensure that the well is properly plugged, permanently abandoned, and monitored for the long term.

Images provided on the brine well collapse are courtesy of National Cave and Karst Research Institute:



Morning, July 20, 2008 at 10:44 am.
courtesy of National Cave and Karst Research Institute



New Mexico Energy, Minerals and Natural Resources Department

Bill Richardson
Governor

Joanna Prukop
Cabinet Secretary
Reese Fullerton
Deputy Cabinet Secretary

Mark Fesmire
Division Director
Oil Conservation Division



OIL CONSERVATION DIVISION BRINE WELL INFORMATION REQUEST

GENERAL INFORMATION:	
Operator Name _____	Well Name(s) _____
API Number _____	Brine Well Permit # _____
Date Permit Expires? _____	
Location: Section _____ Ts _____ Rg _____	
FNL _____	FSL _____ FEL _____ FWL _____
GPS of well(s): Lat: _____	Long: _____
Have you reviewed and understand all of your permit conditions? Yes <input type="checkbox"/> No <input type="checkbox"/> Are you presently deficient of any condition in your permit? Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know <input type="checkbox"/> Do you operate below grade tanks or pits at the site? Yes <input type="checkbox"/> No <input type="checkbox"/> Do all tanks, including fresh water tanks, have secondary containment? Yes <input type="checkbox"/> No <input type="checkbox"/> Do you think you have the expertise, knowledge and general understanding of what causes a brine well to collapse? Yes <input type="checkbox"/> No <input type="checkbox"/> Do you think OCD should provide guidelines on subsidence and collapse issues? Yes <input type="checkbox"/> No <input type="checkbox"/>	
SITING INFORMATION: <i>Please provide the following information and depict on 7.5 minute (1" = 2000') USGS Quad Map. Limit search to one mile radius.</i>	
Is the brine well located within a municipality or city limits? Yes <input type="checkbox"/> No <input type="checkbox"/>	
Distance and direction to nearest permanent structure, house, school, etc. <i>if less than one mile:</i>	
Distance and direction to nearest water well <i>if less than one mile:</i>	
Distance to nearest watercourse(s), floodplain, playa lake(s), or man-made canal(s) or pond(s) <i>if less than one mile:</i>	
Distance and direction to nearest known karst features or mines <i>if less than one mile:</i>	



Distance and direction to nearest producing oil or gas well(s) <i>if less than one mile:</i> Provide API Number:
Distance and direction to nearest tank battery(ies) <i>if less than one mile:</i>
Distance and direction to nearest pipeline(s), including fresh water pipelines <i>if less than one mile:</i>
Distance and direction to nearest paved or maintained road or railroad <i>if less than one mile:</i>
Depth to ground water found above the Salado (salt section), regardless of yield:
Name of aquifer(s):
WELL CONSTRUCTION: Please provide the following information and attach a diagram depicting the brine well. Check box if attached: Copy of a current well diagram: Attached <input type="checkbox"/> Copy of formation record with tops: Attached <input type="checkbox"/> Copy of geophysical well logs if available: Attached <input type="checkbox"/> If not, well logs within one mile <input type="checkbox"/>
Depth of the top of the salt below ground surface (feet):
Depth to the bottom of the salt below ground surface (feet):
Depth(s) to and thickness(es) of any anhydrite section(s) (located above the salt):
Depth of casing(s) shoe below ground surface (feet): _____ Is the casing shoe set in the anhydrite or other layer above the salt? Yes <input type="checkbox"/> No <input type="checkbox"/> Is the casing shoe set into the salt? Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, how far into the salt? _____
Depth of tubing(s):
Do you suspect that your cavern has partially caved in? Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know <input type="checkbox"/>
OPERATIONS: Please provide the following information.
Start date of brine well operation:
Total volume of fresh water injected into the brine well to date (bbls) and how determined:

Total volume of brine water produced (bbls) to date and how determined:
Have you ever lost casing or tubing? If yes, please provide details. Document attached <input type="checkbox"/>
Do you maintain a surface pressure on your well during idle times? Yes <input type="checkbox"/> No <input type="checkbox"/>
Have you noticed large amounts of air built up during cavity pressurization? Yes <input type="checkbox"/> No <input type="checkbox"/>
Have you ever noticed fluids or air/gas bubbling up around the casing during testing or normal operations? Yes <input type="checkbox"/> No <input type="checkbox"/>
MONITORING: Please provide the following information.
Are you currently monitoring ground water contamination from your brine well or system? Yes <input type="checkbox"/> No <input type="checkbox"/>
Have you ever run a sonar log? Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, please provide last date: _____
Provide cavern configuration (dimensions and volume) and method(s) used to estimate: If sonar report please attach <input type="checkbox"/> If other, please specify and provide a sketch of cavern: <input type="checkbox"/>
Do you have a subsidence monitoring program in place? Yes <input type="checkbox"/> No <input type="checkbox"/>
Do you have any geophysical monitoring devices, such as a seismic device positioned near your brine well? Yes <input type="checkbox"/> No <input type="checkbox"/>
Have you submitted all of your monthly, quarterly, or annual reports to the OCD? Yes <input type="checkbox"/> No <input type="checkbox"/>
Have you failed a brine well mechanical integrity test (MIT)? If yes, please attach details and results. Attached <input type="checkbox"/>
Have you ever had a casing leak? Yes <input type="checkbox"/> No <input type="checkbox"/> Have you ever had a cavern leak? Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know <input type="checkbox"/> Have you ever exceeded the cavern fracture pressure? Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know <input type="checkbox"/> Do you know how to calculate your maximum pressure? Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know <input type="checkbox"/>
Have you routinely looked for cracks or fissures in the ground surface around your brine well? Yes <input type="checkbox"/> No <input type="checkbox"/>
Do you have any minor or major cracks, fissures, tank settlement, line breakage from settlement or any minor subsidence. Yes <input type="checkbox"/> No <input type="checkbox"/>
During operations have you experienced any ground vibration, ground movement, or well movement after opening or shunting valves, pump start-up, shut-down, etc.? Yes <input type="checkbox"/> No <input type="checkbox"/>

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, July 25, 2008 4:21 PM
To: Hansen, Edward J., EMNRD; Price, Wayne, EMNRD
Cc: Sanchez, Daniel J., EMNRD
Subject: RE: PR-Secretary Prukop Proposes Stricter Conditions on Brine Wells State-wide
Attachments: image001.jpg; image007.jpg

Ed, Wayne, et. al:

Based on my records and knowledge of current activities at NMOCD BWs, my tally is as follows:

There are a total of 15 active UIC Class III Brine Well Permits (excluding BW-5 JWS & BW-6 I&W)

There are currently 13 active UIC Class III Brine Wells in operation (BW-2; BW-4; BW-8; BW-9; BW-12; BW-13; BW-22; BW-25; BW-27 Wells 1 & 2; BW-28; BW-30; and BW-31)

There are currently 6 brine wells that have actually been PA'd including: BW-5 JWS Collapse w/ Site Closure; BW-6 Eugenie #2; BW-21 Loco Hills Well #1 recently PA'd; BW-26 Salado Brine Sales; BW-29 Marbob; & William Brininstool.

There are currently 3 pending PAs of BWs including: BW-6 Eugenie #1 w/ Site Closure; BW-18 Key w/ redrill; and BW-19 Key w/ redrill.

There are currently 5 inactive brine wells (BW-5 Collapse w/ Site Closure; BW-6 needs PA Eugenie #1 w/ Site Closure; BW-18 needs PA w/ redrill; BW-19 needs PA w/ redrill; and BW21 needs redrill)

Let me know how we need to straighten RBDMS out. Please contact me if you have questions. Thanks.

Carl J. Chavez, CHMM
 New Mexico Energy, Minerals & Natural Resources Dept.
 Oil Conservation Division, Environmental Bureau
 1220 South St. Francis Dr., Santa Fe, New Mexico 87505
 Office: (505) 476-3491
 Fax: (505) 476-3462
 E-mail: CarlJ.Chavez@state.nm.us
 Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
 (Pollution Prevention Guidance is under "Publications").

From: Hansen, Edward J., EMNRD
Sent: Wednesday, July 23, 2008 5:56 PM
To: Price, Wayne, EMNRD
Cc: Chavez, Carl J, EMNRD
Subject: FW: PR-Secretary Prukop Proposes Stricter Conditions on Brine Wells State-wide

Wayne,
 Jane and I tallied these numbers off of RBDMS (you may want to double check).

From: Hansen, Edward J., EMNRD
Sent: Wednesday, July 23, 2008 5:54 PM
To: Porter, Jodi, EMNRD
Subject: RE: PR-Secretary Prukop Proposes Stricter Conditions on Brine Wells State-wide

Jodi,

We counted (from our database: RBDMS):

16 Active Brine Wells

11 Plugged and Abandoned Brine Wells

2 Inactive Brine Wells

From: Porter, Jodi, EMNRD
Sent: Wednesday, July 23, 2008 5:00 PM
Subject: PR-Secretary Prukop Proposes Stricter Conditions on Brine Wells State-wide



New Mexico Energy, Minerals and Natural Resources Department

Bill Richardson
 Governor

Joanna Prukop
 Cabinet Secretary
Reese Fullerton
 Deputy Cabinet Secretary

Mark Fesmire
 Division Director
 Oil Conservation Division



July 23, 2008

NEWS RELEASE

Contact: Jodi McGinnis Porter,
 Public Information Officer 505.476.3226

Energy, Minerals and Natural Resources Cabinet Secretary Joanna Prukop Proposes Stricter Conditions on Brine Wells State-wide

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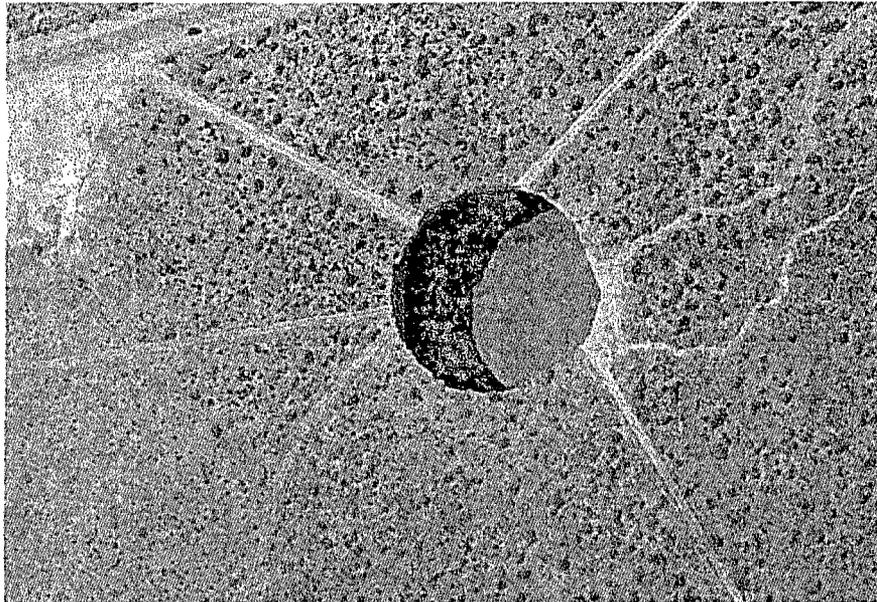
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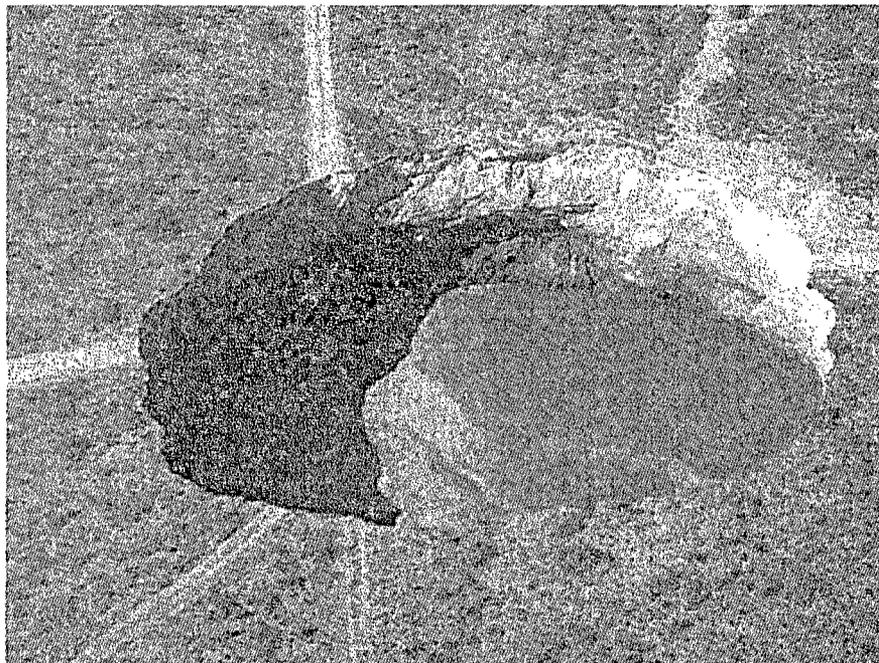
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Images provided on the brine well collapse are courtesy of National Cave and Karst Research Institute:



Morning, July 20, 2008 at 10:44 am.
courtesy of National Cave and Karst Research Institute



Morning, July 22, 2008
courtesy of National Cave and Karst Research Institute

#30#

The Energy, Minerals and Natural Resources Department provides resource protection and renewable energy resource development services to the public and other state agencies.

Oil Conservation Division
1220 South St. Francis Drive • Santa Fe, New Mexico 87505
Phone (505) 476-3440 • Fax (505) 476-3462 • www.emnrd.state.nm.us/OCD



Jodi

Jodi McGinnis Porter
Public Information Officer
Energy, Minerals and Natural Resources Department (EMNRD)
1220 South St. Francis Drive
Santa Fe, NM 87505
Phone: (505) 476-3226

7/20/2008

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