BW - 18

SUBSIDENCE MONITORING REPORTS

DATE:

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'; 'iwcarlsbad@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/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

New Mexico Energy, Minerals and Natural Resources Department

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.

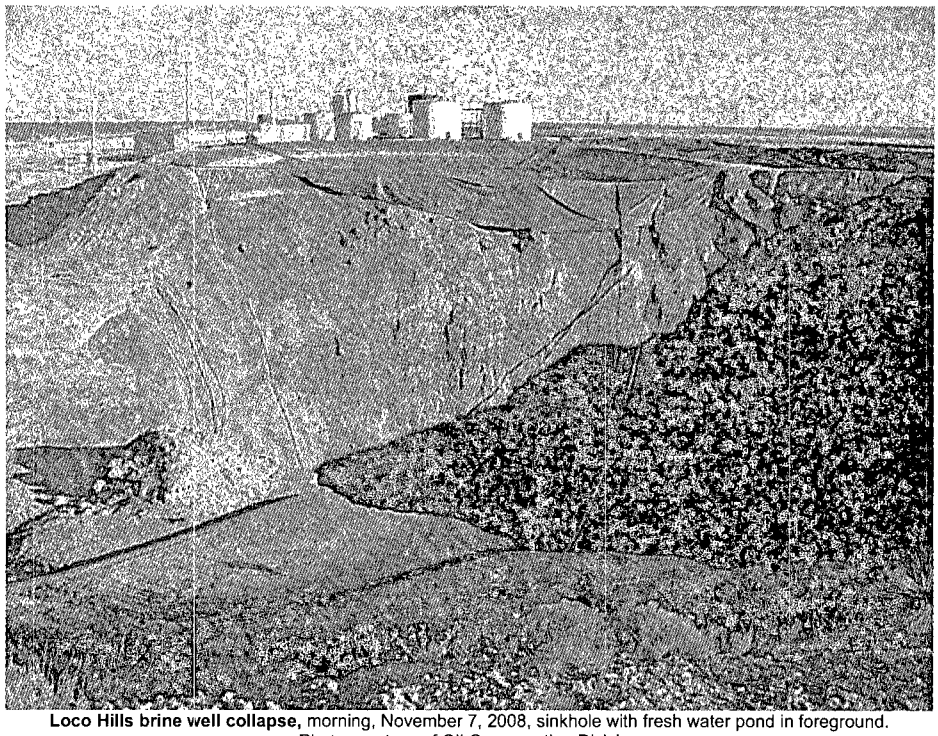
"I am deeply concerned by these two serious incidents and we are taking action to ensure the safety of our citizens and to protect the environment," stated Secretary Prukop.

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.

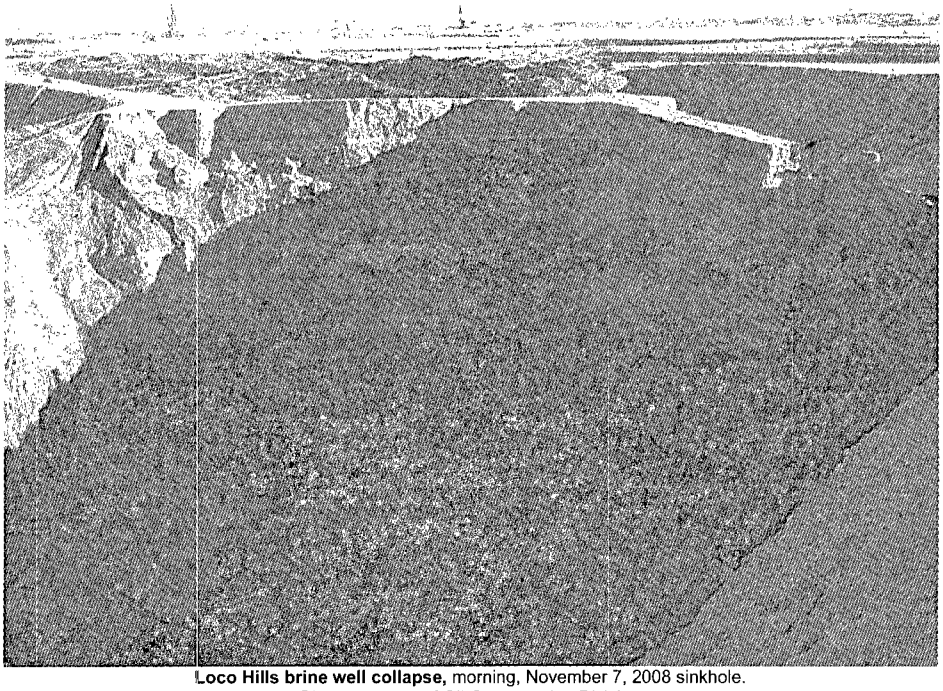
"The moratorium will provide time to properly evaluate the causes of the recent collapses and to discuss the development of new rules or guidelines to ensure the safety and stability of brine well systems," added Secretary Prukop.

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

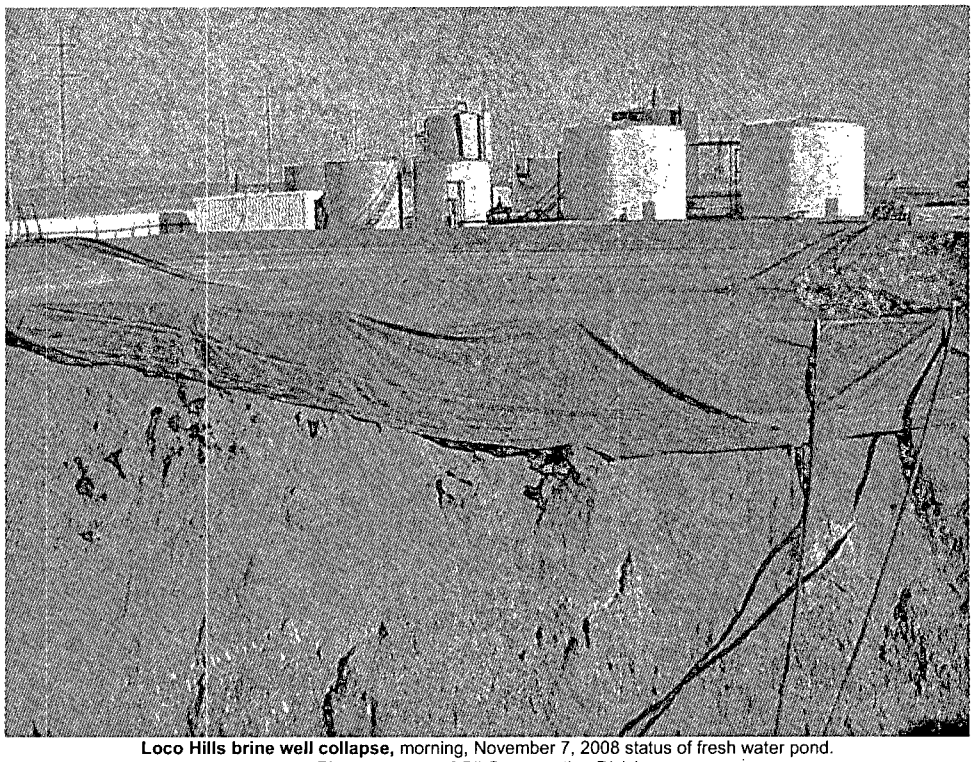
Below are photographs of the two recent collapses:



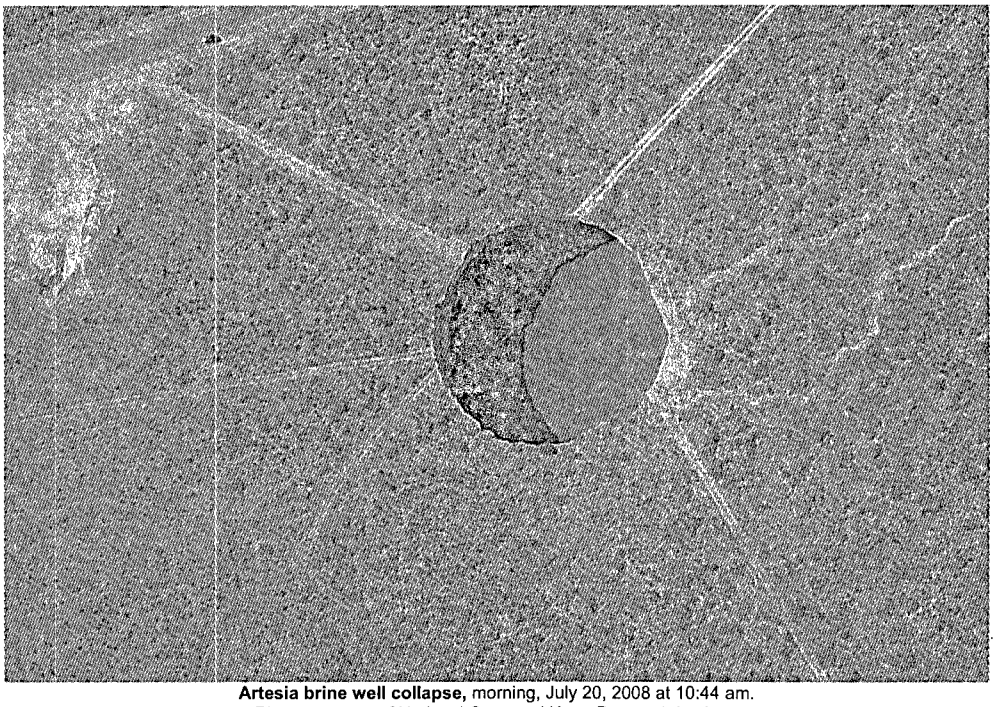
Loco Hills brine well collapse, morning, November 7, 2008, sinkhole with fresh water pond in foreground.
Photo courtesy of Oil Conservation Division



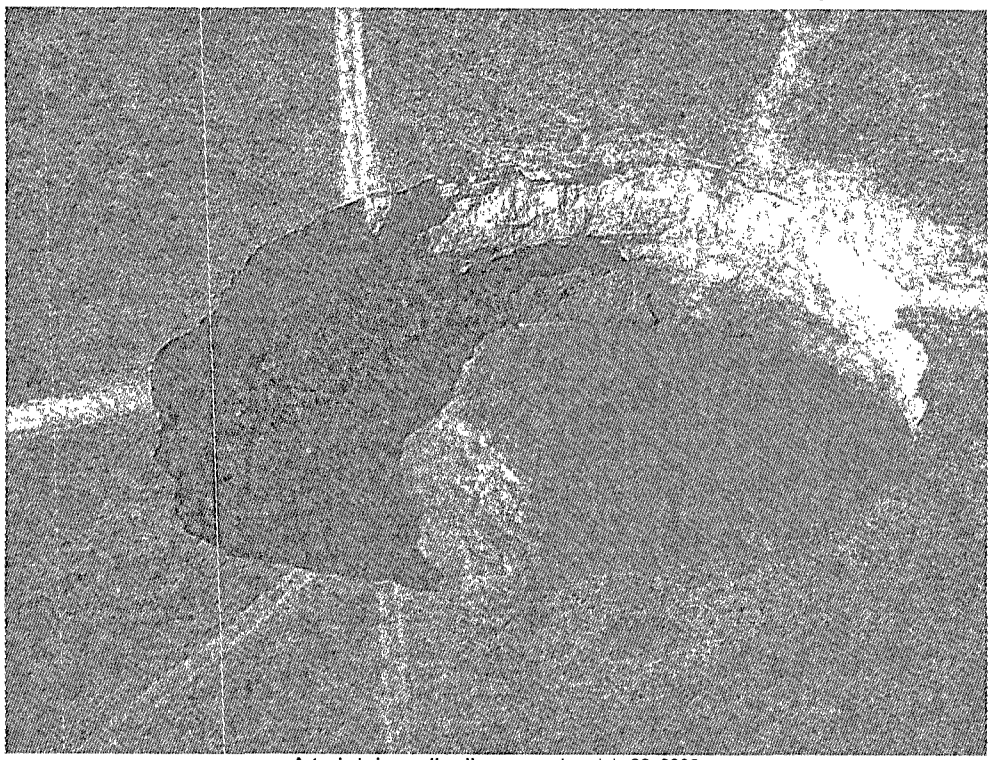
Loco Hills brine well collapse, morning, November 7, 2008 sinkhole.
Photo courtesy of Oil Conservation Division



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 11:50 AM

To: 'ziatransports@gmail.com'; 'jrmillett@gmail.com'; 'Patterson, Bob'; Phillibber, Mark; 'rharrisnm@aim.com'; 'gandy2@leaco.net'; 'David Pyeatt'; 'garymschubert@aol.com'

Cc: Price, Wayne, EMNRD; Sanchez, Daniel J., EMNRD; Hill, Larry, EMNRD; Gum, Tim, EMNRD

Subject: Brine Well Sonar Testing Requirement with this season's upcoming MIT Schedule 2009

Gentlemen:

Re: MITs and OCD Sonar Test Requirement

Good morning. It is that time of season when the OCD requests your proposed MIT schedule. The OCD is requiring a sonar test in addition to the MIT this season. The OCD objective is to complete the MITs on or before July 31, 2009. If circumstances require it, the deadline for MITs may be extended to on or before October 31, 2009. Please contact me within 30 days to schedule your MIT and sonar test with date and time that you prefer. Note that brine well operators scheduled for the annual OCD 4-hr. formation MIT may conduct the EPA 5-Yr. 30 minute MIT (+/- 10% to pass) at 300 – 500 psig on casing in lieu of the OCD annual formation MIT this season.

After reviewing the site files and your responses to the recent OCD questionnaire following the Jims Water Service (BW-5) brine well collapse SE of Artesia in Eddy County on 7/16/2008, and the more recent collapse at Loco Hills (BW-21) in Eddy County on 11/3/2008, the OCD is requiring Sonar Testing along with your MIT this season to assess the configuration of your brine well cavern and any threats to public health and safety in your areas. The OCD is focused on the maturity of brine wells and the "Calculation" from the recent questionnaire attempts to assess brine well maturity by comparing the total brine production relative to the depth of the brine well casing shoe. This is one of the reasons why fresh water and brine well production record reporting to the OCD is so critical. Any operators that are planning to plug and abandon their brine wells are required by the OCD to conduct a sonar test of the well in advance of plugging and abandonment. Also, the OCD requires that the brine cavern be filled with brine fluid as this adds structural stability to the cavern and well. This will be required in a C-103 approved with conditions by the OCD. Currently, 3 brine well operators have been required by the OCD to conduct sonar testing within 30 days due to the maturity issue mentioned above. The OCD is continuing to assess its EPA Class III Brine Well program and will keep you updated on improvements and/or changes as needed.

If you feel that your brine well is too new to require sonar testing or a sonar was recently completed at your brine well, please provide the basis for requesting an exemption to this OCD sonar test requirement ASAP for OCD approval.

Please contact me if you have questions. Thanks in advance for your cooperation in this matter.

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")

New Mexico Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
BRINE WELL INFORMATION REQUEST

GENERAL INFORMATION:

Operator Name Key Energy Services LLC Well Name(s) Truckers Brine Station #2
API Number 30 025 07551 Brine Well Permit # 018
Date Permit Expires? July 2008

Location: Section 33 Ts 18S Rg 38E
FNL _____ FSL 1980 FEL _____ FWL 1980'
GPS of well(s): Lat: Long:

N/A

Have you reviewed and understand all of your permit conditions? Yes ☑ No ☐
Are you presently deficient of any condition in your permit? Yes ☐ No ☑ Don't know ☐
Do you operate below grade tanks or pits at the site? Yes ☑ No ☐
Do all tanks, including fresh water tanks, have secondary containment? Yes ☐ No ☑
Do you think you have the expertise, knowledge and general understanding of what causes a brine well to collapse? Yes ☐ No ☑
Do you think OCD should provide guidelines on subsidence and collapse issues? Yes ☑ No ☐

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 ☑ No ☐

Distance and direction to nearest permanent structure, house, school, *etc. if less than one mile:*

500' SE & 500' SW

Distance and direction to nearest water well *if less than one mile:*

N/A

Distance to nearest watercourse(s), floodplain, playa lake(s), or man-made canal(s) or pond(s) *if less than one mile:*

N/A

Distance and direction to nearest known karst features or mines *if less than one mile:*

N/A

Distance and direction to nearest producing oil or gas well(s) *if less than one mile*:
Provide API Number: 30-025-35758
1000' ESE

Distance and direction to nearest tank battery(ies) *if less than one mile*:

1200' ESE Unit G S33 T18S R38E

Distance and direction to nearest pipeline(s), including fresh water pipelines *if less than one mile*:

City Water line 200' S Flowline 500' N

Distance and direction to nearest paved or maintained road or railroad *if less than one mile*:

City Street 500' S

Depth to ground water found above the Salado (salt section), regardless of yield:

Approx 60'

Name of aquifer(s):

Alluvium / Ogallala

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: plugged *Attached* ☐

Copy of formation record with tops: *Attached* ☑

Copy of geophysical well logs if available: *Attached* ☐ *If not, well logs within one mile* ☐

Depth of the top of the salt below ground surface (feet):

2045'

Depth to the bottom of the salt below ground surface (feet):

2430'

Depth(s) to and thickness(es) of any anhydrite section(s) (located above the salt):

310' to 2045' 1735' thick

Depth of casing(s) shoe below ground surface (feet): 3198'

Is the casing shoe set in the anhydrite or other layer above the salt? Yes ☐ No ☑

Is the casing shoe set into the salt? Yes ☐ No ☑ If yes, how far into the salt? Below Salt

Depth of tubing(s):

Well plugged

Do you suspect that your cavern has partially caved in? Yes ☐ No ☐ Don't know ☑

OPERATIONS: *Please provide the following information.*

Start date of brine well operation:

July 1980

Total volume of fresh water injected into the brine well to date (bbls) and how determined:

1980-2003 Data not available

From 2003 to 2005 370,634 bbls - City meter readings

Total volume of brine water produced (bbls) to date and how determined:
From 1980 to 2003 Data not available - estimated 130,000/yr 2,990,000
From 2003 to 2005 388,602 bbls Total Estimated 3,378,602 bbls

Have you ever lost casing or tubing? If yes, please provide details.
Document attached ☑

Do you maintain a surface pressure on your well during idle times? Yes☐ No☑

Have you noticed large amounts of air built up during cavity pressurization? Yes☐ No☑

Have you ever noticed fluids or air/gas bubbling up around the casing during testing or normal operations? Yes☐ No☑

MONITORING: ***Please provide the following information.***

Are you currently monitoring ground water contamination from your brine well or system?
Yes ☐ No☑

Have you ever run a sonar log? Yes☐ No☑
If yes, please provide last date: _____

Provide cavern configuration (dimensions and volume) and method(s) used to estimate:
If sonar report please attach ☐ *If other, please specify and provide a sketch of cavern:* ☐
Data N/A

Do you have a subsidence monitoring program in place? Yes ☑ No☐
Visually

Do you have any geophysical monitoring devices, such as a seismic device positioned near your brine well? Yes ☐ No☑

Have you submitted all of your monthly, quarterly, or annual reports to the OCD?
Yes ☑ No☐

Have you failed a brine well mechanical integrity test (MIT)? If yes, please attach details and results. Attached ☑

Have you ever had a casing leak? Yes ☑ No☐
Have you ever had a cavern leak? Yes ☐ No☑ Don't know ☑
Have you ever exceeded the cavern fracture pressure? Yes ☐ No☑ Don't know ☐
Do you know how to calculate your maximum pressure? Yes ☑ No☐ Don't know ☐

Have you routinely looked for cracks or fissures in the ground surface around your brine well?
Yes ☑ No☐

Do you have any minor or major cracks, fissures, tank settlement, line breakage from settlement or any minor subsidence. Yes ☐ No☑

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☐ No☑

Have you ever experienced unexpected pressure gain or loss in the cavern? Yes☐ No☑
If yes, was there a difference in your normal flow rate? Yes☐ No☑

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 ☐ No☑

Are you concerned about pulling the tubing due to the fact it may be difficult to re-enter the hole? Yes☐ No☑

Are you concerned about running a sonar tool in fear of losing tool because of debris in hole? Yes☐ No☑

Have you ever conducted a fly over of your well site? No☑ Yes☐ *if yes, please provide photo.*
☐ *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 x 50 = 5000.

1. Provide the calculated number above here: 938.50
2. Now provide the depth (ft) from the surface to your casing shoe: 3198'

Is the calculated number found in #1 above greater than #2? Yes☐ No☑

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."

Key Energy Services LLC
Company Name-print name above

Bob Patterson
Company Representative- print name

Bob Patterson
Company Representative- Signature

Title: Area Manager

Date: 11-6-8

Submit 3 Copies To Appropriate District Office
District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Ave., Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-103
May 27, 2004

WELL API NO. **30-025-07551**

5. Indicate Type of Lease STATE ☒ FEE ☐

6. State Oil & Gas Lease No. **Salt Mining Lease**

SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name **Truckers (Brine Station)**

1. Type of Well: Oil Well ☐ Gas Well ☒ Other

8. Well Number **2**

2. Name of Operator **Key Energy Services**

9. OGRID Number **19797**

3. Address of Operator **PO Box 99 Eunice New Mexico 88231**

10. Pool name or Wildcat **BSW Salado**

4. Well Location
Unit Letter **K: 1980** feet from the **South** line and **1980** feet from the **West** line
Section **33** Township **18-S** Range **38-E** NMPM **Lea** County

11. Elevation *(Show whether DR, RKB, RT, GR, etc.)* **3,637' G.L.**

Pit or Below-grade Tank Application ☐ or Closure ☐

Pit type **Steel** Depth to Groundwater _____ Distance from nearest fresh water well _____ Distance from nearest surface water _____

Pit Liner Thickness: _____ mil Below-Grade Tank: Volume _____ bbls; Construction Material _____

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	P AND A	☒
PULL OR ALTER CASING	☐	MULTIPLE COMPL	☐	CASING/CEMENT JOB	☐		
OTHER	☐			OTHER:			☐

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Approved as to plugging of the Well Bore. Liability under bond is retained until surface restoration is completed.

Received
APR 09 2007
Hobbs

3-29-07 MIRU pulling unit. Notified OCD on rig up. Open well and flow well overnight.

3-30-07 NU BOP. Tag @ 1850' w/ gauge ring. TIH w/ bit and tag same 1850'. TIH O.E. tag at 1850' worked tubing thru and TIH to 2350'. Spot 25 sks of cement @ 2350'. POH and discovered tubing went out side of casing @ 1850'. Notified Gary Wink, he required a impression block run.

3. 4-2-07 TIH w/ impression block to 1350'. Showed casing had laid over. POH Chris Williams ok'd setting CIBP @ 1300'. RU wireline and set CIBP @ 1300'. TIH w/ tubing tag CIBP. Circulate well w/ plugging mud. Spot 20 sks 1300'. WOC & tag @ 1100'.
4. 4-3-07 Chris Williams added a perf and squeeze @ 395'. RU wireline and perf @ 395'. Squeezed 20 sks displaced TOC to 295'. No circulation to surface, removed surface wellhead valve and cement was present. Spot 10 sk surface plug 60'-surface.
5. Cut off wellhead and anchors 3' BCL. Cap well. Install dry hole marker.

I hereby certify that the information above is true and complete to the best of my knowledge and belief. **I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☐, a general permit ☐ or an (attached) alternative OCD-approved plan ☐.**

SIGNATURE _____ TITLE Agent DATE 4-4-07

Type or print name Jack Shelton E-mail address: jshelton@keyenergy.com Telephone No. 432-523-5155

For State Use Only

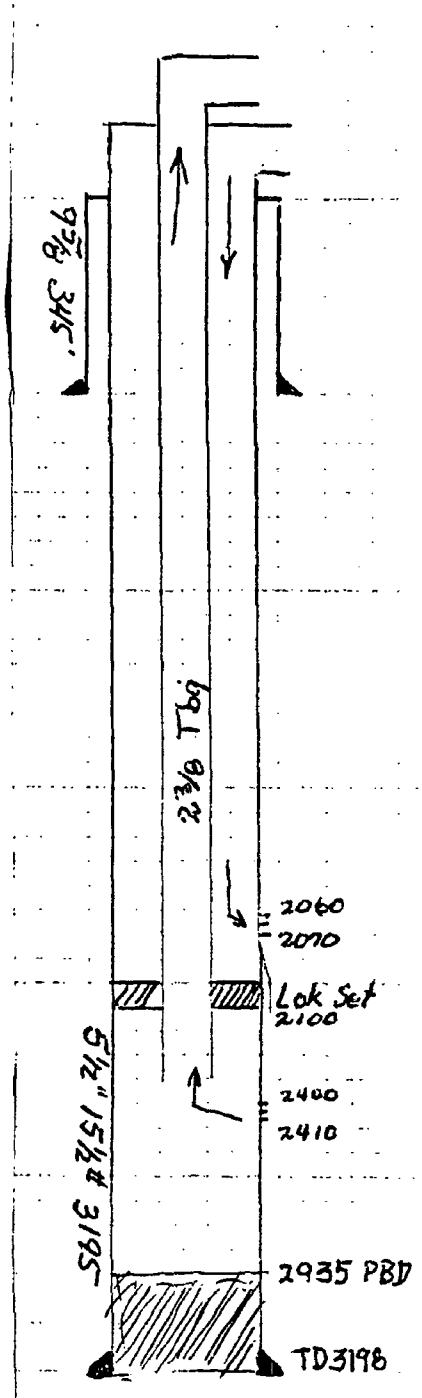
APPROVED BY: Gary W. Wink TITLE OC FIELD REPRESENTATIVE II/STAFF MANAGER DATE APR 09 2007

Conditions of Approval (if any):

INJECTION WELL DATA SHEET

OPERATOR	LEASE			
Uni Chem International	Truckers Water Company			
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE
# 2	Unit K	33	18S	38E

Schematic



Tabular Data

Surface Casing

Size 9⅝" Cemented with 200 SX sx.

TOC CIRC. feet determined by _____

Hole size _____

~~Intermediate~~ Long Casing

Size 5½" 15.5# Cemented with 1000 sx.

TOC CIRC - feet determined by _____

Hole size 7⅞

~~Long string~~

Size _____" Cemented with _____ sx.

TOC _____ feet determined by _____

Hole size _____

Total depth _____

Injection interval

_____ feet to _____ feet

(perforated or open-hole, indicate which)

Drillers Log

0-30' Caliche

30-310 Red Bed + Snd.

310-1930 Anyhydrite + Sh.

1930-2045 Salt + Anyhydrite

2045-2430 Salt

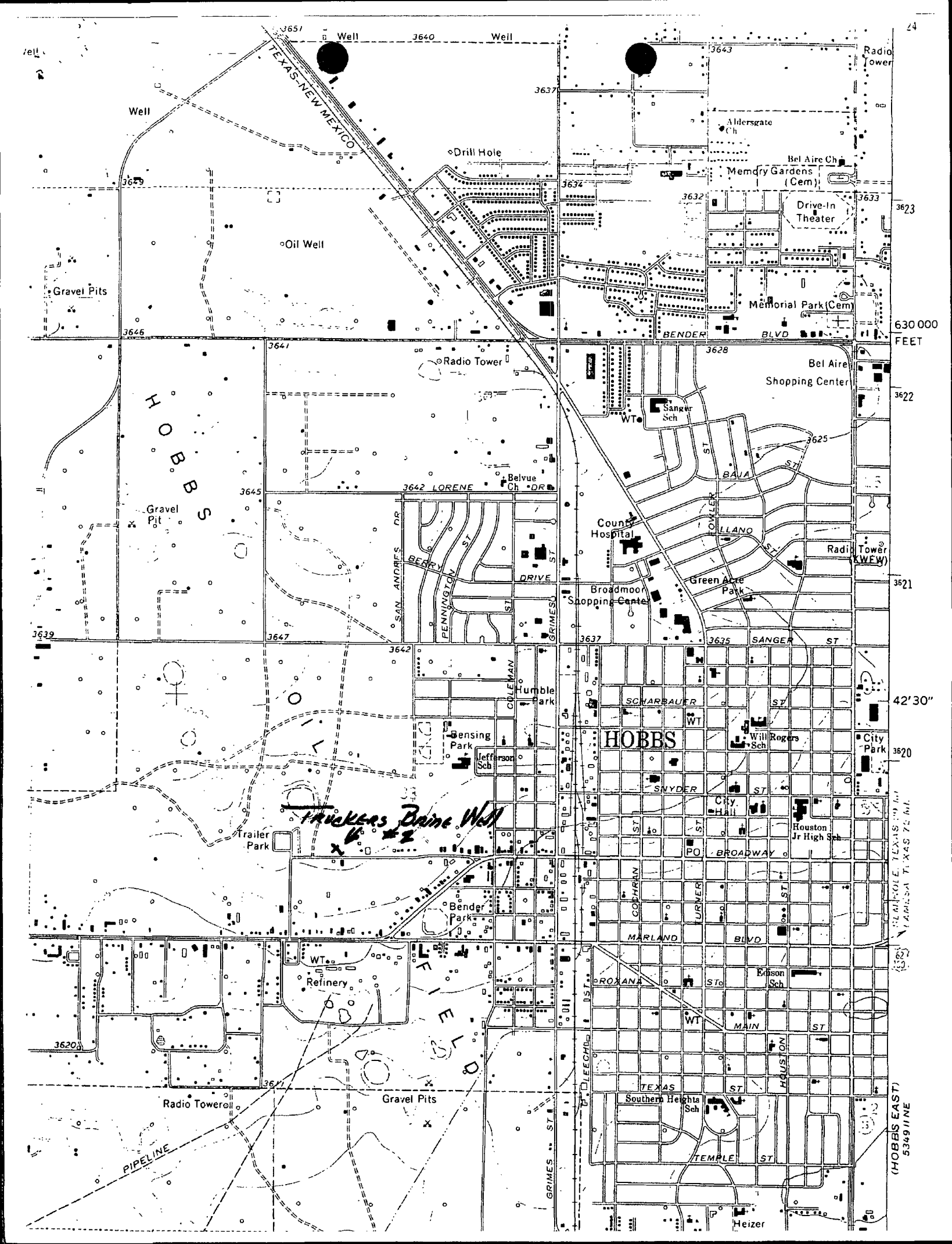
Tubing size 2 3/8 lined with None (material) set in a

Baker Lok-set (brand and model) packer at 2100. feet.

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Salt


Well
3640
Well
TEXAS-NEW MEXICO
Well
Drill Hole
Oil Well
Gravel Pits
3646
3641
Radio Tower
HOBBS
3645
Gravel Pit
3642 LORENE
Belvue Ch
DR
3639
3647
3642
SAN ANDRES DR
BERRY ST
PENNINGTON ST
DRIVE
GRIMES ST
3637
3635 SANGER ST
COUNTY Hospital
FOWLER
LLANO ST
Radio Tower (KWFW)
Green Acre Park
Broadmoor Shopping Center
Humble Park
COLEMAN
SCHARBAUER ST
WT
Bensing Park
Jefferson Sch
HOBBS
Will Rogers Sch
City Park
3620
SNYDER ST
City Hall
Houston Jr High Sch
PO
BROADWAY
Trailer Park
Trucker's Base Well
COCHRAN
TURNER
ST
Bender Park
MARLAND BLVD
WT
Refinery
OIL FIELD
ROXANA ST
Edison Sch
WT
MAIN ST
3620
3611
LEECH
HOUSTON
TEXAS ST
Southern Heights Sch
Radio Tower
Gravel Pits
PIPELINE
GRIMES ST
TEMPLE ST
Heizer
3643
Radio Tower
3637
Aldersgate Ch
Bel Aire Ch
Memory Gardens (Cem)
3634
3632
3633
Drive-In Theater
3623
Memorial Park (Cem)
BENDER BLVD
630 000 FEET
3628
Bel Aire Shopping Center
3622
Sanger Sch
WT
3625
BAVA ST
42'30"
3621
(HOBBS EAST) 5349 II NE

Submit 3 Copies to Appropriate District Office

DISTRICT I
P.O. Box 1980, Hobbs, NM 88240

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

P.O. Box 2088
Santa Fe, New Mexico 87504-2088

Form C-103
Revised 1-1-89

WELL API NO. CONSERVATION DIVISION RECEIVED '91 AUG 1 AM 8

5. Indicate Type of Lease STATE [X] FEE [ ]

6. State Oil & Gas Lease No. Salt Mining Lease

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name: Truckers Water Company Unichem International

1. Type of Well: OIL WELL [ ] GAS WELL [ ] OTHER Brine well

2. Name of Operator: Unichem International aka Truckers Water Company

8. Well No. 2

3. Address of Operator: 418 S. Grimes, Hobbs, New Mexico 88240

9. Pool name or Wildcat

4. Well Location
Unit Letter k : 1980 Feet From The south Line and 1980 Feet From The west Line

Section 33 Township 18S Range 38E NMPM Lea County

10. Elevation (Show whether DF, RKB, RT, GR, etc.) 3637 GR

11. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	[ ]	PLUG AND ABANDON	[ ]	REMEDIAL WORK	[X]	ALTERING CASING	[ ]
TEMPORARILY ABANDON	[ ]	CHANGE PLANS	[ ]	COMMENCE DRILLING OPNS.	[ ]	PLUG AND ABANDONMENT	[ ]
PULL OR ALTER CASING	[ ]			CASING TEST AND CEMENT JOB	[ ]		
OTHER:	[ ]			OTHER: Casing Integrity Test 7-26-91	[XX]		

12. Describe Proposed or Completed Operations *(Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work)* SEE RULE 1103.

See Attached Sheets - 2 pages

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE Peter M. Turner TITLE Manager, Rowland Trucking DATE August 8, 1991

TYPE OR PRINT NAME Pete M. Turner TELEPHONE NO. (505)397-49

(This space for State Use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

TRUCKERS #2 WELL FILE

7-24-91 Rigged up DA&S and pull 2 3/8" tubing. Pulled 63 joints and a piece - 2,011'. Left 86' in the well. Ran an impression block back in the well on the end of the tubing and pulled back out. 5 1/2 " casing parted at 1,916' and at 2,026'. Shut down for the day.

7-25/91 Picked up overshot and 2 7/8" work string and went in the hole. Could not get to the tubing. Pulled back out of the hole and went back in the hole with an impression block. Pulled back out of the hole and looked at impression block. Go back in the hole with drill collars and 4 1/4" swedge. Swedged casing out about 4' at 2,026'. Pulled out of the hole and laid down the 4 1/4" swedge and picked up 4 3/4" swedge. Swedged casing out to same spot - 2,026'. Pulled out of the hole and shut down.

7-26-91 Go in the hole with 4 1/2" impression block. When to 2,165' and hit something. This is 139' past where we were at 2,026. Pulled out of the hole. Tubing was dragging coming out. Had 6 badly bent joints of tubing. Go back in the hole to 1,868' with a packer and tested the casing to 500# for 30 minutes. Lost 30# in that time frame. Pulled out of the hole with the packer and 2 7/8" tubing. Laid all the 2 7/8" tubing down. Laid collars down and started back in the hole with the 2 3/8" tubing. Shut down for the day.

7-27-91 Finished going in the hole and started drilling with 4 1/2" blade bit with cutright on it. Drilled 4' and bit torqued up. Could go in the hole, but could not turn the tubing. Pulled out of the hole - had 2 joints of bent pipe. Shut down for the day.

7-28-91 Shut down.

7-29-91 Picked up 2 7/8" tubing and tapered mill. Went in the hole and started to mill at 2,021'. Milled to 2,051'. Worked tapered mill in and out of the casing or tight spot with tubing turning. Stopped turning tubing and went down about 15' to 20'. No trouble going down, but could not turn the tubing. Pulled out of the hole. The bottom 2 joints were bent. Shut down for the day.

7-30-91 Ran all the 2 3/8" tubing in the hole out of the derrick and came out laying it down on the rack. Put 4 1/2" bit on 2 7/8" tubing and went in the hole to 2,026' and started drilling. Drilled to 2,116' and shut down for the day.

7-31-91 Bleed pressure off tubing and started up reverse pump. No problems. Kicked swivel in - no torque on tubing. Started drilling. Drilled to 2,141' and shut down to make a connection, could not - had pressure on tubing. Back flowed well for 4 1/2 hours. Sent crew home and continued to back flow well. Checked well at 4:00 pm - still flowing. Checked well at 8:00 pm - had stopped flowing.

8-01-91 Picked up a joint of tubing and started to drill. Drilled down to 2,173.9'. There is 71 joints of 2 7/8" tubing and a 4 1/2" bit in the well. Release all equipment.

The well has 345' of 9 5/8" surface casing. The well was drilled to 3,175' and plugged back to 2,935'. It was then perforated at 2,060' to 2,070' with 20 holes and 2,400' to 2,410' with 20 holes. There was a packer set at 2,100' (Baker Loc Set).

The tubing and casing was knocked loose at 1,915' and 2,026', that is known. No trouble to go through the spot at 1,916'. Had trouble at 2,026' getting out of casing.

Submitted by Bruce Baird
August 2, 1991

dm

IV. AQUIFER INFORMATION

Aquifers in Immediate Area

From	To	Aquifer Description	Amount of Water entering hole	Quality of Water
60	200'	Ogallala Tertiary Sand & Gravel		

8 wells in ADR - In Hobbs, probably P/A

Note: If water quality analysis are available please attach.*

Source of aquifer description State Engineer - Discharge Plan

Source of water level and quality data _____

Depth water first encountered during drilling _____

Direction of water gradient NW to SE, downgradient ↘

Explain any evidence of water contamination _____

III. FORMATION INFORMATION

Formation Record

From	To	Thickness	Formation (name, description)
0'-	30'	30'	Caliche
30-	310'	280'	Red Bed & Sand
310'-	1930'	1620'	Anhydrite & Shale
1930'-	2045	115'	Salt & Anhydrite
2045-	2430	385'	Salt

Logs (specify type) _____

_____

_____

Identify where logs are on file _____

_____

_____

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,

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."

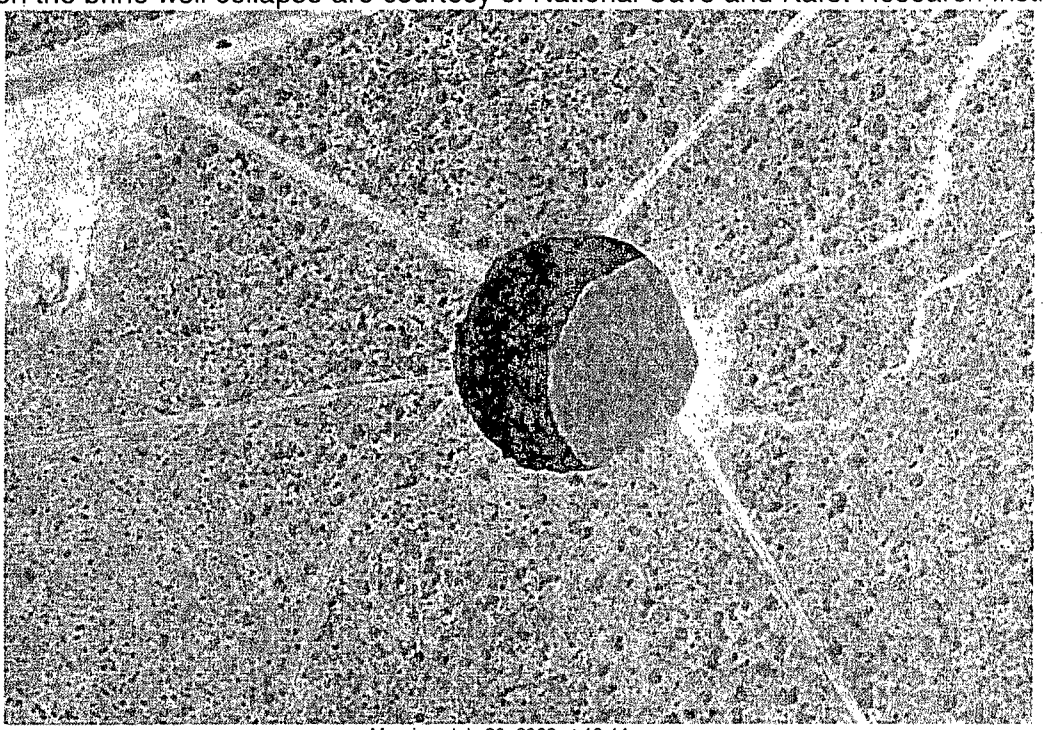
The Oil Conservation Division is continuing to monitor and investigate the collapse of the brine well, located on state trust land 17.3 miles southeast of Artesia, which is still active. The well is owned by Jim's Water Service. County Road 217 remains closed as a safety precaution, and a command center 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

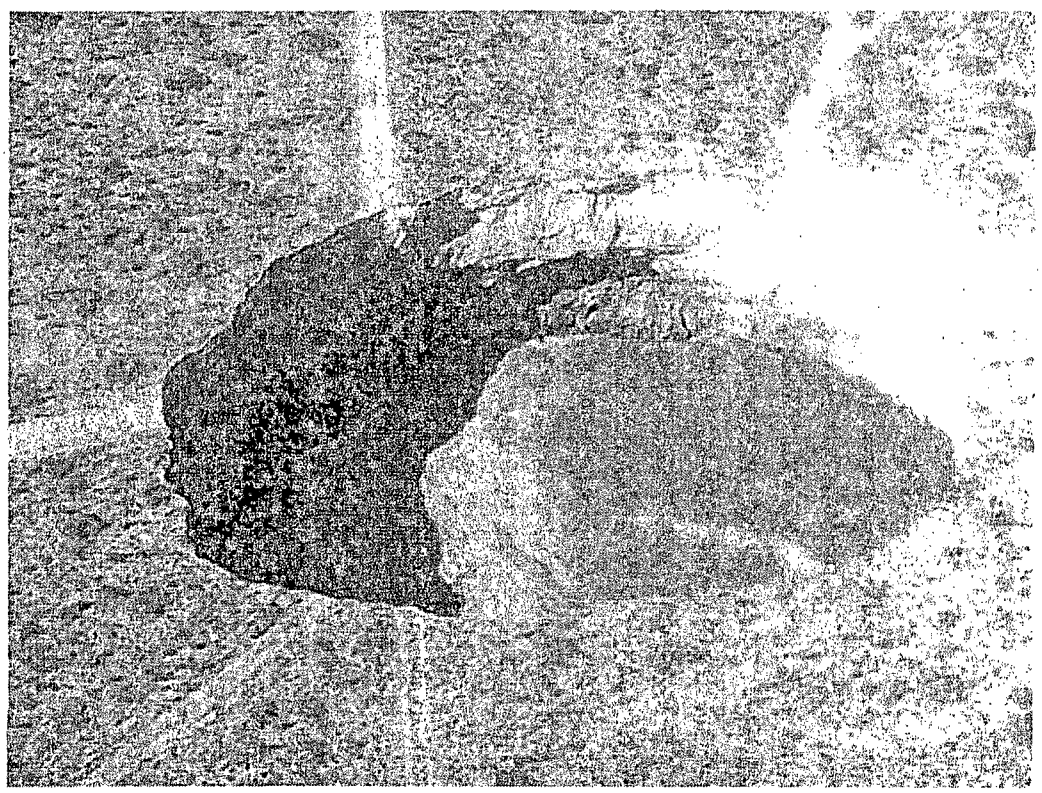
Bureau of Geology and Mineral Resources, and the National Cave & Karst Research Institute are all working together to assess horizontal and vertical movements to project any future subsidence. Work on a protective fence and keep-out signage began yesterday with completion expected on Friday.

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
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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 ☐ No☐ Are you presently deficient of any condition in your permit? Yes ☐ No☐ Don't know☐ Do you operate below grade tanks or pits at the site? Yes☐ No☐ Do all tanks, including fresh water tanks, have secondary containment? Yes☐ No☐ Do you think you have the expertise, knowledge and general understanding of what causes a brine well to collapse? Yes☐ No☐ Do you think OCD should provide guidelines on subsidence and collapse issues? Yes☐ No☐
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☐ No☐
Distance and direction to nearest permanent structure, house, school, *etc. if less than one mile:*
Distance and direction to nearest water well *if less than one mile:*
Distance to nearest watercourse(s), floodplain, playa lake(s), or man-made canal(s) or pond(s) *if less than one mile:*
Distance and direction to nearest known karst features or mines *if less than one mile:*

Distance and direction to nearest producing oil or gas well(s) *if less than one mile:* Provide API Number:
Distance and direction to nearest tank battery(ies) *if less than one mile:*
Distance and direction to nearest pipeline(s), including fresh water pipelines *if less than one mile:*
Distance and direction to nearest paved or maintained road or railroad *if less than one mile:*
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* ☐ *Copy of formation record with tops:* *Attached* ☐ *Copy of geophysical well logs if available:* *Attached* ☐ *If not, well logs within one mile* ☐
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 ☐ No ☐ Is the casing shoe set into the salt? Yes☐ No☐ If yes, how far into the salt?_____
Depth of tubing(s):
Do you suspect that your cavern has partially caved in? Yes☐ No☐ Don't know☐
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 ☐
Do you maintain a surface pressure on your well during idle times? Yes☐ No☐
Have you noticed large amounts of air built up during cavity pressurization? Yes☐ No☐
Have you ever noticed fluids or air/gas bubbling up around the casing during testing or normal operations? Yes☐ No☐
MONITORING: ***Please provide the following information.***
Are you currently monitoring ground water contamination from your brine well or system? Yes ☐ No☐
Have you ever run a sonar log? Yes☐ No☐ *If yes,* please provide last date:_____
Provide cavern configuration (dimensions and volume) and method(s) used to estimate: If sonar report please attach ☐ *If other, please specify and provide a sketch of cavern:* ☐
Do you have a subsidence monitoring program in place? Yes ☐ No☐
Do you have any geophysical monitoring devices, such as a seismic device positioned near your brine well? Yes ☐ No☐
Have you submitted all of your monthly, quarterly, or annual reports to the OCD? Yes ☐ No☐
Have you failed a brine well mechanical integrity test (MIT)? If yes, please attach details and results. Attached ☐
Have you ever had a casing leak? Yes ☐ No☐ Have you ever had a cavern leak? Yes ☐ No☐ Don't know ☐ Have you ever exceeded the cavern fracture pressure? Yes ☐ No☐ Don't know ☐ Do you know how to calculate your maximum pressure? Yes ☐ No☐ Don't know ☐
Have you routinely looked for cracks or fissures in the ground surface around your brine well? Yes ☐ No☐
Do you have any minor or major cracks, fissures, tank settlement, line breakage from settlement or any minor subsidence. Yes ☐ No☐
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☐ No☐

Have you ever experienced unexpected pressure gain or loss in the cavern? Yes☐ No☐ If Yes, was there a difference in your normal flow rate? Yes☐ No☐
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 ☐ No☐
Are you concerned about pulling the tubing due to the fact it may be difficult to re-enter the hole? Yes☐ No☐
Are you concerned about running a sonar tool in fear of losing tool because of debris in hole? Yes☐ No☐
Have you ever conducted a fly over of your well site? No☐ *Yes☐ if yes, please provide photo.* ☐ *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 x 50 = 5000. 1. Provide the calculated number above here:_____. 2. Now provide the depth (ft) from the surface to your casing shoe:_____ . Is the calculated number found in #1 above greater than #2? Yes☐ No☐
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."

_____
Company Name-print name above

_____
Company Representative- print name

_____
Company Representative- Signature

Title_____

Date:_____

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

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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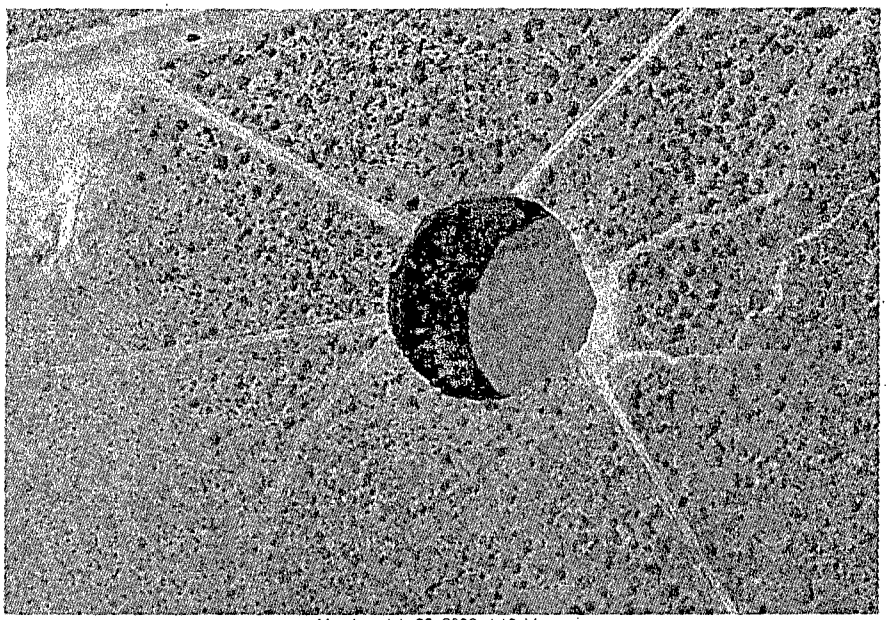

Morning, July 20, 2008 at 10:44 am.
courtesy of National Cave and Karst Research Institute

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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