BW - ____13____

SUBSIDENCE MONITORING REPORTS

DATE:

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Monday, December 15, 2008 11:53 AM
To: Price, Wayne, EMNRD
Cc: Hill, Larry, EMNRD
Subject: RE: Brine Well (BW-13) PA Request (API# 30-025-35702)

Wayne:

Taken care of. I informed Bill that a sonar test of the well will likely be required for approval of the C-103 PA request. He will be sending OCD EB and Buddy Hill a C-103 for approval. 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: Price, Wayne, EMNRD
Sent: Monday, December 15, 2008 9:45 AM
To: Chavez, Carl J, EMNRD
Subject: FW: Brine Well Data

Please handle

From: billy@pwllc.net [mailto:billy@pwllc.net]
Sent: Friday, December 12, 2008 11:58 AM
To: Price, Wayne, EMNRD
Subject: Brine Well Data

Wayne, Is there more information available on the brine well of John R.Stearns dba Stearns API # 30-025-35702 than what is available on- line in the well file? I am preparing a plugging procedure for the well.
Thanks
Billy(Bill)E.Prichard
Agent for Stearns
432-934-7680
email; billy@pwllc.net

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.

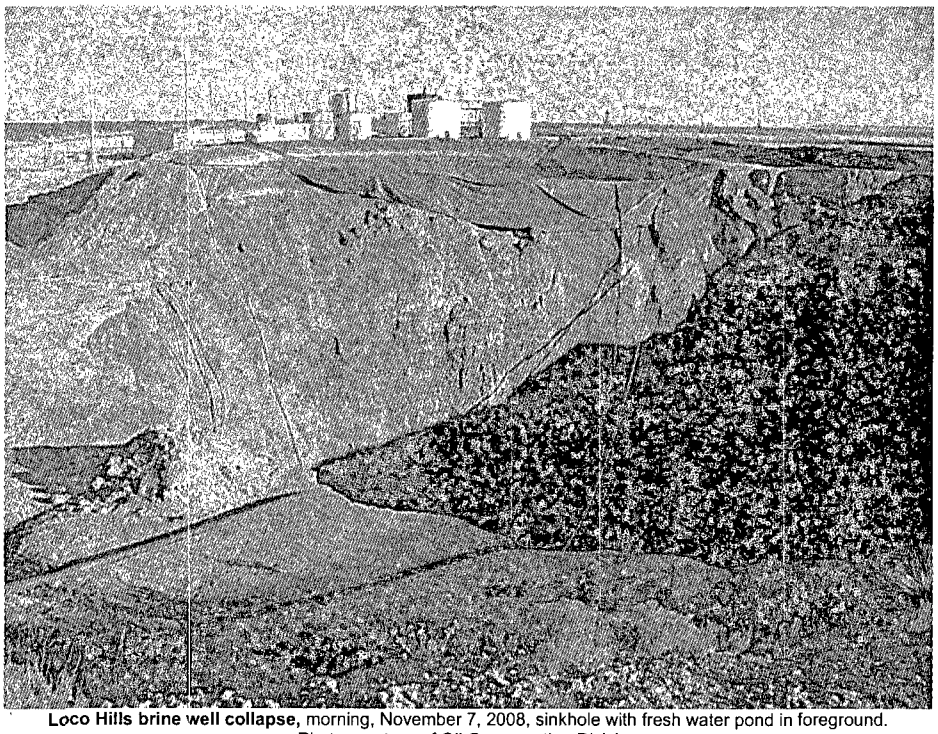
"I am deeply concerned by these two serious incidents and we are taking action to ensure the safety of our citizens and to protect the environment," stated Secretary Prukop.

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.

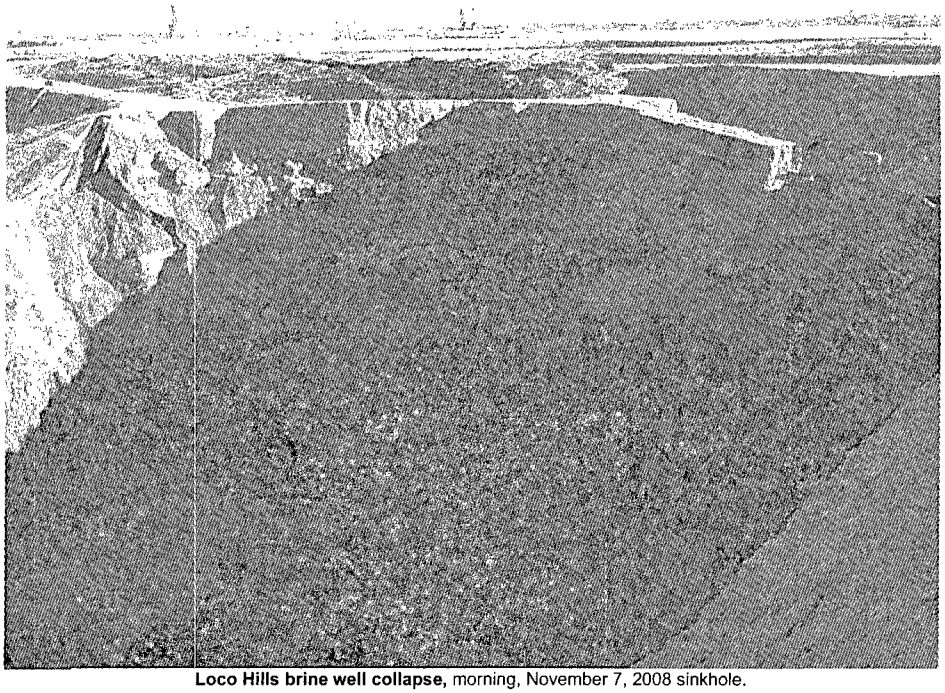
"The moratorium will provide time to properly evaluate the causes of the recent collapses and to discuss the development of new rules or guidelines to ensure the safety and stability of brine well systems," added Secretary Prukop.

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

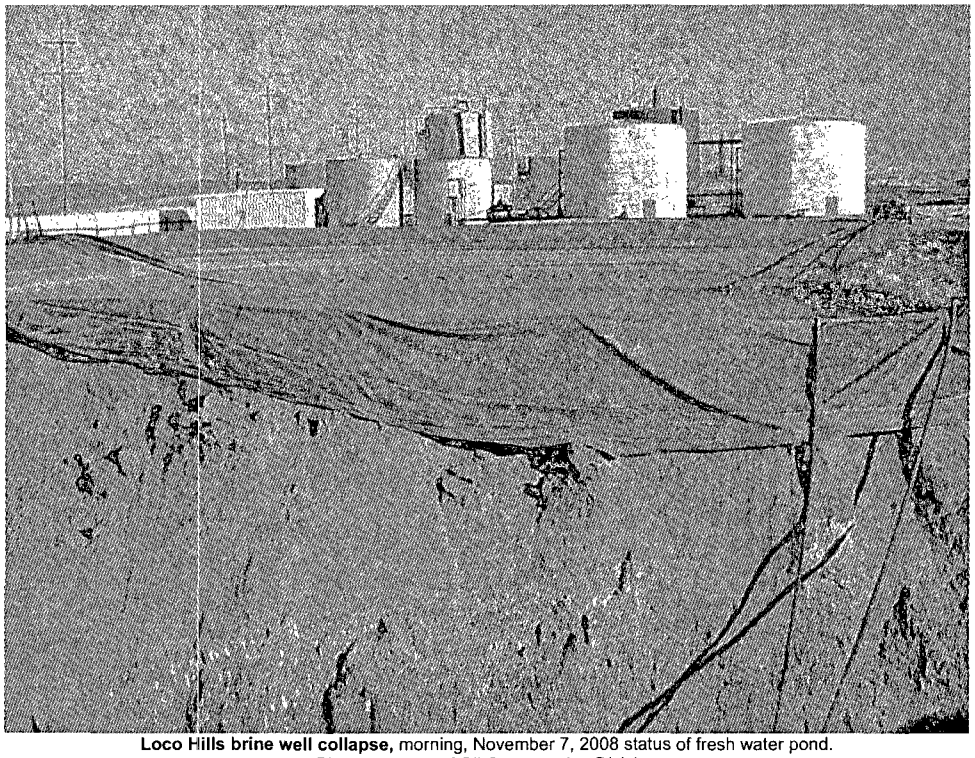
Below are photographs of the two recent collapses:



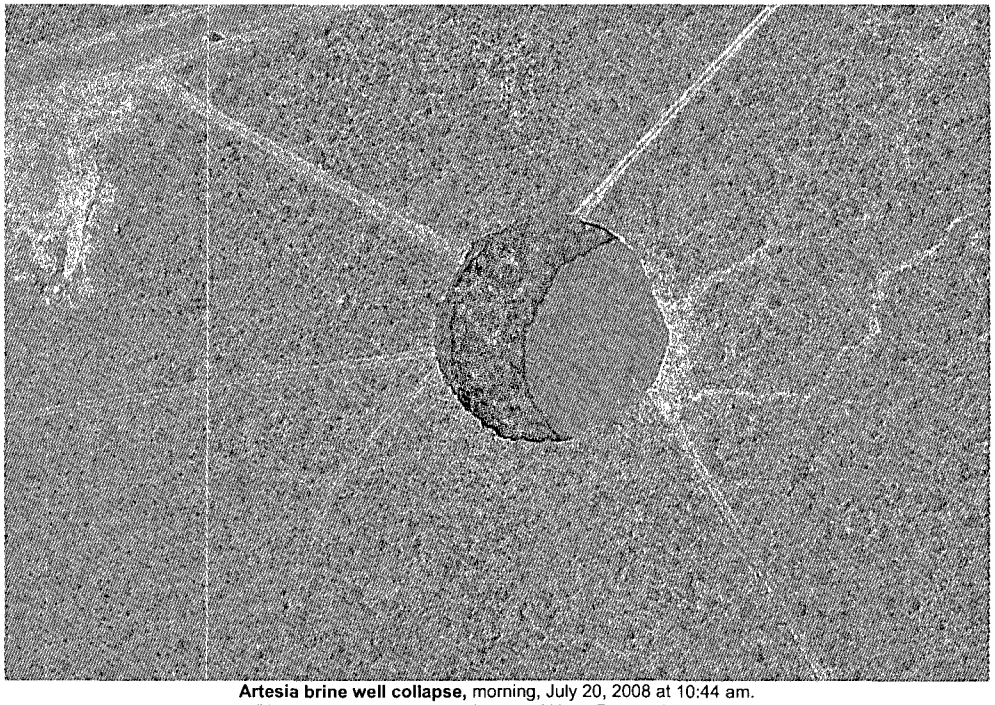
Loco Hills brine well collapse, morning, November 7, 2008, sinkhole with fresh water pond in foreground.
Photo courtesy of Oil Conservation Division



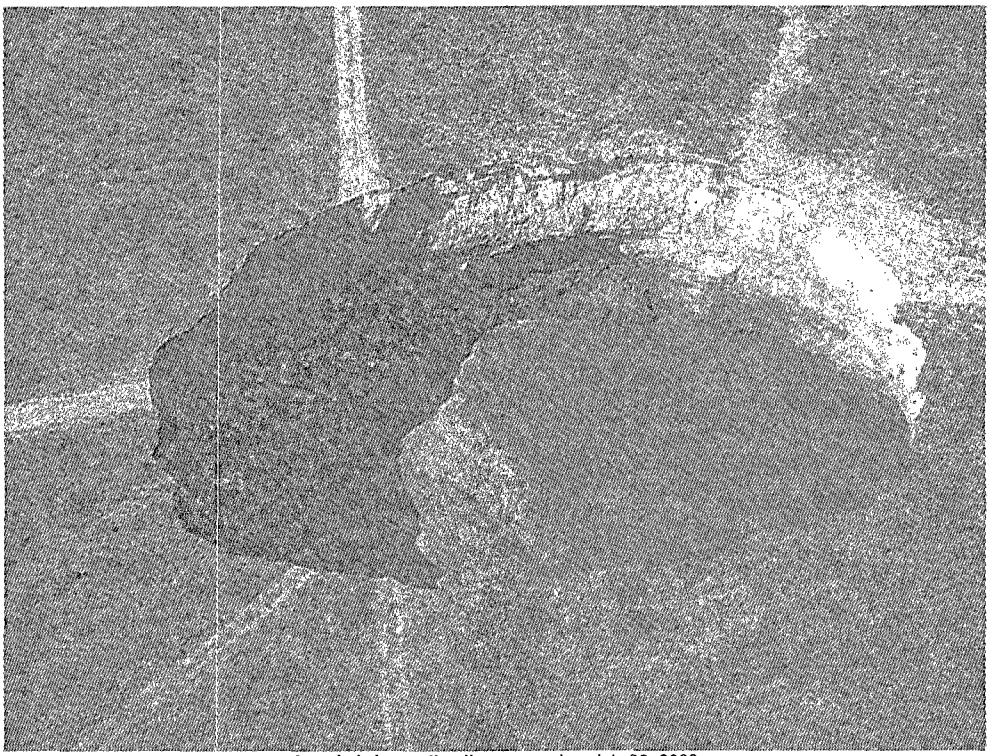
Loco Hills brine well collapse, morning, November 7, 2008 sinkhole.
Photo courtesy of Oil Conservation Division



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'; Philliber, 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

RECEIVED
2008 SEP 3 PM 3 05

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 Stearns Well Name(s) KTS Brine Well #1
API Number 30025-35702 Brine Well Permit # BW-013
Date Permit Expires? 2010

Location: Section 27 Ts 9S Rg 35E
FNL FSL 200' FEL 200' FWL
GPS of well(s): Lat: 33.498564024 Long: 103.340305841

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 ☐ Pit Brine ☑
Do all tanks, including fresh water tanks, have secondary containment? Yes ☑ No ☐ Fresh ND
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:*
Abandon house 3/4 mile west of well (very sparcely populated area)

Distance and direction to nearest water well *if less than one mile:*
2 water wells on location. 1 windmill 1/4 mile SE of well. 1 water well 3/4 mile west of well. 2 water wells East of well

Distance to nearest watercourse(s), floodplain, playa lake(s), or man-made canal(s) or pond(s) *if less than one mile:* None

Distance and direction to nearest known karst features or mines *if less than one mile:*
None

Distance and direction to nearest producing oil or gas well(s) *if less than one mile:*
Provide API Number: NONE

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

NONE

Distance and direction to nearest pipeline(s), including fresh water pipelines *if less than one mile:* GAS line ½ mile south, several "cattle water" fresh water pipelines ≤ 1 mile (flat terrain)

Distance and direction to nearest paved or maintained road or railroad *if less than one mile:*
well is 300' off NM St. 206 Hwy.

Depth to ground water found above the Salado (salt section), regardless of yield:
Approx. 125'

Name of aquifer(s):
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: *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): 2000'

Depth to the bottom of the salt below ground surface (feet): 2800'

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

Depth of casing(s) shoe below ground surface (feet): 2000'
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): 2585'

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:
Estimated 1968 (Bought by Stearns Jan. 1997)

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

Total volume of brine water produced (bbls) to date and how determined: 1968 - present Avg. 25,000 / yr. (Stearns Records 1997 - 2007) Approx life of well 39 yrs 39 x 25,000 = 975,000 bbls.
Have you ever lost casing or tubing? If yes, please provide details. Document attached ☐ tubing. Tubing parted because of corrosion
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:* ☐ N/A
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 ☐ NO
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☐ NONE
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? N/A 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.* No 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: 270.
2. Now provide the depth (ft) from the surface to your casing shoe: 2000'.

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."

Stearns
Company Name-print name above

Lou Ann Stearns
Company Representative- print name

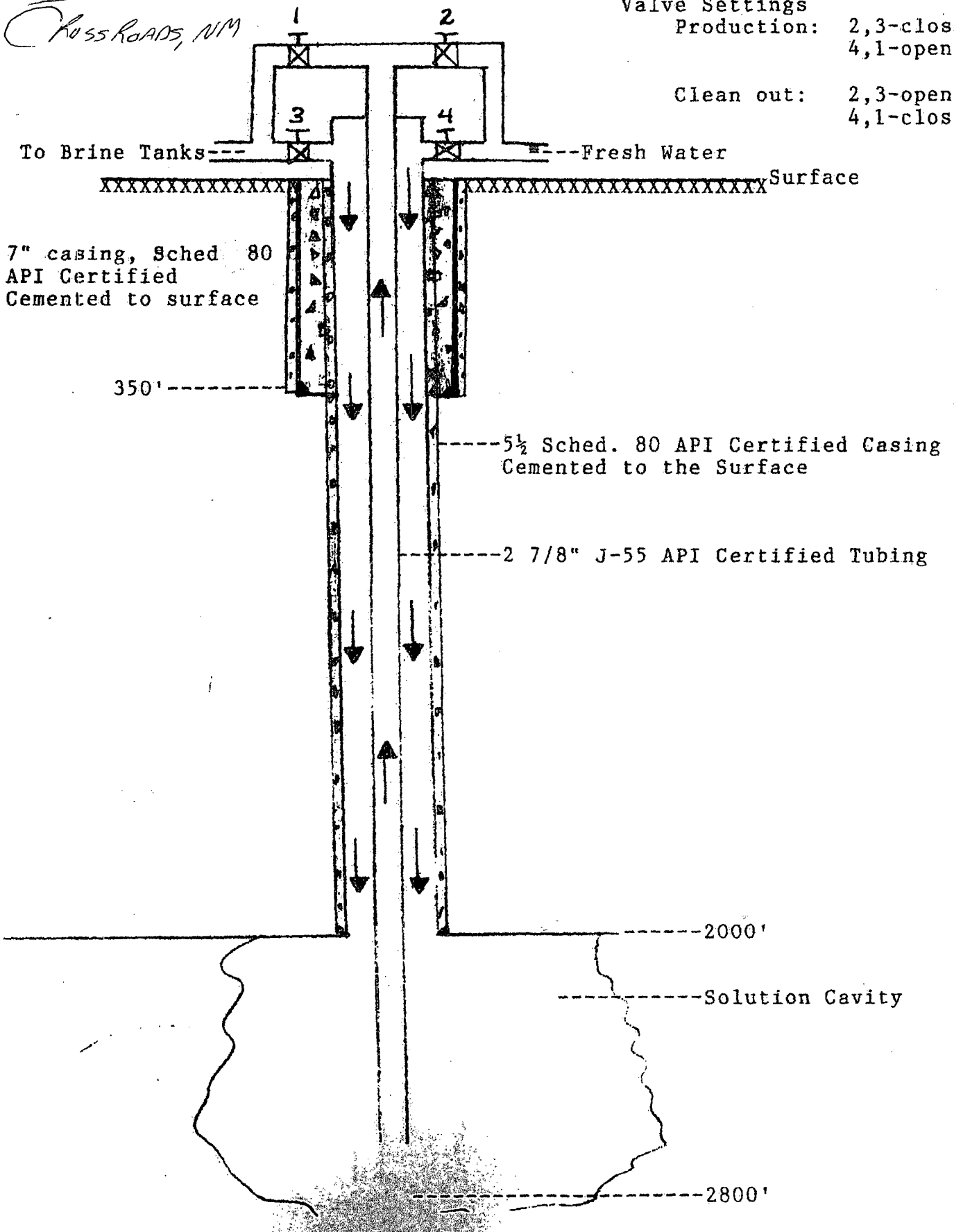
L A Stearns
Company Representative- Signature

Title Off. Mgr.

Date: 8/29/08

Stearns Brine Well

Stearns
Cross Roads, NM



Valve Settings
Production: 2,3-closed
4,1-open

Clean out: 2,3-open
4,1-closed

Revised Brine Well Construction

Stearns

SITE HYDROGEOLOGY

WATER BEARING ROCKS

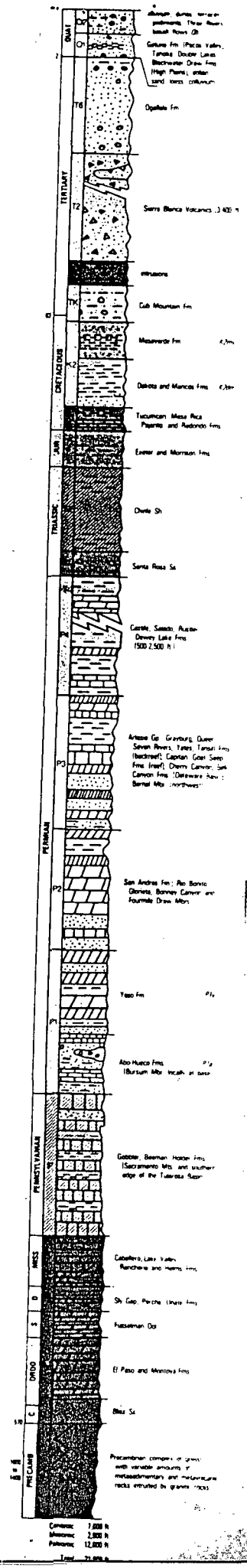
The brine facility lies on the northern edge of the Permian [illegible] in the High Plains physiographic province. Figure 4-1 [illegible] the stratigraphy of the eastern High Plains of New Mexico. [illegible] most sedimentary basins, much of the thick sequence of [illegible] zones, sandstones shales and evaporites do not yield usable [illegible] and water. A summary of the water bearing rocks between the [illegible]ction zone and the ground surface immediately below the [illegible]ction zone is presented below.

Ogallala Formation

[illegible] thin veneer of quaternary alluvial and aeolian deposits [illegible]erlie the Ogallala Formation in the Crossroads area (Figure [illegible]). The Ogallala consists of unconsolidated fine sand with [illegible] amounts of clay, coarse sand, caliche and gravel. Although [illegible] unit is the principal aquifer of the High Plains and yields [illegible] quality water in much of northern Lea County; the quality [illegible]eriorates significantly near saline playa lakes (Figure 4-3). [illegible] unit is approximately 130 feet thick at the site (Figure 4-5, [illegible] 4-6 and Appendix B).

Tecumcari Shale

[illegible]derlying the Ogallala is the basal sand unit of the [illegible]ecumcari Shale. Post Cretaceous erosion has removed most of the [illegible] and the remainder of this water-producing unit is only [illegible] feet thick at the site (see Appendix B). Despite minimal [illegible] thickness in the area, the basal sand is capable of [illegible] sufficient water, of adequate quality, for the brine



GUADALUPE SERIES

Ogallala overlain by thin veneer of alluvium

Not present in site area

Exeter and Morrison not present

Santa Rosa not observed in subsurface

Figure 4-1 Stratigraphic column of eastern High Plains of New Mexico (NMGS, 1983). Map symbols for Figure 4-3 shown in left column.

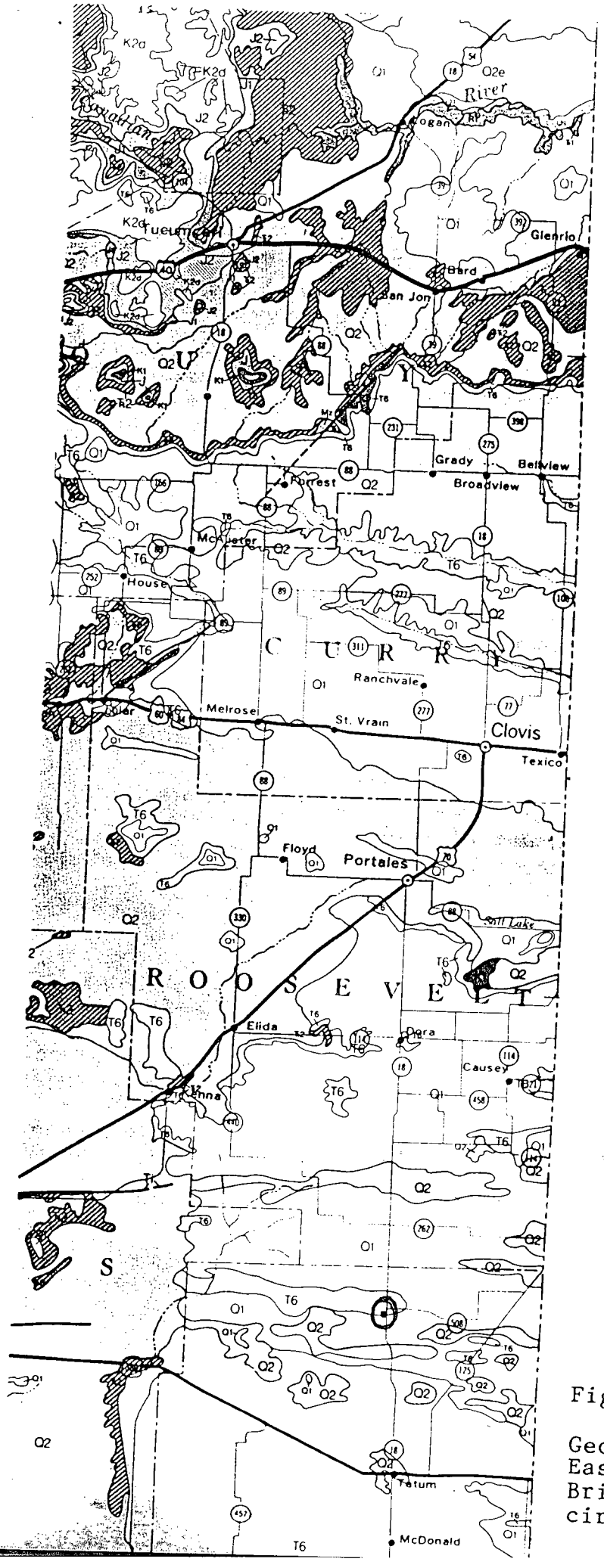


Figure 4-2

Geologic Map of Eastern High Plains. Brine facility circled (NMGS, 1983)

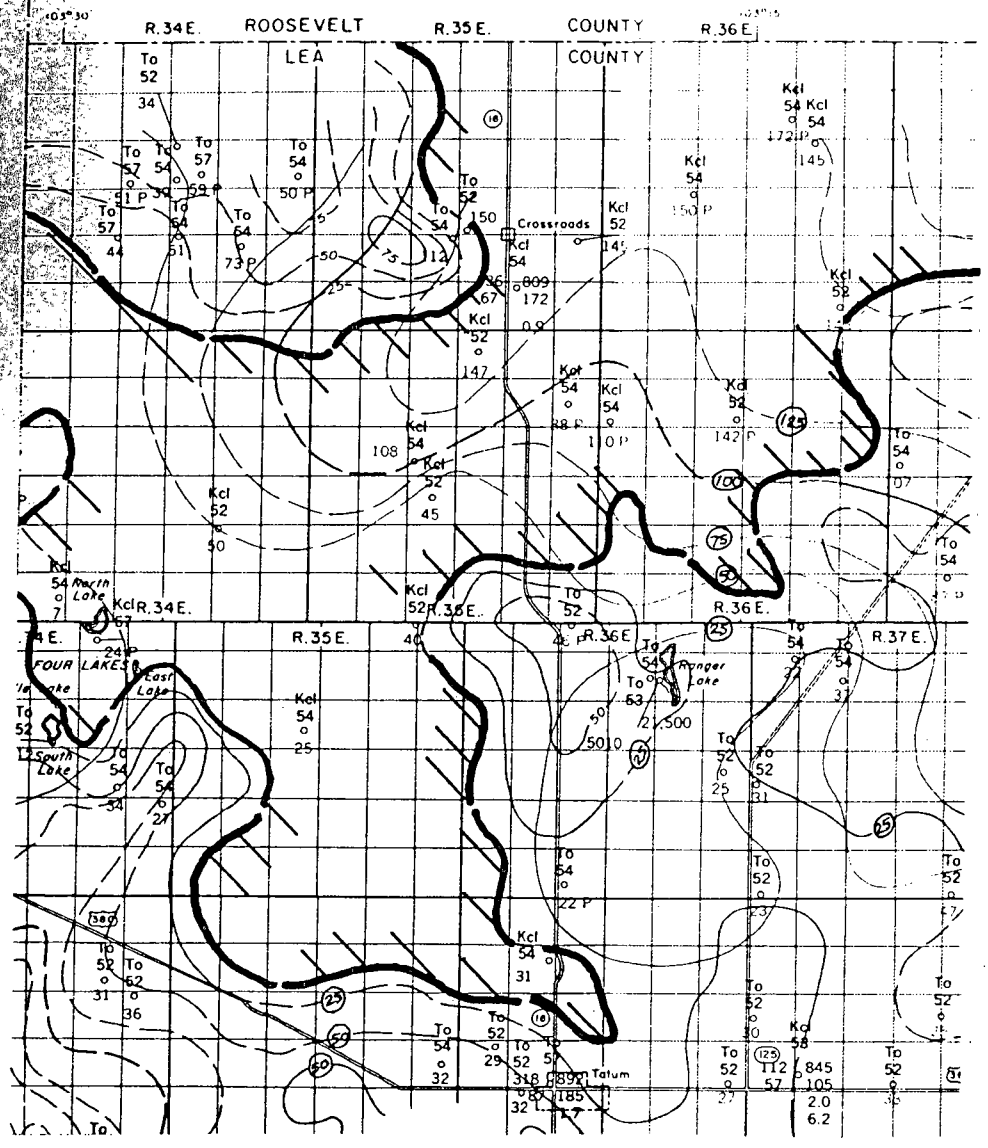
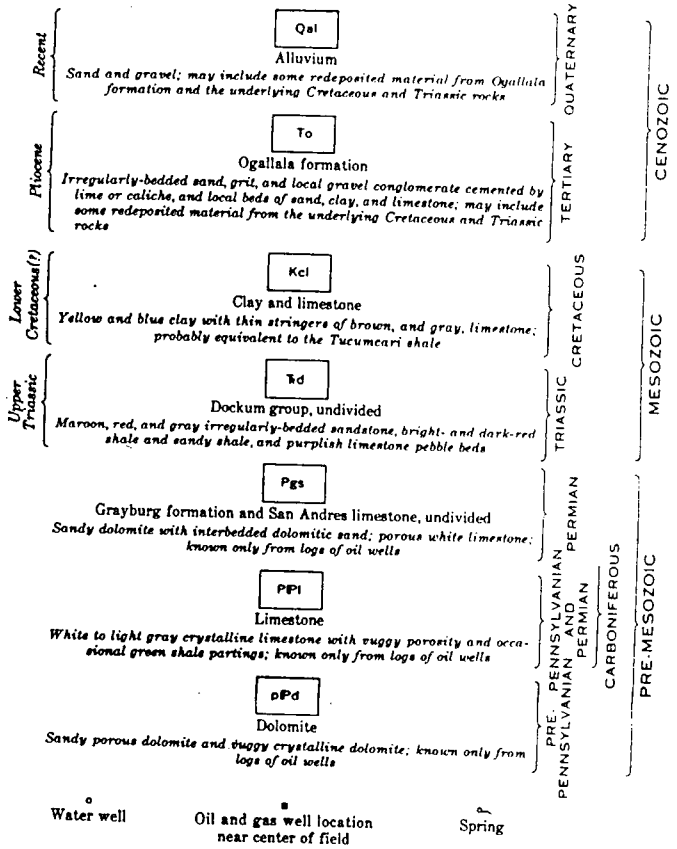


Figure 4-3 Depth to water and water quality of Northern portion of Lea County (Ash, 1963). Legend on Figure 4-4.

EXPLANATION

AQUIFERS



Data are grouped around the source-of-water symbol. Undetermined information is noted by the absence from the designed position in the group of data.

Line connecting points of approximately equal depth to water below land-surface datum as of 1952

Dashed where inferred; interval 25 feet

150

Line connecting points of approximately equal saturated thickness of the deposits of Cenozoic age as of 1952

Dashed where inferred; interval 25 feet

Approximate boundary of bedrock highs that interrupt the water table in the deposits of Cenozoic age

Figure 4-4 Legend for Figure 4-3.

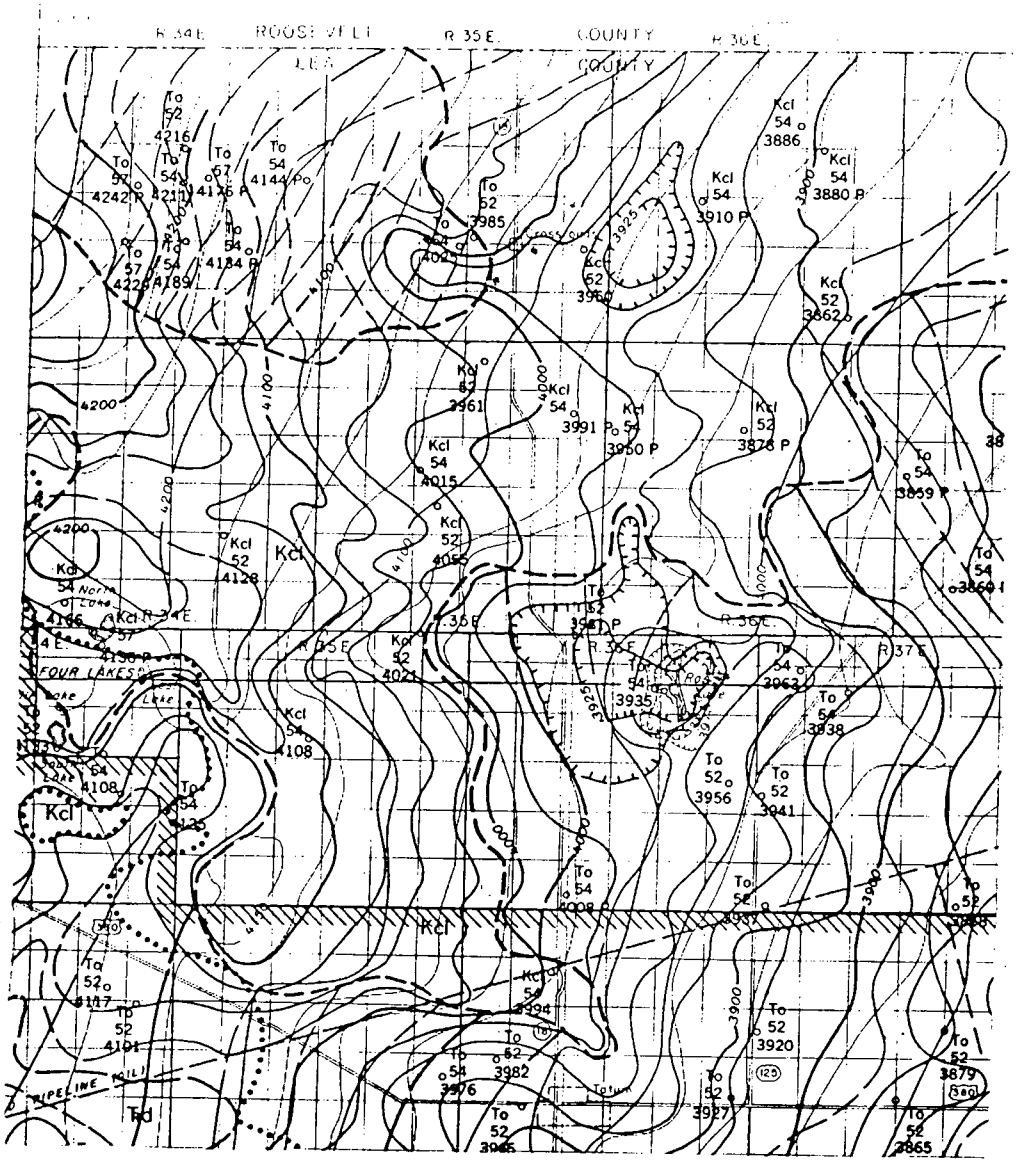


Figure 4-5 Map of Northern Lea County showing topography and elevation of post-Mesozoic erosional surface and water quality (Ash 1963). Legend is Figure .4-6.

EXPLANATION

AQUIFERS

Recent	Qal Alluvium *Sand and gravel; may include some redeposited material from Ogallala formation and the underlying Cretaceous and Triassic rocks*	QUATERNARY		CENOZOIC
Pliocene	To Ogallala formation *Irregularly-bedded sand, grit, and local gravel conglomerate cemented by lime or caliche, and local beds of sand, clay, and limestone; may include some redeposited material from the underlying Cretaceous and Triassic rocks*	TERTIARY		
Lower Cretaceous (?)	Kcl Clay and limestone *Yellow and blue clay with thin stringers of brown, and gray, limestone; probably equivalent to the Tucumcari shale*	CRETACEOUS		MESOZOIC
Upper Triassic	Trd Dockum group, undivided *Maroon, red, and gray irregularly-bedded sandstone, bright- and dark-red shale and sandy shale, and purplish limestone pebble beds*	TRIASSIC		

GEOLOGIC UNITS DIRECTLY BELOW THE ROCKS OF CENOZOIC AGE

Lower Cretaceous (?)	Kcl Clay and limestone *Yellow and blue clay with thin stringers of brown and gray, limestone; probably equivalent to the Tucumcari shale*	CRETACEOUS	MESOZOIC
Upper Triassic	Trd Dockum group, undivided *Maroon, red, and gray irregularly-bedded sandstone, bright- and dark-red shale and sandy shale, and purplish limestone pebble bed*	TRIASSIC	

Spring

Water well

Aquifer — To
Year sampled — 52
3494

Altitude of water level, in feet above mean sea level. Static-level measurement unless the figure is followed by the capital letter "P" which indicates that the measurement was made while the well was being pumped.

Data are grouped around the source-of-water symbol. Undetermined information is noted by the absence from the designated position in the group of data.

Contour drawn on the water table in the deposits of Cenozoic age as of November-December, 1952

Dashed where approximately located; contour interval 25 feet; datum is mean sea level

Approximate boundary of bedrock highs that interrupt the water table in the deposits of Cenozoic age

Contour drawn on the post-Mesozoic erosional surface

Dashed where approximately located; contour interval 25 feet; datum is mean sea level

Buried contact

Area included in declared Underground Water Basin, prior to Oct. 1, 1952

Area added to declared Basin on Oct. 1, 1952

Figure 4-6 Explanation for Figure 4-5.

station and scattered stock wells.

The hydraulic characteristics of this aquifer are reported by ranchers and drillers to be quite variable. The location of ranch houses in the area often corresponds to the only place on the property with available ground water. The fresh water wells at the brine station are one of the few wells in the area capable of supporting large withdrawals.

4.1.3 Dockham Group

The Triassic red beds of the Dockham Group (Chinle Formation equivalent) and the anhydrites of the Rustler Formation underlie the Cretaceous Section. The upper 1,200 feet of the Dockam Group is predominantly reddish shale but does include minor amounts of sandstone conglomerate and limestone. The lack of porous formations is evident by the electric log cross section through the site (Figure 4-7 and see Appendix B). Porous units which are penetrated in area oil tests (eg 525 foot depth in Magnolia Glenn well) are not continuous throughout the area. This is typical of the alluvial deposits that comprise the Chinle Formation.

The evaporites of the Rustler Formation are not water bearing. The anhydrites do form an excellent seal above the underlying injection zone. Not only are these evaporite units virtually impermeable but any fractures or conduits which may have formed over time tend to "heal" by recrystallization of the anhydrite in fractures.

Both the anhydrite and the overlying rocks are continuous throughout northern Lea County.

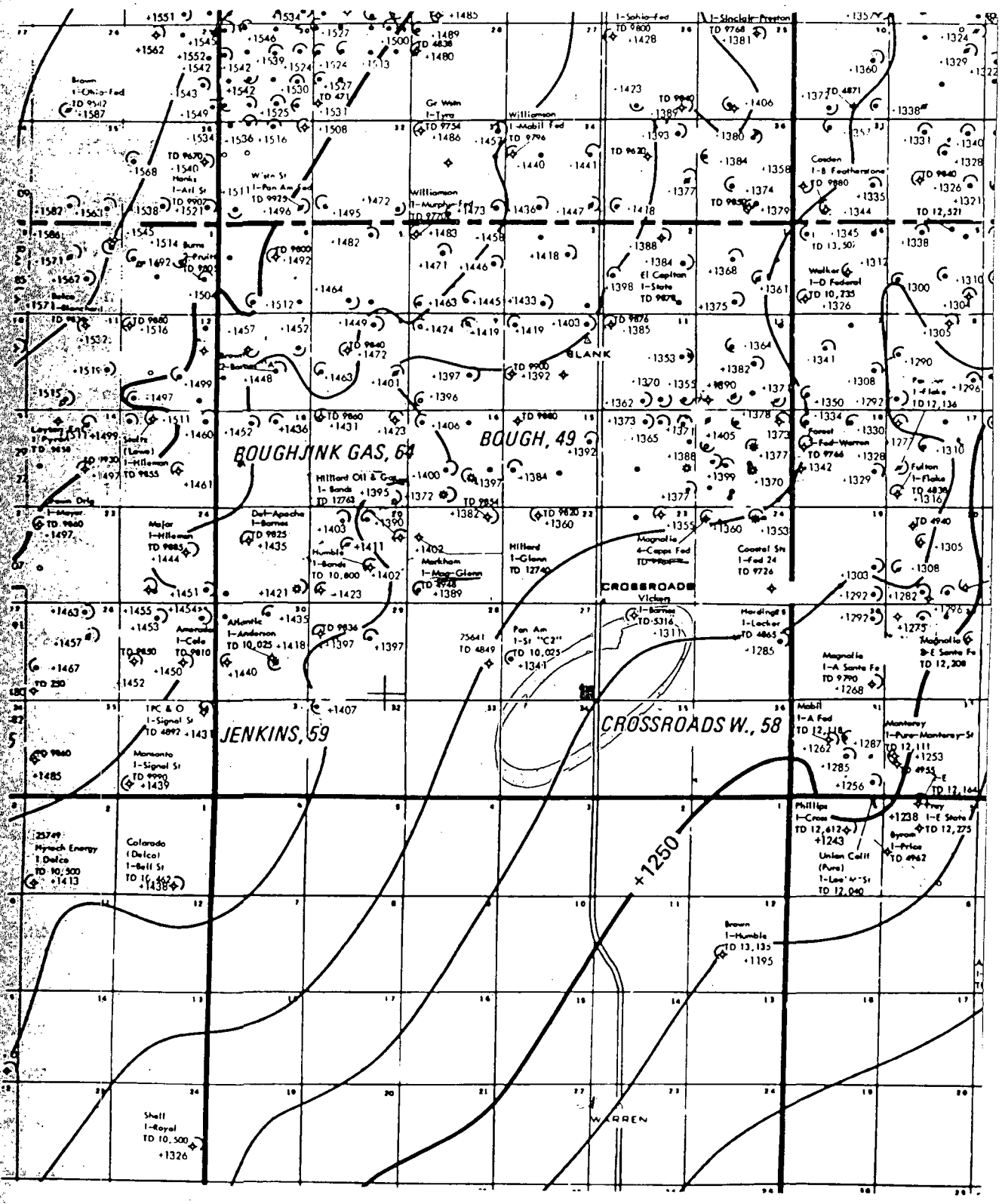


Figure 4-10 Structure Map of Northern Lea County

Well Site

New Mexico Office of the State Engineer
POD Reports and Downloads

Township: 19S Range: 35E Sections: 27

NAD27 X: Y: Zone: Search Radius:

County: LE Basin: Number: Suffix:

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

POD / Surface Data Report | Avg Depth to Water Report | Water Column Report

Clear Form | iWATERS Menu | Help

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 Column (in feet)
L 11510	19S	35E	27	2	3					42		

Record Count: 1

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
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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."

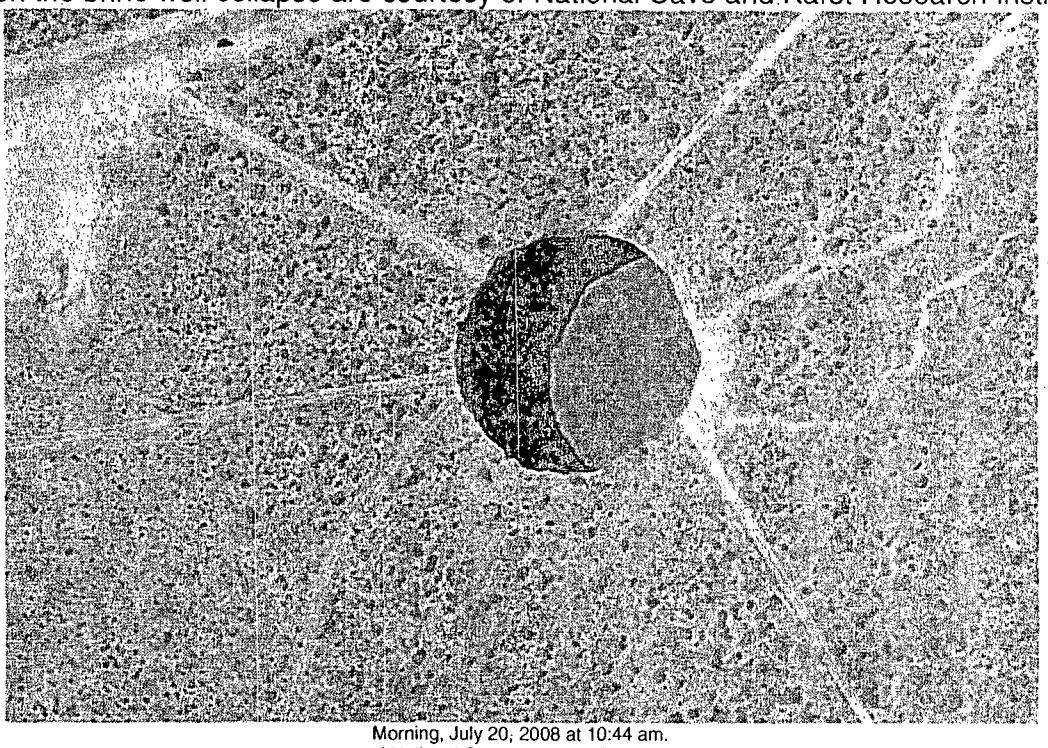
The Oil Conservation Division is continuing to monitor and investigate the collapse of the brine well, located on state trust land 17.3 miles southeast of Artesia, which is still active. The well is owned by Jim's Water Service. County Road 217 remains closed as a safety precaution, and a command center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

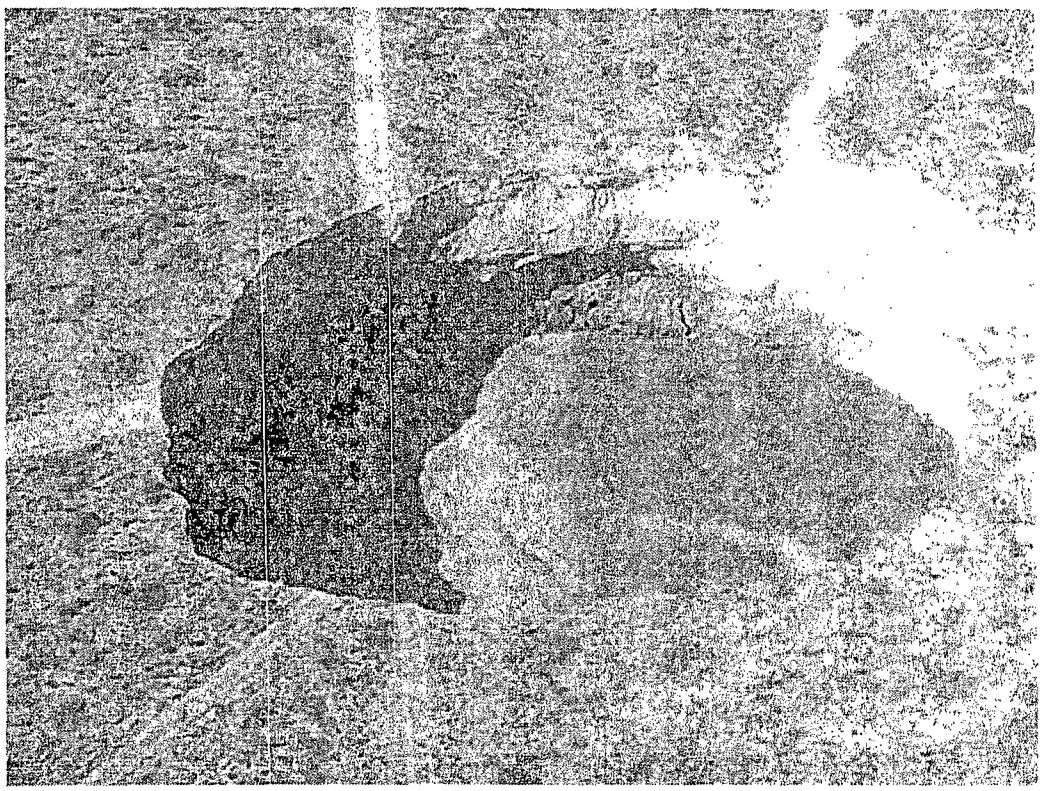
Bureau of Geology and Mineral Resources, and the National Cave & Karst Research Institute are all working together to assess horizontal and vertical movements to project any future subsidence. Work on a protective fence and keep-out signage began yesterday with completion expected on Friday.

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

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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

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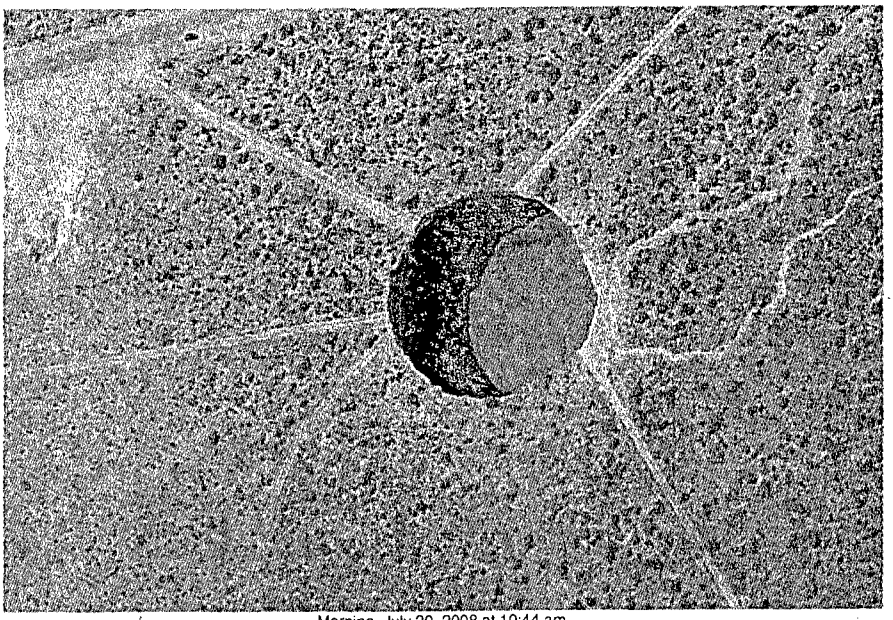

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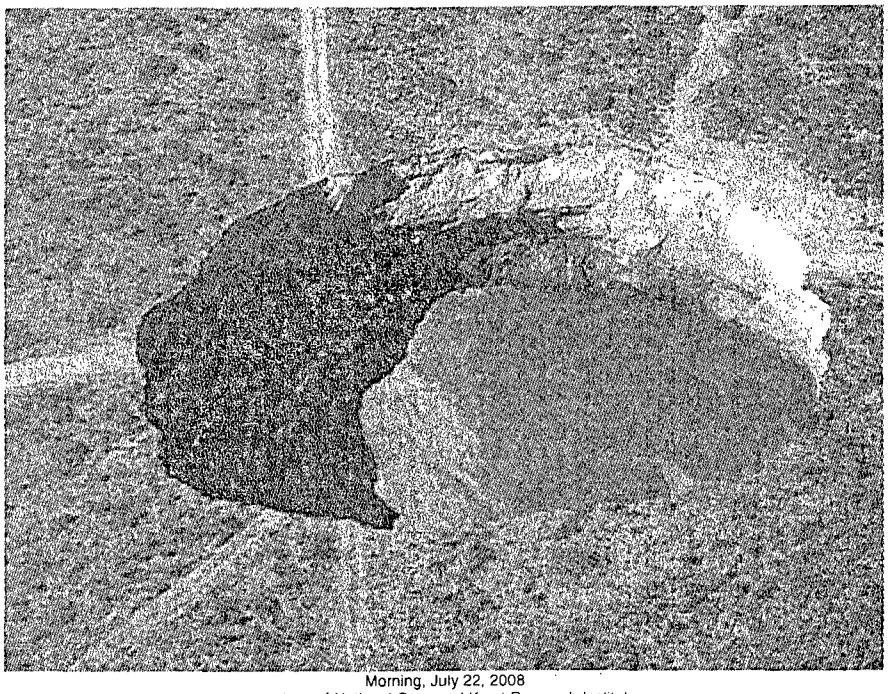

Morning, July 22, 2008
courtesy of National Cave and Karst Research Institute

#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
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