

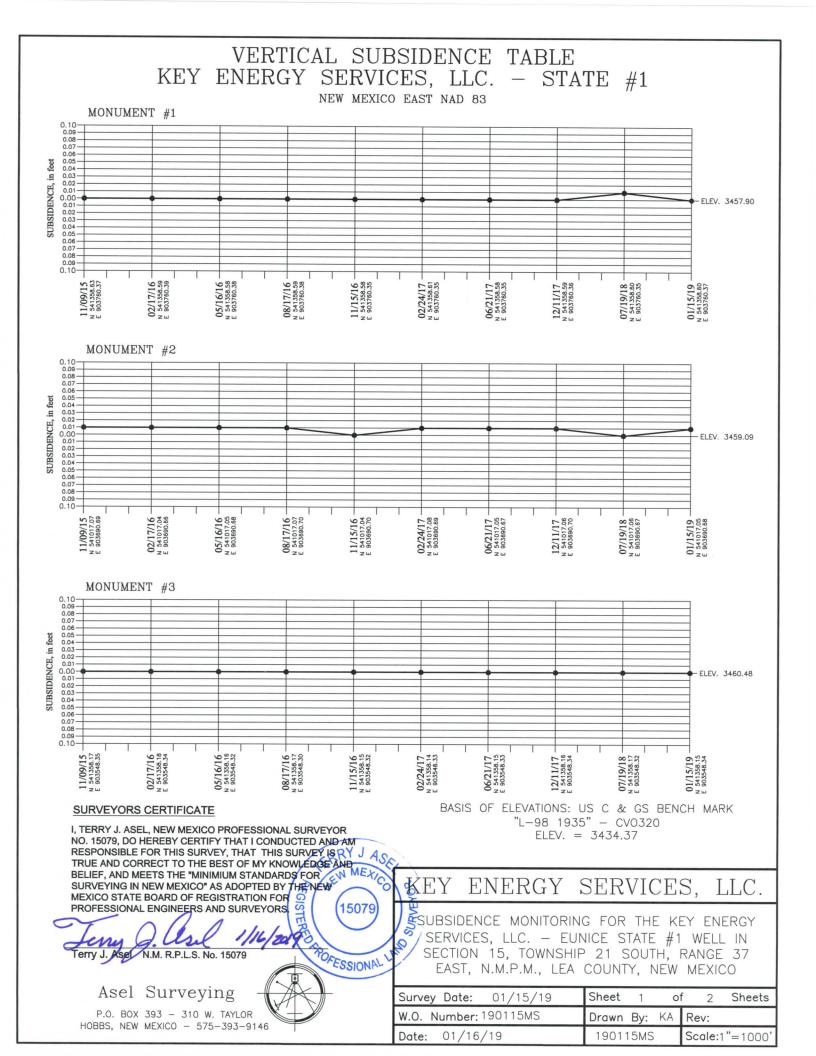
SUBSIDENCE MONITORING REPORTS

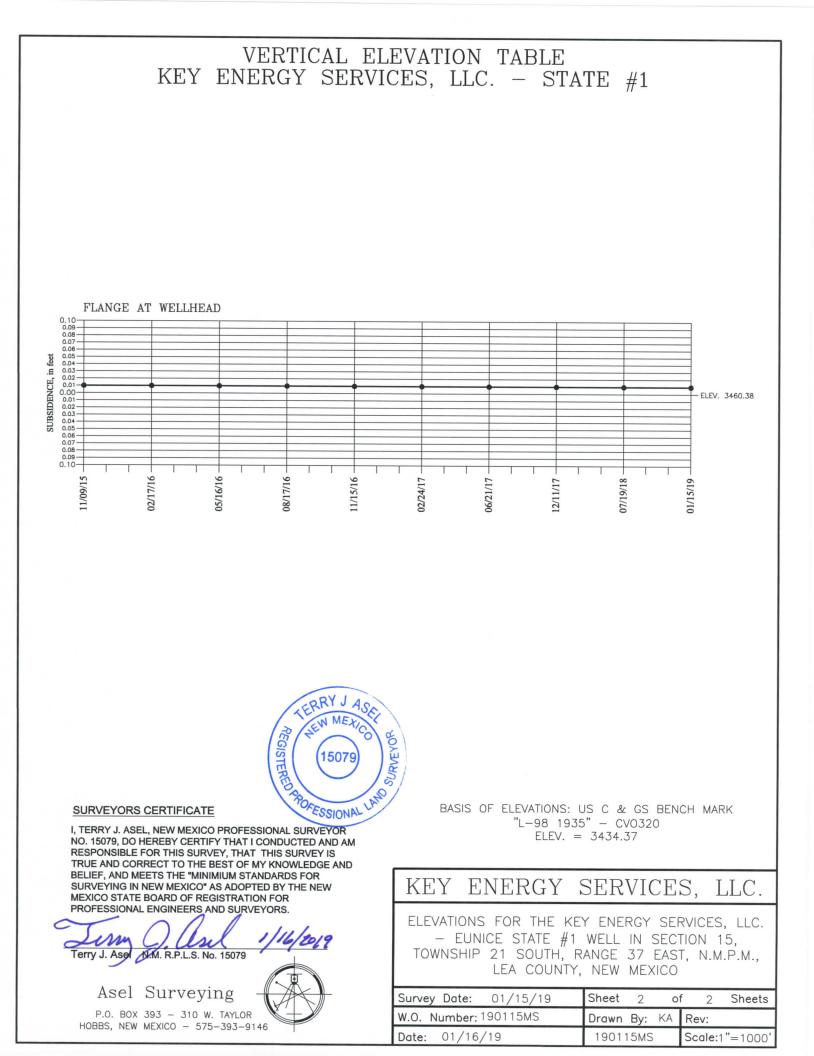
DATE:

From:	Wayne Price <wayneprice@q.com></wayneprice@q.com>
Sent:	Thursday, January 17, 2019 10:07 AM
То:	Chavez, Carl J, EMNRD
Cc:	Wayne Price; Boone, Teresa; Jill Best; Terry Asel
Subject:	[EXT] Key Bw-028 Subsidence Report
Attachments:	State #1 (Eunice) Vertical Subsidence Table 1-15-19.pdf.pdf; ATT00001.txt

Dear Carl,

Please find attached the latest subsidence report. From my evaluation I see no issue at this time. Please include in our OCD file.





From:	Chavez, Carl J, EMNRD
Sent:	Friday, June 23, 2017 8:10 AM
То:	'Ramirez, Ana O'
Cc:	Griswold, Jim, EMNRD; Brown, Maxey G, EMNRD
Subject:	BW-28 (Key Energy Services, L.L.C. State Brine Well #1 API# 30-025-33547) Q2 2017
	Subsidence Monitoring Report
Attachments:	State #1 (Eunice) Vertical Subsidence Table 6-21-17.pdf

Ms. Ramirez:

The New Mexico Oil Conservation Division (OCD) is in receipt of the above subject subsidence monitoring report.

Based on an evaluation of the report, OCD believes the historical data warrants a reduced survey frequency schedule.

Please propose a new schedule to OCD for evaluation and approval.

Thank you.

Mr. Carl J. Chavez, CHMM (#13099) New Mexico Oil Conservation Division Energy Minerals and Natural Resources Department 1220 South St Francis Drive Santa Fe, New Mexico 87505 Ph. (505) 476-3490 E-mail: <u>Carl J. Chavez@state.nm.us</u> "Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?" (To see how, go to: <u>http://www.emnrd.state.nm.us/OCD</u> and see "Publications")

From: Ramirez, Ana O [mailto:aramirez01@keyenergy.com]
Sent: Friday, June 23, 2017 7:27 AM
To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Subject: State Brine Well # 1 Q2 2017 Subsidence monitoring report - Key Energy Services

Good morning Mr. Chavez,

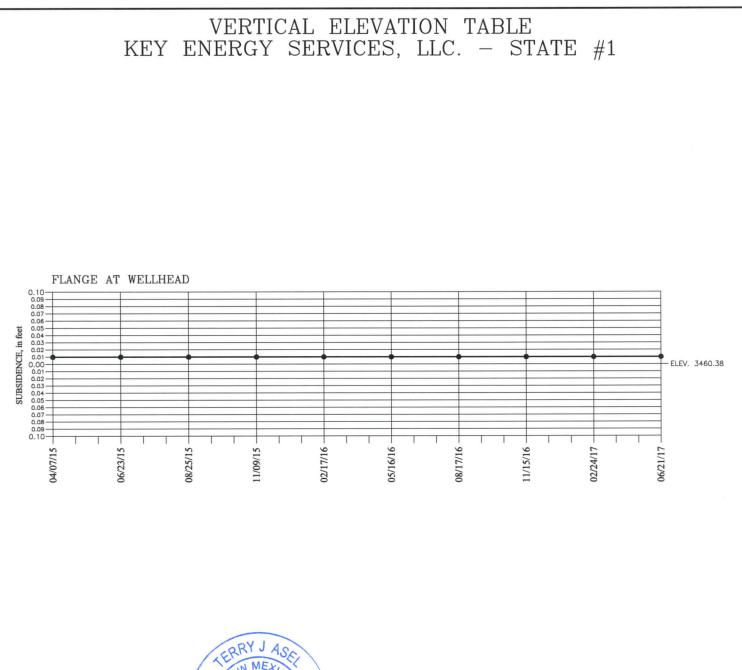
On behalf of Key Energy Services, I would like to submit the 2nd quarter 2017 subsidence monitoring report for the State # 1 Brine Station in Section 15, Township 21S, range 37e, NMPM, Lea County, New Mexico.

Feel free to contact me if you have further comments or questions,

Respectfully,

Ana Ramirez | Key Energy Services | Environmental Specialist 12400 W. Interstate 20 E. Odessa, TX 79765 o: 432.571.7203 | m: 432.234.6959 | <u>aramirez01@keyenergy.com</u>

VERTICAL SUBSIDENCE TABLE KEY ENERGY SERVICES, LLC. - STATE #1 NEW MEXICO EAST NAD 83 MONUMENT #1 0.10-0.09-0.08-0.07-0.06 -0.05 -0.04 -0.02 -0.01 -0.00 -0.01 -0.02 -0.03 -0.04 -0.05 -0.06 -0.07 -SUBSIDENCE, in feet ELEV. 3457.90 0.08 0.09-06/21/17 -N 541358.58 E 903760.35 11/09/15 N 541358.63 E 903760.37 08/17/16 - N 541358.59 N 541358.59 E 903760.38 11/15/16 -N 541358.58 E 903760.35 02/24/17 -N 541358.61 E 903760.35 06/23/15 -N 541358.60 E 903760.37 02/17/16 - N 541358.59 E 903760.39 16/16 - 1358.58 04/07/15 -N 541358.63 E 903760.35 08/25/15 -v 541358.60 £ 903760.36 05/1 541 9037 ZW MONUMENT #2 0.10-0.09-0.08-0.07-0.05-0.04-0.03-0.02-0.01-0.00-0.01-0.00-0.01-0.00-0.01-0.03-0.04-0.03-0.04-0.05-SUBSIDENCE, in feet ELEV. 3459.09 0.06 - 0.07 - 0.08 -0.09 0.10-06/21/17 -N 541017.05 E 903690.67 11/15/16 -v 541017.04 E 903690.70 02/24/17 -N 541017.08 E 903690.69 08/25/15 -N 541017.05 E 903690.68 11/09/15 -v 541017.07 E 903690.69 05/16/16 v 541017.05 E 903690.68 08/17/16 N 541017.07 E 903690.70 04/07/15 -v 541017.09 E 903690.66 06/23/15 -v 541017.06 E 903690.68 02/17/16 541017.04 E 903690.66 MONUMENT #3 0.10 0.09 0.08 0.07 0.06 0.05 0.05 0.04 0.03 0.03 SUBSIDENCE, in feet 0.01-- FLEV 3460.48 0.01 0.03-0.04 - 0.05 - 0.06 -0.07-0.09 0.10 11/15/16 -v 541358.15 E 903548.32 04/07/15 -N 541358.18 E 903548.31 06/23/15 -N 541358.14 E 903548.33 08/25/15 - 1 541358.15 - 903548.35 11/09/15 -541358.17 903548.35 02/17/16 -v 541358.18 E 903548.34 05/16/16 -v 541358.16 E 903548.32 08/17/16 - N 541358.17 E 903548.30 02/24/17 -v 541358.14 E 903548.33 06/21/17 -N 541358.15 E 903548.33 BASIS OF ELEVATIONS: US C & GS BENCH MARK SURVEYORS CERTIFICATE "L-98 1935" - CVO320 I, TERRY J. ASEL, NEW MEXICO PROFESSIONAL SURVEYOR ELEV. = 3434.37NO. 15079, DO HEREBY CERTIFY THAT I CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND J AS BELIEF, AND MEETS THE "MINIMIUM STANDARDS FOR W MEXICO ENERGY SERVICES, LLC. KEY SURVEYING IN NEW MEXICO" AS ADOPTED BY THE NEW REG MEXICO STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND SURVEYORS. SUBSIDENCE MONITORING FOR THE KEY ENERGY S 15079 TERT SERVICES, LLC. - EUNICE STATE #1 WELL IN à 22 5 SECTION 15, TOWNSHIP 21 SOUTH, RANGE 37 Terry J. Aset N.M. R.P.L.S. No. 15079 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO ESSIONAL Asel Surveying Sheets 06/21/17 Sheet of Survey Date: W.O. Number: 170621MS KA Rev: Drawn By: P.O. BOX 393 - 310 W. TAYLOR HOBBS, NEW MEXICO - 575-393-9146 170621MS Scale:1"=1000 Date: 06/21/17





SURVEYORS CERTIFICATE

I, TERRY J. ASEL, NEW MEXICO PROFESSIONAL SURVEYOR NO. 15079, DO HEREBY CERTIFY THAT I CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND MEETS THE "MINIMIUM STANDARDS FOR SURVEYING IN NEW MEXICO" AS ADOPTED BY THE NEW MEXICO STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND SURVEYORS.

2017 122 cru Terry J. Asel N.M. R.P.L.S. No. 15079 Asel Surveying P.O. BOX 393 - 310 W. TAYLOR HOBBS, NEW MEXICO - 575-393-9146

BASIS OF ELEVATIONS: US C & GS BENCH MARK "L-98 1935" - CVO320 ELEV. = 3434.37

KEY ENERGY SERVICES, LLC.

ELEVATIONS FOR THE KEY ENERGY SERVICES, LLC. – EUNICE STATE #1 WELL IN SECTION 15, TOWNSHIP 21 SOUTH, RANGE 37 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO

Survey Date: 06/21/17	Sheet	2 o'	f 2	Sheets
W.O. Number: 170621MS	Drawn By	y: KA	Rev:	
Date: 06/21/17	1706211	MS	Scale:	1"=1000'

From:	Chavez, Carl J, EMNRD
Sent:	Tuesday, June 27, 2017 7:22 AM
То:	'Coligan, Maren'
Cc:	Griswold, Jim, EMNRD
Subject:	RE: BW-28 (Key Energy Services, L.L.C. State Brine Well #1 API# 30-025-33547) Q2 2017 Subsidence Monitoring Report

Maren:

Approved.

Thank you.

From: Coligan, Maren [mailto:mcoligan@keyenergy.com]

Sent: Monday, June 26, 2017 10:45 AM

To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>; Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>; Brown, Maxey G, EMNRD <MaxeyG.Brown@state.nm.us>

Cc: Houston, Ken <KHouston@keyenergy.com>; Ramirez, Ana O <aramirez01@keyenergy.com>; Environmental <Environmental@keyenergy.com>

Subject: RE: BW-28 (Key Energy Services, L.L.C. State Brine Well #1 API# 30-025-33547) Q2 2017 Subsidence Monitoring Report

Key proposes a semiannual schedule for subsidence monitoring at the State #1 Brine Well based on past monitoring data. Please let us know if the OCD approves of this schedule.

Thanks!

Maren Coligan | Key Energy Services | Environmental Director 1301 McKinney Street, Suite 1800, Houston, Texas 77010 o: 713.651.4825 | m: 281.979.4734 | mcoligan@keyenergy.com

From: Ramirez, Ana O
Sent: Friday, June 23, 2017 9:43 AM
To: Coligan, Maren <<u>mcoligan@keyenergy.com</u>>
Cc: Houston, Ken <<u>KHouston@keyenergy.com</u>>
Subject: FW: BW-28 (Key Energy Services, L.L.C. State Brine Well #1 API# 30-025-33547) Q2 2017 Subsidence Monitoring
Report

Maren,

After submitting the Q2 subsidence monitoring for the State S, I received the communication below where they asking us to propose a new schedule for the NM subsidence monitoring. Currently is quarterly so we can propose a semiannual schedule for evaluation approval.

Please let me know if you have further comments or questions,

Thanks,

Ana Ramirez | Key Energy Services | Environmental Specialist

Doing it the right way. theKeyWay. Every time.

From: Chavez, Carl J, EMNRD [

Sent: Friday, June 23, 2017 9:10 AM

To: Ramirez, Ana O <<u>aramirez01@keyenergy.com</u>>

Cc: Griswold, Jim, EMNRD <<u>Jim.Griswold@state.nm.us</u>>; Brown, Maxey G, EMNRD <<u>MaxeyG.Brown@state.nm.us</u>>; Brown, Maxey G, EMNRD <<u>MaxeyG.Brown@state.nm.us</u>>; Bubject: BW-28 (Key Energy Services, L.L.C. State Brine Well #1 API# 30-025-33547) Q2 2017 Subsidence Monitoring Report

Ms. Ramirez:

The New Mexico Oil Conservation Division (OCD) is in receipt of the above subject subsidence monitoring report.

Based on an evaluation of the report, OCD believes the historical data warrants a reduced survey frequency schedule.

Please propose a new schedule to OCD for evaluation and approval.

Thank you.

Mr. Carl J. Chavez, CHMM (#13099) New Mexico Oil Conservation Division Energy Minerals and Natural Resources Department 1220 South St Francis Drive Santa Fe, New Mexico 87505 Ph. (505) 476-3490 E-mail: <u>Carl J. Chavez@state.nm.us</u> "Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?" (To see how, go to: <u>http://www.emnrd.state.nm.us/OCD</u> and see "Publications")

From: Ramirez, Ana O [mailto:aramirez01@keyenergy.com]
Sent: Friday, June 23, 2017 7:27 AM
To: Chavez, Carl J, EMNRD <<u>CarlJ.Chavez@state.nm.us</u>>
Subject: State Brine Well # 1 Q2 2017 Subsidence monitoring report - Key Energy Services

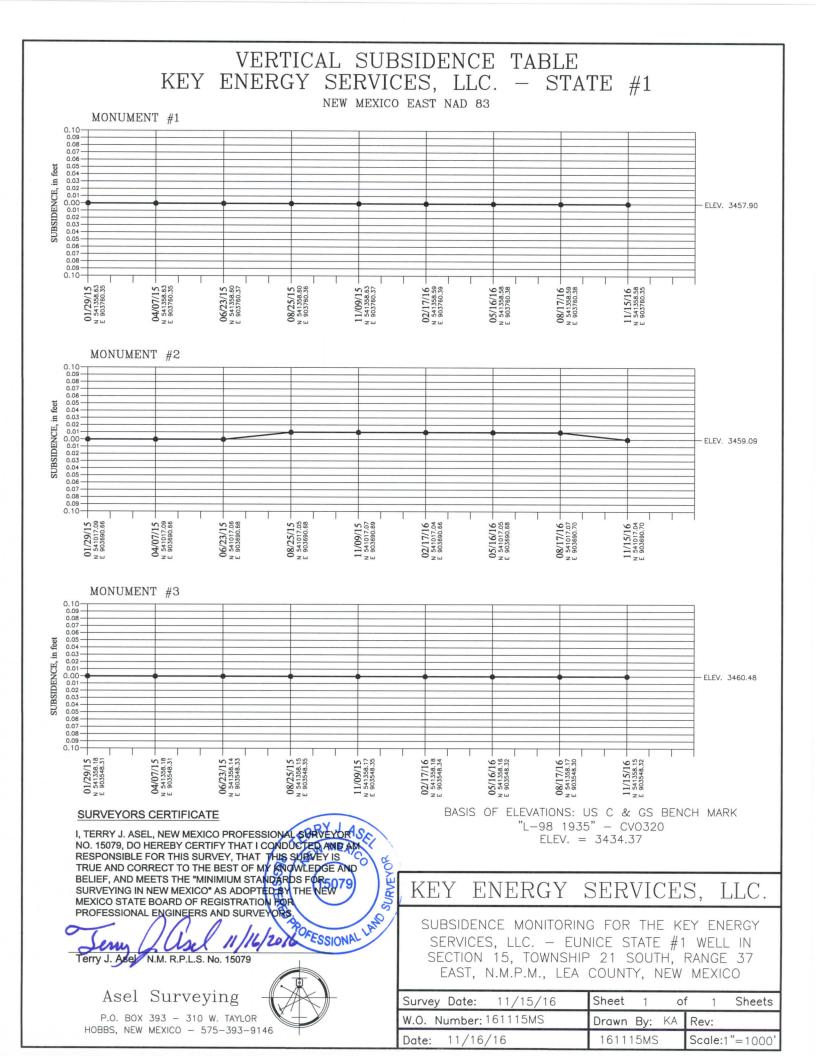
Good morning Mr. Chavez,

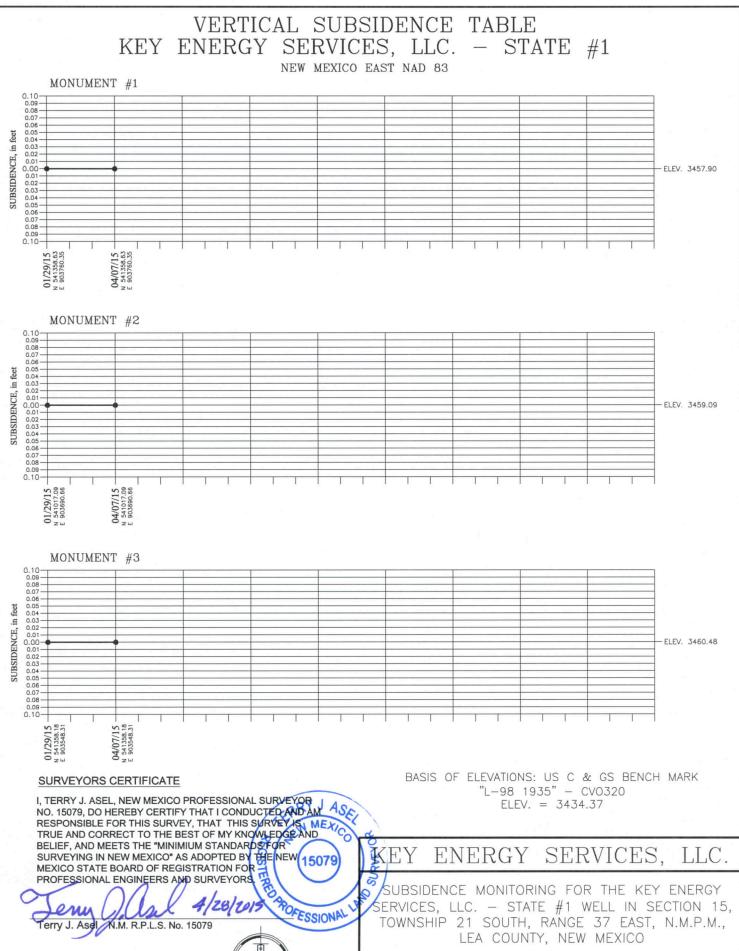
On behalf of Key Energy Services, I would like to submit the 2nd quarter 2017 subsidence monitoring report for the State # 1 Brine Station in Section 15, Township 21S, range 37e, NMPM, Lea County, New Mexico.

Feel free to contact me if you have further comments or questions,

Respectfully,

Ana Ramirez | Key Energy Services | Environmental Specialist 12400 W. Interstate 20 E. Odessa, TX 79765 o: 432.571.7203 | m: 432.234.6959 | <u>aramirez01@keyenergy.com</u>





Asel Surveying P.O. BOX 393 - 310 W. TAYLOR HOBBS, NEW MEXICO - 575-393-9146

Survey Date: 04/07/15	Sheet 1 o	f 1 Sheets
W.O. Number: 150129MS-b	Drawn By: KA	Rev:
Date: 04/28/15	150129MS-b	Scale:1"=1000'

Griswold, Jim, EMNRD

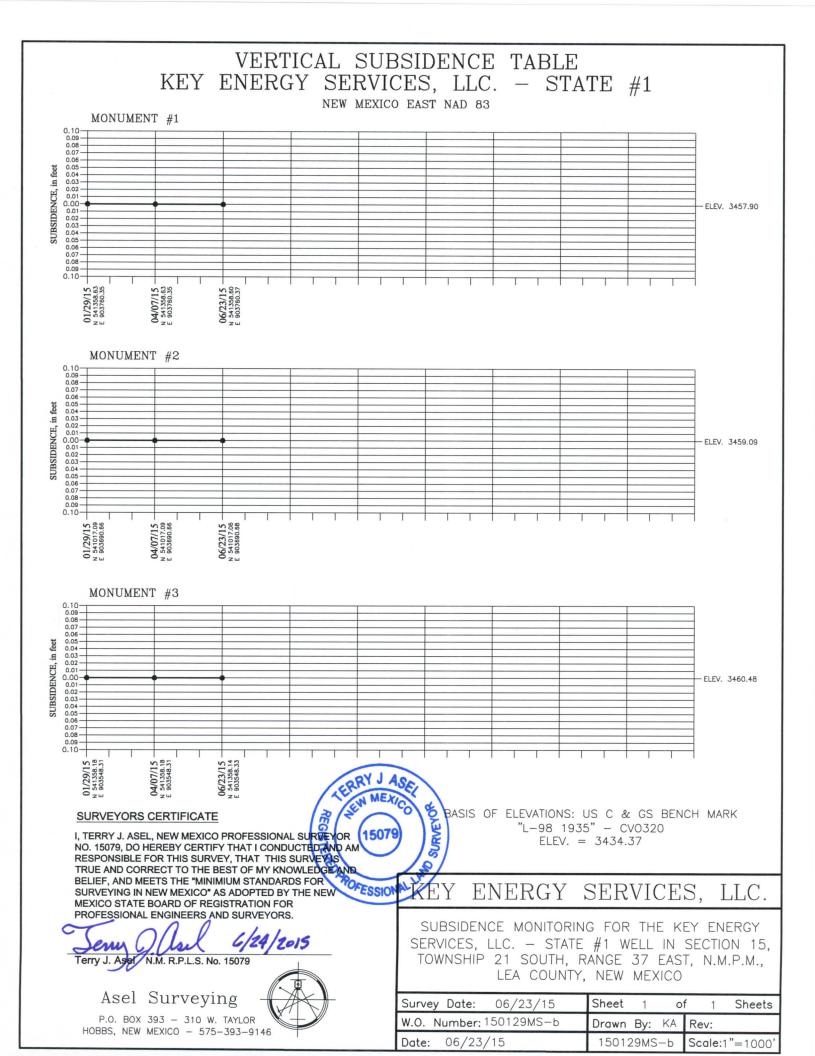
From:	Crenshaw, Desiree <dcrenshaw@keyenergy.com></dcrenshaw@keyenergy.com>
Sent:	Wednesday, June 24, 2015 1:51 PM
То:	Griswold, Jim, EMNRD
Cc:	Stauffer, Brad; Bach, Daniel
Attachments:	State #1 (Eunice) Vertical Subsidence Table 6-23-15.pdf

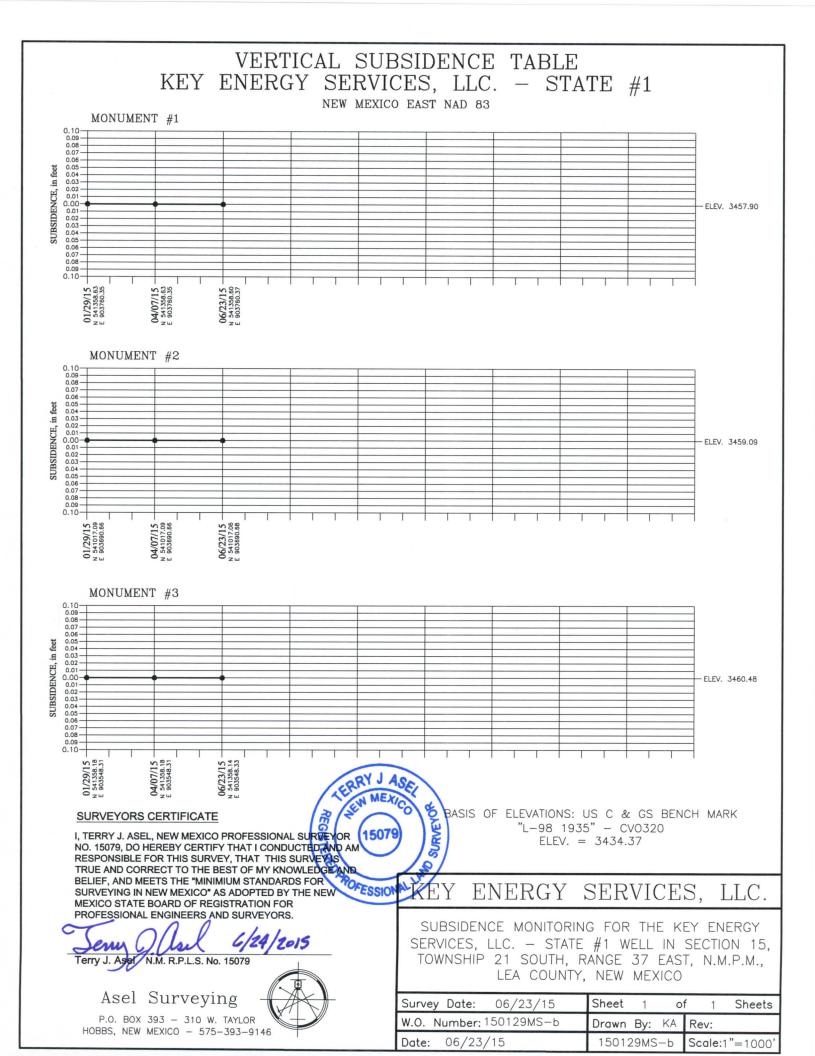
Jim –

Attached is the second quarter subsidence data for the Key Energy Services Eunice State # 1. The current readings show no movement. Please call me if you have any questions.

Thanks,

Desireé Crenshaw | Key Energy Services | Environmental Specialist 6 Desta Dr. Suite 4300 Midland, TX 79705 o: 432.488.2934 | m: 432.258.1044 | <u>dcrenshaw@keyenergy.com</u>





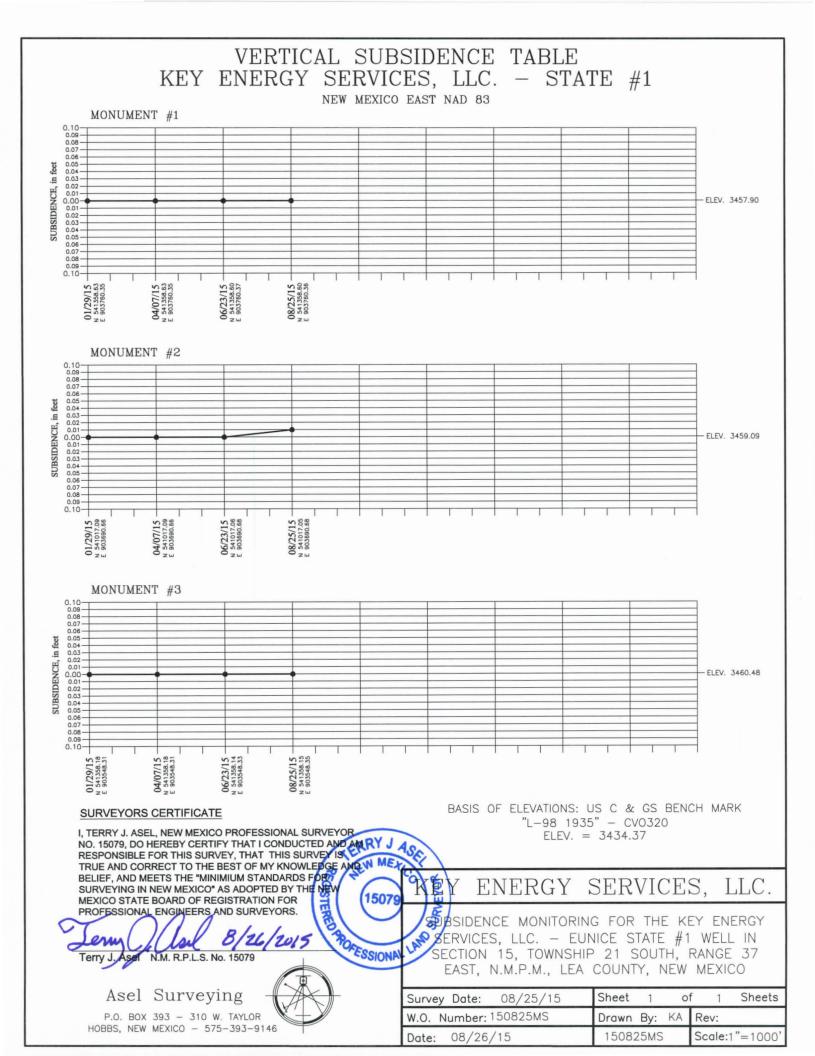
Griswold, Jim, EMNRD

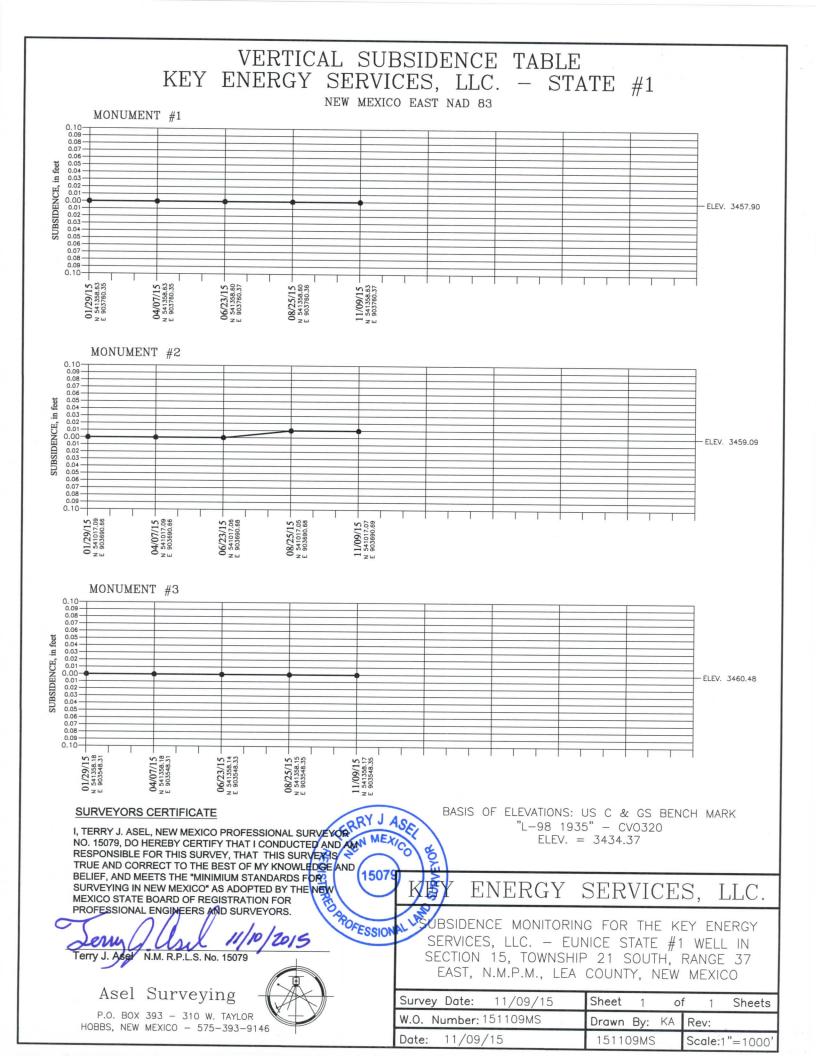
From:	Ramirez, Ana 0 <aramirez01@keyenergy.com></aramirez01@keyenergy.com>
Sent:	Thursday, October 15, 2015 8:52 AM
То:	Griswold, Jim, EMNRD
Subject:	Subsidence monitoring (Q3) State Brine Well # 1. NM
Attachments:	State #1 (Eunice) Vertical Subsidence Table 8-25-15.pdf

Good morning,

This is Ana Ramirez with the environmental department at Key Energy Services. Please find attached the third quarter Subsidence monitoring for Eunice State Brine Well #1 Well in Section 15, Township 21S, range 37e, NMPM, Lea County, New Mexico. Feel free to contact me if you have any comments or questions. Regards,

Ana Ramirez | Key Energy Services | Environmental Specialist 6 Desta Dr. Suite 4300 Midland, TX 79705 o: 432.571.7203 | m: 432.234.6959 | <u>aramirez01@keyenergy.com</u>





From:	Griswold, Jim, EMNRD
Sent:	Tuesday, August 23, 2016 8:06 AM
То:	Chavez, Carl J, EMNRD
Subject:	FW: State Brine Well # 1 Q3 2016 Subsidence monitoring report - Key Energy Services
Attachments:	State #1 (Eunice) Vertical Subsidence Table 8-17-16.pdf

Jim Griswold Environmental Bureau Chief EMNRD/Oil Conservation Division 1220 South St. Francis Drive Santa Fe, New Mexico 87505 505.476.3465 email: jim.griswold@state.nm.us

From: Ramirez, Ana 0 [mailto:aramirez01@keyenergy.com]
Sent: Monday, August 22, 2016 3:48 PM
To: Griswold, Jim, EMNRD
Subject: State Brine Well # 1 Q3 2016 Subsidence monitoring report - Key Energy Services

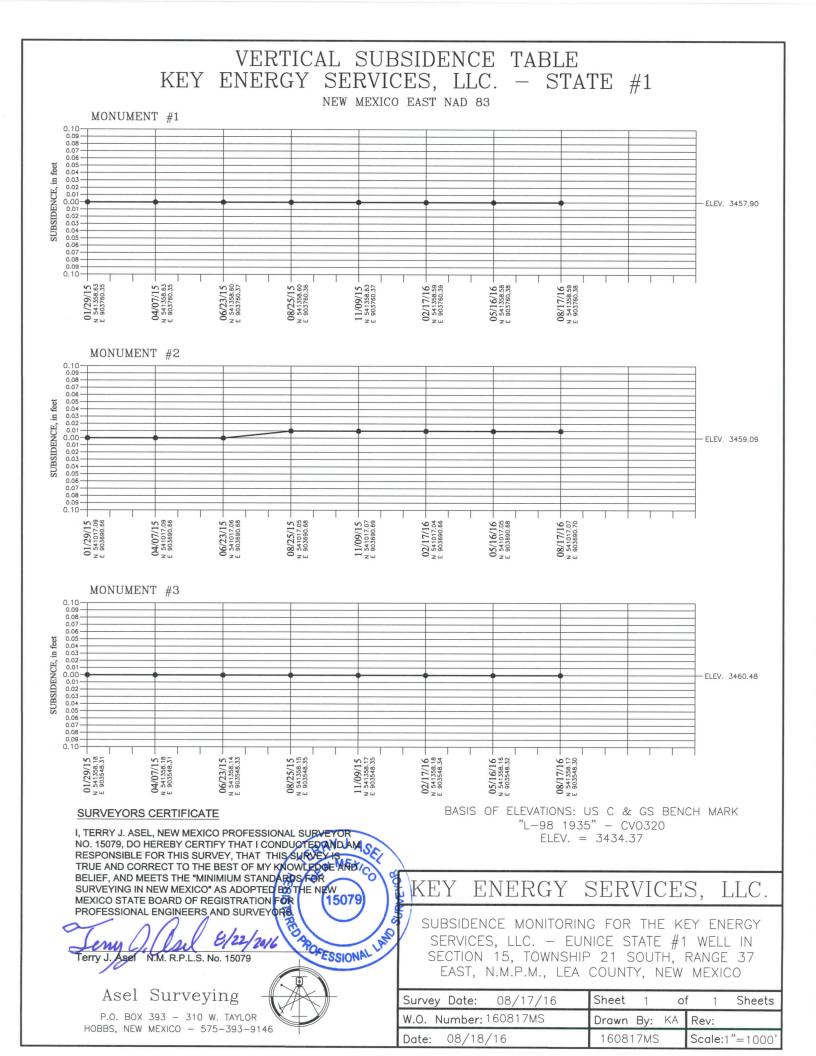
Good afternoon Mr. Griswold,

On behalf of Key Energy Services, I would like to submit the 3rd. quarter 2016 subsidence monitoring report for the State # 1 Brine Station in in Section 15, Township 21S, range 37e, NMPM, Lea County, New Mexico.

Feel free to contact me if you have further comments or questions,

Respectfully,

Ana Ramirez | Key Energy Services | Environmental Specialist 12400 W. Interstate 20 E. Odessa, TX 79765 o: 432.571.7203 | m: 432.234.6959 | <u>aramirez01@keyenergy.com</u>



From:	Griswold, Jim, EMNRD
Sent:	Tuesday, August 23, 2016 8:06 AM
То:	Chavez, Carl J, EMNRD
Subject:	FW: State Brine Well # 1 Q3 2016 Subsidence monitoring report - Key Energy Services
Attachments:	State #1 (Eunice) Vertical Subsidence Table 8-17-16.pdf

Jim Griswold Environmental Bureau Chief EMNRD/Oil Conservation Division 1220 South St. Francis Drive Santa Fe, New Mexico 87505 505.476.3465 email: jim.griswold@state.nm.us

From: Ramirez, Ana 0 [mailto:aramirez01@keyenergy.com]
Sent: Monday, August 22, 2016 3:48 PM
To: Griswold, Jim, EMNRD
Subject: State Brine Well # 1 Q3 2016 Subsidence monitoring report - Key Energy Services

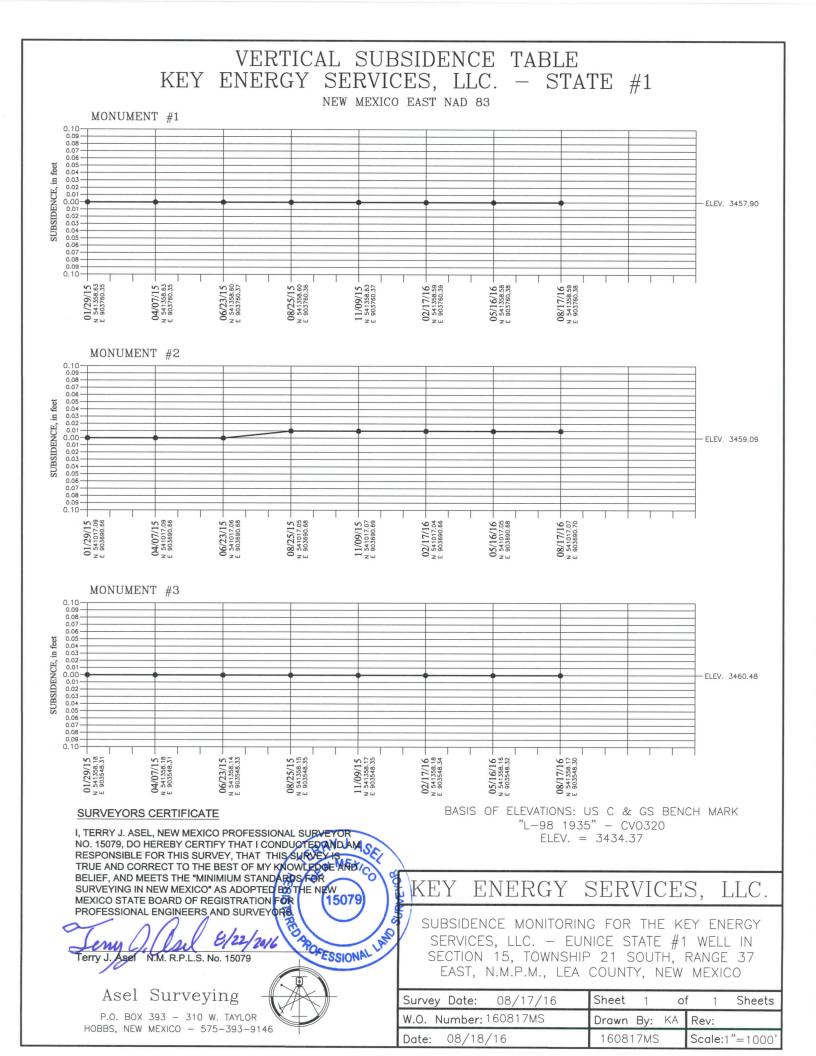
Good afternoon Mr. Griswold,

On behalf of Key Energy Services, I would like to submit the 3rd. quarter 2016 subsidence monitoring report for the State # 1 Brine Station in in Section 15, Township 21S, range 37e, NMPM, Lea County, New Mexico.

Feel free to contact me if you have further comments or questions,

Respectfully,

Ana Ramirez | Key Energy Services | Environmental Specialist 12400 W. Interstate 20 E. Odessa, TX 79765 o: 432.571.7203 | m: 432.234.6959 | <u>aramirez01@keyenergy.com</u>



From:	Griswold, Jim, EMNRD
Sent:	Tuesday, August 23, 2016 8:06 AM
То:	Chavez, Carl J, EMNRD
Subject:	FW: State Brine Well # 1 Q3 2016 Subsidence monitoring report - Key Energy Services
Attachments:	State #1 (Eunice) Vertical Subsidence Table 8-17-16.pdf

Jim Griswold Environmental Bureau Chief EMNRD/Oil Conservation Division 1220 South St. Francis Drive Santa Fe, New Mexico 87505 505.476.3465 email: jim.griswold@state.nm.us

From: Ramirez, Ana 0 [mailto:aramirez01@keyenergy.com]
Sent: Monday, August 22, 2016 3:48 PM
To: Griswold, Jim, EMNRD
Subject: State Brine Well # 1 Q3 2016 Subsidence monitoring report - Key Energy Services

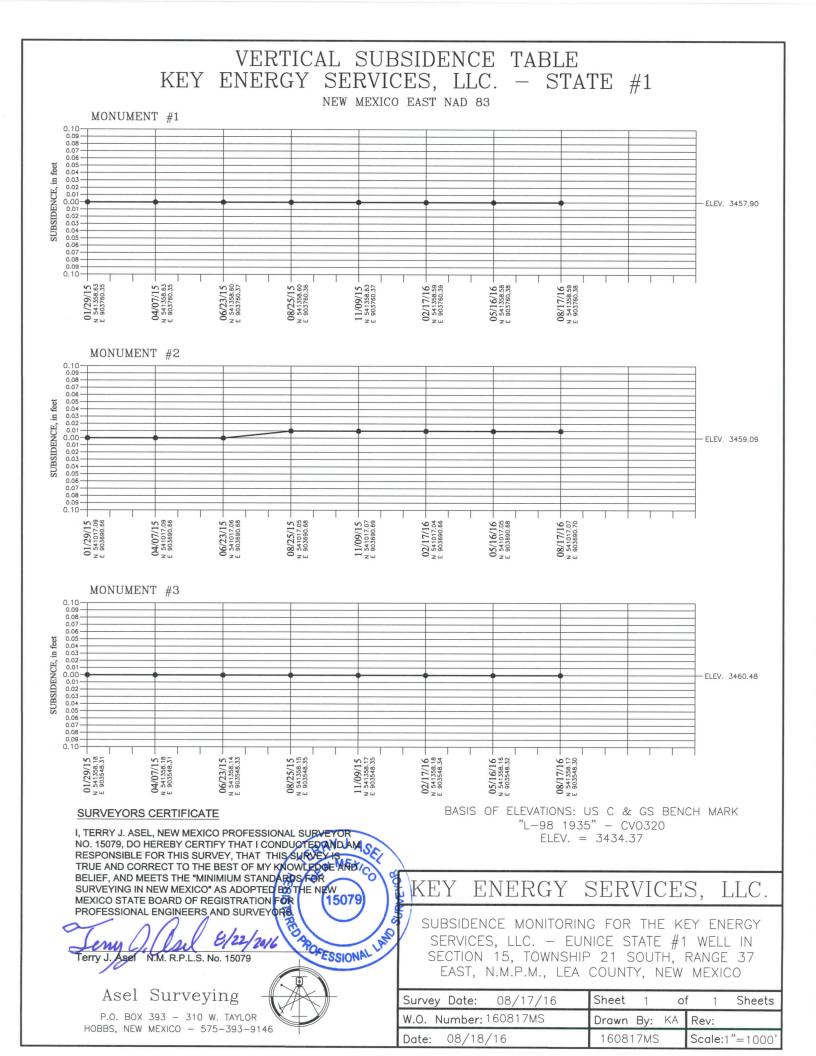
Good afternoon Mr. Griswold,

On behalf of Key Energy Services, I would like to submit the 3rd. quarter 2016 subsidence monitoring report for the State # 1 Brine Station in in Section 15, Township 21S, range 37e, NMPM, Lea County, New Mexico.

Feel free to contact me if you have further comments or questions,

Respectfully,

Ana Ramirez | Key Energy Services | Environmental Specialist 12400 W. Interstate 20 E. Odessa, TX 79765 o: 432.571.7203 | m: 432.234.6959 | <u>aramirez01@keyenergy.com</u>



From:	Griswold, Jim, EMNRD
Sent:	Monday, June 20, 2016 3:17 PM
То:	Chavez, Carl J, EMNRD
Subject:	FW: Key Energy Services - State Brine Well # 1 - Subsidence monitoring 2nd Quarter
	2016
Attachments:	Subsidence Monitoring Eunice State #1 5-16-16.pdf

Jim Griswold Environmental Bureau Chief EMNRD/Oil Conservation Division 1220 South St. Francis Drive Santa Fe, New Mexico 87505 505.476.3465 email: jim.griswold@state.nm.us

From: Ramirez, Ana 0 [mailto:aramirez01@keyenergy.com]
Sent: Tuesday, May 17, 2016 4:07 PM
To: Griswold, Jim, EMNRD
Subject: Key Energy Services - State Brine Well # 1 - Subsidence monitoring 2nd Quarter 2016

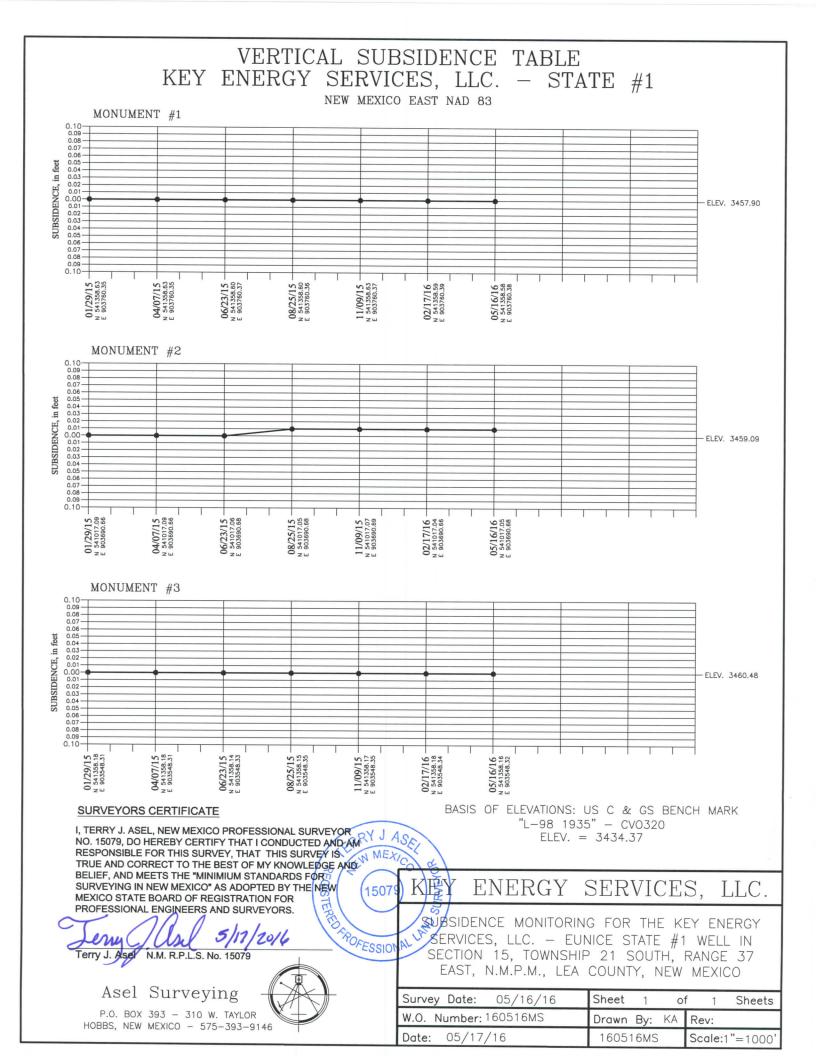
Mr. Griswold,

Please find attached the 2nd quarter 2016 Subsidence monitoring survey for Key Energy Services, LLC – State Brine Well # 1 in Section 15, Township 21 South, Range 37 east, NMPM, Lea County, New Mexico. Permit No. BW-28.

Please feel free to contact me if you have further comments or questions,

Regards,

Ana Ramirez | Key Energy Services | Environmental Specialist 6 Desta Dr. Suite 4300 Midland, TX 79705 o: 432.571.7203 | m: 432.234.6959 | <u>aramirez01@keyenergy.com</u>



From:	Chavez, Carl J, EMNRD
Sent:	Friday, November 14, 2008 4:38 PM
То:	'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: <u>Carl J. Chavez@state.nm.us</u> Website: <u>http://www.emnrd.state.nm.us/ocd/index.htm</u> (Pollution Prevention Guidance is under "Publications")



Bill Richardson Governor

Joanna Prukop Cabinet Secretary Reese Fullerton Deputy Cabinet Secretary Mark Fesmire Division Director Oil Conservation Division



November 14, 2008

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.

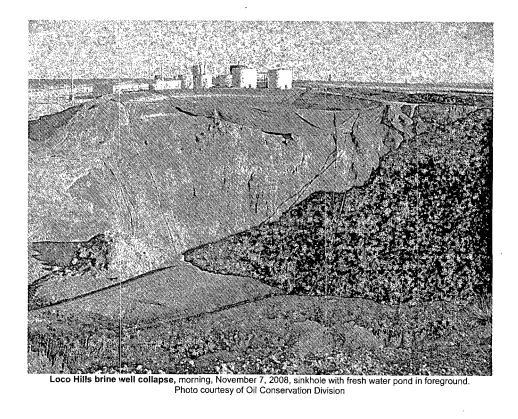
"I am deeply concerned by these two serious incidents and we are taking action to ensure the safety of our citizens and to protect the environment," stated Secretary Prukop.

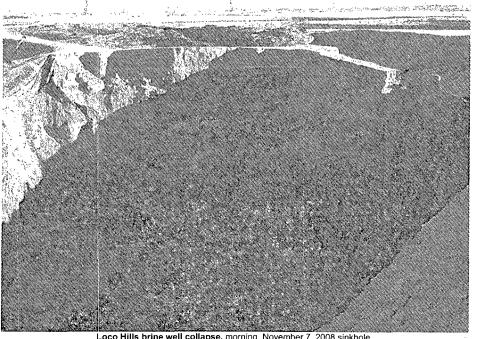
Brine wells are an essential part of the oil and gas drilling industry, particularly in the southeastern part of the state. Oil and gas operators use brine water in the drilling process. Brine is saturated salt water which can be more salty than sea water. Brine is created by injecting fresh water into 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.

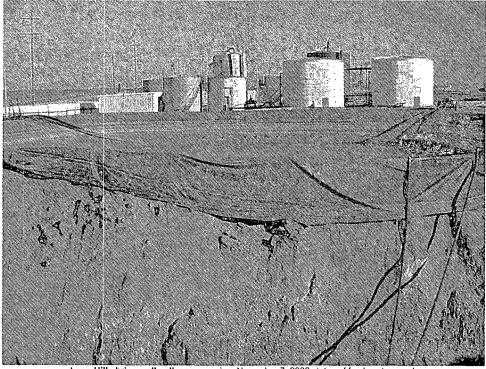
The moratorium will only affect new wells and will not impact existing wells and facilities.

Below are photographs of the two recent collapses:

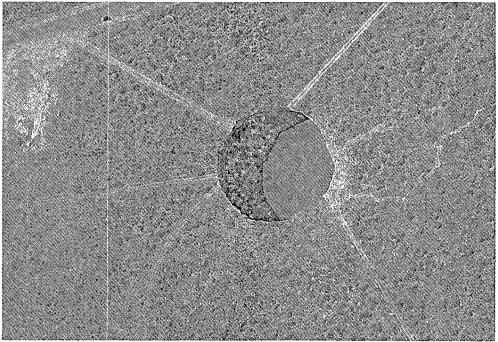




Loco Hills brine well collapse, morning, November 7, 2008 sinkhole. Photo courtesy of Oil Conservation Division

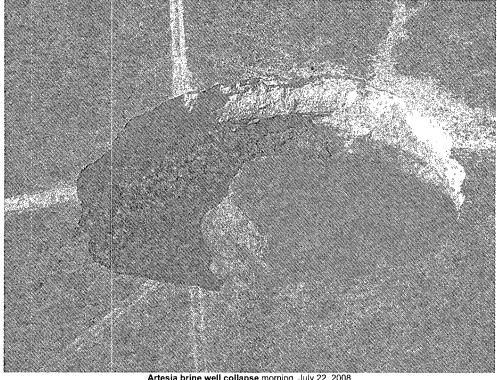


Loco Hills brine well collapse, morning, November 7, 2008 status of fresh water pond. Photo courtesy of Oil Conservation Division



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

November 14, 2008 Page 4



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 • <u>www.emnrd.state.nm.us/OCD</u>

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: <u>CarlJ.Chavez@state.nm.us</u> Website: <u>http://www.emnrd.state.nm.us/ocd/</u>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



OIL CONSERVATION DIVISION BRINE WELL INFORMATION REQUEST

GENERAL INFORMATION:
Operator Name Key Energy Services Well Name(s) State S API Number <u>30 025 33547</u> Brine Well Permit # 028 Date Permit Expires? September 2012
API Number <u>30 025 3 3547</u> Brine Well Permit # <u>028</u>
Date Permit Expires? September 2012
Location: Section <u>15</u> Ts <u>215</u> Rg <u>37E</u>
FNL <u>1340'</u> FSLFELFWL <u>3.30'</u>
GPS of well(s): Lat: Long:
Location:Section 15 Ts 215 Rg $37E$ FNL $1340'$ FSLFELFWL $330'$ GPS of well(s):Lat:Long: $32^{\circ} 29' 0.25''$ $103^{\circ} 09' 30.8''$
Have you reviewed and understand all of your permit conditions? Yes Mo
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
Do you think you have the expertise, knowledge and general understanding of what causes a
brine well to collapse? Yes Not
Do you think OCD should provide guidelines on subsidence and collapse issues? Yes
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 hearest permanent structure, nouse, senoor, etc. (j iess than one mate.
More than I mile
Distance and direction to nearest water well if less than one mile:
More Han 1 mile
Distance to nearest watercourse(s), floodplain, playa lake(s), or man-made canal(s) or pond(s)
if less than one mile:
NA
Distance and direction to nearest known karst features or mines if less than one mile:
NA



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Distance and direction to nearest producing oil or gas well(s) if less than one mile:
Provide API Number: 300'E
Provide API Number: 300'E <u>Cheuron USA States #1 API 30 025 06586</u> Distance and direction to nearest tank battery(ies) <i>if less than one mile:</i>
East. 2 mile
Distance and direction to nearest pipeline(s), including fresh water pipelines if less than one
mile:
mile: <u>City of Eunice Water line Jeo' West</u> Distance and direction to nearest paved or maintained road or railroad <i>if less than one mile</i> :
250' West Depth to ground water found above the Salado (salt section), regardless of yield:
Approv 100' Name of aquifer(s):
Alluvium WELL CONSTRUCTION: Please provide the following information and attach a
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 \square $\mu a + \beta \nu a$
Depth of the top of the salt below ground surface (feet):
1390'
Depth to the bottom of the salt below ground surface (feet):
2445'
Depth(s) to and thickness(es) of any anhydrite section(s) (located above the salt):
1262' to 1390' 128' Depth of casing(s) shoe below ground surface (feet): 1344'
Depth of casing(s) shoe below ground surface (feet): 1344'
Is the casing shoe set in the anhydrite or other layer above the salt? Yes \mathbf{I} No \Box
Is the casing shoe set into the salt? Yes Now far into the salt?
Depth of tubing(s):
2074
Do you suspect that your cavern has partially caved in? Yes Not Don't know
OPERATIONS: Please provide the following information.
Start date of brine well operation:
10-4-1996
Total volume of fresh water injected into the brine well to date (bbls) and how determined:
Estimated 3,000,000 bbls

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Total volume of brine water produced (bbls) to date and how determined: From 1996 - 2001 Not Available

From July 2001 to September 2008 2,057,329 bbb 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 Notice

MONITORING: *Please provide the following information.*

Are you currently monitoring ground water contamination from your brine well or system? Yes Not Visually

Have you ever run a sonar log? Yes□ No**I** If yes, please provide last date:

Provide cavern configuration (dimensions and volume) and method(s) used to estimate: If sonar report please attach \Box If other, please specify and provide a sketch of cavern: \Box Data Not Available

Do you have a subsidence monitoring program in place? Yes Vol

Visual

Do you have any geophysical monitoring devices, such as a seismic device positioned near your brine well? Yes \Box No $\not\vdash$

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

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

Have you ever had a casing leak? Yes 🗆 Nol

Have you ever had a cavern leak? Yes □ No⊥ Don't know D

Have you ever exceeded the cavern fracture pressure? Yes 🗆 Note Don't know 🗆

Do you know how to calculate your maximum pressure? Yes P-No Don't know

Have you routinely looked for cracks or fissures in the ground surface around your brine well? Yes IV NoL

Do you have any minor or major cracks, fissures, tank settlement, line breakage from settlement or any minor subsidence. Yes \Box Nol

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 Note-

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Have you ever experienced unexpected pressure gain or loss in the cavern?Yes \Box NotIf Yes, was there a difference in your normal flow rate?Yes \Box Not

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 \Box No \Box

Are you concerned about pulling the tubing due to the fact it may be difficult to re-enter the hole? Yes \Box Not

Are you concerned about running a sonar tool in fear of losing tool because of debris in hole? Yes \Box Not

Have you ever conducted a fly over of your well site? No $V Yes \square$ if yes, please provide photo.

 \Box *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 $18,000,000/180,000 = 100 \times 50 = 5000$.

Bosed on incomplete data

- 1. Provide the calculated number above here: 571.48
- 2. Now provide the depth (ft) from the surface to your casing shoe: <u>1344</u>

Is the calculated number found in #1 above greater than #2? Yes \square No \square

Comments or recommendations for OCD:

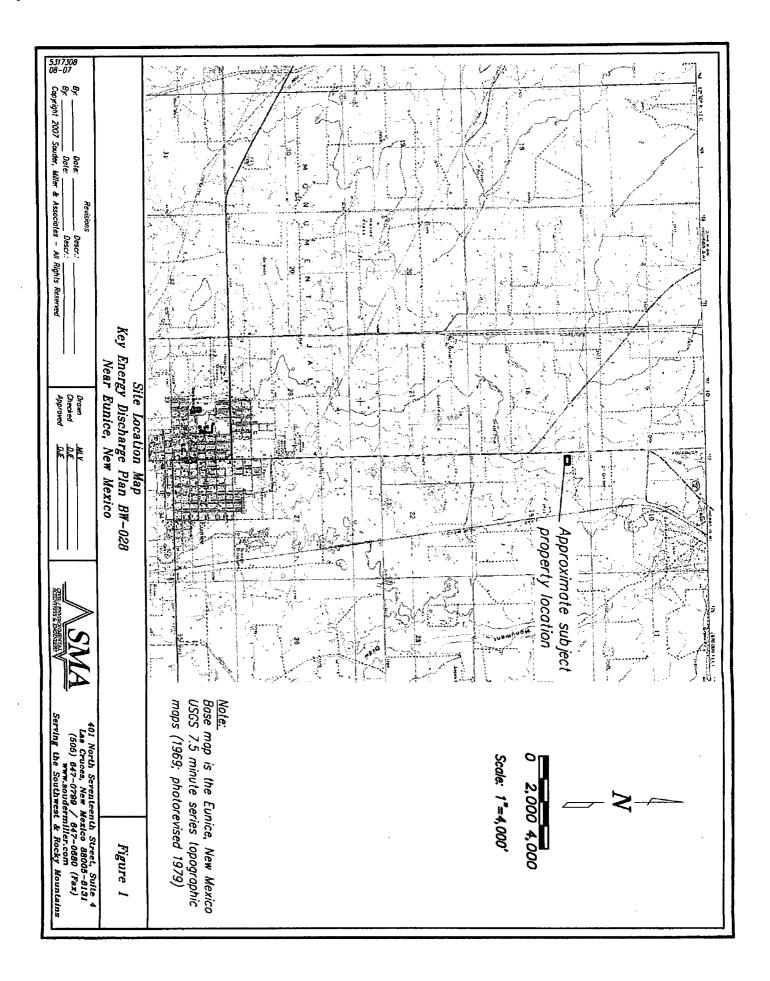
"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information. I believe that the information is true, accurate, 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

Company Representative- Signature

Title Area Manggor Date: 11-6-8



Submit 3 Copies to Appropriate District Office	to Appropriate Energy, ? rais and Natural Resources Department			
DISTRICT I P.O. Box 1980, Hobba, NM 88240 DISTRICT II	OIL CONSERVATIO 2040 Pacheco Santa Fe, M		WELL API NO. 30-025-33547	
P.O. Drawer DD, Artesia, NM 88210	Santa re, M	1 67505	5. Indicate Type of Lease STATE X FEE	
DISTRICT III 1000 Rio Brazos Rd., Azzoc, NM 87410			6. State Oil & Gas Lease No. MS 0004	
	ICES AND REPORTS ON WEL			
DIFFERENT RESEI (FORM C	DPOSALS TO DRILL OR TO DEEPEN RVOIR. USE "APPLICATION FOR PEI -101) FOR SUCH PROPOSALS.)		7. Lease Name or Unit Agreement Name State	
1. Type of Well: OL GAS WELL WELL	oner Brine			
2. Name of Operator	0		8. Well No.	
Gold Star SWD Ltd 3. Address of Operator Box 1480 Eunice,			9. Pool name or Wildcat BSW-Salado	
4. Well Location				
Unit Letter :134	0 Feet From The <u>N</u>	Line and330	Feet From The Line	
Section 15	Township 21S Ra	age 37E 1	NMPM Lea County	
	10. Elevation (Show whether DF 3469	DF, RKB, RT, GR, etc.)		
11. Check	Appropriate Box to Indicate 1	Nature of Notice, Re	port, or Other Data	
NOTICE OF INT	TENTION TO:	SUB:	SEQUENT REPORT OF:	
		REMEDIAL WORK		
	CHANGE PLANS			
PULL OR ALTER CASING		CASING TEST AND CE	MENT JOB	
OTHER:		OTHER:		

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

9-28-96	Spudded 4 Pm. Derrick Floor 11'. Drilled 12 1/4" hole.
9-29-96	TD 1360' at 4:30 Pm. Ran 1344' <u>8 5/8''</u> new 32# J55 casing, Float collar
	and Float Shoe, 5 Centralizers. Cement with 500 sx class C Premium W/
	4% Gel Mix and 300 sx class C Premium W/2% Calcium Chloride.
9-29-96	Circulated 236 sx cement to pit.
9-30-96	Pump cement plug down 12:30 AM.
10-1-96	WOC 18 Hr. 7:30 PM. Start drilling 7 7/8" hole.
10-2-96	TD 2200' at 6:00 AM.
10-3-96	Move rig. Run 2074' <u>2 7/8'</u> Fiberglass tubing.

I hereby certify that the information above us true and complete to the best of my knowledge and belief.	mber DATE 10-4-96
TYPEOR FRONT NAME ROYCE CYOUSEIL	<u>телерноме но. 39425</u> с
(This space for State Une) CARPOINTED SUBJECT 2 DIT UP WAY SEXTON CLICKING A CLICK AND DOR	00T 1 1 1996
APPROVED BY TITLE	DATE
CONDITIONS OF AFFRICAL IF ANY:	

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30. List Attachments 31. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief	Flow Tubing Press.	Casing Pressure		24- Oil - Bb	L	Gas - N	ICF	Wate	r - Bbl	Oil Grav	nty - AP	- (Corr.)
31. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief	29. Dispósition of Gas	(Sold, used for fuel, v	vented, etc.)	<u>l</u>					Test V	Vitnessed By		
31. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief Signature Longe Contract Name Loge (Vowel) Title May Minder Date 10-4	30. List Attachments		· . · · · · · · · · · · · · · · · · · ·						_ _		(
Signature Loye Crowell Name Loyee (vowel) Title Mar. Minber Date 10-4	11 / handhe gameite of	at the information	shows on host -	dee of this form	n is true	and come	ete to th	e best n	me law	ledge and he	lief	-77-
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INSTRUCTIONS

This form is to be filed with the appropriate District Office of the Division not later than 20 days after the completion of any newly-dri or deepened well.- It shall be accompanied by one copy of all electrical and radio-activity logs run on the well and a summary of all spe tests conducted, including drill stem tests. All depths reported shall be measured depths. In the case of directionally drilled wells, vertical depths shall also be reported. For multiple completions, Items 25 through 29 shall be reported for each zone. The form is t filed in quintuplicate except on state land, where six copies are required. See Rule 1105.

INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STAT

Southeastern New Mexico

Northwestern New Mexico

T. Anhy	T. Canyon	T. Ojo Alamo	T. Penn. "B"
T. Salt	T. Strawn	T. Kirtland-Fruitland	T. Penn. "C"
B. Salt	T. Atoka	T. Pictured Cliffs	T. Penn. "D"
T. Yates	T. Miss	T. Cliff House	T. Leadville
T. 7 Rivers		T. Menefee	T. Madison
T. Queen	T. Silurian	T. Point Lookout	T. Elbert
T. Grayburg	T. Montoya	T. Mancos	T. McCracken
T. San Andres	T. Simpson		T. Ignacio Otzte
T. Glorieta	T. McKee	Base Greenhorn	T. Granite
T. Paddock	T. Ellenburger	T. Dakota	T
T. Blinebry	T. Gr. Wash	T. Morrison	T
T. Tubb	T. Delaware Sand	T. Todilto	T
T. Drinkard	T. Bone Springs	T. Entrada	T
T. Abo	T	T. Wingate	
T. Wolfcamp	T	T. Chinle	T
T. Penn	T	T. Permain	Т.
T. Cisco (Bough C)		T. Penn "A"	T

OIL OR GAS SANDS OR ZONES

No. 1, from	No. 3, from	to
No. 2, from	No. 4, from	
	VATER SANDS	

Include data on rate of water inflow and elevation to which water rose in hole.

No. No. No.

1,	from	to	 feet
2	from	.to	 feet
3,	from	.to	feet

LITHOLOGY RECORD (Attach additional sheet if necessary)

From	То	Thj ckness in Feet	Lithology	From	To	Thickness in Feet	Lithology
1262	95 1262 1390 2200	95 1167 128 810	Caliche and Sand Red Bed Anhydrite Salt and Anhydrite		- 		
					erceit erceit	e ^{ri} . s	·
			·		00		
•						-	

Submit 3 Copies 10 Appropriste District Office		ew Mexico aral Resources Department	Form C-103 Revised 1-1-89
DISTRICT I P.O. Box 1980, Hobbs, NM 88240	2040 Pach		WELL API NO. 30-025-33547
DISTRICT II P.O. Drawer DD, Anesia, NM 88210	Santa Fe,	NM 87505	5. Indicate Type of Lease STATE Y FEE
DISTRICT III 1000 Rio Brazos Rd., Aztec, NM 87410			6. State Oil & Gas Lease No. MS-0004
(DO NOT USE THIS FORM FOR PF DIFFERENT RESE	TICES AND REPORTS OF ROPOSALS TO DRILL OF TO D ROVOIR. USE "APPLICATION F C-101) FOR SUCH PROPOSAL	EEPEN OR PLUG BACK TO A	7. Lesse Name or Unit Agreement Name
I. Type of Well: OE GAS WELL WELL] OTHER	BRINE	STATE
2 Name of Operator GOLD STAR SWD L	го. co.		8. Well No. 1
Address of Operator			9. Poot name or Wildcat
BOX 1480 EUNIC	<u>E NM 88231</u>		BSW-SALADO
Unit Letter : 134	0 Feet From TheN.	Line and330	Feet From The Line
Section 15	Township 21 S.	Range 37 E.	NMPM LEA COUNTY
		whether DF, RKB, RT, GR, etc.)	
	TENTION TO:	licate Nature of Notice, R	SEQUENT REPORT OF:
	TENTION TO.	500	
	PLUG AND ABANDON		ALTERING CASING
	CHANGE PLANS		
ULL OR ALTER CASING		CASING TEST AND C	
THER:			
work) SEE RULE 1103. 03-17-00 F 03-18-00 F 03-19-00 F 03-20-00 F 03-21-00 F	PULL TUB. LOST 140' RUN 7 1/2 OD CUT RIT RUN SHOE TO 1361' RUN 6 3/4 BIT TI 13 DRILL TO 1405'	2 7/8 FG. TUB. TE SHOE TO 1357'	uding estimated date of starting any proposed
03-22-00 s	SHUTDOWN DRILL TO 1419."		
	DROP TUB AND FISHED		:
03-25-00 1	RUN 1402' 2 7/8 F.G.	TUB. RIGDOWN.	
:			
hereby certify that the information above is	The and complete to the best of my know	Principe and bolief.	
I hareby certify that the information above to a story of the story of		wiedge and belief.	DATE \$ -2.21 - CT

TYPE OR FRONT NAME	Stref(vo CYI	well -	TELEPHONE NO. 394
(This space for State Use)				······································
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APPROVED BY		Cirk.	- mie	 DATE
	۷.	- i - i - i - i - i - i - i - i - i - i		

CONDITIONS OF APPROVAL, IF ANY:

to Appropriate District Office	Energy, 1 Trais and Natural R	sources Department	Form C-103 Revised 1-1-89
DISTRICT I P.O. Box 1980, Hobbs, NM 88240	OIL CONSERVATIO		WELL API NO. 30-025-33547
DISTRICT II P.O. Drawer DD, Anesia, NM 88210	Santa Fe, N	M 87505	5. Indicate Type of Lease
DISTRICT III 000 Rio Brazos Rd., Aziec, NM 87410			6. State Oil & Gas Lease No. MS-0004
(DO NOT USE THIS FORM FOR P DIFFERENT RES (FORM	TICES AND REPORTS ON WE ROPOSALS TO DRILL OR TO DEEPEN ERVOIR. USE "APPLICATION FOR PE C-101) FOR SUCH PROPOSALS.)	OR PLUG BACK TO A	7. Lease Name or Unit Agreement Name
Type of Well: OL GAS WELL WELL	BR	INE	STATE
. Name of Operator GOLD STAR SWD I	.TTD. CO.		8. Well No.
Address of Operator		······································	9. Pool name or Wildcat
BOX 1480 EUNIC	<u>E NM 88231</u>		BSW-SALADO
Unit Letter : <u>134</u>	10 Feet From TheN.	Line and330) Feet From The Lin
Section 15		ange 37 E.	NMPM LEA County
	10. Elevation (Show whether	DF, RKB. RT, GR, etc.)	
	Appropriate Box to Indicate NTENTION TO: PLUG AND ABANDON CHANGE PLANS		BSEQUENT REPORT OF:
		CASING TEST AND C	
THER:	erations (Clearly state all pertinent details, o	OTHER:	EMENT JOB
12. Describe Proposed or Completed Opwork) SEE RULE 1103. 04-10-00 \$\$\0arrow\$4-11-00 04-12-00	PULL TUB. LOST 82' TUE TRIED TO FISH TUB. RU MILL TO 1349' RUN BIT DRILL TO 1439'	OTHER: nd give pertinent dates, incl N 6 1/8 CUT RIT & COLLARS	uding estimated date of starting any proposed
THER: 12. Describe Proposed or Completed Opwork) SEE RULE 1103. 04-10-00 04-11-00 04-12-00 04-13-00 04-14-00 :	PULL TUB. LOST 82' TUE TRIED TO FISH TUB. RU MILL TO 1349' RUN BIT DRILL TO 1439' RUN 1410' 2 7/8 FG TU RIGDOWN	OTHER: nd give pertinent dates, incl N 6 1/8 CUT RIT & COLLARS B.	uding estimated date of starting any proposed
THER:	PULL TUB. LOST 82' TUE TRIED TO FISH TUB. RU MILL TO 1349' RUN BIT DRILL TO 1439' RUN 1410' 2 7/8 FG TU	OTHER: nd give pertinent dates, incl N 6 1/8 CUT RIT & COLLARS B.	uding estimated date of starting any proposed
12. Describe Proposed or Completed Opwork) SEE RULE 1103. 04-10-00 04-11-00 04-12-00 04-13-00 04-14-00 : : I hereby certify that the information above to more y	PULL TUB. LOST 82' TUE TRIED TO FISH TUB. RU MILL TO 1349' RUN BIT DRILL TO 1439' RUN 1410' 2 7/8 FG TU RIGDOWN	OTHER: nd give pertinent dates, incl N 6 1/8 CUT RIT & COLLARS B.	uding estimated date of starting any proposed
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Submit 3 Copies	State of New Me Energy, Proventies and Natural Re		-	Form C-103
to Appropriate District Office		aouces Department	· •	Revised 1-1-89
<u>DISTRICT 1</u> P.O. Box 1980, Hobbs, NM 88240	OIL CONSERVATIO 2040 Pacheco		WELL API NO. 30-025-33547	
DISTRICT II P.O. Drawer DD, Artesia, NM 88210	Santa Fe, N	M 87505	S. Indicate Type of Lease	
DISTRICT III 1000 Rio Brazos Rd., Aziec, NM 8741	0		6. State Oil & Gas Lesse MS-0004	No.
SUNDRY NO	OTICES AND REPORTS ON WE	15	······································	
(DO NOT USE THIS FORM FOR DIFFERENT RE	PROPOSALS TO DRILL OR TO DEEPEN SERVOIR. USE "APPLICATION FOR PE M C-101) FOR SUCH PROPOSALS.)	OR PLUG BACK TO A	7. Lease Name or Unit A	greement Name
1. Type of Well: OIL GAS	סוז	INE	1	
WELL WELL WELL	OTHER DR		STATE	
GOLD STAR SWD	LTD. CO.		8. Weii No. 1	
3. Address of Operator			9. Pool name or Wildcat	
BOX 1480 EUNI	<u>CE NM 88231</u>		BSW-SALADO	
	540 Feet From TheN.	Line and330	Feet From The	W. Line
Section 15	Township 21 S. R	ange 37 E.	NMPM LEA	County
	10. Elevation (Show whether	DF, RKB. RT, GR, etc.)		
	ck Appropriate Box to Indicate	Nature of Notice R	eport or Other Dat	
	INTENTION TO:		SEQUENT REP(
		REMEDIAL WORK	<u> </u>	
			_ _	
PULL OR ALTER CASING	. د س	CASING TEST AND C		— ¬
OTHER:		OTHER:		
12. Describe Proposed or Completed C work) SEE RULE 1103.	Operations (Clearly state all pertinent details, a	und give pertinent dates, inclu	iding estimated date of start	ng алу proposed
	0. PULL TUB: PARTED 21 JT 0 FISHED TUB: AND PULLED. AND REPLACED WITH: 2 7,	CHANGE OUT FIE		GDOWN
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TYPE OR FRENT NAME	The Lordeniel			ELEPHONE NO. 774-25
(This space for State Use)	:		alistic is a	:
APTROVED BY	T	TRE	······································	DATE

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- DATE

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AFTROVED	BY

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CONDITIONS OF AFTROVAL, P ANY:

4 3 Copies	State of New Me. Energy, 1 and Natural Re			Form C-103 Revised 1-1-89		
JISTRICT 1 P.O. Box 1980, Hobbs, NM 88240	OIL CONSERVATIO		WELL API NO.			
DISTRICT II	2040 Pacheco S Santa Fe, NM	5t. 1 87505	30-025-3354	\$7		
P.O. Drawer DD, Artesia, NM 88210	Santa re, Mr	0/202	5. Indicate Type of I			
DISTRICT III 1000 Rio Brazos Rd., Azzec, NM 87410			6. State Oil & Gas L MS-0004			
(DO NOT USE THIS FORM FOR PRO DIFFERENT RESER (FORM C	ICES AND REPORTS ON WEL DPOSALS TO DRILL OR TO DEEPEN RVOIR. USE "APPLICATION FOR PER -101) FOR SUCH PROPOSALS.)	OR PLUG BACK TO A	7. Lease Name or Un	nit Agreement Name		
1. Type of Well: OIL QAS WELL WELL						
2 Name of Operator	OTHER BRINE		STATE			
GOLD STAR SWD LTD. C	Ŋ.		8. Well No. 1			
3. Address of Operator			9. Pool name or Wildcat			
BOX 1480 EUNICE NM.	88231		BSW- SALAI	00		
	E Feet From The N.	Line and 33) Feet From T	he <u>W.</u> Line		
Section 15	Township 21 S. Rat	nge 37 E.	NMPM	LEA. County		
	10. Elevation (Show whether I	DF, RKB, RT, GR, etc.)				
	American Deuto Indiana N	Journe of Nation D		//////////////////////////////////////		
II. Check NOTICE OF IN	Appropriate Box to Indicate N TENTION TO:		SEQUENT RE			
		REMEDIAL WORK	XA			
	MPORARILY ABANDON CHANGE PLANS COMMENCE DRILLING OPNS. PLUG AND ABANDONMENT					
PULL OR ALTER CASING						
OTHER:		OTHER:	. <u></u>			
12. Describe Proposed or Completed Oper- work) SEE RULE 1103.	nicons (Clearly state all pertinent details, an	d give pertinent dates, inclu	iding estimated date of s	larring any proposed		
RUN SINKER B 7-7-98 RIG UP REVER PULLED BIT, 7-8-98 RUN NEW 7 5/ 7-9-98 RUN 6 1/8 SH 7-10-98 RUN 6 1/8 B	NG UNIT, PULLED TUBING, AR TO 1366 FT S UNIT, RUN USED 7 5/8. BIT NO GOOD. 8 BIT. TIGHT PLACE AT 1: OE AND DRILLED TO 1371 I IT AND DRILLED TO 1475 I . OF 2 7/8 FIBER GLASS 7	BIT TO 1362 FT 329 FT. DRILLED FT FT	FROM 1353 TO			
5	e and complete to the best of my knowledge and	belief. MGR ,		7-25-98		
TYPE OR PRINT NAME R.E. CROW (This space for State Use)	• /	LE		DATE		

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

New Mexico Energy, Minerals and Natural Resources Department

Bill Richardson

Joanna Prukop Cabinet Secretary Reese Fullerton Deputy Cabinet Secretary Mark Fesmire Division Director Oil Conservation Division



July 23, 2008

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.

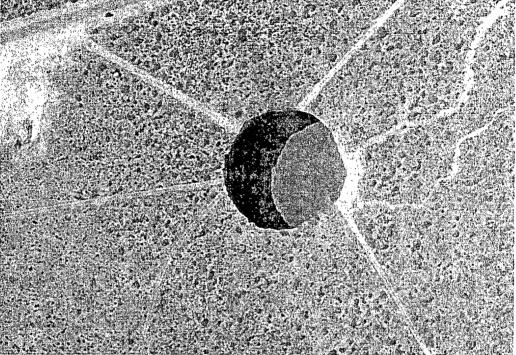
Scientists from the Oil Conservation Division, the Bureau of Land Management, State Land Office, the New Mexico

1

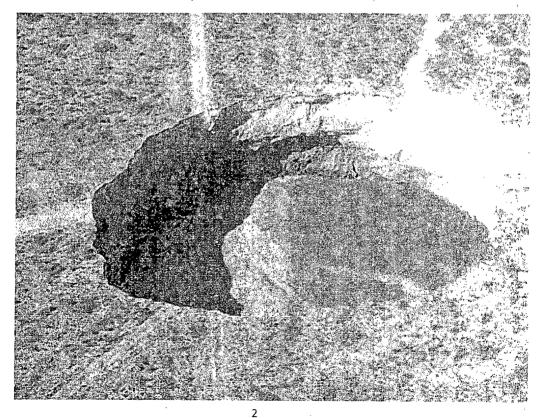
Bureau of Geology and Mineral Resources, and the National Cave & Karst Research Institute are all working together to assess horizontal and vertical movements to project any future subsidence. Work on a protective fence and keep-out signage began yesterday with completion expected on Friday.

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 INFORM	MATION:		<u>·</u>					
Operator Name	perator Name Well Name(s)							
API Number Brine Well Permit #								
Date Permit Expires?								
Location: Section	Ts		Rg					
FNL	FSL	FEL		FWL	_			
Location: Section FNL GPS of well(s): Lat:	Long	ξ:						
Have you reviewed an	d understand all of vo	our permit o	conditions	Yes 🗆 No 🗆				
Are you presently defi		•			t know 🗋			
Do you operate below	•	• •						
Do all tanks, including	U I			ment? Yes⊟ No	<u>-</u> Т			
			•					
Do you think you have the expertise, knowledge and general understanding of what causes a brine well to collapse? Yes \square No \square								
Do you think OCD sho		es on subsi	dence and	collanse issues?	Yes No			
	suid provide guideling	55 011 54051	dence and	contapse issues.	1030 1100			
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 \Box No \Box								
	a manopul							
Distance and direction	to nearest permanent	structure,	house, sch	ool, etc. if less the	an one mile:			
Distance and direction	to nearest water well	if loss that	n 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 kar	st features	or mines if	less than one mil	le:			
			· J					



Oil Conservation Division August 1, 2008 Page 2

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 \Box Attached

Copy of formation record with tops: Copy of geophysical well logs if available: Attached \Box If not, well logs within one mile \Box 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 \Box No \Box Is the casing shoe set into the salt? Yes \Box No \Box 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:

Oil Conservation Division August 1, 2008 Page 3

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 \Box

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 \Box No \Box

MONITORING: *Please provide the following information.*

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

Have you ever run a sonar log? Yes \Box No \Box *If yes*, please provide last date:_____

Provide cavern configuration (dimensions and volume) and method(s) used to estimate: If sonar report please attach \Box If other, please specify and provide a sketch of cavern: \Box

Do you have a subsidence monitoring program in place? Yes \Box No \Box

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

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

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

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 \Box No \Box

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

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 Oil Conservation Division August 1, 2008 Page 4

Have you ever experienced unexpected pressure gain or loss in the cavern?YesNoIf Yes, was there a difference in your normal flow rate?YesNo

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 \Box No \Box

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

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

Have you ever conducted a fly over of your well site? No \Box Yes \Box if yes, please provide photo.

 \Box *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:

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 \square No \square

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: <u>CarlJ.Chavez@state.nm.us</u> Website: <u>http://www.emrrd.state.nm.us/ocd/</u>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

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July 23, 2008

Contact: Jodi McGinnis Porter, Public Information Officer 505.476.3226

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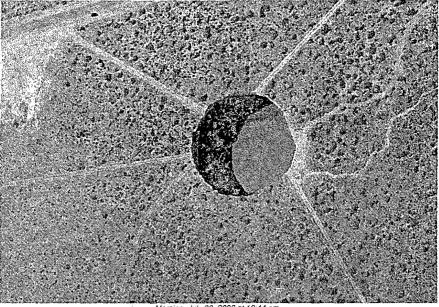
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Morning, July 20, 2008 at 10:44 am. burtesy of National Cave and Karst Research Institute



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

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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 • <u>www.emnrd.state.nm.us/OCD</u>



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 Fax: (505) 476-3220 Cell: (505) 690-1689 E-mail: j<u>odi.porter@state.nm.us</u> Website: <u>www.emnrd.state.nm.us</u>