

**BW - \_\_\_\_\_ 28 \_\_\_\_\_**

**MECHANICAL  
INTEGRITY TEST  
(MITs)**

Submit 1 Copy To Appropriate District Office  
 District I - (575) 393-6161  
 1625 N. French Dr., Hobbs, NM 88240  
 District II - (575) 748-1283  
 811 S. First St., Artesia, NM 88210  
 District III - (505) 334-6178  
 1000 Rio Brazos Rd., Aztec, NM 87410  
 District IV - (505) 476-3460  
 1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
 Energy, Minerals and Natural Resources

Form C-103  
 Revised July 18, 2013

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

SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE 'APPLICATION FOR PERMIT' (FORM C-101) FOR SUCH PROPOSALS.)		WELL API NO. 30-025-33547
1. Type of Well: Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/>		5. Indicate Type of Lease STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/>
2. Name of Operator Key Energy Services, LLC.		6. State Oil & Gas Lease No. 28411
3. Address of Operator 1301 McKinney St., Ste. 1800, Houston, TX. 77010		7. Lease Name or Unit Agreement Name State S
4. Well Location Unit Letter <u>E</u> : <u>1340</u> feet from the <u>North</u> line and <u>330</u> feet from the <u>West</u> line Section <u>15</u> Township <u>215</u> Range <u>37E</u> NMPM County <u>Lea</u>		8. Well Number <u>001</u>
11. Elevation (Show whether DR, RKB, RT, GR, etc.) GL Elevation 3458		9. OGRID Number
		10. Pool name or Wildcat

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

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK <input type="checkbox"/>	PLUG AND ABANDON <input type="checkbox"/>	REMEDIAL WORK <input checked="" type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
TEMPORARILY ABANDON <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	COMMENCE DRILLING OPNS. <input type="checkbox"/>	P AND A <input type="checkbox"/>
PULL OR ALTER CASING <input type="checkbox"/>	MULTIPLE COMPL <input type="checkbox"/>	CASING/CEMENT JOB <input type="checkbox"/>	
DOWNHOLE COMMINGLE <input type="checkbox"/>			
CLOSED-LOOP SYSTEM <input type="checkbox"/>			
OTHER: <input type="checkbox"/>		OTHER: Casing MIT <input checked="" type="checkbox"/>	

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

OCD requested formation test, Key began to pressure up cavern on or about November 28, of 2016. Pressure would not exceed 280 psi on casing. 12/2 OCD Fortner indicated cavern lost pressure overnight 280 psi to 240 psi. Failed Test. 12/15/16 OCD orders well to be shut-in and a Casing MIT test to be run. 12/19 Key rigs up to run Casing MIT. OCD requires packer to be set within 50' of shoe. Key encountered downhole issues, had to RUPW and drill out. Passed test on 12/27 520 pig on chart. Chart attached. Key has typical issues re-entering an older well and completed on 12/29/16 with tubing and bit set at approximately 1649'. Put well back on production.

Attachments: Workover log, pressure test chart and OCD communication.

Spud Date:

12/19/16

Rig Release Date:

12/29/16

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

SIGNATURE

*Ken Houston*

TITLE VP QHSE

DATE

Type or print name

KEN HOUSTON

E-mail address: *khouston@keyenergy.com*

PHONE:

For State Use Only

APPROVED BY:

*Andy Chong*

TITLE Environmental Engineer

DATE

4/4/2017

Conditions of Approval (if any):





**Chavez, Carl J, EMNRD**

---

**From:** Chavez, Carl J, EMNRD  
**Sent:** Wednesday, February 15, 2017 7:28 AM  
**To:** 'Wayne Price'  
**Subject:** RE: Key Brine Well

Wayne:

Yes, Key is in compliance. The charts should be behind recent C-103 Forms in the well file. Sometimes the records clerk is behind schedule in entering information. If you can't find the chart for BW-28, contact Lupe Sherman at (505) 476-3461.

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

**From:** Wayne Price [mailto:wayneprice77@earthlink.net]  
**Sent:** Tuesday, February 14, 2017 5:59 PM  
**To:** Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>  
**Cc:** Wayne Price <wayneprice77@earthlink.net>  
**Subject:** Re: Key Brine Well

Carl thanks for the precise documentation. I was looking in the well file and didn't see the chart, I will look again in both well file and permit file?

Thanks.

So, bottom line, they are Ok to produce brine, is that correct?

> On Feb 14, 2017, at 5:23 PM, Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us> wrote:

>

> Wayne:

>

> According to my notes:

>

> BW-28 (Key Energy Services, L.L.C. State Well #1 API# 30-025-33547):

>

> o Carl on 11/30 contacted Teresa Boone regarding the status of the MIT.

>

> o Carl on 12/1 responded to Maxey and Mark's call regarding lack of pressure buildup for cavern MIT. Since Monday, the Op. has been filling mature cavern with P on Weds. at 210 psi and on Thurs. 280 psi, but not building anymore today. Op. could have fractured cavern today? OCD Hobbs will see tomorrow if the pressure decreased overnight. If the MIT fails (+/- 1%), reschedule the MIT in 2 wks. to allow cavern to heal and reduce pressure to 250 psi. for test to see what happens. The MIT will likely be conducted on 12/2.

>

> o Carl on 12/2 received a call from Maxey B at ~8:45 am informing him that Mr. Kerry Fortner (OCD Hobbs) at (575) 399-3221 was on location for Cavern MIT and the well bled off pressure overnight from ~290 to 240 psi for start of MIT. Carl indicated to Kerry that the cavern fractured Thurs. at ~280 psi when pressure

stopped building. OCD needs to reschedule on a cavern MIT when the salt fracture heals. Waylon Jackson (Key) at (832) 846-2089 or e-mail: jjackson05@keyenergy.com called ~ 9 a.m., Key will run the MIT at 240 psi for their own knowledge, and reschedule the MIT. Since their std. operating pressure does not exceed 150 psi (well below OCD's MSIP or new recent calculation of 323 psi (w/o factor of safety)), OCD allowed Key to continue operating. Kerry agreed with the approach. It appears that the salt cavern fractures at ~ 280 psi.

>

> o Carl, Jim and Maxey communicated on 12/15 about the MIT schedule. Jim after discussion of the situation with Director Catanach, indicated the Director ordered the well to be shut-in immediately. Jim communicated to Key via telephone on same day that Key is to shut-in the brine well immediately and that he is to be e-mailed today that the well has been shut-in. Ken Houston (Key) at 713-757-5512 or E-mail: KHouston@keyenergy.com w/ copy to Jackson, Jerry <jjackson05@keyenergy.com>; Coligan, Maren <mcoligan@keyenergy.com>; Aqueron, Rene <raqueron@keyenergy.com> confirmed via e-mail on same date at 15:48 that the well was shut-in. Also, no water is being injected and no brine produced from the cavern. Key will resume contact with the area OCD office to provide notice prior to performing the casing MIT. Carl updated the admin. record.

>

> o Carl, Jim, Daniel and Phil responded to Mark Whitaker's (Hobbs DO) phone call at 15:35 regarding packer setting > than 100 ft. to casing shoe. Jim wants Key to get within 50 ft. of shoe because Rustler may contain fresh water or call back.

>

> o Carl received a phone msg. on 12/30 at 13:13 from Waylon Jackson (Key Energy Services) at 832-846-2089. He indicated in his phone msg. that the well had passed the casing MIT. Carl on 1/3 verified thru RBDMS that the Casing MIT was witnessed by Kerry Fortner and passed on 12/27/16. Director Catanach instructed Carl to allow the brine well to resume operations, but OCD was still assessing the pressure up problem from 12/2, and may require additional info./testing. Carl sent the communique to K Houston, J Jackson, and T Boone via e-mail with copy to OCD Hobbs. Carl updated the admin. record.

>

> o Carl on 1/10 received the C-103, original chart, and calibration sheet for the casing MIT completed on 12/27/16 from the operator. Carl checked with Jim on the final approval signature and any COAs based on circumstances associated with OCD's MIT requirements for the well. Jim called Mark Whitaker, Jim and Mark want a COA requiring an official Cavern MIT (pursuant to the Casing MIT pass on 12/27/16) for 4 hrs. with Chart (500 lb. Spring) to max test pressure of 200 psi, calibrated chart recorder (within past 90 days), calibrations sheet. Carl issued paperwork to Jerry Jackson of Key Energy Services, LLC on the same day. Carl updated the admin. record.

>

> o Carl on 2/7 received and reviewed the Cavern MIT performed on 2/2/17. The MIT passed at 223 psi start and end pressure. Carl signed C-103 Form approval and scanned chart with calibration sheet into the admin. record.

>

> Thank you.

>

> -----Original Message-----

> From: Wayne Price [mailto:wayneprice77@earthlink.net]

> Sent: Tuesday, February 14, 2017 9:01 AM

> To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>

> Cc: Wayne Price <wayneprice77@earthlink.net>

> Subject: Key Brine Well

>

> Hi Carl,

>

> I am doing the Key annual report, can you ell me the status of the well MIT?

>  
>  
> Wayne Price-Price LLC  
> wayneprice77@earthlink.net  
> 505-715-2809  
>

Wayne Price-Price LLC  
wayneprice77@earthlink.net  
505-715-2809

Submit 1 Copy To Appropriate District Office  
 District I - (575) 393-6161  
 1625 N. French Dr., Hobbs, NM 88240  
 District II - (575) 748-1283  
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State of New Mexico  
 Energy, Minerals and Natural Resources

Form C-103  
 Revised July 18, 2013

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

WELL API NO. <b>30-025-33547</b>
5. Indicate Type of Lease STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/>
6. State Oil & Gas Lease No. <b>28411</b>
7. Lease Name or Unit Agreement Name <b>State 5</b>
8. Well Number <b>001</b>
9. OGRID Number
10. Pool name or Wildcat
11. Elevation (Show whether DR, RKB, RT, GR, etc.) <b>GL Elevation 3458</b>

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

1. Type of Well: Oil Well  Gas Well  Other

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

3. Address of Operator  
**6-Desta Dr. Ste 4300 Midland, TX 79705**

4. Well Location  
 Unit Letter **E** : **1340** feet from the **North** line and **330** feet from the **West** line  
 Section **15** Township **21S** Range **37E** NMPM County **LEA**

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

<b>NOTICE OF INTENTION TO:</b>		<b>SUBSEQUENT REPORT OF:</b>	
PERFORM REMEDIAL WORK <input type="checkbox"/>	PLUG AND ABANDON <input type="checkbox"/>	REMEDIAL WORK <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
TEMPORARILY ABANDON <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	COMMENCE DRILLING OPNS. <input type="checkbox"/>	P AND A <input type="checkbox"/>
PULL OR ALTER CASING <input type="checkbox"/>	MULTIPLE COMPL <input type="checkbox"/>	CASING/CEMENT JOB <input type="checkbox"/>	
DOWNHOLE COMMINGLE <input type="checkbox"/>			
CLOSED-LOOP SYSTEM <input type="checkbox"/>			
OTHER: <input type="checkbox"/>		OTHER: <b>Cavein MIT</b>	<input checked="" type="checkbox"/>
		<b>OLD Condition of Approval</b>	<input checked="" type="checkbox"/>

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Spud Date:  Rig Release Date:

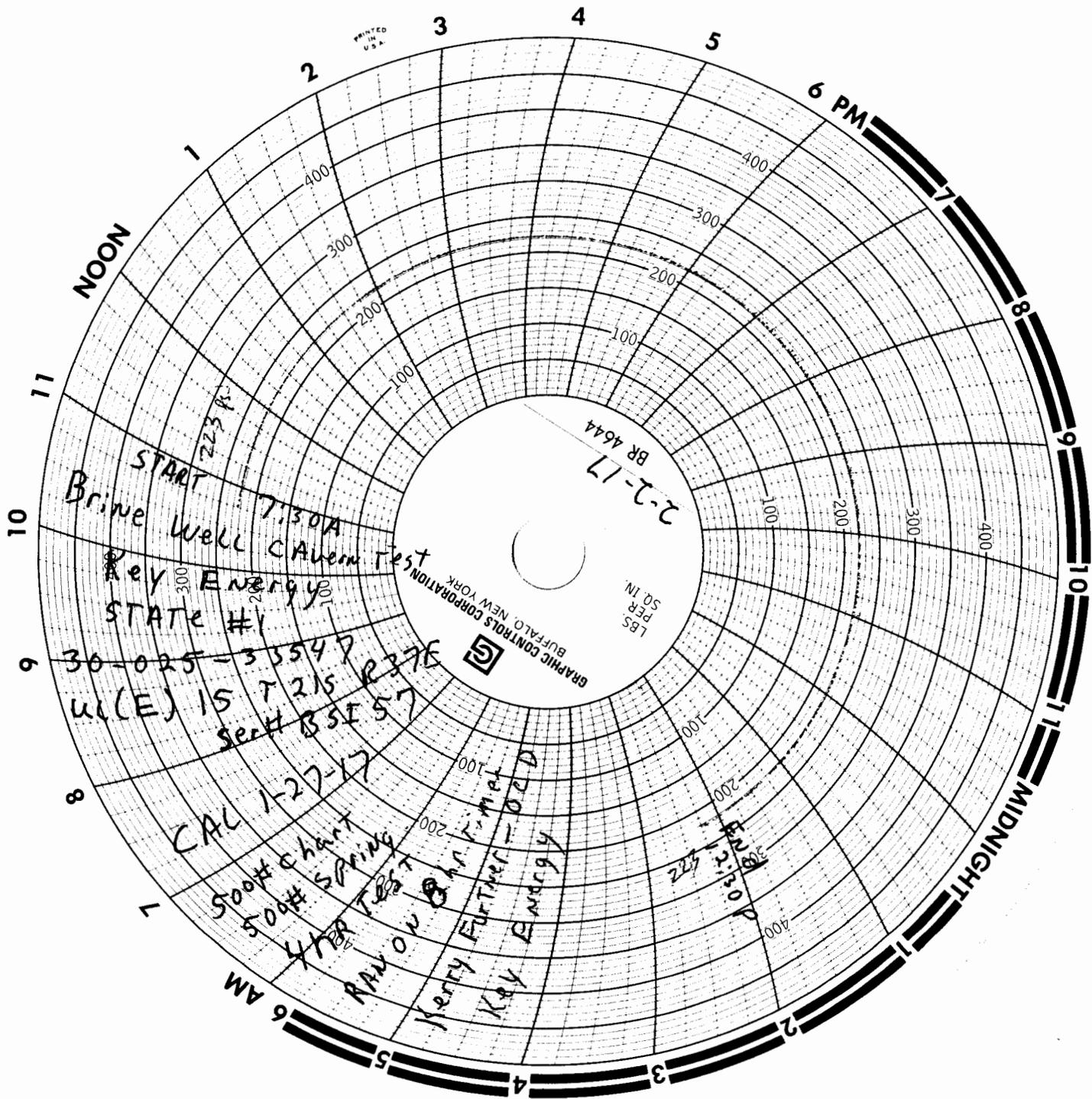
I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE *Jerry Waylon Jackson* TITLE Pro. Serv. Sup. DATE 2.3.17  
 Type or print name Jerry Waylon Jackson E-mail address: jjackson05@keyenergy.com PHONE: (806) 637-3507  
**For State Use Only**

APPROVED BY: *Corey J. Wherry* TITLE Environmental Engineer DATE 2/7/2017  
 Conditions of Approval (if any):

2017 FEB -6 PM 2:01

PRINTED IN U.S.A.



START 7:30 A  
 Brine Well CAVERN Test  
 Key Energy  
 STATE #1  
 30-025-35547  
 U(E) IS 7215 P37E  
 Sect# BSI 57

GRAPHIC CONTROLS CORPORATION  
 BUFFALO, NEW YORK

LBS PER SQ. IN.

2-2-17  
 BR 4644

CAL 1-27-17  
 500# chart  
 500# spring

Key Energy  
 Merry Further - 02D

7:30 P  
 225

6 AM

MIDNIGHT

## OCD Condition of Approval

Mr. Houston, et al.:

OCD hereby requires that Key Energy Services, LLC (Key) conduct within 30-days of receipt of this Form, a *Cavern MIT with pressure* up to at least 200 psig for at least 4 hrs. recorded on a *calibrated chart* (within past 90 days) recorder with not greater than a 500 lb. spring. The start of the MIT shall be witnessed by OCD Hobb Field Staff. The intent of this test is to verify that the cavern has healed or whether there may be an external MIT problem with the well.

You may contact Mr. Mark A. Whitaker at the OCD Hobbs District Office at (575) 393-6161 Ext. #120 or Cell at (575) 399-3202.

Please acknowledge receipt of this message and provide Key's schedule for completing the above.

OCD appreciates Key's cooperation in this matter.

Please contact Mark A. Whitaker if you have questions. Thank you.



**Big Spring Instrument, Inc.**

5409 N. Service Road  
Big Spring, TX 79720  
(432) 267-7185

CALIBRATION REPORT

Type Instrument: 2024 MARTON SINGLE PEN  
 Manufacturer: MARTON  
 Model Number: BSI #57  
 Serial Number: 371448  
 Measurement Range: 0-500 PSI COMPASS CLOCK  
 Equipment Used: PRESSURE TRANSDUCER

Measured Variable In Percent

	0%	25%	50%	75%	100%
Flow (Indicated)					
Flow (Corrected)					
Pressure (Indicated)	0	200	400	470	500/2
Pressure (Corrected)	100	150	350	400	500
Temperature (Indicated)					
Temperature (Corrected)					

Inspected By: [Signature] Date: 1-22-17 Recall Date: 2-0-17

REMARKS:

[Signature]

Submit 1 Copy To Appropriate District Office  
 District I - (575) 393-6161  
 1625 N. Franch Dr., Hobbs, NM 88240  
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 1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
 Energy, Minerals and Natural Resources  
 OIL CONSERVATION DIVISION  
 1220 South St. Francis Dr.  
 Santa Fe, NM 87505

Form C-103  
 Revised July 18, 2013

WELL API NO. <u>30-025-33547</u>
5. Indicate Type of Lease STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/>
6. State Oil & Gas Lease No. <u>28411</u>
7. Lease Name or Unit Agreement Name <u>State S</u>
8. Well Number <u>001</u>
9. OGRID Number
10. Pool name or Wildcat
11. Elevation (Show whether DR, RKB, RT, GR, etc.) <u>GL 3458</u>

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

1. Type of Well: Oil Well  Gas Well  Other

2. Name of Operator Key Energy Services, LLC

3. Address of Operator 6 West Drive Suite 4300 Midland, TX 79705

4. Well Location  
 Unit Letter E: 1340 feet from the N line and 330 feet from the W line  
 Section 15 Township 21S Range 37E NMPM County Lea

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

<b>NOTICE OF INTENTION TO:</b>		<b>SUBSEQUENT REPORT OF:</b>	
PERFORM REMEDIAL WORK <input type="checkbox"/>	PLUG AND ABANDON <input type="checkbox"/>	REMEDIAL WORK <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
TEMPORARILY ABANDON <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	COMMENCE DRILLING OPNS. <input type="checkbox"/>	P AND A <input type="checkbox"/>
PULL OR ALTER CASING <input type="checkbox"/>	MULTIPLE COMPL. <input type="checkbox"/>	CASING/CEMENT JOB <input type="checkbox"/>	
DOWNHOLE COMMINGLE <input type="checkbox"/>			
CLOSED-LOOP SYSTEM <input type="checkbox"/>			
OTHER: <u>Casing MIT</u> <input checked="" type="checkbox"/>		OTHER: <input type="checkbox"/>	

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Spud Date:  Rig Release Date:

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

SIGNATURE Jerry Waylon Jackson TITLE Production Service Supervisor DATE 1.3.17  
 Type or print name Jerry Waylon Jackson E-mail address: jacksonj5@keyenergy.com PHONE: (806) 637-3507  
**For State Use Only**

APPROVED BY: Carl J. Conway TITLE Environmental Engineer DATE 1/10/2017  
 Conditions of Approval (if any):

See attached Conditions of Approval.

## OCD Condition of Approval

Mr. Houston, et al.:

OCD hereby requires that Key Energy Services, LLC (Key) conduct within 30-days of receipt of this Form, a Cavern MIT with pressure up to at least 200 psig for at least 4 hrs. recorded on a calibrated chart ( within past 90 days) recorder with not greater than a 500 lb. spring. The start of the MIT shall be witnessed by OCD Hobb Field Staff. The intent of this test is to verify that the cavern has healed or whether there may be an external MIT problem with the well.

You may contact Mr. Mark A. Whitaker at the OCD Hobbs District Office at (575) 393-6161 Ext. #120 or Cell at (575) 399-3202.

Please acknowledge receipt of this message and provide Key's schedule for completing the above.

OCD appreciates Key's cooperation in this matter.

Please contact Mark A. Whitaker if you have questions. Thank you.



# American Valve & Meter, Inc.

1113 W. BROADWAY

P.O. BOX 166 HOBBS,  
NM 88240

T0: Key Energy

DATE:07/20/16

This is to certify that:

I, **Tony Flores**, Technician for American Valve & Meter Inc. has checked the calibration of the following instrument.

8 " \_Pressure recorder

Ser# 1G53214

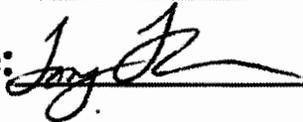
at these points.

Pressure #			* Pressure #		
Test	Found	Left	Test	Found	Left
- 0	-	- 0	-	-	-
- 500	- S	- 500	-	-	-
- 700	- A	- 700	-	-	-
- 1000	- M	- 1000	-	-	-
- 200	- E	- 200	-	-	-
- 0	-	- 0	-	-	-

Remarks: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Signature: 

## Chavez, Carl J, EMNRD

---

**From:** Chavez, Carl J, EMNRD  
**Sent:** Tuesday, January 3, 2017 8:41 AM  
**To:** Houston, Ken; 'Jackson, Jerry'; Boone, Teresa  
**Cc:** Catanach, David, EMNRD; Griswold, Jim, EMNRD; Brown, Maxey G, EMNRD; Whitaker, Mark A, EMNRD  
**Subject:** BW-28 Key Energy Services, L.L.C. State Well #1 (API# 30-025-33547): Casing MIT Pass on 12/27/2016

Mr. Houston, et al.:

The New Mexico Oil Conservation Division (OCD) witnessed the recent above subject MIT, and the well passed the test. Please submit the C-103 Form for the MIT, original MIT chart, and copy of chart calibration sheet to me in order to update the administrative record within 7-days of receipt of this message.

OCD hereby allows Key Energy Services, LLC to resume brine production operations. OCD is also evaluating the formation leak-off problem from the prior Formation MIT, and may require additional testing and/or information.

Please contact me if you have questions. Thank you.

Mr. Carl J. Chavez  
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: [CarlJ.Chavez@state.nm.us](mailto:CarlJ.Chavez@state.nm.us)

**“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: <http://www.emnrd.state.nm.us/OCD> and see “Publications”)**

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**From:** Griswold, Jim, EMNRD  
**Sent:** Thursday, December 15, 2016 3:50 PM  
**To:** Catanach, David, EMNRD <[David.Catanach@state.nm.us](mailto:David.Catanach@state.nm.us)>; Brown, Maxey G, EMNRD <[MaxeyG.Brown@state.nm.us](mailto:MaxeyG.Brown@state.nm.us)>; Chavez, Carl J, EMNRD <[CarlJ.Chavez@state.nm.us](mailto:CarlJ.Chavez@state.nm.us)>  
**Subject:** FW: State S Brine

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**From:** Houston, Ken [<mailto:KHouston@keyenergy.com>]  
**Sent:** Thursday, December 15, 2016 3:48 PM  
**To:** Griswold, Jim, EMNRD <[Jim.Griswold@state.nm.us](mailto:Jim.Griswold@state.nm.us)>  
**Cc:** Jackson, Jerry <[jjackson05@keyenergy.com](mailto:jjackson05@keyenergy.com)>; Coligan, Maren <[mcoligan@keyenergy.com](mailto:mcoligan@keyenergy.com)>; Aqueron, Rene <[raqueron@keyenergy.com](mailto:raqueron@keyenergy.com)>  
**Subject:** State S Brine

December 15, 2016  
Dear Mr. Griswold,

Key's State S brine well has been shut in. No water is being injected and no brine produced from the cavern. Key will resume contact with the area OCD office to provide notice prior to performing the casing MIT.

Best regards,

**[Ken Houston](#)** | **Key Energy Services, LLC**  
Vice President QHSE and SWD Operations  
1301 McKinney Street, Suite 1800, Houston, TX 77010  
o: 713.757.5512 | c: 713.419.3908 | e: [khouston@keyenergy.com](mailto:khouston@keyenergy.com)

**Doing it the right way. The *KeyWay*. Every time.**

 Please consider the environment before printing this email

## Chavez, Carl J, EMNRD

---

**From:** Griswold, Jim, EMNRD  
**Sent:** Thursday, December 15, 2016 3:50 PM  
**To:** Catanach, David, EMNRD; Brown, Maxey G, EMNRD; Chavez, Carl J, EMNRD  
**Subject:** FW: State S Brine

---

**From:** Houston, Ken [mailto:KHouston@keyenergy.com]  
**Sent:** Thursday, December 15, 2016 3:48 PM  
**To:** Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>  
**Cc:** Jackson, Jerry <jjackson05@keyenergy.com>; Coligan, Maren <mcoligan@keyenergy.com>; Aqueron, Rene <raqeron@keyenergy.com>  
**Subject:** State S Brine

December 15, 2016

Dear Mr. Griswold,

Key's State S brine well has been shut in. No water is being injected and no brine produced from the cavern. Key will resume contact with the area OCD office to provide notice prior to performing the casing MIT.

Best regards,

**Ken Houston** | Key Energy Services, LLC  
Vice President QHSE and SWD Operations  
1301 McKinney Street, Suite 1800, Houston, TX 77010  
o: 713.757.5512 | c: 713.419.3908 | e: [khouston@keyenergy.com](mailto:khouston@keyenergy.com)

Doing it the right way. The **KeyWay**. Every time.

 Please consider the environment before printing this email

## Chavez, Carl J, EMNRD

---

**From:** Chavez, Carl J, EMNRD  
**Sent:** Friday, December 2, 2016 10:15 AM  
**To:** 'Jackson, Jerry'; Boone, Teresa  
**Cc:** Whitaker, Mark A, EMNRD; Fortner, Kerry, EMNRD; Brown, Maxey G, EMNRD; Griswold, Jim, EMNRD  
**Subject:** BW-28 Key Energy Services, L.L.C. State Well #1 (API# 30-025-33547): Cavern MIT Reschedule

Mr. Jackson, et al.:

Good morning. The New Mexico Oil Conservation Division (OCD) is following up on our phone call this morning. There is one key change requiring a Casing MIT instead of a Cavern MIT from this morning's communication.

Key Energy Services, LLC (Key) experienced difficulty pressuring up to the 300 psi MIT pressure this morning. On Thursday (12/1), pressure in the cavern would not exceed ~ 280 psi. OCD believed that the salt cavern was fractured, and requires time to heal. However, the cavern bled off overnight to 240 psi, which is a very significant reduction in pressure. Historical Cavern MITs have been successfully run as high as 350 psi. Consequently, OCD is concerned this may be more than a cavern fracture scenario, and more likely a casing issue.

Therefore, OCD requires Key to reschedule a Casing MIT (300 psi for 30 min. +/- 10% pass/fail) within the next 90 days. A packer should be set within 50 ft. or less from the casing shoe depth.

Also, on a side note, OCD has noticed pressuring up on the mature cavern with fluid has taken a longer period of time, and Key may want to consider nitrogen gas for future Cavern MITs where the pressure up time would be minimal. Let's see if we can get past this EPA 5-Yr. MIT with the Casing MIT.

Please contact Mark A. Whitaker with the OCD Hobbs District Office to reschedule the Casing MIT. Thank you.

Mr. Carl J. Chavez  
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: [CarlJ.Chavez@state.nm.us](mailto:CarlJ.Chavez@state.nm.us)

**“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: <http://www.emnrd.state.nm.us/OCD> and see “Publications”)**

## **Griswold, Jim, EMNRD**

---

**From:** Griswold, Jim, EMNRD  
**Sent:** Tuesday, July 30, 2013 1:58 PM  
**To:** 'wayne price'  
**Cc:** Mike Slaughter; Brian Kenne; Gonzales, Elidio L, EMNRD; Whitaker, Mark A, EMNRD; Brown, Maxey G, EMNRD  
**Subject:** RE: Key Energy Eunice BW-28 5 year MIT

Please proceed with whatever arrangements must be made to facilitate the future testing. Be aware that the test as proposed will subject both the brine cavern and entry casing to pressure. If the combination is not able to sustain the static test pressure for the duration, then further testing will be needed to determine where any observable loss might be occurring. This may dictate removal of all tubing from the well, installation of a packer to isolate the well casing, and independent pressure testing. Thank you.

### **Jim Griswold**

*Senior Hydrologist*

EMNRD/Oil Conservation Division  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505  
505.476.3465  
email: [jim.griswold@state.nm.us](mailto:jim.griswold@state.nm.us)

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

From: wayne price [<mailto:wayneprice77@earthlink.net>]  
Sent: Tuesday, July 30, 2013 9:10 AM  
To: Griswold, Jim, EMNRD  
Cc: Mike Slaughter; Brian Kenne  
Subject: Key Energy Eunice BW-28 5 year MIT

Dear Jim,

Pursuant to our meeting in Santa Fe the other day, we would like to officially request that our next 5 year MIT, (schedule 2014) Key would be able to use the normal open to formation pressure test using either nitrogen or water, pressure up to approximately 300 psig, use a conventional chart recorder calibrated for 0-500 psig, use a maximum of 12 hour clock, hold pressure for 4 hours.

Please advise so we can make proper arrangements.

Wayne Price

District I - (575) 393-6161
1625 N. French Dr., Hobbs, NM 88240
District II - (575) 748-1283
811 S. First St., Artesia, NM 88213
District III - (505) 334-6178
1000 Rio Brazos Rd., Aztec, NM 87410
District IV - (505) 476-3460
1220 S. St. Francis Dr., Santa Fe, NM 87505

HOBBS OCD

Energy, Minerals and Natural Resources

SEP 22 2011 OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, NM 87505

RECEIVED

WELL API NO. 30-025-33547
5. Indicate Type of Lease STATE X FEE
6. State Oil & Gas Lease No. MS-0004
7. Lease Name or Unit Agreement Name STATE S
8. Well Number #1
9. OGRID Number
10. Pool name or Wildcat BSW-SALADO
11. Elevation (Show whether DR, RKB, RT, GR, etc.)

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

1. Type of Well: Oil Well Gas Well Other Brine Well
2. Name of Operator Key Energy Services
3. Address of Operator Box 99 Eunice, N.M. 88231
4. Well Location Unit Letter E : 1340 feet from the N line and 330 feet from the W line
Section 15 Township 21S Range 37E NMPM County LEA

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

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK PLUG AND ABANDON
TEMPORARILY ABANDON CHANGE PLANS
PULL OR ALTER CASING MULTIPLE COMPL
DOWNHOLE COMMINGLE

SUBSEQUENT REPORT OF:

REMEDIAL WORK ALTERING CASING
COMMENCE DRILLING OPNS. P AND A
CASING/CEMENT JOB

OTHER: X

OTHER: TEST FORMATION TO 350#

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

PRESSURE FORMATION TO 350# WITH FRESH WATER FOR 4 HR TEST TEST DATE 9-29-2011

Spud Date:

Rig Release Date:

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

SIGNATURE [Signature] TITLE District Manager DATE 9/21/11

Type or print name For State Use Only E-mail address: PHONE:

APPROVED BY: [Signature] TITLE STATE USE DATE 9-22-2011
Conditions of Approval (if any):



# American Valve & Meter, Inc.

1113 W. BROADWAY

P.O. BOX 166

HOBBS, NM 88240

TO: Key

DATE: 07-15-77

This is to certify that:

I, Bud Collins, Technician for American Valve & Meter,

Inc., has checked the calibration of the following instrument.

8" Pressure recorder Serial No: 8131

at these points.

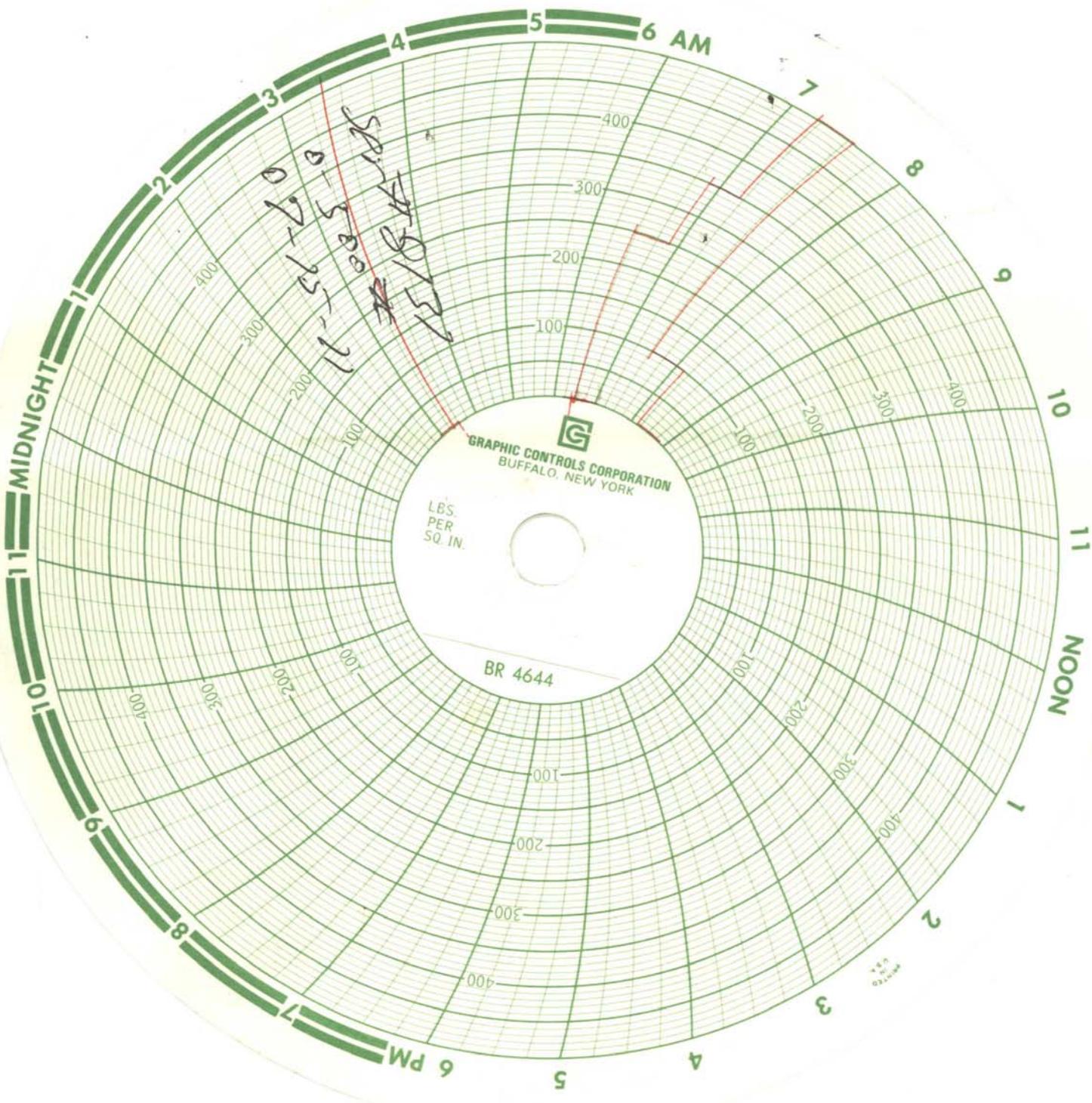
Pressure 0-500~~0~~

Temperature \_\_\_\_\_

<u>Test</u>	<u>Found</u>	<u>Left</u>	<u>Test</u>	<u>Found</u>	<u>Left</u>
<u>0</u>	—	<u>0</u>	—	—	—
<u>250</u>	—	<u>250</u>	—	—	—
<u>350</u>	—	<u>350</u>	—	—	—
<u>500</u>	—	<u>300</u>	—	—	—
<u>100</u>	—	<u>100</u>	—	—	—
<u>0</u>	—	<u>0</u>	—	—	—

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Signature Bud Collins



GRAPHIC CONTROLS CORPORATION  
BUFFALO, NEW YORK

LBS.  
PER  
SQ. IN.

BR 4644

District I - (575) 393-6161
1625 N. French Dr., Hobbs, NM 88240
District II - (575) 748-1283
811 S. First St., Artesia, NM 88203
District III - (505) 334-6178
1000 Rio Brazos Rd., Aztec, NM 87410
District IV - (505) 476-3460
1220 S. St. Francis Dr., Santa Fe, NM 87505

HOBBS OCD

Energy, Minerals and Natural Resources

Revised August 1, 2011

SEP 22 2011 OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, NM 87505

RECEIVED

WELL API NO. 30-025-33547
5. Indicate Type of Lease STATE X FEE
6. State Oil & Gas Lease No. MS-0004
7. Lease Name or Unit Agreement Name STATE S
8. Well Number #1
9. OGRID Number
10. Pool name or Wildcat BSW-SALADO
4. Well Location Unit Letter E : 1340 feet from the N line and 330 feet from the W line Section 15 Township 21S Range 37E NMPM County LEA
11. Elevation (Show whether DR, RKB, RT, GR, etc.)

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

NOTICE OF INTENTION TO:

- PERFORM REMEDIAL WORK
TEMPORARILY ABANDON
PULL OR ALTER CASING
DOWNHOLE COMMINGLE
PLUG AND ABANDON
CHANGE PLANS
MULTIPLE COMPL

OTHER: X

SUBSEQUENT REPORT OF:

- REMEDIAL WORK
COMMENCE DRILLING OPNS.
CASING/CEMENT JOB
ALTERING CASING
P AND A

OTHER: TEST FORMATION TO 350#

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

PRESSURE FORMATION TO 350# WITH FRESH WATER FOR 4 HR TEST TEST DATE 9-29-2011

Spud Date:

[Empty box for Spud Date]

Rig Release Date:

[Empty box for Rig Release Date]

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

SIGNATURE [Signature] TITLE District Manager DATE 9/21/11

Type or print name: E-mail address: PHONE:

For State Use Only

APPROVED BY: [Signature] TITLE STATE REG DATE 9-22-2011
Conditions of Approval (if any):



# American Valve & Meter, Inc.

1113 W. BROADWAY

P.O. BOX 166

HOBBS, NM 88240

TO: Key

DATE: 07-15-77

This is to certify that:

I, Bad Collins, Technician for American Valve & Meter,

Inc., has checked the calibration of the following instrument.

8" pressure recorder Serial No: B131

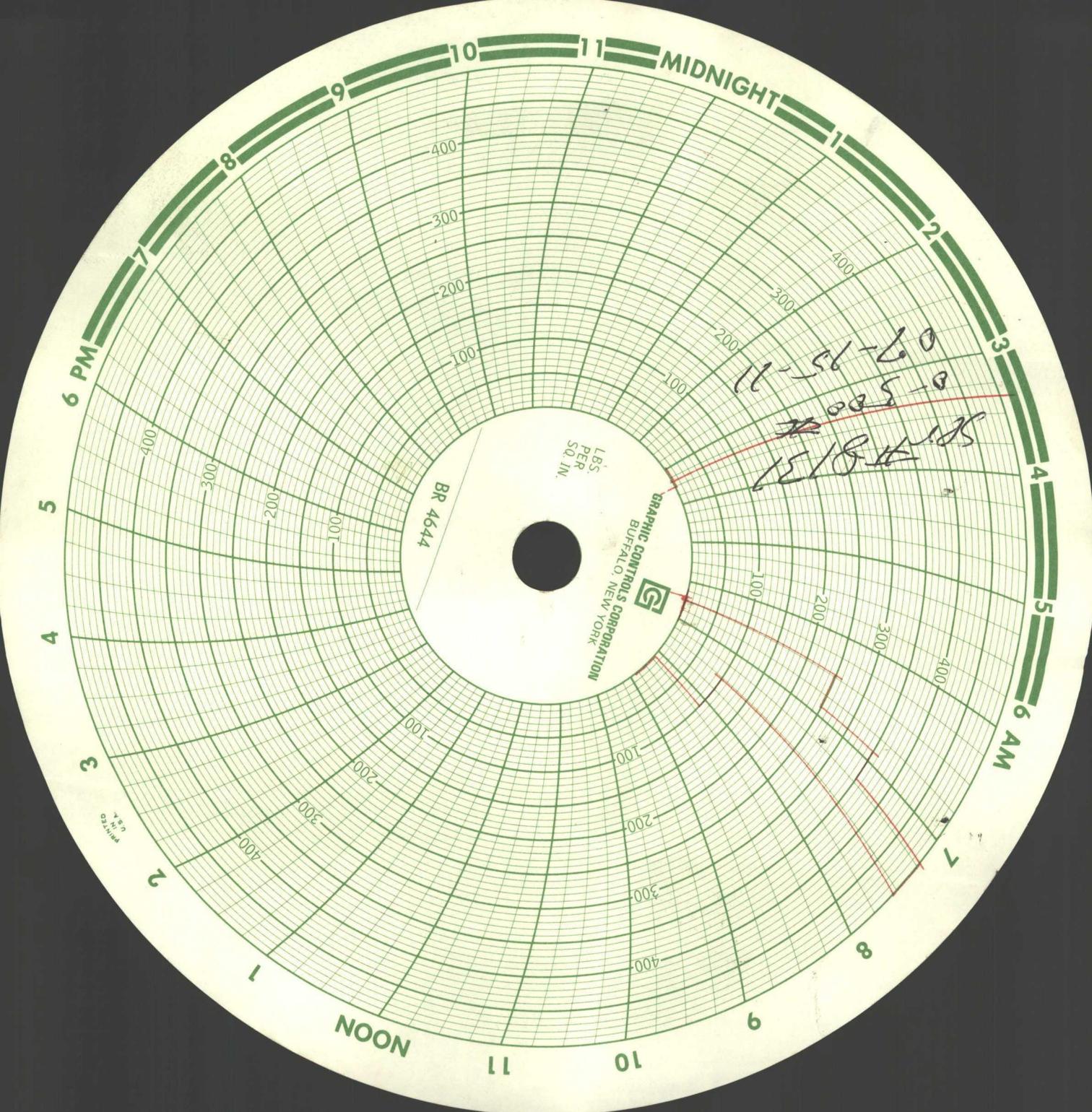
at these points.

Pressure 0-500~~0~~ Temperature \_\_\_\_\_

<u>Test</u>	<u>Found</u>	<u>Left</u>	<u>Test</u>	<u>Found</u>	<u>Left</u>
<u>0</u>	—	<u>0</u>	—	—	—
<u>250</u>	—	<u>250</u>	—	—	—
<u>350</u>	—	<u>350</u>	—	—	—
<u>500</u>	—	<u>390</u>	—	—	—
<u>100</u>	—	<u>100</u>	—	—	—
<u>0</u>	—	<u>0</u>	—	—	—

Remarks: \_\_\_\_\_

Signature Bad Collins



11 10 9 8 7 6 PM 5 4 3 2 1 NOON

11 10 9 8 7 6 AM 5 4 3 2 1

BR 4644

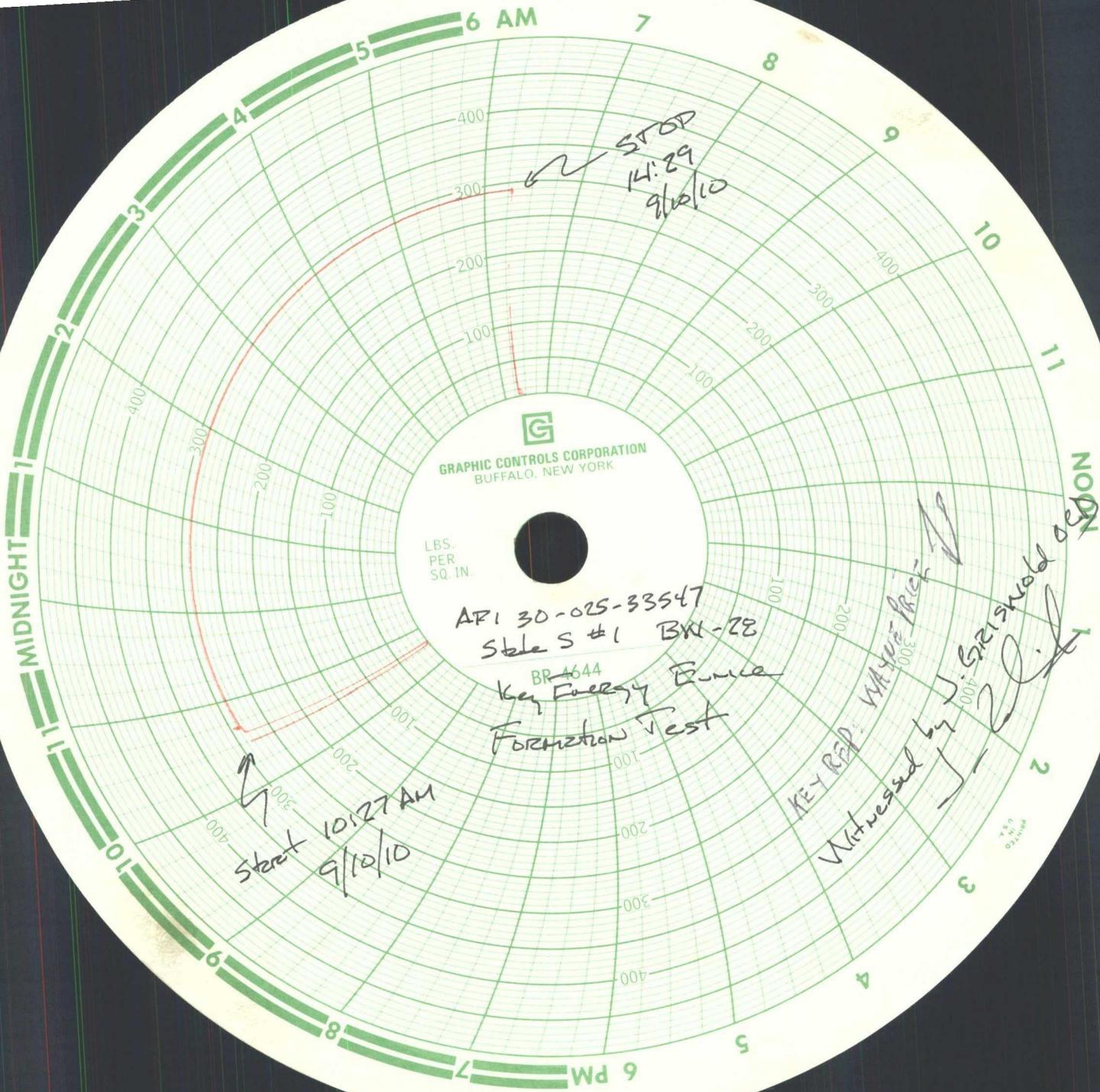
LBS  
PER  
SQ. IN.

GRAPHIC CONTROLS CORPORATION  
BUFFALO, NEW YORK



11-56-60  
0-5-0  
15/8-13

11-56-60  
0-5-0  
15/8-13



  
 GRAPHIC CONTROLS CORPORATION  
 BUFFALO, NEW YORK

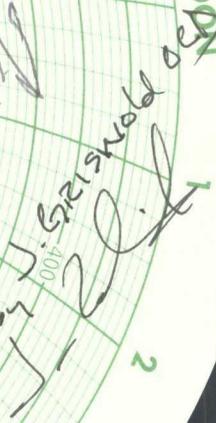
LBS.  
PER  
SQ. IN.

API 30-025-33547  
 Sble S #1 BVI-28

BR 4644  
 Key Energy Eumia  
 Formation Test

Start 10:27 AM  
 9/10/10

STOP  
 14:29  
 9/10/10

KEY REP. WAIVER Price ✓  
 Witnessed by J. BRISHOLD as per  


PRINTED  
 IN U.S.A.

# American Valve & Meter, Inc.

1113 W. BROADWAY  
P.O. BOX 166  
HOBBS, NM 88240

TO: Key Energy

DATE: 09-08-70

This is to certify that:

I, Bud Collins, Technician for American Valve & Meter, Inc., has checked the calibration of the following instrument.

8" Pressure recorder Serial No: 8131

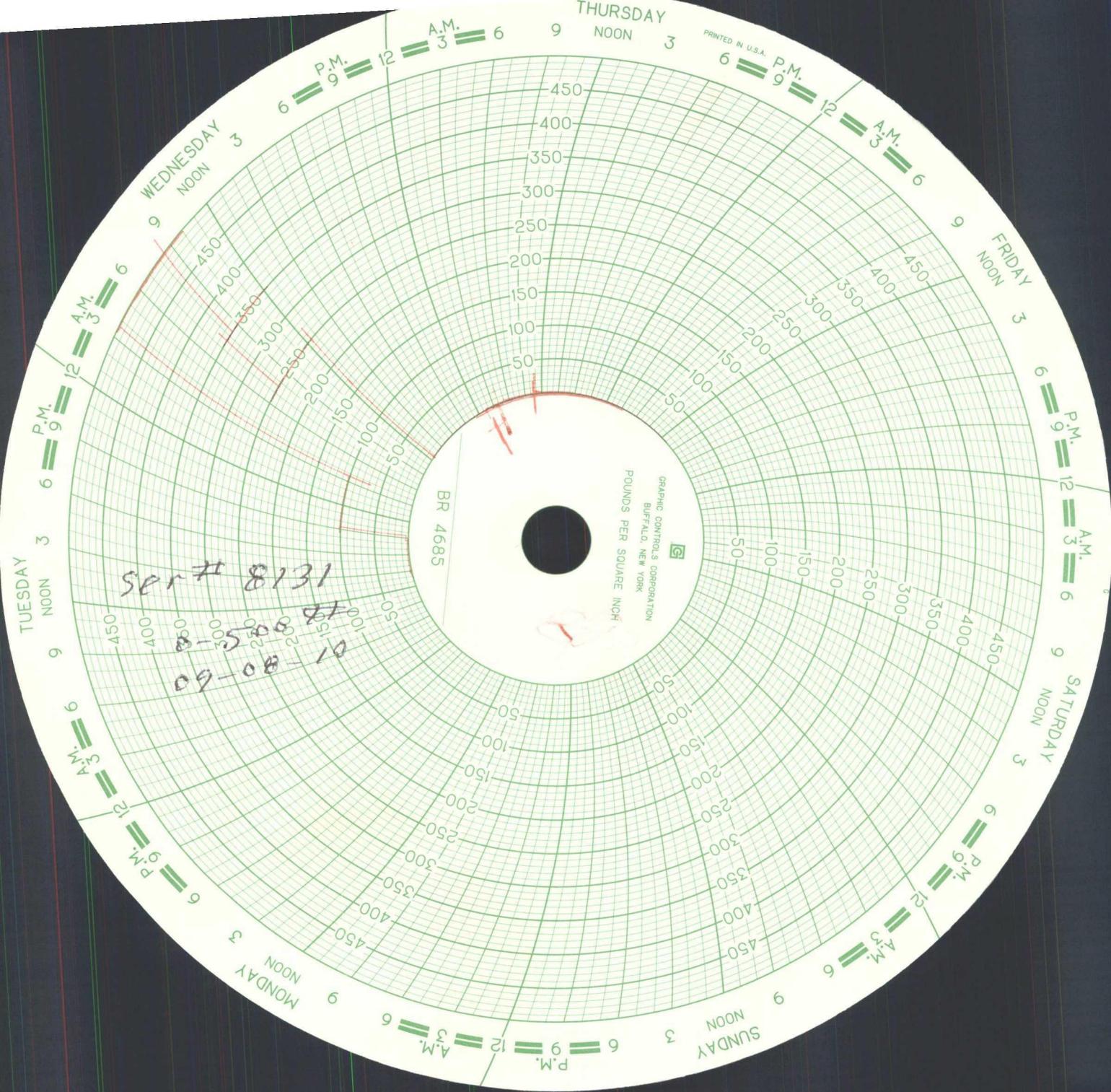
at these points.

Pressure 0-500<sup>#</sup> Temperature \_\_\_\_\_

<u>Test</u>	<u>Found</u>	<u>Left</u>	<u>Test</u>	<u>Found</u>	<u>Left</u>
<u>0</u>	—	<u>0</u>	—	—	—
<u>250</u>	—	<u>250</u>	—	—	—
<u>500</u>	—	<u>500</u>	—	—	—
<u>350</u>	—	<u>350</u>	—	—	—
<u>100</u>	—	<u>100</u>	—	—	—
<u>0</u>	—	<u>0</u>	—	—	—

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Signature Bud Collins



## Chavez, Carl J, EMNRD

---

**From:** Chavez, Carl J, EMNRD  
**Sent:** Friday, April 23, 2010 6:56 AM  
**To:** 'Alvarado, David'; 'lyn.sockwell@basicenergyservices.com'; 'James Millett'; Clay Wilson; 'Patterson, Bob'; 'gandy2@leaco.net'; 'Gary Schubert'; 'Dan Gibson'  
**Cc:** VonGonten, Glenn, EMNRD; Griswold, Jim, EMNRD  
**Subject:** New Mexico UIC Class III Brine Well MIT Scheduling with Completion by September 30, 2010

Gentlemen:

Re:

Basic Energy Services: BW-002 & BW-025  
Gandy Corporation: BW-004 & BW-022  
Key Energy Services, LLC: BW-028  
Mesquite: BW-027 (MITs on 2-Well System Completed this Season) & BW-030  
Salty Dog: BW-008  
HRC: BW-031

Good morning. It is that time of year again to remind operators that their MITs for this season must be completed by 9/30/2010. The list of operator names w/ associated brine wells are provided above and as in the past, the OCD attempts to schedule MITs logistically on the same day and in a route with start times that is most efficient in the field.

Operators are aware of the annual formation MIT (4-hr @ 300 psig or less depending on historical pressure and TD of well) and every 5-yrs. or after well workover. EPA MIT (30 min. @ 500 psig). Operators need to review well MIT records to inform OCD-EB of the type of MIT it will run this year and inform OCD-EB of any issues or concerns associated with this season's MIT.

You may access your well information on OCD Online either by API# and/or Permit Number at <http://ocdimage.emnrd.state.nm.us/imaging/AEOrderCriteria.aspx> and <http://www.emnrd.state.nm.us/OCD/OCDPermitting/Data/Wells.aspx>. For information on New Mexico's UIC Program and training information, please go to: <http://www.emnrd.state.nm.us/ocd/Publications.htm>.

Please contact Jim Griswold at (505) 476-343465 on or before May 7, 2010 to schedule your preferred MIT date and time. Jim will work to finalize the witness schedule with each of you. Thank you in advance for your cooperation.

Copy: Brine Well Files BWs- 2, 4, 8, 22, 25, 27, 28, 30 & 31

Carl J. Chavez, CHMM  
UIC Program Quality Assurance & Quality Control Officer  
New Mexico Energy, Minerals & Natural Resources Dept.  
Oil Conservation Division, Environmental Bureau  
1220 South St. Francis Dr., Santa Fe, New Mexico 87505  
Office: (505) 476-3490  
Fax: (505) 476-3462  
E-mail: [CarlJ.Chavez@state.nm.us](mailto:CarlJ.Chavez@state.nm.us)  
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>  
(Pollution Prevention Guidance is under "Publications")

NOON

BW-28

2540 #

2540 #

Test Date  
5-21-04

Mark Whitaker  
OED

KEY ENERGY SERVICES

State #1

30-025-33547

UL-E, SEC 15, T215, R37E

MIT / 30 MIN

RKP @ 1290'

# American Valve & Meter, Inc. RECEIVED

1113 W. BROADWAY  
P.O. BOX 166  
HOBBS, NM 88240

2009 JUL 7 AM 10 36

TO: Key

DATE: 5-5-09

This is to certify that:

I, Bud Collins, Technician for American Valve & Meter, Inc., has checked the calibration of the following instrument.

"Pressure recorder Serial No: 8351

at these points.

Pressure 0 - 1000 \*  
Temperature \_\_\_\_\_

<u>Test</u>	<u>Found</u>	<u>Left</u>	<u>Test</u>	<u>Found</u>	<u>Left</u>
<u>0</u>	—	<u>0</u>	—	—	—
<u>500</u>	—	<u>500</u>	—	—	—
<u>1000</u>	—	<u>1000</u>	—	—	—
<u>700</u>	—	<u>700</u>	—	—	—
<u>200</u>	—	<u>200</u>	—	—	—
<u>0</u>	—	<u>0</u>	—	—	—

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Signature Bud Collins

## Chavez, Carl J, EMNRD

---

**From:** Chavez, Carl J, EMNRD  
**Sent:** Thursday, July 02, 2009 11:47 AM  
**To:** 'Patterson, Bob'  
**Subject:** Key Energy Services (BW-28) Chart Request from 5/21/09 MIT  
**Attachments:** image001.gif

Bob:

Good morning. Could you please send me the chart w/ calibration sheet from the recent 5/21/09 MIT for our record?

Hope you have a Happy 4<sup>th</sup>! 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) 476-3490  
Fax: (505) 476-3462  
E-mail: [CarlJ.Chavez@state.nm.us](mailto:CarlJ.Chavez@state.nm.us)  
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>  
(Pollution Prevention Guidance is under "Publications")

## Chavez, Carl J, EMNRD

---

**From:** Chavez, Carl J, EMNRD  
**Sent:** Thursday, July 02, 2009 11:30 AM  
**To:** 'james@pabservicesinc.com'  
**Subject:** MIT Chart w/ Calibration Sheet Request for Record from Feb. 2009 Well Work  
**Attachments:** image001.gif

James:

Hi. OCD is requesting your MIT chart w/ calibration sheet from the well work conducted during Feb. of 2009. We also need this info. to confirm that you satisfied your MIT for this season.

Hope you have a happy 4<sup>th</sup>! 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) 476-3490  
Fax: (505) 476-3462  
E-mail: [CarlJ.Chavez@state.nm.us](mailto:CarlJ.Chavez@state.nm.us)  
Website: <http://www.emnrd.state.nm.us/oed/index.htm>  
(Pollution Prevention Guidance is under "Publications")

## Active Brine Well Facilities

- **BW-2** Basic Energy/P&S Eunice #1 (API 30-025-26884)  
 Began production in July 1980.  
 Depth to top-of-salt 1320 ft bgs. Casing shoe @ 1440 ft bgs. Tubing depth 1718 ft bgs.  
 Last sonar log completed February 2009. Interval imaged 1440 to 1666 ft bgs. Log indicates only 21,000 bbls of cavern volume despite historic production of 6.8 Mbbls. Cavern should be ~1Mbbls.  
 Permit renewal date: 1/6/2014
- **BW-4** Gandy Corporation/Eidson State #1 (API 30-025-26883)  
 Began production in August 1980.  
 Depth to top-of-salt 1865 ft bgs. Casing shoe @ 1895 ft bgs. Tubing depth 2461 ft bgs.  
 Last sonar log completed October 2008. Interval imaged 1909 to 1944 ft bgs. Log indicates only 11 bbls of cavern volume despite historic production of 5.28 Mbbls. Cavern should be ~800,000 bbls.  
 Permit renewal date: 6/11/2011
- **BW-8** PAB Services/Brine Supply #1 (API 30-025-26307)  
 Began production in May 1979.  
 Depth to top-of-salt 2000 ft bgs. Casing shoe @ 1871 ft bgs. Tubing depth 2552 ft bgs.  
 Last sonar log completed February 2009. Interval imaged 1871 to 1903 ft bgs. Log indicates only 720 bbls of cavern volume despite historic production of perhaps 12 Mbbls. Cavern should be 1.8 Mbbls.  
 Permit renewal application currently under review.
- **BW-22** Gandy Corporation/Watson #1 (API 30-025-28162)  
 Began production in April 1983.  
 Depth to top-of-salt 2290 ft bgs. Casing shoe @ 2249 ft bgs. Tubing depth 2870 ft bgs.  
 Last sonar log completed August 2008. Interval imaged 2200 to 2220 ft bgs. Log indicates only 11,289 bbls of cavern volume despite historic production of perhaps 18 Mbbls. Cavern should be 2.7 Mbbls.  
 Permit renewal date: 3/11/2012
- **BW-25** Basic Energy/Salado #2 (API 30-025-32394)  
 Began production in September 1993.  
 Depth to top-of-salt 1220 ft bgs. Casing shoe @ 1220 ft bgs. Tubing depth 1385 ft bgs.  
 No sonar log run. Historic production of perhaps 1.7 Mbbls, indicating cavern volume of 25,500 bbls.  
 Permit renewal application currently under review.
- **BW-27** Mesquite SWD/Dunaway #1 and #2 (APIs 30-015-28083 and 28084)  
 Began production in January 1995.  
 Depth to top-of-salt 1060 ft bgs. Casing shoe @ 1064 ft bgs. Tubing depth 1024 ft bgs.  
 Last sonar log attempted December 2008 but failed to get any data due to configuration of casing and tubing.  
 Permit renewal date: 9/21/2009
- **BW-28** Key Energy/State Brine Well #1 (API 30-025-33547)  
 Began production in October 1996.  
 Depth to top-of-salt 1390 ft bgs. Casing shoe @ 1390 ft bgs. Tubing depth 2074 ft bgs.  
 Sonar log completed 5/20/09. Report not yet provided. Estimated production of perhaps 4 Mbbls. indicating cavern volume of 600,000 bbls.  
 Permit renewal date: 7/18/2011
- **BW-30** Liquid Resource/Hobbs State #10 (API 30-025-35915)  
 Began production in July 2002.  
 Depth to top-of-salt 1645 ft bgs. Casing shoe @ 1633 ft bgs. Tubing depth 1930 ft bgs.  
 OCD did not require them to run sonar due to shortness of operational life. Estimated brine production of 1.4 Mbbls, indicating cavern may be 207,000 bbls.  
 Permit renewal date: 5/29/2012
- **BW-31** HRC/HRC Schubert 7 #1 (API 30-025-36781)  
 Began production in October 2006.  
 Depth to top-of-salt 1800 ft bgs. Casing shoe @ 1865 ft bgs. Tubing depth 2300 ft bgs.  
 No sonar log run. Estimated production of only 560,000 bbls and thus cavern only 84,000 bbls.  
 Permit renewal date: 6/22/2011