

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HOBBS OCD
OCD-HOBBS

APR 13 2015

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

RECEIVED

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

1. Type of Well <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input checked="" type="checkbox"/> Other: INJECTION		5. Lease Serial No. NMNM81274
2. Name of Operator CIMAREX ENERGY CO		6. If Indian, Allottee or Tribe Name
Contact: MICHELLE CHAPPELL E-Mail: mchappell@cimarex.com		7. If Unit or CA/Agreement, Name and/or No.
3a. Address 600 N. MARIENFELD STREET, SUITE 600 MIDLAND, TX 79701	3b. Phone No. (include area code) Ph: 432-620-1959	8. Well Name and No. THYME APY FEDERAL 011
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 1 T23S R32E NWSW 1650FSL 990FWL 32.331005 N Lat, 103.633708 W Lon		9. API Well No. 30-025-36192
		10. Field and Pool, or Exploratory SWD; DELAWARE
		11. County or Parish, and State LEA COUNTY, NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other Well Test
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomple horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recomple in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

Cimarex Energy Co. would like to respectfully request permission to run a step rate test on Thursday, April 9, 2015 at 9:00 am New Mexico time to determine the fracture gradient of the formation. We will have Precision Services evaluate the job by monitoring the bottom hole pressure with down hole pressure gauges and Petroplex Pumping will provide the pump truck. We are running this because we would like to increase the injection pressure limitation. Please find attached the intended step rate test design for your approval.

**PROVIDE S.R.T. RESULTS
TO SANTA FE OCD FOR
APPROVAL**

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #297562 verified by the BLM Well Information System
For CIMAREX ENERGY CO, sent to the Hobbs

Name (Printed/Typed) MICHELLE CHAPPELL	Title REGULATORY TECHNICIAN	APPROVED APR 8 2015 BUREAU OF LAND MANAGEMENT CARLSBAD FIELD OFFICE
Signature (Electronic Submission)	Date 04/08/2015	
THIS SPACE FOR FEDERAL OR STATE OFFICE USE		
Approved By	Title	
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.		Office

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED **

YMB/bcd 4/13/2015

APR 14 2015



Cimarex Energy Co. of Colorado

600 N. Marinfeld St. ♦ Suite 600 ♦ Midland, TX 79701 ♦ (432) 620-1938 ♦ Fax (432) 620-1940

A subsidiary of Cimarex Energy Co. ♦ A NYSE Listed Company ♦ "XEC"

Bureau of Land Management
620 E Greene St
Carlsbad, NM 88220

04/07/2015

RE: Thyme APY Federal #11 SWD Step Rate Test

Dear BLM,

The Thyme APY Federal #11 SWD is currently injecting disposal water with a limiting wellhead pressure of 0.2psi/ft. The intent of the upcoming step rate test is to identify higher allowable injection pressures without exceeding the Fracture Gradient. An electronic copy of the Bond log in pdf format is attached. Currently the limiting injection pressure is based on a gradient of 0.2 psi/ft or 1094 psi at surface. The target injection rate will be 5 barrels per minute with an anticipated surface injection pressure at approximately 2000psi. The well head is rated at 3000psi so the max allowable surface pressure for the job will be 2400psi. This job should not reach the estimated fracture pressure of the formation. The injection fluid is the same as the fluid that injects in the well daily. It has a density of approximately 8.8 lbs/gal so the anticipated bottom hole pressure at 5 barrels per minute will be approximately 4200 psi. The well will be shut in 2 days prior to pumping the step rate test to evaluate the formation leak-off prior to the job. The planned job design is illustrated below.

Rate(bpm)	Volume (bbl)	Time (min)	Cummulative Time (hrs)
0.25	7.5	30	0.5
0.5	15	30	1
1	30	30	1.5
2	60	30	2
3	90	30	2.5
4	120	30	3
5	150	30	3.5

Regards,

Joe Bob Jones
Production Engineer
Cimarex Energy
JJones1@Cimarex.com
432 288 4631



KB - 18' above GL

Cimarex Energy Co. of Colorado

Thyme APY Federal #11

1650' FSL & 990' FWL

Sec. 1, T-23-S, R-32-E, Lea Co., NM

S. Gengler

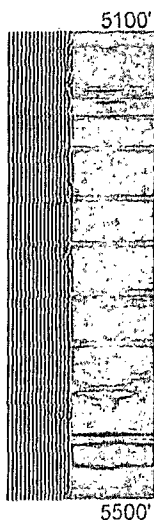
06/01/2012

DV Tool @ 4821'
cmtd w/ 600 sx, cmt circ

11-3/4", 42# H-40 csg @ 1280'
cmtd w/ 700 sx, cmt circ

8-5/8", 32# J-55 csg @ 4850'
cmtd w/ 1350 sx, cmt circ

Radial CBL>



172 jts 3-1/2" 9.3# L-80 Fiberline II Tbg

On-off tool w/ 2.312" X profile nipple @ 5435'
Arrowset 1-X NP Pkr @ 5442'

Delaware perfs (5470' - 6092')

CIBP @ 6210'
60 sx cmt plug (6216' - 6790')

Squeezed Delaware perfs (6724' - 8068')

30 sx cmt plug (7100' - 7300')

50 sx cmt plug (8484' - 8950')
Delaware perfs (8608' - 8825')

CIBP @ 8950'
Bone Springs perfs (8992' - 9020')

PBTD @ 9107'
5 1/2" 15.5 & 17# J-55 & L-80 @ 9150' cmtd w/ 760 sx
TD @ 9150'

Conditions of Approval

Cimarex Energy Co. of Colorado
Thyme APY - 11, API 3002536192
T23S-R32E, Sec 01, 1650FSL & 990FWL
April 08, 2015

Stabilized injection: after perforation and acid stimulation workover, and the daily disposal volume rates and injection pressures have leveled out for about 3 months.

A profile survey is a wireline survey log that determines what perforations are taking produced water. You may want to use the same contractor that will run your step rate test.

1. If available, submit an electronic copy (Adobe Acrobat Document) cement bond log record from the top of the injection interval to top of cement. The CBL may be attached to a pswartz@blm.gov email.
2. Due to being within the Lesser Prairie Chicken habitat, this workover activity will be restricted to the hours of 9:00am through 3:00am for the period of March 1 through June 15. Exceptions to these restrictions may be granted by BLM's Johnny Chopp <jjchopp@blm.gov> 575.234.2227 or Bob Ballard <bballard@blm.gov> 575.234.5973.
3. Submit a injection profile survey for the well for review after the increased rate and pressure is stabilized.
4. Submit the well's stabilized current psig/ft surface pressure to the top perforation.
5. Submit an anticipated bottom hole fracture pressure for the field or pool formation.
6. State the **targeted** maximum bbl/min injection rate. **The objective is to avoid fracturing the injection formation.**
7. Submit the injection fluid lbs/gal weight.
8. Submit an anticipated formation fracture or breakdown pressure at the injection top.
9. Stop injection a minimum of 48 hours before the step rate test and record the tubing pressure as it drops. The pressure should stabilize at or below the NMOCD permitted pressure for 8 hours. Document the pressure test on a seven day full rotation calibrated recorder chart registering within 25 to 85 per cent of its full range.
10. Calculate seven injection rates by multiplying the targeted maximum bbl/min injection by 0.05 for Step 1, 0.10 for Step 2, 0.20 for Step 3, 0.40 for Step 4, 0.60 for Step 5, 0.80 for Step 6, and 1.00 for Step 7. The first two step rate pressures must be below 0.2psig/ft x depth at top of injection. Record both surface and top perforation step pressures at five minute increments. Each step's time duration (30 minutes or more) should be within 1 minute or less of the preceding step. If stabilized pressure values ($\Delta \pm 15$ psig) are not obtained between the last two (five minute) increments the test results will be considered inconclusive.
11. The Step Rate fluid used should be the same as the proposed injection fluid.

12. Flow rates are to be controlled with a constant flow regulator and measured with a turbine flow meter calibrated within 0.1 bbl/min. Record those rates using a chart recorder or strip chart.
13. Use a down hole transmitting pressure device and a surface pressure device with accuracies of ± 10 psig to measure pressures.
14. **Notify BLM 575-200-7902, if there is no response, 575-361-2822 Eddy Co. or 575-393-3612 Lea Co 24 hours before beginning the test. If no answer, leave a voice mail or email with the API#, workover purpose, and a call back phone number.**
15. When breakdown pressure is not achieved at the **targeted rate** the formation is accepting the injection fluid without fracturing, which is the **objective**. Stop the test.
16. When the formation fracture pressure has been exceeded as evidenced by at least two rate-pressure combinations greater than the breakdown pressure stop the test and record the bottom hole Instantaneous Shut-in Pressure. This ISIP is considered the minimum pressure to hold open a fracture in this formation at this well. Fifty psig less than the wellhead fracture pressure is the maximum surface pressure BLM will approve.
17. Record with each five minute interval the corresponding rate (bbl/min), down hole, and surface pressure (psig). Provide BLM with the tabulation of each five minute interval. Provide a time graph plot displaying rates and surface pressures as the test progresses. Also include a graph showing the stabilized pressure at each injection rate. Submit that data to BLM with the shut-in pressure recording of paragraph 9.
18. File a sundry subsequent report with documentation of the data collected, requesting your proposed wellhead injection pressure.

The intent of a step rate test is to establish that a proposed rate of injection into a formation is below fracture. Because it becomes likely that fracture pressure may be attained and exceeded it is considered a nonroutine fracturing job and requires a notice of intent.

References: 43 CFR 3162.3-2 Subsequent well operations.

Compliance of the operator with these BLM minimum conditions of approval is necessary for consideration of an injection pressure increase.

STEP RATE TEST DATA for BLM, CFO

Operator: Cimarex Energy Co. of Colorado

Well: Thyme APY - 11

API#: 3001536192

Lease:

Data collected:

Sfc Loc: T23S-R32E, Sec01 , 1650FSL & 990FWL

Input cell

Packer set at: 5435.00

Inj Pipe I.D.: 2.99

Top Injection Depth: **5470** X 0.20psig/ft = Expected Surface Fracture psig: **1094**

With Mud Wt Scale: **8.8** lbs/gal Beginning Formation psig: at Depth:

Injection fluid lbs/gal: **8.8** Hydrostatic Pressure of fluid at top depth of injection: 2501

Beginning Wellhead psig: Target Maximum Rate - bpd(barrels per day): **7200**

1. Take a charted record of shut in psig for no less than 48 hours. If the shut in psig is above the expected fracture pressure, **the wellhead pressure will need to be bled off before beginning the Step Rate Test.**

2. Perform a minimum of seven steps, recording rate to ± 0.1 bpm and surface pressures to ± 10 psig in five minute intervals. The first two step rate pressures must be below 0.2psig/ft x depth at top of injection.

4. The last two five minute surface pressure readings of each (minimum 30 minute) step are to be within 15psig of each other. If not, hold that step injection rate past the 30 minute step until two consecutive pressure readings are within 15psig. Record the average of those two readings as the Data Point for that Step #.

Step 1								0.0 bpm pmp'd for Step 1
Target Test Rate (5% of maximum bpd/1440 = 0.3 bpm (barrels per minute) for Step 1								
Time:	5 min	10 min	15 min	20 min	25 min	30 min	Start Time:	
Surface (psig):							End Time:	
Formation (psig):							Graph Data for Point #1	
bpm:								
Time:	35 min	40 min	45 min	50 min	25 min	60 min		
Surface (psig):							Sfc psig:	
Formation (psig):							F psig:	
bpm:							bpd:	

Step 1 has a target bpd rate of: 360

Step 2								0.0 bpm pmp'd for Step 2
Target Test Rate (10% of maximum bpd/1440 = 0.5 bpm for Step 2								
Time:	5 min	10 min	15 min	20 min	25 min	30 min	Start Time:	
Surface (psig):							End Time:	
Formation (psig):							Graph Data for Point #2	
bpm:								
Time:	35 min	40 min	45 min	50 min	25 min	60 min		
Surface (psig):							Sfc psig:	
Formation (psig):							F psig:	
bpm:							bpd:	

Step 2 has a target bpd rate of: 720

Step 3								0.0 bpm pmp'd for Step 3
Target Test Rate (20% of maximum bpd/1440 = 1.0 bpm for Step 3								
Time:	5 min	10 min	15 min	20 min	25 min	30 min	Start Time:	
Surface (psig):							End Time:	
Formation (psig):							Graph Data for Point #3	
bpm:								
Time:	35 min	40 min	45 min	50 min	25 min	60 min		
Surface (psig):							Sfc psig:	
Formation (psig):							F psig:	
bpm:							bpd:	

Step 3 has a target bpd rate of: 1440

STEP RATE TEST DATA for BLM. CFO

Operator: Cimarex Energy Co. of Colorado

Well: Thyme APY - 11

API#: 3001536192

Lease:

Data collected: 0

Sfc Loc: T23S-R32E, Sec01 , 1650FSL & 990FWL

Step 4								0.0	bpm pmp'd for Step 4
Target Test Rate (40% of maximum bpd/1440 =								2.0	bpm for Step 4
Time:	5 min	10 min	15 min	20 min	25 min	30 min	Start Time:		
Surface (psig):							End Time:		
Formation (psig):							Graph Data for Point #4		
Rate bbl/min:									
Time:	35 min	40 min	45 min	50 min	25 min	60 min			
Surface (psig):							Sfc psig:		
Formation (psig):							F psig:		
bpm:							bpd:		

Step 4 has a target bpd rate of: 2880

Step 5								0.0	bpm pmp'd for Step 5
Target Test Rate (60% of maximum bpd/1440 =								3.0	bpm for Step 5
Time:	5 min	10 min	15 min	20 min	25 min	30 min	Start Time:		
Surface (psig):							End Time:		
Formation (psig):							Graph Data for Point #5		
bpm:									
Time:	35 min	40 min	45 min	50 min	25 min	60 min			
Surface (psig):							Sfc psig:		
Formation (psig):							F psig:		
bpm:							bpd:		

Step 5 has a target bpd rate of: 4320

Step 6								0.0	bpm pmp'd for Step 6
Target Test Rate (80% of maximum bpd/1440 =								4.0	bpm for Step 6
Time:	5 min	10 min	15 min	20 min	25 min	30 min	Start Time:		
Surface (psig):							End Time:		
Formation (psig):							Graph Data for Point #6		
Rate bbl/min:									
Time:	35 min	40 min	45 min	50 min	25 min	60 min			
Surface (psig):							Sfc psig:		
Formation (psig):							F psig:		
bpm:							bpd:		

Step 6 has a target bpd rate of: 5760

Step 7								0.0	bpm pmp'd for Step 7
Target Test Rate (100% of maximum bpd/1440 =								5.0	bpm for Step 7
Time:	5 min	10 min	15 min	20 min	25 min	30 min	Start Time:		
Surface (psig):							End Time:		
Formation (psig):							Graph Data for Point #7		
bpm:									
Time:	35 min	40 min	45 min	50 min	25 min	60 min			
Surface (psig):							Sfc psig:		
Formation (psig):							F psig:		
bpm:							bpd:		

Step 7 has a target bpd rate of: 7200

Instant Shut In Pressure:
5 minute Shut In Pressure:
10 minute Shut In Pressure:
15 minute Shut In Pressure: