OCD-HOBBS

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Form 3160-5
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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.

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

5. Lease Serial No.
NMLC031695B

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.
NM71052h

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

8. Well Name and No.
WARREN UNIT 016
191 - Tubb WF

2. Name of Operator
CONOCOPHILLIPS COMPANY
Contact: RHONDA ROGERS
E-Mail: rogerrs@conocophillips.com

9. API Well No.
30-025-07876

3a. Address
P. O. BOX 51810
MIDLAND, TX 79710

3b. Phone No. (include area code)
Ph: 432-688-9174

10. Field and Pool, or Exploratory
WARREN; BLINEBRY-TUBB O&G

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 33 T20S R38E Mer NMP SWSE 660FSL 1980FEL

11. County or Parish, and State
LEA COUNTY, NM

SEC

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

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ 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 recomplete 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 recompletion 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.)

ConocoPhillips Company would like to perform a step rate test per attached procedures. This test to to gather data.

SEE ATTACHED FOR CONDITIONS OF APPROVAL

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

Operator compliance with the BLM minimum conditions of approval is necessary for consideration of an injection pressure adjustment.

SUBJECT TO LIKE APPROVAL BY STATE

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

Electronic Submission #274379 verified by the BLM Well Information System
For CONOCOPHILLIPS COMPANY, sent to the Hobbs
Committed to AFMSS for processing by LINDA JIMENEZ on 11/20/2014 ()

Name *(Printed/Typed)* RHONDA ROGERS — Title STAFF REGULATORY TECHNICIAN

Signature (Electronic Submission) — Date 10/28/2014

APPROVED
FEB 23 2015
Paul R. Swartz
BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By _____ Title _____ Date _____

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 ****

MSB/OCD 3/3/2015

MAR 04 2015

Warren Unit #16
API# 30-025-07876
Step-Rate Testing

October 15, 2014

Objective: Run step-rate tests to obtain data for application to increase injection pressure.

Perforations: Blinebry 5773' - 6008'

Step rate tests are to be conducted with Warren Unit field produced brine (current injection fluid). Service Company is to provide a high-pressure pump truck and chart the results. The intent is to track, monitor and record rate & pressure data as water injection pressure is increased, then record ISIP and fall-off pressures for 30 minutes after injection ceases. The step-rate tests should demonstrate that formation fracturing will not occur at the proposed minimum injection pressure (2000#). Resulting data will be used in an NMOCD application to increase the permitted injection pressure.

Preparation:

1. Notify NM OCD and EPA 72 hours prior to beginning any tests.
2. Ensure that Service Company equipment can pump at rates ranging from 10 to 3500 BPD (0.1 to 2.4 bpm) and that sufficient capacity exists for higher rate wells.
3. Two days prior: Close in master valve and injection line valve. Leave well shut-in for 48 hours and record SITP and annulus pressure prior to start of work. Bleed down pressure if above 0 psi.

On location:

1. Conduct JSA. Ensure pump truck operator has a copy of the procedure and understands scope of work. Make sure chart recorder, flow meter and pressure data logger are used during the test.
2. Bleed-off trapped pressure. NU Service Company pump truck discharge to injection well. NU suction line to load transport(s) with Warren Unit injection water (if transport is equipped with mud balance, weigh injection brine – anticipated to be 9 ppg):
3. Test surface lines @ 2500#.
4. Open master valve. Run the following step rate test schedule. Each rate step should be the same duration. Service Company should record data at 5-minute intervals. Record stabilized injection rate and pressure at end of each 30 minute flow period: SAMPLE ONLY-ADJUST AS NEEDED

Step	Time: minutes		Injection Rate: BPM		Injected Volume: bbl		Surface Pressure	Test Pressure
	per step	cum	BPM	equiv BPD	per step	cum	psi	psi
1	10	10	0.01	14	0.1	0.1		
2	10	20	0.05	72	0.5	0.6		
3	10	30	0.1	144	1	1.6		

4	10	40	0.15	216	1.5	3.1		
5	10	50	0.2	288	2	5.1		
6	10	60	0.5	720	5	10.1		
7	10	70	0.7	1008	7	17.1		
8	10	80	1.0	1440	10	27.1		
9	10	90	1.2	1728	12	39.1		
10	10	100	1.5	2160	15	54.1		
11	10	110	1.7	2448	17	71.1		
12	10	120	2.0	2880	20	91.1		
13	10	130	2.2	3168	22	113.1		
14	10	140	2.4	3456	24	137.1		
Falloff	ISIP							
	5							
	10							
	15							
	30							

Monitor ISIP and pressures at 5 minute intervals for 30 minutes after injection ceases (or until pressure falls to 0 psi). Maximum step rate pressures should be limited to 2400# during testing.

5. RDMO Service Company. Return well to injection.

Notes on Procedure:

Stabilized SITP may be too high to obtain injection rates at lower pressures.

Pressure steps do not have to be exact – purpose is to record several pressures & associated rates below and above the current permitted 0.2 psi/ft. to the top perforation depth (~740 psi). Anticipated rates at injection pressures less than 1600# are estimated at less than 0.6 BPM.

If parting pressure is achieved, continue with a minimum of 2 pressure step increases past that point, but at no time exceed maximum pressure of 2500#.

Subject wells are surface equipped for 3000# WP. Maximum step rate pressures are limited to 2500#.

String	Specs	ID	Drift	Burst	Set Depth	TOC
Surface Casing	10 3/4", 32.75#, H-40	10.192	10.036	1820	274	surface
Intermediate Casing	7 5/8", 24 #, H40	7.025	6.9	2750	3049	250
Production Casing	5 1/2", 15.5#, K-55	4.95	4.653	4810	6049	surface
Injection Tubing	2-3/8", 4.7#, J-55	1.995	1.901	7700	5683	NA

Conditions of Approval

Conoco Phillips Company
Warren Unit - 16, API 3002507876
T20S-R38E, Sec 33, 660FSL & 1980FEL
February 23, 2015

1. If available, submit an electronic copy (Adobe Acrobat Document) of a cement bond log ran on the 5 ½" csg. 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 <jchopp@blm.gov> 575.234.2227 or Bob Ballard <bballard@blm.gov> 575.234.5973.
3. Submit the well's stabilized current psig/ft surface pressure to the top perforation.
4. Submit an anticipated bottom hole fracture pressure for the field or pool formation.
5. State the **targeted** maximum bbl/min injection rate. **The objective is to avoid fracturing the injection formation.**
6. Submit the injection fluid lbs/gal weight.
7. Submit an anticipated formation fracture or breakdown pressure at the injection top.
8. 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.
9. 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. Record both surface and top perforation step pressures at five minute increments. Each step's time duration (usually 30 minutes) 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.
10. The Step Rate fluid used should be the same as the proposed injection fluid.
11. 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.
12. Use a down hole transmitting pressure device and a surface pressure device with accuracies of ±10psig to measure pressures.
13. **Notify BLM 575-200-7902 before beginning the test. If no answer, leave a voice mail with the API#, workover purpose, and a call back phone number.**
14. 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.
15. 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 ISIP is the maximum bottom hole pressure BLM will approve.

16. 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 48hr shut-in pressure recording of paragraph 8.
17. 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.

CFR 146.13(a)(1) & CFR 146.23(a)(1) - Class I wells are permitted stimulation injection pressure to exceed frac pressure while Class II (production water disposal) wells do not have that provision.

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

STEP RATE TEST DATA

*Well:*_____ *Date:*_____ *Operator* _____

STEP #1 Test Rate (5% of maximum rate) _____ (bbl/min)

Time (min) :							
Pressure (psi):							

STEP #2 Test Rate (10% of maximum rate) _____ (bbl/min)

Time (min) :							
Pressure (psi):							

STEP #3 Test Rate (20% of maximum rate) _____ (bbl/min)

Time (min) :							
Pressure (psi):							

STEP #4 Test Rate (40% of maximum rate) _____ (bbl/min)

Time (min) :							
Pressure (psi):							

STEP #5 Test Rate (60% of maximum rate) _____ (bbl/min)

Time (min) :							
Pressure (psi):							

STEP #6 Test Rate (80% of maximum rate) _____ (bbl/min)

Time (min) :							
Pressure (psi):							

STEP #7 Test Rate (100% of maximum rate) _____ (bbl/min)

Time (min) :							
Pressure (psi):							

ISIP : _____ (psi)

Test Run / Witnessed By: _____