OCD-HOBBS

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

HOBBSOCD

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.

JAN 20 2015

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

RECEIVED

5. Lease Serial No. NMLC063458	
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 ~~58~~ 45
2. Name of Operator CONOCOPHILLIPS COMPANY — Contact: RHONDA ROGERS — E-Mail: rogerrs@conocophillips.com	9. API Well No. 30-025-25488
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
4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)* Sec 26 T20S R38E Mer NMP SWSW 1980FSL 660FWL	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			
☒ 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 on this injection well to submit results for a injection pressure increase per attached procedure.
Attached is a current wellbore schematic.

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

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

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

Electronic Submission #272737 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 10/22/2014

APPROVED

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By _____ Title _____ Date JAN 8 2015

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

BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD 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 1/21/2015

JAN 21 2015

Schematic - Current

WARREN UNIT 059

District	Field Name	API / UWI	County	State/Province
PERMIAN CONVENTIONAL	WARREN	300252548800	LEA	NEW MEXICO

Original Spud Date	Surface Legal Location	East/West Distance (ft)	East/West Reference	North/South Distance (ft)	North/South Reference
3/24/1979	UL" L" Sec 26,T-20-S,R-38-E	660.00	W	1,980.00	S

VERTICAL - Main Hole, 10/22/2014 12:47:42 PM

MD (ftKB)	TVD (ftKB)	Incl (°)	Vertical schematic (actual)
9.8			
11.2			
1,509.8			
2,779.9			
4,009.8			
4,015.1			
5,524.9			
5,803.1			
5,859.9			
5,865.2			1; Tubing - Water Injection; 2 3/8; 10.0
5,937.0			
5,939.0			
5,952.1			
5,959.0			
5,984.9			Perf; 5,937.0-6,165.0; 4/27/1979
6,165.0			Perf; 5,939.0-6,176.0; 7/14/1992
6,175.9			
6,195.9			Perf; 6,196.0-6,255.0; 7/24/1992
6,254.9			
6,465.9			
6,500.0			
6,546.9			
6,589.9			
6,613.8			
6,629.9			Perf; 6,547.0-6,724.0; 4/21/1979
6,643.0			
6,654.9			Perf; 6,630.0-6,693.0; 7/24/1992
6,692.9			
6,706.0			
6,724.1			
6,746.1			
6,815.0			
6,850.1			
6,866.1			

Warren Unit #59

API# 30-025-25488

Step-Rate Testing

Location: Section 26, T20S, R38E, 1980 FSL & 660 FWL, Lea County, NM

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

Perforations: Blinebry 5937' - 6255' & Tubb 6614' – 6724'

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 well is surface equipped for 3000# WP. Maximum step rate pressures are limited to 2500#.

Conditions of Approval

ConocoPhillips Company
Warren Unit - 59, API 3002525488
T20S-R38E, Sec 26, 1980FSL & 660FWL
January 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. Submit a stabilized injection profile survey for the well for review.
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 , 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.**

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. Include a graph showing the stabilized pressure at each injection rate. Submit that data to BLM with the shut-in pressure recording of paragraph 8.
17. File a sundry subsequent report with the data collected, requesting your proposed wellhead injection pressure for BLM approval.

Notes:
These conditions of approval for a step-rate test is an adaptation of principals and comments from several sources. The major resource being a paper dated January 12, 1999 from the United States Environmental Protection Agency, Region VIII, 999 18th Street – Suite 500, Denver, Colorado.

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 minimum BLM conditions of approval is necessary for consideration of an injection pressure increase.