

State of New Mexico  
Energy, Minerals and Natural Resources Department

**Susana Martinez**  
Governor

**Ken McQueen**  
Cabinet Secretary

**Matthias Sayer**  
Deputy Cabinet Secretary

**Heather Riley**, Division Director  
Oil Conservation Division



New Mexico Oil Conservation Division approval and conditions listed below are made in accordance with OCD Rule 19.15.7.11 and are in addition to the actions approved by BLM on the following 3160-4 or 3160-5 form.

Operator Signature Date: Well information: Pritchard SWD #1 30-045-28351

Application Type:

P&A     Drilling/Casing Change     Location Change

**Recomplete/DHC** (For hydraulic fracturing operations review EPA Underground injection control Guidance #84; Submit Gas Capture Plan form prior to spudding or initiating recompletion operations)

**Other:**

Conditions of Approval:

- Notify NMOCD 24hrs prior to beginning operations.
- The wellbore schematic shows two intermediates – a bradenhead test will need to be performed prior to starting step-rate test with all valves dug out and exposed
- Attached is Guidelines for conducting step-rate tests – Rate changes will be .5 bpm or smaller unless the OCD witness determines that bigger rate changes are necessary due to small incremental increases in pressure. – normal procedure is increment started with runs through the whole test.
- Please supply history of injection pressures and volumes

  
NMOCD Approved by Signature

Date 2-27-18

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
OMB NO. 1004-0137  
Expires: January 31, 2018

**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.*

5. Lease Serial No.  
NMNM013686

6. If Indian, Allottee or Tribe Name

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

**SUBMIT IN TRIPLICATE - Other instructions on page 2**

8. Well Name and No.  
PRITCHARD SWD 1 SWD

9. API Well No.  
30-045-28351-00-S1

10. Field and Pool or Exploratory Area  
SWD MORRISON BLUFF ENTRADA

11. County or Parish, State  
SAN JUAN COUNTY, NM

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

2. Name of Operator Contact: TOYA COLVIN  
BP AMERICA PRODUCTION COMPANY Mail: Toya.Colvin@bp.com

3a. Address 3b. Phone No. (include area code)  
501 WESTLAKE PARK BLVD. THREE ELDRIGE PLACE Ph: 281.892.5369  
HOUSTON, TX 77079

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
Sec 34 T31N R9W NENW 0615FNL 1840FWL  
36.860250 N Lat, 107.770140 W Lon

**12. CHECK THE 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"/> Hydraulic Fracturing	<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
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	Workover Operations
	<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 recomplate 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 must 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 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

BP requests to perform a step rate test on the subject well.

Please see the attached procedure.

OIL CONS. DIV DIST. 3

FEB 13 2018

14. I hereby certify that the foregoing is true and correct.  
**Electronic Submission #402991 verified by the BLM Well Information System  
For BP AMERICA PRODUCTION COMPANY, sent to the Farmington  
Committed to AFMS for processing by JACK SAVAGE on 02/07/2018 (18JWS0097SE)**

Name (Printed/Typed) TOYA COLVIN Title REGULATORY ANALYST

Signature (Electronic Submission) Date 02/01/2018

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved By JACK SAVAGE Title PETROLEUM ENGINEER Date 02/07/2018

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 Farmington

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.

(Instructions on page 2)

**\*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\***

NMOCDA

**Pritchard SWD # 001**

API: 30-045-28351-00

Surface Location: C-34-31N-09W

**Scope**

This step-rate test is being performed in order to support a request to increase the maximum allowable injection pressure. The objective of the test is to demonstrate the surface pressure at which the formation begins to fracture. It will be achieved by increasing injection rates at predetermined increments.

**Procedure**

1. Shut well in at least 24 hours prior to performing step-rate test.
2. RU pump truck(s).
  - a. Disposal tank capacity is 2,000 bbls and can be used at WSL discretion.
  - b. Injection pressure and rate must be monitored and recorded in a digital format.
  - c. Casing and bradenhead pressures must be monitored during test.
3. Pump the following step-rate test schedule, keeping rates constant for the specified time intervals.
  - a. Once break-over is reached, continue pumping the next 3 stages and shut down.
  - b. Record ISIP.

<b>Injection Rate (BPM)</b>	<b>Injection Pressure (psig)</b>	<b>Time in Stage (min)</b>	<b>Volume Injected (bbl)</b>	<b>Cumulative Volume (bbl)</b>
0.0		15	0	0
0.5		15	7.5	7.5
1.0		15	15	22.5
1.5		15	22.5	45
2.0		15	30	75
3.0		15	45	120
4.0		15	60	180
5.0		15	75	255
6.0		15	90	345
7.0		15	105	450
8.0		15	120	570
9.0		15	135	705
10.0		15	150	855

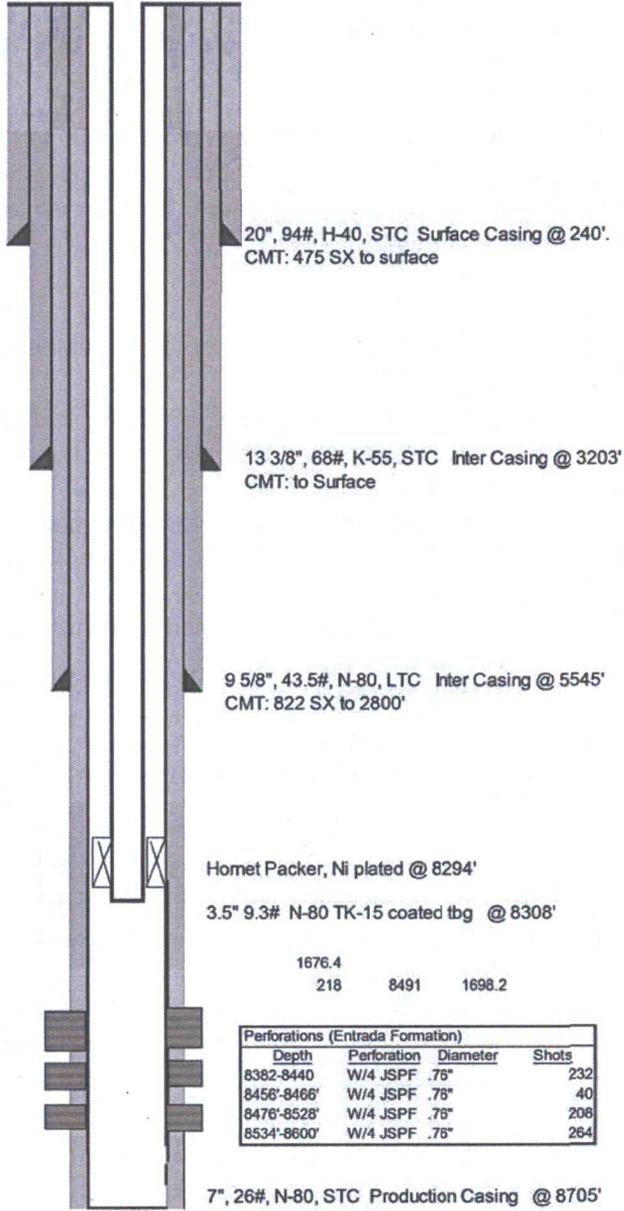
4. Shut down and rig down pump truck and data recording equipment.



**Pritchard SWD #001**  
 Coal  
 API # 30-045-28351  
 Unit C - Sec 34 - T31N - R09W  
 San Juan County, New Mexico

1928 Permitted Max inj psi  
 as of 8/9/2016

**Current WBD**  
 KB: 12'



Formation Tops:

Ojo Alamo	1600'
Fruitland	2600'
Pictured Cliffs	2912'
Lewis	3060'
Mesa Verde	4680'
Mancos	5475'
Gallup	6262'
Dakota	7280'
Morrison	7525'
Bluff	7929'
Entrada	8377'

Hornet Packer, Ni plated @ 8294'

3.5" 9.3# N-80 TK-15 coated tbg @ 8308'

1676.4  
 218      8491      1698.2

Perforations (Entrada Formation)			
Depth	Perforation	Diameter	Shots
8382-8440	W/4 JSPF	.76"	232
8456-8466	W/4 JSPF	.76"	40
8476-8528	W/4 JSPF	.76"	206
8534-8600	W/4 JSPF	.76"	264

7", 26# N-80 STC Production Casing @ 8705'  
 CMT: 175 SX to 7100'

PBTD: 8620'  
 TD: 8705'

## Guidelines for conducting step-rate tests

The operator must submit a written procedure and rig-up diagram to the OCD at least 24 hours before starting the test. The procedure will contain the following information:

- A description of the mechanical configuration of the well.
- The history of injection pressures and volumes.
- The history of any fracture treatments and pressures especially ISIP.

A bottom hole pressure recorder will be required for wells deeper than 2000' and injection rates greater than 1 BPM.

A pressure gauge and recorder of the appropriate range will be used during the test.

Wells currently injecting must be shut-in at least 24 hours before the test unless the shut-in pressures indicate that the well has not adequately stabilized and a longer time is necessary.

Starting pump rates and pressures must be lower than the current rates and pressures if the well is currently injecting and there must be at least 3 steps below the .2psi/ft gradient and 3 steps above the break-over point. Wells that are not fractured should not be tested at pressures that exceed the fracture gradient.

Pumping equipment must be able to pump at the rates and pressures needed for the test.

Rate changes will be .5bpm or smaller unless the OCD witness determines that bigger rate changes are necessary due to small incremental increases in pressure.

Each step will be at least 15 minutes in duration unless otherwise determined by the OCD. Step duration must not be changed during the test.

The operator must have enough water on hand for the test.

The casing and bradenhead pressures will be monitored during the test.

All wellhead equipment must be rated for the anticipated pressures.