

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

OCD HOBBS  
RECEIVED

JAN 05 2015

FORM APPROVED  
OMB No. 1004-0137  
Expires: October 31, 2014

**SUNDRY NOTICES AND REPORTS ON WELLS**

**Do not use this form for proposals to drill or to re-enter abandoned well. Use Form 3160-3 (APD) for such proposals.**

5. Lease Serial No.  
NM-0559539

6. If Indian, Allottee or Tribe Name

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

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

1. Type of Well

☐ Oil Well ☐ Gas Well ☒ Other SWD

8. Well Name and No.

James Federal #1

2. Name of Operator

Harvard Petroleum Company, LLC

9. API Well No.

30-025-31515

3a. Address

PO Box 936, Roswell, NM 88202

3b. Phone No. (include area code)

575-623-1581

10. Field and Pool or Exploratory Area  
W. Triste Draw, Delaware

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Unit O, 810' FSL & 1830' FEL, Sec 29-T23S-R32E NMPM

11. County or Parish, State  
Lea Co., NM

**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"/> 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
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	Run Step Rate Test
	<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 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 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.)

Notice of Intent to perform a Step Rate Test with Cardinal Services on October 16, 2016

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

WITNESS

SUBJECT TO LIKE  
APPROVAL BY STATE

Approval is good for 90 days.

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed)

Jeff Harvard

Title Manager

Signature

Date 10/09/2014

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Title

Office

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.

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 1)

FOR RECORD ONLY

JAN 07 2015

## Conditions of Approval

**Harvard Petroleum Company, LLC**  
**James - 01, API 3002531515**  
**T23S-R32E, Sec 29, 810FSL & 1830FEL**  
**December 31, 2014**

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. 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.
2. 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](mailto:pswartz@blm.gov) email.
3. Submit a stabilized injection profile survey for the well for review.
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. 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.
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  $\pm 10$ 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. Note the contact, time, & date in your subsequent report.**
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 ISIP is the maximum bottom hole 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. 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.
18. Notice of intent sundry approval is good for 90 days (completion to be within 90 days of 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 18<sup>th</sup> 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 BLM conditions of approval is necessary for consideration of an injection pressure increase.**