

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

OCT 20 2011

FORM APPROVED
OMB NO. 1004-0137
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.

5. Lease Serial No.

NMSF-077968

6. If Indian, Allottee or Tribe Name

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

8. Well Name and No.

Central Basin SWD #1

9. API Well No.

30-045-34426

10. Field and Pool, or Exploratory Area
Entrada

11. County or Parish, State

San Juan NM

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well

☐ Oil Well ☐ Gas Well ☒ Other SWD

2. Name of Operator

Energen Resources Corporation

3a. Address

2198 Bloomfield Highway, Farmington, NM 87401

3b. Phone No. (include area code)

(505) 325-6800

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

690 fnl, 1727 fwl Sec. 9 - 28N-13W

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

TYPE OF SUBMISSION

- ☒ Notice of Intent
☐ Subsequent Report
☐ Final Abandonment Notice

BP

TYPE OF ACTION

- | | | | |
|---|---|--|--|
| <input type="checkbox"/> Acidize | <input type="checkbox"/> Deepen | <input type="checkbox"/> Production (Start/Resume) | <input type="checkbox"/> Water Shut-Off |
| <input type="checkbox"/> Alter Casing | <input type="checkbox"/> Fracture Treat | <input type="checkbox"/> Reclamation | <input type="checkbox"/> Well Integrity |
| <input type="checkbox"/> Casing Repair | <input type="checkbox"/> New Construction | <input type="checkbox"/> Recomplete | <input checked="" type="checkbox"/> Other <u>Step Rate</u> |
| <input type="checkbox"/> Change Plans | <input type="checkbox"/> Plug and Abandon | <input type="checkbox"/> Temporarily Abandon | <u>Test</u> |
| <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 recompleat 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 recompleat 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 final site is ready for final inspection.)

Energen Resources plans to perform a step rate injection test according to the attached procedure to determine formation breakdown pressure in an effort to get the maximum allowable injection pressure increased.

RCVD OCT 25 '11

SWD NMOCD Permit: Administrative Order SWD-1106

OIL CONS. DIV.

DIST. 3

* Must have down hole gauges on wells deeper than 2000ft
* required to have three points above and below break over pressure

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

Adam Klem

Title District Engineer

Signature

Date 10/20/2011

ACCEPTED FOR RECORD

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

FARMINGTON FIELD OFFICE
BY Sm

Title 18 U.S.C. Section 1001, and Title 43 U.S.C. Section 1212, makes 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.

AV



Step Rate Test Procedure

Central Basin SWD

API #: 30-045-34426 / DP#: 3120773A

Field: Entrada/Bluff

San Juan County, New Mexico

TEST PROCEDURE

A. OBJECTIVE:

1. Perform Step Rate Injection Test to determine fracture pressure of injection zone

B. WELL DATA:

DEPTHS: TD: 7,706' PBTD: 7,611'

ELEVATIONS: GL: 6,015' KB: 6,032' (17' KBM)

SURFACE CASING: 10 3/4" K-55 40.5# ST&C casing set @ 600'.
Cemented in a single stage w/ 380 sacks, the cement was circulated.

INTERMEDIATE CASING: 7 5/8" K-55 26.40# LT&C casing set @ 4,675'.
Cemented in two stages w/ 915 sacks, the cement was circulated.

PRODUCTION LINER: 5 1/2" N-80 17# casing set @ 7,706'. Top of liner @ 4,445'.
Cemented in a single stage w/ 370 sacks, TOC @ 4,714'.

C. PROCEDURE:

1. Shut in Central Basin SWD for at least 24 hrs prior to testing to determine shut in formation pressures.

NOTE: If the shut in well flows, attach gauge to tubing string to measure the static surface pressure.

2. Conduct bradenhead test with OCD representative observing test.
3. Blow down casing to 0 psi.
4. MIRU pump truck for Step Rate Test.

5. Perform injection test as follows:

Rate [bbl/min]	Time [min]	Volume [bbl]
0.5	15	7.5
1	15	15
1.5	15	22.5
2	15	30
2.5	15	37.5
3	15	45
3.5	15	52.5

6. Record injection rates using a chart recorder or a strip chart in addition to pump truck's computer recorder.
7. Measure and record casing and bradenhead surface pressure with a gauge and recorder.
8. Measure and record injection pressures with a gauge and recorder. Record each step. Pressures must be corrected for the estimated frictional losses at each rate.
9. If the formation fracture pressure has definitively been exceeded (with at least three injection rate/pressure points greater than breakdown pressure), the test can be stopped.
10. Once test is completed, stop pumping. Close the line valve. Record ISIP. Allow pressure to bleed off into the formation.

D. ANALYSIS:

1. Estimated Maximum injection rate: 4 bbl/min
Estimated formation permeability: ≤ 5 md
2. Plot injection rates vs. stabilized pressure values graphically as a constant slope straight line to

the point where formation fracture pressure is exceeded. Continue to plot to two rate/pressure points that were obtained after the formation breakdown.

3. The ISIP will be considered the minimum pressure required to hold open a fracture in the formation.
4. In the event that no clear breakdown is observed, another SRT will be pumped with downhole pressure gauges.