

**THE APPLICATION OF DEVON ENERGY PRODUCTION CO., LP TO CONSIDER AN MER ALLOWABLE FOR HORIZONTAL WELLS IN THE M.B. MCKNIGHT LEASE IN THE SAND HILLS (TUBB) AND RUNNING W. (WICHITA-ALBANY) FIELDS, CRANE COUNTY, TEXAS**

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**HEARD BY:** Andres J. Trevino, P.E. - Technical Examiner  
Marshall F. Enquist - Legal Examiner

**HEARING DATE:** April 4, 2012

**APPEARANCES:**

**REPRESENTING:**

**APPLICANT:**

John Soule  
Allen S. Wilson  
Jimmy D. Sparks

Devon Energy Production Co., LP

**EXAMINERS' REPORT AND RECOMMENDATION**

**STATEMENT OF THE CASE**

Devon Energy Production Co., LP ("Devon") requests that an MER allowable of 400 BOPD be established for horizontal wells completed in the M.B. McKnight Lease (33220) in the Sand Hills (Tubb) Field and the M.B. McKnight Lease (24277) in the Running W. (Wichita-Albany) Field. Devon also requests that any accumulated overproduction be cancelled for these leases.

The application is unopposed and the examiners recommend approval of the requested MER and cancellation of overproduction.

**DISCUSSION OF EVIDENCE**

The M.B. McKnight lease operated by Devon is 5,760 acres in size. Within the McKnight lease numerous horizons are productive. The horizons include the Holt, Clearfork, Tubb, Wichita-Albany, Wolfcamp and the Wadell. Sand Hills (Tubb) Field production began in 1930 and has a top allowable of 93 BOPD. The Running W. (Wichita-Albany) Field was discovered in 1960 and has a top allowable of 82 BOPD. There are 90 oil wells in the McKnight lease that are completed in various productive zones. The fields are governed by Special rules that vary between 40 acres and 10 acres density.

In May 2005, Devon received a blanket Rule 10 exception for the M.B. McKnight

lease in nine fields including the Sand Hills (Tubb) Field and the Running W. (Wichita-Albany) Field to commingle all productive horizons in each vertical well. In February 2011 Devon received an entity for density authority for its M.B. McKnight lease for the same nine fields. This removed the between well spacing to allow commingling without the need for Rule 37 exceptions and eliminated the need to file individual proration plats. The average commingled vertical well currently produces 11 BOPD, 34 MCF of gas, a GOR of 3,115 and a 74% water cut.

In 2010 Devon drilled their first horizontal well in the Tubb formation. The horizontal wells have been successful with initial potentials between 200 to 600 BOPD. The horizontal wells have been drilled as close as 100 feet from vertical wells that have produced for 80 years and have high initial flow rates. Devon believes an additional 4 to 5 million barrels of oil could be recovered from the Tubb formation alone. To date Devon has drilled 15 horizontal wells in the Tubb, 3 horizontal wells in the Wichita-Albany, one horizontal well in the Holt and one in the Wolfcamp. All horizontal wells have had similar success. All formations are tight carbonates with an average permeability of 0.39 md. While commingled vertical wells are expected to recover 46,000 BO, horizontal wells are expected to recover 166,000 BO from one zone alone. Devon estimates vertical wells have recovered only 4.8% of the OOIP, while a typical recovery for a carbonate is 15 to 20% OOIP. Horizontal wells will help increase recovery rates from these tight carbonates.

Devon requests the MER allowable for only horizontal wells to help offset the issues created by having to assign a large amount of acreage unnecessarily to existing, low volume producing vertical wells. The horizontal wells will produce a volume that will be in compliance with existing allowables in accordance with Rule 86. However, due the 90 existing vertical wells each getting 40 acres, additional horizontal drilling will cause acreage in the McKnight lease to "run out".

Production data demonstrates that producing the horizontal wells at high rates will not damage the reservoir. Devon believes that producing the horizontal wells at capacity (up to 400 BOPD) will not harm the reservoir. The average oil rate for the horizontal wells initially is 300 BOPD, which then decreases and stabilizes at a rate of 100 BOPD. The producing gas-oil ratios are low between 1,000 to 3,000 scf/bbl per well. The GOR's remained nearly constant with a slight decrease at higher rates. Based on the 40 acre base units and allowance for 4,000 foot laterals, all horizontal wells would be in compliance with existing allowables. However there are sufficient acres remaining to continue the horizontal drilling to recover the remaining reserves.

Devon calculates the leases are not overproduced, but due to timing of filed forms commission records may indicate the leases are overproduced. Devon requests that any overage be cancelled.

### **FINDINGS OF FACT**

1. Notice of this hearing was given to all parties entitled to notice at least ten

days prior to the date of hearing.

2. The Sand Hills (Tubb) Field was discovered in 1930 and has a top allowable of 93 BOPD.
3. The Running W. (Wichita-Albany) Field was discovered in 1960 and has a top allowable of 82 BOPD.
4. The M.B. McKnight lease operated by Devon is 5,760 acres in size. Within the McKnight lease numerous horizons are productive. The horizons include the Holt, Clearfork, Tubb, Wichita-Albany, Wolfcamp and the Wadell. There are 90 vertical oil wells in the McKnight lease that are completed in various productive zones.
5. In May 2005, Devon received a blanket Rule 10 exception for the M.B. McKnight lease in nine fields including the Sand Hills (Tubb) Field and the Running W. (Wichita-Albany) Field to commingle all productive horizons in each vertical well.
6. In February 2011, Devon received an entity for density authority for its M.B. McKnight lease for the same nine fields. This removed the between well spacing to allow commingling without the need for Rule 37 exceptions and eliminated the need to file individual proration plats.
7. In 2010 Devon drilled their first horizontal well in the Tubb formation. The horizontal wells have been successful with initial potentials between 200 to 600 BOPD.
8. The average commingled vertical well currently produces 11 BOPD and 34 MCF of gas. The average well has a GOR of 3,115 and a 74% water cut.
9. To date Devon has drilled 15 horizontal wells in the Tubb, 3 horizontal wells in the Wichita-Albany, one horizontal well in the Holt and one in the Wolfcamp. All horizontal wells have had similar success.
10. Devon believes an additional 4 to 5 million barrels of oil could be recovered from the Tubb formation alone.
11. While commingled vertical wells are expected to recover 46,000 BO, horizontal wells are expected to recover 166,000 BO from one zone alone. Devon estimates vertical wells have recovered only 4.8% of the OOIP, while a typical recovery for a carbonate is 15 to 20% OOIP.
12. Devon requests the MER allowable for only horizontal wells to help offset the issues created by having to assign a large amount of acreage unnecessarily

to existing, low volume producing vertical wells.

13. Based on the 40 acre base units and allowance for 4,000 foot laterals, all horizontal wells would be in compliance with existing allowables.
14. Production data demonstrates that producing the horizontal wells at high rates (up to 400BOPD) will not damage the reservoir.
  - a. The average oil rate for the horizontal wells initially is 300 BOPD, which then decreases and stabilizes at a rate of 100 BOPD.
  - b. The producing gas-oil ratio is low, 1,000-3,000 cubic feet per barrel, and remained nearly constant to a slight decline at higher producing rates.
  - c. The lease allowable of 2.0 bb/acre/day will not be exceeded by horizontal well production.
5. The leases are not believed to be overproduced. Devon requests cancellation of any overproduction if Commission records indicates overproduction is occurring.

#### **CONCLUSIONS OF LAW**

1. Notice of this hearing was given as specified in the provisions of all regulatory codes.
2. All things have occurred or been accomplished to give the Commission jurisdiction in this matter.
3. Approval of an MER of 400 BOPD for horizontal wells completed in the M.B. McKnight Lease (33220) in the Sand Hills (Tubb) Field and the M.B. McKnight Lease (24277) in the Running W. (Wichita-Albany) Field and cancellation of overproduction for both leases will not cause waste and will not harm correlative rights.

#### **RECOMMENDATION**

Based on the above findings and conclusions of law, the examiner recommends approval of an MER of 400 BOPD for horizontal wells completed in the M.B. McKnight Lease (33220) in the Sand Hills (Tubb) Field and the M.B. McKnight Lease (24277) in the Running W. (Wichita-Albany) Field and cancellation of overproduction for both leases in Crane County, Texas.

Respectfully submitted,

Andres J. Trevino, P.E.  
Technical Examiner

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