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RAILROAD COMMISSION OF TEXAS

HEARINGS DIVISION

OIL AND GAS DOCKET NO. 10-0283059

THE APPLICATION OF APACHE CORPORATION TO ADOPT FIELD RULES FOR THE
PAINT RIDGE (CANYON GRANITE WASH) FIELD, OLDHAM COUNTY, TEXAS

HEARD BY: Andres J. Trevino, P.E. - Technical Examiner
Michael Crnich - Legal Examiner

HEARING DATE: July 12, 2013

APPEARANCES:

REPRESENTING:

APPLICANT:

Bill Spencer
Jim Clark
Chase Summers

Apache Corporation

EXAMINER'S REPORT AND RECOMMENDATION

STATEMENT OF THE CASE

Field rules (Statewide Rules) for the Paint Ridge (Canyon Granite Wash) Field are summarized as follows:

1. 467'-1,200' well spacing;
2. 40 acre oil units with 20 acre tolerance;
3. Allocation based on 100% per well.

Apache Corporation requests that field rules be adopted as follows:

1. Designation of the field as the correlative interval from 9,186 feet to 9,600

feet as shown on the log of the Apache Corporation's, Bivins LIT AC Lease Well No. 1155;

2. 467'-1,200' well spacing;
3. 80 acre oil units, 40 acre tolerance, No individual proration plats required;
4. A field wide MER of 1,700 BOPD and allocation based on 100% acreage.

This application was unopposed and the examiners recommend that the field rules for the Paint Ridge (Canyon Granite Wash) Field be adopted as requested.

DISCUSSION OF EVIDENCE

The Paint Ridge (Canyon Granite Wash) Field was discovered in March 2010 at an average depth of 9,175 feet. The field is currently under Statewide rules and is under going rapid vertical development. There are 18 wells that have been completed in the field. The wells have initial potentials as high as 1,700 BOPD. Cumulative production from the field is approximately 1.7 million BO and 1.4 BCF of gas. There are two other operators in the field.

The drainage radius calculation demonstrate the need for larger drilling units. Apache provided drainage calculations for three wells, the Boy's Ranch Well Nos. 1161 and 11610 and the Bivins-Lit AC Well No. 401. The Boy's Ranch Well No. 1161 had an estimated drainage area of 70 acres. This calculation was based on a porosity of 8.6%, water saturation of 43.7%, net pay thickness of 179 feet and a recovery factor of 10%. The estimated ultimate recovery for the Boy's Ranch Well No. 1161 is 360 MBO. The Boy's Ranch Well No. 11610 had an estimated drainage area of 87 acres. This calculation was based on a porosity of 10.4%, water saturation of 45.3%, net pay thickness of 125 feet and a recovery factor of 10%. The estimated ultimate recovery for the Boy's Ranch Well No. 11610 is 370 MBO. The Bivins-Lit AC Well No. 401 had an estimated drainage area of 70 acres. This calculation was based on a porosity of 8.7%, water saturation of 51.9%, net pay thickness of 72 feet and a recovery factor of 10%. The estimated ultimate recovery for the Bivins-Lit AC Well No. 401 is 127 MBO. Pressure depletion was found when wells were spaced at a density of 40 acres further indicating the wells will drain more than 40 acres. Numerous other oil fields in the area that produce from a similar Granite Wash interval have similar 80 acre density as the proposed Paint Ridge (Canyon Granite Wash) Field rules.

The wells are completed in the Canyon Granite Wash. The field should be designated as the correlative interval from 9,186 feet to 9,600 feet as shown on the log of the Apache Corporation's, Bivins LIT AC Lease Well No. 1155 as this interval includes the entire Canyon Granite Wash and portion of the Strawn Lime which has a clean section that produces minor amounts of oil and is believed not to be commercially productive on its

own. The 467'/1,200' spacing will allow Apache more flexibility in spacing as the field matures and a future waterflood unit is established in the field.

Apache requests that the lease wide MER of 1,700 BOPD per well approved by the Commission for Apache's Bivins-Lit, Bivins-West and Boy's Ranch 116 leases be expanded field wide. Oil and Gas docket 10-0278240 issued on February 26, 2013 approved an MER rate of 1,700 BOPD for all wells on those leases. There is no evidence that wells outside those leases will not produce at similar rates. The wells produce at a high rate due to the large pay thickness and higher than average permeability. The wells produce little to no water and produce at a low GOR of 1,000 scf/bbl. Producing the wells at a rate of 1,700 BOPD will not cause water coning or damage the reservoir.

FINDINGS OF FACT

1. Notice of this hearing was given to all persons entitled to notice at least ten days prior to the date of hearing.
2. Statewide field rules for the Paint Ridge (Canyon Granite Wash) Field provide for 467'-1,200' well spacing, 40 acre oil units and allocation based on 100% per well.
3. The Paint Ridge (Canyon Granite Wash) Field was discovered in March 2010 and cumulative production from the field is approximately 1.7 million BO and 1.4 BCF of gas.
4. The field is under going rapid vertical development. There are 18 wells that have been completed in the field.
5. A density rule providing for 80 acre units is appropriate for the field.
 - a. The calculated drainage area for the Apache's, Boy's Ranch Well No. 1161, is about 70 acres based on 360,000 BO estimated ultimate recovery.
 - b. The calculated drainage area for the Apache's, Boy's Ranch Well No. 11610, is about 87 acres based on 370,000 BO estimated ultimate recovery.
 - c. The calculated drainage area for the Apache's, Bivins-Lit AC Well No. 401, is about 70 acres based on 127,000 BO estimated ultimate recovery.

- d. Pressure depletion was found when wells were spaced at a density of 40 acres further indicating the wells will drain more than 40 acres.
7. Numerous other oil fields in the area that produce from a similar Granite Wash interval have similar 80 acre density.
8. The proposed 467'-1,200' well spacing will allow Apache to drill wells in optimum locations as the field matures and a future waterflood unit is established in the field.
9. The lease wide MER of 1,700 BOPD per well approved by the Commission for the Bivins-Lit, Bivins-West and Boy's Ranch 116 leases should be expanded field wide as the other wells on the other leases in the field should produce at similar rates.
10. The wells produce little to no water and produce at a low GOR of 1,000 scf/bbl. Producing the wells at a rate of 1,700 BOPD will not cause water coning or damage the reservoir.

CONCLUSIONS OF LAW

1. Proper notice of this hearing was issued.
2. All things have been accomplished or have occurred to give the Commission jurisdiction in this matter.
3. Adopting field rules for the Paint Ridge (Canyon Granite Wash) Field is necessary to prevent waste and protect correlative rights.

RECOMMENDATION

Based on the above findings and conclusions of law, the examiner recommends that field rules for the Paint Ridge (Canyon Granite Wash) Field be adopted to provide for 80 acre units, 467'-1,200' well spacing and a field wide MER of 1,700 BOPD per well.

Respectfully submitted,



Andres J. Trevino, P.E.
Technical Examiner



Michael Crnich
Legal Examiner