



RAILROAD COMMISSION OF TEXAS

HEARINGS DIVISION

OIL AND GAS DOCKET NO. 08-0294047

THE APPLICATION OF CITATION OIL & GAS CORP. TO AMEND FIELD RULES FOR THE SHAFTER LAKE, N. (SAN ANDRES) FIELD, ANDREWS COUNTY, TEXAS

HEARD BY: Brian Fancher, P.G. – Technical Examiner
Cecile Hanna – Legal Examiner

HEARING DATE: December 30, 2014
RECORD CLOSED: December 30, 2014
SUBMISSION DATE: January 13, 2015
CONFERENCE DATE: January 27, 2015

APPEARANCES:

REPRESENTING:

APPLICANT:

Dale Miller
Richard Atkins

Citation Oil & Gas Corp.

EXAMINERS' REPORT AND RECOMMENDATION

STATEMENT OF THE CASE

The existing special field rules for the Shafter Lake, N. (San Andres) Field (the "Field") provide:

1. A designated correlative interval that defines the field from 4,330 feet to 5,050 feet as shown on the log of the EOG Resources, Inc. - Shafter Lake 10 Lease, Well No. 1 (API No. 42-003-38729), Section 10, Block A-36, PSL Survey, A-2291, Andrews County, Texas;
2. 330' minimum property, lease, or subdivision line spacing, and 0' minimum between well spacing; horizontal well spacing based on take points; 100' first and last take points; Non-Perforated Zones ("NPZs"); a 33' subsurface box rule; and, off-lease penetration points
3. 40-acre proration units, with 40-acre tolerance; 10-acre optional proration units; maximum diagonal of 1,100 feet for a 10-acre proration unit;
4. Top oil allowable based on a formula - 450 barrels of oil multiplied by a fraction made of 75% maximum acreage and 25% maximum daily allowable (*i.e.*, per well).

Dated December 5, 2014, the captioned docket's Notice of Hearing ("NOH") indicates that Citation Oil & Gas Corp. ("Citation") seeks to amend the existing special field rules and proposes the following amendments:

1. No change;
2. No change;
3. Amend the existing optional proration unit density from 10-acres per well to 5-acres per well; filing of Form P-15 with a plat of the entire lease, in lieu of filing proration unit plats for acreage credit; no maximum diagonal limitation;
4. No change.

The subject application is unopposed and the examiners recommend that the application be approved, as requested by Citation.

DISCUSSION OF THE EVIDENCE

Mssrs. Dale Miller and Richard Atkins testified on behalf of Citation in the captioned docket, which centers on three requests - (1) to amend the Field's existing optional well density provision (*i.e.*, proration units) from 10-acres to 5-acres; (2) replace the requisite proration unit plat filings with the Form P-15 and a plat of the entire lease; and (3) remove the maximum diagonal limitation. Mssrs. Miller and Atkins are consulting petroleum engineers.

The Field was discovered in October 1952, and is designated as a non-associated field. In other words, there are no gas wells completed in the Field. The Field's cumulative production through September 2014 is roughly 3.9 million barrels of oil and 1.3 billion cubic feet of natural gas. However, nearly fifty percent (50%) of the Field's cumulative production has occurred since 2012.

Citation operates roughly 25 producing oil wells in the Field and has plans to further develop the Field with increased infill drilling. Thus, Citation seeks to downsize the Field's minimum optional acreage from 10-acres to 5-acres per well. Mr. Atkins testified that the Field's production has naturally declined since its discovery; however, in recent years past operators have greatly increased production from the Field by drilling new horizontal and vertical wells.¹ Until 2012, the Field's governing field rules were based on data gathered from about ten vertical wells that produced a total 1.26 million barrels of oil. However, in 2012 Forge Energy, LLC recompleted two plugged and abandoned vertical wells in the Field that resulted with oil production volumes greater than the entire Field's cumulative production within 18 months of initial production.

¹ Compare testimony at 5:00 of audio recording with Citation Exh. No. 4 – Graph of Annual Production. Between 2010 and 2013, the Field's annual production exponentially increased by roughly 400 times (*i.e.*, from 2,500 to 1,000,000 barrels of oil per year).

In support of its application, Mr. Atkins stated that the historical data used to develop the Field's density provision is in part antiquated. The net formation thickness value ("K-value"), which was incorporated into determining the existing optional density provision, utilizes an average K-value of roughly 35 feet, when in fact it should be expanded to about 110 feet.¹ The result of increasing the K-value to 110 feet consequently decreases the drainage area to less than 20-acres, assuming all other variables are respectively the same.

Citation submitted a volumetric calculation based on updated data from wells in the Field. Based on 11% porosity, 25% water saturation, 20% recover factor, and a K-value of 110 feet, Mr. Atkins believes that the recoverable oil in place ("ROP") underlying a 40-acre proration unit is 470,800 stock tank barrels ("STB"), while the ROP for a 5-acre proration unit is 58,850 STB.

In addition, Citation submitted an aerial map that includes: (1) the top of a structural subsurface horizon, or layer, within the Field's correlative interval; and (2) a petrophysical model based on an arithmetic product of oil saturation multiplied by porosity multiplied by height.² In summary, Mr. Atkins testified that the purpose of the petrophysical model is to simulate that the factors combined to produce the petrophysical model, which are based on over 1,000 data points, indicate a more true Estimated Ultimate Recovery for a vertical well in the field to be between 4.4 and 8.15-acres.³ As a result, Citation believes that its request to amend the Field's optional 5-acre density provision is appropriate.

In conclusion, Mssrs. Atkins and Miller testified that Citations's proposed field rule amendments will provide for orderly drilling, completion, and operation of wells in the subject field while preventing waste and protecting correlative rights.

FINDINGS OF FACT

1. Citation Oil & Gas Corp. ("Citation") seeks to amend the existing special field rules for the Shafter Lake, N. (San Andres) Field (the "Field"), Andrews County, Texas.
2. Citation's proposed field rule amendments include:
 - a. Change the existing minimum acreage requirement for the optional density provision from 10-acres per well to 5-acres per well;
 - b. For the determination of acreage credit for each well completed in the Field, allow the filing of a Form P-15 and a plat of the entire lease, in lieu of individual well proration unit plats;

¹ Compare testimony at 11:15, 19:40, and discussion at 23:38 of audio recording with Citation Ex. No. 10 – Volumetric Oil Content Calculation. Assuming all other variables are the same, Mr. Atkins believes that the average 7.81-acre drainage area, which is based on six wells on the same lease, is a more representative drainage calculation of wells in the Field.

² Citation Ex. No. 11.

³ Testimony at 26:50 of audio recording.

- c. Remove the existing maximum diagonal limitation.
3. Citation operates approximately 25 wells in the Field, and has exhibited a plan to further develop the Field by drilling additional vertical wells.
 4. The Field's cumulative production through September 2014 is roughly 3.9 million barrels of oil and 1.3 billion cubic feet of natural gas. Approximately fifty percent (50%) of the Field's cumulative production has occurred since 2012 as a result of increased vertical well drilling and new horizontal well drilling.
 5. The Field's average net formation thickness value ("net pay") is accurately described as being 110 feet in thickness, instead of being 35 feet in thickness.
 6. Assuming all other variables are the same, respectively, an increase in the Field's net pay to 110 feet in thickness decreases the radial drainage for a vertical well in the Field to between 4.4 and 8.15-acres.
 7. Amending the existing special field rules, as requested by Citation, is appropriate and will promote development of the field.

CONCLUSIONS OF LAW

1. Resolution of the subject application is a matter committed to the jurisdiction of the Railroad Commission of Texas – Tex. Nat. Res. Code §81.051.
2. Legally sufficient notice has been provided to all affected persons.
3. Amending the special field rules for the Shafter Lake, N. (San Andres) Field, as proposed by Citation Oil & Gas Corp, will prevent waste and protect correlative rights.

EXAMINERS' RECOMMENDATION

Based on the above findings of fact and conclusions of law, the examiners recommend that the special field rules for the Shafter Lake, N. (San Andres) Field be amended, as proposed by Citation Oil & Gas Corp.

Respectfully submitted,



Brian Fancher, P.G.
Technical Examiner



Cecile Hanna
Legal Examiner