

THE APPLICATION OF FORGE ENERGY, LLC, INC. TO AMEND FIELD RULES FOR THE SHAFTER LAKE, N. (SAN ANDRES) FIELD, ANDREWS COUNTY, TEXAS

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

HEARING DATE: July 25, 2012

APPEARANCES:

Michael McElroy
Cary McGregor

REPRESENTING:

Forge Energy, LLC

EXAMINERS' REPORT AND RECOMMENDATION

STATEMENT OF THE CASE

Field rules for the Shafter Lake, N. (San Andres) Field were last amended in Final Order No. 08-0269361, effective April 18, 2011, and are summarized as follows:

1. Designation of the field as the correlative interval 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;
2. 330'-0' well spacing;
3. 40 acre oil units with optional 10 acre density;
4. Allocation based on 95% potential and 5% acres with a top allowable of the 1965 Yardstick Allowable of 93 BOPD.

Forge Energy requests that the rules for the field be amended as follows:

1. No Change;
2. Special language for "take points" in horizontal wells, 100' first & last take point distance (dual lease line spacing), 33' box rule, and off-lease penetration points;
3. No Change;

4. Allocation based on 75% acreage and 25% per well, MER allowable of 450 BOPD.

The notice requested a special formula be approved to assign additional acreage based on length of a lateral in order to increase an allowable assigned to a horizontal well or instead approve an MER allowable of 450 BOPD per well. The examiners and the applicant agreed the MER allowable is more appropriate method of assigning increased allowables to high producing horizontal wells than increasing acreage assignments. The application was unopposed, and the examiners recommend that the field rules for the Shafter Lake, N. (San Andres) Field be amended as proposed by Forge Energy.

DISCUSSION OF EVIDENCE

The Shafter Lake, N. (San Andres) Field was discovered in 1952 at a depth of 4,559 feet. The field currently has 21 vertical oil wells on the proration schedule. There is one other operator in the field, Sandridge Exploration & Production. Forge Energy has no wells on the proration schedule but has drilled four horizontal wells in the field. The field operates under Special Rules that allow 40/10 acre density and 330'/0' well spacing.

The Shafter Lake, N. (San Andres) Field is mature, generally classified as a nearly depleted field that has been developed with vertical wells. The field has produced a cumulative production of 1.26 MMBO and was producing 10 BOPD from the entire field with vertical wells. The average cumulative production for vertical wells is 42,000 BO. The top eight vertical wells have cumulative production between 87,000 to 109,000 BO. Forge Energy recently drilled four horizontal wells in a section of the field that has six plugged and depleted oil wells completed in the San Andres formation. The Fischer State 17 No.1H, was completed in December 2011. The Fischer State 17 No.1H had an initial potential of 384 BO and 154 MCF of gas per day and 2,793 BWPD with a flowing tubing pressure of 335 psi. The Fischer 4 No. 2H was completed in December 2010. The well had a maximum oil rate of 465 BOPD and currently produces 59 BOPD. The Fischer 4 No. 2H has produced 74,424 BO and 35.8 MMCF. The Fischer 4 No. 4H was completed in July 2011. The well had a maximum oil rate of 557 BOPD and currently produces 57 BOPD. The Fischer 4 No. 4H has produced 46,472 BO and 16 MMCF. Because the wells were completed in depleted, plugged out sections of the field the additional production from the horizontal wells represents oil production that has been left behind by vertical drilling. The oil produced by the two horizontal wells in 18 to 12 months is equivalent to oil production produced from vertical wells in 50 years. Force Energy is planning on drilling additional horizontal wells.

Forge Energy is amending the existing field rules in the Shafter Lake, N. (San Andres) Field to adopt horizontal rules to allow efficient and orderly development of the Shafter Lake, N. (San Andres) Field with horizontal wells. The proposed horizontal rules

are similar to horizontal rules found in other horizontal play fields through out the State. Forge Energy requests adoption several standard horizontal well provisions commonly adopted when horizontal well development is anticipated. The provisions include take point language to allow flexible drilling of the laterals and off-lease penetration to allow the additional recovery of reserves by allowing the wellbore to be horizontal at a legal lease line location. An additional stage frac will be placed on each lateral if off lease penetration is allowed.

Forge Energy requests special spacing for the first and last take points on a horizontal lateral to be as close as 100 feet perpendicular to the lease line. This will reduce a "shadow zone" created when the first and last take points on adjacent wells are 660 feet apart. The reduced shadow zone will be only 200 feet wide allowing the recovery of additional reserves within the 460 foot zone that would otherwise go unrecovered. Forge Energy proposes a 33 foot "box rule" for horizontal drainhole wells that would allow drainholes to deviate 33 feet from either side of their permitted track without the necessity of obtaining a Statewide Rule 37 exception.

The current top allowable in the field is 93 BOPD based on the 1965 yardstick for 40 acres. It is common for newly completed wells to have very high initial production rates, followed by a steep decline. Forge Energy provided three examples of recent horizontal wells which produced in excess of 400 BOPD with 4,000 foot laterals. Future wells will be drilled with 5,000+ foot laterals. These high initial rates result in overproduction for the wells during the first couple of months of production. Increasing the top allowable for oil wells will prevent the accumulation of overproduction and the issuance of shut-in letters. Forge Energy requests a 450 MER allowable so that horizontal wells with additional acreage assigned to them will have allowables over 1,000 BOPD. Flat gas oil ratios of producing horizontal wells suggest no damage will result in producing the wells a high rates. Additionally, the remaining reserves being produced from the mature reservoir are mostly considered depleted. Forge Energy requests that the allocation formula for wells in the field be based on 75% acreage and 25% per well.

FINDINGS OF FACT

1. Notice of this hearing was given to all persons entitled to notice and no protests were received.
2. The Shafter Lake, N. (San Andres) Field was discovered in 1952 at a depth of 4,559 feet. The field currently has 21 vertical oil wells on the proration schedule.
3. The Shafter Lake, N. (San Andres) Field is a oil field which operates under Special Rules that include a designated interval, 330'/0' well spacing 40 acre

units with 10 acre optional units and 95% potential and 5% acre allocation.

4. The Shafter Lake, N. (San Andres) Field is mature, generally classified as a nearly depleted field that has been developed with vertical wells. The field has produced a cumulative production of 1.26 MMBO and was producing 10 BOPD from the entire field with vertical wells.
5. The average cumulative production for vertical wells is 42,000 BO. The top eight vertical wells have cumulative production between 87,000 to 109,000 BO.
6. Forge Energy recently drilled four horizontal wells in a section of the field that has six plugged and depleted oil wells completed in the San Andres formation.
7. The Fischer State 17 No.1H, was completed in December 2011. The Fischer State 17 No.1H had an initial potential of 384 BO and 154 MCF of gas per day and 2,793 BWPD with a flowing tubing pressure of 335 psi. The Fischer 4 No. 2H had a maximum oil rate of 465 BOPD and currently produces 59 BOPD. The Fischer 4 No. 2H has produced 74,424 BO and 35.8 MMCF. The Fischer 4 No. 4H had a maximum oil rate of 557 BOPD and currently produces 57 BOPD. The Fischer 4 No. 4H has produced 46,472 BO and 16 MMCF.
8. Field rules that provide for 100' lease line spacing for first & last take points, take point language, off lease penetration, and a "box rule" for horizontal wells will provide consistency with other horizontal play fields in the State under going horizontal drilling.
9. The proposed 33 foot "box rule" is necessary to allow operators reasonable minor deviations from the wellbore track that has been permitted.
10. Allowing off-lease penetration will allow an additional stage frac to be placed on each lateral causing the recovery of additional reserves that would otherwise be left in the ground.
11. The current top allowable in the field is 93 BOPD based on the 1965 yardstick for 40 acres.
12. Typically, new horizontal oil wells have high initial rates of production, followed by steep decline. Three recently completed horizontal oil wells initially produced at rates in excess of 400 BOPD, resulting in overproduction.

13. Allocation based on 75% acreage and 25% per well is a reasonable method of allocation which will protect the correlative rights of mineral owners in the field.

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. Amending the field rules for the Shafter Lake, N. (San Andres) Field is necessary to prevent waste, protect correlative rights and promote development of the field.

RECOMMENDATION

Based on the above findings of fact and conclusions of law, the examiners recommend amendment of the field rules for the Shafter Lake, N. (San Andres) Field as proposed by Forge Energy, LLC.

Respectfully submitted,

Andres J. Trevino, P.E.
Technical Examiner

Marshall F. Enquist
Hearings Examiner