

THE APPLICATION OF ENERGEN RESOURCES CORPORATION TO ADOPT FIELD RULE NOS. 5 AND 6 FOR THE TWO GEORGES (BONE SPRING) FIELD, LOVING, WARD AND WINKLER COUNTIES, TEXAS

HEARD BY: Richard D. Atkins, P.E. - Technical Examiner
Terry Johnson - Legal Examiner

HEARING DATE: May 3, 2012

APPEARANCES:

REPRESENTING:

APPLICANT:

Michael McElroy
Mark Solari

Energen Resources Corporation

EXAMINERS' REPORT AND RECOMMENDATION

STATEMENT OF THE CASE

Energen Resources Corporation ("Energen") requests that Field Rule Nos. 5 and 6 be adopted to allow a six month exception to Statewide Rule 13(b)(5)(a), which requires producing a flowing oil well through tubing, for all wells in the Two Georges (Bone Spring) Field. Energen also requests a six month exception to Statewide Rule 51(a) regarding a waiver of the 10 day rule for the filing of paperwork related to the completing of oil wells in the field. No other Field Rule changes are proposed for the field.

The application is unopposed and the examiners recommend adoption of Field Rule Nos. 5 and 6, as requested by Energen.

DISCUSSION OF EVIDENCE

The Two Georges (Bone Spring) Field was discovered in November 1997 at an average depth of 11,500 feet. There are 45 producing oil wells and 11 operators carried on the proration schedule. Cumulative production from the field through March 2012 is 3.4 MMBO and 4.9 BCFG.

The Two Georges (Bone Spring) Field is under going rapid development, as in addition to the producing wells, there are currently 260 permitted vertical and horizontal drilling locations in the field. The Wolfcamp and Bone Spring formations contain

over-pressured and normally pressured zones that are fracture stimulated with as many as 15 stages. The fracture stimulation requires high pressures and large volumes of frac fluid and proppant that exceed a tubing's burst strength and volume capacity. It typically takes 2 to 8 months for wells to recover load water and establish production representing stabilized flow of native reservoir fluids. Wellhead control is maintained as a "frac tree" is typically kept on the well until tubing is run into the well. Since snubbing operations have inherent safety risks and high costs, once surface pressures are manageable, usually less than 300 psi, the tubing can be installed. Energen opined that the average time for a typical well to recover its load water is 40 days, or about two months.

Statewide Rule 13(b)(5)(a) requires flowing oil wells to be produced through tubing and the rule does not allow for exceptions. Without an exception to this rule, flowing oil wells will be required to be rapidly depleted or killed. Energen fears that killing a well may permanently damage the well's completion, as frac fluid will remain in the reservoir and may negatively impact the long term production characteristics of the well. In addition, rapid depletion of reservoir pressure has shown to cause damage to Wolfcamp and Bone Spring completions by destabilizing frac proppant and shortening propped frac wings, which will reduce a well's ultimate recovery. A six month exception is needed, as typically, new oil wells have high initial rates of production, followed by a steep decline and wells perform better on restricted choke sizes, resulting in longer flowback periods to clean up.

Energen also requests that an oil well be granted administratively a six month exception to the provisions of Statewide Rule 51(a) regarding the 10 day rule for filing the potential test. This will allow for the backdating of allowables on the oil wells without requiring a waiver to be secured from all field operators. While allowables are needed to cover oil and gas volumes recovered during flowback and load recovery, early-time well test results are not representative of reservoir conditions in terms of flowing pressures and volumes of substances produced. This rule will grant the Commission the authority to issue an allowable back to the initial completion date for all oil wells in the field and will prevent unnecessary shut-ins to alleviate potential overproduction issues related to completion paperwork filings.

The proposed Field Rule Nos. 5 and 6 will allow operators of flowing oil wells in this field the flexibility to run tubing and file completion paperwork, without penalties, once the pressure and production rates have declined. Commission staff in the Field Operations Section have no issues with approving the proposed rules.

FINDINGS OF FACT

1. Notice of the hearing was given to all persons entitled to notice at least ten days prior to the date of hearing.
2. The Two Georges (Bone Spring) Field was discovered in November 1997 at an average depth of 11,500 feet. There are 45 producing oil wells and 11 operators carried on the proration schedule.

3. The Two Georges (Bone Spring) Field is under going rapid development, as in addition to the producing wells, there are currently 260 permitted vertical and horizontal drilling locations in the field.
4. Tubing installation can not occur until after the well has been fracture stimulated and the load water has been flowed back.
 - a. The Wolfcamp and Bone Spring formations contain over-pressured and normally pressured zones that are fracture stimulated with as many as 15 stages.
 - b. The fracture stimulation requires high pressures and large volumes of frac fluid and proppant that exceed a tubing's burst strength and volume capacity.
 - c. Since snubbing operations have inherent safety risks and high costs, once surface pressures are manageable, usually less than 300 psi, the tubing can be installed.
 - d. It typically takes 2 to 8 months for wells to recover load water and establish production representing stabilized flow of native reservoir fluids. The average time for a typical well to recover its load water is 40 days, or about two months.
5. Statewide Rule 13(b)(5)(a) requires flowing oil wells to be produced through tubing. Currently, the rule does not allow for exceptions.
6. Statewide Rule 13(b)(5)(a) does not require flowing gas wells to be produced through tubing.
7. Without an exception to Statewide Rule 13(b)(5)(a), flowing oil wells will be required to be rapidly depleted or killed.
 - a. Rapid depletion of reservoir pressure has shown to cause damage to Bone Spring completions by destabilizing frac proppant and shortening propped frac wings, which will reduce a well's ultimate recovery.
 - b. Killing a well may permanently damage the well's completion, as frac fluid will remain in the reservoir and may negatively impact the long term production characteristics of the well.
 - c. A six month exception is needed as typically, new oil wells have high initial rates of production, followed by a steep decline and wells perform better on restricted choke sizes, resulting in longer flowback

periods to clean up.

8. A Statewide Rule 51(a) exception will grant the Commission the authority to issue an allowable back to the initial completion date for all oil wells in the field and will prevent unnecessary shut-ins to alleviate potential overproduction issues related to completion paperwork filings.
9. Shutting-in oil wells to make up overproduction is not necessary to prevent waste.

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 Rule Nos. 5 and 6 for the Two Georges (Bone Spring) Field will prevent waste, protect correlative rights and promote the orderly development of the field.

RECOMMENDATION

Based on the above findings of fact and conclusions of law, the examiners recommend that the Commission adopt Field Rule Nos. 5 and 6 for the Two Georges (Bone Spring) Field, as proposed by Energen Resources Corporation.

Respectfully submitted,

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