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HEARINGS SECTION

RAILROAD COMMISSION OF TEXAS

OFFICE OF GENERAL COUNSEL

OIL AND GAS DOCKET NO. 01-0273318

THE APPLICATION OF ENERQUEST OPERATING, LLC FOR AN EXCEPTION TO STATEWIDE RULES 7 AND 13 FOR THE BAKER UNIT LEASE WELL NO. 2H, DUBOSE (EDWARDS-A-) FIELD, GONZALES COUNTY, TEXAS

HEARD BY: Andres J. Trevino P.E., Technical Examiner
James Doherty- Legal Examiner

HEARING DATE: January 13, 2012

APPLICANT:

John Soule
Tim Smith

REPRESENTING:

Enerquest Operating, LLC

EXAMINER'S REPORT AND RECOMMENDATION

STATEMENT OF THE CASE

Enerquest Operating, LLC requests that its Baker Unit Well No. 2H in the Dubose (Edwards-A-) Field be determined to be compliant with Statewide Rules 7 and 13 or in the alternative be granted an exception to Statewide Rules 7 and/or 13. Enerquest Operating requests that it not be required to squeeze additional cement behind a liner, above the productive interval. Enerquest Operating further requests authority to produce the well and that all over production be cancelled for the well.

This application was unopposed and the examiners recommend approval of the requested compliance determination to Statewide Rule 7 and exception to Statewide Rule 13.

DISCUSSION OF THE EVIDENCE

The Baker Unit Well No. 2H was drilled by Enerquest Operating on July 22, 2011 as a side tracked horizontal well in the Dubose (Edwards-A-) Field. The Dubose (Edwards -A-) Field is a mostly depleted associated gas field discovered in 1960 at a depth of 12,006 feet. The field has produced 85 BCF of gas. All wells are vertical wells with the exception

of the subject well and another well operated by Enerquest Operating. The Baker Unit Well No. 2H was completed as a marginal gas well. The G-1 filed shows an initial potential of 682 MCFPD and 1.6 BCPD. Early production increased to over 1,000 MCFPD and 190 BCPD after a gas lift system was installed to remove produced water. Current production from the well is approximately 700 MCFPD, 5 BCPD and 24 BCPD.

Enerquest Operating received a letter dated June 1, 2011 from the Commission's Technical Permitting department informing them the well was in violation Statewide Rule 7 and Statewide Rule 13(b)(4)(A). The letter specifically states "...the well is in violation of Statewide Rule 13 because the Austin Chalk, Eagle Ford, Georgetown, Buda, and Edwards are not considered to be adequately isolated and confined from each other...". The letter further states "Whenever hydrocarbons or geothermal resource fluids are encountered in any well drilled for oil, gas, or geothermal resources in this state, such fluid shall be confined in its original stratum until it can be produced and utilized without waste. Each such stratum shall be adequately protected from infiltrating waters."

The Baker Unit Well No. 2H has 2,500 feet of 9⁵/₈" surface casing with cement circulated from the casing shoe to the ground surface protecting the usable-quality ground water. A 5¹/₂" production casing is set at 12,349 feet with top of cement at 10,792 feet. An un-cemented 2⁷/₈" liner is set from 11,176 feet to the terminus point in the horizontal section of the well at a depth of 13,915 feet (MD). The well was completed using an uncemented liner with external packers to minimize damage to the partially depleted reservoir and to maximize exposure of the reservoir face to the un-cemented production liner.

The top of the productive Edwards "A" (productive interval) is found at a depth of approximately 11,880 feet TVD in this well. The first external packer is set in the Edwards "A" at a depth of 11,880 feet TVD or 12,200 MD. The well has external packers set within the open hole interval to terminus of the liner at a measured depth of 13,915 feet or 12,040 feet TVD. The interval in the wellbore from 11,304 feet (base of the whipstock window) to 11,880 feet TVD (top of the productive Edwards "A") is not cemented. Five formations are found adjacent to the uncemented liner, the Austin Chalk, Eagle Ford Shale, Georgetown, Buda and the Edwards. Of the five formations only the Eagle Ford Shale could possibly be productive. The Eagle Ford Shale is a low permeability, hydrocarbon containing shale that will not flow unless it is stimulated using large volume fracture stimulation. All of the other formations are unproductive in this area and are considered to have very low permeability.

Enerquest Operating does not believe it should be required to perform additional cement remedial work such as a cement squeeze above the Edwards "A" to get an allowable. Enerquest Operating believes a cement squeeze is unnecessary as there is no chance of crossflow from productive intervals to unproductive intervals. The five zones between the top external packer and the liner hanger packer are isolated from any infiltrating water zones. All productive intervals above 11,176 feet are isolated with cement to 10,792 feet per Schlumberger cement bond log. All freshwater zones are also isolated

with cement behind the surface casing. Enerquest Operating fears that squeezing cement above the external packer at a depth of 11,880 feet may cause damage to the well. Reserves will be lost as it is unlikely Enerquest Operating will repair the well to reestablish production in this marginal well. Any damage to the well will likely cause the well to be plugged instead of repaired causing waste to remaining reserves.

EXAMINERS OPINION

The examiners recommend that the exception to Statewide Rule 13 be granted. All formations between 11,304 feet (base of the whipstock window) to 11,880 feet are isolated from productive intervals. The formations immediately above the productive interval are tight, very low permeability or are unproductive in the area. The Eagle Ford Shale is the only zone that may be productive. It is unlikely the Eagle Ford Shale will cross flow into the other zones as it would require large fracture stimulations in order to initiate production. There is completion fluid under hydrostatic pressure pushing against the un-stimulated formations behind the uncemented liner. Performing a remedial cement squeeze above the external packer at 11,880 feet is unnecessary as cross flow will not occur. No benefit will be gained by cementing these tight, unproductive formations.

The examiners further believe the well is compliant with Statewide Rule 7 as each of the five zones in question either contain no hydrocarbon fluids or contain hydrocarbon fluids (Eagle Ford Shale) that will not flow out of the stratum unassisted and require large fracture stimulation to produce. Additionally, performing a remedial cement operation risks the well as anytime a well is reentered and tools are lowered and raised within the 12,000 foot well can result in damage occurring to the well, tools and/or equipment. Attempting to use coil tubing equipment inside a 2 $\frac{7}{8}$ " liner to perform the squeeze requires smaller than normal diameter tubing which increases the risk of prematurely cementing the coil tubing or cementing the coil tubing inside the 2 $\frac{7}{8}$ " liner. Performing a remedial cement squeeze risks damaging the well which could cause a loss of reserves as it is unlikely the well will be repaired to recover the remaining reserves from the partially depleted reservoir.

FINDINGS OF FACT

1. Notice of this hearing was given to all persons entitled to notice at least ten (10) days prior to the hearing.
2. The Baker Unit Well No. 2H is a horizontal well completed in the Dubose (Edwards-A-) Field. The Dubose (Edwards-A-) Field is an associated gas field discovered in 1960 at a depth of 12,006 feet.
3. The Baker Unit Well No. 2H was completed as a marginal gas well. The G-1 filed shows an initial potential of 682 MCFPD and 1.6 BCPD. Early production increased to over 1,000 MCFPD and 190 BWPD after a gas lift system was installed to remove produced water. Current production from the well is approximately 700 MCFPD, 5 BCPD and 24 BWPD.

4. The Baker Unit Well No. 2H was drilled by Enerquest Operating on July 22, 2011 as a horizontal side tracked well drilled to a measured depth of 13,920 feet MD.
 - a. The Baker Unit Well No. 2H has 2,500 feet of 9⁵/₈" surface casing with cement circulated from the casing shoe to the ground surface protecting usable quality ground water.
 - b. The Baker Unit Well No. 2H has 5¹/₂" production casing set at 12,349 feet with top of cement at 10,792 feet.
 - c. The Baker Unit Well No. 2H has an un-cemented 2⁷/₈" liner set from 11,176 feet (MD) to the terminus point in the horizontal section of the well at a depth of 13,915 feet (MD).
 - d. The well was completed using an uncemented liner with external packers to minimize damage to the partially depleted reservoir and to maximize exposure of the reservoir face to the un-cemented production liner.
5. Enerquest Operating received a letter dated June 1, 2011 from the Commission's Technical Permitting department informing them the well was in violation Statewide Rule 7 and Statewide Rule 13(b)(4)(A).
6. The top of the productive Edwards "A" (productive interval) is found at a depth of approximately 11,880 feet in this well. The horizontal section from 11,880 feet to 13,920 feet MD is an open hole completion with external packers to maximize production.
7. The interval in the wellbore from 11,304 feet (base of the whipstock window) to 11,880 feet is not cemented.
8. Five formations are found adjacent to the uncemented liner, the Austin Chalk, Eagle Ford Shale, Georgetown, Buda and the Edwards. Of the five formations only the Eagle Ford Shale could possibly be productive.
9. All formations between 11,304 feet (base of the whipstock window) to 11,880 feet are isolated from productive intervals. All freshwater zones are also isolated with cement behind the surface casing.
10. Performing a remedial cement squeeze above the external packer at a depth of 11,880 feet is unnecessary as cross flow will not occur therefore no benefit will be gained by cementing these tight, unproductive formations.
11. Performing a remedial cement squeeze risks damaging the well which will cause a loss of reserves as it is unlikely the well will be repaired.

CONCLUSIONS OF LAW

1. Proper notice was timely given to all parties entitled to notice pursuant to applicable statutes and rules.
2. All things have occurred and have been accomplished to give the Commission jurisdiction in this case.
3. The Baker Unit Well No. 2H has been determined to be compliant with Statewide Rule 7 as any fluids encountered behind the uncemented liner will be confined in its original stratum and each stratum is adequately protected from infiltrating waters.
4. Approval of the requested exception to Rule 13 for the Baker Unit Well No. 2H will not cause waste or harm correlative rights.

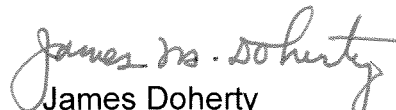
EXAMINER'S RECOMMENDATION

It is recommended that Enerquest Operating, LLC be granted an exception to Rule 13 for its Baker Unit Well No. 2H. The Baker Unit Well No. 2H is also determined to be compliant with Statewide Rule 7. Enerquest Operating is not required to perform a remedial cement squeeze below the liner hanger packer at 11,179 feet and above the external packer at 11,880 feet (TVD) of the well in order to receive an assignment of an allowable, assuming all other required completion papers have been properly filed.

Respectfully submitted,



Andres J. Trevino P.E.
Technical Examiner



James Doherty
Hearings Examiner