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RAILROAD COMMISSION OF TEXAS

HEARINGS DIVISION

OIL AND GAS DOCKET NO. 02-0307472

THE APPLICATION OF HILCORP ENERGY COMPANY TO ADOPT FIELD RULES
FOR THE REFUGIO-FOX (5800) FIELD, REFUGIO COUNTY, TEXAS

HEARD BY: Robert Musick - Technical Hearings Examiner
Clayton J. Hoover - Administrative Law Judge

HEARING DATE: February 1, 2018

CONFERENCE DATE: April 24, 2018

APPEARANCES:

REPRESENTING:

APPLICANT

Bill Hayenga
Randy Parker
Bruce McDonald
Jack Mercer

Hilcorp Energy Company

EXAMINERS' REPORT AND RECOMMENDATION

STATEMENT OF THE CASE

Hilcorp Energy Company (Hilcorp) seeks to amend the current oil and gas field rules in effect for the Refugio-Fox (5800) Field ("Field"), in Refugio County, Texas. Hilcorp seeks the proposed rule changes to facilitate oil and gas production within the Field using secondary oil and gas recovery technology, primarily water and carbon dioxide (CO₂) flooding. The Field has been inactive since the last production in 2007.

Hilcorp proposes to establish consistency between the oil and gas lease spacing and well spacing requirements; establish a correlative interval for the Field designated from 5,900 feet to 6,030 feet; amend the drilling unit for proration purposes to 20 acres for oil and gas wells with 10-acre optional density; and amend the allowable to be consistent with Rule 48 – capacity allowable.

Hilcorp has demonstrated that the proposed field rule amendments will prevent waste and protect correlative rights. Proper notice was given, and the application was not protested. The Technical Examiner and Administrative Law Judge (collectively, "Examiners") recommend that the amended field rules be granted as proposed by Hilcorp.

DISCUSSION OF THE EVIDENCE

The Field (No. 75612672) was discovered in the 1930s. The Commission recognized the Field as a separate and distinct interval on November 1, 1963.

On July 6, 1973 under Docket No. 2-63,051, a hearing was held for unitization and secondary recovery in the Refugio-Fox (5800) Field, Refugio, Texas. The unitization was approved on July 17, 1973 for the Oligocene Frio Sand, known as the Fox No. 1 Sand, found approximately 5,884 feet deep, which correlated to the Refugio-Fox (5800) Field.

The Field covers about 1,800 total acres and has been primarily developed using vertical wells from the 1930s to 2007. The net effective oil pay thickness is about 8.4 feet across the Field, with up to 20% recoverable oil remaining within the distinct unit. The average gravity of oil in the reservoir is 33.4 API. Original reservoir pressure was 2,680 psi, which has decreased over 88% to 300 psi at the present time.

The cumulative production estimates established by testimony has been 4.66 million barrels of oil (MMBO); 9.86 billion cubic feet (BCF) of gas; and 1.73 million barrels of water (MMBW). Production history shows oil and gas decreasing and water increasing over the monitoring period from about 1931 to 2007. Testimony indicated that approximately 30 wells were completed within the field over the production history, with well density being about one well per 66 acres.

Based on the proration schedule, no active oil and gas wells remain in the Field and currently, Hilcorp is the only operator with two injection wells.

Hilcorp is seeking field rule changes to utilize secondary and tertiary recovery technology such as water and CO₂ flooding to stimulate oil and gas production.

Hilcorp has performed reservoir mechanics testing on the Field by completing two injection wells identified as INJ1 (Fox-A No. 51) and INJ2 (Fox-A No. 52) to attain reservoir data and ultimately use the two injection wells as part of a potential secondary oil and gas recovery water flooding system upon approval by the Commission.

The reservoir mechanics indicate the Field has about 30 percent porosity and good permeability which will allow secondary and tertiary oil and gas recovery through water and CO₂ flooding. Faulting within the Field has minimal displacement and appears not to inhibit communication across the disturbed faulted stratigraphy. The stratigraphic slopes from the east to west and is a 40-foot elevation change, but any water or CO₂ flooding will be confined to the proposed correlative interval. Testimony estimates secondary or tertiary recovery technology should recover oil from the reservoir at volumes to be economically viable.

Hilcorp has utilized similar amended field rules under Oil and Gas Docket No. 02-0292677 (adopted March 24, 2015), The West Ranch (41A & 98A Cons.) Field in Jackson County, Texas, to utilize secondary recovery technology. Also, the Tom O'Connor (5800) Field, which is equivalent to the Refugio-Fox (5800) Field, has similar reservoir conditions. The oil and gas recovery in the Tom O'Connor (5800) Field using water flooding technology has met Hilcorp's oil and gas recovery estimates.

On October 19, 2017, Hilcorp requested a hearing to amend field rules. A Notice of Hearing was issued by the Commission on December 6, 2017 to all parties entitled to notice at least ten days prior to the date of the hearing. The hearing was held on February 1, 2018.

Hilcorp proposes to amend the current field rules to development the field using secondary and tertiary recovery technology and reduce waste and protect correlative rights. Below are the changes being requested for the Field:

- Establish the correlative Interval from 5,900 feet to 6,030 feet as shown on the log of the Hilcorp Energy Company, Fox No. 50 Well (API No. 423913307500) located in Refugio County, Texas. The correlative interval is designated as a single reservoir for proration purposes and shall be designated as the Refugio-Fox (5800) Field;
- Change Lease spacing from 467 feet to 330 feet for both oil and gas wells;
- Change well spacing from 1,200 feet for oil and gas wells to no spacing requirement for both oil or gas wells (0 feet);
- Change the acres per unit from 40 acres for oil and gas wells to 20 acres for oil and gas wells with 10-acre optional density to efficiently perform the secondary and tertiary recovery operations;
- Change the tolerance acreage from 20 acres to one (1) percent of the proration unit, or a maximum of 22 acres; and,
- Establish allocation per State Wide Rule 48 – capacity allowable.

Hilcorp indicates the proposed field rule amendments outlined in the hearing and itemized above will facilitate secondary and tertiary recovery of oil and gas in a field that has exhausted primary recovery operations. Development of the field using secondary and tertiary recovery technology will reduce waste and protect correlative rights.

The Examiners consider the proposed amendments and additions to be appropriate for the Field. Hilcorp has demonstrated that the amendments are necessary to continue recovery of oil and gas and prevent waste.

FINDINGS OF FACT

1. Notice of this hearing was given to all parties entitled to notice at least ten days prior to the date of the hearing and no protests were received.
2. The Refugio-Fox (5800) Field (No. 75612672) is in Refugio County, Texas.
3. Oil and gas has been recovered from parts of this Field since the 1930s. The Commission recognized the Refugio-Fox (5800) Field as a separate and distinct field on November 1, 1963. On July 6, 1973, under Docket No. 2-63,051, a hearing was held for unitization and secondary recovery in the Refugio-Fox (5800) Field, Refugio, Texas. The unitization was approved on July 17, 1973, for the Oligocene Frio Sand, located at 5,855 to 5,884 feet, which correlated to the Refugio-Fox (5800) Field in the docket.
4. The cumulative production estimates for the Refugio-Fox (5800) Field established by testimony has been 4.66 MMBO; 9.86 BCF of gas; and 1.73 MMBW.
5. Production history shows oil and gas decreasing and water increasing over the monitoring period from about 1931 to 2007. Testimony indicated that approximately 30 wells were completed within the field over the production history with well density being one well per 66 acres. Based on the proration schedule, no active oil and gas wells remain in the Field.
6. Hilcorp is seeking to amend field rule changes to utilize secondary and tertiary recovery technology such as water and CO₂ flooding to stimulate oil and gas production.
7. Testimony indicates reservoir mechanic testing estimates indicate the net effective oil pay thickness is about 8.4 feet across the Field, with 20% recoverable oil remaining within the distinct unit.
8. A hearing was held on February 1, 2018.
9. Hilcorp proposes to amend the current field rules to development the field using secondary and tertiary technology. Below are the changes being requested for the Field:
 - Establish the correlative Interval from 5,900 feet to 6,030 feet as shown on the log of the Hilcorp Energy Company, Fox No. 50 Well (API No. 423913307500) located in Refugio County, Texas. The correlative interval is designated as a single reservoir for proration purposes and shall be designated as the Refugio-Fox (5800) Field;
 - Change Lease spacing from 467 feet to 330 feet for both oil and gas wells;

- Change well spacing from 1,200 feet for oil and gas wells to no spacing requirement for both oil or gas wells (0 feet);
 - Change the acres per unit from 40 acres for oil and gas wells to 20 acres for oil and gas wells with 10-acre optional density to efficiently perform the secondary and tertiary recovery operations;
 - Change the tolerance acreage from 20 acres to one (1) percent of the proration unit or a maximum of 22 acres; and,
 - Establish allocation per Rule 48 – capacity allowable.
10. The proposed field rule amendments will reduce waste, protect corrective rights, and promote the orderly development of the field.
11. At the hearing, the Hilcorp agreed on the record that the Final Order in this case is to be effective when the Master Order relating to the Final Order is signed.

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. All notice requirements have been satisfied. 16 Tex. Admin. Code §§ 1.43 and 1.45.
3. The proposed field rules will prevent waste, protect correlative rights, and promote the orderly development of the field.
4. Pursuant to § 2001.144 (a)(4)(A) of the Texas Government Code and the agreement of the applicant, this Final Order is effective when a Master Order relating to the Final Order is presented at Commission conference and signed by the Commissioners.

EXAMINER'S RECOMMENDATION

Based on the above findings of facts and conclusions of law, the Examiners recommend the Commission enter an order granting the application of Hilcorp Energy Company to amend the field rules for the Refugio-Fox (5800) Field, in Refugio County, Texas.

Respectfully submitted,



Robert Musick
Technical Hearings Examiner



Clayton J. Hoover
Administrative Law Judge