

unprotested, and the Technical Examiner and Administrative Law Judge (collectively, "Examiners") recommend approval of the application.

DISCUSSION OF THE EVIDENCE

The Phantom (Wolfcamp) Field is the largest of the Wolfcamp fields in the Delaware Basin. The August 1, 2018 oil proration schedule for the Phantom (Wolfcamp) Field lists 1,669 oil wells on schedule, while the gas proration schedule for the Phantom (Wolfcamp) Field lists 385 gas wells on schedule. A dual lease line spacing rule for first and last take points was first adopted for the Phantom (Wolfcamp) Field in Oil and Gas Docket Number 08-0269114. In that docket, a dual lease line spacing rule for first and last take points of 200-foot non-perpendicular, 467-foot perpendicular was adopted to allow the recovery of additional reserves that would otherwise go unrecovered. This same dual lease line spacing rule for first and last take points was amended to 200-foot non-perpendicular, 330-foot perpendicular in Oil and Gas Docket No. 08-0290788.

The Ford, West (Wolfcamp) Field is positioned immediately west of the Phantom (Wolfcamp) Field and these two fields have grown together. Recently, the field rules for the Ford, West (Wolfcamp) Field were amended with the lease line spacing rule for first and last take point for horizontal wells in the non-perpendicular direction reduced from 200 feet to 100 feet (Oil and Gas Docket No. 08-0308425). Find of Fact No. 7 stated that the field rule amendment will increase recovery and prevent waste.

Centennial has drilled and cored wells in multiple zones in the Wolfcamp formation. These core samples show that the reservoir is ultra-low permeability that will not produce without hydraulic fracture stimulation. A statistical analysis of the core-derived permeability from 3 wells in the Phantom (Wolfcamp) Field shows 94% of cores to be in the nano-darcy range or lower, and 5% in the micro darcy range. The significance of the core permeability study is that there won't be flow in this reservoir rock without creating some kind of conductivity.

With horizontal wells drilled perpendicular to the direction fractures tend to propagate, there will be little contributing flow in the direction along the lateral. As a result, there is a need to get closer to the lease line in the non-perpendicular direction with respect to the hydraulically-induced fractures created, in order to recover reserves that would otherwise go unrecovered.

Using micro-seismic data, the drainage distance beyond the first and last take point in the heel-ward and toe-ward direction is estimated at 53 feet. This estimate is based on the average heel-ward and toe-ward growth of 21 monitored completion stages in a horizontal well targeting the correlative interval for the Phantom (Wolfcamp) Field.

To estimate the additional reserves that could be recovered by adding an additional 100 feet of perforated interval along each end of a horizontal well, Centennial looked at the production results of several operators with wells in the Phantom

(Wolfcamp) Field. The results ranged from 13,000 BOE to 28,000 BOE per 100 feet of drainhole length. If you multiply these results by 2 to account for adding an additional 100 feet to each end of the lateral (first and last take points 100 feet closer to lease lines), the additional recovery with the proposed rule change is 26,000 BOE to 56,000 BOE per horizontal drainhole well. These additional reserves would otherwise go unrecovered and wasted without the proposed rule change. In addition to the Ford, West (Wolfcamp) Field adopting the field rule amendment Centennial has proposed for the Phantom (Wolfcamp) Field, other resource plays in Texas have already adopted this field rule, including the Spraberry (Trend Area) Field.

Centennial agreed that, pursuant to the provisions of Texas Government Code §2001.144(a)(4)(A), this Final Order shall be final and effective on the date a Master Order relating to this Final Order is signed.

FINDINGS OF FACT

1. Notice of this hearing was provided to all operators in the field at least ten (10) days prior to the date of the hearing and no protests were received.
2. The Phantom (Wolfcamp) Field is the largest of the Wolfcamp fields in the Delaware Basin.
3. The August 1, 2018 oil proration schedule for the Phantom (Wolfcamp) Field lists 1,669 oil wells on schedule, while the gas proration schedule for the Phantom (Wolfcamp) Field lists 385 gas wells on schedule.
4. A dual lease line spacing rule for first and last take points was first adopted for the Phantom (Wolfcamp) Field in Oil and Gas Docket Number 08-0269114. In that docket, a dual lease line spacing rule for first and last take points of 200-foot non-perpendicular, 467-foot perpendicular was adopted to allow the recovery of additional reserves that would otherwise go unrecovered.
5. The dual lease line spacing rule for the Phantom (Wolfcamp) Field for first and last take points was amended to 200-foot non-perpendicular, 330-foot perpendicular in Oil and Gas Docket No. 08-0290788.
6. The Ford, West (Wolfcamp) Field is positioned immediately west of the Phantom (Wolfcamp) Field and these two fields have grown together.
 - a. The field rules for the Ford, West (Wolfcamp) Field were amended with the lease line spacing rule for first and last take point for horizontal wells in the non-perpendicular direction reduced from 200 feet to 100 feet (Oil and Gas Docket No. 08-0308425).

- b. Find of Fact No. 7 stated that the field rule amendment will increase recovery and prevent waste.
7. Centennial has drilled and cored wells in multiple zones in the Wolfcamp formation.
 - a. These core samples show that the reservoir is ultra-low permeability that will not produce without hydraulic fracture stimulation.
 - b. A statistical analysis of the core-derived permeability from 3 wells in the Phantom (Wolfcamp) Field shows 94% of cores to be in the nano-darcy range or lower, and 5% in the micro darcy range.
 - c. The significance of the core permeability study is that there won't be flow in this reservoir rock without creating some kind of conductivity.
 - d. With horizontal wells drilled perpendicular to the direction fractures tend to propagate, there will be little contributing flow in the direction along the lateral.
 - e. Reducing the lease line spacing in the non-perpendicular direction with respect to the hydraulically-induced fractures created will recover reserves that may otherwise go unrecovered.
8. Micro-seismic data estimates the drainage distance beyond the first and last take point in the heel-ward and toe-ward direction at 53 feet. This estimate is based on the average heel-ward and toe-ward growth of 21 monitored completion stages in a horizontal well targeting the correlative interval for the Phantom (Wolfcamp) Field.
9. Estimating the additional reserves that could be recovered by adding an additional 100 feet of perforated interval along each end of a horizontal well, based on the production results of several operators with wells in the Phantom (Wolfcamp) Field shows from 13,000 BOE to 28,000 BOE per 100 feet of drainhole length.
10. The Ford, West (Wolfcamp) Field and the Spraberry (Trend Area) Field have already adopted a first and last take point spacing rule for horizontal wells of 100-foot non-perpendicular, 330-foot perpendicular as requested by Centennial for the Phantom (Wolfcamp) Field.
11. Centennial agreed on the record that, pursuant to the provisions of Texas Government Code §2001.144(a)(4)(A), this Final Order shall be final and effective on the date a Master Order relating to this Final Order is signed.

CONCLUSIONS OF LAW

1. Proper notice was issued as required by all applicable statutes and regulatory codes.
2. All things have occurred and been accomplished to give the Commission jurisdiction in this matter.
3. Amending the field rules for the Phantom (Wolfcamp) Field will allow operators in the field to recover additional reserves and prevent waste.
4. Pursuant to §2001.144(a)(4)(A), of the Texas Government Code, this Final Order is final and effective when a Master Order relating to this Final Order is signed.

EXAMINERS' RECOMMENDATION

Based on the above findings of fact and conclusions of law, the Examiners recommend that the Commission amend the field rules for Phantom (Wolfcamp) Field, Culberson, Loving, Reeves, Ward, and Winkler Counties, Texas as requested by Centennial.

Respectfully submitted,



Karl Caldwell
Technical Examiner



Jennifer Cook
Administrative Law Judge