
APPLICATION OF ERSKINE OPERATING, L.L.C. FOR AN EXCEPTION TO STATEWIDE RULE 37 FOR ITS KARNEI UNIT, WELL NO. 4, LIONS (CORONA CONSOLIDATED) FIELD, GOLIAD COUNTY, TEXAS.

APPEARANCES:

John Soule
Michael Farley
Dwayne G. Jammal

Tim George

David Gross

REPRESENTING:

Erskine Operating, L.L.C.

Petrohawk Energy Corporation

Dominion E & P, Inc.

EXAMINERS' REPORT AND RECOMMENDATION

PROCEDURAL HISTORY

NOTICE OF HEARING:

October 24, 2006

HEARING:

November 13, 2006

HEARD BY:

Mark J. Helmueller, Hearings Examiner
Thomas H. Richter, Technical Examiner

RECORD CLOSED:

November 15, 2006

REPORT ISSUED:

January 12, 2007

STATUS:

Protested

STATEMENT OF THE CASE

Erskine Operating, L.L.C. (hereinafter "Erskine") seeks an exception to Statewide Rule 37 for its Karnei Unit Well No. 4, Lions (Corona Consolidated) Field, Goliad County, Texas. (hereinafter "Karnei No. 4" and/or "subject well"). The subject well was permitted with an administrative exception to Rule 37, 170 feet from the southwest lease line and 307 feet from the southeast lease line under Permit No. 605110 issued on August 17, 2005. After the well was drilled and completed, a directional survey was filed which showed the as-drilled bottomhole location for the well was 72 feet from the southwest lease line and 279 from the southeast lease line. Consistent with Rule 11(c)(1)(A), applicant was instructed to file for an amended as-drilled permit and that notice of application would be sent to the offset operators pursuant to Rule 37 reflecting the as-drilled location. Petrohawk Energy Corporation (hereinafter "Petrohawk") and Dominion E & P (hereinafter "Dominion") filed protests and appeared at the hearing.

After the hearing, the parties waived circulation of a proposal for decision if the examiners determined from the evidence presented that the as-drilled location was reasonable and complied with the existing drilling permit. Because the evidence shows Erskine engaged in reasonable and prudent efforts to steer the well to the permitted location after becoming aware that the well had unintentionally deviated from the projected profile, the examiners recommend the as-drilled location

be determined as reasonable and confirm that the subject well is in substantial compliance with the original drilling permit.

DISCUSSION OF THE EVIDENCE

The subject well was originally permitted in the Lions (Corona SD.), Lions (Corona, Lower), Lions (Corona Stray) and Wildcat Fields under Permit No. 605110 as a vertical well at a location 170 feet from the southwest lease line and 307 feet from the southeast lease line. The nearest well on the lease in the Lions (Corona SD.) and Lions (Corona, Lower) Fields was located 340 feet from the permitted location for the Karnei No. 4. Field rules required minimum lease line spacing of 467 feet and between well spacing of 1200 feet at the time the application was filed on August 17, 2005. Erskine submitted written waivers for an exception to the spacing requirements from Erskine Energy, a company affiliated with Erskine Operating, L.L.C., and Mission Resources Corporation as offset operators. Based on the waivers, the application was administratively approved.

The Lions (Corona SD.), (Corona, Lower) and (Corona Stray) Fields were consolidated into the Lions (Corona Consolidated) Field by Commission Order entered December 13, 2005. The Lions (Corona Consolidated) Field is subject to lease line spacing requirements of 330 feet and between well spacing requirements of 660 feet.

The Karnei No. 4 was drilled and completed as a vertical well. The well was spudded in August 2005, and the drilling rig was released in October 2005. The first sales of the well were on November 2, 2005, and the well completion was finished December 4, 2005. Erskine filed its completion papers for the well on January 19, 2006. At the time of the hearing the well had produced 4.6 Bcf of natural gas with an estimated ultimate production of 9 Bcf.

After the well was drilled and completed, a directional survey was filed which showed the as-drilled bottomhole location for the well was 72 feet from the southwest lease line and 279 from the southeast lease line. On August 21, 2006, the Commission's Oil & Gas Division advised Erskine to file an amended Commission Form W-1 (Application for Permit to Drill, Recomplete or Re-Enter) for the as-drilled location. Notice of Application was sent to offset operators Dominion and Petrohawk, both of which filed protests.¹

Erskine originally sought an exception location for the well to avoid power lines and other surface impediments, as well as to encounter the maximum number of stacked Corona sands. Erskine's structure/fault overlay map shows that due to faulting, a well at a regular location would not encounter all three Corona sands.

Erskine initially projected the well would walk to the northwest based on the well history

¹While not specifically discussed in the hearing, it appears that the ownership interests in the offsetting properties changed between the time of the issuance of the new permit and the filing of the amended W-1 for the as drilled location.

from other wells in the area. When the well reached approximately 8000 feet, the angle of inclination had increased to two degrees. Due to the build up in angle, Erskine ran a directional survey which confirmed its original projection that the well would move toward the northwest and remain approximately parallel to the nearest lease line. Drilling continued to a depth of approximately 10,000 feet where Erskine set its intermediate casing. As a precautionary measure, Erskine included a measurement while drilling tool (MWD) for its continued drilling operations. The MWD tool indicated the well was now moving toward the nearest lease line, although Erskine could not determine the actual location because there was no directional survey run between 8,000 and 10,000 feet. Erskine believed the well would move northwest again, and due to gas influx and return problems was unable to pull out of the well to pick up steering tools until it had reached the depth for setting its drilling line.

At an approximate depth of 12,900 feet, Erskine set a 7 5/8" drilling line and added steering tools to move the well back toward the original permitted location. The post drilling directional survey for the well shows that Erskine had successfully steered the well so that it was now moving back away from the lease line. At 14,900 feet, the MWD tool malfunctioned due to high temperature eliminating Erskine's ability to steer the well. The post drilling directional survey shows the well remained parallel to the nearest lease line until it reached its total depth ("TD") of 17,000 feet.

The directional survey of the well indicated that the bottom hole at TD was located 72 feet from the southwest lease line and 279 from the southeast lease line. The total displacement of the well was approximately 100 feet, which Erskine contends is reasonable and in substantial compliance with its original permit based on the TD for the well. A copy of the wellbore path schematic is attached for reference as Attachment A.

EXAMINERS' OPINION

Statewide Rule 11(c)(1)(A) provides:

When the maximum displacement indicated by an inclination survey is greater than the actual distance from the surface location to the nearest lease line or pooled unit boundary, it will be considered to be a violating well subject to plugging and to penalty action. However, an operator may submit a directional survey, run at his own expense by a commission approved surveying company, to show the true bottom hole location of the well to be within the prescribed limits. When such directional survey shows the well to be bottomed within the confines of the lease, but nearer to a well or lease line or pooled unit boundary than allowed by applicable rules, or by the permit for the well if the well has been granted an exception to §§3.37 of this title (relating to Statewide Spacing Rule), a new permit will be required if it is established that the bottom hole location or completion location is not a reasonable location.

The examiners are of the opinion that the Karnei No. 4 as-drilled bottom hole location is

reasonable and the well is in substantial compliance with the original permit. The deviation of the wellbore was unexpected and does not appear to be intentional. Erskine acted in a reasonable and prudent fashion in attempting to steer the well back to the original permitted location after it discovered the well had moved toward the lease line. Accordingly, the examiners believe that the as-drilled location is reasonable and in substantial compliance with the original permit.

RECOMMENDATION

Based on the evidence in this record the examiners recommend that the following findings of fact and conclusions of law be adopted.

FINDINGS OF FACT

1. All interested parties received at least 10 days notices of this hearing. Applicant Erskine Operating, L.L.C. (hereinafter "Erskine") appeared at the hearing and presented evidence. Offset operators Petrohawk Energy Corporation (hereinafter "Petrohawk") and Dominion E & P (hereinafter "Dominion") filed protests and appeared at the hearing.
2. Erskine seeks an exception to Statewide Rule 37 for its Karnei Unit Well No. 4, Lions (Corona Consolidated) Field, Goliad County, Texas. (hereinafter "Karnei No. 4" and/or "subject well"). The subject well was permitted with an administrative exception to Rule 37, 170 feet from the southwest lease line and 307 feet from the southeast lease line under Permit No. 605110 issued on August 17, 2005. Field rules required minimum lease line spacing of 467 feet and between well spacing of 1200 feet at the time the application was filed on August 17, 2005. Erskine submitted written waivers for an exception to the spacing requirements from Erskine Energy, a company affiliated with Erskine Operating, L.L.C., and Mission Resources Corporation as offset operators. Based on the waivers, the application was administratively approved.
3. The Lions (Corona SD.), (Corona, Lower) and (Corona Stray) Fields were consolidated into the Lions (Corona Consolidated) Field by Commission Order entered December 13, 2005. The Lions (Corona Consolidated) Field is subject to lease line spacing requirements of 330 feet and between well spacing requirements of 660 feet.
4. The Karnei No. 4 was drilled and completed as a vertical well. The well was spudded in August 2005, and the drilling rig was released in October 2005. The first sales of the well were on November 2, 2005, and the well completion was finished December 4, 2005. Erskine filed its completion papers for the well on January 19, 2006. At the time of the hearing the well had produced 4.6 Bcf of natural gas with an estimated ultimate production of 9 Bcf.
6. After the well was drilled and completed, a directional survey was filed which showed the as-drilled bottomhole location for the well was 72 feet from the southwest lease line and 279

from the southeast lease line.

7. On August 21, 2006, the Commission's Oil & Gas Division advised Erskine to file an amended Commission Form W-1 (Application for Permit to Drill, Recomplete or Re-Enter) for the as-drilled location.
8. Erskine originally sought an exception location for the well to avoid power lines and other surface impediments, as well as to encounter the maximum number of stacked Corona sands. Erskine's structure/fault overlay map shows that due to faulting, a well at a regular location would not encounter all three Corona sands.
9. Erskine engaged in reasonable and prudent operations to steer the well to the permitted location after discovering it had deviated toward the nearest lease line.
 - A. Erskine initially projected the well would walk to the northwest based on the well history from other wells in the area.
 - B. When the well reached approximately 8000 feet, the angle of inclination had increased to two degrees. Due to the build up in angle, Erskine ran a directional survey which confirmed its original projection that the well would move toward the northwest and remain approximately parallel to the nearest lease line.
 - C. Drilling continued to a depth of approximately 10,000 feet where Erskine set its intermediate casing.
 - D. As a precautionary measure, Erskine included a measurement while drilling tool (MWD) for its continued drilling operations. The MWD tool indicated the well was now moving toward the nearest lease line, although Erskine could not determine the actual location because there was no directional survey run between 8,000 and 10,000 feet. Due to gas influx and return problems Erskine was unable to pull out of the well to pick up steering tools until it had reached the depth for setting its drilling line.
 - E. At an approximate depth of 12,900 feet, Erskine set a 7 5/8" drilling line and added steering tools to move the well back toward the original permitted location.
 - F. The post-drilling directional survey for the well shows that Erskine had successfully steered the well so that it was now moving back away from the lease line.
 - G. At 14,900 feet, the MWD tool malfunctioned due to high temperature eliminating Erskine's ability to steer the well.
 - H. The post-drilling directional survey shows the well remained parallel to the nearest

lease line until it reached its total depth ("TD") of 17,000 feet. The survey indicated that the bottom hole at TD was located 72 feet from the southwest lease line and 279 from the southeast lease line. Total displacement is approximately 100 feet.

CONCLUSIONS OF LAW

1. The subject application on Commission form W-1 was properly filed.
2. Proper notice of hearing was timely given to all persons legally entitled to notice.
4. All things have been done and have occurred to give the Commission jurisdiction to decide this matter.
5. The as-drilled location of the Karnei No. 4 well as shown by the directional survey is reasonable under the circumstances encountered during drilling operations, given the actions taken by Erskine and the total depth of the well.
6. The Karnei No. 4 well is in substantial compliance with the original permit application.

RECOMMENDATION

The examiners recommend that the attached Final Order be entered finding:

1. The as-drilled location for the Karnei No. 4 well is reasonable;
2. the Karnei No. 4 well as drilled is in substantial compliance with the original drilling permit; and,
3. Erskine's application for an exception to Rule 37 for the as-drilled location of the Karnei No. 4 well be dismissed as moot.

Respectfully submitted,

Mark J. Helmueller
Hearings Examiner

Thomas H. Richter
Technical Examiner