



RAILROAD COMMISSION OF TEXAS

OFFICE OF GENERAL COUNSEL

RULE 37 CASE NO. 0270459

Status No. 712676

District 09

APPLICATION OF CHESAPEAKE OPERATING, INC., FOR A RULE 37 EXCEPTION FOR THE RUDDER LEASE, WELL NO. 3H, NEWARK, EAST (BARNETT SHALE) FIELD, TARRANT COUNTY, TEXAS

APPEARANCES:

FOR APPLICANT:

Glenn E. Johnson
Ray Oujesky
David C. Triana
Bill G. Spencer
Alan Jackson
Steve Mills

APPLICANT:

Chesapeake Operating, Inc.

FOR PROTESTANT:

James D. Bradbury
Trae Fowler

PROTESTANT:

Midway Business Properties, L.P.

PROPOSAL FOR DECISION

PROCEDURAL HISTORY

DATE APPLICATION FILED:

August 2, 2011

DATE OF NOTICE OF HEARING:

November 4, 2011

DATE OF HEARING:

February 29, 2012

HEARD BY:

James M. Doherty, Hearings Examiner

Andres J. Trevino, Technical Examiner

DATE TRANSCRIPT RECEIVED:

March 13, 2012

DATE PFD CIRCULATED:

March 27, 2012



STATEMENT OF THE CASE

Chesapeake seeks a Rule 37 exception for the as-drilled location of the Rudder Lease, Well No. 3H, a horizontal well in the Newark, East (Barnett Shale) Field, Tarrant County, Texas. The Rudder #3H has an existing drilling permit issued June 1, 2011, which is subject to three no perforation zones (“NPZs”) that are 920 feet, 1,234 feet, and 431 feet in length, respectively. This well has been drilled but only partially completed. A 746 foot section of the drainhole at the toe of the well has been perforated, and as partially completed, the well has produced 0.064 BCF of gas. This is the only existing well on the 283.248-acre Rudder Lease. The purpose of this application is to obtain a second amended drilling permit for the Rudder #3H unencumbered by the NPZs, which will allow Chesapeake to complete the entire 5,415 foot drainhole. Appendix 1 to this proposal for decision is a copy of a plat included in Chesapeake’s Exhibit No. 13 which shows the Rudder unit, tracts within the unit that are leased and unleased, and the as-drilled location of the Rudder #3H.¹

The Chesapeake application is opposed by Midway Business Properties, L.P. (“Midway”). Midway is the unleased owner of five tracts of land within the perimeter of the Rudder pooled unit comprising 9.248 acres. Three of these unleased tracts are within 330 feet of the Rudder #3H: Tract No. 157 - 244 feet; Tract No. 168 - 81 feet; and Tract No. 322 - 195 feet. The applicable lease line spacing rule for horizontal wells in the Newark, East (Barnett Shale) Field is 330 feet measured from take points in the horizontal drainhole.

DISCUSSION OF THE EVIDENCE

Chesapeake

A consultant to Chesapeake described the permitting history of the Rudder #3H. The original drilling permit for this well was issued on March 25, 2011. This permit allowed the drilling of a well on a 256.416-acre unit with relatively short sections of drainhole that could be perforated near the penetration point and near the toe of the well, with a relatively long NPZ in between. Chesapeake had no intention of drilling and completing the well in this configuration. The purpose of seeking the original permit from the Railroad Commission was to enable Chesapeake to move forward with

¹ This plat differs from the plat attached to the Notice of Hearing in that Chesapeake was successful in leasing additional tracts within the perimeter of the unit between the time the application was filed and the time of the hearing. Also, a 431 foot NPZ opposite Tract No. 346 was eliminated and Tract No. 346 was divided into a number of smaller tracts in the southwest corner of the Unit on the Appendix 1 plat. At the time the application was filed, Chesapeake thought Tract No. 346 was a single tract owned by the State through condemnation of the right-of-way for Hwy. 121. The NPZ was placed opposite Tract No. 346 because Chesapeake did not want to perforate the well opposite the State tract without seeking a lease from the State. Additional title work established, however, that the minerals had not been acquired by the State and were beneath multiple smaller tracts in the southwest corner of the Unit. Chesapeake was successful in leasing some of these small tracts, including all of them that were within 330 feet of the Rudder #3H. This eliminated the need for the 431 foot NPZ because the only tracts the NPZ was designed to protect are now leased to Chesapeake.

obtaining a permit from Haltom City. Haltom City will not commence the city permitting process until the operator has obtained a drilling permit from the Railroad Commission.

A first amended permit was issued for the Rudder #3H on June 1, 2011. The application that led to the issuance of this permit was a Rule 37 application because there were nine unleased tracts within 330 feet of the well. Notice was served on the unleased owners who were affected, and two of these owners, including Midway, filed protests. To avoid the need for a Rule 37 hearing at this stage of the permitting process, Chesapeake filed a revised plat that placed NPZs opposite the unleased tracts of the two owners who had protested. These NPZs placed all proposed take points in the well at least 330 feet from protestants' tracts. As amended by the revised plat, the application was approved administratively. Acceptance of the NPZs allowed Chesapeake to "clear as much of the lateral as possible" for perforations prior to the need for an actual Rule 37 hearing. The first amended permit is the existing permit for the Rudder #3H. As indicated, this permit is subject to three no perforation zones ("NPZs") that are 920 feet, 1,234 feet, and 431 feet in length, respectively. The 1,234 foot NPZ is opposite the affected tracts owned by protestant Midway.

The present application for a second amended permit for the Rudder #3H was filed on August 2, 2011. This application seeks to permit the well at the as drilled location. The surface location of the well is 915 feet from the east line and 1,311 feet from the south line of the Norris, W. Survey, A-1166. The terminus location is 138 feet from the southeast line and 1,210 feet from the northeast line of the unit and 511 feet from the south line and 2,376 feet from the west line of the Stanley, G. B. Survey, A-1379. The penetration point location is 330 feet from the north line and 1,266 feet from the northeast line of the unit.

Special field rules for the Newark, East (Barnett Shale) Field provide for 330 foot lease line spacing. As to horizontal wells, where the horizontal portion of the well is cased and cemented back above the top of the Barnett Shale formation, the distance to any property line, lease line, or subdivision line is calculated based on the distance to the nearest perforation in the well, and not based on the penetration point or terminus.

A Chesapeake geologist presented a two well stratigraphic cross section hung on top of the Barnett Shale formation. The wells on the cross section are two pilot wells drilled through the Barnett Shale at locations to the northeast and southwest of the Rudder unit. Chesapeake's geologist also presented a gross isopach map demonstrating thickness of the Barnett Shale of about 360 feet in the area of the Rudder unit. The results of the isopach mapping were provided to a Chesapeake reservoir engineer for his use in making volumetric calculations of reserves. Chesapeake's reservoir engineer testified that the stratigraphic cross section and isopach map demonstrate that the Barnett Shale is present and productive throughout the area of the Rudder unit.

Chesapeake's reservoir engineer presented a plot of estimated ultimate recovery versus drainhole length for 96 producing Barnett Shale wells within 3.5 miles of the Rudder unit. A computer generated least squares regression of the data points on the plot developed a line through

the data points with a positive slope of 0.8691 and an intercept of 912.54. The implication of this plot is that a horizontal well in the Barnett Shale ultimately will recover 0.8691 MMCF of gas per foot of drainhole plus 912.54 MMCF.

Chesapeake's reservoir engineer also presented an estimate of gas in place and current recoverable gas in the Newark, East (Barnett Shale) Field beneath the Rudder unit based on an assumption taken from a traditional volumetric calculation performed by Devon Energy & Production Company, L.P. in a 2005 Barnett Shale field rules hearing before the Commission in Oil & Gas Docket No. 09-0243843. Devon's study developed a gas in place calculation of 139 BCF per square mile (640 acres) for Tarrant County based on reservoir thickness of 433 feet. The Commission accepted Devon's volumetric calculation and relied upon it in the 2005 Barnett Shale field rules hearing, and the results of the Devon study have been presented and relied upon in several subsequent Rule 37 cases involving the Barnett Shale. Chesapeake's reservoir engineer has performed his own volumetric calculations using Chesapeake data and believes that Devon's calculation of 139 BCF per square mile based on reservoir thickness of 433 feet is conservative. His volumetric calculation using Chesapeake's data for the Rudder unit shows that gas in place is closer to 147 BCF per square mile.

Extrapolating, however, from the more conservative Devon calculation, and assuming it to be correct, original gas in place for the Rudder unit is 51.15 BCF. Assuming a recovery factor of 35%, the original recoverable gas in place beneath the Rudder unit was 17.9 BCF. There has been a minor amount of production from the partially completed Rudder #3H, and subtracting that production leaves remaining recoverable gas in place of 17.837 BCF. Chesapeake's reservoir engineer believes that the 35% recovery factor is reasonable based on recoveries seen by Chesapeake on other fully developed units in the area of the Rudder unit.

Because of the location of the unleased tracts within the perimeter of the Rudder pooled unit, there are no regular locations on the unit where a horizontal well of feasible length could be drilled. Without further leasing, any horizontal well of feasible length drilled on this unit will require a Rule 37 exception, because the well will be closer than allowed by the lease line spacing rule to either an unleased tract internal to the unit or an external unit boundary. The Rudder #3H is the only existing well on this unit. Based on the methodology for determining estimated ultimate recovery developed from Chesapeake's plot of estimated ultimate recovery versus drainhole length for 96 producing Barnett Shale wells within 3.5 miles of the Rudder unit, the projected ultimate recovery for the Rudder #3H is 5.619 BCF. If the 1,234 foot NPZ around protestant Midway's tracts were retained, the ultimate recovery of the Rudder #3H would be reduced to 4.546 BCF. This means that 1.072 BCF of gas that otherwise could be recovered by the Rudder #3H would go unrecovered if the Midway NPZ were retained. Chesapeake made an attempt to lease the Midway tracts, but was not successful.

Midway

Midway Business Properties, L.P. is the owner of five unleased tracts within the perimeter of the Rudder pooled unit. The tracts that are within 330 feet of the Rudder #3H are Tract Nos. 157, 168, and 322. The distances from these tracts to the Rudder #3H are as follows: Tract No. 157 - 244 feet; Tract No. 168 - 81 feet; and Tract No. 322 - 195 feet. The acreage in the Midway tracts is as follows: Tract No. 157 - 1.565 ac.; Tract No. 168 - 1.926 ac.; Tract No. 181 - 0.391 ac.; Tract No. 303 - 0.217 ac.; and Tract No. 322 - 5.149 ac.

Midway's first notice of Chesapeake's effort to obtain a drilling permit for the Rudder #3H was a Notice of Application issued May 6, 2011. Midway filed a protest to the application, although Midway's owner testified that he did not understand from the notice exactly what he was protesting or what the issues might be. After the filing of the protest, Midway received a letter from Examiner Enquist in the Hearings Section explaining that Chesapeake had amended its application by filing a revised plat placing a NPZ on the proposed well that precluded any perforation in the well within 330 feet of Midway's tracts. This letter explained further that because the revised plat with the NPZ placed the well at a "regular" location under the applicable field rules, the application had been approved administratively on June 1, 2011.² The letter also stated that should Chesapeake subsequently file a new application seeking to remove the NPZ and propose to perforate the well closer than 330 feet to a Midway tract, Midway would be entitled to notice of the application and an opportunity to protest the application at hearing. According to Midway's owner, he did not understand at the time what a NPZ was, but he gathered that (1) his protest was moot; (2) Chesapeake was moving forward with the well; and (3) the well would not be drilled on Midway's property.

The next notice that Midway received relative to the Rudder #3H was the Notice of Hearing in the present docket issued on November 4, 2011. Midway's owner testified that he was "confused" about what was being sought by Chesapeake, but filed a protest in any event. He could not discern from the notice that any property interest of Midway was jeopardized by the Chesapeake application.³

Subsequent to the filing of Midway's protest in response to the November 4, 2011, notice, Midway's owner was contacted by a Chesapeake representative about the possibility of leasing the Midway tracts. During November 2011, Chesapeake made an offer of a bonus of \$12,500 per net mineral acre and a 25% royalty. Midway countered with an offer to accept a bonus of \$17,500 per net mineral acre if Chesapeake would accept Midway's lease form. According to Midway's owner,

² This would have been the first amended drilling permit for the Rudder #3H relied upon by Chesapeake to drill and partially complete the well.

³ This would have been the present application of Chesapeake, the practical effect of which would be to remove the NPZs imposed in the first amended drilling permit.

in 2008 Chesapeake had made a bonus offer of \$22,500 per net mineral acre, which Midway did not immediately sign off on because its accountant advised that it would be advantageous to make this deal after January 1, 2009. During this same time period, Midway declined a lease offer from XTO because it believed it had an agreement in principle with Chesapeake. The bonus offer of \$22,500 per net mineral acre was subsequently withdrawn by Chesapeake.

About two weeks after the November 2011 meeting with Chesapeake's representative, Chesapeake rejected Midway's counteroffer. About one week prior to the hearing in this docket, Chesapeake sent an email to Midway's owner offering a bonus of \$2,500 per net mineral acre based on use of Chesapeake's lease form.

Midway would like to see the minerals beneath its tracts produced. Midway's opposition to Chesapeake's application is based on its desire to be compensated for the production of its minerals. Midway believes that the pendency of this Rule 37 case affected Chesapeake's lease offer to Midway.

EXAMINERS' OPINION

An owner of oil and gas is entitled to an opportunity to recover the reserves underlying his tract, and any denial of that opportunity amounts to confiscation. *Atlantic Refining Co. v. Railroad Commission*, 346 S.W.2d 801 (Tex. 1961); *Imperial American Resources Fund, Inc. v. Railroad Commission*, 557 S.W.2d 280 (Tex. 1977). When the subject tract is capable of supporting a regular location, the applicant for a Rule 37 exception based on confiscation must prove that the proposed irregular location is necessary because of surface or subsurface conditions and that the proposed location is reasonable. To do this, the applicant must show that it is not feasible to recover its fair share of hydrocarbons from regular locations.

The examiners are of the opinion that the Chesapeake application should be granted as necessary to prevent confiscation. Chesapeake's "fair share" is measured by the amount of current recoverable reserves beneath the leased acreage in the Rudder unit. The evidence shows that current recoverable reserves are 17.837 BCF. Denial of an opportunity to Chesapeake to produce this "fair share" of gas from the reservoir would amount to confiscation. It is not feasible for Chesapeake to recover its "fair share" from wells at regular locations on the Rudder unit. Although Chesapeake has leased about 86% of the acreage within the perimeter of the Rudder unit, the location of the remaining unleased tracts within the unit is such that there are no regular locations on the unit where a horizontal well of feasible length could be drilled. Without further leasing, any horizontal well of feasible length drilled on this unit will require a Rule 37 exception, because the well will be closer than allowed by the lease line spacing rule either to an unleased tract internal to the unit or an external unit boundary.

The Rudder #3H is the first well on the Rudder unit. If this well can be completed along its entire 5,415 foot drainhole, the well ultimately will recover about 5.619 BCF. Under optimal

circumstances, the Rudder #3H cannot recover Chesapeake's entire "fair share" of 17.837 BCF, and retention of the NPZs on the existing permit for the well would cause a further "fair share" deficit. If the 1,234 foot NPZ around protestant Midway's tracts were retained, the ultimate recovery of the Rudder #3H would be reduced to 4.546 BCF. This means that 1.072 BCF of gas that otherwise could be recovered by the Rudder #3H would go unrecovered if the Midway NPZ were retained. Furthermore, while Midway is Chesapeake's only opposition, there are two other NPZs on the existing permit for the Rudder #3H that must be considered. The three NPZs on the existing permit for the well collectively have a length of 2,585 feet. Retention of all three NPZs would reduce the Rudder #3H recovery by about 2.246 BCF.

The examiners believe that the location of the Rudder #3H is reasonable. The well is located roughly in the center of the Rudder pooled unit. It does not appear that there is an alternative location for a comparable horizontal well that would be less irregular to surrounding mineral property lines. In fact, under present circumstances, the location of the Rudder #3H may be the only location on the unit where a comparable well might be drilled without the danger of an unintentional trespass on an unleased tract.

The examiners acknowledge the legitimate interest of Midway in attempting to prevent drainage of gas from beneath its tracts without compensation and have considered Midway's correlative rights. These rights must be weighed, however, against the correlative rights of Chesapeake and its lessors. The gas beneath the Midway tracts is only a fraction of the 1.072 BCF of gas that would go unrecovered if the 1,234 foot NPZ around the Midway tracts were retained. Midway has been provided an opportunity to lease to Chesapeake and be included in the Rudder unit, and may still have this opportunity. The Railroad Commission is without authority, however, to require the parties to enter into a lease or to dictate to the parties any particular lease terms or bonus amount.

Based on the evidence in the record of this case, the examiners recommend adoption of the following Findings of Fact and Conclusions of Law.

FINDINGS OF FACT

1. At least ten (10) days notice of this hearing was provided to all affected persons as defined by Statewide Rule 37(a)(2) and 37(a)(3) and the special field rules for the Newark, East (Barnett Shale) Field.
2. Chesapeake seeks a Rule 37 exception for the as-drilled location of the Rudder Lease, Well No. 3H, a horizontal well in the Newark, East (Barnett Shale) Field, Tarrant County, Texas.
3. The Rudder #3H has an existing drilling permit issued June 1, 2011, which is subject to three no perforation zones ("NPZs") that are 920 feet, 1,234 feet, and 431 feet in length, respectively.

4. The Rudder #3H has been drilled but only partially completed. A 746 foot section of the drainhole at the toe of the well has been perforated, and as partially completed, the well has produced 0.064 BCF of gas.
5. The Rudder #3H is the only existing well on the 283.248-acre Rudder Lease.
6. The purpose of this application is to obtain a second amended drilling permit for the Rudder #3H unencumbered by the NPZs, which will allow Chesapeake to complete the entire 5,415 foot drainhole. Appendix 1 to this proposal for decision is a copy of a plat included in Chesapeake's Exhibit No. 13 which shows the Rudder unit, tracts within the unit that are leased and unleased, and the as-drilled location of the Rudder #3H. Appendix 1 is incorporated into this finding by reference.
7. The Chesapeake application is opposed by Midway Business Properties, L.P. ("Midway"). Midway is the unleased owner of five tracts of land within the perimeter of the Rudder pooled unit comprising 9.248 acres. Three of these unleased tracts are within 330 feet of the Rudder #3H: Tract No. 157 - 244 feet; Tract No. 168 - 81 feet; and Tract No. 322 - 195 feet.
8. Special field rules for the Newark, East (Barnett Shale) Field provide for 330 foot lease line spacing. As to horizontal wells, where the horizontal portion of the well is cased and cemented back above the top of the Barnett Shale formation, the distance to any property line, lease line, or subdivision line is calculated based on the distance to the nearest perforation in the well, and not based on the penetration point or terminus.
9. Chesapeake made an attempt to lease the Midway tracts, but was not successful.
10. The stratigraphic cross section and isopach map presented into evidence by Chesapeake's geologist demonstrate that the Barnett Shale is present and productive throughout the area of the Rudder unit. Average Barnett Shale thickness beneath the Rudder unit is about 360 feet.
11. The estimated ultimate recovery for horizontal wells completed in the Barnett Shale in the area of the Rudder unit is 912.54 MMCF of gas plus 0.8691 MMCF per foot of drainhole.
 - a. Chesapeake's reservoir engineer presented a plot of estimated ultimate recovery versus drainhole length for 96 producing Barnett Shale wells within 3.5 miles of the Rudder unit.
 - b. A computer generated least squares regression of the data points on the plot developed a line through the data points with a positive slope of 0.8691 and an intercept of 912.54.

- c. The implication of this plot is that a horizontal well in the Barnett Shale ultimately will recover 0.8691 MMCF of gas per foot of drainhole plus 912.54 MMCF.
12. Original gas in place for the Rudder unit is at least 51.15 BCF, assuming the accuracy of volumetric calculations by Devon Energy & Production Company, L.P. in a 2005 Barnett Shale field rules hearing before the Commission in Oil & Gas Docket No. 09-0243843 that showed original gas in place to be 139 BCF per square mile where reservoir thickness is 433 feet.
 - a. The Commission accepted Devon's volumetric calculation and relied upon it in the 2005 Barnett Shale field rules hearing, and the results of the Devon study have been presented and relied upon by the Commission in several subsequent Rule 37 cases involving the Barnett Shale.
 - b. Chesapeake's reservoir engineer has performed his own volumetric calculations using Chesapeake data and believes that Devon's calculation of 139 BCF per square mile based on reservoir thickness of 433 feet is conservative. His volumetric calculation using Chesapeake's data for the Rudder unit shows that gas in place is closer to 147 BCF per square mile.
 - c. Devon's calculation of 139 BCF per square mile was used to estimate gas in place for the Rudder unit for the sake of consistency with gas in place data relied upon by the Commission in prior Barnett Shale Rule 37 cases and to make a conservative estimate of gas in place for the Rudder unit.
13. Assuming a recovery factor of 35%, the original recoverable gas in place beneath the Rudder unit was 17.9 BCF. There has been a minor amount of production from the partially completed Rudder #3H, and subtracting that production leaves remaining recoverable gas in place of 17.837 BCF.
14. The 35% recovery factor used to estimate current recoverable reserves is based on recoveries seen by Chesapeake on other fully developed units in the area of the Rudder unit.
15. The Rudder #3H is a first well on the Rudder unit. If this well can be completed along its entire 5,415 foot drainhole, the well ultimately will recover about 5.619 BCF.
16. If the 1,234 foot NPZ around protestant Midway's tracts were retained, the ultimate recovery of the Rudder #3H would be reduced to 4.546 BCF. This means that 1.072 BCF of gas that otherwise could be recovered by the Rudder #3H would go unrecovered if the Midway NPZ were retained.

17. While Midway is Chesapeake's only opposition, there are two other NPZs on the existing permit for the Rudder #3H that must be considered. The three NPZs on the existing permit for the well collectively have a length of 2,585 feet. Retention of all three NPZs would reduce the Rudder #3H recovery by about 2.246 BCF.
18. The NPZs on the existing permit for the Rudder #3H prevent the well from producing gas beneath tracts of land under lease to Chesapeake.
19. Although Chesapeake has leased about 86% of the acreage within the perimeter of the Rudder unit, the location of the remaining unleased tracts within the unit is such that there are no regular locations on the unit where a horizontal well of feasible length could be drilled. Without further leasing, any horizontal well of feasible length drilled on this unit will require a Rule 37 exception, because the well will be closer than allowed by the lease line spacing rule either to an unleased tract internal to the unit or an external unit boundary.
20. The location of the Rudder #3H, as proposed to be completed by Chesapeake, is reasonable.
 - a. Completion of the entire as-drilled drainhole is necessary to provide Chesapeake with an opportunity to recover as much of its fair share of gas as is possible.
 - b. The well is located roughly in the center of the Rudder pooled unit.
 - c. It does not appear that there is an alternative location for a comparable horizontal well that would be less irregular to surrounding mineral property lines.

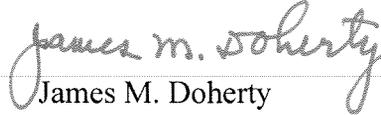
CONCLUSIONS OF LAW

1. Proper notice of hearing was timely issued by the Railroad Commission to appropriate persons legally entitled to notice.
2. All things necessary to the Commission attaining jurisdiction over the subject matter and the parties in this hearing have been performed.
3. Approval of a Rule 37 exception for the Rudder Lease, Well No. 3H, Newark, East (Barnett Shale) Field, Tarrant County, Texas, is necessary to prevent confiscation and protect the correlative rights of mineral owners.

RECOMMENDATION

The examiners recommend that the application of Chesapeake Operating, Inc., for a Rule 37 exception for the Rudder Lease, Well No. 3H in the Newark, East (Barnett Shale) Field, Tarrant County, Texas, be granted as necessary to prevent confiscation and protect correlative rights.

Respectfully submitted,



James M. Doherty
Hearings Examiner



Andres J. Trevino
Technical Examiner