

RULE 37 CASE NO. 0270195
STATUS NO. 713798
District 09

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

APPEARANCES:

FOR APPLICANT:

Glenn E. Johnson
Erin Rolstad
David C. Triana
Bill G. Spencer
Alan Jackson
Steve Mills
Allyson Vistica

APPLICANT:

Chesapeake Operating, Inc.

FOR PROTESTANT:

Reza Nanbakhsh

PROTESTANT:

A Square Family Trust

PROPOSAL FOR DECISION

PROCEDURAL HISTORY

DATE APPLICATION FILED:	April 12, 2011
DATE OF NOTICE OF HEARING:	September 8, 2011
DATE OF HEARING:	October 3, 2011
HEARD BY:	Michael Crnich, Hearings Examiner Andres Trevino, Technical Examiner
DATE TRANSCRIPT RECEIVED:	October 11, 2011
DATE PFD CIRCULATED:	February 28, 2012

STATEMENT OF THE CASE

In Rule 37 Case No. 0270195, Chesapeake Operating, Inc. ("Chesapeake"), seeks an amended permit pursuant to the provisions of Statewide Rule 37 for the GM West Lease, Well No. 3H, Newark, East (Barnett Shale) Field, Tarrant County, Texas. An original drilling permit for the GM West No. 3H was approved administratively on April 12, 2011. The original is the drilling

permit currently in effect for the GM West No. 3H and is subject to two no perforation zones (“NPZs”) opposite unleased tracts internal to the GM West pooled unit. Appendix 1 to this proposal for decision is a plat (Chesapeake Exhibit No. 10) showing the external boundary of the GM West Unit, unleased tracts internal to the unit, and the GM West No. 3H. Shown in red near the middle of the horizontal lateral of the GM West No. 3H is a 648-foot NPZ opposite unleased Tract Nos. 180 and 181. Shown in red near the lower perforation of the GM West No. 3H is a 724-foot NPZ opposite unleased Tract No. 545.

The purpose of this application is to obtain a first amended permit eliminating the NPZs from the GM West No. 3H so that the entire drainhole from the upper perforation point to the lower perforation point can be perforated. Appendix 2 to this proposal for decision is a revised plat (included in Chesapeake Exhibit No. 1) showing the configuration of the GM West No. 3H proposed by the application. If Chesapeake is allowed to perforate the GM West No. 3H from the proposed upper perforation to the proposed lower perforation, the well will have a drainhole of about 5,132 feet. The application is protested by Reza Nanbakhsh, Trustee for the A Square Family Trust, which is the owner of a 0.204-acre tract of land located about 83 feet from the GM West No. 3H.

Rule 37 Case No. 0270195 was heard on October 3, 2011, jointly with Rule 37 Case No. 0267929; *Application of Chesapeake Operating, Inc. for A Rule 37 Exception for the GM West Lease, Well No. 2H, Newark, East (Barnett Shale) Field, Tarrant County, Texas*. A separate proposal for decision is being issued in Rule 37 Case No. 0267929.

DISCUSSION OF THE EVIDENCE

Chesapeake

A Rule 37 exception is needed for the GM West No. 3H because the section of the well proposed to be perforated is closer than 330 feet to unleased tracts that are internal to the GM West pooled 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. According to the plat associated with the Form W-1 submitted on April 12, 2011, the A Square Family Trust Tract No. 545 is, at its closest point, about 83 feet from the GM West No. 3H. As of the date of the hearing, there were 10 unleased tracts within the perimeter of the GM West pooled unit, but only three of these were within 330 feet. As of the date of the hearing, total acreage in the GM West pooled unit was 319.273 acres, of which 315.021 acres were leased and 4.252 acres were unleased.

The GM West No. 3H location is 0.94 miles northeast of Arlington, Texas. The surface location of the well is off-lease, 1,783 feet from the west line and 2,911 feet from the north line of the Harris, M. Survey. The penetration point is 330 feet from the north line and 953 feet from the

west line of the GM West pooled unit. The terminus is 330 feet from the south line and 938 feet from the west line of the GM West pooled unit and 1,909 feet from the north line and 105 feet from the west line of the Carder, C.C. Survey.

A Chesapeake geologist presented an isopach map and a stratigraphic cross section to show thickness of the Barnett Shale in the area of the GM West Unit. The isopach map was based on information taken from a gamma ray log for a pilot well drilled at the same surface location as the GM West No. 3H. The isopach map shows that Barnett Shale thickness at the pilot well is 449 feet, and in the area of the GM West Unit averages about 440 feet.

A Chesapeake reservoir engineer presented a plot of estimated ultimate recovery versus drainhole length for 635 producing Barnett Shale wells operated by Chesapeake. 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 0.8449 and an intercept of 965.71. The implication of this plot is that a horizontal well in the Barnett Shale ultimately will recover 0.8449 MMCF, or about 845 MCF, of gas per foot of drainhole plus the plot's intercept of 965.71 MMCF.

Chesapeake's reservoir engineer also volumetrically calculated original gas in place beneath Chesapeake's leased acreage in the GM West Unit and estimated current recoverable gas beneath the unit assuming a 30% recovery factor. Gas in place beneath the 315.021 leased acres in the GM West Unit is 89.209 BCF. Chesapeake believes that a 30% recovery factor is reasonable in this area. Assuming a 30% recovery factor, the original recoverable gas beneath the 315.021 leased acres in the GM West Unit was 26.763 BCF. At the time of hearing, the GM West No. 1H had produced 0.303 BCF of gas; therefore, Chesapeake believes that the remaining recoverable gas in place is 26.459 BCF.

Using the projected recovery predicted by Chesapeake's Exhibit No. 7, the plot of estimated ultimate recoveries versus drainhole length for 635 producing Barnett Shale wells, Chesapeake's reservoir engineer also calculated the estimated ultimate recoveries of the GM West No. 1H (drilled and productive), GM West No. 2H (drilled but not completed), and GM West No. 4H (drilled but not completed). The GM West No. 1H will recover an estimated 4.044 BCF of gas; the GM West No. 2H will recover an estimated 4.893 BCF, assuming the removal of current NPZs; and the GM West No. 4H will recover an estimated 5.230 BCF. The total estimated recovery of these three existing wells is 14.167 BCF, as compared to original recoverable gas in place beneath the GM West Unit of 26.763 BCF. Additional wells with drainholes unencumbered by NPZs will be needed to recover the 12.596 BCF that will not be recovered by the GM West No. 1H, GM West No. 2H, and GM West No. 4H.

Removal of the 648-foot NPZ opposite Tract Nos. 180 and 181 and the 724-foot NPZ opposite the A Square Family Trust Tract No. 545 would allow 5,132 feet of the GM West No. 3H drainhole to be perforated. Based on the projected recovery predicted by Chesapeake's Exhibit No. 7, the plot of estimated ultimate recoveries versus drainhole length for 635 producing Barnett Shale

wells, perforation of 5,132 feet of drainhole should allow the GM West No. 3H ultimately to recover 5,302 MMCF. If the requested Rule 37 exception is denied, and the 648-foot NPZ around Tract Nos. 180 and 181 and the 724-foot NPZ around the A Square Family Trust Tract No. 545 are retained, only 3,760 feet of the GM West No. 3H drainhole can be perforated. On the same basis, perforation of 3,760 feet of drainhole would allow the GM West No. 3H ultimately to recover only about 4,143 MMCF. Gas that would go unrecovered if the 648-foot NPZ around Tract Nos. 180 and 181 and the 724-foot NPZ around the A Square Family Trust Tract No. 545 were retained amounts to 1,159 MMCF. There is no other well that would give Chesapeake an opportunity to recover this 1,159 MMCF.¹

Chesapeake has already permitted and drilled the GM West No. 1H, No. 2H, and No. 4H, and most likely plans to have only four drilled wells on the GM West Unit. The existing permit for the GM West No. 2H has NPZs, but Chesapeake has applied to remove these NPZs by obtaining an amended permit. Chesapeake will need to be able to perforate the entire drainhole of the GM West No. 3H in order to recover as much as possible of the current recoverable gas in place beneath the GM West Unit of 26.459 BCF.

Reza Nanbakhsh, Trustee of the A Square Family Trust

Mr. Nanbakhsh stated that he has received offers from Chesapeake to lease his tract, but he believes that the offers have not been fair. In particular, he stated that his neighbor received more money than he potentially would for signing a lease. He stated that none of the landmen that he has talked to have provided an answer to his repeated question as to what is the value of the gas on his property. Mr. Nanbakhsh takes the position that the Commission should not grant this Rule 37 application because he has not received a lease offer acceptable to him.

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

¹Chesapeake also presented evidence showing expected ultimate recovery if only the NPZ around Protestant's Tract remained. If only the 724-foot NPZ around the Protestant's tract were retained, then 4,408 feet of the GM West No. 3H drainhole could be perforated. On the same basis, perforation of 4,408 feet of drainhole would allow the GM West No. 3H ultimately to recover only about 4,690 MMCF. Gas that would go unrecovered if the 724-foot NPZ around Protestant's Tract were retained amounts to 612 MMCF. There is no other well that would give Chesapeake an opportunity to recover this 612 MMCF.

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 Chesapeake proved that the granting of a Rule 37 exception for the GM West No. 3H to accomplish the removal of the 648-foot NPZ opposite Tract Nos. 180 and 181 and the 724-foot NPZ opposite the A Square Family Trust Tract No. 545 is necessary to prevent confiscation. Chesapeake and its lessors within the GM West Unit are entitled to an opportunity to recover their fair share of gas from the reservoir, and their “fair share” is measured by the current recoverable gas beneath the leased acreage in the GM West Unit. The evidence shows that the current recoverable gas beneath the 315.021 leased acres in the GM West Unit is 26.459 BCF. Although there are relatively few tracts within the perimeter of the GM West Unit that remain unleased, these unleased tracts are scattered throughout the unit at locations which preclude the drilling of horizontal wells with full-length laterals at *regular* locations, unless the laterals are encumbered with no perforation zones. Yet, the evidence shows that even with the four currently drilled horizontal wells on the GM West Unit, Chesapeake cannot recover the current recoverable gas beneath the unit if the wells are required to be encumbered with NPZs around each unleased tract.

The GM West No. 3H is one of four horizontal wells drilled on the GM West Unit. The GM West No. 1H, GM West No. 2H (assuming full drainhole available for perforation), and GM West No. 4H, all permitted and drilled, will have a combined estimated ultimate recovery of 14.167 BCF. Additional Rule 37 wells with drainholes unencumbered by NPZs will be needed to recover the 12.596 BCF of current recoverable gas that will not be recovered by the GM West No. 1H, GM West No. 2H, and GM West No. 4H. If the GM West No. 3H can be perforated along the 648 feet of drainhole presently subject to the NPZ opposite Tract Nos. 180 and 181 and the 724 feet of drainhole opposite the A Square Family Trust Tract No. 545, the well will have an estimated ultimate recovery of about 5,302 MMCF. If the requested Rule 37 exception is denied and the 648-foot NPZ around Tract Nos. 180 and 181 and the 724-foot NPZ around the A Square Family Trust Tract No. 545 remain in place, the well will have an estimated ultimate recovery of 4,143 MMCF. This means that 1,159 MMCF that could be recovered by the GM West No. 3H will remain unrecovered. There is no other well that would give Chesapeake an opportunity to recover this 1,159 MMCF.

Chesapeake presented testimony that the GM West Unit has three other drilled wells – the No. 1H, No. 2H, and No. 4H. It may be concluded from this evidence and the horizontal well recoveries predicted by Chesapeake’s Exhibit No. 7, the plot of estimated ultimate recoveries versus drainhole length for 635 producing Barnett Shale wells, that even if Chesapeake is able to perforate the full-length drainholes unencumbered by NPZs for the West No. 1H, GM West No. 2H, and GM West No. 4H, Chesapeake will not be able to recover as much as possible of its fair share of gas from the reservoir if the 648-foot NPZ around Tract Nos. 180 and 181 and the 724-foot NPZ around the A Square Family Trust Tract No. 545 remain in place on the GM West No. 3H.

The examiners have considered the correlative rights of the A Square Family Trust associated with its mineral interest in its tract, which appears to be about 83 feet from the GM West No. 3H at

its closest point. However, A Square Family Trust's correlative rights must be weighed against the correlative rights of hundreds of surrounding mineral owners who have agreed to lease to Chesapeake and be pooled into the GM West Unit. Leaving 1,159 MMCF of gas unrecovered by the GM West No. 3H is not a practical solution from either perspective. There is no direct evidence in the record as to the precise amount of recoverable gas beneath A Square Family Trust's 0.204-acre tract, but it must be assumed that it is only a fraction of the 1,159 MMCF of gas that would go unrecovered if the 648-foot and 724-foot NPZs remain in place.

The evidence shows that Chesapeake has attempted to lease the Trust's tract. There may still be a chance that the trustee and Chesapeake can reach an agreement for the lease of the Trust's minerals. The trustee has the right *not* to lease if he is dissatisfied with the terms offered by Chesapeake, but the decision not to lease has consequences that the Commission has no authority to address. The Commission has no authority to order the parties to enter into a private agreement relating to oil and gas property or to condition disposition of a Rule 37 application on the making of any such private agreement.

The examiners are of the opinion that the location of the GM West No. 3H is reasonable. There is no regular location on the unit where a comparable horizontal well, unencumbered by no perforation zone restrictions, might be drilled. There is no less irregular location that would be more reasonable or that would afford Chesapeake an opportunity to recover its fair share of gas. The GM West No. 3H is reasonably located, taking into account the between-well spacing that must be observed in order to avoid interference with other horizontal wells that have been permitted and drilled on the unit.

Based on the record in 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 Operating, Inc. ("Chesapeake") seeks an exception to Statewide Rule 37 for the GM West Lease, Well No. 3H, Newark, East (Barnett Shale) Field, Tarrant County, Texas.
3. The original permit approved on April 12, 2011, is the drilling permit currently in effect for the GM West No. 3H, and is subject to two no perforation zones ("NPZs") opposite unleased tracts internal to the GM West pooled unit, a 1044-foot NPZ around Tract Nos. 60 and 76 and a 724-foot NPZ around Tract No. 545.
4. 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.

5. Tract No. 76 is, at its closest point, about 147 feet from the GM West No. 3H. Tract No. 545 is, at its closest point, about 83 feet from the GM West No. 3H. As of the date of the hearing, there were 10 unleased tracts within the perimeter of the GM West pooled unit, but only three of these were within 330 feet. As of the date of the hearing, total acreage in the GM West pooled unit was 319.273 acres, of which 315.021 acres were leased and 4.252 acres were unleased.
6. The GM West No. 3H location is 0.94 miles northeast of Arlington, Texas. The surface location of the well is off-lease, 1,783 feet from the west line and 2,911 feet from the north line of the Harris, M. Survey. The penetration point is 330 feet from the north line and 953 feet from the west line of the GM West pooled unit. The terminus is 330 feet from the south line and 938 feet from the west line of the GM West pooled unit and 1,909 feet from the north line and 105 feet from the west line of the Carder, C.C. Survey.
7. As demonstrated by an isopach map and a stratigraphic cross section presented at the hearing, Barnett Shale thickness in the area of the GM West Unit is about 440 feet.
8. A Chesapeake reservoir engineer presented a plot of estimated ultimate recovery versus drainhole length for 635 producing Barnett Shale wells operated by Chesapeake ("Exhibit 7 plot"). 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 0.8449 and an intercept of 965.71. This plot predicts that a horizontal well in the Barnett Shale ultimately will recover 0.8449 MMCF, or about 845 MCF, of gas per foot of drainhole plus the plot's intercept of 965.71 MMCF.
9. Volumetrically calculated gas in place beneath the 315.021 leased acres in the GM West Unit is 89.209 BCF. Chesapeake believes that a 30% recovery factor is reasonable in this area. Assuming a 30% recovery factor, the original recoverable gas beneath the 315.021 leased acres in the GM West Unit was 26.763 BCF. The GM West No. 1H has produced about 0.303 BCF; therefore, the remaining recoverable gas in place is 26.459 BCF.
10. Wells previously permitted and drilled by Chesapeake on the GM West Unit are not sufficient to enable Chesapeake to recover its fair share of gas from beneath the GM West Unit.
 - a. The GM West No. 3H is one of four horizontal wells already drilled on the GM West Unit. The GM West No. 1H, GM West No. 2H, and GM West No. 4H are permitted and drilled on the same Unit.
 - b. Using the recovery predicted by Chesapeake's Exhibit No. 7 plot, the GM West No. 1H will recover an estimated 4.044 BCF of gas; the GM West No. 2H will recover

an estimated 4.893 BCF, assuming the removal of current NPZs; and the GM West No. 4H will recover an estimated 5.230 BCF. The total estimated recovery of these three wells is 14.167 BCF, as compared to current recoverable gas in place beneath the GM West Unit of 26.459 BCF.

- c. Additional wells with drainholes unencumbered by NPZs will be needed to recover the 12.596 BCF of current recoverable gas that will not be recovered by the GM West No. 1H, GM West No. 2H, and GM West No. 4H.
11. Retention of the 648-foot NPZ around Tract Nos. 180 and 181 and the 724-foot NPZ around tract No. 545 on the GM West No. 3H will preclude an opportunity for Chesapeake to recover as much as possible of its fair share of gas from beneath the GM West Unit.
- a. Removal of the 648-foot NPZ opposite Tract Nos. 180 and 181 and the 724-foot NPZ opposite the A Square Family Trust Tract No. 545 would allow 5,132 feet of the GM West No. 3H drainhole to be perforated.
 - b. Based on the projected recovery predicted by Chesapeake's Exhibit No. 7 plot, perforation of 5,132 feet of drainhole should allow the GM West No. 3H ultimately to recover 5,302 MMCF.
 - c. If the requested Rule 37 exception is denied, and the 648-foot NPZ around Tract Nos. 180 and 181 and the 724-foot NPZ around tract No. 545 are retained, only 3,760 feet of the GM West No. 3H drainhole can be perforated.
 - d. On the same basis, perforation of 3,760 feet of drainhole would allow the GM West No. 3H ultimately to recover only about 4,143 MMCF.
 - e. Gas that would go unrecovered if the 648-foot NPZ around Tract Nos. 180 and 181 and the 724-foot NPZ around the A Square Family Trust's Tract No. 545 were retained amounts to 1,159 MMCF.
 - f. There is no other well that would give Chesapeake an opportunity to recover this 1,159 MMCF.
12. Chesapeake has permitted and drilled four horizontal wells on the GM West Unit, including the GM West No. 1H, GM West No. 2H, and GM West No. 4H. Even if Chesapeake is able to perforate full-length drainholes unencumbered by NPZs for the GM West No. 1H, GM West No. 2H, and GM West No. 4H, Chesapeake will not be able to recover as much as possible of its fair share of gas from the reservoir if the 648-foot NPZ around Tract Nos. 180 and 181 and the 724-foot NPZ around the A Square Family Trust Tract No. 545 remain in place on the GM West No. 3H.
13. The location of the GM West No. 3H is reasonable.

- a. There is no regular location on the unit where a comparable horizontal well, unencumbered by no perforation zone restrictions, might be drilled.
- b. There is no less irregular location that would be more reasonable or that would afford Chesapeake an opportunity to recover its fair share of gas.
- c. The GM West No. 3H is reasonably located taking into account the between-well spacing that must be observed in order to avoid interference with other horizontal wells that have been permitted and drilled on the unit.

CONCLUSIONS OF LAW

- 1. The Railroad Commission timely issued proper notice of hearing 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 GM West 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 GM West 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,

Michael R. Crnich
Hearings Examiner

Andres J. Trevino
Technical Examiner