

**RULE 37 CASE NO. 0267929**  
**STATUS NO. 703995**  
**District 09**

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**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**

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**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  
Linda Ahrens

**PROTESTANT:**

A Square Family Trust  
Linda Ahrens

**PROPOSAL FOR DECISION**

**PROCEDURAL HISTORY**

<b>DATE APPLICATION FILED:</b>	May 26, 2011
<b>DATE OF NOTICE OF HEARING:</b>	September 8, 2011
<b>DATE OF HEARING:</b>	October 3, 2011
<b>HEARD BY:</b>	Michael Crnich, Hearings Examiner Andres Trevino, Technical Examiner
<b>DATE TRANSCRIPT RECEIVED:</b>	October 11, 2011
<b>DATE PFD CIRCULATED:</b>	February 28, 2012

**STATEMENT OF THE CASE**

In Rule 37 Case No. 0267929, Chesapeake Operating, Inc. ("Chesapeake"), seeks an amended permit pursuant to the provisions of Statewide Rule 37 for the GM West Lease, Well No. 2H, Newark, East (Barnett Shale) Field, Tarrant County, Texas. An original drilling permit for the GM West No. 2H was approved administratively on November 30, 2010. The original is the drilling

permit currently in effect for the GM West No. 2H and is subject to 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. 12) showing the external boundary of the GM West unit, unleased tracts internal to the unit, and the GM West No. 2H. Shown in red near the middle of the horizontal lateral of the GM West No. 2H is a 765-foot NPZ opposite unleased Tract No. 96. Shown in red near the lower perforation of the GM West No. 2H is a 219-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. 2H 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. 2H proposed by the application. If Chesapeake is allowed to perforate the GM West No. 2H from the proposed upper perforation to the proposed lower perforation, the well will have a drainhole of about 4,648 feet. The application is protested by Linda Ahrens, who is the owner of a 0.346-acre tract of land located about 164 feet from the GM West No. 2H, and Reza Nanbakhsh, Trustee for the A Square Family Trust, which is the owner of a 0.204-acre tract of land located about 312 feet from the GM West No. 2H.

Rule 37 Case No. 0267929 was heard on October 3, 2011, jointly with Rule 37 Case No. 0270195; *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*. A separate proposal for decision is being issued in Rule 37 Case No. 0270195.

## **DISCUSSION OF THE EVIDENCE**

### **Chesapeake**

A Rule 37 exception is needed for the GM West No. 2H 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 May 26, 2011, the Ahrens Tract No. 96 is, at its closest point, about 164 feet from the GM West No. 2H, and the A Square Family Trust Tract No. 545 is, at its closest point, 312 feet from the GM West No. 2H. As of the date of the hearing, there were 10 unleased tracts within the perimeter of the GM West pooled unit, but only four 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. 2H location is 0.94 miles northeast of Arlington, Texas. The surface location of the well is off-lease, 1,798 feet from the west line and 2,907 feet from the north line of the Harris, M. Survey. The penetration point is 5,008 feet from the south line and 1,286 feet from

the west line of the GM West pooled unit. The terminus is 330 feet from the south line and 1,503 feet from the west line of the GM West pooled unit and 1,832 feet from the north line and 676 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. 2H. Barnett Shale thickness at the pilot well is shown to be 449 feet, and in the area of the GM West Unit is shown by the isopach map to average 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. Chesapeake believes that the recoverable gas in place is 26.459 BCF because the one producing well on the GM West Unit, the No. 1H, has produced 0.303 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. 3H (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. 3H will recover an estimated 5.302 BCF, assuming removal of NPZs; and the GM West No. 4H will recover an estimated 5.230 BCF. The total estimated recovery of these three existing wells is 14.576 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 12.187 BCF that will not be recovered by the GM West No. 1H, GM West No. 3H, and GM West No. 4H.

Removal of the 765-foot NPZ opposite the Ahrens Tract No. 96 and the 219-foot NPZ opposite the A Square Family Trust Tract No. 545 would allow 4,648 feet of the GM West No. 2H 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 4,648 feet of drainhole should allow the GM West No. 2H ultimately to recover 4,893 MMCF. If the requested Rule 37 exception is denied, and the 765-foot NPZ around the Ahrens Tract No. 96 and the 219-foot NPZ around the A Square Family Trust Tract No. 545 are retained, only 3,663 feet of the GM West No. 2H drainhole can be perforated. On the same basis, perforation of 3,663 feet of drainhole would allow the GM West No. 2H ultimately to recover only

about 4,061 MMCF. Gas that would go unrecovered if the 765-foot NPZ around the Ahrens Tract No. 96 and the 219-foot NPZ around the A Square Family Trust Tract No. 545 were retained amounts to 832 MMCF. There is no other well that would give Chesapeake an opportunity to recover this 832 MMCF.

Chesapeake has already permitted and drilled the GM West No. 1H, No. 3H, and No. 4H, and most likely intends to have only four drilled wells on the GM West Unit. The existing permit for the GM West No. 3H 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. 2H in order to recover as much as possible of the current recoverable gas in place beneath the GM West Unit of 26.459 BCF.

### **Linda Ahrens**

Prior to the hearing, Ms. Ahrens submitted her notice of protest in which she expressed her concern over the safety and environmental implications of drilling for gas in urban areas. At the hearing, Ms. Ahrens stated that she wished to remain unleased and retain the rights and ownership of her mineral interests. She also conveyed that she did not want her property to be drained.

### **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 Chesapeake has not offered lease terms 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 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. 2H to accomplish the removal of the 765-foot NPZ opposite the Ahrens Tract No. 96 and the 219-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. 2H is one of four horizontal wells drilled on the GM West Unit. The GM West No. 1H, GM West No. 3H (assuming full drainhole available for perforation), and GM West No. 4H, all previously permitted and drilled, will have a combined estimated ultimate recovery of 14.576 BCF. Additional Rule 37 wells with drainholes unencumbered by NPZs will be needed to recover the 12.187 BCF of current recoverable gas that will not be recovered by the GM West No. 1H, GM West No. 3H, and GM West No. 4H. If the GM West No. 2H can be perforated along the 765 feet of drainhole presently subject to the NPZ opposite the Ahrens Tract No. 96 and the 219 feet of drainhole opposite the A Square Family Trust Tract No. 545, the well will have an estimated ultimate recovery of about 4,893 MMCF. If the requested Rule 37 exception is denied and the 765-foot NPZ around the Ahrens Tract No. 96 and the 219-foot NPZ around the A Square Family Trust Tract No. 545 remain in place, the well will have an estimated ultimate recovery of 4,061 MMCF. This means that 832 MMCF that could be recovered by the GM West No. 2H will remain unrecovered. There is no other well that would give Chesapeake an opportunity to recover this 832 MMCF.

Chesapeake presented testimony that the GM West Unit has three other drilled wells – the No. 1H, No. 3H, 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 GM West No. 1H, GM West No. 3H, 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 765-foot NPZ around the Ahrens Tract No. 96 and the 219-foot NPZ around the A Square Family Trust Tract No. 545 remain in place on the GM West No. 2H.

The examiners have considered the correlative rights of Linda Ahrens and the A Square Family Trust associated with their mineral interests from their tracts, which appear to be about 164 feet and 312 feet, respectively, from the GM West No. 2H at their closest points. However, Ms. Ahrens and 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 832 MMCF of gas unrecovered by the GM West No. 2H 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 Ms. Ahrens 0.346-acre tract and A Square Family Trust's 0.204-acre tract, but it must be assumed that it is only a fraction of the 832 MMCF of gas that would go unrecovered if the 765-foot and 219-foot NPZs around these tracts 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. 2H 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. 2H 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. 2H, Newark, East (Barnett Shale) Field, Tarrant County, Texas.
3. The original permit approved on November 30, 2010, is the drilling permit currently in effect for the GM West No. 2H, and is subject to a no perforation zone ("NPZ") opposite an unleased tract internal to the GM West pooled unit, a 765-foot NPZ around Tract No. 96.
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. 96 is, at its closest point, about 164 feet from the GM West No. 2H. Tract No. 545 is, at its closest point, about 312 feet from the GM West No. 2H. As of the date of the hearing, there were 10 unleased tracts within the perimeter of the GM West pooled unit, but only four 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. 2H location is 0.94 miles northeast of Arlington, Texas. The surface location of the well is off-lease, 1,798 feet from the west line and 2,907 feet from the north line of the Harris, M. Survey. The penetration point is 5,008 feet from the south line and 1,286 feet from the west line of the GM West pooled unit. The terminus is 330 feet from the south line and 1,503 feet from the west line of the GM West pooled unit and 1,832 feet from

the north line and 676 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 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. 2H is one of four horizontal wells already drilled on the GM West Unit. The GM West No. 1H, GM West No. 3H, 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. 3H will recover an estimated 5.302 BCF, assuming removal of the NPZs; and the GM West No. 4H will recover an estimated 5.230 BCF. The total estimated recovery of these three wells is 14.576 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 12.187 BCF of current recoverable gas that will not be recovered by the GM West No. 1H, GM West No. 3H, and GM West No. 4H.
11. Retention of the 765-foot NPZ around Tract No. 96 and the 219-foot NPZ around tract No. 545 on the GM West No. 2H 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 765-foot NPZ opposite the Ahrens Tract No. 96 and the 219-foot NPZ opposite the A Square Family Trust Tract No. 545 would allow 4,648 feet of the GM West No. 2H drainhole to be perforated.
  - b. Based on the projected recovery predicted by Chesapeake’s Exhibit No. 7 plot, perforation of 4,648 feet of drainhole should allow the GM West No. 2H ultimately

to recover 4,893 MMCF.

- c. If the requested Rule 37 exception is denied, and the 765-foot NPZ around Tract No. 96 and the 219-foot NPZ around tract No. 545 are retained, only 3,663 feet of the GM West No. 2H drainhole can be perforated.
  - d. On the same basis, perforation of 3,663 feet of drainhole would allow the GM West No. 2H ultimately to recover only about 4,061 MMCF.
  - e. Gas that would go unrecovered if the 765-foot NPZ around the Ahrens Tract No. 96 and the 219-foot NPZ around the A Square Family Trust's Tract No. 545 were retained amounts to 832 MMCF.
  - f. There is no other well that would give Chesapeake an opportunity to recover this 832 MMCF.
12. Chesapeake has permitted and drilled four horizontal wells on the GM West Unit, including the GM West No. 1H, GM West No. 3H, 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. 3H, 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 765-foot NPZ around the Ahrens Tract No. 96 and the 219-foot NPZ around the A Square Family Trust Tract No. 545 remain in place on the GM West No. 2H.
13. The location of the GM West No. 2H 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. 2H 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. 2H, 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. 2H, 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