



# RAILROAD COMMISSION OF TEXAS

## OFFICE OF GENERAL COUNSEL

OIL & GAS DOCKET NO. 09-0264211

APPLICATION OF XTO ENERGY, INC., PURSUANT TO THE MINERAL INTEREST POOLING ACT FOR THE PROPOSED TWU A POOLED UNIT, WELL NO. 1H, NEWARK, EAST (BARNETT SHALE) FIELD, TARRANT COUNTY, TEXAS

### APPEARANCES:

#### FOR APPLICANT:

David Gross  
Tarah Angelidis  
Derrick Dollar  
Keith Kiser

#### APPLICANT:

XTO Energy, Inc.

#### FOR INTERESTED PARTIES:

Donald Boren  
Wanda Conlin

#### INTERESTED PARTIES:

Self  
Self

### PROPOSAL FOR DECISION

### PROCEDURAL HISTORY

DATE APPLICATION FILED:	January 5, 2010
DATE OF NOTICE OF HEARING:	March 23, 2010
DATE OF HEARING:	June 4, 2010
HEARD BY:	Mark Helmueller, Hearings Examiner Richard Atkins, Technical Examiner
DATE TRANSCRIPT RECEIVED:	June 18, 2010
POST-HEARING SUBMISSION:	July 20, 2010
LEGAL EXAMINER REASSIGNMENT:	September 7, 2010
DATE PFD CIRCULATED:	November 18, 2010

### STATEMENT OF THE CASE

This is an application by XTO Energy, Inc. ("XTO") pursuant to the Mineral Interest Pooling Act ("MIPA") requesting the Commission to enter an order force pooling 649 small tracts of land

into a 230.9830 acre proration unit for the TWU A Unit, Well No. 1H ("MIPA well"), Newark, East (Barnett Shale) Field, Tarrant County, Texas. Direct mail notice of the hearing was provided to all owners of tracts within the proposed unit. In addition, notice of the hearing was published once per week for four consecutive weeks in the Fort Worth Star Telegram, a newspaper of general circulation in Tarrant County.

The application was heard on June 4, 2010, by examiners Mark Helmueller and Richard Atkins. No one appeared at the hearing in opposition to the application. Two leased owners of tracts within the proposed unit appeared as interested parties in support of the application. Subsequent to the close of the hearing, examiner Helmueller left the employment of the Commission, and the case was reassigned to examiner James M. Doherty for review of the record and preparation of this proposal for decision jointly with examiner Atkins. The examiners recommend that the application be denied.

#### APPLICABLE LAW

The MIPA is a unique act forged by the legislature largely to protect small tract owners and operators in the wake of the *Normanna* decision<sup>1</sup> which invalidated prorationing formulas with large per well allowable factors allowing substantial uncompensated drainage by wells on small tracts. Traditionally, the MIPA has been construed as limited in function to protect small tract lessees or owners rather than as a broad act designed to protect correlative rights generally, or as an act allowing large tract lessees or owners more flexibility in development. Smith and Weaver, *Texas Law of Oil and Gas*, Vol. 3, Chapter 12, §12.1(B) at page 12-5 (LexisNexis Matthew Bender 2010).

Subject to limitations found elsewhere in the act, §102.011 of the MIPA provides that when two or more separately owned tracts of land are embraced in a common reservoir of oil or gas for which the Commission has established the size and shape of proration units, whether by temporary or permanent field rules, and where there are separately owned interests in oil and gas within an existing or proposed proration unit in the common reservoir and the owners have not agreed to pool their interests, and where at least one of the owners of the right to drill has drilled or has proposed to drill a well on the existing or proposed proration unit to the common reservoir, the Commission, on the application of an owner specified in Section 102.012 of the act and for the purpose of avoiding the drilling of unnecessary wells, protecting correlative rights, or preventing waste, shall establish a unit and pool all of the interests in the unit within an area containing the approximate acreage of the proration unit, which unit shall in no event exceed 160 acres for an oil well or 640 acres for a gas well plus 10 percent tolerance.

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<sup>1</sup> *Atlantic Refining Co. v. Railroad Commission*, 346 S.W.2d 801 (Tex. 1961).

**DISCUSSION OF THE EVIDENCE**

The proposed force pooled unit is located about four miles east of downtown Fort Worth. This unit is adjacent to the XTO Ram Unit to the southeast and the XTO TWU B Unit to the east.<sup>2</sup> The drilling pad (surface location) for the TWU A Unit MIPA well is off the Unit to the southeast and located on the Ram Unit acreage. This drilling pad also serves the Ram Unit and the TWU B Unit. There are mixed uses of the surface of the proposed TWU A Unit, but the area is heavily developed with residential structures. On the south, the TWU A Unit includes Lancaster Avenue, and the State owns the mineral estate beneath Lancaster Avenue.<sup>3</sup>

Within the proposed 230.9830 acre force pooled unit, the total number of acres under lease at the time of the hearing was 201.2396 acres. XTO had 78.1724 acres under lease, and Chesapeake Exploration LLC had 122.7066 acres under lease.<sup>4</sup> Hemi Energy Group, Inc. had an additional 0.3606 acres under lease. Chesapeake and Total E&P have agreed to pool their interests with those of XTO into the proposed Unit. Hemi could not be located by XTO to determine whether it was willing to pool its leasehold interest in Tract No. 378 containing 0.3606 acres<sup>5</sup>. XTO's leases include the right to pool its leased acreage.

There are 649 separate tracts of land within the proposed force pooled unit. At the time of the hearing, 579 of these tracts were under lease to XTO, Chesapeake and Hemi.<sup>6</sup> A total of 70 tracts within the proposed unit containing 29.7434 acres remained unleased, including nine tax foreclosed tracts containing 2.1514 acres owned by the City of Fort Worth.<sup>7</sup> Tract No. 457 is owned by the Fort Worth ISD, and, at the time of the hearing, XTO was planning to bid for a lease of this tract

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<sup>2</sup> XTO also filed a MIPA application for the TWU B Unit, but subsequently withdrew the application. No MIPA application is contemplated for the Ram Unit.

<sup>3</sup> The hearing file includes correspondence from the Texas General Land Office confirming that on February 23, 2010, the School Land Board consented to the force pooling of the State's mineral interest.

<sup>4</sup> Chesapeake had assigned a 25% working interest in this acreage to Total E&P USA, Inc.

<sup>5</sup> The proposed MIPA well traverses this tract.

<sup>6</sup> At the time of the hearing, 12 of the leased tracts, Tract Nos. 124, 131, 148, 150, 219, 340, 341, 342, 400, 571, and 640, containing 3.8734 acres, were covered by leases that were about to expire. XTO had attempted, or was attempting, to obtain extensions of these leases. As of July 20, 2010, XTO advised the examiners that it had extended its offer to pool voluntarily to the owners of each of these tracts.

<sup>7</sup> The City of Fort Worth and XTO have agreed that these tax foreclosed tracts may be pooled without execution of a lease agreement. XTO will hold in escrow a 25% royalty attributable to the tracts subject to disposition in the manner provided by law and without risk or obligation to the City. XTO will assure no surface use without the City's consent. XTO will provide the City with an initial and annual report of tax foreclosed acreage included in the unit and revenues attributed to each tax foreclosed property in the unit. XTO will assure compliance with all rules and requirements of the Railroad Commission and with the City's gas drilling and other ordinances.



containing 3.4030 acres.<sup>8</sup> Appendix 1 to this proposal for decision is a plat showing the proposed force pooled unit, the location of the proposed MIPA well, tracts that were leased at the time of the hearing, and tracts that were unleased at the time of the hearing.

According to XTO, a diligent effort was made to obtain leases on the 70 tracts that remained unleased at the time of the hearing. XTO has been leasing in the area since 2007. It sent out letters and notices to the unleased owners and contacted some of them by telephone in an effort to obtain leases. An effort was made to obtain current addresses for the unleased owners by research of public records of Tarrant County and various internet resources.

On November 25, 2009, XTO sent a voluntary pooling offer to all owners of tracts within the boundaries of the proposed unit that remained unleased as of that date. The unleased owners were offered three options for inclusion of their interests in the proposed TWU A Unit: (1) a lease option; (2) a participation option; or (3) a farm-out option.

The lease option included a bonus offer of \$2,400 per net mineral acre and an offer of a 25% royalty.<sup>9</sup> A standard lease form the unleased owners were asked to sign was for a primary term of four years. The lease provided that no "drilling activity" could be had on the surface of the leased premises without the prior written permission of the lessor. The lease provided also that XTO had the right to pool the leased premises with any other lands or leases.

The participation option provided the unleased owners with an opportunity to purchase a working interest in the proposed TWU A Unit, Well No. 1H by paying to XTO, 15 days prior to commencement of actual drilling operations, the owner's pro rata share of drilling and completion costs. An AFE (Authority for Expenditure) attached to the offer indicated that the estimated cost of drilling and completing the well was \$3,186,000.

The farm-out option proposed to the unleased owners that they convey to XTO an 80% net revenue interest attributable to their mineral interests, and retain an overriding royalty interest equal to 20% of 8/8ths, proportionately reduced to the extent that each owner's interest bore to all of the mineral interests in the unit, until payout of all well costs to drill, test, fracture stimulate, complete, equip and connect the well for production, with the option, at payout, to convert the retained override to a 25% working interest, proportionately reduced.

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<sup>8</sup> As of October 16, 2010, XTO advised the examiners that this tract remained unleased because the Fort Worth ISD had not had a lease sale as of that date.

<sup>9</sup> In April 2008, XTO made a community lease agreement with neighborhood associations covering thousands of acres, including the area within the proposed TWU A Unit. This agreement contemplated that XTO would lease individual properties for a bonus of \$25,000 per net mineral acre and a 26.570% royalty. This offer was withdrawn by XTO on October 17, 2008. Thereafter, XTO halted leasing activity in the area until about August 2009. All leases taken by XTO subsequent to August 2009 were for a bonus of \$2,400 per net mineral acre and a 25% royalty.

Twenty-nine owners of mineral interests within the unit area who had not previously leased to XTO, Chesapeake, or Hemi responded to the voluntary pooling offer by accepting the lease option and one such owner responded by accepting the farm-out option. The voluntary pooling offer (less the lease option) was also sent to Chesapeake, Total E&P, and Hemi, holders of leasehold interests in the unit area. Chesapeake and Total E&P agreed to participate in the unit, and Hemi could not be located. The Fort Worth ISD, owner of Tract No. 457 containing 3.4030 acres, did not accept the offer, although XTO intends to submit a bid to lease the Fort Worth ISD interest in this tract. The City of Fort Worth, owner of nine tax foreclosed tracts, Tract Nos. 136, 137, 138, 139, 140, 145, 146, 147, and 332 containing 2.1514 acres, did not accept any of the options provided in the voluntary pooling offer, but agreed to pooling without execution of an oil and gas lease, subject to conditions. The owners of five tracts, Tract Nos. 66, 174, 313, 615, and 684 containing 1.5237 acres affirmatively refused the voluntary pooling offer because they were not interested at all or not interested based on XTO's lease bonus offer of \$2,400 per net mineral acre.<sup>10</sup> The voluntary pooling offer stated that if the owner did not respond by accepting one of the options outlined in the offer within 14 days, XTO would consider that the owner refused to pool voluntarily. The owners of 47 tracts containing 20.8149 acres received the voluntary pooling offer, as evidenced by receipts for certified mail, but did not respond to the offer.<sup>11</sup> The owners of seven additional tracts containing 1.6078 acres could not be contacted by XTO.<sup>12</sup>

XTO presented a structure and isopach map of the Barnett Shale in the immediate area of the proposed TWU A Unit. The Barnett Shale is about 350 feet thick in this area. Color coded on the structure/isopach map is acreage leased by XTO in the same area. This map also shows the locations of horizontal wells of XTO and other operators within five miles of the pad site for the proposed TWU A Unit, Well No. 1H. XTO also presented a three well southwest to northeast cross section showing the Barnett Shale interval in the area. From the structure/isopach map and cross section, XTO's geologist concluded that the Barnett Shale is present and reasonably productive throughout the area of the proposed unit.

The examiners have officially noticed Commission records showing that the Newark, East (Barnett Shale) Field was discovered on October 15, 1981. This field has special field rules providing for 330' lease line spacing, and there is no between well spacing requirement. 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

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<sup>10</sup> The average gross acreage in the five tracts of these owners is 0.30474 acres, and at \$2,400 per net mineral acre, the lease bonus for 0.30474 acres would be \$731.38.

<sup>11</sup> These tracts are Tract Nos. 10, 23, 24, 52, 60, 70, 73, 82, 90, 92, 116, 125, 142, 151, 165, 164, 182, 199, 204, 224, 228, 237, 261, 292, 301, 304, 311, 337, 347, 350, 376, 437, 440, 477, 528, 530, 532, 534, 557, 558, 594, 617, 624, 634, 663, 664, and 672.

<sup>12</sup> These tracts are Tract Nos. 112, 133, 154, 393, 463, 515, and 539. The receipts for certified mail containing the voluntary pooling offer sent to the owners of these tracts were not signed and returned to establish that the owners received the offer. In most instances, XTO had attempted to make personal contact with these owners at their homes, but the owners would not respond..



calculated based on the distance to the nearest perforation in the well, and not based on the penetration point or terminus. Where an external casing packer is placed in a horizontal well and cement is pumped above the external casing packer to a depth above the top of the Barnett Shale formation, the distance to any property line, lease line, or subdivision line is calculated based on the top of the external casing packer or the closest open hole section in the Barnett Shale.

The standard drilling and proration unit for gas in the Newark, East (Barnett Shale) Field is 320 acres. An operator is permitted to form optional drilling units of 20 acres. Operators must file a Form P-15 (Statement of Productivity of Acreage Assigned to Proration Units) listing the number of acres that are being assigned to each well on the lease or unit for proration purposes. No double assignment of acreage is permitted. While the allocation formula for the field is suspended, operators are not required to file plats of proration units with Form P-15.

A reservoir engineer employed by XTO performed a volumetric calculation of gas in place for the Barnett Shale. Using an average reservoir thickness of 350 feet, porosity of six percent, and initial water saturation of 32 percent, free gas in place is 91 BCF per square mile (640 acres) and sorbed gas in place is 30 BCF per square mile. Total gas in place is 121 BCF per square mile. This engineer also calculated the estimated ultimate recoveries by decline curve analysis for 166 wells within a five mile radius of the pad site for the proposed TWU A Unit, Well No. 1H and also calculated completed lateral length for the same wells. From the estimated ultimate recoveries, he then backed into calculated drainage areas for the wells, assuming both 10 percent and 20 percent recovery factors.<sup>13</sup> According to XTO's engineer, the 10 percent recovery factor assumption is "reasonable" and the 20 percent recovery factor is "certainly reasonable." The Barnett Shale is a tight formation, and large recovery factors in this formation are unlikely.

The drainage areas of the study wells within five miles of the pad site for the proposed TWU A Unit, Well No. 1H calculated by XTO's engineer, assuming a 10 percent recovery factor, range from eight acres to 500 acres, with an average drainage area of 166 acres and a median drainage area of 149 acres. Of the 166 wells in the study, 119 have calculated drainage areas of less than 200 acres, assuming a 10 percent recovery factor. Assuming a 20 percent recovery factor, the drainage areas for the study wells range from four acres to 250 acres, with an average drainage area of 83 acres and a median drainage area of 75 acres. Of the 166 wells in the study, 161 have calculated drainage areas of less than 200 acres, assuming a 20 percent recovery factor. If XTO's drainage analysis is limited just to the 25 wells within the study area that have 3,500' to 4,600' laterals, assuming a 10 percent recovery factor, the calculated drainage areas for the wells range from 78

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<sup>13</sup> For example, the first horizontal well listed on XTO Exhibit No. 25, a tabulation of all study wells within five miles of the pad site for the proposed TWU A Unit, Well No. 1H is the 820 Martin Development #6H. XTO's engineer calculated by decline curve an estimated ultimate recovery for this well of 2,157 MMCF or 2.157 BCF. The gas in place calculation of 121 BCF per square mile equates to gas in place per acre of 0.1891 BCF. Assuming a 10 percent recovery factor, the recoverable gas per acre is 0.01891 BCF. Assuming a 20 percent recovery factor, the recoverable gas per acre is 0.03782 BCF. Dividing the estimated ultimate recovery for the Martin Development #6H of 2.157 BCF by 0.01891 BCF per acre (10 percent recovery factor) backs into a theoretical drainage area for the well of 114 acres. Dividing the estimated ultimate recovery for the same well by 0.03782 BCF (20 percent recovery factor) backs into a theoretical drainage area for the well of 57 acres.

acres to 535 acres, with an average drainage area of 277 acres and median drainage area of 268 acres. Assuming a 20 percent recovery factor, the calculated drainage areas for the same 25 wells with longer laterals ranges from 39 acres to 239 acres, with an average drainage area of 139 acres and median drainage area of 134 acres. According to XTO's engineer, it seems reasonable that the proposed 4,560' lateral of the TWU A Unit, Well No. 1H would cause the 230.9830 acre unit to be "impacted by drainage."

XTO's engineer also presented the results of a "well interference" study of two pairs of horizontal wells located about eight miles northwest of the proposed TWU A Unit. The Prime Rail Unit #5 Well and the Rail Head #6H well are about 1,520 feet apart at the closest points. According to XTO's engineer, a first stage frac job on the Prime Rail Unit #5 on July 29, 2009, had an immediate effect on the Rail Head #6H, where gas production essentially ceased temporarily and water production increased. XTO's engineer believes that this showed that there was communication between the two wells. The Arlington Surber B Unit #2H and the Surber Unit CA #1H are about 2,175 feet apart at the closest points. A third stage frac job performed on the Arlington Surber B Unit #2H on April 8, 2009, had an effect on the Surber Unit CA #1H where there was a temporary loss of gas production and a spike in water production.<sup>14</sup>

XTO's engineer also presented a plot of estimated ultimate recovery versus drainhole length for Barnett Shale wells within five miles of the drilling pad for the proposed TWU A Unit, Well No. 1H. 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 1.0068 and an intercept of 558.73. The implications of this study are that a vertical well would have an estimated ultimate recovery of about 0.56 BCF of gas and that as the drainhole length of a horizontal well increases, the well's estimated ultimate recovery also increases.<sup>15</sup> According to this study, every foot of horizontal drainhole ultimately will recover 1.0068 MMCF of gas. XTO's engineer estimated that if every foot of the proposed TWU A Unit, Well No. 1H, with lateral length of 4,560 feet, will recover 1.0068 MMCF, the well ultimately will recover about 5.149 BCF of gas. According to the "back in" drainage area calculation methodology used by XTO's engineer, a well that ultimately will recover 5.149 BCF of gas should drain about 270 acres, assuming a recovery factor of 10 percent, or, if a 20 percent recovery factor is assumed, about 135 acres.

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<sup>14</sup> XTO's engineer would not say that the two wells in each pair of wells in the well interference study are competing with each other for reserves or that production of the wells that were impacted by fracture stimulation was adversely affected. The impact seen in the well interference study appears to be an impact from fracture stimulation, not a production impact. XTO's engineer testified that he had observed horizontal wells in the Barnett Shale as close to each other as 300 feet that did not exhibit interference with each other.

<sup>15</sup> This plot has considerable scatter of the data. Four wells included in the plot with estimated ultimate recoveries between 6.0 BCF and 7.0 BCF have drainhole length in the range of 1,500 to 3,000 feet and have better estimated ultimate recoveries than about 39 wells included in the plot that have longer drainholes in the range of 3,000 to 4,600 feet. Of the 166 wells included in the plot, only one has drainhole length comparable to the drainhole length of the proposed MIPA well, the TWU A Unit, Well No. 1H.



XTO's engineer testified that there are pathways through the TWU A Unit that XTO could form without forced pooling where horizontal wells could be drilled with Rule 37 exceptions, but he believed that these wells would have shorter drainholes, might not drain the entire unit, and any single Rule 37 well would not recover the same amount of gas as is projected for the proposed MIPA well.

### EXAMINERS' OPINION

The Commission is a creature of the Legislature and has no inherent authority. *Public Util. Comm'n v. GTE-SW Corp.*, 901 S.W.2d 401, 407 (Tex. 1995). Like other state administrative agencies, the Commission has only those powers that the Legislature expressly confers upon it and any implied powers that are necessary to carry out the express responsibilities given to it by the Legislature. *Public Util. Comm'n v. City Pub. Serv. Bd.*, 53 S.W.3d 310, 316 (Tex. 2001). It is not enough that the power claimed by the Commission be reasonably useful to the Commission in discharging its duties; the power must be either expressly conferred or necessarily implied by statute. The agency may not exercise what is effectively a new power, or a power contradictory to the statute, on the theory that such a power is expedient for administrative purposes. *Id.*

The Commission, therefore, does not have unlimited authority to compel the pooling of mineral interests whenever it is presented with a compulsory pooling application that in some sense may be deemed conceptually sound. Compulsory pooling may be ordered only as expressly authorized by the MIPA, which is a limited compulsory pooling statute unique to Texas. Smith and Weaver, *Texas Law of Oil and Gas*, Vol. 3, Chapter 12, §12.1(B) at page 12-5 (LexisNexis Matthew Bender 2010). It is immaterial that some may think that the targets of an application under the MIPA have not acted wisely in declining to lease and/or pool their mineral interests. Unless the application conforms strictly to the requirements of the MIPA, the government has no authority to make this decision for them.

Under the MIPA, the Commission may order compulsory pooling only if it is necessary to avoid the drilling of unnecessary wells, protect correlative rights, or prevent waste. Smith & Weaver, *Texas Law of Oil and Gas*, Vol. 3, Chapter 12, §12.3[A][6] at page 12.23. Compulsory pooling may not be ordered if the applicant has the ability to drill wells at Rule 37 locations on a voluntarily formed unit that will serve these statutory purposes just as well as the proposed MIPA well.<sup>16</sup>

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<sup>16</sup> See Oil & Gas Docket No. 09-0260202; *Application of XTO Energy, Inc. for Creation of A Force Pooled Unit Pursuant to the Mineral Interest Pooling Act for the Texas Steel "A" Unit, Well No. 1H, Newark, East (Barnett Shale) Field, Tarrant County, Texas* (Final Order served February 10, 2010) wherein a MIPA application was denied based, in part, on Finding of Fact No. 22 to the effect that with a Rule 37 exception, and without compulsory pooling, a horizontal well could be drilled on a voluntarily pooled unit with drainhole length in excess of the proposed MIPA well. A similar finding was adopted in the Final Order served February 10, 2010, in Oil & Gas Docket No. 09-0261248; *Application of XTO Energy, Inc. Pursuant to the Mineral Interest Pooling Act for the Proposed Texas Steel "B" Pooled Unit, Newark, East (Barnett Shale) Field, Tarrant County, Texas* (Motion for Rehearing granted for the purpose of permitting applicant to withdraw application).



At the hearing, XTO's reservoir engineer conceded that there are pathways for Rule 37 wells to be drilled on the voluntary pooled unit that XTO can form, without compulsory pooling, but expressed XTO's concern that such wells would have lesser drainhole length, and potentially recover less gas, than the proposed MIPA well. No claim was made, however, that such Rule 37 wells would not be feasible or economical. Under the MIPA, compulsory pooling may be ordered where necessary to avoid the drilling of unnecessary wells, protect correlative rights, and prevent waste, but not simply for the purpose of enabling an operator to drill the longest possible horizontal drainhole. It is also known from XTO's evidence that reservoir quality is equally, if not more, important to a well's ultimate recovery of gas than the length of the well's drainhole. XTO's plot of estimated ultimate recoveries versus drainhole length (Exhibit No. 32) includes a number of study area wells with drainhole lengths of 1,500-3,000 feet that have estimated ultimate recoveries equal to or greater than other study wells that have drainhole length of 3,000-4,000 feet.

Appendix 2 to this proposal for decision is a copy of XTO's Exhibit No. 34, a plat showing the proposed force pooled unit and proposed MIPA well. The examiners have drawn in red on this plat three horizontal wells that could be drilled with Rule 37 exceptions on the voluntary pooled unit that XTO can form without compulsory pooling. These wells could be drilled from the same off-lease surface location to the southeast of the unit, and none of the three wells would need to traverse any unleased tract. The Rule 37 well with the most northern terminus would have drainhole length of about 3,125 feet, which is longer than 125 of the 166 Barnett Shale wells within five miles of the pad site for the proposed MIPA well. The Rule 37 well in the central portion of the unit would have drainhole length of about 3,000 feet, which is longer than 119 of the 166 Barnett Shale wells within five miles of the pad site for the proposed MIPA well. The third Rule 37 well in the southern part of the unit would have drainhole length of 4,025 feet, which is longer than all but seven of the 166 Barnett Shale wells within five miles of the pad site for the proposed MIPA well.

The practicality of drilling any one, or all three, of the Rule 37 wells shown on Appendix 2 should not be in doubt. Any one of these wells could be expected to cost less, certainly no more, than the \$3,186,000 projected as the cost to drill and complete the proposed MIPA well, and with the estimated ultimate recovery of each such well projected by XTO Exhibit No. 32, even on the basis of current depressed gas prices, each of the wells could be expected to yield total gas revenues roughly 3 ½ to 5 times as great as the cost to drill and complete the wells. Two of the Rule 37 wells shown on Appendix 2 have intersecting drainholes, but the examiners have officially noticed that XTO has drilled multiple wells in this configuration on other units by drilling the wells in different depth intervals. Appendix 3 to this proposal for decision is a plat showing XTO's 139.03 acre Carter SE Unit in Tarrant County and three Barnett Shale horizontal wells drilled on the unit. The drainholes of two of these horizontal wells intersect but are vertically separated at the point of intersection.<sup>17</sup> The Rule 37 wells on Appendix 2 have drainholes that are near the external unit boundary or several unleased tracts internal to the voluntary unit that XTO can form without compulsory pooling. This has not proved to be a problem for XTO with respect to Rule 37 wells in

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<sup>17</sup> The examiners have officially noticed this plat and the facts relating to it from the record in Rule 37 Case No. 0265718; *Application of XTO Energy, Inc., for A Rule 37 Exception for the Carter SE Unit, Well No. B 2h, Newark, East (Barnett Shale) Field, Tarrant County, Texas* (Final Order served November 3, 2010).

the Barnett Shale on other units. Appendix 4 to this proposal for decision includes copies of six examples of plats attached to Forms W-1 filed recently by XTO seeking internal Rule 37 exceptions for Barnett Shale wells on other units showing horizontal wells with drainholes traversing near unleased tracts.<sup>18</sup>

Collectively, the Rule 37 wells shown on Appendix 2 would have drainhole length of 10,150 feet, as compared to drainhole length of 4,560 feet for the proposed MIPA well. If XTO is correct that every foot of horizontal drainhole can be expected to recover 1.0068 MMCF of gas plus the 558.73 MMCF predicted by XTO's Exhibit No. 32, the Rule 37 wells shown on Appendix 2 will recover 11.896 BCF, as compared to 5.149 BCF that is predicted for recovery by the proposed MIPA well. Any two of the Rule 37 wells shown on Appendix 2 would also recover a greater amount of gas than would the proposed MIPA well. The Rule 37 wells that could be drilled on the *voluntary* pooled unit that XTO can form would better protect the correlative rights of XTO, Chesapeake, and their lessors, and better prevent waste, than would compulsory pooling into a proration unit for a single MIPA well.<sup>19</sup>

Furthermore, the examiners are not persuaded by XTO's evidence that the proposed MIPA well likely will drain all tracts proposed for inclusion in the 230.9830 acre compulsory unit. XTO and other operators have found it necessary to drill multiple, closely spaced horizontal wells in the Barnett Shale on comparable or even lesser amounts of acreage. One example is XTO's 139.03 acre Carter SE Unit in Tarrant County on which XTO has drilled three horizontal wells in the Barnett Shale.

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<sup>18</sup> The examiners have officially noticed these plats from official permit records of the Commission. The plats relate to Rule 37 Case No. 0265459 (Status No. 694590), Wesco A Unit (53 feet to nearest lease line); Rule 37 Case No. 0265492 (Status No. 694742) Page Street B Unit (57 feet to nearest lease line); Rule 37 Case No. 0265000 (Status No. 682963) Texas Steel C Unit (43 feet to nearest lease line); Rule 37 Case No. 0265538 (Status No. 688146) Page Street D Unit (29 feet to nearest lease line); Rule 37 Case No. 0266950 (Status No. 680246) Wesco C Unit (43 feet to nearest lease line); and Rule 37 Case No. 0265651 (Status No. 691122) TWU B Unit (50 feet to nearest lease line).

<sup>19</sup> Under the MIPA, the Commission may order force pooling only into a proration unit for a single well. See Oil & Gas Docket No. 06-0245016; *Application of Patricia C. Nowak for Formation of A Pooled Unit Pursuant to the Mineral Interest Pooling Act, Proposed Waldrop Gas Unit 1-A, Carthage (Cotton Valley) Field, Panola County, Texas* (Final Order served July 7, 2006) (Conclusion of Law No. 5: "The Commission's authority to order forced pooling under the Mineral Interest Pooling Act [Texas Natural Resources Code, Chapter 102] is limited to the pooling of separately owned interests in oil and gas into an existing or proposed proration unit for a well, and the Commission may not at once forcibly pool the entirety of the interest of Patricia C. Nowak into a unit which includes the location of multiple wells and all or portions of multiple proration units.") See also Final Order served February 10, 2010, in Oil & Gas Docket No. 09-0261248; *Application of XTO Energy, Inc. Pursuant to the Mineral Interest Pooling Act for the Proposed Texas Steel "B" Pooled Unit, Newark, East (Barnett Shale) Field, Tarrant County, Texas* (Motion for Rehearing Granted for the purpose of permitting applicant to withdraw application) ("The Commission's authority to order compulsory pooling under the Mineral Interest Pooling Act, Chapter 102, Texas Natural Resources Code is limited to force pooling into a proration unit for a single well.").



XTO's drainage area calculations depend on the validity of assumptions about uniform reservoir thickness, porosity, initial water saturation, decline curve analysis regardless of production history, and recovery factors. Even if these assumptions and XTO's methodology are deemed to be sound, still, assuming the ten percent recovery factor most favorable to XTO's position about drainage, the average drainage area for the 166 Barnett Shale wells within five miles is 166 acres, the median drainage area is 149 acres, and 119 of the 166 wells have calculated drainage areas of less than 200 acres. If a 20 percent recovery factor is assumed, the average drainage area for the 166 study wells is 83 acres, the median drainage area is 75 acres, and 161 of the 166 wells have calculated drainage areas of less than 200 acres. The drainage potential of the proposed MIPA well looks more favorable if the drainage analysis is limited just to the 25 wells within the study area that have 3,500' to 4,600' laterals. but this depends on whether a 10 percent or 20 percent recovery factor is assumed. If 10 percent is the valid assumption, the average and median calculated drainage areas for the 25 wells exceed the size of the proposed compulsory unit, but if 20 percent is assumed, the average drainage area of the 25 wells is 139 acres and the median drainage area is 134 acres. XTO's reservoir engineer classified the 10 percent recovery factor as "reasonable" and the 20 percent recovery factor as "certainly reasonable," but provided no more certain basis for the examiners to conclude which is the more valid assumption.

Compulsory pooling of tracts that will not be drained will not prevent the drilling of unnecessary wells because additional wells will be required to drain these tracts. Force pooling of tracts that will not be drained will not prevent waste or protect correlative rights because whatever reserves exist under these tracts will remain there regardless of the drilling of the proposed MIPA well. See Smith & Weaver, *Texas Law of Oil & Gas*, Vol. 3, Chapter 12, §12.3[A][6] at pages 12-23 and 12-24 ("Conversely, if an additional well is necessary to drain the acreage sought to be forcibly pooled, then pooling should also be denied because the pooling would not avoid the drilling of unnecessary wells, prevent waste, or protect correlative rights.")

The examiners are of the opinion that the application should be denied. XTO has not established that compulsory pooling as proposed is necessary to avoid the drilling of unnecessary wells, protect correlative rights, or prevent the waste of gas. 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. Notice of hearing was mailed to all interested persons at mailing addresses provided by the applicant XTO Energy, Inc. ("XTO") at least 30 days prior to the hearing date.
2. Notice of the hearing was published in the Fort Worth Star Telegram once a week for four consecutive weeks.
3. By this application, XTO requests that the Commission approve compulsory pooling pursuant to the Mineral Interest Pooling Act, Chapter 102, Texas Natural Resources Code, of all mineral interests in 649 small tracts of land into a 230.9830 acre proration unit for the TWU A Unit, Well No. 1H ("MIPA well"), Newark, East (Barnett Shale) Field, Tarrant County, Texas.

4. Appendix 1 to this proposal for decision, incorporated into this finding by reference, is a plat (XTO Exhibit No. 34) which shows the proposed force pooled unit, the proposed MIPA well, and tracts within the unit boundaries that are presently leased and unleased ("open").
5. No person appeared at the hearing in opposition to the XTO application. Two leased owners appeared to make statements in support of the application.
6. The Newark, East (Barnett Shale) Field was discovered on October 15, 1981. This field has special field rules providing for 330' lease line spacing, and there is no between well spacing requirement. 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. Where an external casing packer is placed in a horizontal well and cement is pumped above the external casing packer to a depth above the top of the Barnett Shale formation, the distance to any property line, lease line, or subdivision line is calculated based on the top of the external casing packer or the closest open hole section in the Barnett Shale. The standard drilling and proration unit for gas in the Newark, East (Barnett Shale) Field is 320 acres. An operator is permitted to form optional drilling units of 20 acres.
7. The proposed force pooled unit is located about four miles east of downtown Fort Worth. The drilling pad (surface location) for the proposed TWU A Unit MIPA well is off the proposed unit to the southeast. There are mixed uses of the surface of the proposed unit, but the area is heavily developed with residential structures.
8. Within the proposed 230.9830 acre force pooled unit, the total number of acres under lease at the time of the hearing was 201.2396 acres. XTO had 78.1724 acres under lease, and Chesapeake Exploration LLC had 122.7066 acres under lease. Chesapeake had assigned a 25% working interest in its leases to Total E&P USA, Inc. Hemi Energy Group, Inc. had an additional 0.3606 acres under lease. Chesapeake and Total E&P have agreed to pool their interests with those of XTO into the proposed unit. Hemi could not be located by XTO to determine whether it was willing to pool its leasehold interest in Tract No. 378 containing 0.3606 acres. XTO's leases include the right to pool its leased acreage.
9. There are 649 separate tracts of land within the proposed force pooled unit. At the time of the hearing, 579 of these tracts were under lease to XTO, Chesapeake and Hemi. A total of 70 tracts within the proposed unit, containing 29.7434 acres, remained unleased, including nine tax foreclosed tracts containing 2.1514 acres owned by the City of Fort Worth. Tract No. 457 is owned by the Fort Worth ISD, and, XTO is planning to bid for a lease of this tract containing 3.4030 acres.
  - a. At the time of the hearing, 12 of the leased tracts, Tract Nos. 124, 131, 148, 150, 219, 340, 341, 342, 400, 571, and 640, containing 3.8734 acres, were covered by leases that were about to expire. XTO had attempted, or was attempting, to obtain extensions of these leases. As of July 20, 2010, XTO extended its offer to pool voluntarily to the owners of each of these tracts.





- f. The proposed unit includes a portion of Lancaster Avenue under which the State of Texas is the owner of the mineral estate. On February 23, 2010, the School Land Board consented to the force pooling of the State's mineral interest.
  - g. The Fort Worth ISD, owner of Tract No. 457 containing 3.4030 acres, did not accept the voluntary pooling offer, although XTO intends to submit a bid to lease the Fort Worth ISD interest in this tract.
  - h. The City of Fort Worth, owner of nine tax foreclosed tracts, Tract Nos. 136, 137, 138, 139, 140, 145, 146, 147, and 332 containing 2.1514 acres, did not accept any of the options provided in the voluntary pooling offer, but agreed to pooling without execution of an oil and gas lease, subject to conditions.
  - i. The owners of five tracts, Tract Nos. 66, 174, 313, 615, and 684 containing 1.5237 acres affirmatively refused the voluntary pooling offer because they were not interested at all or not interested based on XTO's lease bonus offer of \$2,400 per net mineral acre.
  - j. The voluntary pooling offer stated that if the owner did not respond by accepting one of the options outlined in the offer within 14 days, XTO would consider that the owner refused to pool voluntarily. The owners of 47 tracts containing 20.8149 acres received the voluntary pooling offer, as evidenced by receipts for certified mail, but did not respond to the offer. These tracts are Tract Nos. 10, 23, 24, 52, 60, 70, 73, 82, 90, 92, 116, 125, 142, 151, 165, 164, 182, 199, 204, 224, 228, 237, 261, 292, 301, 304, 311, 337, 347, 350, 376, 437, 440, 477, 528, 530, 532, 534, 557, 558, 594, 617, 624, 634, 663, 664, and 672.
  - k. The owners of seven additional tracts containing 1.6078 acres could not be contacted by XTO. These tracts are Tract Nos. 112, 133, 154, 393, 463, 515, and 539.
11. The Barnett Shale is present and reasonably productive throughout the area of the proposed unit, as demonstrated by XTO's structure/isopach map and cross section.
12. XTO did not sufficiently establish that the proposed MIPA well likely will drain the entirety of the proposed 230.9830 acre unit.
- a. XTO's Exhibit No. 22 structure/isopach map showed that multiple, closely spaced horizontal wells have been drilled in the Barnett Shale by other operators on surrounding leases or units within five miles of the pad site from which the MIPA well is proposed to be drilled.
  - b. XTO has developed other smaller units with multiple Barnett Shale wells, for example by drilling three horizontal wells on the 139.03 acre Carter SE Unit in Tarrant County, as shown by the record in Oil & Gas Docket No. 0265718; *Application of XTO Energy, Inc., for A Rule 37 Exception for the Carter SE Unit, Well No. B 2h, Newark, East (Barnett Shale) Field, Tarrant County, Texas* (Final



Order served November 3, 2010) which has been officially noticed.

- c. XTO volumetrically calculated that gas in place for the Barnett Shale, assuming average reservoir thickness of 350 feet, porosity of six percent, and initial water saturation of 32 percent, is 121 BCF per square mile (640 acres) or 0.1891 BCF per acre. XTO estimated ultimate recoveries by decline curve for all Barnett Shale wells within five miles of the drilling pad for the proposed MIPA well. Assuming alternative recovery factors of 10 percent and 20 percent, XTO then "backed into" drainage areas for the wells by dividing the estimated ultimate recoveries by 10 percent and 20 percent of the 0.1891 BCF of gas in place per acre. These drainage area calculations depend on the validity of assumptions about uniform reservoir thickness, porosity, initial water saturation, decline curve analysis regardless of production history, and recovery factors.
- d. Using XTO's methodology, based on a 10 percent recovery factor which XTO deemed "reasonable," the calculated drainage areas of the 166 study wells within five miles of the pad site for the proposed MIPA well range from eight acres to 500 acres, with an average drainage area of 166 acres and a median drainage area of 149 acres. Of the 166 wells in the study, 119 have calculated drainage areas of less than 200 acres, assuming a ten percent recovery factor.
- e. Using XTO's methodology, based on a 20 percent recovery factor which XTO deemed "certainly reasonable," the calculated drainage areas of the 166 study wells within five miles of the pad site for the proposed MIPA well range from four acres to 250 acres, with an average drainage area of 83 acres and a median drainage area of 75 acres. Of the 166 wells in the study, 161 have calculated drainage areas of less than 200 acres, assuming a 20 percent recovery factor.
- f. If XTO's drainage analysis is limited just to the 25 wells within the study area that have 3,500' to 4,600' laterals, assuming a 10 percent recovery factor, the calculated drainage areas for the wells range from 78 acres to 535 acres, with an average drainage area of 277 acres and median drainage area of 268 acres. Assuming a 20 percent recovery factor, the calculated drainage areas for the same 25 wells with longer laterals ranges from 39 acres to 239 acres, with an average drainage area of 139 acres and median drainage area of 134 acres.
- g. XTO's "well interference" study did not establish that the wells in each pair of wells in the study are competing with each other for reserves or that production of the wells that were impacted by fracture stimulation was adversely affected. The impact seen in the well interference study is an impact from fracture stimulation, not a production impact.
- h. A computer generated least squares regression of the data points on a plot of estimated ultimate recovery versus drainhole length for Barnett Shale wells within five miles of the drilling pad for the proposed MIPA well developed a line through the data points with a positive slope of 1.0068 and an intercept of 558.73. XTO

interpreted this study to mean that a horizontal well in the Barnett Shale will recover 558.73 MMCF plus 1.0068 MMCF for every foot of horizontal drainhole.

- i. XTO's plot of estimated ultimate recovery versus drainhole length has considerable scatter of the data. Four wells included in the plot with estimated ultimate recoveries between 6.0 BCF and 7.0 BCF have drainhole length in the range of 1,500 to 3,000 feet and have better estimated ultimate recoveries than about 39 wells included in the plot that have longer drainholes in the range of 3,000 to 4,600 feet.
  - j. XTO's estimate that the proposed MIPA well ultimately will recover 5.149 BCF of gas is predicated solely on the assumption that the well will recover 558.73 MMCF plus 1.0068 MMCF for every foot of the proposed horizontal drainhole. According to XTO's "back in" drainage area calculation methodology, a well that ultimately will recover 5.149 BCF of gas should drain about 270 acres, assuming a recovery factor of 10 percent, or, if a 20 percent recovery factor is assumed, about 135 acres. XTO's estimate of ultimate recovery for the proposed MIPA well of 5.149 BCF exceeds the total amount of recoverable gas beneath the proposed unit based on XTO's volumetric calculation of gas in place if a 10 percent recovery factor is assumed.
13. XTO has the right under its own leases, and the agreement of Chesapeake Exploration, LLC and Total E&P USA, Inc., to form a voluntary pooled unit consisting of 200.879 acres under lease to XTO and Chesapeake.
  14. There are pathways across the 200.879 acre voluntary pooled unit that XTO is able to form for the feasible and economical drilling of multiple horizontal wells with Rule 37 exceptions. These Rule 37 wells would protect correlative rights of XTO, Chesapeake, and their lessors, and prevent waste, to a greater extent than the proposed MIPA well.
    - a. Appendix 2 to this proposal for decision, incorporated into this finding by reference, is a copy of XTO's Exhibit No. 34, a plat showing the proposed force pooled unit and proposed MIPA well and depicting in red three horizontal wells that could be drilled with Rule 37 exceptions ("Rule 37 wells") on the voluntary pooled unit that XTO can form without compulsory pooling.
    - b. The Rule 37 wells could be drilled from the same off-lease surface location to the southeast of the unit, and none of the three wells would need to traverse any unleased tract.
    - c. The Rule 37 well with the most northern terminus would have drainhole length of about 3,125 feet, which is longer than 125 of the 166 Barnett Shale wells within five miles of the pad site for the proposed MIPA well. The Rule 37 well in the central portion of the unit would have drainhole length of about 3,000 feet, which is longer than 119 of the 166 Barnett Shale wells within five miles of the pad site for the proposed MIPA well. The third Rule 37 well in the southern part of the unit would have drainhole length of 4,025 feet, which is longer than all but seven of the 166 Barnett Shale wells within five miles of the pad site for the proposed MIPA well.



- d. Any one of the Rule 37 wells could be expected to cost no more than the \$3,186,000 projected as the cost to drill and complete the proposed MIPA well, and based on the estimated ultimate recovery of each such well projected by XTO Exhibit No. 32, even on the basis of current depressed gas prices, each of the wells could be expected to yield total gas revenues roughly 3 ½ to 5 times as great as the cost to drill and complete the wells.
- e. Collectively, the Rule 37 wells would have drainhole length of 10,150 feet, as compared to drainhole length of 4,560 feet for the proposed MIPA well. Based on XTO's projection that horizontal wells in this area of the Barnett Shale can be expected to recover 558.73 MMCF plus 1.0068 MMCF for every foot of horizontal drainhole, the Rule 37 wells shown on Appendix 2 would recover 11.896 BCF, as compared to 5.149 BCF that is predicted for recovery by the proposed MIPA well. Any two of the Rule 37 wells would also recover a greater amount of gas than would the proposed MIPA well.

**CONCLUSIONS OF LAW**

1. Pursuant to Texas Natural Resources Code §102.016, notice of the hearing was given to all interested parties by mailing the notices to their last known addresses, and by publication of notice for four consecutive weeks in a newspaper of general circulation in the county where the proposed unit is located in the case of parties whose whereabouts were unknown, at least 30 days before the hearing.
2. All things have occurred and been accomplished to give the Commission jurisdiction to decide this matter.
3. XTO Energy, Inc., made a fair and reasonable offer to pool voluntarily as required by Texas Natural Resources Code §102.013.
4. XTO Energy, Inc., did not prove that compulsory pooling as proposed by XTO is required to avoid the drilling of unnecessary wells, prevent waste, or protect correlative rights.
5. Pursuant to Texas Natural Resources Code §102.011, the Commission has no authority to order compulsory pooling where it is not proved that such compulsory pooling is necessary to avoid the drilling of unnecessary wells, prevent waste, or protect correlative rights.

**RECOMMENDATION**

The examiners recommend that the XTO application be denied.

Respectfully submitted,

*James M. Doherty*

James M. Doherty  
Hearings Examiner

*Richard P. Atkins*

Richard Atkins  
Technical Examiner