



# RAILROAD COMMISSION OF TEXAS

## HEARINGS DIVISION

April 14, 2015

**Rule 37 Case No. 0290915**  
**Status No. 768143**  
**District 09**

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

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### APPEARANCES:

#### FOR APPLICANT:

Glenn Johnson, Attorney  
Bill Spencer, Consultant  
Jonathan Ashcraft, Reservoir Engineer

#### APPLICANT:

Chesapeake Operating, Inc.

#### PROTESTANT:

Arthur Prior

#### REPRESENTING:

Himself

### PROPOSAL FOR DECISION

### PROCEDURAL HISTORY

<b>APPLICATION FILED:</b>	September 23, 2014
<b>NOTICE OF HEARING:</b>	January 5, 2015
<b>HEARD BY:</b>	Marshall Enquist - Hearings Examiner Karl Caldwell - Technical Examiner
<b>HEARING DATE :</b>	February 3, 2015
<b>PFD CIRCULATION DATE:</b>	April 14, 2015

### STATEMENT OF THE CASE

Chesapeake Operating, Inc. ("Chesapeake" or "Applicant"), seeks an amended drilling permit pursuant to the provisions of Statewide Rule 37 for the Engler-Mann Lease, Well No. 3H, a horizontal well in the Newark, East (Barnett Shale) Field, Tarrant County, Texas.

On August 13, 2013, Chesapeake filed a drilling permit for its Engler-Mann Well No. 3H ("Well

No. 3H”), which was granted on August 15, 2013. This is considered by Chesapeake to be a surface location permit. On April 17, 2014, Chesapeake filed an amended permit for Well No. 3H, which was approved administratively on May 23, 2014. Chesapeake refers to this permit as a long lateral, short perforation permit.

Chesapeake then filed a drilling permit application on June 13, 2014, for which Notice of Application was issued by the Commission on August 11, 2014. A Notice of Intent to Appear in Protest was filed on August 27, 2014 by Kurt Byer of the Arlington/Fort Worth Investment Club. Mr. Byer’s tract is Tract 230. Chesapeake then amended its filing by placing a “No Perforation Zone” (“NPZ”) on the wellbore in proximity to Mr. Byer’s Tract 230, thus preventing perforation of the wellbore within 330 feet of Mr. Byer’s tract. This prevented perforation of approximately 538 feet of the wellbore. The amended permit was approved administratively on September 15, 2014.

Chesapeake filed its most recent drilling permit application for Well No. 3H on September 23, 2014, with the intent of removing the NPZ on the well. As a consequence of placing the NPZ on the wellbore, Chesapeake affected four additional parties, who were given notice. One of those parties was Mr. Arthur Prior, owner of Tract No. 209. Mr. Prior was the sole protestant at the hearing held February 3, 2015.

The surface location of Well No. 3H is on-unit. It is 264 feet from the southeast line and 550 feet from the west line of the lease and 456 feet from the east line and 445 feet from the north line of the J. C. Yates Survey, A-1753. The proposed penetration point is 330 feet from the southeast line and 1,287 feet from the northeast line of the lease. The terminus is 250 feet from the north line and 1,006 feet from the east line of the lease and 1,475 feet from the north line and 1,744 feet from the west line of the W. Mann Survey, A-1010. The lateral runs on a NW-SE trend.

Special field rules for the Newark, East (Barnett Shale) Field provide for 330 foot leaseline 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, leaseline, or subdivision line is calculated based on the distance to the nearest perforation point 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, leaseline, 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 the Newark, East (Barnett Shale) Field is 320 acres. An operator is permitted to form optional drilling units of 20 acres.

A Rule 37 exception is needed for the Engler-Mann Lease, Well No. 3H, because a section of the well proposed to be perforated is closer than 330 feet to the boundary of tracts which are internal to the unit and unleased. That section of the well is currently restricted by a 538-foot NPZ. Mr. Arthur Prior appeared at the hearing in protest and represented himself.

## DISCUSSION OF THE EVIDENCE

### CHESAPEAKE OPERATING, INC.

Chesapeake seeks removal of the “No Perforation Zone” (“NPZ”) on its Engler-Mann Lease, Well No. 3H imposed on the well by Chesapeake’s September 15, 2014 administratively approved well permit. The NPZ is marked in red on the attached **Exhibit I**. At the time this permit was approved, the Engler-Mann Lease contained 229.247 leased acres in a 248.114-acre gross unit area. At the time of the present hearing, the leased acreage remained the same, with approximately 750 tracts leased, for about 92.4 per cent unit sign-up.

An isopach map derived from the logs of nearby wells indicates the Barnett Shale is roughly 340 feet thick under the Engler-Mann Lease. Devon Energy Production Co., LLP conducted a study of the Tarrant/Denton/Wise County area which calculated total gas in place at 139 BCF per square mile in those counties, based on an average formation thickness of 433 feet, porosity of 0.04% and TOC (Total Organic Carbon) of 4%. Using that study, and correcting for the thickness (345 feet) of the Newark, East (Barnett Shale) Field under the Engler-Mann Lease and the leased acreage, Chesapeake calculated the original gas in place in the 229.247 leased acres of the Engler-Mann Lease to be 39.671 BCF. Assuming a recovery factor of 61%, Chesapeake calculates there was originally 24.199 BCF of recoverable gas in place beneath the leased acreage of the Engler-Mann Lease. Chesapeake has already produced 1.024 BCF from the Engler-Mann Lease Well No. 2H, leaving remaining recoverable gas in place of 23.175 BCF.

Chesapeake reviewed the Newark, East (Barnett Shale) Field wells within five miles of the Engler-Mann Well No. 3H, finding 127 wells within that area. Plotting the estimated ultimate recovery (EUR) of each of the wells, Chesapeake developed a scatter diagram and used a least squares regression method to produce a trend line to predict the ultimate recovery of a well in the area based on its length. Based on the scatter diagram, with the drainhole length as the “x” axis and the estimated EUR in MMCF as the “y” axis, Chesapeake derived a well recovery formula of “ $y = 0.9342x + 1871.9$ ”. This formula indicates each incremental foot of wellbore will recover 934 MCF of gas. The 1,871 is the amount of gas, in MMCF, that Chesapeake would expect to recover with a vertical wellbore and no incremental horizontal drainhole length. Thus, Chesapeake calculates its proposed full-length lateral of 4,624.03 feet will recover 6.192 BCF of gas.

The current NPZ affects 538 feet of the Engler-Mann Lease, Well No. 3H. Absent the removal of the NPZ, Chesapeake argues it would be left with a wellbore lateral available to perforate that is only 4,086 feet in length. The wellbore lateral available for perforation would recover only 5.689 BCF of gas, leaving 0.502 BCF unrecovered. Chesapeake argues that 0.502 BCF of gas is a significant quantity of hydrocarbons.

Chesapeake argues that failure to remove the NPZ would deprive Chesapeake and its lessors of the opportunity to produce their fair share of the recoverable hydrocarbons in place beneath the 229.247 leased acres of the Engler-Mann Lease, which would be confiscation.

**PROTESTANT'S POSITION AND EVIDENCE**

Mr. Arthur Prior owns a single-family home at 7112 Chapman Drive in North Richland Hills. He also owns the minerals beneath the tract of land on which the home sits. He contends his reservation of, and rights in, the minerals under his land is worthless if a potential grantee (like Chesapeake) can enter and extract the minerals in disregard of the grantor's right to grant or not grant permission to recover those minerals.

Mr. Prior also bases his protest on public perception. Earthquakes, water contamination, air pollution and other environmental hazards have been attributed to fracking, the same type of fracking being conducted in North Richland Hills. Mr. Prior does not undertake to prove or disprove these allegations against fracking. He does note that there are many newspaper and magazine articles, some written by people associated with universities, indicating that fracking is harmful. "Should the public perception of the urban area in and around my property become an area to be avoided because it is environmentally too risky to live there, then the group of homes boarded up or abandoned or toxically black-listed will create an environmental disaster on a grand scale." (Transcript, page 50, lines 6-11)

"The fact that the burden of proof of human illness or death because of environmental pollution rest with the poor family that is affected only fuels the fear and anger of the people living in the area. The feeling of hopelessness is a trigger to fear. That fear will no doubt spread to the mortgage industry that fears a loss of equity because of falling real estate prices or because of a fear of earthquakes or environmental toxicity that will jeopardize their mortgage loans. This could blacklist my property and those surrounding my property." (Transcript, page 52, lines 11-21)

Mr. Prior states that he is a business man who believes in the private enterprise system. He does not fault Chesapeake in their effort to make money, but does fault a company that makes money by putting the public at risk. He also notes that his property is subject to covenants and restrictions, one of which stating that "No oil drilling, no derrick or other structure designed for use in quarrying for oil or natural gas shall be erected." Transcript, page 54, lines 14-16. Mr. Prior notes that many homes in the area are owned by lower middle class workers that have no means to drill for oil on their property.

The exception to the leaseline spacing requirement, according to Mr. Prior, should be denied. In addition, Mr. Prior requests that a bond equal to \$250,000, the estimated value of his home in 15 years, be placed into an escrow or indemnity account to protect his property. He also requests that Mother Hubbard clause<sup>1</sup> be included in the bond to protect other properties that he owns in close proximity to 7112 Chapman that could also be adversely affected.

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<sup>1</sup> A Mother Hubbard clause is a provision in a deed or instrument that is intended to sweep within it other parcels not specifically described.

### EXAMINERS' OPINION

It is the basic right of every landowner or lessee to a fair and reasonable chance to recover the oil and gas under their property as recognized by the Texas Supreme Court in *Gulf Land Co. v. Atlantic Refining Co.*, 131 S.W.2d 73, 80 (Tex. 1939). Denial of that fair chance is confiscation within the meaning of Rule 37. *Id.* To obtain an exception to Statewide Rule 37 to protect correlative rights and prevent confiscation, the applicant must show that 1.) it is not possible for the applicant to recover its fair share of minerals under its tract from regular locations; and 2.) that the proposed irregular location is reasonable.

The Examiners are of the opinion that approval of the Statewide Rule 37 exception requested by Chesapeake is necessary to prevent confiscation and protect correlative rights. Chesapeake and its lessors are entitled to recover their fair share of gas from beneath the Engler-Mann Lease. "Fair share" is measured by the currently recoverable reserves beneath the lease, which in this case is 23.175 BCF. The evidence shows that it is not feasible for Chesapeake to recover its fair share of gas from regular locations in the unit due to the presence of unleased tracts. The Engler-Mann Lease Well No. 3H, at its full length of 4,624.03 feet, is projected to recover 6.192 BCF over its useful life.

The issues raised by Mr. Prior, regarding shifts in property values and public perceptions of the desirability of living in areas subject to mineral development, are not within the jurisdiction of the Commission. Mr. Prior's arguments that: (1) subdivision restrictions prevent the homeowners from developing their own minerals, and (2) that the local homeowners do not have the means to develop their minerals even if they wanted to, cuts against Mr. Prior. Regardless of their individual financial circumstances, and their individual inability to develop the minerals beneath their homes, the local homeowners would be able to benefit from the development of the minerals beneath their homes simply by leasing to Chesapeake, thus ensuring a stream of income from those minerals.

The Engler-Mann Lease, Well No. 3H has a full-length lateral of 4,624.03 feet. This lateral is currently restricted by 533 feet of No Perforation Zone. The NPZ-restricted lateral will recover 5.689 BCF. If the NPZ restriction is removed, the full-length lateral will recover 6.192 BCF, a difference of 0.502 BCF. The examiners find that 0.502 BCF is a substantial quantity of hydrocarbons that would go unrecovered if the "No Perforation Zone" restriction is not removed.

The Examiners find that Well No. 3H is reasonably located as part of a development pattern designed to maximize hydrocarbon recovery on the Engler-Mann Lease.

The Examiners recommend that Chesapeake be granted an exception to Statewide Rule 37 for its Well No. 3H on the 229.247 leased acres of the 248.114-acre Engler-Mann Lease in Tarrant County based on prevention of confiscation. Based on the record in this docket, the Examiners recommend adoption of the following Findings of Fact and Conclusions of Law:

**FINDINGS OF FACT**

1. At least 10 days notice of this hearing was given to the designated operator, all offset operators, all lessees of record for tracts that have no designated operator, and all owners of record of unleased mineral interests for each affected adjacent tract.
2. Chesapeake Operating, Inc. ("Chesapeake" or "Applicant"), seeks an exception to Statewide Rule 37 for the Engler-Mann Lease, Well No. 3H, in the Newark, East (Barnett Shale) Field in Tarrant County.
3. On September 15, 2014, Chesapeake received an administratively-approved permit to drill its Engler-Mann Lease, Well No. 3H, with an NPZ (Non Perforation Zone) in place to accommodate protesting Tract No. 230, owned by Kurt Byer of the Arlington/Fort Worth Investment Club. The NPZ prevented perforation of approximately 538 feet of wellbore.
4. On September 23, 2014, Chesapeake filed its most recent drilling permit application for the Engler-Mann Lease, Well No. 3H, with the intent of removing the 538-foot NPZ on the wellbore.
5. As a result of filing the September 23, 2014 application, Chesapeake affected four additional parties, who were given notice. One of the affected parties was Mr. Prior, owner of Tract No. 209. Mr. Prior was the sole protestant at the hearing held February 3, 2015.
6. A Rule 37 exception is needed for the proposed Engler-Mann Lease, Well No. 3H, because a section of the well proposed to be perforated is closer than 330 feet to the boundary of a tract internal to the unit that is unleased.
7. Special field rules for the Newark, East (Barnett Shale) Field provide for 330 foot leaseline 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, leaseline, or subdivision line is calculated based on the distance to the nearest perforation point 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, leaseline, 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 perforation unit for the Newark, East (Barnett Shale) Field is 320 acres. An operator is permitted to form optional drilling units of 20 acres.
8. The surface location of the Engler-Mann Lease, Well No. 3H is located on-unit. It is 264 feet from the SE lease line and 550 feet from the west lease line, and 456 feet from the East line of the J.C. Yates Survey, A-1753 and 445 feet from the North line of the J.C. Yates Survey, A-1753. The proposed penetration point is 330 feet from the southeast line and 1287 feet from the northeast line of the lease. The terminus is 240.03 feet from the north line and 1006 feet from

the east line of the lease and 1475 feet from the north line and 1744 feet from the west line of the W. Mann Survey, A-1010. The lateral runs on a NW-SE trend.

9. Mr. Arthur Prior appeared at the hearing as a Protestant and represented himself.
10. The Barnett Shale formation is present and productive under the entirety of the Engler-Mann Lease.
11. At the time of the hearing, the leased acreage in the Engler-Mann Lease was 229.247 acres in a 248.114-acre gross unit area. Approximately 92.4 percent of the unit acreage is leased.
12. To establish the currently recoverable reserves under the 229.247 leased acres of the 248.114-acre Engler-Mann Lease, Chesapeake used a volumetric calculation:
  - a. Available well logs in the vicinity of the Engler-Mann Lease indicate the thickness of the Barnett Shale locally to be 345 feet.
  - b. A study conducted by Devon Energy Production Co., LLP for the Tarrant/Denton/Wise County calculated original gas in place at 139 BCF per square mile in those counties, based on an average formation thickness of 433 feet, porosity of 0.04 and %TOC (Total Organic Carbon) of 4%. Using that study, and correcting for the thickness of the Newark, East (Barnett Shale) Field under the Engler-Mann Lease and the leased acreage, Chesapeake calculated the original gas in place in the 229.247 leased acres of the Engler-Mann Lease to be 39.671 BCF. Assuming a recovery factor of 61%, Chesapeake calculates there was originally 24.199 BCF of recoverable gas beneath the Engler-Mann Lease. Chesapeake has already produced 1.024 BCF from the Engler-Mann Lease, Well No. 2H, leaving remaining recoverable gas in place of 23.175 BCF.
13. Chesapeake plotted drainhole length versus estimated ultimate recovery for 127 wells within a 5 mile radius of the applied-for well on a scatter diagram. Using the least squares regression method, Chesapeake derived a well recovery formula of " $y = 0.9342x + 1871.9$ ", with drainhole length represented by "x" and estimated EUR in MMCF represented by "y". This indicates that each incremental foot of horizontal wellbore will recover an additional 934 MCF of gas, while a purely vertical well would recover 1,871 MMCF.
14. The total usable length of the Well No. 3H drainhole, after removal of the 538 feet of NPZ placed on the subject well under the permit granted on September 15, 2014, is 538 feet. Applying Chesapeake's calculated well recovery formula, the full-length lateral of 4,624.03 feet for Well No. 3H will have an estimated ultimate recovery of 6.192 BCF of gas.
15. As permitted on September 15, 2014, Well No. 3H had 538 feet of NPZ. Removal of the NPZ would result in the recovery of 0.502 BCF that would otherwise not be recoverable by the well.

16. The amount of gas that would go unrecovered by the well absent removal of the 538 feet of NPZ in Well No. 3H, 0.502 BCF, is a significant quantity of hydrocarbons.
17. Chesapeake's fair share of gas in place beneath the Engler-Mann Lease is 23.175 BCF of gas, after deducting 1.024 BCF already produced by the Engler-Mann lease, Well No. 2H.
18. The proposed location of Well No. 3H is reasonable as part of a multi-well recovery program designed to maximize recovery from the Engler-Mann Lease.

### CONCLUSIONS OF LAW

1. Proper notice of hearing was timely given to all persons legally entitled to notice.
2. All things have occurred to give the Commission jurisdiction to decide this matter.
3. Approval of a Rule 37 exception for the proposed locations of the Engler-Mann Lease, Well No. 3H, as proposed by Chesapeake Operating, Inc., is necessary to prevent confiscation and protect the correlative rights of the mineral owners.
4. Chesapeake has met its burden of proof and satisfied the requirements of Railroad Commission Statewide Rule 37.

### RECOMMENDATION

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

Respectfully submitted,



\_\_\_\_\_  
Marshall Enquist  
Hearings Examiner



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Karl Caldwell  
Technical Examiner

Chesapeake Operating, LLC, Engler-Mann, Well and 456' FEL of the J. C. Yates Survey, Abstr Richland Hills, Tarrant County, Texas.

# EXHIBIT I

## Chesapeake Operating, Inc.

### Rule 37 Case No. 0290915

REGISTERED PROFESSIONAL SURVEYORS

**S. LAND SURVEYORS L.P.**

- LAND • TOPOGRAPHIC
- CONSTRUCTION SURVEYING

P. O. BOX 8873  
FORT WORTH, TEXAS 76124

METRO 817-428-0194  
FAX 817-448-5488



Prepared 2 February 2015

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Y: 433774.218  
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LON: -97.227050°

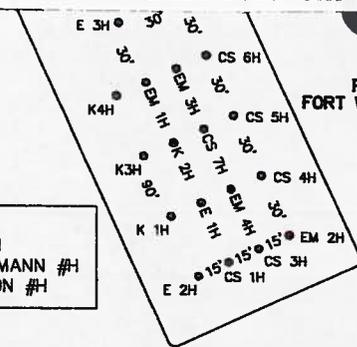
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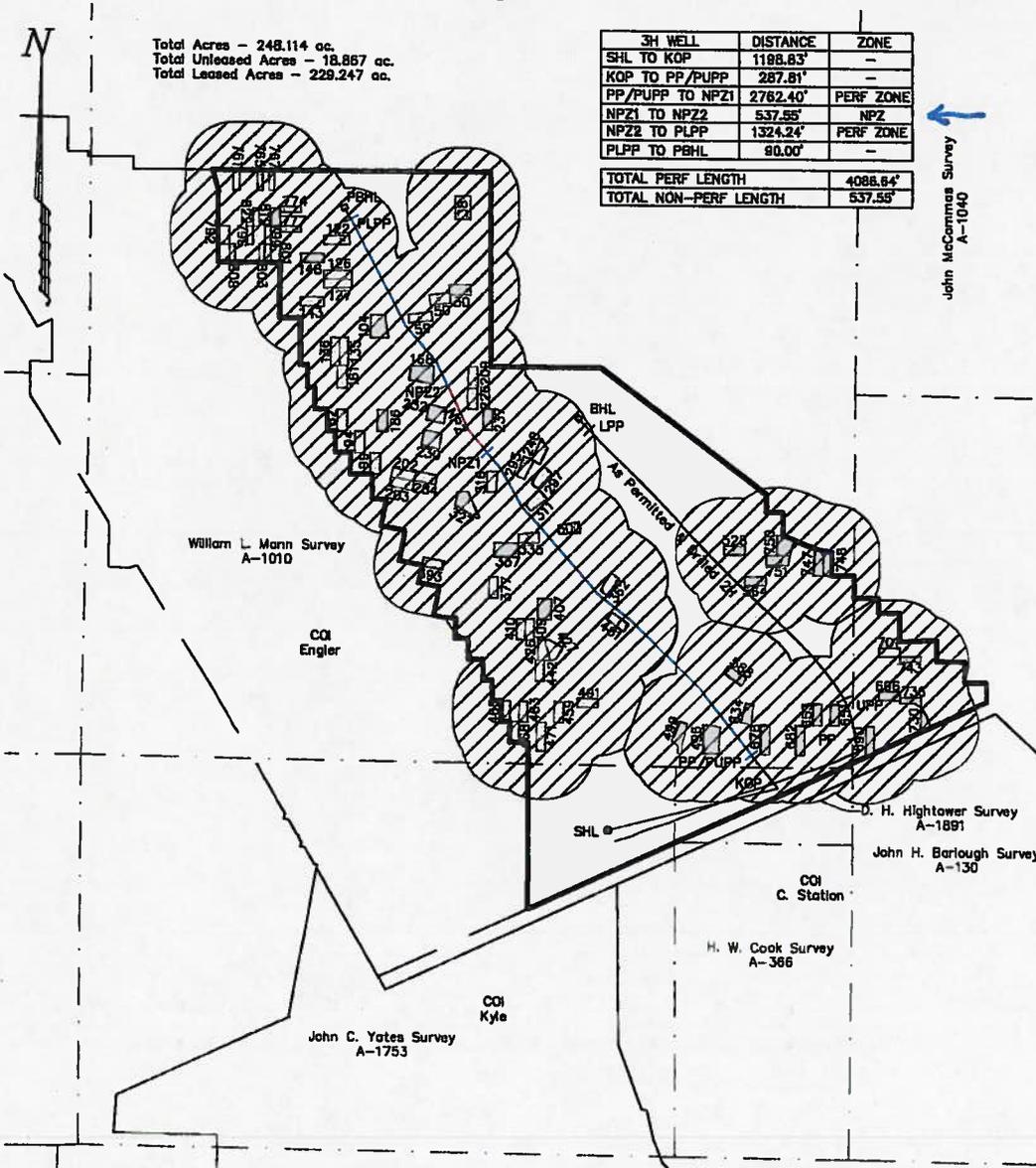
K #H = KYLE #H  
E #H = ENGLER #H  
EM #H = ENGLER-MANN #H  
CS #H = C. STATION #H



Total Acres - 248.114 ac.  
Total Unleased Acres - 18.857 ac.  
Total Leased Acres - 229.247 ac.

3H WELL	DISTANCE	ZONE
SHL TO KOP	1198.83'	-
KOP TO PP/PUPP	287.81'	-
PP/PUPP TO NPZ1	2762.40'	PERF ZONE
NPZ1 TO NPZ2	537.55'	NPZ
NPZ2 TO PLPP	1324.24'	PERF ZONE
PLPP TO PBHL	80.00'	-
TOTAL PERF LENGTH	4088.64'	
TOTAL NON-PERF LENGTH	537.55'	

John McCannas Survey  
A-1040

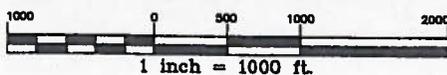


**NOTES:**

- SHL - Surface Hole Location.
- KOP - Kick Off Point.
- PP - Penetration Point.
- UPP - Upper Perforation Point.
- PUPP - Proposed Upper Perforation Point.
- LPP - Lower Perforation Point.
- PLPP - Proposed Lower Perforation Point.
- BHL - Bottom Hole Location.
- PBHL - Proposed Bottom Hole Location.
- NPZ - No Perf Zone.

- = Unleased tracts
- = 330' Radius around unleased tracts.

Basis of Bearings: NAD27 Texas North Central Zone.  
Grid Scale Factor: 0.9998530386



**Well Exhibit**  
**Engler-Mann, Well 3H**  
**CHESAPEAKE OPERATING, LLC.**  
**229.247 Leased Acre Engler-Mann**  
**North Richland Hills, Tarrant County, Texas.**

CHK-Engler-Mann 3H NPZ-230 RRC1.dwg

Exhibit No. **24**  
**CHESAPEAKE OPERATING, INC.**  
 Rule 37 Case No. 0290915  
 February 3, 2015