RAILROAD COMMISSION OF TEXAS

HEARINGS DIVISION

OIL AND GAS DOCKET NO. 09-0277581

THE APPLICATION OF PIONEER NATURAL RESOURCES USA, INC. TO CONSIDER A PERMANENT GAS WELL CLASSIFICATION FOR THE NEWARK, EAST (BARNETT SHALE) FIELD IN MONTAGUE, WISE, CLAY, COOKE, DENTON, AND JACK COUNTIES, TEXAS

HEARD BY: Andres J. Trevino, P.E. - Technical Examiner
Randall Collins - Legal Examiner

HEARING DATE: November 13, 2012

APPEARANCES:	**REPRESENTING:**
APPLICANT:	
Sandra B. Buch Brian R. Sullivan Nikki Burnett Vance Hazzard Shane Seals Jennifer Mathews	Pioneer Natural Resources USA, Inc.
OBSERVERS:	
Flip Whitworth	EOG Resources, Inc.
Steve Towns	Enervest Operating LLC

EXAMINER'S REPORT AND RECOMMENDATION

STATEMENT OF THE CASES

Pioneer Natural Resources USA, Inc. ("Pioneer") request that all wells demonstrating a gas-oil ratio of 3,000 cubic feet per barrel and above in the Newark, East (Barnett Shale) Field be permanently classified as gas wells, effective the date of first production for each well. Further, Pioneer requests that completion reports for oil and gas wells in this field and in Montague, Wise, Clay, Cooke, Denton, and Jack Counties shall

be considered timely filed if a Well Records Only completion report is filed within 30 days of completion of the well and the Initial Potential completion report is filed within 180 days of completion of the well. The examiners recommended to restrict the proposed changes to wells in Montague, Wise, Clay, Cooke, Denton, or Jack Counties as theses counties are the only counties currently identified as having affected wells needing the relief. Pioneer did not consider the county restriction as an adverse decision and agreed.

The application is unprotested and, after reviewing the evidence submitted during the hearing along with subsequent late-file exhibits requested by the examiners, the examiners recommend approval of a permanent gas well classification for all wells completed with a gas-oil ratio of 3,000 cubic feet per barrel and above in the Newark, East (Barnett Shale) Field in Montague, Wise, Clay, Cooke, Denton, and Jack Counties, Texas and allow late filed Initial Potential reports.

DISCUSSION OF EVIDENCE

The Newark, East (Barnett Shale) Field is an associated, 100% AOF field and was discovered in October 1981. The field extends over portions of 27 counties. Oil production is found primarily in Montague and Wise Counties. There are 12,714 producing gas wells and 807 oil wells with approximately 269 operators carried on the November 2012 proration schedule. Field Rules provide for 330'-0' well spacing, horizontal rules, and 320 acre density with optional 20 acre units. Cumulative production from the Newark, East (Barnett Shale) Field through September 2012 is reported as 12,300 BCFG and 14.2 MMBO.

Pioneer submitted a stratigraphic cross-section that traverses from southwest to northeast and east to west across the study area of the field. The cross section consists of twenty wells across the study area in Montague and Wise Counties. The well logs used in the cross-section include the top and base of the Newark, East (Barnett Shale) Field's interval which includes the Upper Barnett, the Comyn/Forestburg and the Lower Barnett. The correlations indicate the Barnett Shale formation is continuous across the subject counties, occurs in greater net-thickness to the eastern area of Montague County and gradually decreases in thickness towards the southwest direction.

The Commission's current administrative policy in gas well determination provides four separate options an operator may utilize to demonstrate a hydrocarbon producing well may be classified as a gas well. Of the four options, a well may be administratively classified as a gas well if the heptanes plus (C7+) mole percent of a compositional analysis is less than eleven percent (11%). The examiner takes notice of Phillip L. Moses's publication of "Engineering Applications of Phase Behavior of Crude Oil and Condensate Systems". In his publication, Moses opines, " there is a fairly sharp dividing line between oils and condensates from a compositional standpoint. Reservoir fluids that contain heptanes and are heavier in concentrations of more than 12.5 mol% are almost always in the liquid phase in the reservoir. Those with less than 12.5 mol% are almost always in the gas phase in the reservoir". Further, Moses explains that "retrograde condensate reservoirs

are characterized by gas/liquid ratios of approximately 3,000 to 150,000 cubic feet per barrel and that liquid gravities usually range from about 40° to 60° API."

At the hearing, Pioneer submitted PVT data of wells information that includes heptanes-plus mole percent, Form G-1 Initial gas-liquid ratio, and monthly production gas-liquid ratios. The information was taken from 72 wells completed in Montague and Wise counties and operated by either Pioneer or EnerVest Operating. The combined average gas-oil ratio on initial test (within 30 days of production) for the 72 Pioneer and EnerVest wells was approximately 4,000 to 7,000 cubic feet per barrel. At day 120 of production, the wells approached 100,000 cubic feet per barrel.

The mol% heptanes-plus in 24 of Pioneer's 27 samples analyzed was less than 12.5%. The three wells that had more than 12.5 mol% heptanes-plus also had an producing gas-oil ratio and initial test gas-oil ratio between 2,336 cu.ft./bbl. and 3,186 cu.ft./bbl. The mol% heptanes-plus in all of EnerVest's 40 samples analyzed were less than 12.5%. For a gas-oil ratio on initial test of less than 3,000 cubic feet per barrel, most of the wells would have more than 12.5 mol% heptanes-plus and would be classified as an oil well. For a gas-oil ratio on initial test of 3,000 cubic feet per barrel and above, most of the wells would have less than 12.5 mol% heptanes-plus and would be classified as a gas well.

Pioneer also requests that completion reports for oil and gas wells in this field and in the subject counties shall be considered timely filed if a Well Records Only completion report is filed within 30 days of completion of the well and the Initial Potential completion report is filed within 180 days of completion of the well. Production data from Pioneer's wells show that oil wells can take up to 84 days to produce the first oil and gas wells can take up to 122 days to produce the first gas. The average time for first oil is 21 days while first gas was 34 days. Filing an initial potential test within the first 30 days will not show an accurate true potential of a well. Filing an initial potential test report within 180 days will give the operators the ability to file a report after the flowback period, and when the well has stabilized and is producing at its true potential. Filing a report during the flowback period when the well is flowing primarily water, an operator may not know whether the well will be an oil well or a gas well.

EXAMINER'S OPINION

The examiners opine that all wells with a gas-oil ratio of 3,000 cubic feet per barrel and above in the Newark, East (Barnett Shale) Field in Montague, Wise, Clay, Cooke, Denton, and Jack Counties should be permanently classified as gas wells, effective the date of first production from each well. The heptanes-plus wellstream analysis for 67 wells is summarized as follows:

* The mol% heptanes-plus in 64 of the 67 samples analyzed was less than 12.5%.

* The mol% heptanes-plus in 3 of the 67 wells was more than 12.5 mol% and also had an average three month producing gas-oil ratio and initial test gas-oil ratio of about 2,336 cu.ft./bbl. and 3,186 cu.ft./bbl., respectively.

* The color of the liquid produced is straw to brown, consistent with retrograde condensate.

* The combined average gas-oil ratio on initial test for the 72 Pioneer and EnerVest wells is approximately 4,000 to 7,000 cubic feet per barrel. At day 120 of production, the wells approached 100,000 cubic feet per barrel.

* For a gas-oil ratio on initial test of less than 3,000 cubic feet per barrel, most of the wells have more than 12.5 mol% heptanes-plus and would be classified as an oil well.

* For a gas-oil ratio on initial test of 3,000 cubic feet per barrel and above, most of the wells have less than 12.5 mol% heptanes-plus and would be classified as a gas well.

Any additional wells completed in the study area of the field are expected to exhibit similar fluid characteristics. Additional mathematically recombined heptanes-plus wellstream analyses are unnecessary for classification of wells as gas wells.

Statewide Rule 79 defines a gas well as "....A well which produces hydrocarbon liquids, a part of which is formed by a condensation from a gas phase and a part of which is crude petroleum oil, shall be classified as a gas well unless there is produced one barrel or more of crude petroleum oil per 100,000 cubic feet of natural gas; and that the term "crude petroleum oil" shall not be construed to mean any liquid hydrocarbon mixture or portion thereof which is not in the liquid phase in the reservoir, removed from the reservoir in such liquid phase, and obtained at the surface as such."

The examiners conclude that the liquid hydrocarbons in the reservoir constituting the the subject area of the field is immobile, and therefore any liquid produced at the surface does not meet the definition of "crude petroleum oil". Instead, the produced liquid is a product of condensation due to the reservoir-type for each of the three subject fields indicating a retrograde gas reservoir and should not be used as a basis for classification of the wells as oil wells.

The operators are entitled to reclassify any well that may have had an initial potential test of less than 3,000 cubic feet per barrel but later produces at a ratio above 3,000 cubic feet per barrel as a gas well provided the operator files a G-1 that supports the reclassification.

FINDINGS OF FACT

1. Notice of this hearing was given to all affected persons at least ten days prior to the date of hearing. No protests were received.

2. The Newark, East (Barnett Shale) Field is an associated, 100% AOF field and was discovered in October 1981. The field extends over portions of 27 counties.

   a. There are 12,714 producing gas wells and 807 oil wells with approximately 269 operators carried on the November 2012 proration schedule. Oil production is found primarily in Montague and Wise Counties.

   b. Cumulative production from the Newark, East (Barnett Shale) Field through September 2012 is reported as 12,300 BCFG and 14.2 MMBO.

   c. Field Rules provide for 330'-0' well spacing, horizontal rules, and 320 acre density with optional 20 acre units.

3. All wells completed with a gas-oil ratio of 3,000 cubic feet per barrel and above in the Newark, East (Barnett Shale) Field in Montague, Wise, Clay, Cooke, Denton, and Jack Counties should be permanently classified as gas wells because they produce from a retrograde gas reservoir.

   a. There are heptanes-plus wellstream analyses for 67 wells in the study are in the subject field.

   b. The mol% heptanes-plus in 64 of the 67 samples analyzed was less than 12.5%.

   c. The mol% heptanes-plus in 3 of the 67 wells was more than 12.5 mol% and also had an average three month producing gas-oil ratio and initial test gas-oil ratio of about 2,336 cu.ft./bbl. and 3,186 cu.ft./bbl., respectively.

   d. The color of the liquid produced is straw to brown, consistent with retrograde condensate.

   e. The combined average gas-oil ratio on initial test (within 30 days of production) for the 72 Pioneer and EnerVest wells is approximately 4,000 to 7,000 cubic feet per barrel. At day 120 of production, the wells approached 100,000 cubic feet per barrel.

f. For a gas-oil ratio on initial test of less than 3,000 cubic feet per barrel, most of the wells would have more than 12.5 mol% heptanes-plus and would be classified as an oil well.

g. For a gas-oil ratio on initial test of 3,000 cubic feet per barrel and above, most of the wells would have less than 12.5 mol% heptanes-plus and would be classified as a gas well.

4. Operators should be allowed to file a Well Records Only completion report within 30 days of completion of the well and the Initial Potential completion report within 180 days of completion of the well.

a. Production data from Pioneer's wells show that oil wells can take up to 84 days to produce the first oil and gas wells can take up to 122 days to produce the first gas.

b. The average time for first oil is 21 days while first gas was 34 days.

c. Filing an initial potential test within the first 30 days will not show an accurate true potential of a well.

d. Filing an initial potential test report within 180 days will give the operators the ability to file a report after the flowback period, and when the well has stabilized is producing at its true potential.

5. Liquid hydrocarbons produced at the surface from the subject wells are the product of condensation and should not be classified as crude petroleum oil.

CONCLUSIONS OF LAW

1. Proper notice of this hearing was issued.

2. All things have been accomplished or have occurred to give the Commission jurisdiction in this matter.

3. All wells completed with a gas-oil ratio of 3,000 cubic feet per barrel and above in the Newark, East (Barnett Shale) Field in Montague, Wise, Clay, Cooke, Denton, and Jack Counties, Texas, are gas wells, effective the date of first production, based on the definition of a gas well pursuant to Statewide Rule 79 (a) (11) (C).

RECOMMENDATION

Based on the above findings of fact and conclusions of law, the examiners recommend that all wells completed with a gas-oil ratio of 3,000 cubic feet per barrel and above in the Newark, East (Barnett Shale) Field in Montague, Wise, Clay, Cooke, Denton, or Jack Counties, Texas be permanently classified as gas wells, effective the date of first completion.

Respectfully submitted,

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