RAILROAD COMMISSION OF TEXAS

OFFICE OF GENERAL COUNSEL

OIL AND GAS DOCKET NO. 06-0243382

THE APPLICATION OF ANADARKO E & P COMPANY LP TO CONSIDER PERMANENT GAS WELL CLASSIFICATION FOR ALL WELLS IN THE BROOKELAND (AUSTIN CHALK 8800) FIELD IN TYLER COUNTY, TEXAS, OR, IN THE ALTERNATIVE, FOR PERMANENT GAS WELL CLASSIFICATION FOR CERTAIN WELLS IN THE BROOKELAND (AUSTIN CHALK 8800) FIELD, TYLER COUNTY, TEXAS

Heard by: Donna K. Chandler, Technical Examiner

Hearing Date: December 5, 2005

Appearances:	**Representing:**
Ana Maria Marsland-Griffith Deborah Hawthorne	Anadarko E & P Company LP
Dale Miller John Goodson Joe Young	Ergon Energy Partners, LP
George Neale	Blackstone Energy Co, LLC

EXAMINER'S REPORT AND RECOMMENDATION

STATEMENT OF THE CASE

Anadarko E & P Company, LP requests that all wells in Tyler County carried in the Brookeland (Austin Chalk 8800) Field be permanently classified as gas wells, effective the date of first production for each well. Ergon also presented evidence in support of the application.

The application is unprotested and the examiner recommends approval of the permanent gas well classification for all wells in the Brookeland (Austin Chalk 8800) Field in Tyler County only.

DISCUSSION OF EVIDENCE

The Brookeland (Austin Chalk 8800) Field was discovered in 1993. The field extends over portions of six counties. At the time of the hearing, a total of 33 wells had been drilled in the field in Tyler County. Ten of the wells are classified as gas wells and 17 are classified as oil wells. Four additional wells were being completed in Tyler County at the time of the hearing and two have been temporarily abandoned. Since about 2001, several of the wells have been reclassified from either oil to gas or gas to oil, and back again on several occasions, dependent on reported production and pressure reports. In about 2001, Anadarko began having hearings to permanently classify individual wells as gas wells. Prior to that time, if a well was classified as a gas well based on PVT analysis, the classification issue was not re-visited for that well.

Anadarko submitted a cross-section consisting of wells across all of Tyler County. The Austin Chalk thins slightly to the west, but is continuous across the county. There is no indication on logs that the reservoir characteristics change from well to well.

A review of producing characteristics of the 33 wells indicates that API gravities of the liquid hydrocarbon ranges from 43.5 to 52.8 degrees, with an average of 49.3. The average producing gas-oil ratio on initial test is about 21,000 cubic feet per barrel.

Of the 33 wells in Tyler County, 18 have PVT fluid analyses. The original bottomhole pressure in the Austin Chalk is over 10,000 psi. The dew point pressures observed in the PVT analyses range from 4,441 psi to 7,049 psi, with an average of 5,618 psi. For the 18 wells, the average maximum retrograde liquid as a percent of hydrocarbon pore volume is 20.4% and only four wells had more than 30%. The wells completed in the early life of the reservoir, near virgin pressure, had very low percentages of retrograde liquid in the reservoir. A few of the later wells had 35-40%. The earlier wells provide more reliable data. According to published literature, this higher liquid volume is not sufficient to be mobile.

The mol% heptanes+ in each of the 18 samples analyzed was less than 12.5% and average mol% methane was 72%. According to McCain, there is a sharp dividing line between the chemical composition of oils and condensates.[1] In McCain's study on hundreds of wells that were properly conditioned and tested, the mol % of heptanes+ were compared to the PVT analysis of fluids from each well to determine whether the reservoir exhibited a dew point (gas well) or bubble point (oil well). From this study, it was found that fluids with over 12.5 mol% heptanes+ exhibited bubble points while fluids with less than 12.5 mol% heptanes+ exhibited dew points.

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[1] McCain, William D, 1990, The Properties of Petroleum Fluids.

Additionally, one sample had a calculated critical temperature of 266°F. This is less than reservoir temperature of 284°F, another indication that the fluid is from a of retrograde condensate reservoir.

EXAMINER'S OPINION

The examiner recommends that all wells in the Brookeland (Austin Chalk 8800) Field in Tyler County should be permanently classified as gas wells, effective the date of first production from each well. The PVT data for all 18 wells is summarized as follows:

* There is a measured dew point pressure and subsequent pressure reduction results in the condensing of liquid hydrocarbons.

* The mole percent of heptanes+ is ≤12.5%.

* The maximum percentage of hydrocarbon liquid occupies an average of 20.4% of the hydrocarbon pore volume.

* The reservoir temperature is above the critical temperature.

Any additional wells completed in the field in Tyler County are expected to exhibit similar fluid characteristics. Additional PVT analysis is 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." Anadarko and Ergon believe that the liquid hydrocarbons in this reservoir are 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 and should not be used as a basis for classification of the wells as oil wells.

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 Brookeland (Austin Chalk 8800) Field was discovered in 1993 and now extends over portions of six counties.

3. In Tyler County, a total of 33 wells have been drilled in the field and several wells have been reclassified from either oil to gas or gas to oil, and sometimes back again.

4. All wells in the Brookeland (Austin Chalk 8800) Field in Tyler County should be permanently classified as gas wells because they produce from a retrograde condensate gas reservoir.

   a. There is PVT data available for 18 of the 33 wells in the field in Tyler County.

   b. For all 18 wells, dew point pressures were observed in the PVT analyses, all of which are below original reservoir pressure.

   c. For the 18 wells, the average maximum retrograde liquid as a percent of hydrocarbon pore volume is 20.4% and only four wells had more than 30%. These hydrocarbon liquids will not flow.

   d. The mol% heptanes + in each of the 18 samples analyzed was less than 12.5%.

   e. The calculated critical temperature of 266°F is less than reservoir temperature of 284°F, which is characteristic of retrograde condensate reservoirs.

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.

6. Because the liquids produced from the wells are not crude petroleum oil, the subject wells should be classified as a gas wells.

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 ever completed in the Brookeland (Austin Chalk 8800) Field in Tyler County, 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 and conclusions of law, the examiner recommends that all wells ever completed in the Brookeland (Austin Chalk 8800) Field in Tyler County only be permanently classified as gas wells, effective the date of first completion.

Respectfully submitted,

Donna Chandler

Donna K. Chandler
Technical Examiner