



# RAILROAD COMMISSION OF TEXAS

## HEARINGS DIVISION

**OIL AND GAS DOCKET NO. 08-0311748**

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**APPLICATION OF APACHE CORPORATION TO CONSIDER PERMANENT GAS WELL CLASSIFICATION AND TO CANCEL OVERPRODUCTION FOR FOUR WELLS: CHEYENNE NO. 101BH WELL, FOX STATE NO. 101BH WELL, MONT BLANC NO. 201AH WELL, AND WEISSMIES NO. 101BH WELL, ALPINE HIGH (CONS) FIELD, REEVES AND CULBERSON COUNTIES, TEXAS**

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**HEARD BY:** Robert Musick - Technical Hearings Examiner  
Kristi M. Reeve – Administrative Law Judge

**HEARING DATE:** December 12, 2017

**POST-HEARING CONFERENCE:** June 28, 2018

**CONFERENCE DATE:** August 21, 2018

**APPEARANCES:**

**REPRESENTING:**

**APPLICANT**

Brian Sullivan (Attorney)  
Michael Choate (Attorney)  
Jeffrey Austin Frost (Attorney)  
Bill Hayenga (Attorney)  
Krystal Eversdyk (Legal Assistant)  
Randy Earley P.E.  
Thomas (Buddy) Richter, P.E.  
Timothy M. Samson (Geologist)  
Dr. Mazher Ibrahim (Doctorate Petroleum Engineer)  
Belinda Wolf (Regulatory Tech)

Apache Corporation

**OBSERVERS**

Robert Hatter (Deputy Director)  
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Texas General Land Office  
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## **EXAMINERS' REPORT AND RECOMMENDATION**

### **STATEMENT OF THE CASE**

Apache Corporation ("Apache") (Operator No. 027200) is seeking permanent gas well classification for four (4) wells on various leases in the Alpine High (Cons) Field (No. 01942500) ("Field"), in Reeves and Culberson Counties, Texas. Apache requested in the application under Oil and Gas Docket No. 08-0306954, to reclassify four (4) oil wells as gas wells, based on gas well characteristics, and also cancel over-production associated with the four subject oil wells ("Subject Wells") identified as the Cheyenne No. 101BH Well, Fox State No. 101BH Well, Mont Blanc No. 201AH Well (aka 3H Well), and Weissmies No. 101BH Well (aka 1H Well). This matter has been severed from Docket No. 08-0306954, and is being addressed under this docket (08-0311748) with its own caption.

At the hearing held on December 12, 2017, along with late-filed responses dated January 25, 2018, well information indicate the Subject Wells meet the gas well classification criteria based on the August 3, 2006, Commission's memorandum ("2006 Commission Memo") from Richard A. Varela, Director of Oil and Gas, to the Commissioner's Offices, titled, "Change in administrative determination policy for gas well classification."<sup>1 2</sup> The 2006 Commission Memo outlined the paths to reach a gas well classification and states: "A well would be administratively classified as a gas well if the heptanes plus (C7+) mole percent of a compositional analysis is less than 11% [mole percent]. The change is supported by research published by Phillip L. Moses in the Journal of Petroleum Technology July 1986 *Engineering Applications of Phase Behavior of Crude Oil and Condensate Systems* and William D. McCain, Jr. in the *Properties of Petroleum Fluids Second Edition* © 1990".<sup>3 4 5</sup> Apache presented evidence at the hearing which demonstrated the four Subject Wells met the 2006 Commission Memo criteria.

Notice was given to the Service List under Docket 08-0306954, which included the operators in the Alpine High (Cons) Field in Reeves and Culberson Counties, Texas. The application was not protested. The Technical Examiner and Administrative Law Judge (collectively, "Examiners") recommend that the permanent gas well classification be granted for the four (4) Subject Wells and over-production be cancelled.

### **DISCUSSION OF THE EVIDENCE**

Apache requested a hearing in a letter sent to the Commission dated September 19, 2017. The Hearings Division issued a Notice of Hearing ("NOH") to the Service List on November 21, 2017 under Docket No. 08-0306954. A hearing was held on December 12, 2017 with a post-hearing conference on June 28, 2018. On July 16, 2018, a letter from Apache requested the four (4) Subject Wells from the application (Docket No. 08-0306954) be assigned a separate docket number and reclassified based on discussions with the Examiners in the June 28, 2018 post-hearing conference.

The December 1, 2017 Oil Proration Schedule indicates Apache has the following four (4)

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<sup>1</sup> Exhibit 1; Testimony from 1 minute to 8:15 minutes.

<sup>2</sup> Testimony from 7: to 8: minutes

<sup>3</sup> Exhibit 24

<sup>4</sup> Exhibit 25

<sup>5</sup> Testimony from 6 minutes to 8:15 minutes

oil wells (identified as Subject Wells) in the Field at the time of the hearing:<sup>6</sup>

- Cheyenne (No. 48536) Lease, Cheyenne No. 101BH Well (aka Well No.1) (API No. 42-389-35186);
- Fox State (No. 48537) Lease, Fox State No. 101BH Well (aka 1H Well) (API No. 42-389-35215);
- Mont Blanc (No. 48538) Lease, Mont Blanc No. 201AH Well (aka 3H Well) (API No. 42-389-35227);
- Weissmies (No. 48625) Lease, Weissmies No. 101BH Well (aka 1H Well) (API No. 42-389-35177).

Each subject oil well's data was submitted as evidence in the hearing or as late-filed exhibits.<sup>7</sup> The data included a completed W-2 Form, the oil proration schedule, the well's perforated zone, the reservoir and geologic formation data, the key reservoir characteristics, a production graph in the early life of each well, and a one-page summary sheet of heptanes plus (C7+) and API gravity values for producing oil wells in the Field.

The Examiners assessed each set of well data based on the 2006 Commission Memo, research from Dr. Philip Moses (from 1986) and Dr. William McCain (from 1990 and 2011). The 2006 Commission Memo established policy for gas well classification in Texas under Commission jurisdiction. Based on the 2006 Commission Memo, a well would be administratively classified as a gas well when:

- the GOR has met or exceeded 100,000 cubic feet per barrel of gas (cf/bbl.) based on ASTM testing and the well meets the requirements of Statewide Rule 79;
- the GOR is less than 100,000 cf/bbl., but the GOR exceeds 12,500 cf/bbl., and specific criteria such as API gravity, liquid color, boiling point, etc. also meet specific criteria;
- the GOR is exceeding 100,000 cf/bbl., but the ASTM testing is inconclusive. As a confirmation, a pressure, volume, temperature ("PVT") test can be run in the laboratory and the test results submitted to prove a well is a gas well;
- heptanes plus (C7+) mole percent of a compositional analysis is less than 11% mole percent.

Although not part of the 2006 Commission Memo, research from Dr. Philip Moses (from 1986) and Dr. William D. McCain (from 1990 and 2011) indicate a heptanes plus (C 7+) fraction of less than 11.5 mole percent will typically correlate to a Gas-Liquid Ratio (GLR) of about 3,000 to 3,300 cf/bbl. as a differentiator between volatile oil and retrograde gas reservoir fluid types. Based on initial completion data from a well, permanent gas well classification has been granted for wells using the 2006 Commission Memo criteria with supporting documentation as outlined by Dr. McCain's and Dr. Moses' research.<sup>8</sup>

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<sup>6</sup> Exhibit No. 2

<sup>7</sup> Exhibit Nos. 12, 13, 14, 15, 16, 17, 40, 4142, 46, 54, 55, 56, 58

<sup>8</sup> Exhibits Nos. 24 and 25

Below is a brief analysis of each Subject Well and the Examiners' recommendation:

- **Cheyenne No. 101BH Well (aka Well No.1) (API No. 42-389-35186)** was completed with a gas-oil ratio (GOR) of 28,709 cf/bbl. with the initial well test. performed on July 18, 2016; and a second test performed on November 11, 2017, established the GOR at 46,972 cf/bbl. Also, the API gravity for oil on the W-2 Form was 55.7°. The daily production graph in the early life of the well indicates a GOR stabilized near 50,000 cf/bbl. Heptanes plus (C7+) for the well was about 5 mole percent. Based on the data for the well, it appears the well satisfies the requirements established by the Commission to be classified as a permanent gas well.
- **Fox State No. 101BH Well (aka 1H Well) (API No. 42-389-35215)** was completed with a GOR of 93,666 cf/bbl. with the initial well test performed on September 3, 2016, as indicated on Form W-2. Also, the API gravity for oil on the W-2 Form was 56.1°. The daily production graph in the early life of the well indicates a GOR stabilized over 100,000 cf/bbl. Heptane's plus (C7+) for the well was about 3 mole percent. Based on the data for the well, it appears the well satisfies the requirements established by the Commission to be classified as a permanent gas well.
- **Mont Blanc No. 201AH Well (aka 3H Well) (API No. 42-389-35227)** was completed with a GOR of 22,440 cf/bbl. with the initial well test performed on August 17, 2016, as indicated on the Oil Proration Schedule. Also, the API gravity for oil was 53.3°. The daily production graph in the early life of the well indicates a GOR stabilized at over 12,500 cf/bbl. Heptane's plus (C7+) for the well was about 3.5 mole percent. Based on the data for the well, it appears the well satisfies the requirements established by the Commission to be classified as a permanent gas well.
- **Weissmies No. 101BH Well (aka 1H Well) (API No. 42-389-35177)** was completed with a GOR of 25,345 cf/bbl. with the initial well test performed on June 20, 2016, as indicated on Form W-2. Also, the API gravity for oil on the W-2 Form was 58.9°. The daily production graph in the early life of the well indicates a GOR stabilized between 50,000 to 80,000 cf/bbl. Heptanes plus (C7+) for the well was about 3.6 mole percent. Based on the data for the well, it appears the well satisfies the requirements established by the Commission to be classified as a permanent gas well.

The Examiners conclude the four (4) oil wells meet the criteria for gas well classification based on the data submitted as evidence. The Examiners recommend the specified wells be permanently reclassified as gas wells.

In the application, Apache requested overproduction to be canceled for the four (4) Subject Wells proposed for reclassification to address noncompliance as established by the following Commission letters:

- Letter dated September 29, 2017, the Cheyenne Lease is overproduced by 8,529 thousand cubic feet ("MCF") of casinghead gas.
- Letter dated August 31, 2017, the Fox State Lease is overproduced by 149,036 MCF of casinghead gas.
- Letter dated September 29, 2017, the Mont Blanc Lease is overproduced by 18,880 barrel of oil (BO) and 822,723 MCF of casinghead gas.
- Letters dated August 31, 2017 and November 27, 2017, the Weissmies Lease is

overproduced and out of balance. The Weissmies Lease is overproduced by 23,104 BO and 986,730 MCF of casinghead gas.

The Examiners recommend cancellation of the overproduction once the wells have been reclassified and all necessary gas reclassification forms are properly completed and submitted to the Commission for processing the well information.

At the hearing, the applicant agreed on the record that the Final Order in this case is to be final and effective when the Master Order is signed.

### **FINDINGS OF FACT**

1. Apache (027200) requested in the application under Oil and Gas Docket No. 08-0306954 to permanently reclassify four (4) oil wells as gas wells on various leases and cancel overproduction associated with the four (4) Subject Wells. This matter has been severed from Docket No. 08-0306954 and is being addressed under this docket (No. 08-0311748) with its own caption.
2. Notice of this hearing was given to all parties entitled to notice at least ten days prior to the date of the hearing under Docket 08-0306954. No protests were received.
3. The Alpine High (Cons) Field (No. 01942500) is in Reeves and Culberson Counties, Texas.
4. The Commission sent the first of five letters on September 6, 2017, notifying Apache of overproduction and noncompliance of four (4) producing oil wells associated with four (4) leases: Cheyenne (48536) Lease; Fox State (48537) Lease; Mont Blanc (48538) Lease; and, the Weissmies (48625) Lease.
5. Apache requested a hearing in a letter sent to the Commission dated September 19, 2017. A NOH was issued by the Commission on November 21, 2017 and a hearing was held on December 12, 2017 and a post-hearing conference held on June 28, 2018.
6. The December 12, 2017 hearing and the late-filed responses dated January 25, 2018, compared the Subject Wells with the gas well classification criteria in the August 3, 2006 Commission Memo from Richard A. Varela, Director of Oil and Gas, to the Commissioner's Offices.
7. In addition to the 2006 Commission Memo, research from Dr. Philip Moses (from 1986) and Dr. William D. McCain (from 1990 and 2011) indicate a heptanes plus (C 7+) fraction of less than 11.5 mole percent will typically correlate to a Gas-Liquid Ratio (GLR) of about 3,000 to 3,300 cf/bbl. as a differentiator between volatile oil and retrograde gas reservoir fluid types.
8. Permanent gas well classification has been granted for wells in Texas using the 2006 Commission Memo criteria with supporting documentation as outlined by Dr. McCain's and Dr. Moses' research.
9. Each Subject Well's data included a completed W-2 Form, the oil proration schedule, the well's perforated zone, the reservoir and geologic formation data, the key reservoir characteristics, a production graph in the early life of each well, and a one-page summary sheet of heptanes plus (C7+) and API gravity values for producing oil wells in the Field. Below is the information presented in the hearing for each Subject Well that Apache is seeking permanent gas well reclassification:

- **Cheyenne No. 101BH Well (aka Well No.1) (API No. 42-389-35186)** was completed with a gas-oil ratio (GOR) of 28,709 cf/bbl. with the initial well test performed on July 18, 2016 and a second test performed on November 11, 2017 which established a GOR at 46,972 cf/bbl. Also, the API gravity for oil on the W-2 Form was 55.7°. The daily production graph in the early life of the well indicates a GOR stabilized near 50,000 cf/bbl. Heptanes plus (C7+) for the well was about 5 mole percent.
  - **Fox State No. 101BH Well (aka 1H Well) (API No. 42-389-35215)** was completed with a GOR of 93,666 cf/bbl. with the initial well test performed on September 3, 2016, as indicated on Form W-2. Also, the API gravity for oil on the W-2 Form was 56.1°. The daily production graph in the early life of the well indicates a GOR stabilized over 100,000 cf/bbl. Heptane's plus (C7+) for the well was about 3 mole percent.
  - **Mont Blanc No. 201AH Well (aka 3H Well) (API No. 42-389-35227)** was completed with a GOR of 22.440 cf/bbl. with the initial well test performed on August 17, 2016, as indicated on the Oil Proration Schedule. Also, the API gravity for oil was 53.3°. The daily production graph in the early life of the well indicates a GOR stabilized at over 12,500 cf/bbl. Heptane's plus (C7+) for the well was about 3.5 mole percent.
  - **Weissmies No. 101BH Well (aka 1H Well) (API No. 42-389-35177)** was completed with a GOR of 25,345 cf/bbl. with the initial well test performed on June 20, 2016, as indicated on Form W-2. Also, the API gravity for oil on the W-2 Form was 58.9°. The daily production graph in the early life of the well indicates a GOR stabilized between 50,000 to 80,000 cf/bbl. Heptanes plus (C7+) for the well was about 3.6 mole percent.
10. On July 16, 2018, a letter from Apache requested the four oil wells from the application be reclassified to gas wells and over-production be canceled based on discussions in the June 28, 2018 post-hearing conference.
11. At the hearing, the applicant agreed on the record that the Final Order in this case is to be final and effective when the Master Order is signed.

#### CONCLUSIONS OF LAW

1. Resolution of the subject application is a matter committed to the jurisdiction of the Railroad Commission of Texas. Tex. Nat. Res. Code § 81.051.
2. All notice requirements have been satisfied. 16 Tex. Admin. Code § 1.42.
3. Pursuant to § 2001.144 (a)(4)(A) of the Texas Government Code and the agreement of the applicant, this Final Order is effective when a Master Order relating to the Final Order is presented at Commission conference and signed by the Commissioners.

**EXAMINERS' RECOMMENDATION**

Based on the above findings of facts and conclusions of law, the Examiners recommend reclassification of four (4) producing Subject Wells to gas wells and cancellation of the overproduction from the Subject Leases listed in the Findings of Facts.

Respectfully submitted,

Robert Musick  
Technical Examiner

Kristi M. Reeve  
Administrative Law Judge

**EXAMINERS' RECOMMENDATION**

Based on the above findings of facts and conclusions of law, the Examiners recommend reclassification of four (4) producing Subject Wells to gas wells and cancellation of the overproduction from the Subject Leases listed in the Findings of Facts.

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