



RAILROAD COMMISSION OF TEXAS

HEARINGS DIVISION

OIL AND GAS DOCKET NO. 08-0284445

THE APPLICATION OF APACHE CORPORATION TO CONSIDER A MAXIMUM EFFICIENT RATE ALL ALLOWABLE FOR ALL WELLS IN THE THREE BAR (WICHITA) FIELD ANDREWS COUNTY, TEXAS

HEARD BY: Paul Dubois – Technical Examiner
Michael Crnich – Legal Examiner

DATE OF HEARING: October 23, 2013

APPEARANCES:

REPRESENTING:

APPLICANT:

Thomas Richter, P.E.
Sean Murray

Apache Corporation

EXAMINER'S REPORT AND RECOMMENDATION

STATEMENT OF THE CASE

Apache Corporation (Apache) is developing the Three Bar (Wichita) Field in Andrews County, Texas. The existing top allowable for the field is 198 BOPD. Apache is actively drilling horizontal wells in the field, and these wells are demonstrating production rates as high as 909 BOPD. Therefore, Apache is requesting an MER allowable of 800 BOPD for all wells in the field and cancellation of existing overproduction. The examiners recommend the Commission approve Apache's request.

DISCUSSION OF EVIDENCE

The Three Bar (Wichita) Field was discovered on February 12, 1972 in Andrews County, Texas. The Commission established field rules on November 6, 2012 (Docket No. 08-0278209). The field has a correlative interval is 6,830 feet to 7,685 feet, 80 acre proration units, and common provisions for horizontal wells. The Wichita Formation has an upper and lower zone. Apache intends to develop the field with horizontal stacked lateral wells. The University of Texas is the only land owner in the field.

The October 1, 2013 proration schedule indicates eight wells in the field, four of which are producing. The top allowable in the field is 198 BOPD. Apache has since completed about eight horizontal wells and approvals of the completion reports are pending. Apache has also obtained about 24 drilling permits for horizontal wells in the field. The horizontal wells are typically about 7,000 feet deep (total vertical depth) and have 5,000-foot laterals. The wells are completed with an average of 19 fracture stages that include about 1.5 million pounds of sand and 200,000 gallons of hydrochloric acid. The horizontal wells are capable of producing up to 909 BOPD. This high volume of production has strained Apache's surface facilities; Apache is restricting production until adequate surface facilities are in place.

Apache provided test data from two wells, the 103H and 107H, under different producing regimes to evaluate the most efficient production rate. During the tests the wells produced by electric submersible pumps that have variable flow rate capacities. The pumps were not able to produce at a low flow rate equal to the existing top allowable for the field. The results of these tests are summarized below:

Well	Test Date	Oil (BOPD)	Gas (MCFPD)	GOR SCFPB	Water (BWPB)
103H	2/28/13 to 2/20/13	788	914	1,160	1,303
	3/20/13 to 3/29/13	505	798	1,580	626
	8/11/13 to 8/20/13	272	350	1,285	271
107H	7/4/13 to 7/11/13	825	1,033	1,252	1,059
	7/24/13 to 8/10/13	447	692	1,547	669
	9/17/13 to 9/23/13	303	488	1,612	560

Both well tests indicated the lowest gas to oil ratio (GOR) was observed at the higher flow rates, indicating the wells are more efficient at the higher rates. Similar data was observed for the 101H well.

The 103H and 107H wells are parallel and offset by about 1,300 feet. Analysis of production data from the two wells does not indicate that the two wells are in hydraulic communication. Changes to the production of 107H did not result in corresponding changes to the production of the 103H well. At the time of this comparison, however, the 103H well was on a rod pump and producing at a restricted capacity, which may have reduced the efficacy of this test.

Apache conducted a micro-seismic study to evaluate the fracture patterns during stimulation of the 105H well. This data indicated an average fracture length of about 900

feet (half-length of 450 feet) and the maximum micro-seismic event was observed at about 1,600 feet from the lateral.

The standard proration unit size for the field is 80 acres and the top allowable is 198 BOPD, or about 2.5 BOPD/acre. Increasing the MER allowable to 800 BOPD would yield about 10 BOPD/acre. A horizontal well with a 5,000 foot lateral could hold 360 acres under Statewide Rule 86. Under the requested 800 BOPD MER allowable, such a horizontal well would be allowed to produce about 2.2 BOPD/acre, which is very comparable to the 2.5 BOPD/acre calculated for a standard vertical well on 80 acres. Further, Apache's calculations indicate that horizontal well with a 5,000 foot later would drain from 80 to 103 acres depending on the effectiveness of the fracture stimulation. The data provided by Apache support an MER allowable of 800 BOPD for the field.

FINDINGS OF FACT

1. Notice of this hearing was given to all parties entitled to notice at least ten days prior to the date of hearing.
2. The Three Bar (Wichita) Field was discovered in 1972 and there are currently eight wells carried on the oil proration schedule.
3. The Three Bar (Wichita) Field is being developed by horizontal wells.
4. The existing top allowable for the field is 198 BOPD.
5. Horizontal wells completed in the last year are producing up to 909 BOPD.
6. Production tests data indicate that the wells produce more efficiently (i.e., lower GOR) at higher production rates.
7. Micro-seismic analysis of fracture stimulation indicates a fracture half-length of about 450 feet.
8. A horizontal well with a 5,000 foot later would drain from 80 to 103 acres depending on the effectiveness of the fracture stimulation.

CONCLUSIONS OF LAW

1. Notice of this hearing was given as specified in the provisions of all regulatory codes.

2. All things have occurred or been accomplished to give the Commission jurisdiction in this matter.
3. A MER allowable of 800 BOPD for all wells in the Three Bar (Wichita) Field will not cause waste and will not harm correlative rights.

RECOMMENDATION

Based on the above findings and conclusions of law, the examiners recommend approval of the MER allowable of 800 BOPD for all wells in the Three Bar (Wichita) Field and cancelling oil and gas overproduction for all existing wells in the field.

Respectfully submitted,



Paul Dubois
Technical Examiner



Michael Crnich
Legal Examiner

**RAILROAD COMMISSION OF TEXAS
HEARINGS DIVISION**

**OIL AND GAS DOCKET
NO. 08-0284445**

**IN THE THREE BAR (WICHITA) FIELD,
ANDREWS COUNTY, TEXAS**

**FINAL ORDER
CONSIDERING A MOST EFFICIENT RATE ALLOWABLE
FOR ALL WELLS IN THE THREE BAR (WICHITA) FIELD
ANDREWS COUNTY, TEXAS**

The Commission finds that after statutory notice in the above-numbered docket heard on October 23, 2013, the presiding examiner has made and filed a report and recommendation containing findings of fact and conclusions of law, for which service was not required; that the proposed application is in compliance with all statutory requirements; and that this proceeding was duly submitted to the Railroad Commission of Texas at conference held in its offices in Austin, Texas.

The Commission, after review and due consideration of the examiner's report and recommendation, the findings of fact and conclusions of law contained therein, hereby adopts as its own the findings of fact and conclusions of law contained therein, and incorporates said findings of fact and conclusions of law as if fully set out and separately stated herein.

Therefore, it is **ORDERED** by the Railroad Commission of Texas that all wells in the Three Bar (Wichita) Field, Andrews County, Texas, may be produced under a Maximum Efficient Rate allowable of 800 BOPD. It is further ordered that all accumulated overproduction for existing wells in this field is canceled.

Done this 26th day of November, 2013.

RAILROAD COMMISSION OF TEXAS

**(Order approved and signatures
affixed by the Hearings Division's
Unprotested Master Order dated
November 26, 2013)**



RAILROAD COMMISSION OF TEXAS

HEARINGS DIVISION

OIL AND GAS DOCKET NO. 01-0284259

THE APPLICATION OF EOG RESOURCES, INC. FOR AN EXCEPTION TO STATEWIDE
RULE 32 FOR THE RVR LEASE, EAGLEVILLE (EAGLE FORD-1) FIELD, ATASCOSA
COUNTY, TEXAS

HEARD BY: Paul Dubois – Technical Examiner
Laura Miles-Valdez – Legal Examiner

DATE OF HEARING: October 9, 2013

APPEARANCES: REPRESENTING:

APPLICANT:

Doug Dashiell
Jeffrey Perry

EOG Resources, Inc.

EXAMINERS' REPORT AND RECOMMENDATION

STATEMENT OF THE CASE

EOG Resources, Inc. ("EOG") requests an exception to Statewide Rule 32 to flare up to 150 MCFPD of sour casinghead gas from September 16, 2013 through September 30, 2015, from the RVR Lease, Eagleville (Eagle Ford-1) Field, Atascosa County, Texas.

Notice was provided to offset operators surrounding the above referenced lease. The application is unopposed and the examiners recommend approval of an exception to Statewide Rule 32 for the RVR Unit Lease, as requested by EOG.

DISCUSSION OF THE EVIDENCE

Statewide Rule 32 governs the utilization for legal purposes of natural gas produced under the jurisdiction of the Railroad Commission. Specifically, Statewide Rule 32(h) provides that an exception to flare natural gas in volumes greater than 50 MCFGPD per well may be granted administratively for a period up to 180 days. Beyond that, Statewide Rule 32(h) provides that exceptions beyond 180 days shall be granted only in a final order

signed by the Commission. In the context of the subject application, EOG is requesting to flare 150 MCFPD of casinghead gas from September 16, 2013, through September 30, 2015, from the RVR Lease, as provided by Statewide Rule 32(h).

The RVR Unit Lease is located in south-central Atascosa County, approximately 14.5 miles south of the town of Jourdanton, Texas. This area of the Eagleville (Eagle Ford-1) Field is undergoing rapid development and lacks existing oil and gas infra-structure for new gas production. The RVR Lease is located 3.62 miles from the nearest sour gas pipeline.

EOG submitted a copy of the Commission Form W-2 filed for its RVR Lease, Well No. 1H that was completed on February 14, 2013. The 1H well produced 818 BOPD, 268 MCFGPD and 2,570 BWPD with a gas-oil ratio of 327 cubic feet per barrel. Concentrations of H₂S in the gas averaged 5,000 to 6,000 ppm.

EOG received administrative Permit No. 13096 to flare casinghead gas from its RVR Lease. The permit was effective from March 16, 2012 through September 15, 2013. The original permit was extended three times for the maximum 180 days allowed by an administrative permit. With each extension EOG requested and was granted a decreasing daily flare rate as follows:

- 300 MCFGPD from March 16, 2013, through April 15, 2013;
- 275 MCFGPD from April 16, 2013, through May 16, 2013;
- 125 MCFGPD from May 17, 2013, through July 16, 2013; and
- 71 MCFGPD from July 17, 2013, through September 15, 2013.

EOG provided an economic analysis of the cost of building a sour gas pipeline from the RVR Lease to the EOG sour gas pipeline 3.62 miles to the southeast. The analysis indicated that it would be uneconomical to build a sour gas pipeline for one well on the RVR Lease. Therefore, EOG requests an exception to Statewide Rule 32 to flare 150 MCFPD of casinghead gas from September 16, 2013 through September 30, 2015. The one well on the lease is currently producing about 71 MCFGPD; a flare permit for 150 MCFGPD would allow some flexibility in production rates.

FINDINGS OF FACT

1. Proper notice of this hearing was given at least ten days prior to the date of hearing. There were no protests to the application.
2. The RVR Lease is located in Atascosa County, approximately 14.5 miles south of the town of Jourdanton, Texas.

- a. This area of the Eagleville (Eagle Ford-1) Field is undergoing rapid development and lacks existing oil and gas infra-structure for new gas production.
 - b. The RVR Lease, Well No. 1H well produced 818 BOPD, 268 MCFGPD and 2,570 BWPD with a gas-oil ratio of 327 cubic feet per barrel.
 - c. Concentrations of H₂S in the gas averaged 5,000 to 6,000 ppm.
 - c. The RVR Lease is located 3.62 miles from the EOG sour gas gathering system.
3. Statewide Rule 32(h) stipulates that the Commission may administratively grant an exception to Statewide Rule 32 for a period no greater than 180 days.
 - a. EOG received administrative Permit No. 13096 to flare up to 300 MCFPD of casinghead gas from its Eland Unit Lease.
 - b. The permit was effective March 16, 2013, and expired on September 15, 2013, after three extensions, which totaled the maximum 180 days allowed by an administrative permit.
 4. It is not economical to build a 3.62-mile sour gas pipeline for one well on the RVR Unit.
 5. An exception to Statewide Rule 32 to flare 150 MCFPD of casinghead gas from September 16, 2013, through September 30, 2015 is appropriate.

CONCLUSIONS OF LAW

1. Proper notice was issued as required by all applicable statutes and regulatory codes.
2. All things have occurred and been accomplished to give the Commission jurisdiction in this matter.
3. Approval of the requested authority pursuant to Statewide Rule 32 will prevent waste and will not harm correlative rights.

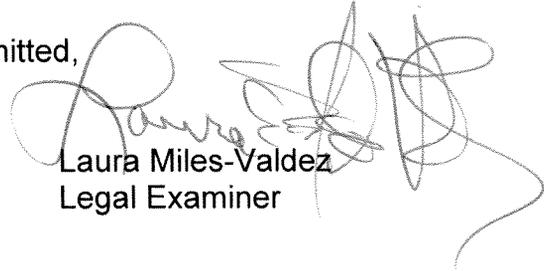
EXAMINERS' RECOMMENDATION

Based on the above findings of fact and conclusions of law, the examiners recommend that the Commission grant an exception to Statewide Rule 32 to flare 150 MCFPD of casinghead gas from September 16, 2013, through September 30, 2015, as requested by EOG Resources, Inc.

Respectfully submitted,



Paul Dubois
Technical Examiner



Laura Miles-Valdez
Legal Examiner

**RAILROAD COMMISSION OF TEXAS
HEARINGS DIVISION**

**OIL AND GAS DOCKET
NO. 01-0284259**

**IN THE EAGLEVILLE (EAGLE FORD-
1) FIELD, ATASCOSA COUNTY,
TEXAS**

**FINAL ORDER
APPROVING THE APPLICATION OF EOG RESOURCES, INC.
FOR EXCEPTION TO STATEWIDE RULE 32 FOR THE
RVR LEASE
EAGLEVILLE (EAGLE FORD-1) FIELD
ATASCOSA COUNTY, TEXAS**

The Commission finds that after statutory notice in the above-numbered docket heard on October 9, 2013, the presiding examiners have made and filed a report and recommendation containing findings of fact and conclusions of law, for which service was not required; that the proposed application is in compliance with all statutory requirements; and that this proceeding was duly submitted to the Railroad Commission of Texas at conference held in its offices in Austin, Texas.

The Commission, after review and due consideration of the examiners' report and proposal for decision, the findings of fact and conclusions of law contained therein, and any exceptions and replies thereto, hereby adopts as its own the findings of fact and conclusions of law contained therein, and incorporates said findings of fact and conclusions of law as if fully set out and separately stated herein.

Therefore, it is **ORDERED** by the Railroad Commission of Texas that EOG Resources, Inc. is hereby granted an exception to Statewide Rule 32 for the RVR Unit Lease (ID No. 16742), Eagleville (Eagle Ford-1) Field, Atascosa County, Texas. EOG Resources, Inc. is authorized to flare 150 MCFPD of casinghead gas from September 16, 2013, through September 30, 2015. The authority is granted, provided all production is reported on the appropriate Commission forms.

The operator shall file the Statewide Rule 32 Exception Data Sheet and, shall file at the same time, the appropriate Commission required administrative Statewide Rule 32 Exception gas flaring fee.

Done this 26th day of November, 2013.

RAILROAD COMMISSION OF TEXAS

**(Order approved and signatures affixed by
Hearings Divisions' Unprotested Master Order
dated November 26, 2013)**