



# RAILROAD COMMISSION OF TEXAS

## HEARINGS DIVISION

OIL & GAS DOCKET NOS. 08-0304362, 08-0304812, 08-0304813 & 08-0304814

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**THE APPLICATIONS OF OCCIDENTAL PERMIAN LTD. FOR A BLANKET RULE 10 EXCEPTIONS, TO AMEND FIELD RULES FOR THE BEDFORD (DEVONIAN) AND BEDFORD (WOLFCAMP) FIELDS, AND TO ADOPT FIELD RULES FOR THE BEDFORD (ELLENBURGER) AND BEDFORD (FUSSELMAN) FIELDS, ANDREWS COUNTY, TEXAS**

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**HEARD BY:** Paul Dubois – Technical Examiner  
Ryan Lammert – Administrative Law Judge

**HEARING DATE:** June 21, 2017

**CONFERENCE DATE:** August 1, 2017

**APPEARANCES:**

**APPLICANT:**

John Soule  
Joseph Sitch  
Shawn McCloskey  
Jacki Eveslage

**REPRESENTING:**

Occidental Permian Ltd.

**EXAMINERS' REPORT AND RECOMMENDATION**

**STATEMENT OF THE CASE**

Occidental Permian Ltd. ("OXY") seeks to amend field rules for the Bedford (Devonian) and Bedford (Wolfcamp) Fields, and to adopt permanent field rules for the Bedford (Fusselman) and Bedford (Ellenburger) Fields ("the Fields"), Andrews County, Texas. OXY also seeks approval of a blanket Rule 10 exception to allow downhole commingling of production from the Fields. OXY is the only operator in the Fields. OXY's Ratliff & Bedford Lease is the only lease in the Fields. The Bedford (Wolfcamp) and Bedford (Devonian) Fields have special field rules that OXY is seeking to amend. Statewide rules govern the Bedford (Fusselman) and Bedford (Ellenburger) Fields. OXY seeks to amend or adopt field rules for all four fields to facilitate downhole commingling and the drilling of horizontal wells. The application is not protested. The Administrative Law Judge and Technical Examiner ("Examiners") recommend approval.

## **DISCUSSION OF THE EVIDENCE**

### ***Blanket Rule 10 Exception***

The Fields were discovered between 1945 and 1957. Thus far the Fields have been developed with vertical wells, many of which are reaching their economic limits as producers from individual fields. By downhole commingling production from two or more of the Fields in individual wellbores, OXY will be able to extend the economic life of the wells and produce additional oil that otherwise would not be produced. Estimates of additional production resulting from downhole commingling range from 3,000 barrels to 88,000 barrels of oil per well.

OXY has previously obtained two individual-well Rule 10 exceptions, one in 1992 for the Ratliff & Bedford No. 2 (Wolfcamp, Fusselman and Ellenburger); the other in 2016 for the Ratliff & Bedford No. 43 (Wolfcamp and Fusselman). OXY's reservoir engineer and team lead responsible for the Fields and the Ratliff & Bedford Lease testified:

- Working and royalty ownership of production from each of the Fields is identical.
- There are no fluid compatibility issues between and among the Fields. Production from three of the four fields is already being downhole commingled. Production from all four fields is being surface commingled with no scaling or other fluid compatibility problems.
- Crossflow between and among the Fields after downhole commingling is unlikely. If any crossflow were to occur during shut-in periods, the flow would reverse when production resumes and there will be no loss of or reduction in ultimate recovery.
- Blanket Rule 10 authority will eliminate the need to file and process individual-well Rule 10 exceptions for additional wells, thereby reducing paperwork for both the Commission and the operator. An abbreviated application and fee for each Rule 10 exception will, however, continue to be required.

### ***Horizontal Development***

OXY plans to initiate horizontal drilling in the Bedford (Wolfcamp) Field. OXY has used the Three Bar (Wichita) Field, which is located a few miles east of the Ratliff & Bedford Lease, as an analog for evaluating horizontal drilling the Wolfcamp. OXY correlates the Wolfcamp that is productive in the Bedford (Wolfcamp) Field with the lower portion of the field interval for the Three Bar (Wichita) Field. The upper portion of the field interval for the Three Bar (Wichita) Field is the Wichita Albany. Core data from

wells in the Three Bar (Wichita) Field and the Bedford (Wolfcamp) Field reflect similar rock characteristics, specifically similar porosity and permeability.

Apache Corporation is completing and producing its horizontal wells in the Three Bar (Wichita) Field in both the Wichita Albany (upper portion of the field interval) and the Wolfcamp (lower portion of the field interval). For horizontal wells drilled in the Bedford (Wolfcamp) Field, OXY expects results similar to Apache's experienced with horizontal wells completed in the "Wolfcamp" or lower portion of the Three Bar (Wichita) Field interval. OXY believes that horizontal development of one or more of the other three Bedford Fields, Devonian, Fusselman and Ellenburger, may occur in the future.

### ***Field Rules***

None of the Fields has a field interval rule. OXY is proposing a field interval rule for each field. OXY is also proposing a spacing rule, a density rule, allocation formula and a top allowable for each of the Fields. OXY is not seeking continuation of other existing field rules for the Bedford (Wolfcamp) Field (casing) or the Bedford (Devonian) Field (credit for gas reinjection and gas bank). Finally, because of planned horizontal development, OXY is not requesting a maximum diagonal rule for any of the Fields.

Because rock characteristics in the Three Bar (Wichita) and Bedford (Wolfcamp) Fields are similar, OXY believes field rules in effect for the Three Bar (Wichita) Field are appropriate for planned horizontal development of the Bedford (Wolfcamp) Field. A 330' lease-line spacing rule, with a 100' first take-point/last take-point provision, is consistent with the anticipated frac half-length and drainage pattern around each cluster of perforations in planned horizontal wells. A 0' between-well spacing rule will provide flexibility for locating laterals on the Ratliff & Bedford Lease to maximize the recovery of hydrocarbons. A 0' between well spacing rule will also provide flexibility for drilling new horizontal wells between and among existing vertical wells and will eliminate the need for spacing exceptions when downhole commingling production from the Fields in existing vertical wellbores.

OXY is proposing no change in the standard unit size for any of the Fields – 80 acres for the Bedford (Wolfcamp) and 40 acres for the Bedford (Devonian), (Fusselman) and (Ellenburger) Fields. The Bedford (Devonian) Field already has a 20-acre option. OXY is proposing a 20-acre option for the other three fields to provide uniform density between and among the Fields to facilitate downhole commingling.

The existing allocation formula for the Bedford (Devonian) Field is 75% acres/25% per well. OXY believes that formula is a fair and reasonable basis for allocating allowables in each of the Fields and is therefore proposing that allocation formula for all of the Fields. A multi-factor allocation formula, although not statutorily required for fields being downhole commingled, is consistent with the statutory requirement for a multi-factor allocation formula where a single field produces from multiple zones.

### ***Top Allowable***

OXY is proposing a top allowable of 10 bopd/acre for wells on standard units – 800 bopd for wells in the Bedford (Wolfcamp) Field with 80-acre units and 400 bopd for wells in the other three fields with 40-acre units. A top allowable of 800 bopd for the Bedford (Wolfcamp) Field is premised on the similarities between the Bedford (Wolfcamp) Field and Three Bar (Wichita) Field where the Commission has already approved a top allowable of 800 bopd and 80-acre units. The Three Bar (Wichita) Field allowable was based on production performance for wells drilled and completed in the lower or “Wolfcamp” portion of the field interval in the Three Bar (Wichita) Field. OXY expects similar performance for horizontal wells drilled and completed in the Bedford (Wolfcamp) Field.

While wells downhole commingled in any combination of the Fields will not likely be capable of producing 800 bopd or even 400 bopd, they may be able to produce 200-300 bopd or more for at least some period of time. OXY's reservoir engineer and team lead for the Fields testified that producing downhole commingled wells at capacity will have no adverse impact on ultimate recovery from any of the Fields. There is therefore no reason to impose production allowables that might limit production from vertical wells in the Fields, whether or not downhole commingled.

### **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 the hearing.
2. Occidental Permian Ltd is the only operator in the Bedford (Wolfcamp), (Devonian), (Fusselman) and (Ellenburger) Fields. All wells in those four fields are located on OXY's Ratliff & Bedford Lease.
3. Downhole commingling of production from vertical wells in the Bedford (Wolfcamp), (Devonian), (Fusselman) and (Ellenburger) Fields will result increase the ultimate recovery of oil from the fields.
  - a. There will be no irreversible crossflow of fluids between fields. Any crossflow that occurs during shut-in will be reversed when production resumes and there will be no reduction in ultimate recovery resulting from crossflow that might occur.
  - b. The formation fluids from the four fields are compatible.
  - c. The ownership of hydrocarbons is common in all four fields.
4. Amending field rules for the Bedford (Wolfcamp), (Devonian), (Fusselman)

and (Ellenburger) Fields, as requested by the applicant and as reflected on Appendix A, will facilitate horizontal drilling and downhole commingling of production, both of which will increase the ultimate recovery of oil from the Fields.

- a. The correlative interval from 7738' to 8198' as shown on the gamma-ray log for the Ratliff & Bedford #36WS well (API No. 42-003-37353) is appropriate for the Bedford (Wolfcamp) Field.
  - b. The correlative interval from 8936' to 9354' as shown on the gamma-ray log for the Ratliff & Bedford #36WS well (API No. 42-003-37353) is appropriate for the Bedford (Devonian) Field.
  - c. The correlative interval from 9900' to 10151' as shown on the gamma-ray log for the Ratliff & Bedford #36WS well (API No. 42-003-37353) is appropriate for the Bedford (Fusselman) Field.
  - d. The correlative interval from 11140' to 11450' as shown on the gamma-ray log for the Ratliff & Bedford #35D well (API No. 42-003-32062) is appropriate for the Bedford (Ellenburger) Field.
  - e. The proposed spacing, density and allocation formula rules are appropriate for planned horizontal development of the Bedford (Wolfcamp) Field and for the Bedford (Devonian), (Fusselman) and (Ellenburger) Fields in the future. Uniform spacing, density and allocation formula rules will facilitate downhole commingling of production from the Fields.
  - f. Top allowables of 800 bopd in the Bedford (Wolfcamp) Field for wells on 80-acre units and 400 bopd in the Bedford (Devonian), (Fusselman) and (Ellenburger) Fields for wells on 40-acre units are appropriate. Production at those rates will not cause waste and are consistent with expected production from horizontal wells in the Bedford (Wolfcamp) Field and with commingled production from vertical wells carried in any of the four fields.
5. At the hearing, the applicant agreed on the record that a Final Order in this case is to be 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 §§ 1.43 and 1.45.

3. Approval of the application will prevent waste and protect correlative rights.
4. 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 this Final Order is signed on August 1, 2017.

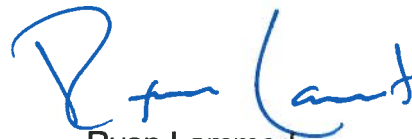
**EXAMINERS' RECOMMENDATION**

The Examiners recommend approval of the application of Occidental Permian Ltd. for a blanket Rule 10 exception to allow downhole commingling of production from the Bedford (Wolfcamp), (Devonian), (Fusselman) and (Ellenburger) Fields. The examiners also recommend approval of the application to amend field rules for the Bedford (Devonian) and Bedford (Wolfcamp) Fields, and to adopt permanent field rules for the Bedford (Fusselman) and Bedford (Ellenburger) Fields, as requested by OXY.

Respectfully submitted,



Paul Dubois  
Technical Examiner



Ryan Lammert  
Administrative Law Judge