
* **KEY ISSUES: WASTE** *
* **Competing geological interpretations** *
* **w/limited well control** *
* *
* **FINAL ORDER: R37 GRANTED** *

RULE 37 CASE NO. 0211943

**APPLICATION OF KAISER-FRANCIS OIL COMPANY FOR AN EXCEPTION TO
STATEWIDE RULE 37 TO DRILL WELL NO. 1, MADGE TAYLOR GAS UNIT, IN THE
NAVARRO CROSSING (RODESSA) AND/OR WILDCAT FIELDS, HOUSTON COUNTY,
TEXAS**

APPEARANCES:

FOR APPLICANT:

Philip F. Patman (Attorney)
Neal DeShazo

APPLICANT:

Kaiser-Francis Oil Company

FOR PROTESTANTS:

Ron Schultz (Attorney)
Kerry A. Pollard
Michael Watanabe
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PROTESTANT:

Tide West Oil Company

Michael Maloney (Attorney)
David Willis

Valence Operating

PROPOSAL FOR DECISION

PROCEDURAL HISTORY

APPLICATION FILED:

January 24, 1996

NOTICE OF HEARING:

March 25, 1996

HEARING DATE:

May 15, 1996

TRANSCRIPT RECEIVED:

June 19, 1996

HEARD BY:

Mickey R. Olmstead, Hearings Examiner
Margaret Allen, Technical Examiner

PFD CIRCULATION DATE:

December 27, 1996

STATEMENT OF THE CASE

Kaiser-Francis Oil Company ("Kaiser-Francis" or "applicant") proposes to drill its Madge Taylor Gas Unit ("subject lease") Well No. 1 ("proposed well") to test the Navarro Crossing (Rodessa) and Wildcat (above 10,400') Fields, Houston County, Texas. The well will be 1033 feet from the northwest lease line and 2280 feet from the northeast lease line. Field rules for the Navarro Crossing (Rodessa) Field ("Rodessa") require 640 acre density and minimum lease line spacing of 1867 feet. The well is at a regular location in the Wildcat Field.

One of the two wells in the Navarro Crossing (Rodessa) Field ("subject field") at the present time is operated by Tide West Oil Company ("Tide West") and the other operated by Valence Operating Company ("Valence"). Both of these offset operators appeared in protest at this hearing.

DISCUSSION OF THE EVIDENCE

The Navarro Crossing (Rodessa) Field was discovered in 1980 with the completion of the Valence Madge Taylor G.U. Well No. 1 ("Valence well"). This well was drilled 626 feet from the northeast line of the subject lease and is nearing depletion after having produced 5.1 BCF of gas. The Tide West R.S. Dailey Well No. 10 ("Tide West well") was drilled under a Rule 37 exception permit allowing the well to be drilled 1000 feet to the northwest of Kaiser-Francis' lease. The well was recently resurveyed and found to be 1033 feet from the subject lease. This well has cumulative production exceeding 9 BCF since 1983 and is projected by the applicant to have an ultimate recovery of nearly 14 BCF.

Bryant & Carr drilled the Dailey Gas Unit Well No. 1 ("Bryant & Carr well") in the northern corner of the subject lease in 1981, between the Valence and Tide West wells. This well was plugged and abandoned after producing only 306 MMCF of gas between 1981 and 1991. Bryant & Carr drilled its well under a Rule 37 exception permit which granted it the right to locate the well 660 feet from both the northwest and northeast lease lines. This well was also recently resurveyed and was found to be 586 feet from the nearest lease line.

The proposed well will be a mirror offset to the Tide West well since it will be 1033 feet from the common lease line and 2066 feet from the Tide West well. The proposed well is 2280 feet from Valence's lease line to the northeast and about 1724 feet southwest of the abandoned Bryant & Carr well. See copy of Kaiser-Francis Exhibit No. 4 attached hereto for reference as Exhibit "A".

The applicant maps the structure as an east-west trending anticline with a major crestal fault. This fault extends down to the Pettit and separates the proposed location from an existing Pettit field. The Pettit Formation is the secondary target for the subject well, and is listed on the Form W-1 as a Wildcat. The target Rodessa Formation is a high-energy carbonate buildup, probably deposited in a near-shore marine environment. The applicant maps the reservoir as a narrow fairway because the Rodessa is tight updip (to the south) from the producing wells. The highest known water is at about -9225'. Approximately 11,500 feet east of the proposed location, on the eastern edge of the

reservoir, the Rodessa has 18' of porous, but wet, sand in the LL&E Dickson No. 1-A Well, while only 900 feet south of this well, the LL&E Carrie Teal No. 1 Well found the Rodessa to be tight. According to the applicant this demonstrates the narrowness of the reservoir. The Tide West well has 17 feet of pay sand while the Valence well has 18 feet. The reservoir must narrow down in the vicinity of the abandoned Bryant & Carr well, according to the applicant, since this well has only 1 foot of pay even though located between the Valence and Tide West wells. The applicant interprets the narrowing of the reservoir in the vicinity of the Bryant & Carr well to a tidal channel cutting through the reservoir.

The applicant introduced several exhibits prepared by Tide West which support the applicant's reservoir interpretation, including a map evidencing a relatively long, narrow, necked reservoir along the side of the anticline. The applicant maps the Bryant & Carr well on the northern edge of the reservoir neck while a Tide West isopach map indicates the Bryant & Carr well on the southern side of a similar neck. (If Tide West's map is correct (Kaiser-Francis Exhibit No. 11), then a regular location on the subject tract would be so far updip that the reservoir rock would be nonporous.) The applicant also introduced a map prepared by Oryx. In this interpretation (Kaiser-Francis Exhibit No. 15), both a regular and the proposed locations are too far updip to encounter any productive reservoir. According to the applicant, these maps indicate that other geologists have concurred that geologic risk increases significantly updip (to the south).

A pressure build-up test obtained from Tide West by the applicant supports both reservoir interpretations because it indicates that there is a permeability barrier approximately 700' from the Tide West well. The interpretation by Tide West indicates that such a reservoir boundary is to the south of the well while the applicant's interpretation has the boundary to the northeast. Again, the applicant believes that the pressure build-up test indicates a narrow reservoir.

The applicant maps a pay thickness between 15 and 20 feet at the proposed location, while a regular location would have less than 5 feet. A location with only a few feet of net pay could not be expected to produce much better than the Bryant & Carr well, which was abandoned after producing only 300 MMCF. The applicant assumes that reservoir thickness approximately equal to the net pay encountered in the Valence and Tide West wells could produce about 1,700 MCF/D, as the Tide West well is producing now. If the Tide West well and a well at the proposed location produce at about the same rate, then a no-flow boundary will occur approximately along the lease line. The applicant believes that even if a well producing at 1,700 MCF/D could be drilled at a regular location, then about 150 MMCF of the present gas underneath the subject tract will be drained by the Tide West well.

Decline curves of the existing and previously producing wells indicate that these wells will ultimately produce a total of 19.5 BCF from the Rodessa formation. A material-balance calculation indicates that the reservoir encountered by the three productive wells originally had 23.5 BCF in place. When the applicant planimetered the isopach map of Kaiser-Francis there were only 15.6 BCF of reservoir volume, while the Tide West map (Kaiser-Francis Exhibit No. 11) indicated 23.9 BCF of reservoir volume. The applicant's explanation is that the reservoir opens out to the west, providing additional gas from beyond another neck or compression in the reservoir.

The applicant's location is also placed to maximize the chance of encountering significant reserves in the Pettit. The estimated production possible from the Pettit is 2 BCF, which is not enough to make this location economic if the Rodessa is not completed in addition. The applicant admitted that the discovery of a new reservoir in the Pettit is uncertain and that the possible reserves from such a discovery are speculative.

The protestants objected to the subjective interpretation of the applicant's geology and in particular to the mapping of the reservoir as long and narrow, with a neck. The protestants also argued that the reservoir volume as depicted by the applicant's maps is insufficient to account for the total reserves. According to the protestants, the Rodessa reservoir is much larger than the applicant has indicated on its isopach map, and probably not as narrow. The applicant's map has approximately equal contours along the length of the reservoir, with more narrow contouring in the reservoir neck.

Tide West's entire direct case protesting the application consists of Tide West Exhibit No. 1, which shows only that if equal contours are continued through the neck area, a well at a regular location would encounter about 17 feet of net pay. However, Tide West's own witness who sponsored its Exhibit No. 1 testified that it is not a correct interpretation of the subject reservoir. Protestant Valence Operating did not put on a direct case.

EXAMINERS' OPINION

Exceptions to Statewide Rule 37 may be granted to prevent waste or to protect correlative rights. To obtain an exception to Statewide Rule 37 to protect correlative rights, the applicant must show: 1) It is not possible for the applicant to recover his fair share by placing the well at any regular location; and 2) that the proposed irregular location is reasonable.

The reservoir which the applicant has drawn is much more plausible than that presented by Tide West (Tide West Exhibit No. 1). In fact, if the reservoir passes to the north of the Bryant & Carr well, as other maps obtained from Tide West indicate, then neither a regular location nor the proposed location may be productive. Even if a well at a regular location encountered the productive reservoir, it would not be productive enough to prevent drainage by Tide West's well. Additionally, the Valence well is nearing depletion and cannot compete with the proposed well for reserves.

An applicant seeking an exception to Rule 37 based on waste must establish three elements: 1) that unusual conditions, different from conditions in adjacent parts of the field, exist under the tract for which the exception is sought; 2) that, as a result of these unusual conditions, hydrocarbons will be recovered by the well for which a permit is sought that would not be recovered by any existing well or by additional wells drilled at regular locations; and 3) that the volume of otherwise unrecoverable hydrocarbons is substantial. The applicant asserts that any reserves in the Pettit will not be recovered if a Rule 37 exception permit is not granted for the subject location. However, the Pettit reserves are too speculative to conclude that denying the subject application would cause the loss of substantial amounts of hydrocarbons. Additionally, applicant failed to show any unusual reservoir conditions existing under the subject tract in the Pettit formation.

FINDINGS OF FACT

1. At least ten days notice of this hearing was given to the designated operator, all lessees of record for tracts that have no designated operator, and all owners of unleased mineral interests for each tract adjacent to the Madge Taylor Gas Unit and each tract nearer to the well than the prescribed minimum lease line spacing distance.
2. The application for a Rule 37 exception was filed by Kaiser-Francis Oil Company on Form W-1 (Application to Drill, Deepen, Plug Back or Re-enter).
3. The Applicant seeks an exception to Statewide Rule 37 for the Navarro Crossing (Rodessa) Field which has special field rules requiring 1867 foot minimum lease line distance.
4. The Applicant also seeks a regular permit for the Wildcat (Above 10,400) Field .
5. The proposed well location is 1033 feet from the northwest line and 2280 feet from the northeast line of the Madge Taylor Gas Unit if the well is completed in the Navarro Crossing (Rodessa) Field.
6. A well on the Madge Taylor Gas Unit was drilled in 1981, but it was abandoned after producing only 300 MMCF of gas.
7. Regular locations exist on the Madge Taylor Gas Unit, but geologic interpretations made by both Kaiser-Francis and Tide West indicate that the reservoir is tight with insufficient porosity to make such regular locations reasonable. Therefore, reserves exist under the subject tract that cannot be produced from a regular location.
8. Kaiser-Francis does not participate in production from any other well in the requested Navarro Crossing (Rodessa) Field.
9. Decline curves indicate that the existing and previous wells will recover about 19.6 BCF while a material balance calculation shows that the subject reservoir originally contained 23.5 BCF.
10. A well at the proposed location will encounter as thick a reservoir as the Tide West well and should be capable of producing about the same rate, which is 1,700 MCF/D.
11. If the applicant's well encounters as thick a reservoir as the Tide West well but is farther from the lease line than 1033 feet, the Tide West well will continue to drain the applicant's tract.
12. A Wildcat Field encountered at the proposed location in the Pettit Formation could produce 2 BCF which is not enough to drill for without a Rodessa completion in the same wellbore.
13. Reserves exist under the subject lease that cannot be recovered from a regular location on the subject lease.

14. A preponderance of the evidence indicates that the proposed location is necessary for the applicant to encounter sufficient porosity to recover its fair share of hydrocarbons underlying the subject lease; whereas a well drilled at a regular location will likely encounter insufficient porosity or miss the subject reservoir altogether.

CONCLUSIONS OF LAW

1. Proper notice of hearing was timely issued by the Railroad Commission to the appropriate persons legally entitled to notice.
2. All things necessary to the Commission attaining jurisdiction over the subject matter and the parties in this hearing have been performed.
3. Approval of a permit to drill a well at the proposed location is necessary to give owners of the subject tract a reasonable opportunity to recover their fair share of hydrocarbons in the applied-for field underlying the tract, or the equivalent in kind.
4. The proposed location is a reasonable location that will give the mineral interest owners of the subject tract a reasonable opportunity to recover their fair share of hydrocarbons in the applied-for field underlying the tract, or the equivalent in kind.

EXAMINERS' RECOMMENDATION

Based on the following findings of fact and conclusions of law, the examiners recommend that the application of Kaiser-Francis be approved in accordance with the attached Final Order.

Respectfully submitted,

Mickey R. Olmstead
Hearings Examiner

Margaret Allen
Technical Examiner