

THE APPLICATION OF XTO ENERGY INC TO CONSIDER VERTICAL EXPANSION OF THE RUSSELL (CLEARFORK) UNIT IN THE RUSSELL (CLEARFORK CONSOLIDATED) FIELD, GAINES COUNTY, TEXAS

Heard By: Andres J. Trevino, Technical Examiner
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Appearances:

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Representing:

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BP America Production Co. LP

Procedural History of Case:

Application Filed:	June 26, 2008
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EXAMINERS' REPORT AND PROPOSAL FOR DECISION

STATEMENT OF THE CASE

XTO Energy, Inc. requests Commission authority for vertical expansion of its 10,702 acre Russell Clearfork Unit to include both the Lower and Upper Clearfork intervals in the Russell (Clearfork Consolidated) Field. The original unit was approved in January 1971. The areal boundary of the unit remains unchanged from the original 1971 application.

This application was protested by BP America Production Co. LP (BP), an operator and mineral interest owner in the Russell (Clearfork Consolidated) Field. BP owns 100% of the Upper Clearfork minerals in one 80 acre tract, and 50% of the minerals in the Upper Clearfork on an additional 3,040 acres. XTO owns the other 50% of the minerals on the 3,040 acres. BP believes the unit participation formula proposed by XTO is unfair to owners

in the Upper Clearfork.

APPLICANT'S POSITION AND EVIDENCE

The Russell (Clearfork 7000) Field was discovered in 1942 at an approximate depth of 7,350 feet. The Commission originally approved the unitization agreement and waterflood operations by Mobil Oil Corporation began on the Russell (7000 Clearfork) Unit on January 5, 1971. The unitized interval was for the same acreage requested in this docket, however, the original waterflood only included the Lower Clearfork Formation. XTO acquired controlling interest and operations in 2004 from Mobil.

Production peaked from the Russell (Lower Clearfork) Field in 1980 with a daily rate of 5,000 BO per day. Production declined and bottomed out at 750 BOPD in 2005. XTO began infill drilling with 20 acre and then 10 acre density beginning in 2004. On October 25, 2005 a Final Order was issued that consolidated the Russell (Clearfork 7000) Field, (Lower Clearfork) and the Russell North (6600) Field (Upper Clearfork) into a new field named the Russell (Clearfork Consolidated) Field.

Current production from the Lower Clearfork is approximately 2,000 BO per day from 163 active producing wells in the Unit area. There are 79 active injection wells in the Unit. Production from the Upper Clearfork is approximately 190 BO per day from 20 active producing wells in the Unit area.

XTO proposes to expand the interval to include the Upper Clearfork so that the Upper Clearfork will be developed and waterflooded. The Lower and Upper Clearfork are shelf margin deposits composed of dolomitized limestones. The proposed Clearfork interval contains shelf edge deposit that is a low angle dip across the Unit, then dips rapidly to the east-southeast. The expanded formation is described as the Upper and Lower Clearfork formations encountered in the interval from 6,368 feet to 8,578 feet on the log of the Mobil Oil Corp. H&J Unit 1-D, Well No. 40, (API No. 42-165-01611) located in the CCSD & RGNG RR Co Survey, Block G, Sec. 491, Gaines County, Texas.

The physical differences in size, thickness and the geological make up of the reservoir has made the Upper Clearfork significantly less productive than the Lower Clearfork. The productive Upper Clearfork is approximately 100 feet thick while the productive portion of the Lower Clearfork is approximately 400 feet thick. The Lower Clearfork is primarily a dolomite with intercrystalline porosity while the Upper Clearfork is composed primarily of fine and silty sands. The silty sands have finer pore throats which reduces permeability. This therefore reduces productivity and ultimate recovery of an Upper Clearfork completion.

The area proposed for the expanded unit covers acreage that includes the majority of the productive reservoir in both the Lower and Upper Clearfork. The reservoir limits are well defined and are believed to include both drained and undrained areas. The Upper Clearfork is not a stand alone play and is only marginally economic to complete. When

combined with the Lower Clearfork the Upper Clearfork will extend the life of the Unit. Additional reserves will be recovered that would otherwise not be recovered when the Upper Clearfork is infilled drilled and waterflooded. Other Clearfork fields along this trend are currently being successfully waterflooded with both the Lower and Upper Clearfork formations combined. These Units include the South Wasson Clearfork Unit, the Gaines Wasson Clearfork Unit, the Yoakum Wasson Clearfork Unit, the Gibson Unit and the Wasson North Clearfork Unit.

Original oil in place is estimated to be 220 MMBO in the Lower Clearfork. Cumulative primary production from 184 wells prior to unitization in 1971 is 29.7 MMBO, or 13.5% of original oil in place. A 1968 study estimated an ultimate primary production of 38.7 MMBO. Cumulative production since discovery is 63 MMBO or 28.6% of original oil in place (primary and secondary production). Remaining production from wells in the Lower Clearfork is estimated to be 8.2 MMBO. Primary and secondary estimated ultimate recovery per well in the Lower Clearfork averages 210,000 BO. The secondary to primary ratio is 0.84, assuming no additional development (infill drilling).

In contrast the original oil in place in the Upper Clearfork is estimated to be 79 MMBO. Cumulative primary production from 90 wells is 3.0 MMBO, or 4.8% of original oil in place. Remaining primary production from wells in the Upper Clearfork is estimated to be 0.8 MMBO. Primary estimated ultimate recovery per well averages 42,000 BO.

XTO plans to continue its 20 acre and 10 acre infill drilling program started in 2004. Along with infill drilling of the Lower Clearfork, XTO will complete the new wells in the Upper Clearfork. XTO has a maximum development plan where it has identified up to 220 new well locations with 180 Upper Clearfork completions, with conversion of up to 205 producing well to injection wells. It is estimated that the total cost to implement the maximum development plan will be \$353,000,000. Secondary and in filled reserves are estimated to be 19.85 MMBO. Estimated net revenue from the secondary recovery project is \$990 million at \$50/bbl and \$1.39 billion at \$70/bbl.

The proposed Russell (Clearfork Consolidated) Unit consists of 38 tracts which contain a total of 10,510.45 acres. XTO has 98.2% working interest ownership in the Lower Clearfork. In the expanded Unit, XTO will have 96.3% working interest ownership while BP will have 1.4% ownership. The Unit agreement has a provision for minimum royalty sign-up of 75% to qualify for unit participation. On tracts that BP has an interest in, all tracts exceeded 87% sign-up of the interest owners in the Russell (Clearfork Consolidated) Field. Leaseholders of productive areas not in the unit were extended an offer to participate in the unit. On tracts where 100% sign-up is not attained, the applicant will continue to use periodic well testing to account for production from that tract.

The participation formula is based on the sum of 60% of Tract estimated oil recovery divided by total estimated oil recovery and 40% ratio of Tract net pore volume divided by total net pore volume. Using the participation formula XTO calculated BP's production participation would increase from their current 9 BOPD to 31 BOPD if they would join the

Unit. The Unit Agreement has been ratified by over 92.8% of the royalty interest ownership and 98.3% of the working interest ownership. There are no state lands in the Unit Area.

PROTESTANT'S POSITION AND EVIDENCE

BP contends that XTO has not established that the proposed Unit Agreement meets the requirements under Chapter 101 of the Texas Natural Resources Code Section. BP raises two specific challenges to the proposed agreement: 1) that the agreement does not satisfy the "same yardstick basis" requirement under Section 101.013(a)(6) because the participation formula should have been offered to the Upper Clearfork owners at the same time as the Lower Clearfork owners who signed on the original waterflood approved in 1971; and 2) that the agreement fails to protect the rights of all owners, whether signed or unsigned, because the proposed allocation formula only attributes 14.4% of the estimated recovery from the waterflood operations to the Upper Clearfork, in contrast to the estimates by BP's own reservoir engineers that the Upper Clearfork will contribute 30% and 60% of the total recovery, depending on which estimate is used.

BP did not disagree with XTO's assessment of the geology of the Upper and Lower Clearfork formations or even XTO's estimated primary and secondary oil recovery volumes from the Upper and Lower Clearfork formations. BP acknowledged it has not developed the Upper Clearfork and currently has no development plans.

With respect to the yardstick basis, BP urges that XTO's Unit Agreement cannot satisfy this requirement because participation in the waterflood was offered to the Lower Clearfork owners in 1971 and not to the Upper Clearfork owners. BP argues that the offer therefore fails on its face to meet the yardstick basis because the offer was made to the Upper Clearfork owners at a different time.

To support this contention, BP points to the 40 years of waterflood production on the Russell (7000 Clearfork) Unit as skewing future participation in the unit heavily to owners of the Lower Clearfork minerals. BP contends that because XTO assigns 60% of the allocation formula to the total estimated ultimate recovery (EUR), an unfair weight is placed on the Lower Clearfork production, which has benefitted from the long history of waterflooding operations. Additionally, BP urges that the 40% weight given to pore space fails to account for the pore space in the Lower Clearfork already swept by waterflooding operations. BP believes a properly weighted allocation formula would account for the amount of Upper Clearfork production which would contribute to the unit on a going forward basis.

BP does not contend that the Commission has the authority to change the allocation formula on this basis. However, BP asserts that the Commission must deny XTO's application where the allocation formula cannot meet the same yardstick basis requirement under Section 101.013(a)(6).

BP also argues that the unitization agreement fails to meet the requirements of Section 101.013(a)(3) to protect the interests of all mineral interest owners, whether or not the owners agree to participate in the secondary recovery unit. BP bases this position on what it characterizes as conflicting positions taken by XTO's engineers concerning the amount of recoverable reserves in the Upper Clearfork. BP argues that XTO's engineers originally estimated that waterflooding the Upper Clearfork would result in an additional 20.8 million barrels as opposed to the 7.7 million barrels represented at the hearing. Further, BP asserts that under either figure, the participation formula underestimates the contribution of the Upper Clearfork at 14.6%. BP urges that the proper statutory standard requires the participation formula to measure only the anticipated future production from each zone. Under this standard, BP asserts that the proper ratio of Upper Clearfork to Lower Clearfork production would be at least 30% under the evidence presented at the hearing, and 58% under the original estimates.

EXAMINERS' OPINION

The examiners believe the unitization expansion to include the Upper Clearfork should be approved. The Upper Clearfork is not a stand alone reservoir. The physical differences in size, thickness and the geological make up of the reservoir has made the Upper Clearfork significantly less productive than the Lower Clearfork. The productive Upper Clearfork is approximately 100 feet thick while the productive portion of the Lower Clearfork is approximately 400 feet thick. The Lower Clearfork is primarily a dolomite with intercrystalline porosity while the Upper Clearfork is composed primarily of fine and silty sands. The silty sands have finer pore throats which reduces permeability. This therefore reduces productivity and ultimate recovery of an Upper Clearfork completion. Wells in the Lower Clearfork are expected to have an estimated ultimate recovery of 210,000 BO while wells in the Upper Clearfork have an estimated ultimate recovery of 42,000 BO. BP did not contradict this evidence at the hearing.

BP urges the unit agreement should not be approved because it fails to meet two of the statutory criteria under Texas Natural Resources Code Section 101.013(a): 1) that the same yardstick basis apply to all participants; and 2) that all mineral owners be protected, whether or not they agree to participate in the unit. The examiners believe XTO has satisfied both criteria.

The Commission has found that the same yardstick basis requirement is satisfied as long as the same participation formula is applied to all parties. There is no evidence in this case that a different participation formula was applied to different interest owners. BP is simply arguing that the formula is not a fair measure reflecting its interests.

BP cited the Commission's decision in *Oil & Gas Docket No. 08-0214177: Application of Marathon Oil Company for Approval of Unitization and Secondary Recovery Authority and an Exception to Statewide Rule 10 for the Howard-Glasscock East Unit, Howard-Glasscock and Howard-Glasscock (Glorieta) Fields, Howard County, Texas* (Final Order entered July 22, 1997) to support its claim that the Commission does not simply look

to see if the same participation formula applies to all parties in determining whether the statutory requirements are satisfied.

BP accurately observes that *Marathon's* evaluation of the participation formula goes beyond a simple review of the unit agreement to make sure multiple formulas were not used. In *Marathon*, the same participation formula was used for all tracts. However, there were differences in the analysis performed to determine the estimated ultimate recovery and the estimated remaining primary from each lease or tract participating in the unit. The examiners recommended under those facts, that the same underlying analysis needed to be applied to every lease or tract participating in the unit to satisfy the same yardstick basis requirement.

This case can be distinguished from the *Marathon* decision because BP did not claim that a different formula was used to differentiate between leases or tracts. Tracts in which BP owns the full or partial interest have participated in waterflooding of the Lower Clearfork for the past 40 years. Instead BP's claim is based on the difference between the Upper Clearfork and the Lower Clearfork. There is no contention that a different analysis of reserves was applied to different leases or tracts, as in the *Marathon* case. Because there has been no difference in either the formula or analysis on a lease or tract basis, the examiners conclude that the participation formula in XTO's unit agreement fulfills the same yardstick criteria under Texas Natural Resources Code Section 101.013(a)(6).

With respect to the protection of all parties, whether signed or unsigned, under Texas Natural Resources Code Section 101.013(a)(3) the examiners also conclude that XTO's unit agreement satisfies this requirement. BP has not drilled a well on its own tracts but has participated in production from the Upper Clearfork through wells on tracts operated by XTO where the companies jointly own the minerals. BP currently has no plans for further development on any of their tracts, but would have the opportunity to develop its interests separately outside of the unitization agreement if it believes that its interests would be better protected by drilling their own wells into the Upper Clearfork. Additionally, it is uncontested that the waterflooding would increase production in the Upper Clearfork regardless of whether BP opts to participate in the unit agreement. Production from the Upper Clearfork wells on tracts in which BP has a full or partial interest will be allocated on a tract by tract basis if BP does not participate in the unit. Accordingly, because BP has a remedy available to protect its interests by simply opting out of participation and drilling its own wells, the examiners believe that the unit agreement provides for the protection of all parties interests as required by Texas Natural Resources Code Section 101.013(a)(3).

Based on the foregoing, the examiners conclude that the unitization agreement meets all of the requirements of Texas Natural Resources Code including Sections 101.013(a)(3) and (6). The examiners therefore recommend that the application be approved.

FINDINGS OF FACT

1. Notice of this hearing was sent to all operators and royalty interest owners within the proposed unit and to offset operators and mineral owners of unleased tracts. Notice was also published in *The Seminole Sentinel*, a newspaper of general circulation in Gaines County, for four consecutive weeks beginning July 30, 2008. There was one protest to the application.
2. The proposed unit consists of 38 tracts which contain a total of 10,510.45 acres.
3. The unitized formation is the subsurface portion of the Unit Area commonly known as the Clearfork Consolidated reservoir. The Clearfork Consolidated reservoir includes the Lower and Upper Clearfork reservoirs. The formation is described as the interval from 6,368 feet to 8,578 feet on the log of the Mobil Oil Corp. H&J Unit 1-D, Well No. 40, (API No. 42-165-01611) located in the CCSD & RGNG RR Co Survey, Block G, Sec. 491, Gaines County, Texas.
4. The Upper Clearfork is approximately 100 feet thick composed primarily of fine, silty sands and some dolomite. The Lower Clearfork is approximately 400 feet thick composed primarily of dolomite. The geologic differences between the two formations affect oil productivity.
5. A well completed in the Upper Clearfork has an average estimated economic ultimate recovery of 42,000 BO. A well completed in the Lower Clearfork has an average estimated economic ultimate recovery of 210,000 BO.
6. Secondary recovery and infill drilling operations will result in the recovery of an estimated 19.85 MMBO which would otherwise go unrecovered.
7. The cost to implement the project does not exceed the value of additional reserves to be recovered.
8. The participation formula is based on the sum of 60% of Tract estimated oil recovery divided by total estimated oil recovery and 40% ratio of Tract net pore volume divided by total net pore volume.
9. BP currently receives approximately 9 BOPD from its tracts but will receive initially at least 31 BOPD if it joins the expanded Unit. BP will not be required to "buy in" into the Unit.
10. The secondary recovery project will not be successful unless the Upper Clearfork is unitized.

11. The secondary recovery program will use produced salt water from the Russell (Clearfork Consolidated) Field.
12. The agreement was voluntarily executed by all parties affixing their signatures thereto and no person has been compelled or required to enter into the agreement. The unit agreement binds only those persons who have executed it, their heirs, successors, assigns and legal representatives. The rights of all owners of interests in the field will be protected under the operation of the unit, regardless of whether an owner signed the unit agreement.
13. The owners of interest in the oil and gas under each tract of land within the area reasonably defined by development have been given an opportunity to enter into the unit on the same yardstick basis as owners of interest in the oil and gas under the other tracts in the unit.
14. The proposed injection program will move hydrocarbons across lease lines, and unitization is necessary in order to protect the correlative rights of the various interest owners.
15. The unitization agreement is necessary to accomplish the purposes of establishing a unit to effect secondary recovery operations and to operate the necessary cooperative facilities. Other available or existing methods or facilities for secondary recovery operations are inadequate for the purpose of secondary recovery.
16. The unit agreement does not provide, either directly or indirectly, for the cooperative refining or marketing of crude petroleum, distillate, condensate, or gas, or any by-product thereof.
17. The unit agreement is subject to all valid orders, rules and regulations of the Railroad Commission.
18. The unit agreement contains no provision regarding field rules, nor does it limit the amount of production of oil or gas from the unitized area. The unit agreement does not release the operator from his obligation to reasonably develop lands or leases as a whole.
19. The unit agreement is a voluntary agreement entered into for the purpose of conducting secondary recovery operations.
20. The unit agreement does not provide for the location of wells.
21. There are no State lands in the unit.

22. The reservoir described in the unit agreement is a suitable reservoir for the proposed secondary recovery operation.
23. The unit agreement contains only the acreage reasonably necessary to accomplish the proposed secondary recovery project.
24. The unit agreement has been ratified by 98.3% of the working interest ownership and over 92.84% of the royalty interest ownership.
25. On tracts where 100% sign-up is not attained, the applicant will use periodic well testing to account for production from that tract.

CONCLUSIONS OF LAW

1. Proper notice was given to all persons legally entitled to notice.
2. All things have occurred or have been accomplished that are necessary to give the Commission jurisdiction in this matter.
3. Applicant's proposed secondary recovery project satisfies all of the requirements set out in TEX. NAT. RES. CODE ANN. §§101.001 et seq.
4. Approval of the proposed unit agreement and secondary recovery operations is in the public interest and is necessary to prevent waste and to promote the conservation of oil or gas or both.

EXAMINERS' RECOMMENDATION

Based on the above findings of fact and conclusions of law, the examiners recommend approval of the proposed Russell (Clearfork Consolidated) Unit and secondary recovery operations project as set out in the attached order.

Respectfully submitted,

Andres J. Trevino
Technical Examiner

Mark Helmueller
Hearings Examiner