

THE APPLICATION OF XTO ENERGY INC. TO CONSIDER UNITIZATION AND SECONDARY RECOVERY AUTHORITY FOR THE RED OAK (WOODBINE DEXTER) UNIT IN RED OAK (DEXTER) FIELD, LEON COUNTY, TEXAS

HEARD BY: Andres J. Trevino P.E., Technical Examiner
James Doherty, Hearings Examiner

DATE OF HEARING: September 14, 2010

APPEARANCES:

Brian Sullivan
Rodney Black
Brian D. Nicoud
Frank J. Marek
Mike Gregory

Flip Whitworth

Keith Foree

REPRESENTING:

XTO Energy, Inc.

Barrow Shaver Resources.

Amherst Petroleum
Lometa Petroleum
Kevin Kuhnel

EXAMINERS' REPORT AND RECOMMENDATION

STATEMENT OF THE CASE

XTO Energy, Inc. requests Commission authority for unitization of the Red Oak (Woodbine Dexter) Unit and approval of secondary recovery operations on the proposed Unit in the Red Oak (Dexter) Field.

This application was originally unopposed, however, during the hearing, Keith Foree, representing operators of gas wells in the field stated he was protesting the application. During the course of the hearing he was satisfied that injection of water into the gas producing areas was not planned, and withdrew his protest. The examiners recommend approval of the application.

DISCUSSION OF THE EVIDENCE

The Red Oak (Dexter) Field was discovered in July 2003 at an approximate depth of 6,523 feet. Production peaked in November 2005 with a daily production rate of 1,390

BO per day. Current production is approximately 355 BO per day from 24 wells in the Unit area.

The area proposed for the subject unitization covers acreage that includes the majority of the productive reservoir. The reservoir limits are well defined and are believed to include both drained and undrained areas. Leaseholders of productive areas not in the unit were extended offers to participate in the unit. The area is in the mid stage of primary depletion. Cumulative primary production from the 24 wells is 1.581 MMBO, or 15.8% of original oil in place. Remaining primary production from wells on the unit is estimated to be 295,000 BO.

The unitized formation is the Dexter sandstone formation which is a continuous sand found throughout the field area. The sand thickness varies from site to site and is faulted with vertical faults. Some of the faulting has created isolated fault blocks that contain only gas. Concern was raised by operators in these gas producing fault blocks that water injection will damage gas recoveries. XTO Energy will not inject water into any gas only producing fault blocks. The reservoir is contained by stratigraphic pinch outs, sealing fault blocks and oil/water contacts. The reservoir drive mechanism is a depletion drive. The formation is described as 75 feet above and below the Dexter sandstone formation encountered in the interval from 6,437 feet to 6,629 feet on the log of the Miller Energy Inc. Harrington No. 5, (API No. 42-289-31402) located in the John J. Burton Survey, A-102, Leon County, Texas.

Average porosity is 16.4% and average water saturation is 37%. The initial reservoir pressure was approximately 2,706 psi and current pressure beneath the unit area is less than 500 psi. The initial GOR was 348 scf/bbl and has increased to 1,500 scf/bbl as the reservoir pressure dropped below the bubble point after production peaked in November 2005. XTO Energy performed extensive waterflood studies to predict the waterflood's performance. The waterflood program will consist of 17 producing wells and 12 injection wells set up in a modified five-spot pattern. Initially, make up water will be supplied from two existing wells completed in the water zone to supplement the waterflood project. XTO Energy will convert various existing producing wells or dry holes into injection wells. XTO will not convert the last producing well to an injector on any non-participating tracts.

The proposed Red Oak (Woodbine Dexter) Unit consists of 49 tracts which contain a total of 2,978.68 acres. There are approximately 28,350 acre-feet of Dexter Sandstone in the proposed unit area. The participation formula will vary during a two phase period. The Phase One participation of Tract is based on the sum of 47.5% of the Tract's current production rate, plus 5% of the Tract's useable wellbore(s), plus 47.5% of the remaining reserves for the Tract. Once 294,907 barrels of oil have been recovered from the Unitized Formation for all Tracts within the Unit, Phase Two participation formula will apply for each Tract. The Phase Two participation of each Tract will be based on the sum of 10% useable wellbore(s), plus 90% of the net acre-feet of the Unitized Formation underlying the Tract. The Unit Agreement has been ratified by approximately 75% of the royalty interest ownership and 97% of the working interest ownership. There are state lands in the Unit

Area, primarily leases under State Highway 79. The State did consent to the unitization.

It is estimated that the total cost to implement the project will be \$6,354,000. Secondary reserves are estimated to be 1,876,000 BO. Estimated net revenue from the secondary recovery project is \$98.5 million at \$70/bbl.

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 Centerville News*, a newspaper of general circulation in Leon County, for four consecutive weeks beginning August 11, 2010. There were no protests to the application.
2. The proposed unit consists of 49 tracts which contain a total of 2,978.68 acres.
3. The unitized formation is the subsurface portion of the Unit Area commonly known as the Woodbine Dexter Sandstone reservoir. The formation is described as the interval from 6,437 feet to 6,629 feet on the Compulog Induction/Neutron/Density log of the Miller Energy Inc. Harrington No. 5, (API No. 42-289-31402) located in the John J. Burton Survey, A-102, Leon County, Texas.
4. Secondary recovery operations will result in the recovery of an estimated 1.876 MMBO which would otherwise go unrecovered.
5. The cost to implement the project does not exceed the value of additional reserves to be recovered.
6. The participation formula in Phase One is based on the sum of 47.5% of the Tract's current production rate, plus 5% of the Tract's useable wellbore(s), plus 47.5% of the remaining reserves for the Tract. Phase Two participation of each Tract will be based on the sum of 10% useable wellbore(s), plus 90% of the net acre-feet of the Unitized Formation underlying the Tract.
7. The secondary recovery project will not be successful unless the area is unitized.
8. The secondary recovery program will use salt water from two existing wells completed in or near the water zone.
9. The Red Oak (Dexter) Field is faulted and the faults often create separate accumulations of hydrocarbons.
10. A number of the fault blocks in the Field produce gas only and this gas is

not in communication with the oil only producing blocks.

11. The injection of water into these “gas only” fault blocks may harm the recovery of hydrocarbons.
12. XTO has agreed that it will not inject water into any of the “gas only” fault blocks.
13. 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.
14. 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.
15. 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.
16. 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.
17. 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.
18. The unit agreement is subject to all valid orders, rules and regulations of the Railroad Commission.
19. 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.
20. The unit agreement is a voluntary agreement entered into for the purpose of conducting secondary recovery operations.

21. The unit agreement does not provide for the location of wells.
22. There are State lands in the unit.
23. The reservoir described in the unit agreement is a suitable reservoir for the proposed secondary recovery operation.
24. The unit agreement contains only the acreage reasonably necessary to accomplish the proposed secondary recovery project.
25. The unit agreement has been ratified by 97% of the working interest ownership and over 75% of the royalty interest ownership.
26. 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.

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. (Vernon 1993).
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 Red Oak (Woodbine Dexter) Unit and secondary recovery operations project as set out in the attached order.

Respectfully submitted,

Andres J. Trevino
Technical Examiner

James Doherty
Hearings Examiner