

**THE APPLICATION OF CHISHOLM OPERATING, INC. TO CONSIDER UNITIZATION AND SECONDARY RECOVERY AUTHORITY FOR THE CHISHOLM/TRIFECTA (TANNEHILL "B") UNIT IN THE TRIFECTA (TANNEHILL) FIELD, DICKENS COUNTY, TEXAS**

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**HEARD BY:** Andres J. Trevino P.E., Technical Examiner  
Mark Helmueller, Hearings Examiner

**DATE OF HEARING:** April 27, 2010

**APPEARANCES:**

John Beckham  
Charles Schroeder  
James Tart  
Gary McCaslin

**REPRESENTING:**

Chisholm Operating Inc.

**EXAMINERS' REPORT AND RECOMMENDATION**

**STATEMENT OF THE CASE**

Chisholm Operating Inc. requests Commission authority for unitization of the Chisholm/Trifecta (Tannehill "B") Unit and approval of secondary recovery operations on the Unit in the Trifecta (Tannehill) Field.

This application was unopposed and the examiners recommend approval.

**DISCUSSION OF THE EVIDENCE**

The Trifecta (Tannehill) Field was discovered in July 2005 at an approximate depth of 5,130 feet. There are seven wells completed in the field since its discovery. Currently Chisholm operates four leases with six wells in the Trifecta (Tannehill) Field. Woods Operating Inc operates one lease with one well in the proposed Project Area.

The area proposed for the subject unitization covers acreage that includes the majority of the productive reservoir. The reservoir limits are well defined by an oil/water contact and sand thickness isopach map. The Unit is believed to include both drained and undrained areas. Mineral and working interest owners of productive areas were given an opportunity to participate in the unit on the same yardstick basis as those interest owner agreeing to participate in the unit. Cumulative primary production from the seven wells in

the Project Area is 211,295 BO, or 11.4% of original oil in place (OOIP). There is approximately 102,000 BO remaining under primary production from the wells. The expected total primary production is 313,000 BO or 17% of the OOIP. Secondary production is estimated at 343,000 BO. Secondary to primary recovery ratios is 1.1 to 1 similar to other solution gas drive Tannehill reservoirs in the area.

The unitized formation is the subsurface portion of the Unit commonly known as the Trifecta (Tannehill) Field. The formation is described as the Upper and Lower Tannehill "B" Sand. The Upper and Lower Tannehill "B" Sand is encountered in the interval from 5,110 feet to 5,130 feet on the Chisholm Operating's Williams, No. 2, (API No. 42-125-30984) located in the H. & G.N. RR Co. Survey, A-94, Section 175, Dickens County, Texas.

The unitized interval includes the top of the Upper and Lower Tannehill "B" Sand through the oil water contact found at -2,775 feet MSL on the type log. The Upper Tannehill "B" Sand is found in all wells through out the Unit Area. The Tannehill "B" Sand's average porosity is 19.2% and average water saturation is 44.4%. Chisholm plans to waterflood the Unit Area by utilizing nine producing wells, four injection wells and one Croton Lime saltwater supply well. Chisholm will drill either one or two injection wells and will drill one additional producing well. Chisholm will use a line drive/peripheral type pattern to maximize sweep of the reservoir. The Unit's waterflood project will be implemented in two stages.

The proposed Chisholm/Trifecta (Tannehill "B") Unit consists of 8 tracts which contain a total of 1003 acres. There are approximately 2,445 acre-feet of Tannehill "B" Sand in the proposed unit area. The participation formula is based on 50% floodable acre-foot reservoir volume, 25% cumulative primary oil and 25% previous six months production. The Unit Agreement has been ratified by 91.18% of the royalty interest ownership and 99.18% of the working interest ownership. There are no state lands in the Unit Area.

It is estimated that the total cost to implement the project will be \$1,766,000. Secondary reserves are estimated to be 343,000 BO. Estimated net working interest revenue, discounted at 8% from the secondary recovery project is \$12.5 million at \$70/bbl.

### **FINDINGS OF FACT**

1. Notice of this hearing was sent to all operators and interest owners within the proposed unit and to offset operators and mineral owners of unleased tracts. Notice was also published in *The Texas Spur*, a newspaper of general circulation in Dickens and Kent Counties, for four consecutive weeks beginning March 25, 2010. There were no protests to the application.
2. The proposed unit consists of 8 tracts which contain a total of 1,003 acres.
3. The unitized formation is the subsurface portion of the Unit Area commonly

known as the Trifecta (Tannehill) reservoir. The formation is described as the Upper and Lower Tannehill "B" Sand. The Upper and Lower Tannehill "B" Sand is encountered in the interval from 5,110 feet to 5,130 feet on the Chisholm Operating's Williams, No. 2, (API No. 42-125-30984) located in the H. & G.N. RR Co. Survey, A-94, Section 175, Dickens County, Texas.

4. Secondary recovery operations will result in the recovery of an estimated 343,000 BO 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 is based on 50% floodable acre-feet reservoir volume, 25% cumulative primary oil and 25% previous six months production.
7. The secondary recovery project will not be successful unless the area is unitized.
8. The secondary recovery program will use produced salt water and salt water from a Croton Lime water supply well.
9. 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.
10. 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.
11. 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.
12. 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.
13. 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.

14. The unit agreement is subject to all valid orders, rules and regulations of the Railroad Commission.
15. 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.
16. The unit agreement is a voluntary agreement entered into for the purpose of conducting secondary recovery operations.
17. The unit agreement does not provide for the location of wells.
18. There are no State lands in the unit.
19. The reservoir described in the unit agreement is a suitable reservoir for the proposed secondary recovery operation.
20. The unit agreement contains only the acreage reasonably necessary to accomplish the proposed secondary recovery project.
21. The unit agreement has been ratified by 99.18% of the working interest ownership and 91.18% of the royalty interest ownership.
22. On tracts where 100% sign-up is not attained, the applicant will continue to use existing lease production facilities to account for production from that tract and/or will conduct monthly well tests 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 Chisholm/Trifecta (Tannehill "B") Unit and secondary recovery operations project as set out in the attached order.

Respectfully submitted,

Andres J. Trevino  
Technical Examiner

Mark Helmueller  
Hearings Examiner