



## RAILROAD COMMISSION OF TEXAS

### HEARINGS DIVISION

**OIL & GAS DOCKET NO. 8A-0287403**

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**THE APPLICATION OF ALPINE PETROLEUM TO CONSIDER UNITIZATION AND SECONDARY RECOVERY AUTHORITY FOR THE PROPOSED 180-ACRE WILD TURKEY (TANNEHILL) FIELD, KENT AND DICKENS COUNTIES, TEXAS**

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**HEARD BY:** Paul Dubois – Technical Examiner  
Marshall Enquist – Hearings Examiner

**DATE OF HEARING:** April 11, 2014

**APPEARANCES:**

**REPRESENTING:**

**APPLICANT:**

David Gross  
Chester Carroll  
James Tart

Alpine Petroleum

### EXAMINERS' REPORT AND RECOMMENDATION

#### STATEMENT OF THE CASE

Alpine Petroleum (Alpine) requests Commission authority for unitization of Wild Turkey (Tannehill) Unit, Wild Turkey (Tannehill) Field, Kent and Dickens Counties, Texas, and approval of secondary recovery operations on the Unit. The application is unopposed and the examiners recommend approval of the authority for unitization and approval of secondary recovery operations on the Unit.

#### DISCUSSION OF THE EVIDENCE

The Wild Turkey (Tannehill) Field and the proposed Wild Turkey (Tannehill) Unit (the Unit) are located on the border of Kent and Dickens Counties, Texas. The proposed unit occupies 180 acres and consists of three tracts: Tract 1 is 80 acres, Tract 2 is 80 acres, and Tract 3 is 20 acres. The three tracts are in mostly in the northwest portion of

Section 125, Block 1, H&GNRR Survey in Kent and Dickens Counties, Texas. The county line runs east-west through the northern part of Tract 1. The unitized formation is the subsurface portion of the Unit area described as the Tannehill Sand Formation, constituting the correlative and continuous stratigraphic interval containing the productive interval recognized by the Commission as the Wild Turkey (Tannehill) Field, as indicated from a depth of 4,306 feet to 4,351 feet on the log of the Hagar No. 5 well located in Section 125, Block 1, Kent County, Texas.

There are three producing wells on the proposed Unit, and a total of six producing and one injection wells in the field. Two producing wells are in Tract 1, one producing well is in Tract 2. Tract 3 has a well that will be used for injection. All of these wells are completed in the Wild Turkey (Tannehill) Field. West of the proposed unit are three wells operated by Cholla Petroleum, Inc. Operates two producing and one injection well immediately west of the Unit. Cholla was offered an opportunity to participate in the Unit but declined. Alpine has also drilled four dry holes surrounding the proposed Unit and believes the extent of the productive area of the field has been determined.

Alpine commissioned a study to determine the feasibility of waterflooding the Tannehill Sand in the area. The study area included Cholla's offset leases. As of June 1, 2012, the Tannehill Sand had produced 130,626 BO and no reported gas production. Cumulative production from Alpine's leases through June 1, 2012 was 87,434 BO. In May 2012 the average daily production from the field was 79.3 BO and 16 BW.

The Tannehill Sand was contiguous through the productive area, but the sand was not developed to the east and south, bounding the reservoir on those sides. The oil water contact bounded the reservoir to the north and west at a depth of about 4,320 feet. The formation has produced under a solution gas drive mechanism with no indication of a primary or secondary gas cap. This is evidenced by a sharp decline in monthly production rate, a steady decrease in reservoir pressure and low producing bottom hole pressures. The original reservoir pressure was 1,725 psig and the bubble point pressure was 700 psig. The average porosity of the pay zone is 18.7 percent and the average connate water saturation is 47.5 percent. Based on this information and the performance of other waterflood projects in the Tannehill Sand, Alpine believes this unit to be floodable and a secondary recovery project to be successful.

Alpine estimates that in addition to the 87,434 BO of primary recovery already produced on the lease, an additional 48,888 bbl. of primary oil remains to be recovered, for an estimated ultimate primary oil volume of 136,322 bbl. This corresponds to 94.3 bbl/acre-feet and a primary oil recovery of 13.6 percent. Alpine calculates that its ultimate secondary oil recovery to be 220,798 bbl., which is a secondary to primary ratio of 1.62:1. Alpine's economic analysis of the proposed project yields a net working interest income (discounted at 8 percent) of more than \$10 million. The total cost to implement the secondary recovery project is expected to be about \$3.5 million. The cost does not exceed the value of additional reserves to be recovered.

All royalty and working interest owners in the area of the proposed Unit have been notified of Alpine's application to form the Unit. Alpine has gained the participation of 99.34502 percent of the royalty interest owners and 100 percent of the working interest owners. The remaining unsigned interests are in Tract 1. Alpine also published notice of the hearing on March 20, March 27, April 3, and April 10, 2014, in *The Texas Spur*, a newspaper of general circulation in both Kent and Dickens Counties.

Unit participation is based on a two-phase formula, with Phase I being continued primary production ending when the estimated primary oil reserves (48,888 bbl) are recovered, and Phase II beginning with the recovery of secondary reserves. When Phase II begins, participation will be based on 45 percent of each tract's proportional share of total reservoir volume, plus 10 percent of each tract's proportional share of surface acreage, plus 45 percent of each tract's proportional share of floodable reservoir volume.

Mr. Chester Carroll, President of Alpine Petroleum, testified that the proposed unitization of the Wild Turkey (Tannehill) Unit and unit agreements conform to Texas Natural Resources Code § 101 et seq.

#### **FINDINGS OF FACT**

1. Notice of this hearing was sent to all operators and royalty interest owners within and adjacent to the proposed unit at least ten days prior to the hearing.
2. The proposed Wild Turkey (Tannehill) Unit consists of three tracts which cover 180 acres in Kent and Dickens Counties, Texas.
3. The unitized formation is the subsurface portion of the Unit area described as the Tannehill Sand Formation, constituting the correlative and continuous stratigraphic interval containing the productive interval recognized by the Commission as the Wild Turkey (Tannehill) Field, as indicated from a depth of 4,306 feet to 4,351 feet on the log of the Hagar No. 5 well located in Section 125, Block 1, Kent County, Texas.
4. The productive interval is located on the Tannehill Sand Formation, which has a solution gas drive as the primary drive mechanism and no indication of a primary or secondary gas cap.
5. At the time of the hearing, 100% of the working interest ownership and 99.34502% of the royalty interest ownership had signed the unit agreement.

6. Secondary recovery operations are expected to result in the recovery of an estimated 220,798 BO, which would otherwise go unrecovered.
7. The total cost to implement the secondary recovery project is expected to be \$3.5 million. The cost does not exceed the value of additional reserves to be recovered.
8. The participation formula for the Phase II (secondary recovery) will be 45 percent of each tract's proportional share of total reservoir volume, plus 10 percent of each tract's proportional share of surface acreage, plus 45 percent of each tract's proportional share of floodable reservoir volume.
9. The secondary recovery project will not be successful unless the area is unitized.
10. 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.
11. The owners of interests 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 interests in the oil and gas under the other tracts in the unit.
12. 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.
13. The unitization agreement is necessary to accomplish the purposes of establishing a unit to effect secondary recovery operations for water injection and operating cooperative facilities necessary thereto. Other available or existing methods or facilities for secondary recovery operations are inadequate for the purpose of secondary recovery.
14. 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.

15. The unit agreement is subject to all valid orders, rules and regulations of the Railroad Commission.
16. 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.
17. The unit agreement is a voluntary agreement entered into for the purpose of conducting secondary recovery operations.
18. There are no state owned lands in the proposed unit.
19. The unit agreement is in the interest of public welfare as being reasonably necessary to prevent waste and to promote conservation.
20. The reservoir described in the unit agreement is identified as a single reservoir for Commission purposes and is a suitable reservoir for a water injection secondary recovery operation.
21. The unit agreement contains only the acreage reasonably necessary to accomplish the proposed secondary recovery project.
22. Well tests will be conducted to allocate production to wells on tracts for which 100% sign-up was not achieved.

**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. §§101.001-052.
4. Approval of the proposed unit agreement for 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 Wild Turkey (Tannehill) Unit and secondary recovery operations, as set out in the attached order.

Respectfully submitted,



Paul Dubois  
Technical Examiner



Marshall Enquist  
Hearings Examiner