

September 19, 2000

OIL & GAS DOCKET NO. 7B-0225854

THE APPLICATION OF MIDLAND OIL & GAS INC. TO CONSIDER UNITIZATION AND SECONDARY RECOVERY AUTHORITY FOR THE BIG-EASY PALO PINTO UNIT IN THE BIG EASY (PALO PINTO) FIELD, TAYLOR AND CALLAHAN COUNTIES, TEXAS

HEARD BY: Thomas H. Richter, P.E., Technical Examiner
Mark Helmueller, Hearings Examiner

DATE OF HEARING: September 19, 2000

APPEARANCES:
Richard Johnston

REPRESENTING:
Midland Oil & Gas Inc.

PROTESTANTS:
none

EXAMINERS' REPORT AND RECOMMENDATION

STATEMENT OF THE CASE

This is the unprotested application of Midland Oil & Gas Inc. for Commission authority for unitization of the Big Easy-Palo Pinto Unit and approval of secondary recovery operations on the Unit. The examiners recommend approval.

DISCUSSION OF THE EVIDENCE

The Big Easy (Palo Pinto) Field was discovered July 19, 1995 at approximately 3,302' subsurface depth. The field is governed by Statewide Rules. The field operates under a net GOR authority of 500 MCFD per well and an MER authority of 100 BOPD (Oil & Gas Docket No. 7B-0217292 effective November 25, 1997). Midland Oil & Gas is the only operator in the field with 10 producing wells.

The proposed unitized interval is from 3,258' to 3,359' as shown on the Dual Spaced Neutron Microlog of the Midland Oil & Gas Inc., Jetter Antilley Well No. 1, in Section 58, B.A.L./R.B. Terry Survey, A-12-0, Taylor County. The field limits and thus the productive area of each of the 16 tracts which comprise the unit are well defined based on well log analysis and 3D-seismic. The reservoir is a stratigraphic trap based on formation porosity development and pinchout. The productive

porosity is in the range of 13% to 14% and a reservoir average thickness of 20 feet.

The proposed Big Easy Palo Pinto Unit consists of 16 tracts which together comprise 406.6893 acres. There are currently 10 producing wells within the proposed unit area. Current production is 800 BOPM. The highest production from any well in the unit is 8 BOPD. Cumulative production from the proposed unit is 282.21 MBO and a remaining primary recovery estimated at 1.27 MBO. Cumulative gas production is 569 MMCF. The drive mechanism of the reservoir is solution gas expansion. It is proposed to convert 4 of the producing wells into water injection wells to establish a peripheral flood pattern. It is estimated that an additional 357,000 BO will be recovered from the proposed water/microbe flood. The microbes will be used to increase the viscosity of the formation oil. Make-up water will be supplied from a saltwater supply well to be drilled to one of the following saltwater producing formations: the Hope, Home Creek or Gunsight.

The proposed secondary recovery project is economically feasible. The estimated capital cost of water injection well conversions and re-completions is \$650,000. The revenue from the sale of oil and gas produced is \$8.937 million.

At the time of the hearing, 100% of the royalty interest ownership and 100% of the working interest ownership had signed the unit agreement. The participation formula is based on a per tract determination of: effective porosity, net pay thickness and productive acres. Interest owners within the unit were offered the same opportunity to join the unit on the same yardstick basis. All persons with interests within the area reasonably defined by development were provided the opportunity to join the unit and were given notice of this application and hearing.

The water/microbe injection well applications have not been submitted to the Commission's Environmental Services division. The Enhanced Oil Recovery Reduced Severance Tax Request (Form H-12) will also be filed at a later date.

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.
2. The Big Easy (Palo Pinto) Field was discovered July 19, 1995 at approximately 3,302' subsurface depth.
 - a. The field is governed by Statewide Rules.
 - b. The field operates under a net GOR authority of 500 MCFD per well and an MER authority of 100 BOPD (Oil & Gas Docket No. 7B-0217292 effective November 25, 1997). Midland Oil & Gas is the only operator in the field with 10 producing wells.

3. The proposed unitized interval is from 3,258' to 3,359' as shown on the Dual Spaced Neutron Microlog of the Midland Oil & Gas Inc., Jetter Antilley Well No. 1, in Section 58, B.A.L./R.B. Terry Survey, A-12-0, Taylor County.
 - a. The proposed Big Easy Palo Pinto Unit consists of 16 tracts which contain 406.6893 acres.
4. The secondary recovery water-flood operations are anticipated to recover an additional 357,000 barrels of oil.
 - a. Cumulative production from the proposed unit is 282.21 MBO and a remaining primary recovery estimated at 1.27 MBO. Cumulative gas production is 569 MMCF.
 - b. Midland Oil & Gas, Inc. proposes the re-completion of four producing wells to water/microbe injection wells.
 - c. Make-up water will be supplied from produced water in the area.
5. Secondary recovery operations are economically feasible.
 - a. The estimated capital cost of water injection well conversions and re-completions is \$650,000.
 - b. The revenue from the sale of oil and gas produced is \$8.937 million.
6. The proposed participation formula is equitable and will provide for the protection of correlative rights. The participation formula is based on a per tract determination of: effective porosity, net pay thickness and productive acres.
7. The rights of all owners of interests in the field, whether signers of the unit agreement or not, will be protected under its operation.
8. Persons entering into the unit agreement own or control production, leases, royalty or other interests in the field.
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 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.
 - a. The working interest owner ratification is 100%.
 - b. The royalty interest ratification is 100%.
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 to operate 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. The unit agreement does not provide for the location of wells.
19. There are no state lands in the unit.
20. The unit agreement is in the interest of public welfare as being reasonably necessary to prevent waste and to promote conservation.
21. 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.
22. The unit agreement contains only the acreage reasonably necessary to accomplish the proposed secondary recovery project.

CONCLUSIONS OF LAW

1. Proper notice was given to all persons entitled to notice pursuant to all applicable codes and regulatory statutes.
2. The requested secondary recovery project is a conservation matter properly within Commission jurisdiction as outlined in Chapter 101 of the Texas Natural Resources Code.
3. The unit described in the unit agreement is necessary to accomplish the purposes set out in TEX. NAT. RES. CODE ANN. §101.001 et seq. (Vernon 1993).
4. Approval of the proposed unit agreement, secondary recovery operations and entity for density 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 Big Easy Palo Pinto Unit and secondary recovery operations project as set out in the attached order.

Respectfully submitted,

Thomas H. Richter, P.E.
Technical Examiner

Mark Helmueller
Hearings Examiner