

April 3, 2001

**OIL & GAS DOCKET NO. 08-0227601**

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**THE APPLICATION OF COBRA OIL & GAS CORPORATION TO CONSIDER  
UNITIZATION AND SECONDARY RECOVERY AUTHORITY FOR THE HILLGER-  
KOLB UNIT IN THE COBRA (WOLFCAMP) FIELD, GLASSCOCK COUNTY, TEXAS**

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**HEARD BY:** Thomas H. Richter, P.E., Technical Examiner  
Scott C. Petry, Hearings Examiner

**DATE OF HEARING:** April 3, 2001

**APPEARANCES:**

Dick Schmidt  
Phil Rugeley

**REPRESENTING:**

Cobra Oil & Gas Corporation

**EXAMINERS' REPORT AND RECOMMENDATION**  
**STATEMENT OF THE CASE**

This is the unprotected application of Cobra Oil & Gas Corporation for Commission authority for unitization of the Hillger-Kolb Unit and approval of secondary recovery operations on the Unit. The examiners recommend approval.

**DISCUSSION OF THE EVIDENCE**

The Cobra (Wolfcamp) Field was discovered June 1984 at approximately 7,947' . The field is governed by special field rules that were adopted by Order No. 8-87,798, effective August 11, 1986, which provide for minimum well spacing of 467'/1200', 160 acre and optional 80 acre proration units and a 100% acreage allocation formula. This is a multi-operator multi-well field with 49 currently producing wells.

The proposed unitized interval is from 7,566' to 7,830' as shown on the log of the Cobra Oil & Gas Corporation, Hillger 12 Well No. 1. This Lower Wolfcamp interval is a carbonate that is uniform and continuous across the proposed area. The proposed unitized area is well defined by dry holes on all sides. Sand thickness is as great as 192 feet. Basic reservoir parameters include an average porosity of 15%, average water saturation of 25%, and average permeability of 70 mds. Original bottomhole pressure was 3,090 psig and the current bottomhole pressure is 1,850 psig.

The proposed Hillger-Kolb Unit comprises two tracts containing 320 surface acres. There

are two producing wells in the unit: the Hillger 12 Well No. 1 (completed December 1995) currently producing 333 BOPD; and the Kolb 12 Well No. 1 (completed November 1996) currently producing 352 BOPD. Cumulative production as of February 1, 2001, from the proposed unitized area is 1.157 million barrels of oil and 889 MMCF of gas. There has been no water production. Cobra proposes to drill one water injection well. Make-up water will be supplied by the BTA Wolfcamp Unit to the north which produces compatible saltwater from the Wolfcamp formation. The estimated incremental production will be 5,100,000 BO due the secondary recovery water injection program. The estimated remaining recoverable primary reserves is 2,700,000 BO.

The proposed secondary recovery project is economically feasible. The estimated capital cost of the water injection well and water injection facilities is \$950,000. The estimated revenue from the sale of oil and gas produced is \$73 million.

At the time of the hearing, 81.25% of the royalty interest ownership and 100% of the working interest ownership had signed the unit agreement. On any tract where there is not 100% ratification, Cobra proposes continuing the storage and measurement of produced hydrocarbons in existing lease storage facilities. The participation formula will be based one third on each of the following: estimated ultimate primary recovery from each tract, hydrocarbon pore volume of each tract and estimated ultimate recovery from each tract. All interest owners within the unit were offered the same opportunity to join the unit on the same yardstick basis. All persons adjoining the proposed unitized area were given notice of this application and hearing.

Cobra stated that it has received a permit from the Commission's Environmental Services Section for water injection authority. Furthermore, it will make application for EOR Enhancement approval before commencing water injection through the administrative process.

### **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 proposed Hillger-Kolb Unit comprises two tracts containing 320 surface acres. There are two producing wells in the unit: the Hillger 12 Well No. 1 (completed December 1995) currently producing 333 BOPD and the Kolb 12 Well No. 1 (completed November 1996) currently producing 352 BOPD.
3. The secondary recovery water-flood operations are anticipated to recover an additional 5,100,000 barrels of oil.
  - a. Cumulative production as of February 1, 2001, from the proposed unitized area is 1.157 million barrels of oil and 889 MMCF of gas.

- b. Cobra proposes to drill one water injection well.
  - c. Make-up water will be supplied by the BTA Wolfcamp Unit to the north which produces compatible saltwater from the Wolfcamp formation.
  - d. The estimated remaining recoverable primary reserves is 2,700,000 BO.
4. Secondary recovery operations are economically feasible.
    - a. The estimated capital cost of a water injection well and related water injection facilities is \$950,000.
    - b. The estimated revenue from the sale of oil and gas produced is \$73 million.
  5. The proposed participation formula is equitable and will provide for the protection of correlative rights. The participation formula will be based one third on each of the following: estimated ultimate primary recovery from each tract, hydrocarbon pore volume of each tract and estimated ultimate recovery from each tract.
  6. The rights of all owners of interests in the field, whether signers of the unit agreement or not, will be protected under its operation.
  7. Persons entering into the unit agreement own or control production, leases, royalty or other interests in the field.
  8. The secondary recovery project will not be successful unless the area is unitized.
  9. The injected water will be saltwater from the Wolfcamp formation.
  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 81.25%.
  - c. On any tract where there is not 100% ratification, Cobra proposes continuing the storage and measurement of produced hydrocarbons in existing lease storage facilities.
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 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 Hillger-Kolb Unit and secondary recovery operations project as set out in the attached order.

Respectfully submitted,

Thomas H. Richter, P.E.  
Technical Examiner

Scott C. Petry  
Hearings Examiner