

**THE APPLICATION OF JUNO OPERATING COMPANY II, LLC TO CONSIDER  
UNITIZATION AND SECONDARY RECOVERY AUTHORITY FOR THE NE RIDGE  
UPPER CLEARFORK UNIT, HOOPLE (CLEAR FORK) FIELD, CROSBY COUNTY,  
TEXAS**

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**HEARD BY:** Richard D. Atkins, P.E. - Technical Examiner  
Michael Crnich - Legal Examiner

**DATE OF HEARING:** August 9, 2012

**APPEARANCES:**

**REPRESENTING:**

**APPLICANT:**

David Gross  
Amanda Barringer  
John Chadwick  
Adam Crisp

Juno Operating Company II, LLC

**EXAMINERS' REPORT AND RECOMMENDATION**

**STATEMENT OF THE CASE**

Juno Operating Company II, LLC ("Juno") requests Commission authority for unitization of the NE Ridge Upper Clearfork Unit and approval of secondary recovery operations on the Unit. Since there were several returned hearing notices, Juno published notice of the subject application in the *Crosby County News*, a newspaper of general circulation in Crosby County, for four consecutive weeks beginning on July 13, 2012.

The application is unprotested and the examiners recommend approval of the authority for unitization of the NE Ridge Upper Clearfork Unit and approval of secondary recovery operations on the Unit.

**DISCUSSION OF THE EVIDENCE**

The Hoople (Clear Fork) Field was discovered in May 1976 at an average depth of 4,400 feet. There are 355 producing oil wells and 14 operators carried on the proration schedule. Field Rules provide for 330'-467' well spacing and 40 acre oil units with optional 20 acre density. The top allowable is the 1965 Yardstick Allowable of 93 BOPD with an allowable gas-oil ratio of 2,000 cubic feet per barrel. Cumulative production from the field through July 2011 is 10.2 MMBO and 745.2 MMCFG.

The unitized formation is the subsurface portion of the Unit Area commonly known as the Upper Clearfork formation between the subsurface depths of 4,267 feet and 5,118 feet as shown on the log of the Juno Operating Company, LLC - AOCO-Hoople (Clearfork) Unit, Well No. 161R (API No. 42-107-31239), Section 1043, Block 1, H&OB RR Co. Survey, A-263, Crosby County, Texas.

The proposed NE Ridge Upper Clearfork Unit consists of six tracts, which contain 1,120 acres. The productive interval is located on the Permian Clearfork Shelf Margin, which is a dolomitic stratigraphic trap that has a solution gas drive as the primary drive mechanism. The proposed unit contains a part of the productive portions of the Upper Clearfork formation, as demonstrated by a cross section, structure map and net pay isopach map submitted by Juno.

Juno proposes to implement a waterflood by drilling 19 injection wells and 33 producing wells. At full development, Juno plans on having 27 injection wells and 62 producing wells on the unit. Since the producing wells have a 97% water cut, Juno plans to inject all of the produced saltwater. When required, Juno will use up to 19,500 barrels per day of makeup freshwater from the Ogallala aquifer at depth of 120 feet.

Based on other offset Upper Clearfork formation waterfloods, Juno calculates that secondary recovery will be equal to 110% of primary recovery or approximately 4.7 MMBO. The total cost to implement the secondary recovery project is expected to be \$54.6 million. The projected return on investment is estimated to be 6.0 to 1. This calculation is based on an oil price of \$94 per barrel.

The participation formula for each tract is based on 20% surface acres and 80% on the estimated acre-feet of net pay. At the time of the hearing, 100% of the working interest ownership and 82.47% of the mineral interest ownership had signed the unit agreement. There are no state lands in the Unit and Juno will conduct monthly well tests to allocate production to wells on tracts for which 100% sign-up was not achieved.

### FINDINGS OF FACT

1. Notice of this hearing was sent to all operators and royalty interest owners within and adjacent to the proposed unit. The subject application was published in the *Crosby County News*, a newspaper of general circulation in Crosby County, for four consecutive weeks beginning on July 13, 2012.
2. The proposed NE Ridge Upper Clearfork Unit consists of six tracts which contain 1,120 acres.
3. The unitized formation is the subsurface portion of the Unit Area commonly known as the Upper Clearfork formation between the subsurface depths of

4,267 feet and 5,118 feet as shown on the log of the Juno Operating Company, LLC - AOCO-Hoople (Clearfork) Unit, Well No. 161R (API No. 42-107-31239), Section 1043, Block 1, H&OB RR Co. Survey, A-263, Crosby County, Texas.

4. The productive interval is located on the Permian Clearfork Shelf Margin, which is a dolomitic stratigraphic trap that has a solution gas drive as the primary drive mechanism.
5. At the time of the hearing, 100% of the working interest ownership and 82.47% of the mineral interest ownership had signed the unit agreement.
6. Secondary recovery operations are expected to result in the recovery of an estimated 4.7 MMBO, which would otherwise go unrecovered.
7. The total cost to implement the secondary recovery project is expected to be \$54.6 million. The projected return on investment is estimated to be 6.0 to 1. The cost does not exceed the value of additional reserves to be recovered.
8. The participation formula for each tract is based on 20% surface acres and 80% on the estimated acre-feet of net pay.
9. The secondary recovery project will not be successful unless the area is unitized.
10. Juno proposes to implement a waterflood by drilling 19 injection wells and 33 producing wells. At full development, Juno plans on having 27 injection wells and 62 producing wells on the unit. Since the producing wells have a 97% water cut, Juno plans to inject all of the produced saltwater. When required, Juno will use up to 19,500 barrels per day of makeup freshwater from the Ogallala aquifer at depth of 120 feet.
11. 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.
12. 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.

13. 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.
14. 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.
15. 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.
16. The unit agreement is subject to all valid orders, rules and regulations of the Railroad Commission.
17. 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.
18. The unit agreement is a voluntary agreement entered into for the purpose of conducting secondary recovery operations.
19. The unit agreement does not provide for the location of wells.
20. There are no state owned lands in the proposed unit.
21. The unit agreement is in the interest of public welfare as being reasonably necessary to prevent waste and to promote conservation.
22. 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.
23. The unit agreement contains only the acreage reasonably necessary to accomplish the proposed secondary recovery project.
24. Monthly 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 NE Ridge Upper Clearfork Unit and secondary recovery operations, as set out in the attached order.

Respectfully submitted,

Richard D. Atkins, P.E.  
Technical Examiner

Michael Crnich  
Legal Examiner