

HEARINGS DIVISION

OIL & GAS DOCKET NO. 08-0277864

**THE APPLICATION OF BLUESTEM ENERGY HOLDINGS, LLC TO CONSIDER
UNITIZATION AND SECONDARY RECOVERY AUTHORITY FOR THE AZALEA
(GRAYBURG) UNIT IN THE AZALEA (GRAYBURG) FIELD, MIDLAND COUNTY, TEXAS**

HEARD BY: Andres J. Trevino P.E., Technical Examiner
Michael Crnich, Hearings Examiner

DATE OF HEARING: September 28, 2012

APPEARANCES:

Michael E. McElroy
Clark Jobe
John McBeath, P.E.
Turk McDonald
John Anderson, P.E.

REPRESENTING:

Bluestem Energy Holdings, LLC

EXAMINERS' REPORT AND RECOMMENDATION

STATEMENT OF THE CASE

Bluestem Energy Holdings, LLC requests Commission authority for unitization of the Azalea (Grayburg) Unit and approval of secondary recovery operations on the Unit in the Azalea (Grayburg) Field.

This application was unopposed and the examiners recommend approval.

DISCUSSION OF THE EVIDENCE

The Azalea (Grayburg) Field was discovered in 1967 at an approximate depth of 4,088 feet. Production in the unit area peaked in 1981 with a monthly production rate of 800 BOPD. Current production is approximately 60 BOPD from 10 active wells in the Unit area.

The area proposed for the subject unitization covers acreage that includes the majority of the productive reservoir. The reservoir limits are well defined and are believed to include both drained and undrained areas. Leaseholders of productive areas not in the unit were offered the chance to participate in the unit. The area is in the late stage of

primary production. The estimated ultimate primary production from the existing wells is 3,300,000 BO.

The unitized formation is the Grayburg Sand formation which contains continuous porosity zone in the field. The Grayburg Sand exists in all wellbores but varies in thickness, and porosity development is of limited lateral extent outside the Unit boundaries. The formation is described as the Grayburg Sand formation encountered in the interval from 4,046 feet to 4,154 feet on the log of the Rex Energy Operating Corp's B.W. Golladay Lease, No. 9, (API No. 42-329-35840) located in the T Burnham Survey, Section 1, Abstract 537, Midland County, Texas.

Bluestem Energy modeled their waterflood studies after a similar waterflood project in the area, the Germania (Grayburg) Unit in the Germania (Grayburg) Field, to predict the waterflood's performance. The Germania (Grayburg) Field is located 2.9 miles to the east from the Azalea (Grayburg) Field. Waterflooding began in the Germania (Grayburg) Field in 1980 and is in the late stages of secondary recovery. The field produced 2.7 MMBO in primary production and will ultimately produce an additional 2.7 MMBO in secondary recovery. Bluestem Energy expects a similar 1:1 primary to secondary production ratio from the proposed waterflood. The Azalea (Grayburg) waterflood program will consist of 17 producing wells and 11 injection wells. The secondary recovery program will use produced water from the Unit and from other zones such as the Wolfcamp. Bluestem Energy will utilize 13 existing producing wells, drill or reenter 4 new producing wells, convert 7 producing wells to injectors, and drill 3 new injection wells.

The proposed Azalea (Grayburg) Unit consists of 9 tracts which contain a total of 1,031 acres. The participation formula is based on two Phases. Phase 1 will be in effect until the primary estimated ultimate recovery is produced, Phase 2 formula will be used thereafter. Phase 1 is based on a formula which considers each Tract's usable wellbores plus each Tract's pro rata share of the Unit's current production plus each Tract's pro rata share of remaining primary oil production. Phase 2 is based on each Tract's pro rata share of the Unit's usable wellbores plus estimated ultimate oil recovery (EUR) plus each Tract's pro rata share of acres in the Unit. The Unit Agreement has been ratified by over 95% of the royalty interest ownership and 99% 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 \$5,000,000. Secondary reserves are estimated to be 3.3 MMBO. Estimated gross revenue from the secondary recovery project is \$297 million at \$90/bbl.

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. Notice was also published in *Midland Reporter-Telegram*, a newspaper of general circulation in Midland, Ector, Howard, Crane,

Glasscock, Martin, Upton and Andrews Counties, for four consecutive weeks beginning August 24, 2012. There were no protests to the application.

2. The proposed unit consists of 9 tracts which contain a total of 1,013 acres.
3. The unitized formation is the subsurface portion of the Unit Area commonly known as the Grayburg Sand reservoir. The formation is described as the interval from 4,046 feet to 4,154 feet on the log of the Rex Energy Operating Corp's B.W. Golladay Lease, No. 9, (API No. 42-329-35840) located in the T Burnham Survey, Section 1, Abstract 537, Midland County, Texas.
4. Secondary recovery operations will result in the recovery of an estimated 3.3 MMBO 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 two Phases. Phase 1 will be in effect until the primary estimated ultimate recovery is produced, Phase 2 formula will be used thereafter. Phase 1 is based on formula which considers each Tract's usable wellbores plus each Tract's pro rata share of the Unit's current production plus each Tract's pro rata share of remaining primary oil production. Phase 2 is based on each Tract's pro rata share of the Unit's usable wellbores plus estimated ultimate oil recovery (EUR) plus each Tract's pro rata share of acres in the Unit.
7. The secondary recovery project will not be successful unless the area is unitized.
8. The secondary recovery program will use produced water from the Unit and from other zones such as the Wolfcamp.
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% of the working interest ownership and over 95% 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.

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 Azalea (Grayburg)Unit and secondary recovery operations project as set out in the attached order.

Respectfully submitted,

Andres J. Trevino
Technical Examiner

Michael Crnich
Hearings Examiner