

**THE APPLICATION OF MARINER ENERGY TO AMEND FIELD RULES FOR THE GARDEN CITY, NW (STRAWN) FIELD, GLASSCOCK COUNTY, TEXAS**

---

**Heard by:** Andres J. Trevino, P.E., Technical Examiner

**Hearing Date:** December 8, 2010

**Appearances:**

**Representing:**

Brian Sullivan, P.E.  
Gary Hoose  
Bruce Burdett

Mariner Energy, Inc.

**EXAMINER'S REPORT AND RECOMMENDATION**

**STATEMENT OF THE CASE**

Field rules for the Garden City, NW (Strawn) Field were adopted as permanent on January 26, 1987 in Docket No. 8-89,026. The rules in effect for the field are summarized as follows:

1. 660'-1,320' well spacing;
2. 160 acre oil units and a 40 acre tolerance on the last well;
3. Allocation based on 100% per well.

Mariner Energy requests that field rules be adopted as follows :

1. Designation of the field as the correlative interval from 9,686 feet to 10,220 feet as shown on the log of the Terrace Petroleum Corp., Jailhouse "46" No. 1;
2. 467'-660' well spacing;
3. 160 acre units with optional 40 acre density;
4. Allocation based on 100% acreage.

This application was unopposed and the examiner recommends that the field rules for the Garden City, NW (Strawn) Field be amended as requested.

### **DISCUSSION OF EVIDENCE**

The Garden City, NW (Strawn) Field was discovered in 1984 at a depth of approximately 9,659 feet. Cumulative production from the field is approximately 52,973 BO. There is only one oil well in the field, the JV-P Shannon No. 2, which is operated by BTA Oil Producers. There are no other operators in the field. Mariner has completed the Riley 37 Well No. 2 in the field.

Field rules were first adopted in January 1987, with Oil & Gas Docket 8-89,026 which provided for 660'-1,320' well spacing, 160 acre oil units and allocation based on 100% acreage. The Strawn interval has never been designated for the Garden City, NW (Strawn) Field. Operators are drilling into the Spraberry as the primary target and deepening into the Strawn as a secondary target. The Strawn is not a stand alone formation that has sufficient hydrocarbon reserves or has consistent high quality rock properties to justify drilling a well. Mariner requests to add the Atoka, Mississippian and Woodford formations to the Strawn interval. The Strawn is a conventional reservoir with 8% porosity. The Atoka, Mississippian and Woodford formations are unconventional shale reservoirs with 2 to 4.3% porosities. The correlative interval is shown on the log of the Terrace Petroleum Corp., Jailhouse "46" No. 1 from 9,686 feet to 10,220 feet. The interval includes the Strawn, Atoka, Mississippian and Woodford formations. By adding these formations Mariner believes additional reserves will be recovered by fracking the shales and adding the reserves to the conventional Strawn formation.

Production and log data demonstrates the Strawn's rock properties vary from well to well. The Strawn is found throughout the area and has a relatively flat structure. The depositional environment of the Strawn creates heterogeneous reservoirs both vertically and horizontally. Porosity within the Strawn is not continuous therefore infill drilling will be required to find areas of high porosity. Drainage calculations performed on the Riley 37 Well No. 2 demonstrate the need for optional 40 acre density. With an estimated ultimate recovery of 53,910 BO, a 2% recovery factor and 3.83 MMBO of original oil in place, only 28.2 acres will be drained. The vast majority of other Strawn fields in the area are either on Statewide 40 acre density or have 40 acre optional units.

Mariner plans to commingle the Spraberry (Trend Area) wells with the Garden City, NW (Strawn) Field. The flexible well spacing of 467'-660' will allow Mariner to recomplete and/or drill new wells at optimum locations without the need of Rule 37 exceptions.

### **FINDINGS OF FACT**

1. Notice of this hearing was given to all persons entitled to notice at least ten days prior to the date of hearing.
2. Field rules for the Garden City, NW (Strawn) Field provide for 660'-1,320'

well spacing, 160 acre oil units and allocation based on 100% per well.

3. The Garden City, NW (Strawn) Field was discovered in 1984 and cumulative production from the field is approximately 52,973 BO from one well.
4. The Strawn is not a stand alone formation that has sufficient hydrocarbon reserves or has consistent high quality rock properties to justify drilling a well. Operators are drilling into the Spraberry as the primary target and deepening into the Strawn as a secondary target.
5. The Garden City, NW (Strawn) Field should be designated as the entire correlative interval between 9,686 feet to 10,220 feet as shown on the log of the Terrace Petroleum Corp., Jailhouse "46" No. 1. The interval includes the Strawn, Atoka, Mississippian and Woodford formations.
6. The Strawn is a conventional reservoir with 8% porosity while the Atoka, Mississippian and Woodford formations are shales with 2% to 4% porosity.
7. Oil proration units of optional 40 acres should provide for the effective and efficient depletion of the reservoir.
  - a. The estimated ultimate recovery and calculated drainage area for the Riley 37 Well No. 2 is 53,910 BO and 28.2 acres.
  - b. The Strawn is heterogeneous both vertically and horizontally. The Atoka, Mississippian and Woodford formations are tight shales with limited drainage.
  - c. The vast majority of other Strawn fields in the area are either on Statewide 40 acre density or have 40 acre optional units.
8. Mariner plans to commingle the Spraberry (Trend Area) wells with the Garden City, NW (Strawn) Field.
9. The proposed 467'-660' well spacing will accommodate development on 40 acres and allow flexibility in recompleting existing wells and drilling new wells without the need for Rule 37 exceptions.

#### **CONCLUSIONS OF LAW**

1. Proper notice of this hearing was issued.
2. All things have been accomplished or have occurred to give the Commission jurisdiction in this matter.
3. Adopting field rules for the Garden City, NW (Strawn) Field is necessary to

prevent waste and protect correlative rights.

**RECOMMENDATION**

Based on the above findings and conclusions of law, the examiner recommends that field rules for the Garden City, NW (Strawn) Field be adopted to provide for 160 acre units with optional 40 acre density and 467'-660' well spacing.

Respectfully submitted,

Andres J. Trevino, P.E.  
Technical Examiner