

**THE APPLICATION OF LAREDO PETROLEUM, INC. TO CONSOLIDATE VARIOUS FIELDS INTO THE GARDEN CITY, S. (WOLFCAMP) FIELD AND TO AMEND FIELD RULES FOR THE GARDEN CITY, S. (WOLFCAMP) FIELD, GLASSCOCK COUNTY, TEXAS**

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**Heard by:** Donna K. Chandler, Technical Examiner

**Hearing date:** October 26, 2010

**Appearances:**

Brian Sullivan  
Connor Nix  
Billy Sneed  
William Chatham  
Mark Elliott

**Representing:**

Laredo Petroleum, Inc.

**EXAMINER'S REPORT AND RECOMMENDATION**

**STATEMENT OF THE CASE**

Laredo Petroleum, Inc. initially requested that the Garden City, SE (Wolf) and Garden City (Penn) Fields be consolidated into the Garden City, S. (Wolfcamp) Field and that field rules for the Garden City, S. (Wolfcamp) Field be amended. At the hearing, the examiner recommended that the Garden City, NE (Strawn), Garden City, SE (Strawn) and Underwood (Strawn) Fields also be consolidated. Additional notice was given to operators in the other three fields and no objections were received.

The proposed field rules for the Garden City, S. (Wolfcamp) Field are as follows:

1. Designation of the field as the correlative interval from 4,556 feet to 9,811 feet as shown on the log of the Cox 29 Well No. 2;
2. 467'-0' well spacing; take point provisions and off-lease penetration point provisions;
3. 160 acre density with optional 80 acre density;
4. Allocation based on 95% acreage and 5% potential.

This application was unopposed and the examiner recommends approval of the field consolidation and amended field rules.

### **DISCUSSION OF THE EVIDENCE**

The 5 fields which are proposed for consolidation into the Garden City, S. (Wolfcamp) Field were discovered as early as 1958. The proposed field interval is from the top of the Spraberry formation to the base of the Penn formation. The correlative interval is shown on the log of the Cox 29 Well No. 2 from 4,556 feet to 9,811 feet. The interval includes the Spraberry, Dean, Wolfcamp, Canyon, Strawn, Atoka and Bend, down to the top of the Mississippian. The Wolfcamp and Strawn have been the primary producing formations in the area.

There are a total of approximately 30 producing wells listed on the proration schedules for the various fields, most of which are in the Garden City, S. (Wolfcamp) Field. Some of the fields have no active wells.

The Garden City, S. (Wolfcamp) Field operates under rules providing for 160 acre density and 660'-1,867' well spacing. These rules were adopted in 1985. The only other field which has special field rules is the Underwood (Strawn) Field, which has 40 acre rules.

There is no designated interval for any of the fields proposed for consolidation. Operators are completing the Wolfcamp and Strawn, and placing the wells in the Garden City, S. (Wolfcamp) Field for proration purposes. Consolidation of the fields will eliminate confusion as to field designation. Additionally, several Rule 10 exceptions have already been granted for the Strawn and Wolfcamp formations.

Cross sections across the field area demonstrated that rock quality varies considerably. Laredo believes that some zones, such as the Spraberry, will be completed with conventional vertical wells, while other zones, such as the Wolfcamp, will require horizontal drainholes, perhaps in the same wellbores as vertical completions. The Spraberry has not been produced in this area, but mud logs indicate the presence of hydrocarbons in the Spraberry. Most zones, particularly the Spraberry, are not "stand alone" completions and the proposed consolidated interval will allow zones to be completed which would otherwise be passed up due to economics. Similar consolidated intervals have been approved in this general area.

In the Wolfcamp, recoverable reserves beneath 160 acres are estimated to be 81,000 BO. Laredo determined ultimate recoveries for sixteen vertical wells, with such recoveries ranging from 16,000 BO to over 300,000 BO. Several of the wells are expected to recover less than 81,000 BO. Laredo therefore believes that 80 acre optional units are appropriate for further development. Further, Laredo estimates that an additional 22,000 BO can be recovered per well as a result of a lower economic limit if the fields are

consolidated. Laredo plans to recompleate and/or drill about 100 wells for completion in the Spraberry, Wolfcamp, Penn and Strawn.

The requested 467'-0' well spacing is requested because the field area will be developed with both horizontal and vertical wells. This spacing will provide the flexibility necessary to place horizontal wells in close proximity to vertical wells which may be completed in different zones within the consolidated interval. Laredo also requests authority for off-lease penetration points for horizontal wellbores to allow for maximum horizontal drainhole length.

The proposed consolidated field will consist of numerous lenticular sands. A two factor allocation formula based on 5% deliverability/potential and 95% acreage is requested for the consolidated field to meet statutory requirements.

### **FINDINGS OF FACT**

1. Notice of this hearing was sent to all persons entitled to notice.
2. The Garden City, SE (Wolf), Garden City (Penn), Garden City, NE (Strawn), Garden City, SE (Strawn) and Underwood (Strawn) Fields which are proposed for consolidation into the Garden City, S. (Wolfcamp) Field were discovered as early as 1958.
3. The proposed field interval includes the Spraberry, Dean, Wolfcamp, Canyon, Strawn, Atoka and Bend formations, down to the top of the Mississippian. The proposed correlative interval is 4,556 feet to 9,811 feet as shown on the log of the Cox 29 Well No. 2.
4. The Garden City, S. (Wolfcamp) Field currently operates under rules providing for 160 acre density and 660'-1,867' well spacing. The only other field which has special field rules is the Underwood (Strawn) Field, which has 40 acre rules.
5. There is no designated interval for any of the fields proposed for consolidation.
6. Several Rule 10 exceptions have been approved for the Strawn and Wolfcamp formations in this area.
7. Some zones within the proposed consolidated interval will be developed with conventional vertical wells, while other zones will require horizontal drainholes, perhaps in the same wellbores as vertical completions.

8. Some of the zones within the proposed consolidated interval are not “stand alone” completions economically.
9. Drainage areas for wells in the Garden City, S. (Wolfcamp) Field vary significantly, with many wells draining less than 80 acres.
10. As a result of consolidation, it is estimated that an additional 22,000 BO can be recovered per well.
11. The requested 467’-0’ well spacing will provide flexibility in developing the consolidated field with both horizontal and vertical wells.
12. Rules providing for off-lease penetration points will allow for maximum horizontal drainhole length.
13. A two factor allocation formula based on 5% deliverability and 95% acreage will protect correlative rights and meet statutory requirements.

#### **CONCLUSIONS OF LAW**

1. Proper notice of hearing was timely issued by the Railroad Commission to appropriate persons legally entitled to notice.
2. All things necessary to the Commission attaining jurisdiction over the subject matter and the parties in this hearing have been performed.
3. Consolidation of the subject fields is necessary to prevent waste by promoting orderly development of the various formations within the consolidated interval.
4. Adoption of the recommended field rules is necessary to prevent waste, protect correlative rights and promote development of the field.

#### **EXAMINER’S RECOMMENDATION**

Based on the above findings and conclusions, the examiner recommends that the subject fields be consolidated into the Garden City, S. (Wolfcamp) Field and that the field rules for the field be amended as requested.

Respectfully submitted,

Donna K. Chandler  
Technical Examiner