

BEFORE THE STATE OIL AND GAS BOARD OF MISSISSIPPI

RE: PETITION OF DENBURY ONSHORE, LLC TO AMEND THE SPECIAL FIELD RULES FOR THE DRI ICE FIELD TO ALLOW TUBINGLESS COMPLETION IN CO<sub>2</sub> WELLS IN THE DRI ICE FIELD, RANKIN AND MADISON COUNTIES, MISSISSIPPI

DOCKET NO. 77-2005-912

ORDER NO. 166-2007

ORDER

THIS CAUSE came to be heard on the Petition of Denbury Onshore, LLC (“Petitioner”) requesting a permit the Board to amend the Special Field Rules for the DRI Ice Field to allow tubingless completion in CO<sub>2</sub> Wells in the DRI Ice Field in Rankin and Madison Counties, Mississippi; and

WHEREAS, the Boards finds that due, proper, and legal notice of the meeting of the Board for the purpose of considering and taking action with respect to such matter was given in the manner required by the rules and regulations of the Board; that due, legal, and sufficient proofs of publication and service are on file with the Board; and that the Board has full jurisdiction of the subject matter to hear and determine same; and

WHEREAS, pursuant to said Notice, a public hearing was held by said Board in the Hearing Room, Suite E, 500 Greymont Avenue, Jackson, Mississippi, commencing on February 21, 2007, at 10:00 o’clock a.m. at which hearing all persons present who desired to be heard on said matter were heard and all testimony and the evidence were duly considered by those present at said meeting; and

WHEREAS, the Board has fully considered said matter and the evidence and recommendations made in said hearing and finds as follows:

1.

Petitioner drilled the Pearl River 2-11 No. 1 in Section 2, Township 7 North, Range 3 East, Rankin County, Mississippi. That Well is a CO<sub>2</sub> well. Special Field Rules for the Field have been adopted for this Field in Docket No. 189-2006-912. Petitioner has also completed drilling the Pearl River 3-8 No. 1 Well and is drilling the Pearl River 1-4 No.1 and the Pearl River 2-5 No. 1 Wells.

2.

The Special Field Rules need to be amended to allow tubingless completion in CO<sub>2</sub> wells. Petitioner drills the wells and sets production casing with a special chromium casing specially designed for high pressure wells. The casing will be rated no less than 9,060 psi. The maximum tubing pressure for these wells is 5,500 psi. No need exists to set tubing inside the special casing and would add extra cost to the Wells.

3.

The amendment of the Special Field Rules promotes conservation, protects the co-equal and correlative rights of all owners in interest, avoids the drilling of unnecessary wells and the expenditure of unnecessary costs, and permits CO<sub>2</sub> to be produced which would not otherwise be recoverable.

**IT IS, THEREFORE, ORDERED AND ADJUDGED** by the State Oil and Gas Board of Mississippi that the Special Field Rules for the DRI Ice Field in Madison and Rankin Counties, Mississippi shall be and hereby are amended as follows:

**SPECIAL FIELD RULES  
DRI ICE FIELD  
RANKIN & MADISON COUNTIES, MISSISSIPPI**

**I. FIELD AREA**

A. The DRI Ice Field, as used herein, is that area consisting of the following lands:

**MADISON AND RANKIN COUNTIES, MISSISSIPPI**

**Township 8 North, Range 3 East**

Section 26: S $\frac{1}{2}$  of the S $\frac{1}{2}$

Section 27: The S $\frac{1}{2}$

Section 28: The E $\frac{1}{2}$  of the SE $\frac{1}{4}$ ; W $\frac{1}{2}$  of the SE $\frac{1}{4}$ ; **less and except** a seven (7) acre tract, more or less, described as beginning at the NW corner of the SE $\frac{1}{4}$  thence East 288.9 feet, thence South 1034.6 feet, thence West 307.7 feet, thence North to the Point of Beginning; SE $\frac{1}{4}$  of the SE $\frac{1}{4}$  of the SW $\frac{1}{4}$  and the SE $\frac{1}{4}$  of the NE $\frac{1}{4}$  of the SE $\frac{1}{4}$  of the SW $\frac{1}{4}$ .

Section 33: E $\frac{1}{2}$  of the W $\frac{1}{2}$  and the E $\frac{1}{2}$

Section 34: All

Section 35: All

Section 36: W $\frac{1}{2}$  and the SE $\frac{1}{4}$

**Township 7 North, Range 3 East**

Section 1: N $\frac{1}{2}$ ; SW $\frac{1}{4}$  and the W $\frac{1}{2}$  of the SE $\frac{1}{4}$

Section 2: All

- Section 3: All
- Section 4: E $\frac{1}{2}$  and the E $\frac{1}{2}$  of the W $\frac{1}{2}$
- Section 9: NE $\frac{1}{4}$
- Section 10: N $\frac{1}{2}$
- Section 11: N $\frac{1}{2}$
- Section 12: The N $\frac{1}{2}$  of the NW $\frac{1}{4}$  and the NW $\frac{1}{4}$  of the NE $\frac{1}{4}$

underlain by the Norphlet CO<sub>2</sub> Pool and including all productive extensions to all such pool.

## II. POOL DEFINITION

A. The Norphlet CO<sub>2</sub> Pool shall be construed to mean those strata of the Norphlet Formation productive of CO<sub>2</sub> in the interval between 16,242 feet to a depth of 16,890 feet ELM in the Denbury Onshore, LLC Pearl River 2-11 No. 1 Well at the bottom hole location 3,264 feet from the East line and 2,252 feet from the South line of Section 2, Township 7 North, Range 3 East, Rankin County, Mississippi, as indicated on the electric log of said well and all sands correlative of said strata and interconnected therewith productive of CO<sub>2</sub>.

## III. RULES:

### RULE 1 - NORPHLET CO<sub>2</sub> POOL UNIT

1.1. Description of Fieldwide Unit Area. The Norphlet CO<sub>2</sub> Pool Unit is that portion of the following described lands lying within the DRI Ice Field underlain by the unitized Norphlet CO<sub>2</sub> Pool ("Unitized Formation") and described as follows:

#### Township 8 North, Range 3 East

- Section 26: S $\frac{1}{2}$  of the S $\frac{1}{2}$
- Section 27: The S $\frac{1}{2}$
- Section 28: The E $\frac{1}{2}$  of the SE $\frac{1}{4}$ ; W $\frac{1}{2}$  of the SE $\frac{1}{4}$ ; **less and except** a seven (7) acre tract, more or less, described as beginning at the NW corner of the SE $\frac{1}{4}$  thence East 288.9 feet, thence South 1034.6 feet, thence West 307.7 feet, thence North to the Point of Beginning; SE $\frac{1}{4}$  of the SE $\frac{1}{4}$  of the SW $\frac{1}{4}$  and the SE $\frac{1}{4}$  of the NE $\frac{1}{4}$  of the SE $\frac{1}{4}$  of the SW $\frac{1}{4}$ .
- Section 33: E $\frac{1}{2}$  of the W $\frac{1}{2}$  and the E $\frac{1}{2}$
- Section 34: All
- Section 35: All
- Section 36: W $\frac{1}{2}$  and the SE $\frac{1}{4}$

**Township 7 North, Range 3 East**

- Section 1: N $\frac{1}{2}$ ; SW $\frac{1}{4}$  and the W $\frac{1}{2}$  of the SE $\frac{1}{4}$
- Section 2: All
- Section 3: All
- Section 4: E $\frac{1}{2}$  and the E $\frac{1}{2}$  of the W $\frac{1}{2}$
- Section 9: NE $\frac{1}{4}$
- Section 10: N $\frac{1}{2}$
- Section 11: N $\frac{1}{2}$
- Section 12: The N $\frac{1}{2}$  of the NW $\frac{1}{4}$  and the NW $\frac{1}{4}$  of the NE $\frac{1}{4}$

1.2. Unitized Formation. The Unitized Formation is the defined in Article 1.2 of the Unit Agreement (Exhibit "1") as follows:

**1.2 "Unitized Formation"** is the subsurface portion of the Unit Area described as those strata from 16,242 feet to a depth of 16,890 feet ELM and all formations between same productive of CO<sub>2</sub>, as indicated on the electric log of the Denbury Onshore, LLC Pearl River 2-11 No. 1 Well located at the bottom hole location of 3,264 feet from the East line and 2,252 feet from the South line of Section 2, Township 7 North, Range 3 East, Rankin County, Mississippi, including those strata which can be correlated therewith, which Unitized Formation may be enlarged as herein provided. It is referred to herein as the Norphlet CO<sub>2</sub> Pool.

1.3. Spacing of Wells in Norphlet CO<sub>2</sub> Pool Unit.

(a) Notwithstanding any other provisions contained in these Special Field Rules, the location of injection and production wells in the Unit shall be selected by the Operator and shall be governed by the standards of geology and petroleum engineering designed to promote the greatest ultimate recovery of CO<sub>2</sub> contained in the pool. However, no well may be drilled, injected into or produced from said pool nearer than 300 feet from any exterior boundary of the fieldwide unit, except upon permit issued by the Mississippi State Oil and Gas Board, after notice and hearing.

(b) The Operator may drill either injection or producing wells utilizing directional or horizontal drilling techniques designed to increase the ultimate recovery of hydrocarbons contained in the pool without notice and hearing; provided, however, that (1) no portion of the wellbore located within the unitized interval or horizon of any such well so drilled shall be nearer than 300 feet from any exterior boundary of the Norphlet CO<sub>2</sub> Pool Unit, except upon permit issued by the Mississippi State Oil and Gas Board, after notice and hearing, and (2) the Operator shall file a directional

survey and other information required by rule or written policy of the Mississippi State Oil and Gas Board after completion

(c) Furthermore, the Operator may drill either injection or producing wells on the Unit utilizing directional or horizontal drilling techniques as hereinabove described regardless of whether the surface location of such wells is within or outside the unit boundaries of the fieldwide unit.

#### 1.4. Pressure Maintenance and Secondary Recovery Authorized.

Denbury Onshore, LLC, as Operator of the Unit, is hereby authorized to conduct and carry out secondary recovery, pressure maintenance, repressuring operations, cycling operations, water flooding operations, and the injection of extraneous substances in the Unit, and any combination thereof, or any other form of joint effort calculated to substantially increase the ultimate recovery of CO<sub>2</sub> from the fieldwide unit as is authorized by the Plan of Unitization placed into effect by the Mississippi State Oil and Gas Board. The Operator may use for injection purposes existing wells located in the said Unit which may be converted to injection wells or wells may be drilled on said fieldwide unit for such purposes. Any such wells drilled as injection wells or converted to injection wells by the Operator of the fieldwide unit as a part of pressure maintenance and/or secondary recovery operations may be approved by the Mississippi State Oil and Gas Board on administrative permit, without notice and hearing, upon the Operator filing with the Board a duly executed Form 2, the required permit fee for each such well, and all evidence and information required under Statewide Rule 63. In addition, existing fieldwide unit injection wells may be converted to fieldwide unit producing wells on administrative permit, without notice and hearing, upon the Operator filing with the Board a duly executed Form 2, the required permit fee for each such well, and all other evidence and information the Board may require.

#### 1.5 Allocation of Production.

The allowable for the Unit shall be that amount that the Operator shall deem prudent to produce per day which may be produced from any well or wells on said fieldwide unit; provided, however, that no well shall be operated in such a manner as to cause waste as defined by the Laws of the State of Mississippi.

#### 1.6 Surface Storage, Measurement, and Transfer Systems.

(a) The Operator of the Unit may maintain such separators, stock tanks, metering devices, connections and storage facilities as it deems necessary to accurately measure the total production from the fieldwide unit. Separate measurement or storage for the wells and leases within the fieldwide unit shall not be required.

(b) Automatic custody transfer systems which automatically test, sample, measure and transfer the production from the Operator to the purchaser are hereby authorized in said fieldwide unit. Such systems will be equipped with a sampling device which will take a representative sample of the total production passing through the system in order that the specific gravity and basic sediment and water content can be determined. Each custody transfer system will be equipped with a volume displacement type metering device which registers the volume of oil passed through it in barrels or multiples thereof.

**RULE 2 - ADMINISTRATIVE PERMITTING OF DEVIATED WELLS IN NON-UNITIZED POOLS**

A. The Supervisor of the Mississippi State Oil and Gas Board is authorized to issue permits authorizing the drilling of intentionally deviated wells (either directional or horizontal wells) into non-unitized pools or intervals within the DRI Ice Field upon administrative permit, without notice and hearing, upon the Operator filing with the Mississippi State Oil and Gas Board a duly executed FORM 2, the required permit application fee for each such well, a duly certified location plat depicting the proposed drilling unit, the proposed surface location and the proposed bottom hole location and/or terminus point of such well on such unit, and such other or additional information as the Board may require.

B. Intentionally deviated wells into non-unitized pools or intervals within the DRI Ice Field may only be administratively permitted, without notice and hearing, so long as the proposed bottom hole location or terminus point of such well(s) is regular and fully complies with all applicable spacing requirements and so long as no portion of the producing perforations in said well are closer to exterior drilling unit boundaries than authorized by the Special Field Rules.

C. A complete angular deviation and directional survey of the finished hole of any

such intentionally deviated well(s) shall be conducted and a duly certified copy of such survey shall be filed with the Mississippi State Oil and Gas Board within thirty (30) days thereof, all as required by Statewide Rule 14 and the Special Field Rules.

### **RULE 3 - MEASUREMENT PROCEDURES AND FACILITIES**

A. The Operator of the DRI Ice Field shall be permitted to commingle production at the surface from all fieldwide and individual units for collection and sale at a central site as part of its joint effort to develop this area and to prevent waste. This includes a central tank battery and a central facility for oil, water, and CO<sub>2</sub> production, cycling and injection operations. The CO<sub>2</sub> production from the Field may be commingled in a common storage or pipeline system. The Operator shall install a flow line, header and measurement system that allows each well to be separately and individually tested on a periodic basis, not less than once each month. If, upon a sale therefrom, a variance exists between the measurement from the common storage system and the measurement from the production of all the wells commingled in such common storage system, then such variance shall be allocated back to each of the wells producing into the common storage system proportionately to the production measured from each of the wells on the basis of the periodic tests.

B. Each producing well shall be so equipped that gas/oil ratio and bottom hole or other pressure test may be made.

C. Each producing well shall be connected to a metering system as will permit the adequate testing of each individual well under usual operating conditions without the necessity of closing in any other well. Each well shall be tested not less than once per month for allocation of fieldwide production and between individual units. Separators, stock tanks or measuring devices and connections thereto shall be subject to approval by the Supervisor.

### **RULE 4 - TUBINGLESS COMPLETION**

A. The Operator of the CO<sub>2</sub> Wells in the Field may produce the Wells through special chromium casing without tubing, as tubingless completions.

### **RULE 5 - APPLICABILITY OF STATEWIDE RULES**

All rules and regulations contained in the Statewide Order No. 201-51 and amendments thereto not specifically covered in the foregoing rules are hereby adopted and

shall apply to DRI Ice Field.

**\*\*\* END OF SPECIAL FIELD RULES \*\*\***

**IT IS FURTHER ORDERED AND ADJUDGED** that this Order shall be in force and effect from and after February 21, 2007.

**IT IS FURTHER ORDERED AND ADJUDGED** that Petitioner shall acquire any other permits, if any, required by any other permitting authority.

**ORDERED AND ADJUDGED** this 5<sup>th</sup> day of March, 2007.

**STATE OIL AND GAS BOARD OF  
MISSISSIPPI**

151 David A. Scott  
CHAIRMAN

**Prepared By:**

William F. Blair  
BLAIR & BONDURANT, P.A.  
Post Office Box 321423  
Jackson, MS 39232  
(601) 992-4477 - Telephone  
(601) 992-9189 - Telecopier