

BEFORE THE STATE OIL AND GAS BOARD OF MISSISSIPPI

RE: PETITION OF DENBURY ONSHORE, LLC TO AMEND THE SPECIAL FIELD RULES FOR THE TINSLEY FIELD TO CHANGE THE WELL SPACING REQUIREMENTS FOR WATER INJECTION WELLS IN THE TINSLEY FIELD UNIT IN TINSLEY FIELD, YAZOO COUNTY, MISSISSIPPI

FILED FOR RECORD

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STATE OIL AND GAS BOARD
LISA IVSHIN, SUPERVISOR

DOCKET NO. 113-2011-D

ORDER NO. 230-2011

ORDER

THIS CAUSE came to be heard on the Petition of Denbury Onshore, LLC ("Petitioner") requesting the Board to amend the Special Field Rules to change the well spacing requirement for water injection wells in the Tinsley Field, Yazoo County, Mississippi; and

WHEREAS, the Board 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 June 15, 2011, 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.

The Mississippi State Oil and Gas Board has previously approved the establishment of the Special Field Rules for the Field, Yazoo County, Mississippi. Those Special Field Rules were last amended in Docket No. 390-2007-1. Those Special Field Rules establish the geographic limits of the Field and define various oil and gas pools within the Field and prescribe certain spacing requirements applicable to wells drilled and completed in said Pools. Those Special Field Rules have been amended by the Board numerous times through the years.

2.

The existing Special Field Rules are being hereby amended to change spacing requirements related to water injection wells so as to maximize the oil production from the Unit. Petitioner submits that water injection wells should be permitted without restriction as to unit lines or as to off unit wells so long as the bottom hole of the water injection wells is within the unit boundaries.

3.

The amendments to the Special Field Rules for the Field as set forth on the attached Exhibit "A", promote conservation, prevent waste, avoid the drilling of unnecessary wells, and fully protect the co-equal and correlative rights of all parties in interest and result in the recovery of more oil, gas and other hydrocarbons from said Field.

IT IS, THEREFORE, ORDERED AND ADJUDGED by the State Oil and Gas Board of Mississippi that the Special Field Rules for the Tinsley Field shall be and hereby are amended as follows:

SPECIAL FIELD RULES
TINSLEY FIELD
YAZOO COUNTY, MISSISSIPPI

I. FIELD AREA

Yazoo County, Mississippi

Township 11 North, Range 3 West

Sec. 35: SE/4 NW/4; S/2 NE/4; S/2

Sec. 36: S/2 NW/4; SW/4 NE/4; S/2

Township 11 North, Range 2 West

Sec. 31: SW/4 SW/4

Township 10 North, Range 3 West

Sec. 1: Entire Section
Sec. 2: Entire Section
Sec. 3: E/2 SE/4
Sec. 10: E/2 NE/4; NE/4 SE/4
Sec. 11: Entire Section
Sec. 12: Entire Section
Sec. 13: Entire Section
Sec. 14: NW/4; E/2 SW/4; E/2
Sec. 23: NW/4 NE/4; E/2 E/2
Sec. 24: Entire Section
Sec. 25: Entire Section
Sec. 26: SW/4 SE/4; E/2 E/2
Sec. 35: SE/4 NW/4; E/2 SW/4; E/2
Sec. 36: Entire Section

Township 10 North, Range 2 West

Sec. 6: W/2 W/2; SE/4 NW/4; E/2 SW/4; SW/4 SE/4
Sec. 7: Entire Section
Sec. 18: NW/4 NE/4; N/2 NW/4; SW/4 NW/4; SW/4; W/2 SE/4;
SE/4 SE/4
Sec. 19: Entire Section
Sec. 20: W/2 W/2; E/2 SW/4
Sec. 29: W/2
Sec. 30: Entire Section
Sec. 31: Entire Section
Sec. 32: NW/4; N/2 SW/4; SW/4 SW/4

Township 9 North, Range 3 West

Sec. 1: Entire Section less and except the SE/4 NE/4
Sec. 2: E/2 NW/4; NE/4 SW/4; E/2
Sec. 12: N/2 NE/4

Township 9 North, Range 2 West

Sec. 6: N/2 N/2; SW/4 SW/4
Sec. 7: NW/4 NW/4

II. SPACING

The characteristics of the producing pools in the Tinsley Field are such and evidence shows that one well drilled on a regularly formed 40 acre drilling unit will efficiently drain and produce the recoverable oil from such unit in said pools without avoidable waste.

A. The McGraw Sand Pool as used herein, shall be construed to be that strata in the Eutaw Formation encountered and shown on the electric log at the interval 5,783' to 5,808' in the Union Producing Company No. 17 Slick Well, located in the SE $\frac{1}{4}$ of SE $\frac{1}{4}$ of Section 35, Township 11 North, Range 3 West, Yazoo County, Mississippi, and all sand correlative therewith.

B. The Stevens Sand Pool is that strata of the Eutaw Formation encountered and shown on the electric log at the interval 5,410 feet to 5,464 feet in the Texaco, Inc.-McGraw No. 1

Well located in the SW¼ of NW¼ of Section 36, Township 11 North, Range 3 West, Yazoo County, Mississippi, and all sands correlative and interconnected therewith.

C. The Lower Tuscaloosa Sand Pool, North Segment, as used herein, shall be construed to be that strata of the Lower Tuscaloosa Formation encountered and shown on the electric log of the Twiner Well in the interval between 6,160 feet to 6,483 feet of the Twiner No. 13 Well located 3,360 feet from the West line and 585 feet from the North line of Section 1, Township 10 North, Range 3 West, Yazoo County, Mississippi and all sands correlative and interconnected therewith.

D. The Tinsley CO₂ Oil Pool is described as those strata of the Selma/Eutaw Formations, productive or formerly productive of oil and gas from the depth of 4,590 feet to 4,930 feet as measured by the induction/sonic logs run on November 13, 1979, in the Pennzoil Producing Company, Tract 13-11-3 (Ida Fair No. 4), located in Section 13, Township 10 North, Range 3 West, Yazoo County, Mississippi, and including those strata productive of oil which can be correlated therewith.

III. RULES

RULE 1 - DRILLING AND COMPLETION

A. Surface casing shall be set and cemented at a point not shallower than the contact between the Sparta sand and the underlying Cane River formation. Sufficient cement shall be used to fill the calculated annular space back of the pipe to the surface of the ground.

B. The producing or oil string shall set so as to shut off all oil, gas or water horizons lying immediately above the top of the oil producing horizon and cemented with not less than two hundred (200) sacks of cement.

RULE 2 - MEASUREMENT PROCEDURES AND FACILITIES

The Operator of the Field shall be permitted to commingle production at the surface from all fieldwide and individual units for collection and sale at a central tank battery as part of its secondary and tertiary oil recovery projects. This includes central tank batteries and central facilities for oil, water, and CO₂ production, cycling and injection operations. The oil and gas production from the field may be commingled in common storage systems. The Operator shall install a flowline, 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 systems and the measurement from the production of all the wells commingled in such common storage systems, then such variance shall be allocated back to each of the wells producing into the common storage systems proportionately to the production measured from each of the wells on the basis of the periodic tests.

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

B. 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 3 - USE OF METERS

A. The use of meters for testing and for measurement of production shall be subject to and in accordance with the following provisions:

- (1) All meters shall be downstream of the necessary separating or treating vessels. All meters shall be designed and installed in conformance with recognized metering practices and shall be subject to the approval of the Supervisor of the Oil and Gas Board.
- (2) All meters and equipment affecting meter accuracy shall be kept in good working order. Each custody transfer meter shall be calibrated at least once a month by means of a calibrated tank, a calibrated meter prover or a master meter. When a meter is found to deviate in its recording by more than two percent, it must be adjusted to conform to the said tolerance limitation of two percent or the meter calibration factor corrected.

RULE 4 - TINSLEY FIELD UNIT

- A. The Tinsley Field Unit is that portion of the following lands lying within the Tinsley Field, underlain by the unitized portion of the Tinsley CO₂ Oil Pool and described as follows:

Tinsley Field Unit
Yazoo County, Mississippi

Township 11 North, Range 3 West

Sec. 35: SE/4 NW/4; S/2 NE/4; S/2

Sec. 36: S/2 NW/4; SW/4 NE/4; S/2
Township 11 North, Range 2 West

Sec. 31: SW/4 SW/4
Township 10 North, Range 3 West

Sec. 1: Entire Section
Sec. 2: Entire Section
Sec. 3: E/2 SE/4
Sec. 10: E/2 NE/4; NE/4 SE/4
Sec. 11: Entire Section
Sec. 12: Entire Section
Sec. 13: Entire Section
Sec. 14: NW/4; E/2 SW/4; E/2
Sec. 23: NW/4 NE/4; E/2 E/2
Sec. 24: Entire Section
Sec. 25: Entire Section
Sec. 26: SW/4 SE/4; E/2 E/2
Sec. 35: SE/4 NW/4; E/2 SW/4; E/2
Sec. 36: Entire Section

Township 10 North, Range 2 West

Sec. 6: W/2 W/2; SE/4 NW/4; E/2 SW/4; SW/4 SE/4
Sec. 7: Entire Section
Sec. 18: NW/4 NE/4; N/2 NW/4; SW/4 NW/4; SW/4; W/2 SE/4;
SE/4 SE/4
Sec. 19: Entire Section
Sec. 20: W/2 W/2; E/2 SW/4
Sec. 29: W/2
Sec. 30: Entire Section
Sec. 31: Entire Section
Sec. 32: NW/4; N/2 SW/4; SW/4 SW/4

Township 9 North, Range 3 West

Sec. 1: Entire Section less and except the SE/4 NE/4
Sec. 2: E/2 NW/4; NE/4 SW/4; E/2
Sec. 12: N/2 NE/4

Township 9 North, Range 2 West

Sec. 6: N/2 N/2; SW/4 SW/4
Sec. 7: NW/4 NW/4

- B. 1.2. "Unitized Formation" is the subsurface portion of the Unit Area described as those strata of the Selma/Eutaw Formations, productive or formerly productive of oil and gas from the depth of 4,590 feet to 4,930 feet as measured by the induction/sonic logs run on November 13, 1979, in the Pennzoil Producing Company, Tract 13-11-3 (Ida Fair No. 4), located in Section 13, Township 10 North, Range 3 West, Yazoo County, Mississippi, and including those strata productive of oil which can be correlated therewith.
- C. Spacing of Wells in the Tinsley Field Unit.
- (1) Notwithstanding any other provisions contained in these Special Field Rules, the location of injection and production wells in the Tinsley Field 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 hydrocarbons contained in the pool. However, no producing or CO₂ injection well may be drilled, injected into or produced from said pool nearer than 100 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. There shall be no limitation on the spacing of water injection wells so long as the bottom hole location of any such well and the surface location are located within the unit boundaries. Statewide Rule 7 shall have no application to wells drilled within the Tinsley Field Unit.

- (2) The operator may drill 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 (a) no portion of the wellbore of any such producing or CO₂ injection well (and no limitation for water injection wells so long as the surface and bottom hole location are within the Unit boundaries) so drilled shall be nearer than 100 feet from any exterior boundary of the Unit, except upon permit issued by the Mississippi State Oil and Gas Board, after notice and hearing, and (b) the operator shall file a directional survey and other information required by rule or written policy of the Board after completion.

D. Pressure Maintenance and Secondary Recovery Program Authorized.

- (1) The Operator of the Unit is hereby authorized to conduct and carry out secondary recovery, tertiary 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 oil or gas, or both, 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 said Tinsley Field 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 operator on 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, with notice but without a 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.

- E. Allocation of Production. The allowable for the Unit shall be 25,000 barrels of oil per day unless otherwise set by the Mississippi State Oil and Gas Board. The allowable production of the said fieldwide unit may be produced by 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.

F. Surface Storage, Measurement and Transfer Systems

- (1) 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 under Rule 8 above. Separate measurement or storage for the wells and leases within the fieldwide unit shall not be necessary.

RULE 5- AUTHORIZATION FOR TWO SIMULTANEOUS PERMITS FOR CO₂ HUFF & PUFF WELThe Special Field Rules herein authorize the administrative authority for conversion of producing wells to injection wells and injection wells to producing wells by

administrative permit, without notice and hearing. Operator is hereby authorized to simultaneously obtain both a producing well permit and an injection well permit for wells that will be used for what is known as CO₂ huff & puff operations. Based upon proper request, the Supervisor shall be hereinafter authorized to grant to the Operator two permits for each Well that will be subject to CO₂ huff and puff operations. Each time Operators convert a producing well to an injection well or an injection well to a producing well, the Operator will provide the Board a written notification of the change of operation. This simultaneous dual permit will only be allowed on those wells that will be actually subject to this type operation. At the completion of the huff & puff operation, if CO₂ is no longer going to be routinely injected, and then produced back, the Operator shall notify the Board and the dual permits shall thereafter terminate and Operator shall select the type of permit to continue with such well. This rule only applies to wells in unitized formations or wells that have been specially approved for huff and puff injectivity tests.

RULE 6 - APPLICABILITY OF STATEWIDE RULES

- A. All rules and regulations contained in Statewide Order No. 201-51, and any amendments thereto, not specifically covered in the above and foregoing Special Field Rules are hereby adopted and shall apply to said field.
- B. The Mississippi State Oil and Gas Board expressly reserves the right, after notice and hearing, to alter, amend or repeal any and all of the above and foregoing Special Field Rules, or to grant exceptions to all or any part hereof.

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

IT IS FURTHER ORDERED AND ADJUDGED that this Order shall be in force and effect from and after June 15, 2011.

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 1st day of July, 2011.

**STATE OIL AND GAS BOARD OF
MISSISSIPPI**


CHAIRMAN

Prepared By:

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