

**STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION**

**IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:**

**CASE NO. 15438
ORDER NO. R-14201**

**APPLICATION OF DEVON ENERGY PRODUCTION COMPANY, L.P. FOR
SPECIAL POOL RULES FOR THE BRINNINSTOOL-BONE SPRING POOL,
LEA COUNTY, NEW MEXICO**

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on February 4, 2016, March 3, 2016, and March 17, 2016, at Santa Fe, New Mexico before Examiners William V. Jones, Michael McMillan, and Scott Dawson.

NOW, on this 8th day of August, 2016, the Division Director, having considered the testimony, the record and the recommendations of the Examiners,

FINDS THAT:

(1) Due public notice has been given, and the Division has jurisdiction of this case and its subject matter.

(2) Cases No 15438, 15439, and 15440 pertained to the same subject matter and were combined and heard together. Separate orders are being issued in each case.

(3) In Case No. 15438, Devon Energy Production Company, L.P. ("Devon" or "Applicant") seeks to establish Special Pool Rules for the Brinninstool-Bone Spring Pool.

(4) The Brinninstool-Bone Spring Pool (Pool Code 7320) was created by Division Order No. R-6810, and currently includes the following described acreage in Lea County, New Mexico:

Township 23 South, Range 33 East, NMPM

Section 2: SW/4

Section 10: N/2
Section 11: NW/4

(5) This pool is governed by the Division's statewide rules for oil pools, with 40-acre well units and wells to be located no closer than 330 feet to a quarter-quarter section line. The initial well in this pool was completed with a top perforation at a subsurface depth of 9343 feet; therefore, the pool has a depth bracket allowable of 275 barrels of oil per day for a standard 40-acre oil spacing and proration unit.

(6) Applicant proposed the following Special Rules for the Brinninstool-Bone Spring Pool:

- (a) A standard oil spacing unit for horizontal wells comprising 320 acres, more or less, consisting of a standard governmental half section (or equivalent).
- (b) Completed intervals of horizontal wells and surface locations of vertical wells are to be located no closer than 330 feet from the exterior boundary of a standard well unit, with 10 foot setbacks for the surface location and the bottomhole location from any quarter-quarter section line.
- (c) A special depth bracket allowable of 6400 barrels of oil per day for a standard horizontal 320-acre well unit and 800 barrels of oil per day for a standard vertical 40-acre well unit.
- (d) A Limiting Gas Oil Ratio ("GOR") of 5000 cubic feet of gas per barrel of oil.

(7) Devon appeared at the hearing through counsel and presented exhibits and testimony showing the following.

- (a) The vertical limits of this pool comprise the entire Bone Spring formation including the Avalon Shale, sometimes called, the Leonard.
- (b) The Bone Spring formation in this area contains multiple pay zones with the primary targets identified by the Applicant as the Avalon shale, the First (1st) Sand, and the Second (2nd) Sand. Applicant intends to drill and produce multiple Bone Spring wells within any one spacing unit, simultaneously at differing depths.
- (c) Within or near this pool, the orientation for horizontal Bone Spring oil wells has been primarily north to south or south to north. The horizontal length has been sometimes as long as 1.5 miles or even 2 miles. The optimum length is still being determined.

- (d) The sands within the Bone Spring formation are continuous and more or less uniform in thickness across the pool.
- (e) Devon does not propose to change, or require other operators to change, the spacing or dedicated acreage of existing Bone Spring wells within or nearby this pool.
- (f) Devon has determined by numerical simulation that six horizontal wells per section (three per half section) may be optimum in any of the vertical target zones. The accuracy of the simulation has been improved through history-matching.
- (g) The simulation being used to optimize drilling indicates that four horizontal wells per section are not sufficient to effectively contact and recover potential reserves. More than six wells per section would result in excessive costs, too much well interference, and little additional recovered reserves.
- (h) The horizontal wells will be drilled at least one mile in length, will have rectangular drainage, and will be most logically and optimally configured as 320-acre (half-section) horizontal oil spacing units, each of which would be developed by drilling a maximum of three wells into any individual sand within the Bone Spring formation. The center well within a 320-acre unit would be drilled near, but at least 10 feet from, the center line of the half section.
- (i) The simulation, the multiple vertical targets, and Devon's drilling plans all together indicate that oil production would not need to be curtailed if the allowable were increased to 6400 barrels of oil per day per 320-acre standard spacing unit and also if the Limiting Gas Oil Ratio ("GOR") were increased to 5000 standard cubic feet of gas per barrel of oil.
- (j) The higher Limiting GOR is needed in this gassy oil reservoir as shown by the production from new wells beginning at higher GOR than 2000:1 and moving higher from there. The reservoir is considered to be similar to other Bone Spring reservoirs in that it is gassier than a normal Black Oil Reservoir, but the recovery mechanism is primarily solution gas drive.
- (k) The reservoir recovery is not sensitive to producing rates; however, Devon has been cautious in its production rates, in order to preserve the fracture treatment and to allow for timely gas hookups.

- (1) Devon provided notice of the proposed Special Rules to all operators within, and within one mile of, this pool as well as to owners of revenue interests.

The Division concludes that:

(8) Devon has provided proper notice of these proposed special rules. No objections were received, and no other party entered an appearance in this case.

(9) Devon's proposal of 320-acre oil spacing units dedicated to horizontal Bone Spring wells is reasonable and will prevent waste and protect correlative rights. The evidence supports the need for 320-acre rectangular horizontal oil spacing units.

(10) Division records indicate there are numerous active and permitted Bone Spring horizontal wells placed within this pool by the Division. The owners of these wells may elect to remain dedicated to the same acreage on which the wells were proposed and/or drilled. Therefore, overlapping spacing units within this pool may be necessary and should be allowed to the extent necessary to achieve this result. Each of the various sized oil spacing units should consist of multiple proration units, each sized at 40 acres or one quarter-quarter section, or equivalent.

(11) Applicant has demonstrated that the proposed increase in oil and gas allowable within the 320-acre horizontal oil spacing units in the pool will not result in decreased ultimate recovery or in harm to the reservoir.

(12) Due to overlapping spacing units in this pool, the allowable per spacing unit should be a multiple of the allowable per 40-acre quarter-quarter section. Therefore, the pool should have an assigned oil allowable per 40-acre proration unit of $(6400 / 8)$ or 800 barrels per day.

(13) Any 40-acre, quarter-quarter section, proration unit within this pool should be limited to a maximum of an average monthly calendar production of 800 barrels of oil per day. The operator should be allowed to produce its allowable in any proportion from multiple wells completed or developed in any 40-acre proration unit. Spacing units in this pool should consist of one or more proration units with total production from the spacing unit allocated to each of the proration units as per its acreage contribution.

(14) All vertical and horizontal oil wells, as defined by the Division, drilled for production from the Bone Spring formation within the boundaries of this pool should be assigned to this Pool beginning September 1, 2016. The Special Rules should be made permanent.

(15) Devon's proposal should be granted in order to prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED THAT:

(1) The application of Devon Energy Production Company, L.P. ("Devon") to establish Special Pool Rules for the Brinninstool-Bone Spring Pool (Pool Code 7320), acreage of which is described below, is hereby approved, and those rules shall be as follows:

Township 23 South, Range 33 East, NMPM

Section 2: SW/4
Section 10: N/2
Section 11: NW/4

**SPECIAL RULES FOR THE
BRINNINSTOOL-BONE SPRING POOL**

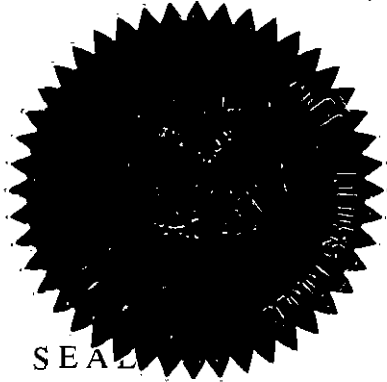
- Rule 1: Each well completed or recompleted in the Brinninstool-Bone Spring Pool or within one mile thereof and not nearer to or within the limits of another Bone Spring oil pool, shall be produced in accordance with the Special Rules hereinafter set forth.
- Rule 2: The standard oil spacing unit for horizontal wells shall consist of 320 acres, more or less, comprising a governmental half section or the equivalent.
- Rule 3: The standard oil spacing unit for vertical wells shall consist of 40 acres, more or less, comprising a governmental quarter-quarter section or the equivalent.
- Rule 4: The completed intervals of horizontal wells and surface locations of vertical wells shall be located no closer than 330 feet from the exterior boundary of a standard well unit, with 10 foot setbacks for the surface location and the bottomhole location from any quarter-quarter section line.
- Rule 5: The standard oil proration unit size shall be 40 acres, more or less, comprising one governmental quarter-quarter section or lot. Spacing units in this pool shall consist of one or more proration units with total production from the spacing unit allocated to each of the proration units as per its acreage contribution. Production from a horizontal well completed in more than one spacing unit shall be allocated between the subject spacing units on an acreage basis.
- Rule 6: The top allowable for any standard 40-acre proration unit shall be 800 barrels of oil per day per calendar month. The allowable may be produced in any proportion from any of the wells that contribute to the production attributed to such 40-acre proration unit pursuant to Rule 6.

- Rule 7: The limiting gas to oil ratio (GOR) shall be 5000 standard cubic feet of gas to each barrel of oil.
- Rule 8: Exceptions to these Special Rules shall be granted only as provided under Division rules.
- Rule 9: All other provisions not specifically addressed herein shall conform to Division Rules.

(2) These special rules shall be in effect as of September 1, 2016. Any wells in this pool permitted prior to that effective date shall, at the election of the owners thereof, retain the spacing on which that well was proposed and/or drilled. Any resulting non-standard spacing unit, created as a result of this order, for existing wells, is hereby approved. Such non-standard spacing units may coexist with and overlap standard spacing units for new wells in this pool.

(3) Jurisdiction of this case is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated



STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

A handwritten signature in cursive script, reading "David R. Catanach".

DAVID R. CATANACH
Director