

**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. 15409
ORDER NO. R-14146
NOMENCLATURE**

**APPLICATION OF DEVON ENERGY PRODUCTION COMPANY, L.P. FOR
POOL CREATION AND SPECIAL POOL RULES, EDDY COUNTY, NEW
MEXICO**

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on November 12, 2015, at Santa Fe, New Mexico before Examiner William V. Jones.

NOW, on this 13th day of April, 2016, the Division Director, having considered the testimony, the record and the recommendations of the Examiner,

FINDS THAT:

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

(2) The Applicant, Devon Energy Production Company, L.P. ("Devon"), seeks to create a new oil pool for production from the Bone Spring formation. Devon also seeks to establish Special Pool Rules for this Bone Spring pool.

(3) The proposed pool would initially comprise the following described acreage in Eddy County, New Mexico:

Township 21 South, Range 27 East, NMPM

Section 10: All
Section 11: All

(4) Proposed Special Pool Rules would include the following:

- (a) A standard oil spacing and proration unit for horizontal wells would comprise 320 acres, more or less, consisting of one-half of a standard governmental section (or equivalent);
 - (b) Completed intervals of the wells are to be located no closer than 330 feet from the exterior boundary of a standard well unit, with surface locations to be located no closer than 10 feet from any interior quarter-quarter section line.
 - (c) A special depth bracket allowable of 3500 barrels of oil per day for a standard 320-acre well unit;
 - (d) A Limiting Gas Oil Ratio ("GOR") of 5000 cubic feet of gas per barrel of oil; and
 - (e) All other rules to be in conformance with statewide rules.
- (5) Devon presented exhibits and testimony showing the following:
- (a) Devon intends to drill horizontal wells into two vertically separated targets within the Second Bone Spring Sand which are not in communication with one another. In addition, the Third Bone Spring Sand is of interest for horizontal drilling.
 - (b) The sands within the Bone Spring formation are continuous and more or less uniform in thickness across the two sections.
 - (c) This area is on the edge of the basin near the shelf, and the depositional environment was consistent across Bone Spring time. The Bone Spring sands look similar in core samples. The entire Bone Spring is currently classified by the Division as one single source of supply.
 - (d) Devon does not propose to change the spacing or dedicated acreage of existing Bone Spring wells or any future vertical Bone Spring well within the acreage of the proposed new pool.
 - (e) 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 simulation was history-matched with surrounding, existing wells.
 - (f) The simulation indicates that four horizontal wells per section is not enough to contact potential reserves. More than six wells would result in excessive costs, too much well interference, and little additional recovered reserves.

- (g) Devon has already drilled and completed wells in the Bone Spring formation in Lea County with a well density greater than four horizontal wells per section. The pressure data from that test supports the simulation shown in this case.
- (h) Devon is predicting that six horizontal wells may simultaneously produce in any one spacing unit, some at differing depths, even though more wells could be possible at any one time.
- (i) The simulation predicts that oil production would not need to be curtailed if the allowable were increased to 3500 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 Avalon; Bone Spring, East Pool (Pool Code 3713) offsets both Section 10 and Section 11 to the north and has been extended to include the W/2 of Section 11 and the N/2 of Section 10. The Division in Case No. 9602 issued Order No. R-8897 increasing the limiting GOR for oil spacing and proration units in this pool to 5000 to 1.

The Division concludes that:

(6) All operators of Bone Spring wells within, or within one mile of the boundaries of, the proposed pool were notified of this application and of the hearing. No objections were received, and no other party entered an appearance in this case.

(7) Devon's proposal of 320-acre oil spacing and proration units dedicated to horizontal Bone Spring wells is reasonable and will prevent waste and protect correlative rights. The evidence and logic summarized as follows supports 320-acre rectangular horizontal oil spacing units:

- a. Within this general area, the best orientation for horizontal Bone Spring oil wells has been east to west or west to east.
- b. Devon's planned well length for drilling horizontal Bone Spring oil wells is to a nominal length of one mile.
- c. Devon's empirically grounded simulation indicates that six of these one mile long horizontal wells is the optimum well density within any section. The six wells would [therefore] be spaced approximately 880 feet apart, with 440-foot outer setbacks. Any half section would have three horizontal wells, one of which would be drilled along the center of that half section.

- d. Under current Division rules allowing horizontal wells to be dedicated to project areas consisting of "developed" quarter-quarter sections, this center well does not properly "develop" the eight quarter-quarters.
- e. Therefore, Devon is asking the Division to form a new pool with 320-acre spacing units to be dedicated to the one-mile long horizontal wells it intends to drill.
- f. Any spacing unit should wholly contain the well dedicated to that spacing unit, so in this case, the spacing unit for one mile long horizontal wells should be at least one mile in length.
- g. The basic unit of the Public Land Survey within New Mexico is the quarter-quarter section and the ONGARD database has land status information down to that level. The Division cannot practically create spacing units which split any quarter-quarter section. Therefore the possible width or length of any spacing unit can only be in increments of one fourth mile.
- h. 160-acre spacing units each consisting of four quarter-quarter sections aligned east to west would not be appropriate because Devon's evidence indicates that one well in each such unit would be insufficient for optimal development of the unit; whereas more than one well in each such unit would exceed the number necessary for optimal development, thereby causing waste by encouraging the drilling of unnecessary wells.
- i. Devon's simulation indicates that the smallest unit consistent with optimal development of this pool would be 320 acres, with each unit consisting of a governmental half section that could be developed by three horizontal wells running parallel to each other, and approximately 880 feet apart.
- j. 320-acre units will thus prevent waste that could result from drilling too few or too many wells, and will protect correlative rights by allowing all owners within each unit to participate in the wells that may be necessary for optimal development.
- k. The horizontal wells proposed by Devon will be drilled one mile in length and will have rectangular drainage, most logically and optimally configured as 320-acre (half-section) horizontal oil spacing and proration units each of which would be developed by drilling three wells.

(8) Devon requested 330-foot setbacks for standard well locations within each 320-acre spacing unit even though it presented evidence showing six wells per section is optimum. This well density implies that 440 foot setbacks would be best. However, offsetting Bone Spring wells may be located without notice as close as 330 feet from the boundaries of this new pool and Division rules do not limit the number of horizontal wells

that may be drilled in a spacing unit. Devon should, therefore, be allowed the flexibility to place its wells as close as 330 feet from the spacing unit boundary.

(9) As of March 25, 2016, Division records indicate there are six active Bone Spring horizontal wells within the proposed Pool area and one active vertical well, all currently producing from the Avalon; Bone Spring, East Pool (Pool Code 3713). These horizontal wells have been proposed, drilled, completed, and are producing from either 160-acre or 320-acre dedicated acreage.

CERF 10 Federal Well No. 3H	(API No. 30-015-41058)	Horizontal
CERF 10 Federal Com Well No. 4H	(API No. 30-015-41059)	Horizontal
CERF 10 State Well No. 7H	(API No. 30-015-42709)	Horizontal
CERF 10 State Well No. 9H	(API No. 30-015-42710)	Horizontal
Cedar 11 State Well No. 1H	(API No. 30-015-42734)	Horizontal
Cedar 11 State Well No. 2H	(API No. 30-015-42737)	Horizontal
Cedar State Well No. 1	(API No. 30-015-20935)	Unit K of Section 11

(10) Devon seeks to create the new pool but also asked for authorization within this proposed pool area to leave existing vertical and horizontal wells spaced as each of those wells were proposed and drilled. In addition Devon did not ask to change dedicated acreage for any future drilled vertical well from the currently allowed 40-acre spacing and proration units.

(11) As requested, Devon or any other operator should not be required to re-space existing wells within this area to the larger spacing. In order to prevent possible issues with oil and gas allowable(s) or overlapping oil pools in the same formation, the Division should contract the Avalon; Bone Spring, East Pool from these two sections, and all existing horizontal Bone Spring wells should have the option to retain existing spacing dedication size but should be dedicated to the proposed new pool. Existing and future vertical wells should be dedicated to this new pool with a vertical spacing unit size of 40 acres.

(12) Devon has shown with its history-matched simulation that the Bone Spring oil reservoir is producing under a solution gas drive mechanism and is not rate sensitive. The proposed increase in oil allowable to 3500 barrels per day and increase in the limiting GOR to 5000 to 1 are both necessary in order to allow oil and gas production without curtailment. The Devon reservoir model indicates that the proposed increase in oil and gas allowable within the 320-acre horizontal oil spacing units in the proposed pool will not result in decreased ultimate recovery or in harm to the reservoir.

(13) Under Division Rule 19.15.20.12(A), a 40-acre proration unit completed at this depth would be given a maximum allowable of 187 barrels of oil per day on average for any month. The requested 3500 barrel allowable for a 320-acre spacing and proration unit could be viewed on a 40-acre basis as 437.5 barrels of oil per day.

(14) The new pool should have an assigned oil allowable of 437.5 barrels per day per quarter-quarter section. Any spacing unit in this pool should have a special depth bracket allowable equal to 437.5 times the number of quarter-quarter sections contained in that spacing unit.

(15) All vertical and horizontal oil wells, as defined by the Division, drilled for production from the Bone Spring formation within these two sections should be assigned to this Pool beginning the first day of the month after which this order is entered. The Special Rules should be made permanent.

(16) 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 create a new pool for Bone Spring oil wells with Special Pool Rules is hereby approved.

(2) An oil pool for production from the Bone Spring formation, with an effective date of May 1, 2016, shall be created and named the Magruder; Bone Spring, East Pool (Pool Code 98188) and shall initially include the following described acreage in Eddy County, New Mexico:

Township 21 South, Range 27 East, NMPM

Section 10:	All
Section 11:	All

(3) The Avalon; Bone Spring, East Pool (Pool Code 3713) which has been approved by the Division in nomenclature hearings to cover the E/2 of Section 11 is hereby contracted out of the Magruder; Bone Spring, East Pool.

(4) All Bone Spring oil wells dedicated to lands within this pool shall have those lands re-assigned effective as of the first of May, 2016, to the new pool without any requirement to change any existing spacing unit size or orientation. Any resulting non-standard spacing unit within the new pool is hereby approved.

(5) The Special Rules for this pool shall be as follows:

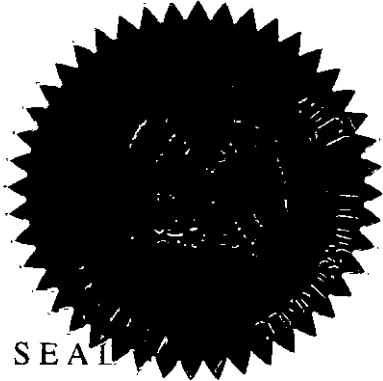
**SPECIAL RULES FOR THE
MAGRUDER; BONE SPRING, EAST POOL**

Rule 1: Each well completed or recompleted in the Magruder; Bone Spring, East 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 and proration unit for horizontal wells shall consist of 320 acres, more or less, comprising a governmental half section or equivalent.
- Rule 3: The standard oil spacing and proration unit for vertical wells shall consist of 40 acres, more or less, comprising a governmental quarter-quarter section or equivalent.
- Rule 4: Horizontal or vertical wells shall be completed no closer than 330 feet from the exterior boundary of a standard well unit, and the surface location of any well shall be located no closer than 10 feet from any quarter-quarter section line.
- Rule 5: The oil allowable for a standard proration unit shall be 437.5 times the number of quarter-quarter sections contained in that spacing unit. The limiting gas to oil (GOR) ratio shall be 5000 standard cubic feet to each barrel of oil.
- Rule 6: Exceptions to these Special Rules shall be granted only as provided under Division rules.
- Rule 7: All other provisions not specifically addressed herein shall conform to Division Rules.

(6) 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