

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

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CASE NO. 15487

**APPLICATION OF THE NEW MEXICO OIL CONSERVATION DIVISION
THROUGH THE SUPERVISOR OF DISTRICT II FOR AN EMERGENCY ORDER
SUSPENDING CERTAIN APPROVED APPLICATIONS FOR PERMITS TO DRILL,
AND FOR ADOPTION OF A SPECIAL RULE FOR DRILLING IN CERTAIN AREAS
FOR THE PROTECTION OF FRESH WATER, CHAVES AND EDDY COUNTIES,
NEW MEXICO**

**OIL CONSERVATION DIVISION'S
RESPONSE TO JOINT APPLICATION FOR REHEARING**

1. The New Mexico Oil Conservation Division ("the Division") submits the following Response to the Joint Application for Rehearing filed by Pecos Valley Artesian Conservancy District, EOG Resources, Inc., Lime Rock Resources II-A, L.P., COG Operating, Fasken Oil and Ranch, Ltd., OXY USA Inc., Mack Energy Corporation, Devon Energy Production Company, L.P. and the Independent Petroleum Association of New Mexico (hereinafter collectively called "Movants").

2. Movant application states that there are two items in the Rule amendment adopted by the Commission (new Rule 19.15.39 NMAC) that require modification, as follows:

a. "The Commission's Order provides no rationale for extending the Special Provisions beyond the limited area where the two aquifers overlap." (Movants Application Paragraph 9).

b. The Movants also assert that the language of 19.15.39.11(C)(2) NMAC needs to be clarified. Movants propose substitution of the following in Paragraph (C)(2) of the new rule in lieu of the language the Commission has adopted:

"The operator shall set a surface casing string 50 feet below the base of the artesian aquifer and circulate cement to the surface. In areas of known hydrocarbon shows or production from the confining unit or the artesian aquifer, the operator shall set a surface casing string not more than 50 feet above the first show of hydrocarbons on a mud log and circulate cement to the surface." (Movants Application Paragraph 15)

The Division does not concur with the Movants' request for modification of the designated area covered by the special rule as set forth in 19.15.39.1(A) NMAC.

4. The Division presented testimony that the "designated area" originally proposed in its application was based upon data obtained from technical reports produced by the New Mexico Office of the State Engineer. Figure 1 of the *Geohydrologic Framework of the Roswell Ground-Water Basin, Chaves and Eddy Counties, New Mexico*; Technical Report 42, Office of the State Engineer, by G. Welder, provided a technical foundation for the final boundary of the designated that included both the shallow alluvial aquifer and the deeper artesian aquifer (Goetze testimony).

5. Evidence at hearing identified the Artesian Aquifer as having very good water quality and sufficient recharge as to be the primary source for domestic, municipal, industrial, and agricultural uses within the Roswell Basin. (Atkins, Goetze, Kautz, Peery testimony).

6. The Commission concluded that the evidence did not support the Division's proposal for the two water-protection casing strings and that the single water protection casing string set below the deeper aquifer, and a production casing string, both with proper cementing, would be adequate where both aquifers are present (Commission Order, Paragraph 71). However, the Commission did not conclude that the production string alone would provide sufficient protection for the Artesian Aquifer if not surface casing were set.

7. Therefore, the requirement for a single water protection casing string below the Artesian Aquifer is based upon the occurrence of the deeper artesian aquifer, and not the presence of both aquifers, in the drilling area. Thus, the "designated area" is properly defined in

19.15.39.11(A) NMAC to include the entire areal extent of the Artesian Aquifer, as identified by the State Engineer.

The Division concurs with Movant's assertion that 19.15.39.11(C)(2) NMAC should be clarified, but does not agree with Movants' proposed language.

8. The Division agrees that 19.15.39.11(C)(2) NMAC is ambiguous. It could be read (probably the most plausible reading) as requiring the surface string to be set by reference to the higher of the base of the Artesian aquifer or the first hydrocarbon show. This reading would allow the operator to leave the Artesian aquifer unprotected during drilling from a shallow oil zone to target zone (whatever that might be). Alternatively, it could be read as affording the operator the alternative of setting casing 50 feet below the Artesian aquifer or setting the first casing string within 50 feet above the first show of hydrocarbons, regardless of where that first show occurred. That, of course, would leave both aquifers unprotected until the well reached the target formation. A third possible reading would be that this language was intended, as the Division's proposal was, to allow the casing protecting the Artesian Aquifer to be set by

reference to the first show of Hydrocarbons in the San Andres where the oil-water oil/water contact that formation is not otherwise identified. The Division would favor this last reading.

9. Movants' proposed substitute language for 19.15.39.11(C)(2) NMAC is also ambiguous. The first sentence provides that the operator "shall set a surface casing string" by reference to the base of the Artesian Aquifer. The second sentence provides that in certain areas the "operator shall set a surface casing string" by reference to the first show of hydrocarbons. The two sentences with no connecting language, each referring to "a surface casing string" rather than "the surface casing string" would seem to require two surface casing strings where the first string is set pursuant to the second sentence, and the well is subsequently drilled through the Artesian Aquifer. The Division would support such a requirement. However, after conferring

with Movants' counsel, the Division believes Movants intend the two sentences of be alternative, so that where a shallow Hydrocarbon show is encountered.

10. The Division accordingly opposes adoption of the second sentence of 19.15.39.11(C)(2) NMAC as proposed by Movants since, if interpreted as Movants may intend, it would allow a single water protection casing string at a shallower depth based upon a hydrocarbon show in the confining bed and thus would not protect the deeper Artesian Aquifer from intrusion of wellbore fluids that could occur during the process of drilling to a possibly much deeper location, and possibly using brine mud.

11. If the Commission remains convinced that only one surface casing string is required, the Division believes it should be set below the Artesian Aquifer in all wells where the deeper aquifer is present and the well will be drilled through it. This belief is based on evidence at the hearing concerning the high quality of water in the Artesian Aquifer and its many uses.

12. The Division recommends adoption the following proposed language for 19.15.39.11(C)(2) NMAC:

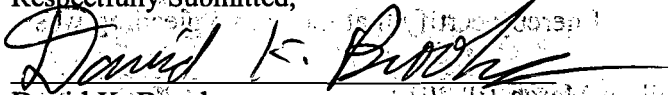
(2) The operator set a surface casing string, at a minimum, 50 feet below the base of the artesian (deepest) aquifer, provided, that;

(a) In areas without the occurrence of the artesian aquifer at depth, or if the well will not be drilled through the artesian aquifer, the hole shall be drilled to the first show of hydrocarbons or first occurrence of hydrocarbons on a mudlog, and the surface casing string set no more than 50 feet above that first show.

(b) If the base of the artesian aquifer is not otherwise identified, the surface casing shall be set no more than 50 feet above the first show of hydrocarbons in the San Andres formation that occurs below the presumed depth of the aquifer.

(c) The operator shall circulate to surface the cement for the surface casing covering all aquifers, including designing for excess volumes and using, if necessary, cement diverter tools, squeeze operations, tremie cementing, or other standard methods to ensure proper cementing of this casing string.

Respectfully Submitted,



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Certificate of Service

I hereby certify that the above pleading was served on the following parties by electronic mail on March 10, 2017

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