

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

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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 SPECIAL RULES FOR DRILLING IN CERTAIN AREAS FOR THE PROTECTION OF FRESH WATER, CHAVES AND EDDY COUNTIES, NEW MEXICO

CASE NO. 15487

**PECOS VALLEY ARTESIAN CONSERVANCY DISTRICT'S
PROPOSED FINDINGS OF FACT & CONCLUSIONS OF LAW**

Pursuant to the request of the Oil Conservation Commission ("Commission"), the Pecos Valley Artesian Conservancy District ("PVACD") hereby files its Proposed Findings of Fact and Conclusions of Law in the above captioned matter.

1. On April 1, 2016, representatives of the Oil Conservation Division ("OCD") Hobbs and Artesia District Offices, including Paul Kautz, met with representatives of the PVACD at the PVACD office in Roswell, New Mexico. The meeting was a result of concerns shared by the PVACD with the OCD District II office regarding well drilling activity, including approved casing plans. *See 5-10-16 Tr. 24:3-25:8.*

2. On April 6, 2016, the acting Supervisor of OCD District II ("Applicant"), by and through David K. Brooks, attorney for OCD District II Acting Supervisor, filed an Amended Application with the OCD, requesting from the Director an emergency order suspending all approved Applications for Permits to Drill ("APDs") within certain designated areas in Chaves and Eddy Counties, New Mexico ("the Designated Area").

3. On April 8, 2016, the OCD entered Emergency Order No. E-42, suspending all approved, unexpired APDs.

4. The Emergency Order authorized the Applicant to make such exceptions to the suspension of the APDs upon conditions that the Supervisor determined would adequately protect all sources of fresh water in the Designated Area.

5. The Emergency Order further ordered the Applicant to propose such special rules as necessary for the protection of sources of fresh water designated by the State Engineer, in, and in the vicinity of, the Pecos Valley in Chaves and Eddy County, New Mexico.

6. At the time the Emergency Order was entered, 19.15.16.9 NMAC required operators to seal and separate the oil, gas and water bearing strata, confine the fresh waters to their respective strata, take special precautions to guard against the loss of artesian water from the strata in which it occurs, and prevent the contamination of the artesian water by objectionable water, oil or gas. It further required operators to ensure water is shut off from oil and gas bearing strata by cementing the casing. *Id.*

7. It was further required on that date, by 19.15.16.10(A) NMAC, that “[t]he operator shall equip a well drilled for oil or gas with surface and intermediate casing strings and cement as may be necessary to effectively seal off and isolate all water-, oil- and gas-bearing strata and other strata encountered in the well...” *Emphasis added.*

8. The New Mexico State Engineer, at the time of the Emergency Order and at all times during this matter, is granted the general supervision and administration of the waters of the state. *See* NMSA 1978, § 72-2-1 (1982). Further, the Office of the State Engineer is authorized to adopt such regulations and codes to implement and enforce the laws necessary to implement the decisions of the State Engineer. *See* NMSA 1978, §72-2-8.

9. The OCD at the time of the Emergency Order and at all times during this matter has the authority under NMSA 1978, Section 70-2-12(B)(2) to make rules, regulations and orders

to "prevent crude petroleum oil, natural gas or water from escaping from strata in which it is found into other strata."

10. Based on these statutes, the OCD's authority and responsibility to confine the crude petroleum oil, natural gas or water to their originating strata is concurrent with the authority of the Office of the State Engineer ("OSE"), but the OCD authority and responsibility is limited to exercise only in the case of oil and gas wells.¹

11. On April 25, 2016, the Director issued Extension Order No. E-42 extending the original Emergency Order for an additional 15 days and setting the matter for hearing on May 10, 2016.

12. On May 4, 2016, the Director issued Order No.E-42-A Emergency Order setting a hearing for May 10, 2016, in Santa Fe, New Mexico, reiterating that a hearing would be held in this matter before a Division Hearing Examiner to consider the OCD request that the APDs continue in a suspended state until a full hearing on the merits is conducted and waiving the 20 day required notice for OCD hearing request to an interim order only.

13. On May 4, 2016, the Applicant filed a Second Amended Application requesting a restrictive order for the Designated Area, identifying the oil and gas bearing pools in the Designated Area, and requesting an Interim Order suspending all APDs for wells not yet drilled within the Designated Area until a full merits hearing is held on the matter, and allowing the Applicant to approve exceptions to such suspensions upon demonstration that fresh water sources will be adequately protected.

¹ On September 11, 1956, S.E. Reynolds, New Mexico State Engineer issued Order No. 63 governing the construction of oil, gas, mineral and test wells in artesian basins. The Order provided the specifications for the drilling of oil, gas, mineral and test wells and required the sealing off the formations be verified by method approved by the USGS, New Mexico Oil Conservation Commission, or the State Engineer's Office. On January 20, 1959, S.E. Reynolds, New Mexico State Engineer issued Order No. 73 further outlining the procedure to be followed for the construction of oil, gas, mineral and test wells in artesian basins.

14. On May 10, 2016, a hearing was conducted before Chief Examiner William V. Jones ("Chief Examiner"), on the Applicant's request for an Interim Order to continue the suspension of all APDs for wells not yet drilled within the Designated Area until a full merits hearing is held on the matter and allowing the Applicant to approve exceptions to such suspensions upon demonstration that fresh water sources will be adequately protected.

15. The Applicant presented the expert testimony of Mr. Kautz, the Head Geologist from the Hobbs Office of the OCD.

16. Mr. Kautz recommended certain procedures operators should be required to complete to protect the fresh water bearing strata in the Designated Area.

17. The Chief Examiner found, in Order No. R-14164 issued on May 13, 2016, that an emergency existed, requiring the extension of the suspension of the APDs until a full hearing on the merits was held in this matter and an Order issued and that the previously approved APDs may not adequately protect the fresh water bearing strata in the Designated Area.

18. The Chief Examiner ordered that all previously approved, unexpired APDs for wells not yet drilled were suspended, that the Applicant may approve exceptions to such suspensions upon demonstration that fresh water sources will be adequately protected, and the Order would remain in effect until the full hearing on the merits of this matter was conducted and an Order issued.

19. On May 26, 2016, the Applicant filed its Third Amended Application.

20. On July 15, 2016, the Applicant filed its Fourth Amended Application.

21. On October 25, 2016, the Applicant's Fifth Amended Application for Rulemaking was filed, seeking an Order amending 19.15.39 NMAC to add a new applicable to the Designated Area.

22. December 5, 2016, through December 7, 2016, a full hearing on the merits of the Applicant's Fifth Amended Application for Rulemaking was conducted before the full Oil Conservation Commission ("Commission").

23. The Applicant appeared through counsel, and presented expert testimony in support of an Order amending 19.15.39 NMAC.

24. The Applicant offered expert testimony from Mr. Kautz, District Geologist from the Hobbs Office of the OCD, and Philip Goetze, Geologic Specialist.

25. The PVACD appeared through counsel, and presented expert testimony from Jack Atkins ("Atkins"), P.E., and Roger Peery ("Peery"), C.P.G., P.G., on the hydrology and geohydrology of the Designated Area. The Designated Area is most commonly known as and referred to as the Roswell Artesian Basin, per the Office of the State Engineer Declared Underground Water Basins.

26. The shallow aquifer overlies the artesian aquifer, and extends from north of Bitter Lakes National Wildlife Refuge in Township 9 to the south for approximately 65 miles to the Seven Rivers area in Township 20 South, and from just east of the Pecos River ("River") to approximately twelve (12) miles west of River.

27. The artesian aquifer begins in the north in Township 5 South and extends south for more than 100 miles to Township 23 South and from just east of the River to approximately 30 miles west of the River.

28. Hydrocarbons are produced in certain areas in the San Andres formation.

29. The hydrocarbon producing formations in the San Andres is below the fresh water bearing formations in the San Andres.

30. Approximately 3.5 billion barrels per annum is diverted from the combined aquifers for municipal, domestic, industrial, commercial and irrigation uses throughout the Designated Area.

31. Atkins and Peery testified that the waters in both aquifers is considered potable.

32. Atkins testified that artesian wells typically produce water at the rate of 1,000 gallons per minute (gpm) to 2,000 gpm; shallow wells typically produce 200 gpm to 1,000 gpm.

33. Atkins and Peery testified that there is some communication between the artesian and shallow aquifers.

34. As clarified by Peery, the communication from the shallow to the artesian is six orders of magnitude less than the communication of the artesian to the shallow. Meaning the communication which occurs between the two aquifers is a negligible amount of aquifer-to-aquifer water transfer. The shallow aquifer is mainly recharged by surface sources of recharge, while the artesian is recharged by inflow from the mountains to the west of the Designated Area.

35. There is no reduction in water quality throughout the Roswell Artesian Basin.

36. Peery testified to the difference in permeability and transmissivity rates of the shallow and artesian aquifers compared to the deeper oil and gas zones.

37. The permeability of the aquifers make them more vulnerable to contamination from other sources such as surface contamination, oil and gas.

38. The horizontal flow rate of the artesian aquifer is thousands or, potentially, millions of times more than the horizontal flow rates of the oil and gas producing zones in the Designated Area.

39. Peery testified the horizontal rate of flow in the artesian aquifer varies. In the southern part of Township 18 South, rate is approximately 6,400 feet per year. In Township 15

South, Range 25 East, where the hydrologic gradient is steeper, the rate is approximately 17,000 feet per year. The hydrologic gradient is much lower north of the Dexter, New Mexico area, and the rate can be as low as 2,200 feet per year.

40. Peery testified that the horizontal rate of flow in the shallow aquifer is approximately 1,500 feet per year.

41. Atkins and Peery testified to the importance of setting casing below the shallow aquifer and below the artesian aquifer.

42. Atkins and Peery testified that circulation of cement is frequently lost into the artesian aquifer. Unless the cementing of the casing is done correctly, there is a comingling of water from different strata and loss of pressure from the artesian aquifer.

43. Peery testified the water in the deeper units and beds of the Designated Areas is significantly poorer quality than the artesian and shallow aquifers.

44. Atkins and Peery testified that the Office of the State Engineer has specific rules and regulations governing the separation and protection of water bearing strata in areas where a shallow and artesian aquifer exist. *See* 19.27.4.29 NMAC (08/31/2005, as amended through 12/17/2016); 19.27.4.30 NMAC (08/31/2005, as amended through 12/17/2016); and, 19.27.4.31 (08/31/2005, as amended through 12/17/2016). These rules and regulations were provided to the Commission during the hearing

45. Atkins and Peery testified that cemented conductor pipe prevents the drainage of fluids from the surface or other shallow formations into the shallow aquifer.

46. Atkins and Peery testified that the proposed casing requirements of the new rule will protect the artesian and shallow aquifers by preventing contamination of the artesian aquifer

by the lower quality water from the shallow aquifer, from contamination from oil and gas bearing strata, and loss of pressure in the artesian aquifer.

47. COG Operating, LLC ("COG"), Fasken Oil and Ranch, Ltd. ("Fasken"), and OXY USA, Inc. ("OXY") jointly appeared through counsel and presented expert testimony from Carl Bird, a petroleum and drilling engineer with COG.

48. EOG Y Resources, Inc. ("EOG"), formerly known as Yates Petroleum Corporation, appeared through counsel and presented expert testimony from Jeremiah Mullen, an engineer with EOG.

49. Lime Rock Resources II-A, L.P. ("Lime Rock"), appeared through counsel and presented expert testimony of John Maxey, an engineer retained for the purposes of the hearing.

50. Mack Energy Corporation ("Mack"), appeared through counsel and presented expert testimony from Jim Krogman, a drilling supervisor with Mack.

51. The Independent Petroleum Association of New Mexico appeared through counsel, but did not present evidence or testimony.²

52. Devon Energy Production Company, L.P., and the New Mexico Oil & Gas Association had counsel enter on their behalf, respectively, prior to the hearing. Neither appeared at the hearing.

53. The Operators presented no evidence or testimony was presented to rebut or dispute the hydrology or geohydrology of the shallow and artesian aquifers.

54. The Operators presented no evidence or testimony concerning the impacts, both in human and monetary costs, that contamination of the aquifers would have on persons and industries in the Designated Area.

² Parties delineated in Paragraphs 45 through 49 are collectively referred to as the "Operators."

55. No evidence was presented by the Operators to establish that oil and gas operators are unable to comply with the proposed special rule.

56. The Operators presented only estimated financial costs to operators in the Designated Area for the cost of water protection strings as a basis for their opposition to the proposed special rule.

57. The Operators did not testify to the cost of the water protection strings in comparison to the costs of remediation of contamination of the shallow or artesian aquifers.

58. The Operators witnesses' testimony regarding the alleged increased costs associated with the proposed special rule were mere estimates. No testimony was offered regarding the Operators profit margins.

59. The testimony of Carl Bird ("Bird") and John Maxey ("Maxey") was not credible, nor verifiable. Their conclusions were made without investigation or verification, despite ample opportunity to do so.

60. All Operator testimony, prior to Maxey, asserted that no contamination to the shallow or artesian aquifers had been reported or found.

61. The testimony of Maxey that Lime Rock wells in Township 18 South, Range 26 East have begun to pump hydrocarbons from the water bearing strata, tend to prove that the aquifer is being contaminated with hydrocarbons as a result of well drilling which was completed without regard for the isolation of the water and hydrocarbon bearing strata. Maxey testified that more than 350,000 barrels of oil have been purposefully pumped out of the water bearing strata in this location.

62. The Operators' assertions regarding the lack of claims of contamination should be disregarded, in light of Maxey's testimony.

63. Maxey, an engineer, was not qualified to offer expert testimony regarding the hydrologic and geohydrologic conditions of the Designated Area.

64. Scientific evidence presented during the hearing supports the necessity of the adoption of the special rule to protect the public health, environment, including the oil and gas bearing strata, and fresh water supplies in the Designated Area.

65. Substantial evidence was presented that operators in the Designated Area were not complying with the provisions of 19.15.16.9 NMAC and 19.15.16.10 NMAC.

66. The evidence demonstrates that the proposed special rule is necessary and required to protect human life, livestock, soils, industries and municipalities within the designated areas.

67. Substantial evidence was presented that the proposed special rule will provide adequate protection for public health, the environment and fresh water supplies in the Designated Area.

68. Substantial evidence established that the proposed amendment will provide protection for fresh water, human health and the environment that is superior to the existing rules.

69. The existing statutes, rules and regulations, and proposed amendment are to prevent contamination of the fresh water aquifers in the Designated Area.

70. The existing statutes, rules and regulations, and proposed amendment ensure the viability and integrity of the infinite source of fresh water in the Designated Area.

71. The existing regulations and the proposed amendment ensure the viability and integrity of the infinite source of fresh water for the Roswell Artesia Basin.

72. The Applicant and PVACD demonstrated the necessity and requirement for the adoption of the proposed amendment to protect the water bearing strata in the Designated Area.

73. The proposed rule amendment grants the Applicant the discretion in developing and approving a casing program under certain conditions.

74. The proposed rule amendment must be adopted in its entity as proposed by the Applicant.

CONCLUSIONS OF LAW

1. The Commission is empowered to create rules. *See* NMSA 1978, § 70-2-11.

2. The Commission and Applicant are empowered to make rules, regulations and issue orders to prevent crude petroleum oil, natural gas or water from escaping strata in which it is found into other strata. *See* NMSA 1978, § 70-2-12(B)(2).

3. The Commission concludes the adoption of the amendments to 19.15.39 NMAC as proposed by the Applicant will assist the Commission and Division in carrying out their statutory mandates to protect water, public health, and the environment, while preventing waste and protecting correlative rights.

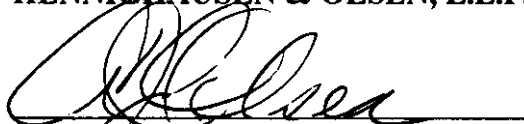
4. The Commission has the jurisdiction, authority and control over all persons, matters or things necessary or proper to enforce effectively the provisions of the Oil & Gas Act or any other law of New Mexico relating to the conservation of oil and gas.

5. The Commission will adopt the proposed rule amendments as such amendments are enforceable by the Applicant and will protect water, public health and the environment.

6. The requirements of the proposed rule amendments proposed by the Applicant are reasonable and alternative regulatory methods will not otherwise accomplish the Commission and Division's objectives.

Respectfully submitted

HENNIGHAUSEN & OLSEN, L.L.P.

A handwritten signature in black ink, appearing to read 'A.J. Olsen', written over a horizontal line.

A.J. Olsen, Esq.

Alvin F. Jones, Esq.

Olivia R. Mitchell, Esq.

P.O. Box 1415

Roswell, New Mexico 88202-1415

(575) 624-2463

(575) 624-2878 (fax)

ajolsen@h2olawyers.com

ajones@h2olawyers.com

omitchell@h2olawyers.com

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing *Pecos Valley Artesian Conservancy District's Findings of Fact & Conclusions of Law* was served via U.S. First Class Mail on December 19th, 2016 to the following parties:


HENNIGHAUSEN & OLSEN, L.L.P.

FLORENE DAVIDSON
Division Clerk
New Mexico Oil Conservation District
1220 S. St. Francis Drive
Santa Fe, NM 87505
Florene.davidson@state.nm.us

DAVID K. BROOKS
Energy, Minerals and Natural
Resources Department
1220 S. St. Francis Drive
Santa Fe, NM 87505
Davidk.brooks@state.nm.us

MICHAEL H. FELDEWERT
Holland & Hart
P.O. Box 2208
Santa Fe, NM 87504-2208
mfeldewert@hollandhart.com

JAMES BRUCE
P.O. Box 1056
Santa Fe, New Mexico 87504
(505) 982-2043
jamesbruc@aol.com

GARY W. LARSON
Hinkle Shanor LLP
P.O. Box 2068
Santa Fe, New Mexico 87504
(505) 982-4554
(505) 982-8623-Facsimile
glarson@hinklelawfirm.com

KARIN V. FOSTER
Southwest Government Affairs, LLC
5805 Mariola Place NE
Albuquerque, NM 87111
(505) 283-8385
karin@SWgovernmentAffairs.com

RYAN FLYNN
New Mexico Oil & Gas Association
P.O. Box 1864
Santa Fe, NM 87504
(505) 982-2568
(505) 986-1094- Facsimile
flynn@nmoga.org

PABLO SEIFERT
407 Galisteo, Suite 101
Santa Fe, NM 87501
(505) 827-6175
Pablo.seifert@state.nm.us