

STATE OF NEW MEXICO RECEIVED  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION COMMISSION 2008 SEP 29 PM 4 42

**APPLICATION OF THE NEW MEXICO OIL CONSERVATION DIVISION  
FOR ADOPTION OF AMENDMENTS TO RULE 19.15.17 (THE "PIT RULE"),  
STATEWIDE.**

CASE NO. 14292

**OIL CONSERVATION DIVISION'S  
PROPOSED FINDINGS AND CONCLUSIONS**

The New Mexico Oil Conservation Division ("the Division") submits the following requested findings and conclusions:

1. By Order No. R-12939, issued in Case No. 14015 on May 9, 2008, the Oil Conservation Commission ("the Commission") adopted a new Rule 17, governing pits, below-grade tanks and closed loop systems [19.15.17 NMAC] ("the Pit Rule"), which became effective on June 16, 2008 ("the effective date").

2. On February 27, 2009, the Oil Conservation Division ("the Division") filed its application in this case proposing certain changes to the Pit Rule ("the proposed amendments").

3. The Commission conducted a public hearing on the Proposed Amendments on April 2 and 3, 2009. At the hearing, the Division, the Industry Committee (consisting of Burlington Resources Oil & Gas Company LP, Chesapeake Operating, Inc., ConocoPhillips Company, Devon Energy Corporation, Dugan Production Company, Energen Resources Corporation, D.J. Simmons, Inc., Williams Production Company and XTO Energy, Inc.); ConocoPhillips Company, The Independent Petroleum Association of New Mexico (IPANM), the New Mexico Citizens for Clean Air and Water, Inc. (NMCCAW) and the Oil and Gas Accountability Project, appeared through counsel and presented evidence. In addition, several citizens made public comments on the record during the hearing.

4. The Division presented the testimony of Brad Jones, environmental engineer, Edward J. Hansen, hydrologist, and Theresa Duran-Saenz. The Industry Committee presented the testimony of Dr. Bruce A. Buchanan, soil scientist. ConocoPhillips Company presented the testimony of Gregg Wurtz, environmental manager. Dr. Donald Neeper, soil physicist, testified on behalf of the NMCCAW.

5. All references in this order to sections, subsections, paragraphs or subparagraphs refer to sections, subsections, paragraphs or subparagraphs of the Pit Rule unless otherwise

specified. All references to "proposed" sections, subsections, paragraphs or subparagraphs refer to provisions of the Pit Rule, as the Division has proposed that those provisions be modified. References to the transcript of the hearing in this case are in the form "Tr. V1 at ppp," indicating Volume 1 of the transcript a page ppp. References to the transcript of the hearing in Cases No. 14015 are in the form "Pit Tr. at ppp; RA at xxx," indicating Page ppp of the transcript of testimony in that case and Page xxx of the Record on Appeal.

## **Below-grade Tanks**

### a. Deferral of the Requirement to Retrofit or Replace Certain Non-Conforming Tanks

6. The Pit Rule changed the regulatory definition of "below-grade tanks" to include categories of tanks not previously regulated, and adopted specific design and construction requirements for tanks which are set forth in Paragraphs 11.I(1) through (4).

7. Below-grade tanks in operation on the effective date that do not comply with the Pit Rule's prescribed design and construction requirements ("non-conforming tanks") may be continued in operation so long as they demonstrate integrity, provided that all sidewalls are visible for inspection and there is some sort of geomembrane liner underneath the tank. Paragraph 11.I(5). All other nonconforming tanks must be retrofitted so as to comply with Paragraphs 11.I(1) through (4), or replaced, within five years after the effective date Paragraph 11.I(6).

8. The Division now recommends that non-conforming tanks that are placed so that all sidewalls are visible for inspection be exempted from the requirement for replacement or retrofitting within five years, even if the tanks do not have geomembrane liners.

9. The Pit Rule requires monthly inspection of all below-grade tanks [Paragraph 12.D.(2)] and requires prompt replacement of any below-grade tank that does not demonstrate integrity [Paragraphs 11.I(5) and (6)]. Where a non-conforming tank is so placed that its sidewalls can be visually inspected, compliance with these inspection requirements would ordinarily be sufficient to detect leaks before a substantial release can occur. Allowing these tanks to remain in service so long as they demonstrate integrity will benefit operators by allowing them to defer replacement costs and make plans to address these issues in a systematic way (Testimony of Mr. Jones, Tr. V1 at 41). Because such tanks can be visually inspected, the requirement for replacement within five years for such tanks is not essential for the protection of fresh water, human health and the environment.

10. Accordingly, the Division's recommendation that non-conforming tanks whose sidewalls are entirely visible for inspection, whether or not they have liners, may be continued in operation so long as they maintain integrity (or until transfer to a new operator, when retrofit or replacement is required by another proposed amendment) should be adopted. To this end, proposed Paragraphs 11.I(5) and (6) of Rule 17 should be adopted, except that proposed Paragraph 11.I(6) should be changed to read "single walled" in lieu of "singled walled".

11. No amendment to the closure requirements of Section 13 is needed to effectuate these changes, since Paragraph 13.A(4) requires closure within five years only of those non-conforming tanks not described in Paragraph 11.I(5). All non-conforming tanks with sidewalls entirely visible are described in proposed Paragraph 11.I(5), and therefore will be categorically excluded from the five-year closure requirement of Paragraph 13.A(4) when the proposed amendments are adopted. Other non-conforming tanks, described in proposed Paragraph 11.A(6) will be categorically included in the five-year closure requirement of existing Paragraph 13.A(4).

b. Requirement that tank inspection records be maintained for the life of the tank.

12. The Pit Rule requires operators to maintain records of inspections of below-grade tanks for five years. Paragraph 12.D(3). The Division now proposes to change that provision to require that these records be maintained on each tank for the life of that tank. This requirement will apply to all tanks, conforming and nonconforming, and also to new tanks subsequently permitted and constructed.

13. Maintaining inspection records for the life of a tank will enable the Division to assess whether an operator's proposal to address subsequent integrity issues will be adequate. A history of integrity issues demonstrated by past inspection reports will provide a signal for when tank replacement should be required (Testimony of Mr. Jones, Tr. V.1 at 43-44).

14. Accordingly, the proposed Paragraph 12.D(3) should be adopted.

c. Contamination Assessment and Clean-up Requirements Applicable to Replacement or Retrofitting of Non-Conforming Tanks.

15. The Pit Rule expressly requires an operator to replace any non-conforming tank that does not demonstrate integrity. Paragraphs 11.I(5) and (6). The existing rule, however, does not expressly state whether the operator replacing a non-conforming tank in such event, or an operator otherwise retrofitting or replacing a non-conforming tank, must comply with the tank-closure provisions of Section 13, including Subsection 13.E.

16. The Division proposes to amend the Pit Rule to expressly require that an operator replacing a non-conforming tank that does not demonstrate integrity first close the non-conforming tank as provided in Subsection 13.E. This would require the operator, *inter alia*, to sample and test the soil underneath the tank as required by Paragraph 13.E(4), and if any release is detected, to perform corrective action if the Division determines that the release will “endanger public health or the environment.” [Division Rule 19.15.29.11, made applicable to closure of below-grade tanks by Paragraph 13.E(5)]

17. The Division proposes that an operator retrofitting or replacing a non-conforming tanks that has not demonstrated lack of integrity, and that the operator is not otherwise required to close, be required only to make a visual inspection of the soil beneath the tank and to take corrective action if the operator discovers contamination that the operator or the Division determines “poses an imminent threat to fresh water, public health, safety or the environment” [proposed Paragraph 12.D(6)].

18. The fact that a tank has demonstrated lack of integrity implies a significant likelihood that contamination underneath the tank may exist (Testimony of Mr. Jones, Tr. V1 at 45-46). For this reason, the operator in such circumstances should be required to comply with the closure provisions of Subsection 13 prior to replacing the non-conforming tank with a conforming tank.

19. If, however, an operator elects to replace or retrofit non-conforming tanks prior to the time when that action is required, that operator’s decision will provide additional protection for public health and the environment in the long run since there will be fewer operating tanks that do not conform to the Pit Rule’s design and construction requirements. Allowing a somewhat relaxed contamination assessment procedure will provide an incentive for operators to proactively replace non-conforming tanks (Testimony of Mr. Jones, Tr. V1 at 50-51, 53). For these reasons, and taking into consideration the lesser probability of significant contamination from tanks that have continued to demonstrate integrity, adoption of relaxed requirements for testing and corrective action where an operator voluntarily replaces non-conforming tanks that demonstrate integrity, as the Division has recommended, is appropriate.

20. Accordingly, proposed Paragraphs 12.D(5) and (6) should be adopted.

d. Requirement to close non-conforming tanks prior to transfer to another operator.

21 The Division proposes amendment of the closure requirements of Subsection 13.A to require that non-conforming tanks either be retrofitted to conform to the design and construction requirements of Paragraphs 11.I(1) through (4), or be closed, prior to transfer to a different operator. There is no comparable requirement in the existing Pit Rule.

22. In adopting the Pit Rule in Case No. 14015, the Commission necessarily concluded that the design and construction requirements for below-grade tanks in Paragraphs 11.I(1) through (4) provided a more adequate level of protection for fresh water, public health and the environment.

23. Non-conforming tanks involve a higher risk of fluid releases that can contaminate soils or ground water. A transfer of operation of a tank places primary responsibility for remediating any contamination or abating any water pollution caused by a release from that tank to the new operator.

24. The Pit Rule does not require any financial assurance for below-grade tanks separate and apart from the financial assurance for the well or facility with which the tank is associated. Financial assurance for wells is required for the primary purpose of assuring that wells will be plugged. NMSA 1978 Section 70-2-14.

25. In the absence of a requirement for financial assurance, the Commission and the Division have no means of assuring that the new operator who assumes operation of a non-conforming tank will have sufficient financial responsibility to meet its obligation to remediate or abate any contamination that has resulted or will result from a release from that non-conforming tank.

26. By requiring that non-conforming tanks be either retrofitted or closed prior to transfer of operation, the proposed amendments will place responsibility for detection of contamination, pursuant to Paragraphs 12.D(5) and (6) of Rule 17, and remediation or abatement, pursuant to Division Rules 19.15.29 and 19.15.30, on the operator on whose watch the release from the tank occurred (Testimony of Mr. Jones, Tr. V1 at 55, 59).

27. Furthermore, requiring that all tanks conform to the requirements of Paragraphs 11.I(1) through (4) at the time of transfer will reduce the likelihood of further contamination.

28. In the absence of a specific financial assurance requirement applicable to tank operators, the requirement for retrofitting or closure of non-conforming tanks prior to transfer to another operator is necessary to adequately protect fresh water, public health and the environment.

29. The proposed amendment will not limit the right or ability of the transferring operator and the transferee operator to allocate responsibility for costs of retrofitting or closure, or ultimate financial responsibility for any remediation, between themselves.

30. Subsection 16.F provides that a below-grade tank permit is automatically transferred to a new operator when the facility or well with which the tank is associated is transferred. In order to make such transfers contingent on compliance with the proposed requirement for retrofit or closure of non-conforming tanks prior to any transfer, the Division has also proposed conforming changes to Subsection 16.F (Testimony of Mr. Jones, Tr. V1 at 57-58).

31. Conforming changes to Subsection 17.B are also necessary to specify the time when a closure plan must be filed with the Division and when closure must be completed where the requirement for closure is triggered by a change of operator (Testimony of Mr. Jones, Tr. V1 at 60-62).

32. The Division's proposed Paragraph 13.A(5), the corresponding re-numbering of Paragraphs 13.A(5) through (8) as 13.A(6) through (9), and the Division's proposed Subsections 16.F and 17.B, should be adopted. However, proposed Paragraph 13.A(5), and Subsections 16.F, 17.B and 17.D, should each be changed to read "prior to any transfer of operation" in lieu of "prior to any sale or transfer of ownership."

### **Chloride Standard for Closure of Temporary Pits and Drying Pads by On-Site Trench Burial**

33. Subparagraph 13.F(3)(c) allows closure of temporary pits and of drying pads associated with closed-loop systems by on-site trench burial of the pit or drying pad waste only in specifically limited circumstances. One of the requirements is that the chloride concentration in a composite sample extracted from the waste, as demonstrated by testing in accordance with the Synthetic Precipitation Leaching Procedure (SPLP) as prescribed by the United States Environmental Protection Agency (EPA), not exceed 250 milligrams per liter (mg/l).

34. Evidence of the chloride concentrations found in oil and gas drilling pits in southeastern New Mexico, presented in Case No. 14015, indicates that most temporary pits and drying pads in that region will not qualify for on-site trench burial under the chloride standard provided in existing Subparagraph 13.F(3)(c), and, accordingly, the waste from those pits will have to be removed to a disposal facility (Pit Rule OCD Ex. 16 at 4, RA at 6075). This evidence concerning chloride concentrations of pit waste in southeastern New Mexico is consistent with the Commission's institutional knowledge concerning geology and drilling methods in the Permian Basin.

35. Evidence presented by oil and gas operators in Case No. 14015 indicates that a requirement that pit or drying pad waste be hauled to a disposal facility rather than buried on site

greatly increases the cost of oil and gas development, and may significantly reduce oil and gas exploration and production. See Pit Rule IPANM Ex. 13 at 2, RA at 12456; Pit Rule IPANM Ex. 37 at 10-11, RA at 12508-09 (item labeled "trucking of drilled solids"); testimony of Larry Scott, Pit Tr. at 3279-83, RA at 3360-64; testimony of John Byrom, Pi Tr. at 3327-61, RA 3408—42, especially Tr. at 3332-3 and 3360, RA at 3413-14 and 3441.

36. The Commission did not conclude, in Case No. 14015, and does not conclude in this case, that any resulting decrease in production will constitute waste as defined in the New Mexico Oil and Gas Act (NMSA 1978 Section 70-2-3). Oil or gas not produced now due to increased disposal costs would not be wasted if it could be produced in the future in different economic circumstances. However, the Commission's rules should not discourage production or impose hardships on the oil and gas industry unless necessary to protect fresh water, public health and the environment for the reasonably foreseeable future.

37. The evidence presented in Case No. 14015 regarding the probable effect of chlorides in trench-buried waste on underlying ground water focused on water at a depth of 50 feet beneath the trench bottom See, e.g., testimony of Mr. Hansen, Pit Tr. at 760, RA at 843; Pit Rule OCD Ex. 21 at 34, RA at 9002.

38. In this case, the Division has recommended increasing the chloride standard for on-site trench burial from 250 mg/l (SPLP) provided in the Pit Rule to the greater of 3,000 mg/l (SPLP) or background (Testimony of Mr. Jones, Tr. V1 at 64-65).

39. Siting requirements that the Division does not propose to change would, however, limit on-site trench burial to locations where depth to ground water is at least 100 feet from the bottom of the buried waste. Paragraph 10.C(4).

40. Since the Pit Rule provides for testing using the SPLP procedure that involves a 20:1 dilution, and allows stabilization of the waste by mixing it with clean soil at a ratio of 3:1, the 3,000 mg/l SPLP standard that the Division recommends would allow on-site trench burial of up to 60,000 milligrams per kilogram (mg/Kg) chloride concentration in stabilized pit waste (i.e., up to 240,000 mg/kg chloride concentration in raw pit waste prior to stabilization) (Testimony of Mr. Hansen at Tr. 17).

41. Based on pit sampling evidence presented in Case No. 14015, if this increased standard were adopted, chloride levels would not be an obstacle to on-site trench burial in southeastern New Mexico provided that the Pit Rule's siting requirements for on-site trench burial can be met (Testimony of Mr. Hansen, Tr. V2 at 18),

42. Mr. Hansen, testified, based on computer modeling using the HELP and MULTIMED models, that contamination from waste in a trench that demonstrated a chloride concentration following stabilization, using the prescribed SPLP method, of 3,000 mg/l would not reach ground water in sufficient quantities to cause an exceedance of applicable water quality standards for 2,000 years (Testimony of Mr. Hansen, Tr. V2 at 19; OCD Ex. 8 at 15-16).

43. NMCCAW witness, Dr. Neeper testified that due to liner deterioration contamination might reach ground water in less than the time predicted by the model (Tr. V2 at 143). However, Mr. Hansen testified that a well-installed liner would continue to afford significant protection against downward movement of contaminants from a trench for a significantly longer time than the liner's estimated useful life (Testimony of Mr. Hansen Tr. V.2 at 22-23). Even if the liner failed totally at the end of its useful life, Mr. Hansen estimated the time before contamination reached ground water in quantities sufficient to exceed standards at 590 years (450 years estimated liner half-life plus 140 years for migration of contaminants from an unlined pit to ground water at a depth of 100 feet). (*Ibid*).

44. The Commission's duty is to protect ground water quality for the reasonably foreseeable future. Based upon Mr. Hansen's testimony, and giving appropriate weight to the qualification introduced by the somewhat speculative testimony of both Dr. Neeper and Mr. Hansen about liner deterioration, the Commission concludes that the Division's proposed 3,000 mg/l SPLP chloride standard will protect ground water for the reasonably foreseeable future.

45. Dr. Neeper also articulated concerns that chloride levels in buried trenches that the proposed amendment would threaten surface vegetation and soil productivity. He based his concerns, however, on modeling that did not take into account movement of chlorides in the upper 20 inches of surface soils (Tr. V2 at 153), and also did not take into account the geomembrane liner that the Pit Rule requires over the top of a trench burial (Tr. V2 at 155, 157).

46. Dr. Neeper also testified concerning field observations of certain closed pits where he had observed chloride contamination at the surface. However, he conceded that at three of the four pits there was either no evidence of a liner, or the liner has been compromised, and he did not know how these pits were closed. The one pit that had a closed liner showed no evidence of chlorides at the surface. (Tr. V2 at 158-60).

47. Industry Committee witness, Dr. Buchanan, testified, based on extensive study of New Mexico soils and field experiments involving upward movement of contaminants from buried waste emplacements, that:

(a) salt is not reasonably likely to rise more than a few centimeters, and certainly not to the surface, under conditions predominating in New Mexico, where waste is buried in a lined trench with at least four feet of clean soil cover above the waste, as required by the Pit Rule, even disregarding the geomembrane cover (Tr. V2 at 199, 200, 202); and

(b) the four feet of cover that the Pit Rule requires above a trench burial will provide adequate rooting depth for most native cover species (Tr. V2 at 197).

48. The Pit Rule's requirement for a geomembrane top liner will provide additional protection from chloride upward migration.

49. In addition, Dr. Neeper testified that chlorides move preferentially downward in sandy or loose soils and upward in clay-like soils (Tr. V2 at 120-122, NCCAW Ex. 1 at page 8). Dr. Buchanan testified that in New Mexico, as a general rule, one would find predominantly clay-like soils in playas and river drainages and predominantly sandy soils in other places (Tr. V2 at 211). The Pit Rule does not allow on-site trench burial in playas and river drainages regardless of chloride content. Paragraphs 10.C(5) and (12).

50. Taking into consideration the limitations of Dr. Neeper's modeling study and Dr. Buchanan's extensive experience, the Commission concludes that the proposed amendment will not, in reasonable probability, jeopardize soil productivity or prospects for surface re-vegetation.

51. In regard to the Division's recommendation that the chloride standard for on-site burial should be "background" where background exceeds the 3,000 mg/l standard, the Division's witness, Mr. Jones, testified that:

(a) Although the proposed rule does not fix the location where background chloride concentration is to be tested, testing four feet below the surface, at the depth where the top of the waste in the trench burial will be placed, would be appropriate.

(b) The Division intended to allow the higher "background" chloride standard in locations where elevated chloride levels are naturally occurring, or where such levels are the result of human activity unrelated to oil and gas development, but not at locations where chloride levels are the result of previous oil and gas related activity (Testimony of Mr. Jones, Tr. V1 at 185).

52. Accordingly, the Division's proposed changes to Subparagraph 13.F(3)(c) should be adopted, but a definition of "background" should be adopted to effectuate the Division's intent in proposing a "background" standard.

## Transitional Provisions

53 The Division has also proposed changes to transitional provisions of the Pit Rule to:

(a) extend the time allowed to apply for a permit modification for a permitted, lined permanent pit existing on the effective date for which the Pit Rule requires a permit modification from 180 days after the effective date to two years after the effective date;

(b) extend the time allowed to apply for a permit for a registered, lined permanent pit existing on the effective date from 180 days after the effective date to two years after the effective date;

(c) extend the time allowed to apply for a permit for an unpermitted below-grade tank existing on the effective date, or a below-grade tank existing on the effective date for which the Pit Rule requires a permit modification, from 90 days after the effective date to two years after the effective date; and

(d) require registration of all permitted, lined permanent pits that existed on the effective date for which permit modifications will be required, and below-grade tanks that existed on the effective date for which permits or permit modifications will be required, to be registered not later than one year after the effective date.

54. Subsection 17.C requires an operator of an existing lined, permanent pit for which the Pit Rule requires a permit or permit modification to apply for a permit or permit modification (as applicable) within 180 days after the effective date in order to be allowed to continue to operate that pit. Subsection 17.D requires an operator of an existing below-grade tank for which the Pit Rule requires a permit or permit modification to apply for a permit or permit modification (as applicable) within 90 days after the effective date in order to be allowed to continue to operate that tank. These deadlines have already passed, and apparently many operators have been unable to comply (Testimony of Mr. Jones, Tr. V1 at 70-71, 74).

55. The Division has recommended that the applicable deadlines for filing applications for permits or permit modifications (where authorized) for both permitted, lined permanent pits and below-grade tanks be extended to two years after the effective date, *i.e.*, June 16, 2010; with the proviso that operators be required to register facilities existing on the effective date that will require permits or permit modifications within one year after the effective date (*i.e.*, June 16, 2009) by filing with the Division a list of such facilities.

56. The object of the Pit Rule's transitional provisions is to allow operators of permitted or registered, lined permanent pits or below-grade tanks for which permits were not previously required, or for which the Pit Rule requires permit modifications, adequate time to comply with these requirements so that all such facilities can be brought into compliance with the rule. Apparently the existing transitional provisions have not proven adequate for this purpose. The proposed time extensions for filing of applications for permits and permit modifications for facilities existing before the effective date should be extended to give industry adequate time to prepare proper applications, and to give the operators time to work with the Division to develop templates that will assist in preparing their applications and assist the Division in processing those applications (Testimony of Mr. Jones, Tr. V1 at 70-75).

57. However, the Division has a need to know the magnitude of the task, so that it can be prepared to process these permit applications and modifications efficiently (Testimony of Mr. Jones, Tr V1 at 69 and 74).

58. The last sentence of the Division's proposed Subsection 17.D requires the operator to bring below-grade tanks existing on the effective date into compliance with the construction specifications of the Pit Rule be accomplished "upon discovery that the below-grade tank does not demonstrate integrity or prior to any sale or transfer of ownership." This sentence is apparently intended to re-state the requirements for retrofitting non-conforming tanks, as set forth in the Division's other proposed amendments. However, it fails to provide that retrofitting of non-conforming tanks described in Paragraph 11.I(6) must be completed within five years after the effective date, thereby introducing an inconsistency.

59. Accordingly, the last sentence of proposed Subsection 17.D should be changed to read "within the time provided by applicable provisions of Paragraph (5) or (6) of Subsection I of 19.15.17.11 NMAC or prior to any transfer of operation" in lieu of the language quoted in the immediately preceding finding.

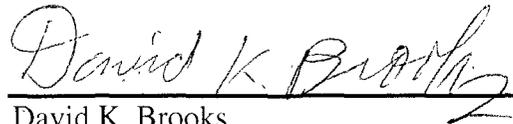
60. The Divisions proposed changes to Subsections 17.C and 17.D (as modified pursuant to Finding 59) should be adopted, except that, because the amendments adopted by this order will not be effective before June 16, 2009, provisions requiring registration "[w]ithin one year after June 16, 2008", should be changed to provide "within 60 days after [the effective date of the amendments adopted by this order]".

## Conclusions

61. The Commission concludes that adoption of the proposed amendments (as modified pursuant to certain of the above and foregoing findings) will protect fresh water, public health and the environment.

62. No party introduced evidence in this case indicating that any of the proposed amendments would implicate waste of oil or gas or correlative rights. Accordingly no findings regarding prevention of waste or protection of correlative rights are necessary or appropriate in this case.

RESPECTFULLY SUBMITTED,



---

David K. Brooks

Assistant General Counsel

Energy, Minerals and Natural Resources

Department of the State of New Mexico

1220 S. St. Francis Drive

Santa Fe, NM 87505

david.brooks@state.nm.us

Phone: (505)-476-3450

FAX: (505)-476-3462

Attorney for The New Mexico Oil  
Conservation Division