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VIA HAND DELIVERY

Ms. Florene Davidson, Clerk
Oil Conservation Commission
New Mexico Department of Energy,
Minerals and Natural Resources
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505

Re: Oil Conservation Division Case 13586: Application of the New Mexico Oil Conservation Division for Repeal of Existing Rules 709, 710, and 711 Concerning Surface Waste Management and the Adoption of new Rules Governing Surface Waste Management.

THE INDUSTRY COMMITTEE'S PROPOSED FINDINGS OF FACT

Dear Ms. Davidson:

Enclosed are six copies of the Industry Committee's Proposed Findings of Fact in the above-referenced case.

Copies of these proposed modifications have been mailed on this date to all parties of record in this case.

Very truly yours,

William F. Carr
Attorney for the IndustryCommittee

Enclosures

cc: Parties of record

David K. Brooks, Esq.
Oil Conservation Division
New Mexico Department of Energy,
Minerals and Natural Resources

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

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

CASE NO. 13586
ORDER NO. _____

APPLICATION OF THE OIL CONSERVATION DIVISION FOR REPEAL OF EXISTING RULES 709, 710 AND 711 CONCERNING SURFACE WASTE MANAGEMENT AND THE ADOPTION OF NEW RULES GOVERNING SURFACE WASTE MANAGEMENT.

THE INDUSTRY COMMITTEE'S PROPOSED FINDINGS OF FACT

BY THE COMMISSION:

THIS MATTER came before the Oil Conservation Commission ("the Commission") for consideration at the Commission's regular meeting on November 10, 2005, and was continued from time to time thereafter at regularly scheduled meetings of the Commission and special meetings of the Commission through May18, 2006; and the Commission, having considered the evidence, the pleadings, comments and other materials submitted in support of and in opposition to the proposal, now, on this __ day of _____, 2006,

FINDS THAT:

1. The Oil Conservation Division ("Division") has proposed the repeal of Division Rules 709, 710 and 711 and the adoption of new rules governing the disposition of surface waste that include provisions for:

A. revised and more comprehensive provisions with respect to the transportation and surface disposition of wastes, and

B. the permitting and operation of surface waste management facilities.

2. During the course of the meetings and hearings on the proposed Surface Waste Management Rules, the Division revised its draft of its proposed rules on several occasions and, following the conclusion of the Commission hearing, the Division released a draft of the proposed rules dated June 8, 2006, entitled "FINAL DRAFT OCD PROPOSED RULEMAKING."

THE PARTIES:

3. The following parties appeared at the hearings and presented testimony in support of certain provisions in the proposed rules as well as in opposition to certain provisions in the proposed rules:

(a) The Oil Conservation Division;
(b) The New Mexico Oil and Gas Association,
(c) The Industry Committee (an industry group comprised of Burlington Resources Oil & Gas Company, BP America Production Company, Inc., Chesapeake Operating, Inc., Chevron Texaco, Conoco Phillips, Devon Energy Corporation, Dugan Production Corporation, Energen Resources Corporation, Marathon Oil Company, Marbob Energy Corporation, OXY USA, INC., Occidental Permian, LTD, OXY USA WTP Limited Partnership, D. J. Simmons, Inc., Williams Production Company, XTO Energy, Inc. and Yates Petroleum Corporation.)
(d) Yates Petroleum Corporation,
(e) Controlled Recovery, Inc.
(f) New Mexico Citizens for Clean Air and Water.

4. Also appearing at the hearing were the Independent Petroleum Association of New Mexico, The Oil and Gas Accountability Project and John H. Hendricks Corporation. These parties did not present testimony.

OIL CONSERVATION DIVISION PROPOSED RULE CHANGES:

5. The Oil Conservation Division's proposed Surface Waste Management Rules attempt to "normalize" OCD rules with other state and federal agencies and contain a no degradation policy where no discharge is allowed and, therefore, there will be no degradation of groundwater. Testimony of Price at 42, 163-164; Testimony of von Gonten at 629, 641-651. To achieve these goals, the Division uses a the best demonstrated available technology approach ("BDAT") which is a purely technical solution designed to say no release from a surface waste management facility, landfarm or a landfill, is acceptable and therefore no risk is allowed. Testimony of Thomas at 1166.

6. Dr. Ben Thomas, an expert in toxicity of petroleum and other constituents of oil field wastes and the potential risks of that toxicity, testified for the Industry

Committee and recommended the adoption of a risk-based decision making process, like that used by EPA and NMED. Testimony of Thomas at 1169-1174. This risk-based process will protect fresh water, the environment, and human health by the elimination of the toxicity in these wastes through the use of state of the art technology with a bioremediation endpoint that, when reached, will assure that the toxicity is eliminated. Testimony of Thomas at 1166-1169.

7. The Oil Conservation Division uses a tiered approach in its proposed rules. These proposed rules provide for "Registered" Landfarms, "Permitted" Landfarms and an "Exemption and Waiver" category of landfarms.

8. The Industry Committee recommends a risk-based approach to landfarming that consists of the following three tiers: Testimony of Thomas at 1177-1179.

A. Tier 1 will be protective in all reasonably foreseeable circumstances and consists of Class 1 landfarms and Small landfarms which present limited risks to groundwater.

1. Class 1 Landfarms, as proposed by the Industry Committee, can only accept condensate and hydrocarbon contaminated soils and cuttings. In these landfarms, there would be no testing for the Water Quality Control Commission Section 3103 Groundwater Standards ("WQCC 3103 Groundwater Standards") and no treatment zone monitoring unless using a bioremediation endpoint.

2. Small Landfarms, as proposed by the Industry Committee, are limited to 2 acres or less, with a total capacity of 6400 cubic yards or less. These landfarms can remain active for a maximum of three years and can only accept hydrocarbon contaminated soils. Remediation to a bioremediation endpoint would be allowed in these landfarms under the Industry Committee Recommendation.

B. Tier 2 requires a semi-specific approach and is protective for specific proposed locations and consists of Class 2 Landfarms, which , as proposed by the Industry Committee, can accept any exempt oil field wastes, including tank bottoms. In these landfarms, chloride limits are based on a site specific DAF multiplied by the WQCC 3103 Groundwater Standards.

C. Tier 3 is an alternative approach that is handled by the Oil Conservation Division's proposed subsection K exemption process.

AGREEMENT BETWEEN PARTIES:

9. At the suggestion of the Division's Staff, members of the New Mexico Citizens for Clean Air and Water and the Industry Committee met to discuss the proposed rules. They and attempted to reach agreement on a rule that would be both environmentally protective and workable as a practical matter. Testimony of Sublette at 935. These parties reached an agreement on certain issues which they presented in a letter agreement to the Commission at the conclusion of the hearing.

JURISDICTION:

10. NMSA §§ 70-2-11 and 70-2-12(B) grant the Oil Conservation Division authority to implement regulations to carry out the purposes of the Oil and Gas Act ("the Act"). NMSA § 70-2-6(B) provides that the Oil Conservation Commission ("Commission") shall have concurrent jurisdiction and authority with the Division to the extent necessary for the Commission to perform these duties. Generally, the Commission adopts rules, the Division implements those rules, and the Commission hears any final administrative adjudicatory proceedings.

11. The primary duties of the Oil Conservation Commission are the prevention of waste of hydrocarbons and the protection of correlative rights. NMSA § 70-2-11 (2006). NMSA § 70-2-12 of the Oil and Gas Act further enumerates the powers of the Commission and specifically empowers it:

> (15) to regulate the disposition of water produced or used in connection with the drilling for or producing of oil or gas or both and to direct surface or subsurface disposal of the water in a manner that will afford reasonable protection against contamination of fresh water supplies designated by the state engineer;
>
> (21) to regulate the disposition of nondomestic wastes resulting from the exploration, development, production or storage of crude oil or natural gas to protect public health and the environment; and
>
> (22) to regulate the disposition of non-domestic wastes resulting from the oil field service industry, the transportation of crude oil or natural gas, the treatment of natural gas or the refinement of crude oil protect public health and the environment, including administering the Water Quality Act [Chapter 74, Article 6 NMSA 1978] as provided in Subsection E of Section 74-6-4 NMSA 1978.

12. The Division and Commission, therefore, also derive their authority to protect fresh water from the Water Quality Act. NMSA 74-6-1 *et seq.* (2006). This act creates a Water Quality Control Commission ("WQCC"). The Oil Conservation Commission is a "constituent agency" of the WQCC. NMSA 74-6-2.K (2006).

13. The Water Quality Act directs the WQCC to "adopt water quality standards for surface and ground waters of the state based on credible scientific data and other evidence appropriate under the Water Quality Control Act." NMSA 74-6-4.C (2006) (emphasis added). It also provides that the WQCC "shall adopt, promulgate and publish regulations to prevent or abate water pollution in this state...." NMSA 74-6-4.D (2006). The WQCC thereby sets state policy concerning the protection of ground waters in this state. (Testimony of Price, Tr. at 166).

14. The Water Quality Act also provides:

> "in the adoption of regulations and water quality standards and in an action for enforcement of the Water Quality Act and regulations adopted pursuant to that act, reasonable degradation of water quality resulting from beneficial use shall be allowed. Such degradation shall not result in impairment of water quality to the extent that water quality standards are exceeded." NMSA 74-6-12.F (2006) (emphasis added).

15. Pursuant to its statutory grant of authority, the WQCC adopted regulations that set standards for the protection of fresh waters and the prevention of water pollution. In adopting rules and standards to protect ground water, the WQCC acted in a manner consistent with the power delegated to it by the legislature. See, *Tenneco Oil Co. v. NMWQCC*, 138 N.M. 625, 760 P.2d 161 (2005).

16. As a constituent agency of the WQCC, the Commission has been assigned the administration of these regulations and standards to prevent water pollution and to protect ground water. Section 74-6-4.E NMSA 1978. In so doing, the Commission merely applies these standards as allowed by Section 74-6-8 See, *Kerr-McGee v. NMWQCC*, 98 N.M. 240, 647 P.2d 873 (1982).

17. Since the WQCC adopts standards and constituent agencies administers these standards, the Oil Conservation Commission may administer – but cannot change or interpret differently -- the standards adopted by the WQCC. [1] See, *Gila Resources Information Project v. NMWQCC*, 138 N.M. 625, 124 P.3d 1164 (2005).

[1] During meetings of the Surface Waste Management Rules Task Force, there was discussion, but no consensus, between the Task Force members concerning a change in the way the WQCC Section 3103 Groundwater Standards were to be applied. Regardless of whether or not this

FINDING: The Oil Conservation Commission, pursuant to its statutory authority under the Oil and Gas Act, may adopt rules governing the surface and subsurface disposal of produced water and may adopt Surface Waste Management Rules to protect fresh water, human health and the environment.

FINDING: The Oil Conservation Commission, pursuant to the Water Quality Act, and its role as a constituent agency of the Water Quality Control Commission, may regulate the disposition of non-domestic wastes to protect ground water by the adoption of surface waste management rules.

FINDING: In adopting rules to protect ground water, the Oil Conservation Commission administers the standards adopted by the Water Quality Control Commission but may not change or interpret these standards differently than the WQCC.

Oil Conservation Division's Anti-degradation Policy:

18. The policy of the state as set by the WQCC permits degradation of water quality resulting from beneficial use where such degradation does not result in impairment of water quality that exceeds water quality standards. NMSA §74-6-12.F (2006).

19. The Division's no release policy does not allow discharges that result in degradation that exceeds background standards. 1.15.2.53 G.(6)(e) NMAC.

20. Voluntary cleanup standards and risk-based corrective action programs at the New Mexico Environment Department (NMED) recognize that it may be acceptable for soil to be impacted above background concentrations. Testimony of Stephens at 769.

21. The Division testified that the goal of proposed Rule 53 is to protect human health and the environment by guaranteeing there is no degradation of groundwater by ensuring that no release of oil field waste occur as a result of operations of surface waste management facilities. Testimony of Price at 42, 163-164; Testimony of von Gonten at 629, 641-651.

22. All experts agreed that landfarming presents a beneficial way to handle hydrocarbon contaminated soils resulting from oil field activities and that, in some instances, landfarming is the most beneficial treatment approach. Testimony of Price at 203; Testimony of Sublette at 991.

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change in the application may result in a new and different interpretation of these standards, this change lacks any record support and therefore may not be considered by the Commission.

23. The no release/no degradation policy recommended by the Division violates the provision of the Water Quality Act that authorizes reasonable degradation of water quality resulting from beneficial use where water quality standards are not exceeded. NMSA §74-6-12.F (2006).

24. The Oil Conservation Commission is a constituent agency of the WQCC and administers the standards but may not interpret differently these standards of the WQCC. The no degradation policy in the proposed rules is contrary to the policy and standards of the WQCC.

25. In adopting a no release/no degradation policy, the Division rejected the recommendation of the Industry Committee for a risk-based approach to the remediation of hydrocarbon contaminated soils. Testimony of von Gonten at 628, 644-646.

FINDING: The Commission finds that landfarming hydrocarbon contaminated soils is a beneficial use and may, in some instances, be the best approach for treating hydrocarbon contaminated soils and materials.

FINDING: The Oil Conservation Division and this Commission may not adopt an anti-degradation policy for a beneficial use, in this case landfarming, because such a policy is contrary to the water quality policy and standards of the State of New Mexico as set by the Water Quality Control Commission.

CHLORIDE CONCENTRATION LIMITS
Rule 53.G(1) - Waste Acceptance Criteria

26. Proposed Oil Conservation Division Rule 53.G(1) establishes waste acceptance criteria for landfarms and provides that waste placed in landfarms shall not have a chloride concentration exceeding 1000 mg/kg. 19.15.2.53 G.(1) NMAC. This limit is intended to address the two issues:

A. the protection of groundwater, and

B. the revegetation of sites impacted by surface waste management activities. Testimony of Price at 97.

Protection of Groundwater:

27. The Division chose 1000 mg/kg as a standard that would be protective of groundwater in all cases. Testimony of Price at 115, 120-121.

28. Dr. Daniel B. Stephens, an expert in hydrogeology, aquifer contamination problems, and vadose zone and aquifer monitoring, reviewed the results of simulations he conducted for the Industry Committee on the potential impacts on ground water of chloride in landfarms. The purpose of this modeling was to asses the maximum soil concentration of chloride that can remain in a given landfarm without impacting groundwater above the EPA's secondary limit for chloride of 250 mg/l. Testimony of

Stephens at 755. The results of his modeling of various types of vadose and aquifer soils under a number of conditions showed limits on chloride concentrations in landfarm soils varied from 3,890 mg/kg to 11,650 mg/kg (Testimony of Stephens at 756) and with an evapotransporative cover much higher concentrations were protective of groundwater. Testimony of Stephens at 758-762.

29. Based on Dr. Stephens work, the Industry Committee recommends a more flexible approach than the Division's single 1000mg/kg chloride limitation which is based on the size and character of the landfarm. Testimony of Stephens at 764

30. For Small Landfarms of less that 0.5 acre, the Industry Committee recommends a chloride limit of 5000 mg/kg (based on the EPA SSL study) and for landfarms containing from 0.5 to 2 acres the Industry committee recommends a chloride limit of 2000 limit of mg/kg. Industry Committee Proposal, Final Revisions, May 18, 2006, Rule 53H.(2), page 26.

31. Dr. Stephens testified that a site specific chloride concentration limits in excess of 1000mg/kg proposed by OCD would be protective of groundwater. Testimony of Stephens at 263-264. He cited examples where, depending on the conditions of the landfarm, chloride levels as high as 57000 mg/kg were protective of groundwater. Testimony of Stephens at 764.

32. Based on Dr. Stephens work, the Industry Committee recommends a chloride concentration limit as a default number of 1000mg/kg for its proposed Class 1 Landfarms which is the same limitation recommended by the Division. Testimony Stephens at 763.

33. For its proposed Class 2 Landfarms, the Industry Committee recommends and a procedure whereby chloride concentration in excess of 1,000 mg/kg may be accepted up to a site-specific chloride concentration limit established by multiplying the groundwater standard for chloride by the applicable area-based DAF set in accordance with other provisions in its proposed Rule G.6 (EPA area DAF [from EPA 90-percent table] x NMED SSLDAF1).

34. The evidence established that limits for small landfarms recommended by the Industry Committee will be protective of ground water. Testimony of Stephens at 755.

Chloride Management

35. Dr. Kerry Sublette, an expert in biochemistry, microbiology and chemical engineering and the leading authority on the use of the bioremediation endpoint approach to remediation petroleum hydrocarbon contaminated soils, testified for the Industry Committee about how chlorides can be managed so hydrocarbon degradation works

where chloride concentrations in soils exceed the 1000 kg/mg limit in the Division's proposed rules. Testimony of Sublette at 1021-1027.

36. Dr. Sublette testified that the 1000mg/kg chloride limit in the proposed rules does not make sense for there is evidence of effective bioremediation in soils that substantially exceed this limit. Testimony of Sublette at 1022. He testified that organisms adapt to and become more tolerant of chlorides and by managing the landfarm by adding fertilizers, hay, moisture and buy tilling the soils the effects of chlorides on hydrocarbon degradation can be minimized. Testimony of Sublette at 1023-1027.

37. The Industry Committee's recommendation provides more flexibility and is supported by better science than the Division's flat 1000 mg/kg limit, can be enforced without substantial burden on the staff. Testimony of Stephens at 764, Testimony of Sublette at 998 -1004.

FINDING: The proposed Surface Waste Management Rules should include the Industry Committee's recommendation for chloride concentration limits for its proposed Class 1, Class 2 and Small Landfarms.

Revegetation:

38. The Industry Committee and the New Mexico Citizens for Clean Air and Water agreed on a closure standard condition to jointly recommend to the Commission that will guarantee re-vegetation. Testimony of Sublette at 1045. They recommend that the vegetation be restored to 70 percent or the background cover percentage with three native species including on grass. They also recommend a soil EC of 4 and a SAR of 13 with solid phase hydrocarbons less than one percent with no piece greater than one-half inch. Testimony of Sublette at 1046.

39. These standards provide a robust rooting area for revegitation and will result in the re-establishment of traditional ground water regime. Testimony of Sublette at 1045.

FINDING: The revegitation standards jointly recommended of the Industry Committee and the New Mexico Citizens for Clean Air and Water should be adopted.

40. The Division recommends that monitoring of chloride impacts on ground water be monitored at a depth of 3 feet below ground surface. 19. 15.2.53 G.(2) N.M.A.C.

41. Dr. Stephens testified that it is "not likely" that a properly operated landfarm can meet the 3-4 foot BGS corrective action trigger. Testimony of Stephens at 810-811.

42. Industry Committee recommended a deeper monitoring point of up to ten feet which allows chloride management without flushing or threat to groundwater. Industry Committee Proposal – Final revisions, May 18, 2006, Page 22.

43. New Mexico Citizens for Clean Air & Water agreed that some migration of constituents occurs as part of proper operation of a landfarm.

44. The Industry Committee's recommended deeper monitoring points for chloride management should be adopted by the Commission.

FINDING: The Division's proposed "trigger" points for corrective action are unworkable and inappropriate because they will be triggered by routine, proper operation of a landfarm and hence provide no meaningful guidance on whether corrective action is required. The landfarm monitoring point should be established at a depth of up to ten feet below ground surface, as recommended by the Industry Committee, to allow barometric breathing and chloride management without risk to groundwater.

WQCC 3103 CONSTITUENTS / DAF1
RULE 53G.(2) –Background Testing

WQCC 3103 Constituents:

45. To protect groundwater, the WQCC has established numerical standards for many soil constituents ("WQCC 3103 Groundwater Standards). 20.6.2.3103 NMAC.

46. In New Mexico, dischargers are allowed to discharge to groundwater up to the groundwater quality standards at a point of reasonable foreseeable future use as established in the Section 3103 of the New Mexico Water Quality Control Commission regulations. NMSA 74-6-12.F (2006), Testimony of Stephens at 768.

47. With its proposed Rule 53.G, the Oil Conservation Division rejects the industry's recommended risk-based approach to remediation where small discharges may occur as long as water quality is not impaired to the extent that it exceeds the WQCC's Groundwater Standards. Testimony of vonGonten at 628, 644-646. Instead, using this approach, the Division has proposed the adoption of rigorous numerical standards that must be met at landfarm closure or the remaining waste must be removed to a landfill-even if it is not toxic and does not pose a threat to groundwater, human health or the environment.

48. Proposed Rule 53.G requires testing of various constituents prior to the beginning operation of a new landfarm or opening a new cell in an existing landfarm to establish the background concentrations of various constituents. These constituents include TPH, BETEX, chlorides and all WQCC Section 3103 Groundwater Standards. 19.15.2.53 G.(6)(e) NMAC.

49. Dr. Stephens testified that the 3103 Groundwater Standards are often below background and observed that soils prior to landfarming will fail to meet the Oil Conservation Division's proposed closure standards. Testimony of Stephens at 785, 919.

50. Pursuant to New Mexico law, the limitations on degradation of groundwater by discharges are the WQCC's 3103 Groundwater Standards, not background concentrations. NMSA 74-6-12.F (2006), Testimony of Stephens at 769, 722.

51. Voluntary cleanup standards and risk-based corrective action programs at the New Mexico Environment Department (NMED) recognize that it is acceptable for soil to be impacted above background concentrations as long as the WQCC 3103 Ground Water Standards are not exceeded. Testimony of Stephens at 769.

52. Dr. Stephens also testified that the 3103 constituents are typically not present in crude oil and condensate, but that they may be present if mixed. However, no evidence was presented that these constituents would be present at concentration levels of concern.

53. Dr. Thomas testified that it was costly to monitor these constituents where individual sample analysis of certain constituents may cost more than $1800 per sample to analyze. Testimony of Thomas at 1223-1224.

54. The Industry Committee recommended that the proposed Surface Waste Management Rules provide for (i) monitoring of BTEX and Chloride as indicators of leaching, (ii) delete the references to the NMED 3103 Groundwater Standards for Class 1 Landfarms and Small Landfarms that handle only crude oil and condensate, and (iii) use NMED 3103 Groundwater Standards for Class 2 Landfarms, but let operators demonstrate, subject to Division approval, that some are not appropriate. Industry Committee Proposal- Final Revisions, May 18, 2006, page 20.

55. The recommendation of the Industry Committee is fully protective of the human health and the environment.

FINDING: The new Surface Waste Management Rules should provide for (i) monitoring of only BTEX and Chloride as indicators of leaching, (ii) delete the references to the NMED 3103 Groundwater Standards for Class 1 Landfarms and Small Landfarms that handle only crude oil and condensate, and (iii) use NMED 3103 Groundwater Standards for Class 2 Landfarms, but let operators demonstrate, subject to Division approval, that some are not appropriate.

CLOSURE STANDARDS - DAF1:

56. The Division's proposed Rule 53.G(6) lists soil cleanup performance standards that must be met within the treatment zone to achieve closure. This rule sets standards for Benzene, BTEX, THP-GRO and TPH-DRO, Chlorides and includes rules and requires remediation of landfarmed soils for 39 constituents to the higher of the background concentrations or the WQCC 3103 Groundwater Standards which are set out in the rule . N.M.A.C. 19.15.2.53G.(6)(e).

57. The Division's recommended closure standards are based on calculations used to derive the Soil Screening Levels ("SSLs") set by the NMED for establishing voluntary cleanup levels using a Dilution Attenuation Factor of 1 ("DAF of 1"). Testimony of Stephens at 778, Industry Committee Exhibit 6, page 12.

58. The Soil Screening Levels set by the NMED for establishing voluntary cleanup levels are intended to establish the concentrations of specific chemicals that can be left in the soil after cleanup is complete. These levels take into account the concentration of pore water percolating into the aquifer. Testimony of Stephens at 776; Industry Committee Exhibit 6, page 12.

59. Dilution Attenuation Factors are convenient ways to calculate the impacts of various constituents on groundwater. Testimony of Stephens at 770.

60. By proposing a DAF of 1 the Division is recommending a single standard for all landfarms that assumes no dilution of the constituent at all and therefore is the most protective standard (Testimony of vonGonten at 543) and will result in the most stringent standards possible. Testimony of vonGonten at 634, 636.

61. The Technical Support Document for the NMED Soil Screening Levels states that the DAF of 1 is presented to facilitate calculation of a site specific DAF. NMED, TECHNICAL BACKGROUND DOCUMENT FOR DEVELOPMENT OF SOIL SCREENING LEVELS, REVISION 3.0 (August 2005).

62. Since the Division does not know if a constituent DAF of 1 is lower than background, it recommends that where a DAF of 1 is lower than background, the Commission adopt background as the closure standard. Testimony of vonGonten at 641.

63. Dr. Thomas testified that use of a DAF of 1 is overly protective (Testimony of Thomas at 1221, also see Testimony of Stephens at 779) and Division also admits it may be overly conservative for the protection of groundwater. Testimony of vonGonten at 637.

64. Dr. Stephens testified that the Division's recommended use of a DAF of 1 is neither appropriate nor supported by science for to use a DAF-1 you must:

A. assume that the groundwater does not flow;
B. ignore the vadose zone process which can attenuate constituents , and
C. ignore the natural mixing and spreading of constituents in landfarms.

Testimony of Stephens at 778-779.

65. The Division also admits that the basic underlying assumptions for a DAF of 1 are not met in a land farm. von Gonten at 635.

66. Even the Division's recommendation provides for different DAF's for many constituents. Using a chloride limit of 1000 mg/kg the Division has adopted a DAF of 20 for chlorides. Testimony of Stephens at 780. The Division's recommended use of a DAF of 1 also results in screening levels below the practical quantitation limit ("PQL") for 13 constituents and its use would therefore rendered these constituents are unquantifiable. Testimony of Stephens at 781, Exhibit 6 at 14. The Division testified that for these constituents it would grant exceptions (Testimony of vonGonten at 642) and in so doing will adopt different DAF's for each of these constituents. Testimony of Stephens at 781.

67. Although the Division testified that where the PQL is higher than DAF of 1, it will not hold an operator to that standard, there is nothing in the rules to support this statement and in these circumstances formal exceptions would have to be obtained. Testimony of vonGonten at 642.

68. Use of a DAF of 1, as proposed by the Division, is unworkable for it permits no dilution at all and does not occur in New Mexico or elsewhere. Testimony of Stephens at 772, 779.

69. NMED and EPA guidance recognize that dilution will occur in the aquifer and the amount of dilution of the pore water leachate depends on the rate of flow in the aquifer and the mass flux of leachate into it. Testimony of Stephens at 771. Since dilution will occur in an aquifer, NMED and EPA recognize that DAF's of 7 to 20, or more, are highly likely in New Mexico, and protective of groundwater. Testimony of Stephens at 782, Exhibit 6 at 13, See, Testimony of vonGonten at 638. NMED also recommends the calculation of a site specific DAF where data to do so are available[2]. Testimony of vonGonten at 640, Testimony of Stephens at 782-783.

70. Since the Division proposal prohibits closure of a landfarm until soils in the landfarm have been remediated to the higher of background or the standards set out in the rule, including the WQCC 3103 standards, or acceptable PQL limits (19.15.2.53 G(6) NMAC), the addition of any constituent to the landfarm can prevent closure. Testimony

[2] The first step in the NMED's analysis to set a SSL is to find the NMWQCC groundwater standard for the chemical, and assume that concentration is the maximum concentration in pore water that can be allowed if there were no dilution in leachate and if there were no dilution of the pore water by ground water, that is, determine the a DAF of 1, which means there is no dilution at all. NMED indicates that it establishes the DAF of 1 only to facilitate calculating a site-specific SSL when site specific data are available. Testimony of Stephens at 771, 783.

of Stephens at 783-785. These standards are unrealistically stringent, cannot be met and the practical result of these rules will be to discourage in-place closures and landfarming (Testimony of Stephens at 783-785) and encourage digging and hauling of wastes to a landfill. Testimony of Stephens at 785.

71. Where standard wastes are placed in a properly managed landfarm there will be some migration into the subsurface, especially chlorides. Testimony of Stephens at 784-785.

72. Use of a DAF of 1 in the Surface Waste Management Rules would inhibit landfarming and lead to almost exclusive landfilling of oilfield waste. Testimony of Stephens at 783-785.

73. The Industry Committee recommends the Oil Conservation Commission adopt rules that are consistent with the New Mexico Environment Department and use semi site-specific Soil Screening Levels (SSL) using EPA "area-weighted" numbers from the Division's presentation (Testimony of Price at 113) at the 90th percentile. Use of these numbers results in an appropriate DAF based on site-specific data and is more appropriate than using a single DAF factor for all landfarms.

74. The Industry Committee's recommendation would result in higher precision while still being substantially over-protective, would be easy to administer, and should be approved.

FINDING: The Oil Conservation Commission should not use a Soil Screen Level Dilution Attenuation Factor of 1 in its Surface Waste Management Rules but, instead, should adopt the recommended use of semi site-specific SSLs using EPA area weighted numbers from the Division's 90th percentile, taken from "Table 5. Variation of DAF with Size of Source Area for SSL EPACMTP Modeling Effort," Division Exhibit Price 3.

BIOREMEDIATION ENDPOINT
Rule 53 G(8)

75. Bioremediation is the process whereby conditions are created that enable microorganisms to degrade hydrocarbon contaminated soils (Testimony of Sublette at 947-948, Testimony of Thomas at 1200) and a landfarm is a way to optimize the natural processes of biological degradation on hydrocarbon contaminated soils. Testimony of Thomas at 1165.

76. A bioremediation endpoint is that point in time when the mean concentration of TPH-GRO or TPH-DRO[3] does not change significantly between two successive sampling periods at least thirty (30) days apart. It indicates that biodegradation of the toxic hydrocarbons constituents has been completed, regardless of TPH-GRO or TPH-DRO level. Sublette at 967, 976-984.

77. The uncontroverted evidence establishes that the use of the bioremediation endpoint eliminates toxicity of hydrocarbon wastes. Sublette at 976-984, Thomas at 1165, 1200-1203, 1210.

78. The bioremediation of hydrocarbons in soil eliminates toxicity and is more protective of human health and the environment than sequestering these materials in a landfill. Sublette at 990-991 Thomas at 1202.

79. The testimony of Dr. Sublette, Dr. Thomas, and Mr. Price and Mr. Von Gonten established that the use of a bioremediation endpoint is the "best science" and the preferred method for remediation of hydrocarbon contaminated soil. Testimony of Price at 90, Testimony of vonGoten at 673, Testimony of Sublette at 990-991, Testimony of Thomas at 1169.

80. All putative issues with bioremediation have been addressed for the undisputed technical evidence in this case establishes that the concept has been proven in dry landfarms in New Mexico, (Testimony of vonGonten at 676-677,Testimony of Sublette at 1007) toxicity issues have been addressed by multiple studies (Sublette at 986,), and hydrophobicity is addressed by the addition of organic matter. Sublette at 1042-1043.

80% TOTAL TPH REDUCTION:

81. The Division, in proposed Rule 53.G(8)(a), recommends the use of an environmentally acceptable bioremediation endpoint approach by operators and provides that an "environmentally acceptable bioremediation endpoint occurs when the TPH concentration has been reduced by at least 80% by a combination of physical, biological and chemical processes and the rate of change is negligible." 19.15.2.58 G(8)(a) NMRA, Testimony of Price at 91.

82. Most crude oils produced in New Mexico in terms of volumes have an API gravity of less than 42. Testimony of vonGonten at 586, Testimony of Sublette at 987. The undisputed evidence in this case establishes that with the adoption of an 80%

[3] TPH-GRO shall be used when condensate is added to the landfarm cell, while TPH-DRO shall be used when any material other than condensate contaminated material is added to the landfarm cell.

minimum removal standard, any crude oil with an API gravity of less than 45 cannot be landfarmed and, with this standard, most spills in New Mexico cannot be landfarmed. Testimony of Sublette at 987-989.

83. If adopted by the Commission, the 80% total TPH reduction minimum removal standard would be an unnecessary restraints on use of bioremediation endpoint and will effectively preclude the bioremediation of most New Mexico crudes. Testimony of Sublette at 987-988, 1007.

84. Dr. Sublette and Dr. Thomas testified that an 80% minimum removal standard is unnecessary for at the end of the bioremediation process the toxicity of the hydrocarbon contaminated soil have been eliminated and it does not pose a threat to human health, the environment or fresh water. Testimony of Sublette at 976-984, Testimony of Thomas at 1214-1216.

85. The Industry Committee recommends that the Commission encourage the use of the bioremediation endpoint and that, instead of an 80% total TPH reduction, a 1% TEPH limitation on solid phase and a revegetation standard be adopted. Testimony of Sublette at 1006, 1042-1045.

86. The New Mexico Citizens for Clean Air and Water and the Industry Committee recommended that "The requirement for a minimum reduction of 80% in the TPH concentration when using the bioremediation endpoint option for permitted landfarms should be replaced with a maximum residual TPH concentration at the bioremediation endpoint. An appropriate maximum residual TPH concentration is < 1% total extractable petroleum hydrocarbons as determined by EPA 418.1 or and EPA approved equivalent method." Testimony of Sublette at 1006. Letter defining areas of agreement between the Industry Committee and New Mexico Citizens for Clean Air & Water, April 19, 2006.

FINDING: Bioremediation and the bioremediation endpoint approach should be encouraged as a treatment option for small, registered landfarms.

FINDING: The provision in proposed Rule 53.G(7)(a)(iii) that requires an 80% reduction of total TPH by bioremediation creates an unnecessary restraint on the use of bioremediation, will effectively prevent the use the bioremediation approach for it sets a standard that cannot be met in most cases and it should not be adopted.

FINDING: The Surface Waste Management Rules should provide for a maximum residual TPH concentration at the bioremediation endpoint of less than 1% TEPH as determined by EPA 418.1 or and EPA approved equivalent method and a revegetation standard.

NATIVE SOIL DATA:

87. Proposed rule 53 G(8)(c)(i) requires operators submit detailed information on soil conditions present for each landfarm cell immediately prior to the application of petroleum hydrocarbon contaminated soils. 19.15.2.53 G.(8)(c)(i) NMAC.

88. Dr. Sublette testified that there is no use for the data because it is not relevant to the bioremediation process, that the description of the data required by the rule is vague, and that its collection was unnecessarily burdensome on operators. Testimony of Sublette at 1018.

FINDING: The requirements of proposed Rule 53 G(8)(c)(i) for the analysis of native soils in each landfarm cell prior to the application of hydrocarbon contaminated soils are unnecessary, unduly burdensome on operators and should not be adopted.

5% MAXIMUM HYDROCARBON LOADING:

89. The Division, in proposed Rule 53G(7)(c)(iii) establishes operating procedures for operators using a bioremediation endpoint approach including a provision that a requirement for procedures that limit petroleum hydrocarbon loading to less that 5%. 19.15.2.53 G.(7)(C)(III) NMAC.

90. Dr. Sublette testified that this limitation is overly conservative (Testimony of Sublette at 1019) and is not supported by science for hydrocarbons are effectively bio-remediated at higher loadings. His evidence established that hydrocarbon loading is a matter of efficiency and will be self regulating since the operator can balance the need for rates of biodegradation with the requirement to meet a maximum of 1% total extractable petroleum hydrocarbons as recommended by the Industry Committee and the New Mexico Citizens for Clean Air and Water. Sublette at 1017-1018, 1124.

FINDING: The provision in proposed Rule 53.G(7)(c)(iii) that places a 5% maximum on hydrocarbon loading should not be adopted.

CORRECTIVE ACTION TRIGGER
RULE 53 G. (5)(e) --

91. Proposed Rule 53 G. (5)(e) of the Division's proposed Surface Waste Management Rules require the submission of a corrective action plan if any vadose zone sampling results show the concentrations of TPH, BTEX, chlorides, or constituents listed in Subsections A and B of 20.6.2.3103 NMAC ("3101 constituents") exceed the background concentrations. This required plan must address changes in operation of the landfarm to prevent further contamination and a plan for isolating or remedying any existing contamination. 19.15.2.53.G(5)(e).

92. The requirement for a corrective action plan whenever sampling results exceed background concentrations establishes an unworkable anti-degradation groundwater standard for, as all witnesses agreed, some migration from the treatment zone into the vadose zone is unavoidable and will trigger corrective action. Testimony of Stephens at 766-767,784-785; 786, 807-811.

93. The requirement for a corrective action plan whenever sampling results exceed background concentrations is too stringent and results in a no degradation policy and, in some cases, is unworkable because an accurate measurement cannot be obtained because the standard is so low that it is not possible for laboratories to accurately quantify these constituents because they fall below the practical quantitation limit ("PQL"). Testimony of Stephens at 781-786.

94. The evidence showed that some constituents that exceed background or the WQCC 3103 Groundwater Standards will be found in most if not all samples and trigger a corrective action plan. The proposed rules would discourage the use of landfarming for it would impossible to operate a landfarm without triggering a corrective action obligation. Testimony of Stephens at 785-91, Testimony of Thomas at 1198.

95. The corrective action trigger recommended by the Division effectively rules out landfarming, (Testimony of Stephens at 769), the most effective tool available to the Commission to deal with hydrocarbon contaminated soils, would require action by the Division thereby burdening Division staff resources (Testimony of Stephens at 777), is unnecessary, leaves the Division vulnerable to accusations of not enforcing its rules.

FINDING: Use of background as the corrective action trigger as recommended by the Division effectively prevents landfarming, requires action by the Division's staff thereby burdening Division resources, is unnecessary, and should not be adopted.

96. The Industry Committee and the New Mexico Citizens for Clean Air and Water propose to limit the corrective action trigger to times where there is truly something of concern. They agree that closure standards are protective of groundwater and that a closure standard trigger level is preferable and should be adopted instead of background or the WQCC 3101 Groundwater Standards.

97. The evidence also established that due to the slow travel time of the constituents in water, there is substantial time to remedy problems, and that using a closure standard trigger there can be no imminent actual threat to human health, or the environment. Testimony of Stephens at 731-742.

FINDING: A closure standard trigger is protective of ground water and should be adopted by the Commission.

CLOSURE AND REVEGETATION:

98. The evidence established that the use of a bioremediation endpoint is protective of the environment for, if it meets the closure standards, the site can be re-vegetated in place. Testimony of Sublette at 104.

99. The Industry Committee and the New Mexico Citizens for Clean Air and Water agreed to the following standards for revegitation:

A. 70% or background cover percentage with 3 native species and

B. Soil EC<4; SAR<13; <1% soil phase and <0.5inch.

Letter defining areas of agreement between the Industry Committee and New Mexico Citizens for Clean Air and Water, April 19, 2006, See Testimony of Sublette at 1045.

100. After toxicity has been eliminated by bioremediation, hydrophobicity, or the coating of soil properties with hydrophobic water-repelling material, may inhibit re-vegetation of the soil. Testimony of Sublette at 1041-1043.

101. Hydrophobicity is removed by the addition of organic matter to the soil. Testimony of Sublette at 1044

102. The evidence showed that the problem if hydrophobicity is a problem that it is addressed by the 1% TEPH standard and revegitation standards recommended by the Industry Committee and the New Mexico Citizens for Clean Air and Water. Testimony of Sublette at 1042-1045.

SMALL LANDFARMS:

103. Rule 53 H of the proposed Surface Waste Management Rules contains special provisions applicable to small landfarms. These provisions require registration of small landfarms, require notice to landowners, limit landfarms to one per governmental section and establish special operating rules, management standards, record keeping requirements, and closure requirements. 19.15.2.53 H. NMAC.

104. The proposed rules define a small landfarm as a centralized landfarm that has a total capacity of 1400 cubic yards or less, remains active for a maximum of three years from the date of registration, and receives only petroleum hydrocarbon-contaminated soils (excluding drill cuttings) that are exempt or non-hazardous waste. 19.15.2.53 A.(1)(e) NMAC. These rules do not provide for the use of the bioremediation endpoint approach for the remediation of hydrocarbon contaminated soils. Testimony of Sublette at 1012. They do not include the WQCC 3103 Groundwater Standards in the closure performance standards. 19.15.2.53 H. NMAC.

105. The Industry Committee recommended the proposed rules for Small Landfarms be modified as follows:

A. The permitted size for small landfarms be increased to 2 acres, and 6400 cubic yards. Increasing the size of small registered landfarms to just 6400 cubic yards adds needed flexibility for the operator to decrease the costs of operation by making more efficient use of large equipment, water sources, and sources of organic matter. Testimony of Sublette at 1020-1021, 1095-1097, Industry Committee Exhibit 3 at page 18.

B. Although the material that may be accepted by a small landfarm should be limited to predominantly hydrocarbon contaminated soils, incidental drill cuttings should be allowed;

C. More flexibility for chloride loading should be allowed with two size mass loading limits allowed (Testimony of Stephens at 756, Testimony of Sublette at 1028); and

D. The bioremediation endpoint should be made available to small landfarms since it has been shown to work in dry landfarms in New Mexico. Testimony of Sublette at 1118-1119, 1142. Dr. Sublette testified that because of their limited size and duration, these small landfarms pose an inherently low risk to groundwater, human health and the environment and allowing the bioremediation endpoint approach, with easy to understand guidelines, would result in less toxic hydrocarbons entering the environment. Testimony of Stephens at 727, Testimony of Sublette at 1030-1039, Industry Committee Exhibit 3 at 18.

FINDING: Bioremediation and the bioremediation endpoint approach should be encouraged as a treatment option for small registered landfarms. Regulations for small, registered landfarms should be technically sound but minimize adverse effects on small businesses.

FINDING: The recommendations of the Industry Committee for small landfarms will result in more effective waste management, the more efficient operation of these landfarms and should be approved.

FINDING: The recommended modifications of the Industry Committee to the proposed Surface Waste Management rules will protect ground water, human health and the environment, are otherwise in the best interest of conservation, the prevention of waste and the protection of correlative rights and should be adopted.

CERTIFICATE OF SERVICE

I certify that on September 6, 2006 I served copies of the foregoing Findings of Fact by U. S. Mail, postage prepaid, or by Hand Delivery to the following:

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