THE INDUSTRY COMMITTEE

March 9, 2006

Ms. Florene Davidson
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: The Industry Committee's comments and recommended modifications
Draft Surface Waste Management Rules (Rev. 2/27/2006)
19.15.2.51, .52 and .53

Dear Oil Conservation Commission:

We are submitting this letter on behalf of comprised of representatives of BP America Production Company, Inc., Burlington Resources Oil & Gas Company, LP, Chesapeake Operating, Inc., Chevron USA, Inc., ConocoPhillips Company, D.J. Simmons, Inc., Devon Energy Production Company, Dugan Production Corp., Energen Resources, Marathon Oil Company, Marbob Energy Corporation, Occidental Permian, Ltd, OXY USA, Inc., OXY USA WTP Limited Partnership, Williams Production Company, XTO Energy, Inc. and Yates Petroleum Corporation, plus others who have assisted, but not yet formally joined, all of whom have extensive oil and gas operations within the State of New Mexico.

The Industry Committee appreciates the ongoing opportunity to provide written comments on the Oil Conservation Division's (OCD's) proposed changes to the Surface Waste Management Facility (SWMF) rule, 19.15.2.53 NMAC, and related provisions, based on the most recent February 27, 2006 draft. While the Industry Committee appreciates this opportunity, its ability to provide effective comments is limited by the very restricted time frame which requires comments and proposed amendments to the Commission no later than March 9, 2006, less than nine business days after OCD released the latest amendments.

The Industry Committee is concerned that many of these current regulation amendments are still not based upon sound science and, as a result, place additional requirements on New Mexico operators without commensurate environmental benefits. The Industry Committee fully supports the comments of its technical experts, Drs. Ben Thomas, Kerry Sublette, Daniel Stephens and Mr. Mark Miller, on the proposed rule. The Industry Committee urges the Commission to follow the "state of the art" science and flexibility (e.g., tiered approaches) that was presented in stakeholder meetings by these recognized experts in the field and to adopt appropriate regulatory standards.

The Industry Committee supports good, science-based regulation of the petroleum industry, including surface waste facilities. A good regulatory regime protects public health, public health, safety and the environment while allowing efficient extraction of valuable petroleum resources and protecting the legitimate interests of oil and gas operators and royalty owners. The Industry Committee supports a process that allows industry, stakeholders, and OCD staff to reach a mutual technical understanding about the science basis for the proposed rules. As a result, the proposals placed before the public and the Commission were practicable and stronger technically. This issue solving process would eliminate the burden on the Commission to develop the entire technical basis for the rule in the hearing process.

I. GENERAL COMMENTS

1. The Commission and OCD must regulate based on reasonably anticipated waste management scenarios, not theoretical possibilities.

The Industry Committee and its experts presented a risk-based approach to regulating oilfield wastes based upon extensive knowledge of the wastes and their constituents. These recommendations were conservative and based on considered opinion. They are protective of fresh water, public health and the environment. Staff questioned these recommendations, appearing to take the position that risk-based standards could not be considered unless risk was eliminated in all situations.

Neither the Commission nor OCD should regulate based upon the theoretical possibility that something adverse might happen. Instead, the Commission and OCD must consider what is reasonably likely to occur and to adopt measures that are protective for the reasonably foreseeable occurrences. There are also conditions in the rule that OCD may require additional information if sensitive environmental issues are identified. These situations should be considered on a site by site basis.

2. The Commission and OCD should adopt a "tiered" regulatory structure that provides certainty to operators, guidance to OCD staff, and protection to public health, fresh water, safety and the environment.

The Industry Committee has consistently urged OCD, and now the Commission, to adopt a "tiered" approach to regulating surface waste management facilities. In Tier 1, the regulations would provide a relatively simple default template for regulating the facilities that is protective of fresh water, public health and the environment. In Tier 2, the regulations would provide for evaluation of site-specific parameters, reasonably established, which more closely tailor the level of control to the level of risk presented by the site. For example, there is little point in requiring a triple-liner system, as the OCD proposal does in proposed Subsection F, for a facility without groundwater, extremely deep groundwater, or unusable groundwater. Tier 2 standards might thus evaluate the types of waste that may be handled, the geologic setting, the depth to groundwater, the presence of possible receptors and routes of exposure, and the specific toxicity of the compounds at issue using standardized, well-accepted engineering or risk assessment

methodologies and modeling. Thus, site-specific modeling, such as that presented by Dr. Daniel Stephens using the well-accepted HYDRUS model might allow a greater mass of chloride than the Tier 1 standard would otherwise allow. Tier 3 is found in OCD's proposed Subsection K, which allows variances. Unlike Tier 2, where staff's discretion is confined and directed by the rule and, if the requirements are met, the site-specific adjustment is made, Tier 3 "variance" would allow the applicant to make the best technical justification it can, subject to correspondingly greater scrutiny. For example, while Tier 2 uses the HYDRUS1-D model with site-specific corrections, Tier 3 would allow an applicant to propose a wholly different modeling approach tied to a demonstration that the alternative approach for the site is protective of public health, fresh water, safety and the environment.

Tiering allows the Commission and OCD to give increasing degrees of flexibility without significantly increasing risk because each tier requires a more complete demonstration that site conditions are as represented. Tiering allows excess conservatism in the models and regulations to be identified and then replaced with site-specific criteria so that the final regulatory approach is more finely calibrated to the risks presented.

Specific Comments

19.15.2.53 Surface Waste Management Facilities

A. Definitions

On small landfarms, the Industry Committee believes that small landfarms of up to 8000 cubic yards should be authorized. Based on modeling conducted by Daniel B. Stephens & Associates and the testimony of Drs. Ben Thomas and Kerry Sublette (presented at the January stakeholder meeting), landfarms of this size that are properly operated and which are limited in duration to no more than three years do not present a risk to human health, fresh waster or the environment. The larger size will allow more efficient handling of landfarmed material, using best management practices, and may serve to reduce the total number of facilities required.

The Industry Committee therefore recommends the following change:

(e) A small landfarm is a centralized landfarm that has a total capacity of 8000 cubic yards or less, remains active for a maximum of 3 years, and receives *hydrocarbon contaminated materials that are exempt oil field wastes exclusive of tank bottoms and drilling fluids.*

The revisions reflect the value of a larger temporary facility that is still protective of the environment based upon the presentations of Drs. Thomas, Sublette and Stephens, maintains the focus on hydrocarbon contamination, which is addressed by short-term landfarming, while eliminating an undue restriction on the types of materials that may be landfarmed. Furthermore, as discussed more fully in the comments on Subsection H, small landfarms, the Industry

Committee believes that concentrations of chloride greater than 1000 mg/kg may be handled, as demonstrated by modeling submitted in support of the small landfarm registration.

C. Permitting requirements, application, public notice and financial assurance

In paragraph (1), the Industry Committee is concerned about the proliferation of plans that all seem to require the same thing. For example, what are the differences in the following plans:

- Management of approved wastes;
- Inspection and maintenance;
- Hydrogen sulfide prevention and contingency plan;
- Contingency plan;
- Run-on and run-off water control plan;
- Best management practices plan;

It seems to the Industry Committee that the "best management practices plan" is wholly redundant with the five previously named plans. The Industry Committee therefore recommends that either the best management practices plan be eliminated or that a single "operations plan" including the relevant items be substituted for all requirements except the contingency plan, closure/post-closure plan, leachate management plan, and gas safety plan. Such a provision would read as follows:

(f) An operations plan that includes the following elements:
(i) management of approved wastes that complies with the applicable requirements of Subsections E, F, G and I of 19.15.2.53 NMAC;
(ii) inspection and maintenance and run-on and run-off control that complies with the requirements of paragraphs (12) and (13) of Subsection E of 19.15.2.53 NMAC;
(iii) hydrogen sulfide prevention and contingency that complies with the requirements of 19.15.1.118 NMAC, except Subsections F and G.

The requirements in paragraph (1)(*l*) and (1)(m), which apply only to landfills, should be relocated to the landfill provisions in Subsection E.

In paragraph (1)(o), some geological/hydrological data are only needed when fresh groundwater is potentially affected by the facility. The Industry Committee recommends that subparagraph (o) be amended as follows:

(o) *Unless determined not necessary by the division permit staff to assure protection of freshwater, public health, safety or the environment* [existing language]

F. Specific requirements applicable to landfills

In the definitions related to landfills, changes are recommended to address standard industry and regulatory practices for liner installation and waste disposal.

> B. Definitions applicable 19.15.2.53 NMAC only.
>
> **(2)** Other definitions
> **(cd)** A composite liner is a liner that may consist of multiple layers of geosynthetics and/**or** low-permeability soils. The different layers of a composite liner may have different material properties and may be applied at different stages of landfill liner installation. ~~**Composite liners are treated in a model in exactly the same way that a regular single-layer liner is treated.**~~

The current definition of a composite liner states that geosynthetics "and" low-permeability soils. The word "or" should be added to allow for designs that may be entirely geosynthetics.

Composite liners should not be modeled in the same way as a single liner. For instance, the standard approach to use the U.S. EPA Hydrologic Evaluation of Landfill Performance (HELP) model is to include each component of a composite liner. This is necessary to design leachate collection systems.

> **(~~g~~ f)** A lift is an accumulation of oil field waste solids, like soil or drill cuttings, predominately contaminated by petroleum hydrocarbons which is placed ~~**compacted**~~ into a cell , and over which ~~**compacted**~~ cover is placed.

The requirement to compact waste and cover should be removed. Oil field waste, which is predominantly soils, may not require compaction. The facility operator can determine if compaction will improve the efficiency of their operation, but compaction is not needed for environmental protection. Daily cover soil is never compacted in typical landfill operations.

> **(~~10~~3)** Landfill design specifications. All new landfill and lateral expansions of existing landfill design systems shall include a ~~**base layer and, a lower geomembrane liner (e.g.,** composite liner~~), ~~**a leak detection system, an upper geomembrane liner**~~, a leachate collection and removal system, a leachate collection and removal system protective layer, an oil field waste zone and a top landfill cover.

As a standard, landfills should include a double-composite liner, which is common regulatory practice for non-hazardous wastes. Triple liners with leak detection systems should not be required. This type of triple liner system is only required under federal hazardous waste regulations for hazardous waste landfills, which dispose of the most toxic types of hazardous wastes. These triple lined facilities also do not have the siting restriction for depth to groundwater as included in this Surface Waste Management Rule.

> **(c)** The leak detection system shall be placed between the lower and upper geomembrane liners and shall consist of two feet of ~~**compacted**~~ **granular** soil with a saturated hydraulic conductivity of 1 x 10^{-2}~~^{5}~~ cm/sec, or greater, **or a geonet drainage layer,** to facilitate drainage. The leak detection system shall consist of a drainage and collection system placed no more than six inches above the lower geomembrane liner in depressions and sloped so as to facilitate earliest possible leak detection at designated collection point(s).

The soil layer placed over a geomembrane should never be compacted. The soil should be uncompacted to maintain permeability and prevent damage to the underlying geomembrane. A geonet drainage layer should be allowed as standard design option to provide the drainage layer.

> **(e)** The leachate collection and removal system shall be placed over the upper geomembrane liner and shall consist of at least two feet of ~~**compacted**~~ **granular** soil with a saturated hydraulic conductivity of 1 x 10^{-2} cm/sec or greater, to facilitate drainage.

Again, in the section on primary liners, the drainage layer should not be compacted.

> **(i)** Alternatively, the operator may propose a performance-based landfill design system using geosynthetics or geocomposites, including geogrids, geonets, geosynthetic clay liners, composite liner systems, etc., when supported by EPA's "Hydrologic Evaluation of Landfill Performance" (HELP) Model or other model approved by the division. All landfills shall be designed to prevent the "bathtub effect." The bathtub effect occurs when a more permeable cover is placed over a less permeable bottom liner or natural subsoil.

The industry supports the regulatory language added to allow for alternative designs that provide for protection of the environment. In particular, the use of alternative evapotranspiration final cover designs is becoming a technical standard for both municipal and hazardous waste landfills in arid, western states. In New Mexico, evapotranspiration covers are routinely approved by the New Mexico Environment Department for municipal solid waste landfills.

G. Specific requirements applicable to *permitted* landfarms

In the title to this section, it should be made clear that it applies to permitted landfarms other than small landfarms regulated by Section H.

In paragraph (1), consistent with the tiered methodology, the Industry Committee and the Industry Committee recommend the following changes:

> **(1)** Waste acceptance criteria. Except as provided in subparagraph (b), only soils and drill cuttings predominantly contaminated by petroleum hydrocarbons may be placed in a landfarm.
>
> (a) Tier 1 criteria. All waste placed in any landfarm shall be sufficiently free of liquid content to pass the paint filter test and shall not have a chloride concentration exceeding 1000 mg/kg. The person tendering waste for treatment at a landfarm shall certify, on form C-138, that representative samples of the waste have been subjected to the paint filter test and tested for chloride content, and that the samples have been found to conform to these

requirements. The landfarm's operator shall not accept waste for landfarm treatment unless accompanied by this certification

(b) Tier 2 criteria. Using a division-recognized model and upon division approval, a landfarm operator may include in its operations plan provisions allowing specified quantities of oil field wastes exceeding the paint filter test and/or chloride concentrations exceeding 1000 mg/kg, provided that such materials will not cause exceedance of applicable WQCC ground water standards. The division may approve placement of tank bottoms or other oil field waste in a landfarm if the operator demonstrates that the tank bottoms do not contain recoverable petroleum hydrocarbons or that no treatment plant capable of extracting any recoverable petroleum hydrocarbons exists within reasonable proximity and the operator agrees to Tier 2 background testing specified in paragraph (2) of Subsection G of 19.15.2.53 NMAC. The person tending waste for treatment at the landfarm shall certify, on form C-138, that representative samples of the waste have been tested and that the samples have been found to conform to the operations plan requirements. The landfarm's operator shall not accept waste for landfarm treatment unless accompanied by this certification.

The proposed changes provide increased flexibility and enhanced treatment opportunities with no loss to the protection of fresh water, public health and the environment. As demonstrated by Dr. Stephens, greater than 1000 mg/kg chloride material can be accepted at landfarms based upon underlying soil conditions, depth to aquifer, ground water flux, and related conditions. The HYDRUS1-D model and related tools can assist operators and the OCD in making this determination. The proposed condition provides for limited, tailored permit process-based procedure to make this determination as opposed to an open ended variance process.

In paragraph (2), consistent with the tiered methodology, the Industry Committee recommends the following changes:

(2) Background testing. Prior to beginning operation of a new landfarm or to opening a new cell at an existing landfarm, the operator shall take, at a minimum, four background soil samples from each landfarm cell, three to five feet below the original ground surface, to establish background concentrations.

(a) Tier 1 criteria. The operator shall analyze the background soil samples for total petroleum hydrocarbons (TPH-GRO and TPH-DRO), as determined by EPA Method 8015M, benzene, toluene, ethyl benzene and xylenes (BTEX), as determined by EPA SW-846 Method 8021B, and chlorides using approved United States Environmental Protection Agency (EPA) methods.

(b) Tier 2 criteria. If the operator plans to accept tank bottoms or any waste other than soils and drill cuttings, the operator shall analyze the background soil samples for total petroleum hydrocarbons (TPH-GRO and TPH-DRO), as determined by EPA Method 8015M, benzene, toluene, ethyl benzene and xylenes (BTEX), as determined by EPA SW-846 Method 8021B, chlorides, and other constituents listed in Subsections A and B of 20.6.2.3103 NMAC using approved United States Environmental Protection Agency (EPA) methods.

Drs. Thomas and Sublette testified that BTEX and TPH-DRO adequately measures petroleum toxicity. The restrictions of material placed in a Tier 1 landfarm to cuttings and soils means that no other toxics would be anticipated and that a total petroleum hydrocarbon, BTEX and chloride scan provides adequate background documentation. If any other materials would be accepted, such as a landfarm operator seeking to accept tank bottoms or other oil field waste, then it is

appropriate to require analysis of the constituents listed in Subsections A and B of 20.6.2.3103 NMAC as appropriate for the types of waste materials being treated.

The sampling point was changed to three to five feet below original ground surface to conform to the small landfarm provision and to provide some flexibility given variability in site conditions.

On paragraph (3), the Industry Committee recommends that the provision allowing alternative treatment be moved from the second sentence of (3)(d) and placed in a new, stand-alone paragraph (3)(j), which would read as follows:

> (j) *The division's environmental bureau shall approve other operation and treatment procedures if the operator demonstrates that they provide equivalent protection for fresh water, public health, safety and the environment.*

The present placement appears to limit the demonstration to the six-inch lift and 72-hour disking requirement. The new placement makes it clear that the division may approve alternatives to any of the requirements specified in paragraph (3).

In paragraph (4), the OCD's provision does not correspond to the best science on this matter presented by Dr. Sublette. While there may be a maximum effective hydrocarbon percentage for any particular volume of soil, the operator should have the flexibility of blending materials to achieve a workable concentration that maximizes the effectiveness of biodegradation and other treatment processes, which will vary depending upon the operator's treatment regime, addition of moisture, nutrients, and climate conditions. A maximum TPH limit effectively precludes bioremediation of the soils and materials most in need of the limits, appears to require either landfilling, where it may be problematic, or else leaving it on site, which limits the operators' flexibility in working with landowners. In addition, OCD has shown no basis for belief that many of the constituents listed in paragraph G(6) are likely to be present in oilfield waste nor has OCD shown any basis for rejecting the presentations of Drs. Thomas and Sublette that toxicity of landfarmed materials is mitigated when the bioremediation endpoint is achieved.

The Industry Committee therefore recommends that paragraph (4) be revised substantially as follows:

> (a) Treatment zone monitoring. The operator shall conduct treatment zone monitoring to ensure that the mean TPH (GRO or DRO) concentration of each lift, as determined by EPA SW-846 Method 8015M, does not exceed either (i) 2500 mg/kg TPH-GRO for condensate containing oil field wastes and 5000 mg/kg TPH-DRO for crude oil and similar hydrocarbon containing oilfield wastes or (ii) that the bioremediation endpoint has been achieved, and that the mean chloride concentration, as determined by EPA Method 300.1, does not exceed the limit for the landfarm set pursuant to paragraph 1 of Subsection G of 19.15.2.53 NMAC, prior to adding an additional lift. The maximum thickness of treated soils in any landfarm cell shall not exceed two feet. When

> this thickness is reached, the operator shall not place additional oil field waste in the landfarm cell until it has demonstrated by monitoring the treatment zone at least semiannually that the contaminated soil has achieved either the standards specified in (i) paragraph 6 of Subsection G, or (ii) paragraph 8 of Subsection G, of 19.15.2.53 NMAC, unless the operator disposes of the contaminated soil in a division-approved facility.

The restriction on six-inch lifts is unnecessary because it is already specified in paragraph (3). The Tier 1 standards reflect the OCD's default position. The Tier 2 standards reflect the bioremediation endpoint approach recommended by Dr. Sublette. In Tier 2, the Industry Committee recommends that TPH be replaced by TPH-DRO When TPH-GRO or TPH-DRO, as appropriate for the oilfield waste being treated, concentrations stabilize due to bioremediation, toxicity will be essentially eliminated.

In paragraph (5), the Industry Committee recommend that the monitoring program be tied to the tiered waste acceptance criteria in paragraph (1). The Industry Committee thus recommend that this paragraph be revised to read as follows:

> **(5)** Vadose zone monitoring.
> **(a)** Sampling. The operator shall monitor the vadose zone beneath the treatment zone in each landfarm cell to ensure that contaminants do not migrate to the underlying native soil or to ground water. The vadose zone samples shall be taken from soils between three and five feet below the cell's original surface.
> **(b)** Semi -annual monitoring program. The operator shall collect and analyze a minimum of four representative, independent samples from the vadose zone at least semi -annually using the methods specified in paragraph 6 of Subsection G of 19.15.2.53 NMAC, for BTEX and chlorides.
> **(c)** Record keeping. The operator shall maintain a copy of the monitoring reports in a form readily accessible for division inspection.
> **(d)** Corrective action for releases. If any vadose zone sampling results show that the concentrations of BTEX or chlorides demonstrate a statistically significant increase over the background concentrations using the Student's t test with an alpha of 0.01, then the operator shall notify the division's environmental bureau of the exceedance within five working days, shall sample for the constituents listed in Subsections A and B of 20.6.2.3103 NMAC, required for the landfarm pursuant to paragraph (1) of Subsection G of 19.15.2.53 NMAC, and shall submit a corrective action plan incorporating the Tier 1, 2 or 3 approach at the operator's election, within 30 days of the initial sampling report or 15 days of receipt of any additional sampling results required by this paragraph. The corrective action plan shall address changes in the operation of the landfarm to prevent further migration of constituents and a plan for isolating or remedying any contamination resulting from landfarm operations.

The proposed revisions to this section simplify the requirements. BTEX and chloride are the most mobile constituents compared to TPH. Therefore, TPH would serve as a lagging indicator and provides little value for detecting and responding to potential problems. Consistent with the recommendations of Dr. Sublette, the Industry Committee recommends that BTEX and chloride be used instead. Annual monitoring is not necessary for the same reason. Therefore, the Industry Committee has eliminated annual monitoring and monitoring for non-BTEX and chloride constituents *unless* the BTEX or chloride monitoring detects a statistically significant increase in BTEX or chloride concentrations. If this occurs, then the Industry Committee

recommends that a corrective action plan be submitted and that sampling be conducted for all 20.6.2.3103 constituents identified pursuant to paragraph 1 of Subsection G so that additional information is available on the possible corrective action. Because BTEX and chloride are the most mobile constituents, such monitoring is not required unless a statistically significant increase in BTEX or chloride is detected, which would be the first time that the other, less mobile, constituents would likely have migrated from the treatment zone.

In paragraph (6), the Industry Committee and the Industry Committee recommend that the application of paragraph (6) be caveated that it is an alternative to paragraph 8, as follows:

> (6) Treatment zone closure performance standards. *Unless the operator elects to close the landfarm cell pursuant to paragraph 8 of Subsection F of 19.15.2.53 NMAC,* after a landfarm cell has been filled to ...

In addition, the Industry Committee have numerous comments on the proposed closure concentrations. First, no basis is provided for how these constituent values were selected and what receptor they are intended to protect. Second, many of the values are quite small and to multiple significant digits. The Industry Committee has substantial doubts that commercial laboratories in the State of New Mexico can routinely reach the level of accuracy and precision required. Third, rather than creating a whole new set of closure values, the Industry Committee recommends that OCD adopt a tiered approach using the "current" New Mexico Environment Department's Soil Screening Levels (SSLs). The proposed language would read as follows:

> (a) Tier 1 closure standards. Mean chloride concentration, as determined by EPA Method 300.1, shall not exceed 1000 mg/kg. The mean concentration of the constituents determined as applicable to the landfarm pursuant to Paragraph 1 of Subsection G of 19.15.2.53 NMAC, as determined by EPA SW-846 Methods, or other methods approved by the division, shall not exceed the higher of 95th upper confidence limit of the mean background concentration (i.e., the mean plus two standard deviations of the background concentrations), the practical quantitation limit (PQL), or the concentration specified in the then-current New Mexico Environment Department's Soil Screening Levels (SSLs) using the more stringent of "Residential Soil" or "DAF 20", both measured in mg/kg.
> (b) Tier 2 closure standards. Mean chloride concentration, as determined by EPA Method 300.1, shall not exceed the level specified in paragraph 1(b) of Subsection G of 19.15.2.53 NMAC. The mean concentration of the constituents determined as applicable to the landfarm pursuant to Paragraph 1 of Subsection G of 19.15.2.53 NMAC, as determined by EPA SW-846 Methods, or other methods approved by the division, shall not exceed the 95th upper confidence limit of the mean background concentration (i.e., the higher of the mean plus two standard deviations), PQLs or the concentrations specified in the then-current New Mexico Environment Department's Soil

Screening Levels (SSLs) using the most stringent of the following SSLs in mg/kg:

(i) If a deed restriction or other equivalent measure acceptable to the division is in place that precludes future residential use, then the "Industrial/Occupational Soil" SSL may be used in lieu of the "Residential Soil" SSL.

(j) If adequate site-specific information is available to calculate a site-specific DAF value pursuant to the then-current NMED SSL guidance, then the site-specific DAF value may be used in lieu of the "DAF 20" value.

The Industry Committee approach above adopts the New Mexico Environment Department (NMED) SSLs by reference rather than publishing specific soil target concentrations within the rule. Such an approach uses recognized toxicological and exposure profiles developed by the U.S. Environmental Protection Agency and adapted to New Mexico by the NMED. The approach is robust and scientifically defensible and calibrates the required level of closure stringency to the risks presented by the future use of the site and material. Further, because the NMED approach relies upon well documented EPA protocols, the proposed site-specific variables have been carefully vetted and are well described in either NMED or EPA guidance, providing an added assurance to OCD and the public that any changes made in the closure standards are fully protective and still conservative.

An added benefit of using the SSLs is that they are maintained by EPA and NMED based upon the most current toxicological data and hence are updated periodically by these agencies to reflect the best science. Adopting the SSLs by reference thus allows OCD and the Commission to keep the closure soil target concentrations consistent with the best science, without the need to conduct subsequent rulemakings each time a relevant database, such as IRIS, is updated.

In paragraph (7), the provision should reference both paragraphs (6) and (8).

In paragraph (8), the Industry Committee recommends that the provision more closely conform to the testimony of Drs. Sublette and Thomas, from which this provision was drawn. The following changes are needed:

(8) Environmentally acceptable bioremediation endpoint approach.
(a) A landfarm operator may utilize an environmentally acceptable bioremediation endpoint approach to landfarm management in lieu of compliance with the requirements of Subparagraphs (a) through (e) of Paragraph (6) of Subsection G of 19.15.2.53 NMAC. The bioremediation endpoint in soil occurs when TPH-GRO (if condensate is added) or TPH-DRO (all other materials) is reduced to the maximum extent possible as a result of bioremediation . An environmentally acceptable bioremediation endpoint occurs when the operator demonstrates that mean TPH-GRO or TPH-DRO concentrations have stabilized as indicated by consecutive measures at least 30 days apart that are statistically the same.
(i) For purposes of this paragraph, TPH-GRO is defined as the C6 through C10 carbon numbers and is determined using EPA Method 8015M. TPH-GRO shall be used when any condensate is added to the landfarm cell.

(ii) For purposes of this paragraph, TPH-DRO is defined as the C10 through C28 carbon numbers and is determined using EPA Method 8015M, with silica gel cleanup if necessary. TPH-DRO shall be used when any material other than condensate contaminated material is added to the landfarm cell.
(iii) If both condensate contaminated and other contaminated material are added to a landfarm cell, then the bioremediation endpoint must be demonstrated for both TPH-GRO and TPH-DRO.
(b) In addition to the requirements specified in Paragraph (1) of Subsection C of 19.15.2.53 NMAC, an operator who plans to utilize an environmentally acceptable bioremediation endpoint approach shall submit for the division's review and approval a detailed landfarm operation plan for those landfarm 19.15.2.53 NMAC 21 cells exclusively dedicated to the use of the environmentally acceptable bioremediation endpoint approach. At a minimum, the operations plan shall include detailed information on the soils, procedures to characterize each lift of contaminated soil, operating procedures and management procedures that the operator shall follow.
(c) In addition to the other operational requirements specified in subsection G of 19.15.2.53 NMAC, the operator utilizing an environmentally acceptable bioremediation endpoint approach shall comply with the following:
(i) Characterization of contaminated soil. The operator shall submit a description of the procedures that it will follow to characterize each lift of contaminated soil or drill cuttings prior to treatment for the petroleum hydrocarbon loading factor; TPH-GRO and/or TPH-DRO, BTEX and chloride; and contaminated soil pH.
(ii) Operating procedures. The operator shall submit a description of the procedures, including a schedule, that it shall follow to properly monitor and amend each lift of contaminated soil in order to maximize bioremediation, including, but not limited to: tilling procedures and schedule; procedures to maintain pH between six and eight; procedures to monitor and apply proper nutrients; procedures to monitor, apply and maintain moisture to 60-80% of field capacity; and procedures to monitor mean TPH-GRO and/or TPH-DRO concentrations, as applicable.
(iii) Management procedures. The operator shall submit a description of the management procedures that it shall follow to properly schedule landfarming operations, including modifications during cold weather, record keeping, sampling and analysis, statistical procedures, routine reporting, determination and reporting of achievement of the environmentally acceptable bioremediation endpoint and closure and postclosure plans.
(d) Additional requirements for landfarm cells treating Tier 2 wastes pursuant to Paragraph 1 of Subsection G of 19.15.2.53 NMAC. If the landfarm cell will handle tank bottoms or other material pursuant to Tier 2 of paragraph 1, then in addition to the requirements of this paragraph (8), any additional constituent identified pursuant to Paragraph (1) must meet the either the Tier 1 or Tier 2 closure standard, as applicable, set forth in Paragraph (6) of Subsection G of 19.15.2.53 NMAC.

Changes were made to make this section correspond more closely to the concepts described by Drs. Sublette and Thomas. First, the bioremediation endpoint mitigates toxicity, even though it does not necessarily achieve an 80% reduction in total TPH. OCD is referred to the Stakeholder presentation by Dr. Sublette and the Salinitro study, which clearly shows that the percent reduction in TPH is dependent upon the concentration of soil organic matter and the composition (API gravity) of the hydrocarbon. Reductions well below 80% are not uncommon, while still achieving the bioremediation endpoint. Further, as both Drs. Sublette and Thomas testified, bioremediation typically is least effective on the heavy ORO range, which may preclude achievement of a percent TPH reduction factor while having no bearing on toxicity. The Industry Committee has thus stricken the reference to an 80% reduction and would, consistent with the testimony of Drs Sublette and Thomas, oppose a required reduction. It is the decrease in the rate of decline to essentially zero that is most significant. An 80% TPH reduction

requirement will effectively preclude the use of bioremediation as a treatment option for many soils. The practical result will be more handling and transport of contaminated soils without ultimate destruction of toxic components. Bioremediation is more protective of human health, fresh water and the environment than landfilling.

New subparts (i) through (iii) were added to subparagraph (8)(a) to reflect the definitions of TPH-GRO, TPH-DRO and which grouping is used, depending on the materials added to the landfarm cell.

In subparagraph (8)(c), the Industry Committee has deleted sub-subparagraph (8)(c)(i) because this information is not needed for landfarm operation. Treatment occurs within the cell; not below it.

In subparagraph (8)(c)(ii), the Industry Committee has deleted the reference to constituents other than BTEX, TPH-GRO and/or TPH-DRO, as applicable, and chloride, because the other constituents are not relevant to the bioremediation endpoint calculation. Other constituents that may be present are addressed by paragraph (1) and new subparagraph (8)(d).

In subparagraph (8)(c)(iii), the Industry Committee recommends specifying TPH as –GRO or –DRO as appropriate.

The Industry Committee recommends a new subparagraph (8)(d), which addresses closure requirements for non-petroleum compounds. The new subparagraph (8)(d) requires that these "other" constituents be addressed in accordance with Paragraph (6) requirements.

Section H. Small Landfarms

In paragraph (2), the Industry Committee is concerned that OCD staff have missed the fundamental thrust of the Industry Committee presentation by Dr. Stephens. As Dr. Stephens conclusively demonstrated using OCD's own conservative modeling assumptions, a 1000 mg/kg chloride limit is NOT necessary to protect fresh water in most environmental settings in New Mexico. The level should be increased consistent with Tier 1/Tier 2 levels set forth in Subsection G, Paragraph (1). The Industry Committee thus recommend the following change to Paragraph (1) of Subsection H:

> (1) Registration. Within 10 days of establishing a new small landfarm, the operator shall file a form C-137 EZ (small landfarm registration) with the environmental bureau in the division's Santa Fe office. If the operator wishes to landfarm material containing more than the chloride mass and concentration limits set forth below, prior to establishing the new small landfarm, the operator shall submit its proposed chloride mass and/or concentration limits and division-acceptable modeling demonstrating that the proposed chloride mass and/or concentration limit is protective of fresh water. The division will issue the operator a registration number and

chloride mass and/or concentration limit no more than thirty days from receipt of the properly completed form.

Permissible Chloride Levels for Small Landfarms			
Parameters	Low	Medium	High
Chlorides	5000 mg/kg	2500 mg/kg	1000 mg/kg

The rankings of "Low," "Medium" and "High" would be based on the science presented by Dr. Dan Stephens during the stakeholder meetings.

A conforming change is made to subparagraph (2)(c), as follows:

(c) accept only exempt, oilfield-contaminated soils generated as a result of production operations, that are predominantly soils contaminated by petroleum hydrocarbons, do not contain free liquids, would pass the paint filter test, and do not have a chloride concentration in excess of the small landfarm's registration limit.

In paragraph (3), the only change recommended is to replace "1000 mg/kg" with "the registration limit." The Industry Committee also recommends that the 12 inch lifts be used for condensate containing oilfield wastes and 6 to 8 inch lifts for crude oil containing oilfield wastes In paragraph (5)(a), the only changes recommended by the Industry Committee is to revised subsubparagraph (5)(a)(i) to (iii) as follows:

(i) A *field sample of soils shall be tested using OCD approved OVM methodology to determine a total organic vapor level of less than 100 ppm or soil samples shall be collected and sent to an approved laboratory and tested for benzene and BTEX, as determined by EPA SW-846 method 8021b. Benzene must not exceed 0.2 mg/kg and BTEX must not exceed 50 mg/kg;*

(ii) [deleted]

(iii) The TPH-GRO + TPH-DRO combined fraction, as determined by EPA SW-846 Method 8015M, shall not exceed 2500 mg/kg or else the operator shall demonstrate that the bioremediation endpoint, as defined in subparagraph (a) of Paragraph (8) of Subsection G of 19.15.2.53 NMAC has been achieved by submittal of at least two sampling results, 30 days apart.

In (i), the OVM methodology has previously been approved by OCD for use in lieu of benzene and BTEX sampling. In (iii), this change is recommended by Dr. Sublette, who believes that 2500 is more appropriate than 1000 mg/kg. In addition, as both Drs. Sublette and Thomas testified, TPH-Total is not appropriate because the oil range organics are not toxic, and may preclude achieving the numeric limit. Finally, operators should have the option meet the

bioremediation endpoint under conditions that Dr. Sublette have testified would assure adequate bioremediation.

In paragraph (5)(b), the Industry Committee recommends the following clarifications to the closure standard:

(i) revegetate soils remediated to the closure performance standards if left in place *except there is not requirement to revegetate those soils that are located on the active portion of the well pad;*
(ii) [no change]
(iii) [no change]
(iv) Clean-up the site and collect one vadose zone soil sample from three to five feet below the middle of the treatment zone, or in an area where liquids may have collected due to rainfall events. *The vadose zone soil sample shall be collected and analyzed using the methods specified in subparagraph (5)(a)(i) of Subsection H of 19.15.2.53 NMAC for TPH-DRO and TPH-GRO and chlorides*

The proposed changes make it clear that revegetation is not required if the landfarming is conducted on the active surface of a well pad and specifies the methods for collecting and analyzing closure samples.

J. Closure and post-closure

The revegetation standard should require an amount of cover "equal to the lesser of 30% or the percent of cover found in undisturbed areas surrounding the facility."

In paragraph (4)(d)(i), the reference should be to "standards provided in Paragraph (6) *or (8)* of Subsection G..."

The Industry Committee appreciates the opportunity to present these comments on the February 27, 2006 draft of the Surface Waste Rules. The Industry Committee reiterates its willingness to make Drs. Thomas, Sublette, Stephens or Mr. Miller available to answer any questions or concerns that OCD may have. Please contact either Bill Carr, joint counsel to the Industry Committee, at (505) 988-4421, or Eric Hiser, counsel for Yates Petroleum Corporation and technical legal advisor to the Industry Committee, if you have any questions or would like to arrange a meeting with any of the technical experts.

Sincerely,

THE INDUSTRY COMMITTEE