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OIL CONSERVATION  
DIVISION**NEW MEXICO CITIZENS FOR CLEAN AIR & WATER, INC.****COMMENTS REGARDING CASE 13586, Application of the New Mexico Oil Conservation Division for Repeal of Existing Rules 709, 710 and 711 Concerning Surface Waste Management and Adoption of New Rules Governing Surface Waste Management.**

Rules 51 D and 53 B (7) Denial of approval. These rules would allow the OCD to deny approval if an applicant had greater than 5% interest in an entity that is out of compliance. Although the 5% limit is acceptable, any limit not to exceed 10% would also be acceptable. A fraction somewhat larger than 5% might be easier for OCD to discover and track.

Rule 53 B (6) Major modification. The proposed rule would define "major modification" as an increase of the area "occupied by the permitted facility." This wording may be unclear, in that a "facility" may include roads, buildings, and unused area. We suggest that the definition be altered to apply clearly to the area on which or within which wastes may be placed, temporarily or permanently. A major modification would then be defined as *an increase in the area within which wastes have been authorized to be received, or an increase in the area within which wastes have been authorized to be stored, or an increase in the area within which wastes have been authorized to be disposed.* With this definition, conversion of a receiving area to a landfill, for example, would be a major modification. We believe this is the intent of the original proposal.

Rule 53 D (5) Tank covers. The proposed rule is designed only to exclude migratory birds from tanks larger than eight feet in diameter. We have reports of cattle, deer, squirrels, and rabbits poisoned by access to contaminated liquids, probably containing glycol, in small vessels. We see no reason why any toxic materials should be kept in open containers. We therefore suggest that the wording of this rule be altered to:

To protect livestock and wildlife, all ponds, tanks and containers shall be covered or enclosed in such a manner as to prohibit entry of birds, mammals, and reptiles. All waste management facilities shall be fenced in a manner approved by the division.

This wording is less prescriptive than a specification of net size or mesh opening. However, it still prohibits the openings in existing tanks that obviously admit the noses cattle and deer, and the bodies of smaller animals.

Rule 53 E Operation of landfills. The proposed rule is clearly intended to require a liner that captures rainfall that filters through the wastes during the years in which a cell is accumulating wastes. This is good. However, a polymer liner will not reliably contain soluble or volatile contents of the landfill throughout the centuries after it is closed. A toxic landfill is a permanent legacy. Approval of a landfill is in effect a designation that any future use of the particular area will be severely limited. Landfills should not appear in locations, or with such construction, that would allow the contained toxic materials to migrate within the expected duration of civilization. The proposed rule takes no notice of the geologic setting in which a landfill is sited. We therefore suggest that landfills for

exempt wastes be either constructed or located in geologic strata so as to provide confinement of vapors, saturated liquid transport, and unsaturated liquid transport. The strata or the construction should provide the equivalent of a layer of clay, two feet thick, with hydraulic conductivity  $1 \times 10^{-7}$  cm/s. Clay, whether constructed or naturally occurring, will be more resilient and durable than the polymer liner when the wastes shift in time. Furthermore, because flow through preferential pathways sometimes greatly exceeds the expected transmission of fluids, landfills containing toxic wastes should be sited more than 500 feet from surface water, or from useable groundwater with less than 5000 ppm total dissolved solids. (Here, we distinguish water that occurs in *useable* quantity from protectable water, which is defined as having less than 10,000 ppm tds.)

Rule 54 F Operation of landfarms. General comments. Some paragraphs of the proposed rule specifically refer to the wastes as "contaminated soils," as in sub-paragraphs (1)through(3) and (5)through(8). However, sub-paragraph (12) clearly anticipates that landfarms may accept wastes other than contaminated soils. Metals, like salts, will not degrade and will accumulate on the land as does salt. Landfarms should not become legacies of surface contamination. Therefore, we suggest that any non-soil wastes, including drill cuttings and muds, be tested for RCRA metals prior to acceptance at a landfarm, and that wastes with toxic levels of contaminants not be accepted. Toxic levels are specified by XXXX, as published by the U.S. Government.

Rule 53 F (4) Monitoring of landfarms. The proposed rule specifies that soils underlying landfarms be tested to ensure that contaminants are not transferred to the soil. However, the proposed rule does not specify how the sampling results are to be used, and thereby provides no assured protection for the future viability of the land. The rule specifies that samples be taken "no deeper than three feet below the surface of the cell." This wording may be variously interpreted to allow a sample three feet beneath the top surface of the treated material, which might be at the native ground surface if the treatment zone is three feet deep, as allowed. Alternatively, the wording may be interpreted to allow sampling three feet beneath the *bottom* surface of the treated material, that is, three feet into the native soil. The purpose of the sampling is to detect migration of contaminants before the migration becomes a problem. Therefore, we suggest that soil samples be obtained at a location *between six and twelve inches beneath the bottom surface of treated material*. Furthermore, we suggest that the reporting of sample analyses include interpretation of the concentrations expressed as the Sodium Absorption Ratio (SAR). The SAR is one reliable indicator of potential impact on plant growth. We suggest that no further landfarming in a cell be allowed if the SAR exceeds 5. The required sampling should thus be used to ensure the future viability of the land.

Rule 53 F (9) Moisture at landfarms. The proposed rule requires the addition of moisture to control dust. This is appropriate. However, we have not observed any landfarm in the state that has evident irrigation. A permit for landfarm should not be approved unless the applicant demonstrates that he has legal and physical access to the water as needed.

Rule 53 F (12) Wastes that do not degrade. The proposed rule prohibits landfarms from accepting wastes with chloride concentration exceeding 2,000 ppm. This wording is unclear, in that the 2,000 ppm is presumably applied as a fraction of the mass of the waste. With no clear specification, the inferred concentration in a waste soil could differ by as much as 30%, depending on whether the soil were dry (lighter) or wet (heavier). We suggest that salinity be specified as the concentration in a saturated water slurry of the waste material. Salinity with chloride concentration greater than 500 ppm in the water is damaging to plant growth. We therefore suggest that all landfarmed wastes be subjected to a salinity test, with no wastes accepted if the chloride concentration in a saturated slurry exceeds 500 ppm of the water. A convenient test would be the common electrical conductivity (EC) test, in which ppm is considered equivalent to EC (mmhos/cm) multiplied by 640. Hand-held EC test equipment is commercially available. It may be more practical for the operators if the rule simply stated that the upper limit of the EC for water extract of a saturated slurry is 0.78 mmhos/cm. This is equivalent to 500 ppm chloride content for sodium chloride salt.

The proposed sub-paragraph (12) specifies that wastes be accompanied by a certification of chloride content. However, the landfarm operator has no way of knowing whether the arriving wastes correspond to whatever was tested, or to the history of the wastes between testing and delivery. There is no limit on the time elapse between the testing and the delivery of the wastes. This puts the landfarm operator in the difficult position of judging whether or not to accept wastes in a competitive business. The landfarm operator should test, and then be responsible for, the wastes that he receives.

Rule 53 G (2) Construction of evaporative ponds. The proposed rule specifies that evaporation ponds have an outside grade no steeper than 3:1. However, the grade does not necessarily control erosion. We have noted an evaporation pond at which the outer surface of the berm was eroding rapidly. The rule should specify that the outside grade be protected from erosion.

Rule 53 H (3) (b) Closure of landfills. The proposed rule specifies that landfill cells be closed with a polymer liner or evapo-transpiration cap. The polymer liner will probably not be durable throughout the centuries that the landfill should remain secure. The meaning of "evapo-transpiration cap" is not specific in that it applies to a wide variety of designs, including a layer of dirt with plants on top. We suggest that the closure requirements for toxic landfills include the following items.

The landfill should contain wastes to no higher than three feet below the undisturbed grade level. From bottom to top, the cap layers should be gravel, cobbles, clay, and vegetated soil. The gravel will inhibit upward capillary transport. Cobbles of sufficient size will inhibit rodent penetration, which we have observed in other landfills. Clay will retard the downward movement of rain water, which will be transpired back to the surface by the soil and vegetation. These layers will be more robust than a polymer layer as the materials in the landfill shift and move after closure. The top should be contoured to a gentle slope not exceeding 5%, preferably with adjacent cells contoured

together to avoid forming channels between adjacent cells. Revegetation, not simply seeding or "restored", should be required. Vegetation with plants that develop penetrating tap roots should be avoided. The landfill itself should be monitored for 20 years post-closure, to repair intrusions and water channels that may result due to erosion, animals, and shifting of buried solids. We have observed such intrusions in landfills. Although the proposed rule specifies monitoring of monitor wells, contamination would reach groundwater (if any) within 20 years only in an egregious case; it is therefore important to monitor the landfill surface for emergence of wastes or infiltration of water.

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For NMCCA&W, Inc.

A handwritten signature in black ink, appearing to read "Donald A. Neeper". The signature is fluid and cursive, with a large initial "D" and "N".

Donald A. Neeper, Ph.D.  
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