GOVERNOR
Bill Richardson

STATE OF NEW MEXICO
DEPARTMENT OF GAME & FISH

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DIRECTOR AND SECRETARY
TO THE COMMISSION
Bruce C. Thompson

October 28, 2003

Florene Davidson, Division Administrator
Oil & Gas Conservation Division, EMNRD
1220 South St. Francis Drive
Santa Fe NM 87505

Re: Written comments on proposed OCD rule 19.15.2 NMAC, Pits and Below-Grade Tanks

Dear Ms. Davidson:

The New Mexico Department of Game and Fish (Department) supports adoption of the proposed rule. The main intent of the rule is to institute a permit system, which would give the Oil Conservation Division (OCD) a workable method to keep track of all oil and gas pit development in the state. Another effect of the new rule will be consolidation of information and requirements scattered throughout Title 19 Chapter 15 of the NM Administrative Code. Clarity and cohesion of regulatory information is a benefit for all involved including enforcement personnel and the regulated parties. We offer the following comments and recommendations regarding specific provisions of the proposed rule.

The following discussion of petroleum environmental toxicity is adapted from a US Geological Survey article titled "Environmental Contaminants": Petroleum hydrocarbons are composed of mostly carbon and hydrogen, but some also contain oxygen, nitrogen, sulfur, and other elements and vary greatly in molecular weight, volatility, solubility, persistence, and toxicity. Crude oils and refined products, as well as wastes from petroleum production and processing facilities, are also highly variable in composition and toxicity. On release into the environment, the composition and potential toxicity of petroleum mixtures change rapidly and continuously as individual compounds are volatilized, solubilized, dispersed, and degraded at differing rates by physical, chemical, and biological processes. The rates of these weathering processes vary depending on temperature, currents, wind, concentrations of suspended and dissolved components of the receiving water, and biological activity. In addition to direct toxicity, the loss of insulating capacity caused by oil on feathers and fur increases the vulnerability of birds and mammals to cold. Microliter quantities of oil transferred to eggs from the feathers of oiled birds can be toxic to developing embryos, and ingestion of a single dose by female birds may alter the yolk structure and reduce the hatchability of eggs.

The proposed rule, in paragraph C.2.e, prohibits discharge to a pit of liquids with greater than 0.2% free hydrocarbon. Due to the variable toxicity discussed above, and potential non-obvious toxic effects of petroleum hydrocarbons, some liquids with less than 0.2% hydrocarbon may be hazardous to wildlife. Therefore the Department supports the requirement to prevent access by wildlife to all oil and gas pits.

The US Fish and Wildlife Service (FWS) has developed recommendations for excluding birds from oilfield waste pits (available on the internet at http://www.r6.fws.gov/contaminants/contaminants1c.html, hard copy enclosed with these comments). Netting that extends to the ground as recommended, should

also be effective at preventing entry by most terrestrial wildlife. The FWS guidelines don't specify the netting material. Plastic monofilament products commercially available as "bird netting" have been implicated in entanglement deaths of birds as well as terrestrial snakes and lizards. The Department therefore recommends the use of heavier duty, less flexible netting materials which are less likely to create an entanglement hazard. Heavier material will also show improved performance in terms of durability and less frequent maintenance. Many wildlife injuries have occurred at protected pits where the netting was poorly installed or maintained. FWS has found that deterrents such as flagging, reflectors, strobe lights and noise guns are not effective in oil pits. We are not aware of enough research to evaluate the effectiveness of HDPE (high-density polyethylene) balls for bird exclusion. A disadvantage of the HDPE balls for most oilfield pits would be that they cause reduced evaporation rates.

Paragraph C.2.f of the proposed rule states that "All pits shall be fenced or enclosed to prevent access by livestock or wildlife." While netting installed as described above may effectively prevent access to wildlife species, typical three- or four-strand cattle fence will not. If cattle fence is to be installed, we recommend the fence be designed to minimize potential injury to large wildlife crossing over or under the fence. A recommended fence design is enclosed with these comments.

The Department does not support the exception from bird protection for tanks not exceeding 16 feet diameter. We understand that protection on all tanks, regardless of size, would contradict Oil Conservation Commission Order No. R-8952, issued in 1989. In view of the facts that open tanks of any size may constitute a hazard, that the Migratory Bird Treaty Act and associated penalties for violation apply regardless of tank size, and that smaller tanks are actually easier to protect than large ones, we encourage OCD to pursue administrative avenues toward removing the tank size exception.

The Department supports the exemption from the netting requirement during drilling or workover operations, however we recommend adding language to specify a maximum interruption of active operations beyond which the exemption would not be in effect. A time period on the order of 24 to 48 hours might be appropriate.

One finding of the OCD Order No. R-8952 was: "Cooperative efforts should be established and maintained between industry and state and federal government agencies to further quantify migratory bird losses, where they are taking place, and to work together to develop economical means to prevent such future losses." Our Department remains available to work in conjunction with FWS, OCD and industry representatives to develop technical specifications for effective, practical and economical solutions for wildlife exclusion from oilfield pits.

The proposed rule Paragraph F.1 requires that a pit or tank be "properly closed" within six months after cessation of use. Paragraph F.2 gives the operator an additional year after completion of closure to contour the surface. Thus the site may remain essentially unreclaimed for up to 18 months. Both the currently effective 1993 and the proposed 2003 OCD pit closure guidelines read: "Upon termination of any required soil remedial actions (Section V.), a pit or below-grade tank may be closed by backfilling, contouring to provide drainage away from the site and revegetating the site." If pit closure is defined as in the guidelines, it is not clear why final grade should not be established at the time of closure. It would be reasonable to allow up to a year for revegetation due to greater dependence on seasonal considerations.

The Department recommends adding the words "and revegetate" between "contour" and "the surface" in paragraph F.2. Revegetation is essential to the stated regulatory purpose of preventing erosion, and has the added benefit of restoring the land to some level of useful functionality, such as rangeland and/or wildlife habitat. Lack of vegetation is almost certain to lead to increased erosion, and may also allow establishment of weedy plants which have the potential to invade and adversely impact lands adjacent the project site. The recommended language would help ensure that some level of true ecological recovery takes place, while leaving the details of surface restoration up to negotiation with the surface landowner.

Please contact our office if you require clarification on these comments or if we can be of further assistance.

Sincerely,

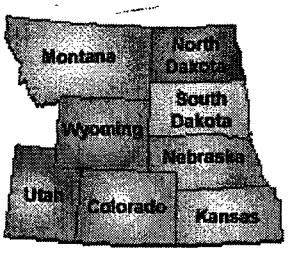
Lisa Kirkpatrick, Chief
Conservation Services Division

LK/rjj

cc: Tod Stevenson, Deputy Director, NMGF
Joy Nicholopolous, New Mexico Ecological Services, USFWS
Steve Anderson, Northwest Area Habitat Specialist
Clint Henson, Northeast Area Habitat Specialist
Alexa Sandoval, Southeast Area Habitat Specialist
Pat Mathis, Southwest Area Habitat Specialist

U.S. Fish & Wildlife Service

Region 6 Environmental Contaminants



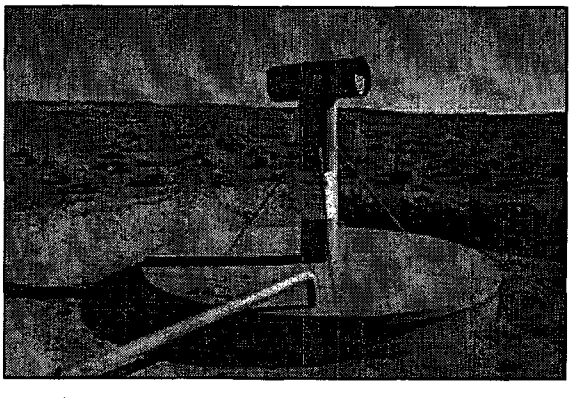
Contaminant Issues - Oil Field Waste Pits

Solutions

Solutions to preventing wildlife mortality in oil field waste pits are fairly simple and straight forward and are being implementing by many oil operators. The U.S. Fish and Wildlife Service suggests the following measures.

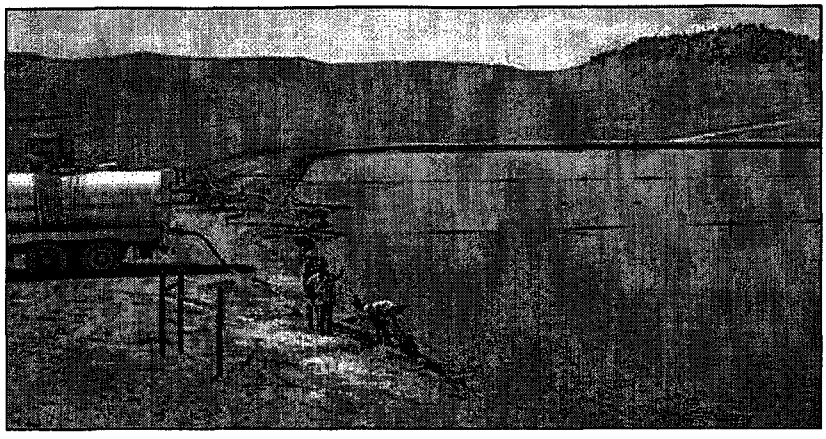
Use Closed Containment Systems

Closed containment systems require little or no maintenance and the system can be moved to a new site when the well is shut in. Closed containment systems eliminate soil contamination and remediation expense. Closed containment systems used to collect oil field produced water do not attract wildlife and isolate oil from the environment.



Eliminate Pits or Keep Oil Off Open Pits or Ponds

A fail-safe solution is to remove the pits or keep oil from entering the pits. Immediate clean up of oil spills into open pits is critical to prevent wildlife mortalities.

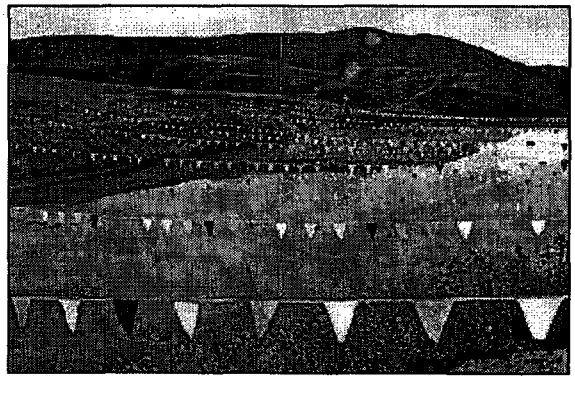


Use Effective and Proven Wildlife Deterrents or Exclusionary Devices

Netting appears to be the most effective method of keeping birds from entering waste pits.

Deterrents That DO NOT Work at Oil Pits

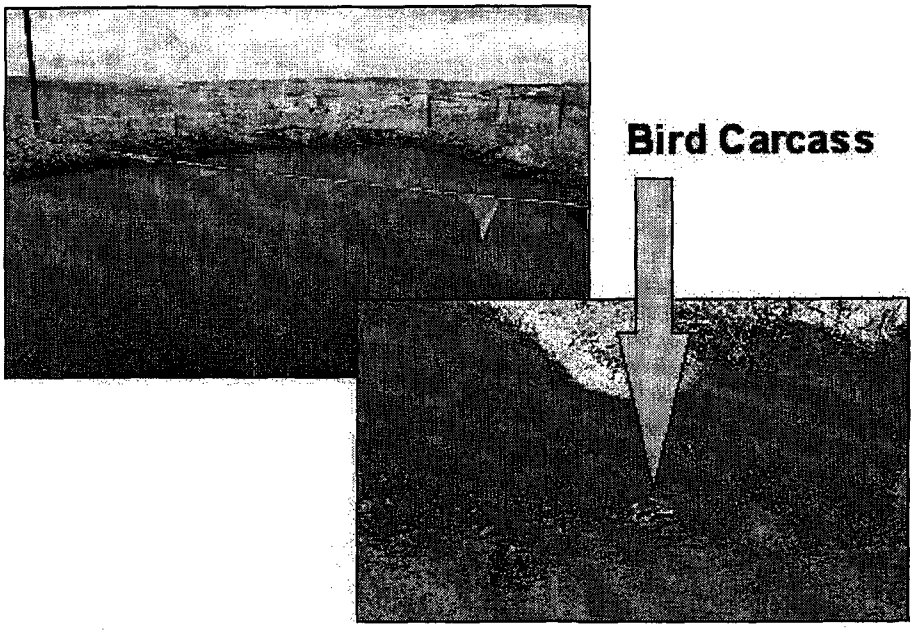
- Flagging



Flagging is ineffective at deterring migratory birds and other wildlife from oil field waste pits.

- Reflectors
- Strobe Lights
- Zon Guns

Published scientific studies as well as field inspections by U.S. Fish and Wildlife Service personnel have documented bird mortalities at oil pits with flagging, reflectors, and strobe lights. Although Zon guns or propane cannons have been used in other applications to deter birds, their use in oil pits have been ineffective.



Effective Net Installation

The effectiveness of netting oil pits to exclude birds and other wildlife depends on its installation. Effective installation requires a design allowing for snow-loading and one that also prevents ground entry by small mammals and birds. According to a professional net installation contractor, a maximum mesh size of 1 1/2 inches will allow for snow-loading and will exclude most birds. Netting should be suspended a minimum of 4 to 5 feet from the surface of the pond to prevent the net from sagging into the oil-covered pond during heavy snow-loads. Three-inch steel tubing can be used for support posts and are set a maximum of 7 feet apart. These are buried a minimum of 7 feet in depth and set in concrete. Three-inch steel tubing is also used as a top rail to connect the posts. Cable is strung across this frame at 7-foot intervals along the y-axis and the x-axis to form a grid of 7-foot squares by the cable. The netting is draped over this cable grid. Netting should be wide enough to drape down the sides of the frame to prevent ground entry by wildlife. A bottom perimeter cable strung along the bottom of the posts at ground level is used to attach the bottom of the

net. Cables are strung over the net at 7-foot intervals to prevent the wind from whipping the net back and forth. Proper maintenance should be performed to repair holes in the netting and to re-stretch sagging nets after heavy snow-loads.

Properly installed net at commercial oil field produced water disposal facility in Wyoming. Net is supported by steel frame and high-tensile strength cable to prevent sagging. Sides are also netted to prevent ground entry by birds and other wildlife. Netting to exclude migratory birds should also extend down the sides of the supporting frame to prevent ground entry by birds and other wildlife

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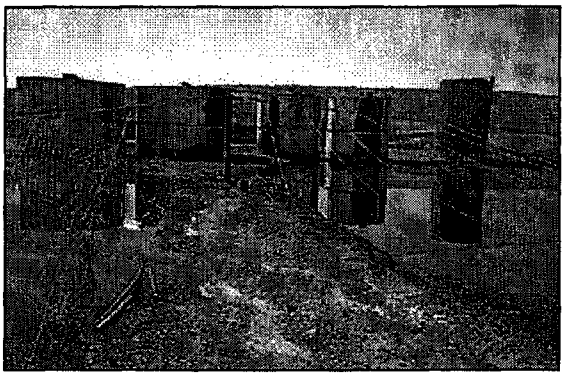
This net was installed less than 5 feet above the fluid surface. A heavy snow-load caused the net to sag into the oil-covered pond. The exposed oil entrapped migratory birds. Netting should be suspended a minimum of 4 to 5 feet from the surface of the pond to prevent the net from sagging into the oil-covered pond during heavy snow-loads.

Poorly installed and maintained netting at this commercial oil field produced water disposal facility in Wyoming allows entry by migratory birds and other wildlife. To insure effectiveness, netting should exclude wildlife from ground as well as aerial entry.



Proper maintenance is necessary to prevent wildlife and migratory birds from entering oil-covered pits. Small mammals and birds can enter this pit through this small opening on the side.

In Summary . . .

- Netting has been found effective at deterring birds from oil pits.
- HDPE balls have been used as bird deterrents in waste pits.
- Use enclosed tanks to separate the oil from the produced water prior to discharge into the environment.
- Industry compliance with existing state and federal regulations prohibiting the accumulation of oil in separator pits.
- Report migratory bird deaths in oil pits to the nearest U.S. Fish & Wildlife Service office.

For more information, contact Pedro 'Pete' Ramirez, Jr. (Pedro_Ramirez@fws.gov)

The Problem - Solutions - **Links** - Return to **Oil Field Waste Pits**

Region 6 Environmental Contaminants Home Page
National Environmental Contaminants Program Home Page

USFWS Region 6 Home Page
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Figure 1. The preferred 3-strand fence for big game habitats in New Mexico. Top and bottom wires are best if smooth, rather than barbed. This is more critical for the top wire. Fence posts and stays should be no more than 10 feet apart, to keep a taut fence. Wires should be at 16, 26 and 38 inches above the ground to accommodate crawling, penetrating and jumping animals.

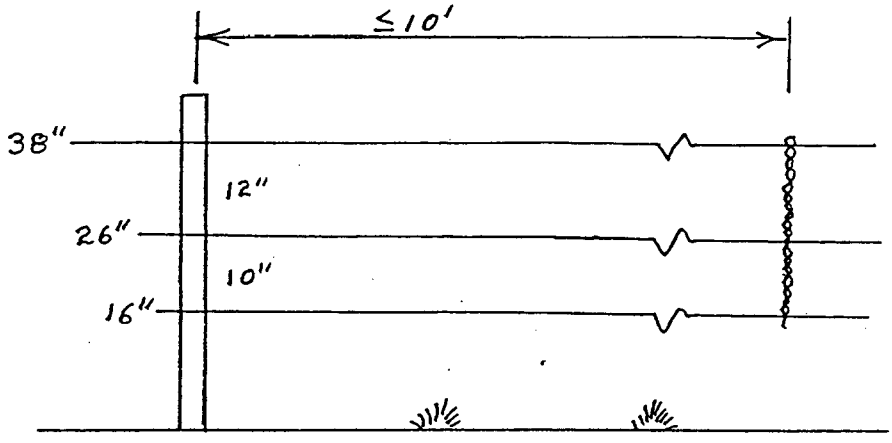

Figure 2. Recommended 4-strand fence with nearly-equal wire spacings. Top and bottom wires are best if smooth, rather that barbed. This is more critical for the top wire. Fence posts and stays should be no more than 10 feet apart, to keep a taut fence. Wires should be at 16, 22, 28 and 38 inches above ground to accommodate crawling and jumping animals.