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October 9, 2007

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

Re: Proposed New Oilfield Pit Rule 19.15.17; NMDGF Project No. 11729

Dear OCD:

In response to your Docket No. 32-07, announcing a special Oil Conservation Commission meeting on October 22, 2007, to consider Case No. 14015, the New Mexico Department of Game & Fish (NMGF) has reviewed the above referenced document. Please accept this letter as our written comment for the hearing record.

The text of the proposed rule has several elements which will protect wildlife habitat. In particular, NMDGF concurs with the exclusion of oilfield pits from floodplains and from surface water and wetland buffer zones (please check the language to ensure that seeps and springs will be included); prompt removal of free liquids from drilling and workover pits; the testing of soils at closure for hydrocarbons and chloride; and the requirement that closed pit locations be re-vegetated. However, the proposed rule does nothing to protect wildlife from the physical and chemical hazards of either permanent or temporary oilfield pits. In addition, the rule does not go far enough to ensure adequate re-vegetation to restore pre-existing habitat value.

Wildlife Protection

19.15.17.11 D(3). A barbed wire fence of the type described here will not exclude any form of wildlife. A fence intended to exclude large wildlife must be constructed of wire mesh or chain link at least eight feet high. To exclude small wildlife the fence must be wrapped in small mesh material around the bottom. Fences do not exclude flying wildlife. Wildlife exclusion fencing may be appropriate at permanent installations. For any pit fencing that will not be constructed in the manner described above, the words "wildlife and" should be removed from the first sentence. Fences intended to exclude livestock may cause serious injury to wildlife attempting to cross over, under or through. To avoid this situation, barbed wire livestock fence should be constructed as shown in one of the illustrations we have enclosed from the NMDGF Fencing Guideline. Please clarify in which particular areas OCD contemplates that a division district office "may impose additional fencing requirements for protection of wildlife", so we can provide appropriate technical guidance.

19.15.17.11 E. Screening, netting or cover should be required for all pits and tanks. How will it be determined when netting is "not feasible", and on what basis? Visual inspection of pits for the remains of dead animals will miss the vast majority of occurrences, including those where the corpse is submerged, or has been scavenged (thereby potentially exposing the scavenger to chemical substances), or where death is delayed, or where the

injury is sublethal, or where a chemical substance harms the progeny. Furthermore, reporting of remains is left to the discretion of the operator. We recommend that the second sentence be deleted from the rule. OCD already has enough information to assess the hazard and implement measures to prevent incidents in a proactive manner.

19.15.17 F, G, H. Wildlife which enter a pit with 2:1 sloped sides, smooth-surfaced liner material and two or three feet of freeboard, will not be able to exit. If the pit contains liquid, the animal will swim around the periphery until it becomes exhausted and drowns. If the pit is empty, the animal may die of exposure, starvation or thirst before it is discovered. Any pits - temporary, permanent, or closed-loop-associated - which are not fenced and/or netted to exclude wildlife, should be provided with escape ramps or ladders, as appropriate to the particular configuration of the pit or tank. These may be constructed of any of a variety of materials, as long as the ramp provides egress for animals circling the periphery at any anticipated liquid level, including an empty pit. NMDGF is available to consult regarding the construction of escape ramps.

19.15.17 J. Open trenches and ditches can trap small mammals, amphibians and reptiles and can cause injury to large mammals. Periods of highest activity for many of these species include night time, summer months and wet weather.

- To minimize the amount of open trenches at any given time, fill trenches as soon as feasible after they are dug.
- Trench during the cooler months (October – March). However, there may be exceptions (e.g., critical wintering areas) which need to be assessed on a site-specific basis.
- Avoid leaving trenches open overnight. Where trenches cannot be back-filled immediately, escape ramps should be constructed. Escape ramps can be short lateral trenches sloping to the surface or wooden planks extending to the surface. The slope should be less than 45 degrees (100%). Trenches that have been left open overnight, especially where endangered species occur, should be inspected and animals removed prior to back-filling.

Habitat Reclamation

19.15.17.7 G. "Re-vegetation" should be defined as the successful establishment of vegetation, not just the attempt to do so. Restoration of pre-existing land use function should be specified along with erosion control as a purpose of re-vegetation. NMDGF concurs with the establishment of predominantly native species. Plant species, for either purpose, must be perennial, as well as predominantly native.

19.15.17.13 H (1). NMDGF concurs with the requirement for establishing vegetation through two successive growing seasons, although we recommend that a longer period be monitored for larger areas associated with permanent pits. Who will do the monitoring of re-vegetation? We recommend that re-vegetation success should be reported to OCD and confirmed through spot inspection by OCD staff.

Thank you for the opportunity to comment on this Proposed Rule. If there are any questions, please contact Rachel Jankowitz at 505-476-8159, or rjankowitz@state.nm.us.

Sincerely,

Matthew Wunder, Ph.D.
Chief, Conservation Services Division

MW/rj

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NEW MEXICO DEPARTMENT OF GAME AND FISH

Recommendations for Constructing Wire Fences
for Livestock in Big Game Habitats
July 2003

Recommendations for wire fencing will vary with the purpose of the fence, the kinds of livestock and big game present, and any clear or implied legal requirements for fence design. Fences may be intended to restrict both livestock and wildlife, or to restrict livestock while allowing for passage of wildlife. Fencing needs may vary between interior and exterior fences in livestock pastures. Fences may be used for protection along highways, or to protect wildlife areas or habitat improvements from livestock entry. The ability of livestock or big game to negotiate a type of fence will vary with the species or breed, and sex/age of the animals. Further, regional variation in the behavior of pronghorn and desert bighorn in reaction to fences (Bear 1969:270, Elenowitz 1983:37) suggests that learned behavior may create additional variation in animal responses to fence designs. Landowners increase their legal protection against trespass livestock by having fences that are at least equal to the 4-strand fence described in 77-16-4 NMSA as a "legal fence" (Appendix A). The State Highway Department and county commissions are required by 30-8-13 NMSA to construct and maintain fences along certain roads in order to prevent livestock entry (Appendix B). However, a 1991 opinion of the Interior Department Solicitor's Office (Appendix C) indicates that federal mandates to protect wildlife on the federal lands may take precedence over state requirements for fencing of highways. Considering such variation in fence purposes, kinds of animals present, and legal constraints, a variety of types of fences should be available for recommended use, according to each local situation.

Published recommendations for fence designs (Kie et al. 1994, Kindschy 1996, and standard designs of the U.S. Forest Service and the Bureau of land Management) are based largely upon field experiences. There has been little experimental research to test the abilities of various kinds of animals to negotiate various types of fences. Experiments have been conducted by Bear 1969, Helvie 1971, Gross et al. 1983 and Howard 1991).

The Bureau of Land management (BLM) and the New Mexico Department of Transportation (NMDOT) have a 1990 Memorandum of Understanding in which fence standards are described (Appendix D). This attachment states that right-of-way fence specifications in areas of big game habitat will be developed through coordination between BLM and the Department of Game and Fish. Further, the attachment describes a 4-strand fence to be used along rights-of-way through pronghorn habitat. Ten other fence designs are recommended in the BLM manual (Appendix E). Each of these fences is recommended for a specific combination of big game species and type of livestock.

The U.S. Forest Service and the NMDOT modified their Memorandum of Understanding in 1982, to address right-of-way fencing in wildlife areas. The agreed-upon 4-strand fence is shown in Exhibit 9 of the MOU (Appendix F).

The Department of Game and Fish has recommended at least four fence designs during the 1980's and 1990's. Variation in Department recommendations reflects the lack of experimental

research with fence designs. Lacking a basis in research, recommendations were based upon opinions and influenced by experiences of various biologists. Both 3-strand and 4-strand fences have been recommended. Separate fence designs have been proposed for bighorn sheep habitats. Recommended fences have ranged from 34 to 42 inches high, with bottom strands varying between 12 and 20 inches above ground.

Livestock fences may prohibit or inhibit big game movements and may cause injury or death to animals that unsuccessfully negotiate fences. Big game traverse wire fences by crawling under the bottom strand, by penetrating between strands, and by jumping over fences. The propensities for using these 3 strategies vary among big game species, and among age/sex classes of animals. Further, there are regional differences in the propensities of some big game species to use certain strategies (Bear 1969:270, Elenowitz 1983:37), indicating that there are learned adaptations for crossing fences in some populations.

Crawling animals may sustain cuts by a low bottom wire. Pronghorn, javelina, and young of other species are most apt to use this strategy. Most published recommendations for fences in pronghorn habitat suggest a smooth bottom wire at least 16 inches above ground, although a bottom wire at 10 inches above ground is suggested when holding domestic sheep is necessary.

Penetrating animals may be cut by barbed wires. Worse, they may pass horns or antlers through the fence, be unable to penetrate with their entire bodies, and have horns or antlers entangled between wires with 6-8 inch spacings. They then "fight" the fence, risking cuts to the head and neck and potentially death. Most publications recommend wire spacings of 10 to 15 inches to accommodate penetrating big game. However, closer spacings are needed to hold domestic sheep, or where extreme restriction of livestock movements is needed.

Jumping animals may be cut by a barbed top wire; may entangle legs between the two top wires; or may become hung up with front and back legs on opposite sides of the fence. Adult deer and elk are most prone to jump fences. However bighorn in Southwest New Mexico (Elenowitz 1983) and some pronghorn jump fences. The lowest possible fence presents the least hazard. Published recommendations are for fences between 32 and 40 inches high, depending largely upon whether domestic sheep or domestic cattle are being held. A smooth top strand, or covering the top strand with white 1-inch PVC pipe, is recommended in areas of abundant big-game use, where trails cross fence lines, and in fence corners within big game habitats. Entanglement between the top two wires usually involves a hind leg, and presumably occurs as an animal attempts to jump with the hind legs "tucked" under the body. A leg going under the top wire may kick back into the second wire, entangling the animal. As the animal falls, a hind leg pivoting over the top wire may twist the second wire upward, producing a tight bind around the leg. This is most apt to occur if the top wires are closely spaced and not strung tightly. To avoid this problem, most published recommendations are that the top strands be 10 to 12 inches apart, and that frequent stays be used to inhibit twisting of the top wires.

Kie et al. (1994) and BLM guidelines recommend a fence with only 4 inches between the two top wires for use in bighorn sheep habitats. The recommendations appear to be based upon the research of Helvie (1971) who worked with bighorn that used a penetrating strategy, but did not jump fences. The Department of Game and Fish does not recommend this fence because bighorn

frequently jump fences in southwest New Mexico and because deer, which frequently jump fences, are present in most bighorn areas.

In wildlife habitat, where it is intended to minimize restriction of big game, fence construction must be a compromise between minimizing the risks to wildlife and holding livestock. Net wire fences are strongly discouraged. If necessary, they should be no more than 36 inches high, preferably less. A preferred net wire fence has 24 inches of woven wire with two strands of barbed wire at 2 and 10 inches above the net wire. For big game, an ideal strung-wire fence has few, tight, mostly smooth wires, widely spaced for penetration; with a high bottom strand for crawling animals and a low top strand for jumping animals. A preferred 3-strand fence is described in Fig. 1. However, this fence will not hold domestic sheep and may not hold cattle at pressure points.

In practice, 4-strand fences almost always have equally spaced wires. Their abilities to hold livestock have been demonstrated by experience. Such fences may be designed to allow crawling and jumping strategies, but equally spaced wires are expected to deter penetration, or to injure penetrating animals. Accepting this limitation, a 4-strand fence with nearly equal wire spacings is recommended in Fig. 2.

Four-strand fences with unequally spaced wires have not been tested for their abilities to hold livestock or to allow big game passage. Having unequally spaced wires could allow for big game penetration, as well as for crawling and safe jumping. Two 4-strand fences (Fig.3) are recommended for testing of their ability to hold cattle. These fences should be tested – perhaps as short segments in areas of abundant big game use – on Department lands, and on other lands where restriction of livestock is not critical.

In any wire fence, probability of entanglement between wires is diminished by taut wire with posts and stays 10 feet apart.

In extremely steep terrain, fences may be unnecessary to hold livestock. Such areas should be unfenced to allow free movement of big game. In critical areas and migration seasons, when livestock are not present, lay-down panels are requested to allow movements of big game.

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