

by Pedro Ramirez, Jr.

Fatal Attraction: Oil Field Waste Pits



Photo by Matthew Perry/USFWS

Two million migratory birds are estimated to die each year in oil and mining wastewater ponds in the western United States, according to Gary Mowad, a U.S. Fish and Wildlife Service (FWS) Special Agent in Lakewood, Colorado. Wildlife mortality in oil field waste pits has been documented by FWS special agents and environmental contaminants specialists. While documented losses of species protected under the Endangered Species Act are low, the risk is present, especially for protected birds and bats.

Bats have been found entrapped in oil-covered waste pits in several parts of the country. Several endangered species, including the gray bat (*Myotis grisescens*), Indiana bat (*Myotis sodalis*), lesser (Sanborn's) long-nosed bat (*Leptonycteris curasoae yerbabuena*), Mexican long-nosed bat (*Leptonycteris nivalis*), and Ozark big-eared bat (*Corynorhinus townsendii ingens*), occur in oil-producing states where the practice of using open pits or tanks is common. Although there are no documented cases of federally listed bats dying in oil pits, that is probably because these pits are not closely monitored and, even when a dead bat is found, its condition can make it difficult to identify the species. In the Southwest, individuals of two threatened bird species, bald eagles (*Haliaeetus leucocephalus*) and peregrine falcons (*Falco peregrinus*), also have been found in oil field waste pits.

Pits and open tanks are commonly used to separate any water that is extracted from the oil-bearing formation along with the oil. Ineffective separation of oil and water results in wastewater covered by a layer of oil, creating a

death trap for migratory birds and other wildlife. The wastewater is disposed of by deep-well injection, discharge into surface waters, or transfer to a commercial disposal facility. If the extracted water is discharged into surface waters, it must meet State water quality criteria. In Colorado, Wyoming, and New Mexico, some operators that cannot discharge into surface waters and cannot afford deep-well injection opt to transport the wastewater to commercial oil field-produced water disposal facilities. These facilities store the wastewater in large evaporation ponds that are an even greater attractive nuisance for birds and other wildlife. Oil pits are also used to contain oil spills or to catch oil drips.

The fatal attraction to waste pits often begins when insects become trapped in the oil and struggle to escape. As they struggle, their movements attract predators such as bats, songbirds, and small mammals. These animals in turn become trapped and their struggling attracts other predators, such as hawks and owls, which soon find themselves in the same deadly predicament. According to Bat Conservation International, bats are even more likely to become entrapped when they fly in for a drink. Bats drink on the wing and locate water sources by echolocation. A pond of oil-covered water would sound much the same to a bat as one with clear water.

Even if animals attracted to the oil-covered pits or ponds escape death by entrapment, they may ultimately die anyway. Birds or mammals may drink toxic quantities of oil, may become covered with oil and ingest toxic quantities as they try to clean them-

selves, or animals covered with oil may die from cold stress if the oil damages the insulation provided by their feathers or fur.

In addition to harming wildlife, oil pits can damage the environment or threaten human health. Oil from these pits can contaminate surrounding soil and seep into groundwater or nearby surface waters.

Historically, methods such as placing flags, reflectors, and strobe lights around oil pits were used to deter wildlife. However, published scientific studies, as well as field inspections by FWS biologists, have shown that these methods are not always successful. The use of propane cannons as “noisemakers” also has been attempted and, although they have proven successful in deterring birds under other circumstances, their use in oil pits has not solved the problem.

Solutions to the danger posed by oil pits include:

1. Use closed containment systems— These systems require little or no maintenance, can be moved from site to site, and eliminate the threats of soil contamination and wildlife entrapment.
2. Eliminate pits or keep oil from open pits or ponds—A fail-safe solution is to remove the pits, use a closed containment system, or keep oil from entering the pits.
3. Use effective and proven wildlife deterrents or exclusionary devices— Netting appears to be the most effective method of keeping birds and bats from entering waste pits.
4. Clean up any accidental spills immediately—Immediate cleanup is critical for preventing wildlife mortalities at any site.

In Region 6, a partnership among the FWS law enforcement and environmental contaminants programs, the U.S. Environmental Protection Agency (EPA), State regulatory agencies, and oil companies has reduced migratory bird and other wildlife losses in oil field waste pits. In most cases, it only took

education, not legal action, to get companies to change their practices. In Colorado, Special Agent Mowad has seen the oil industry respond dramatically to the problem. “When we started our surveys in Colorado during the summer of 1995, 77 percent of the pits were either completely or partially



covered with oil and posed a threat to migratory birds,” he said. By the end of that year, the number was down to 10 percent. Mowad has also seen a comparable response in Wyoming. He credits the oil industry’s cooperation for bringing oil field operations into compliance and says that peer pressure from within the industry has been enough to persuade most operators. “The work that we have done to get oil pits cleaned up in Region 6 has likely saved declining species” says Mowad. Likewise, the efforts by the oil industry to correct the problem in States with endangered bats will help these rare species as well.

Pits are used to separate oil from produced water at well sites such as this one in northeastern Wyoming. Oil operators usually string colored flagging in an attempt to discourage birds from landing in these pits. Unfortunately, flagging has not prevented wildlife mortality.

Photo by Pedro Ramirez, Jr./USFWS

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