

toxic tundra

Oil Drilling in
an Alaskan
Wildlife Refuge
Leaves a Toxic
Legacy of Oil Spills
and Pollution



Oil drilling in the Kenai National Wildlife Refuge in Alaska has resulted in hundreds of spills, fires and explosions

and has contaminated massive amounts of soil and groundwater with oil and other toxic substances that are known to cause mutations and birth defects in wildlife. Scientists studying the area have uncovered frogs with crippling deformities. Yet, proponents of drilling for oil in another Alaskan wildlife refuge, the Arctic National Wildlife Refuge, say drilling there would be “environmentally sensitive.”

The record on Kenai National Wildlife Refuge shows otherwise.



According to recent federal studies, oil and gas activities have resulted in

more than 350 spills,

explosions and fires within the Kenai National Wildlife Refuge, releasing more than 270,000 gallons of oil, produced water, and other contaminants into refuge habitats.

Oil and gas drilling on the wildlife refuge has contaminated more than 100,000 tons of soil with toxic chemicals. If that contaminated soil were placed in 20-pound bags, a row of those bags would stretch a line across the entire United States, from coast to coast, twice.

In some areas of the refuge, groundwater has been contaminated at levels 10 times the legal limit established by the Environmental Protection Agency. For example, groundwater in one area of the Kenai



National Wildlife Refuge is heavily polluted with xylene, a toxin that causes delayed growth and development in unborn animals.

Wood frogs found in oil fields on the refuge have missing hind legs and feet, misshapen hind legs, clubfeet and missing eyes.

The extent of the damage is just beginning to be revealed. A comprehensive investigation is needed to uncover the full environmental cost of oil and gas drilling in the Kenai National Wildlife Refuge.

The Toxic Legacy of Oil Drilling in Alaska's Kenai National Wildlife Refuge

Originally established in 1941 by President Franklin Delano Roosevelt to protect the large population of moose on the Kenai Peninsula, the Kenai National Wildlife Refuge provides habitat for 200 species of birds and wildlife, including Bald Eagles, Trumpeter Swans, brown and black bear, caribou, and wolves. In 1957, oil was discovered on the refuge, and it was opened to oil and gas drilling. Since then, considerable oil and gas-related development has occurred in the Kenai National Wildlife Refuge, resulting in numerous oil and hazardous material spills.

The industrialization of portions of this refuge has fragmented and degraded bird and wildlife habitats. Industrial oil development of the refuge has included:

- Nearly 200 wells within three oil and gas fields that total 30 square miles;
- 46 miles of oil and gas feeder pipelines across refuge lands outside of designated oil and gas fields;
- A 3,500 foot airstrip;

- 44 miles of roads;
- More than 60 individual well pads;
- Two solid waste disposal sites;
- Two active gravel pits; and
- Support facilities including high pressure compression and power generating systems, powerline and pipeline rights-of-way, tank settings and flare stacks, scrubbers, dehydration units, separators, thermal pacs and retention ponds.

Over the past 40 years, this oil and gas infrastructure within the Kenai National Wildlife Refuge has left a toxic legacy of oil spills and pollution. More than 270,000 gallons of oil, produced water and other contaminants have been released into the wildlife refuge as a result of the more than 350 spills, explosions and other contamination events caused by oil and gas activities. Groundwater in some areas of the wildlife refuge shows contamination at 10 times the legal limit established by the Environmental Protection Agency.



Groundwater in some areas of the wildlife refuge shows contamination at 10 times the legal limit established by the Environmental Protection Agency.

Swanson Unit Retention Pond, Kenai National Wildlife Refuge

Major Spills Within the Swanson River Oil Field on Kenai Refuge

In a formal Contaminants Assessment of the Kenai Refuge completed in 2001, the U.S. Fish and Wildlife Service documented major oil spills and other contamination events at the Swanson River Oil Field. Because of poor reporting and poor records, little is known about the first two decades of oil drilling on

the refuge. Further, the Fish and Wildlife Service reported in 1999 that, "refuge personnel detected (contamination) events during routine fly-overs and on-the-ground inspections that were not reported in a timely manner, if at all." The spills documented are only a fraction of what actually occurred on the ground.



Spilled Oil and Other Contaminants Threaten Birds and Other Wildlife

Crude oil and other toxic contaminants spilled by oil companies in Kenai National Wildlife Refuge threaten birds and wildlife with both lethal and sub-lethal effects.

Crude Oil - Exposure to crude oil causes kidney failure, liver failure, altered blood chemistry, reproductive impairment, lung damage, and nervous system damage in birds and wildlife. Crude oil destroys the insulating capacity of feathers and fur. In the brutally cold temperatures of Alaska, birds and wildlife that come into contact with spilled oil usually freeze and die.

Produced Water - Drawing oil and natural gas from the earth also extracts water from deep in the ground. Because this “produced” water has been in contact with petroleum sources and other minerals it contains hydrocarbons, salty brine and elevated concentrations of barium, beryllium, cadmium, chromium, copper, iron, lead, nickel, silver and zinc, and small amounts of natural radioactive metals. While the concentrations of some of these substances are small, the amounts of produced water released in spills can be enormous, posing a serious environmental threat.

Polychlorinated Biphenyls (PCBs) - PCBs are thought to cause mutations, cancers, birth defects, endocrine disruptions, still births, nervous disorders, and liver disease. PCBs are ranked as one of the most hazardous compounds (worst 10%) to ecosystems and human health.

Benzene - A recognized carcinogen and developmental toxicant thought to cause mutations, cancers and birth defects. Benzene is ranked as one of the most hazardous compounds (worst 10%) to ecosystems and human health.

Xylene - Exposure to xylene can cause headaches, dizziness, lack of coordination, skin irritations, and breathing problems. Animal studies indicate that exposure to high xylene concentrations may cause delayed growth and development in unborn young.

Crippling Frog Deformities Found in Oil Fields Within the Kenai Refuge Warrant Further Investigation



In the summer of 2000, U. S. Fish and Wildlife Service contaminants specialists and refuge biologists found an abnormally high number of deformed frogs in the Kenai Refuge. According to a U.S. Fish and Wildlife Service draft report recently obtained through a request under the Freedom of Information Act, the number of abnormalities recorded was the largest number found in any of 43 wildlife refuges sampled nationwide. It also was the largest number of frog abnormalities ever reported in the State of Alaska.

Preliminary data suggest that within the refuge, higher frog deformity occurred within the oil field areas. Frogs found in oil fields on the wildlife refuge have shown deformities such as missing hind legs and feet, misshapen hind legs, clubfeet and missing eyes.

Sensitive to environmental changes and especially vulnerable to pollution, frogs and other amphibians like toads and salamanders have been declining worldwide for years, possibly serving as a warning about the spread of contaminants, disease and other problems.

Toxic chemicals spilled as a result of oil operations are a suspected cause of the frog deformities on Kenai Refuge. Toxic chemicals spilled in the wildlife refuge by oil companies include polychlorinated biphenyls (PCBs), anti-freeze, solvents, diesel fuel, triethylene glycol, benzene, and xylene. According to the U.S. Fish and Wildlife Service, PCBs are thought to cause mutations, cancers, birth defects, still births, and liver disease.

Because the oilfields on the Kenai Refuge have a long history of contamination, further investigation is necessary to determine the role of toxic contaminants, and by extension the role of oil and gas development, in causing the frog deformities.



Further Investigation is Needed to Determine the Full Extent of the Toxic Legacy on Kenai National Wildlife Refuge

The U.S. Fish and Wildlife Service, through their Contaminants Assessment and investigation of frog deformities, have begun to officially document the long history of oil spills and pollution on Kenai National Wildlife Refuge and subsequent risks to frogs and other wildlife. However, these government studies are limited in scope, and have reflected only a review of the history of contamination events at Kenai Refuge and a survey of wood frogs in the refuge. These studies may just scratch the surface of the full extent of the impacts of oil and gas development on the Kenai National Wildlife

Refuge. Further investigation is needed to determine: 1) the full extent of soil and water pollution, as well as habitat degradation, caused by oil and gas drilling on Kenai National Wildlife Refuge; 2) the role of toxic contaminants, and by extension the role of oil and gas development, in causing the crippling deformities found in frogs within oil fields on the wildlife refuge; and 3) the impact that oil spills and oil-related pollution have on other birds and wildlife that spend time in or near the oil fields on Kenai Refuge.

Don't Repeat the Kenai Mistake – Keep Oil Drilling, Oil Spills and Industrial Infrastructure Out of the Pristine Arctic Refuge

The record is clear – oil drilling in national wildlife refuges is not environmentally sensitive; it leaves a toxic legacy of oil spills and pollution that threatens birds and wildlife in the very habitats meant to protect them.

Some have proposed opening another Alaskan wildlife refuge to oil drilling, the Arctic National Wildlife Refuge. The U.S. Fish and Wildlife Service has called the Arctic Refuge, “one of the finest examples of wilderness left on the planet,” containing “remote, complete, and undisturbed habitats” home to “some of the most diverse and spectacular wildlife in the Arctic.” Millions of migratory birds representing 135 species nest in or migrate through the refuge’s coastal plain between the rugged Brooks Range mountains and the ice-bound Beaufort Sea. The Arctic Refuge is the most important on-shore denning area in the United States for polar bears and the principal calving ground of the 130,000-strong migratory Porcupine caribou herd.

The proposed oil development area in the Arctic Refuge would be much larger and more extensive than the oil field that has contaminated the Kenai Refuge.

Repeating the Kenai mistake by allowing environmentally destructive oil drilling and industrial development – in an area set aside to



protect wildlife – is environmentally unacceptable. Industrial infrastructure, oil spills and pollution would destroy the wilderness character of the Arctic Refuge while introducing grave new environmental risks to the birds and wildlife inhabiting this pristine and irreplaceable wildlife refuge.