Case Study:
What are the advantages and disadvantages to the development of ANWR oil reserves?

Bioethics Workshop June 2008
Iowa State University

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http://earth.google.com/intl/en_uk/outreach/cs_anwr.html 18 June 2008

Arctic National Wildlife Refuge Development Issues

The debate over whether or not to open the Arctic National Wildlife Refuge (ANWR) to drilling for oil and natural gas has raged for over 40 years. Throughout this time, industry representatives have argued that drilling would put a valuable untapped natural resource to good use, would allow us to reduce our dependence on foreign oil, and could be undertaken with minimal disturbance of wildlife. Environmentalists have maintained that any intrusion would cause unacceptable damage to the arctic ecosystem, and have campaigned to designate the area as a wilderness, which would close the door on all future development.

The issue has been making more headlines recently because sharp increases in oil and natural gas prices have renewed developers' interest in the region, and because President Bush and his Secretary of the Interior, Gale Norton, support the idea of opening the ANWR to development.

The ANWR was created in 1980 by the Alaska National Interest Lands Conservation Act, which designated 19.3 million acres of land as a wildlife refuge. The land that was set aside included President Eisenhower's 8.9 million acre legacy, the Arctic National Wildlife Range. The Act also authorized a study of the ANWR's coastal plain to determine its potential for oil and gas development.

This coastal plain, also called the '1002 area', lies at the heart of the controversy. The 1.5-million acre coastal plain is only 8% of the entire wildlife refuge, but it is the most biologically rich region in the ANWR. It provides habitat for over 200 species of animals, including musk-oxen, polar bears, grizzly bears, wolves, and migratory birds, and is the traditional calving grounds for the Porcupine Caribou Herd, a herd of 130,000 animals.3 This region, where wildlife is most abundant, is also where large amounts of oil are most likely to be found.

The U.S. Geological Survey (USGS) surveyed the region in 1984-85, and published estimates in 1998 that there was a 95% chance of finding 11.6 billion barrels of oil in the 1002 area, and a 5% chance of finding 31.5 billion barrels or more. However, not all of this oil would be recoverable. There was a 95% chance that 4.3 billion barrels would be technically recoverable, and a 5% chance that 11.9 billion barrels would be technically recoverable. Not all the technically recoverable oil would be worth the cost of removal, since the cost is affected by the fluctuating price of oil, and by the amount of oil to be extracted (extraction is more cost-effective for larger amounts of oil). At a price of $24 a barrel, the USGS estimated a 95% chance that 2.0 billion barrels of economically-recoverable oil would be found, and a 5% chance that 9.4 billion barrels of economically-recoverable oil would be found.4

Many other estimates are quoted by industry experts and by environmentalists. The issue is frequently confused because some organizations quote figures for the entire assessment area, while others quote them only for the coastal plain, and some cite the entire predicted amount of oil, while others quote only the technically or economically recoverable portions.

Arctic Power, an Alaska-based organization dedicated to opening the ANWR coastal plain for drilling, states that drilling in the Arctic National Wildlife Refuge could yield up to 16 billion barrels of oil, the equivalent of "30 years of Middle East imports". This figure is the USGS estimate of all the technically recoverable oil that is present in the entire assessment area, the 1002 area and adjacent areas of the ANWR.5 The organization supports drilling based on its potential to increase the domestic oil and gas supply, create jobs, and reduce energy prices.

erness League, a D.C. based environmental organization, states that the technically recoverable portion of oil may be no more than 148 million barrels, which would be not be worth the cost of its extraction, and maintains that the U.S. will remain dependent on foreign oil whether or not the Arctic Refuge Coastal Plain is drilled.6 The Wilderness Society, another D.C. environmental organization, estimates that according to the USGS survey, the ANWR would provide no more than a 6-month supply of oil to the U.S. (3.5 billion barrels), and that at the peak of production, oil from the refuge would amount to less than 2% of the U.S. demand.7

Two bills, distinct from Bush's energy plan, have been introduced to Congress to open the area for drilling, and two others have been introduced to designate it wilderness. Congress could also choose to do nothing, leaving the area with its current status as a wildlife refuge that is exempt from development.

Developers argue that drilling for oil in the ANWR would not harm wildlife. They point out that the Central Arctic Caribou Herd around the Prudhoe Bay oil field, on the coastal plain west of the ANWR, has increased in size during the three decades that the oil field has been under development, from about 6,000 caribou in 1970 to over 19,700 today. They suggest that likewise, development would not hurt the Porcupine Caribou Herd. They also note that new techniques of development, such as directional or slant drilling, roads built of ice instead of gravel, and oil pipelines with built-in safety measures to limit spills, will minimize the impact of development on the ANWR.5 Senator Frank H. Murkowski, Chairman of the Senate Energy and Natural Resources Committee and sponsor of one of the bills to open the ANWR for development, suggests that the area isn't "pristine" to begin with, since it contains the U.S. Military's Barter Island Distant Early Warning System for missile detection and the village of Kaktovik, home to 250 Inupiat people.8 These people and the residents of Alaska, by and large, support development, since it would revitalize the region's economy.

Environmental groups counter that the Central Arctic Herd is different from the Porcupine Caribou Herd, because it is a smaller, non-migratory herd that was able to shift to new calving grounds when drilling activities started in Prudhoe Bay, since the plain surrounding the Prudhoe Bay development is much larger than the ANWR coastal plain. Six times as many caribou use the ANWR coastal plain, and they have access to fewer alternative habitats if drilling displaces them from the coastal plain.6

The U.S. Fish and Wildlife Service states that although technological advances in oil and gas exploration and development have reduced some of the harmful environmental effects associated with those activities, oil and gas development remains an intrusive industrial process.9 Based on the results of limited winter exploration allowed on the coastal plain by Congress in 1984-85, the Fish and Wildlife Service predicts significant impacts from exploration alone on polar bears, musk oxen, and tundra vegetation. The noise, light, and human activity associated with seismic exploration could drive polar bears to abandon their dens. Musk oxen populations are predicted to drop by 25-50% due to displacement from their preferred winter habitat along rivers. In the winter, there is only enough water in the region to build 10 miles of ice roads, so permanent gravel roads and pads would be required.

If year-round drilling enters into force, disruptions could force the Porcupine Caribou Herd to calve in less desirable locations, reduce their access to forage before and during calving, and restrict their access to places to escape from insects. Development would take place in the same area that snow geese and many other species of migratory birds use for summer feeding, and could prevent them from being able to gain enough weight to migrate.9

Opponents of development frequently refer to the Exxon Valdez oil spill in Prince William Sound in 1989, which put the debate over the ANWR on hold for several years. According to CRS report IB10073, the accident caused the deaths of hundreds of thousands of sea birds and 4,000-6,000 marine mammals, and caused an

er losses. Environmentalists fear a comparable accident could hurt wildlife in the coastal plain.

Even without a major spill, development is predicted to cause local pollution, alteration of drainage patterns, and changes in vegetation.9 Other costs include small-scale toxic waste leaks, the creation of roads and pipelines, stripping of rivers and streambeds for gravel, construction of living quarters for thousands of workers, and the use of heavy equipment like planes, trucks, and bulldozers.7

According to CRS report IB10073, if the ANWR were opened for exploration and no economically-recoverable oil was found, the region would probably recover quickly. However, if major oil deposits were found, development could last for decades, and if deposits of economically-recoverable natural gas were found in association with the oil deposits, the region could be under development for a century. Environmental groups believe that under these circumstances, full recovery would be impossible.

Written by Heather E. Lindsay.

http://www.anwr.org/ANWR-Basics/What-is-ANWR-and-where-is-it.php 18 June 2008

Size of ANWR relative to state of Iowa

ANWR	29,688 square miles
Portion of ANWR permanently closed to development (Wilderness & Refuge)	27,344 square miles
Iowa	56,276 square miles

ACTIVITY: Suggested activity sequence; actual timing is left to teacher's discretion.

DAY 1 Homework: You will be assigned to be a member of an interest group. Before returning to class you are to read the materials provided (background and assigned group readings).

DAY 2 In Class Preparation: In groups, you will discuss the assigned readings as well as locate, read, and report on at least one additional resource to share with your group in order to build your testimony.

DAY 3 In Class Preparation: You will participate as a member of an interest group to build a persuasive testimony to present to the United States Congress on the topic of opening oil reserves in the Arctic National Wildlife Refuge (ANWR) to development.

DAY 4 Testimony Presentations: Each interest group will be allowed five minutes to present their testimony to the House of Representatives on the topic of development in ANWR. When all interest groups have presented their information the class will shift roles and act as the House to vote on this legislation. After the votes have been counted and a decision made you will have the opportunity to share personal comments, questions, and concerns.

It is your job to accurately represent the research, thoughts, and opinions of your assigned group. Be careful not to interject your own opinions and biases during the testimonies. You will have the opportunity to share your personal thoughts if you wish at a specific time.

1) Kaktovik Residents
2) President George Bush
3) Competitive Enterprise Institute
4) Sierra Club
5) National Resources Defense Council (NRDC)

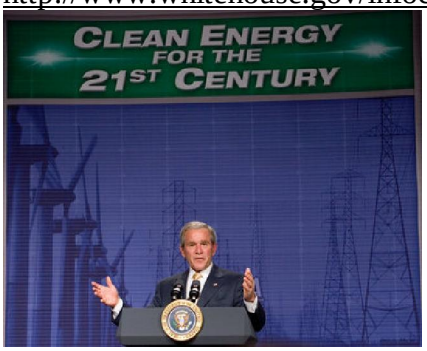
Kaktovik Residents
http://www.kaktovik.com/ourland.html 18 June 2008

We Kaktovikmiut are native Inupiat, often referred to as Eskimo here in the US, or Inuit into Canada. For centuries, we made our home along the coast as we harvested the land between the Arctic Ocean and the mountains to the south. We are the only indigenous people of this land, and to that end we help define this place, along with the air, sea, mountains, tundra and wildlife. To remove one of these elements from the other would be impossible, and we see ourselves as no different. For thousands of years our culture has been defined by our connection with this place and all of the bounty it provides. This synthesis between land and people is one of the things that has maintained us here for eons, along with our sense of community and willingness to support one another…

What if everything you knew about the ANWR debate was wrong? What if the argument that you have seen played out in the media was something of an illusion? What if there was another position, one from a perspective that lied outside all you have seen and heard, yet was closest to the place in question? Would it make sense to you? Would you believe it?

In Kaktovik, we live in that place. Here the questions surrounding the ANWR debate are not laid out in black and white. Here the answers are not so easily summed up and delivered in digestible sound bites. Our position here in Kaktovik is much more complicated, yet remarkably simple. Our concerns are real, not theoretical, as we are the ones who will be most affected by anything that happens here. In Kaktovik we live in this place, and our perspective is not so narrow. In fact it is as wide as these lands are vast.

President George Bush
http://www.whitehouse.gov/infocus/energy/ 18 June 2008



President Bush recognizes that the United States is facing a major energy deficiency. Due to the supply shortage and high demand, U.S. citizens are struggling to afford necessary resources such as petroleum, natural gas, and food. President Bush's proposal to the energy crisis is to ask Congress to pass legislation to allow access to oil reserves in ANWR.

oup

http://cei.org/ 19 June 2008

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The Competitive Enterprise Institute is a non-profit public policy organization dedicated to advancing the principles of free enterprise and limited government. We believe that individuals are best helped not by government intervention, but by making their own choices in a free marketplace. Since its founding in 1984, CEI has grown into a $3,000,000 institution with a team of over 20 policy experts and other staff.

We are nationally recognized as a leading voice on a broad range of regulatory issues-from free market approaches to environmental policy, to antitrust and technology policy, to risk regulation. But CEI is not a traditional "think tank." We frequently produce groundbreaking research on regulatory issues, but our work does not stop there. It is not enough to simply identify and articulate solutions to public policy problems; it is also necessary to defend and promote those solutions at all phases of the public policy debate.

We reach out to the public and the media to ensure that our ideas are heard, work with policymakers to ensure that they are implemented, and, when necessary, take our arguments to court. This "full service approach" to public policy helps make us an effective and powerful force for economic freedom.

Sierra Club

http://www.sierraclub.org/arctic/ 18 June 2008

The Sierra Club is an environmental organization that was founded in 1892. There are over 1.3 million members and supporters of the Sierra Club in the United States. Sierra Club mission statement: Inspired by nature, we work together to protect our communities and the planet.

National Resources Defense Council (NRDC)

http://www.nrdc.org/ 18 June 2008

NRDC is the nation's most effective environmental action group, combining the grassroots power of 1.2 million members and online activists with the courtroom clout and expertise of more than 350 lawyers, scientists and other professionals.

NRDC mission statement: The Natural Resources Defense Council's purpose is to safeguard the Earth: its people, its plants and animals and the natural systems on which all life depends. We work to restore the integrity of the elements that sustain life -- air, land and water -- and to defend endangered natural places. We seek to establish sustainability and good stewardship of the Earth as central ethical imperatives of human society. NRDC affirms the integral place of human beings in the environment. We strive to protect nature in ways that advance the long-term welfare of present and future generations. We work to foster the fundamental right of all people to have a voice in decisions that affect their environment. We seek to break down the pattern of disproportionate environmental burdens borne by people of color and others who face social or economic inequities. Ultimately, NRDC strives to help create a new way of life for humankind, one that can be sustained indefinitely without fouling or depleting the resources that support all life on Earth.

KTOVIK RESIDENTS

http://www.washingtonpost.com/wp-dyn/articles/A10253-2005Apr22.html 18 June 2008

Alaska Town Split Over Drilling in Wildlife Refuge

Oil Money Tantalizes, but Many Fear Effect on Way of Life

By Justin Blum
Washington Post Staff Writer
Saturday, April 23, 2005; A01

KAKTOVIK, Alaska -- In the long struggle over drilling for oil in the Arctic National Wildlife Refuge, the Inupiat Eskimos who live in this outpost have played a key role. Their steadfast support for development is routinely cited as a major reason to allow oil companies into the refuge.

But when a delegation of U.S. senators and Cabinet secretaries landed on the unpaved runway here last month, an unusual sight greeted them: the first protest anyone can remember in Kaktovik. A handful of residents chanted slogans and unfurled signs opposing oil drilling, reflecting a small but significant shift in sentiment against proposed legislation that would permit drilling on the nearby tundra.

Residents in this town of compact wood houses and unpaved roads -- the only settlement within the refuge -- have long equated oil development with financial well-being. But a recent petition opposing drilling attracted the signatures of 57 of Kaktovik's 188 adults, and Mayor Lon Sonsalla said he is no longer certain where the majority stand.

Many Inupiats here question whether opening the refuge will endanger something they value most: their traditions -- especially the annual bowhead whale hunt, their strongest link to the past. They worry that drilling on land will eventually expand into the waters offshore, where residents have long opposed drilling for fear it will interfere with whale migration. Recent comments by Gov. Frank H. Murkowski (R) predicting that opening the refuge would lead to offshore development ignited their concerns.

After decades of debate, Congress appears closer than ever to approving drilling. The House on Thursday passed an energy bill that calls for drilling, and the Senate last month included it in a budget resolution. Supporters expect to iron out those differences in conference and include the refuge in the budget.

The opinions of natives in Kaktovik have become critical to the debate. While the town has no vote in the matter, members of Congress have been saying that Kaktovik strongly favors drilling, citing that as a reason for opening the refuge.

"My position is based on my experiences in Alaska when I visited the village of Kaktovik in 1995 and spoke to the Inupiat peoples, who greatly desire this opportunity for economic self-determination," Daniel K. Akaka (D-Hawaii) said last month on the Senate floor before voting for drilling. "To me, [the issue] is really about whether or not the indigenous people who are directly impacted have a voice about the use of their lands."

Spokesmen for Akaka and other lawmakers who support drilling said they have remained in touch with people from Kaktovik and think most still want drilling.

But some Inupiats here said lawmakers in Washington, four time zones away, have failed to take note of the shifting views.

Standing in her small grocery store, Carla Sims Kayotuk, 37, said she recently came out against drilling because of concern over the impact on hunting caribou and other animals used for food, art and clothing. "I've never

I've always supported the community position," Kayotuk said. "But I changed by mind this year. . . . They want to do the drilling where my family goes to hunt."

The importance of hunting can be seen all over Kaktovik, which is on an island in the refuge's coastal plain, where drilling would occur. On opposite ends of the island, near the water, lie two piles of whale bones left over from the annual hunt. The blubber and skin, called muktuk, was carved up and distributed throughout Kaktovik, where leftovers remain in residents' freezers.

Local artists use bones from the whale's mouth, called baleen, to create elaborate carvings. The hooded parkas and mittens worn by many Inupiats include fur and skin from wolf, caribou and seal that were killed by the people who wear them.

Some who live here said drilling would not harm these traditions and that environmentalists are stoking fears of offshore development to sway opinion.

Marie Kaveolook, 46, said she supports drilling for economic reasons. "People would have better jobs," said Kaveolook, an aide in the town's school, named after her father. "The place would get better services."

Kaveolook and others are concerned about cutbacks in school field trips and local government services, such as the health aide, because of declining oil production elsewhere on the North Slope. Much of the government's revenue comes from oil royalties.

The recent opposition movement was born in the cramped living room of Kaktovik resident Robert Thompson. He said he detected shifting opinion about drilling in February, after news reports of Gov. Murkowski's predictions about offshore drilling. Murkowski said oil companies are not interested in drilling off the refuge's coast because doing so would require laying expensive pipelines in the Beaufort Sea, around the refuge, which is now off-limits. But Murkowski said that with the refuge open, companies would find it economical to pipe the oil back to shore and through the refuge.

Thompson said the governor's logic helped persuade people to sign the petition. Offshore drilling is almost universally opposed in this 284-person town for fear that the noise associated with drilling would scare away whales or that a spill could pollute their habitat.

The annual whaling expedition has deep cultural roots here. The hunt unifies residents and provides food for three community celebrations and other meals.

Sheldon Brower, a 36-year-old worker at the power plant, proudly showed a video on his laptop computer of last year's hunt. His daughter Irene, 13, served as a lookout on his 18-foot boat.

"When you're bringing in the whale, the feeling you get is overwhelming," he said. "Practically the whole town is at the beach hollering. It's just one big, glorious, happy day. All the crews feel like we accomplished something -- we just fed the town."

Brower has long opposed drilling but decided to speak out for the first time recently after his wife, Mary Margaret, started campaigning against oil development. A lover of nature, he said roaming in the mountains is "like going to church for me" and that the experience would be altered by oil rigs. Brower also fears that onshore drilling will spark offshore drilling and scare away the whales.

"It'll change their migration," he said of offshore drilling's impact on whaling. "It'll destroy our culture completely. . . . Just the thought of it makes me sick to my stomach."

k and on the coastal plain, it's hard to tell where the treeless tundra ends and the Beaufort Sea begins. Everything is icy and white as a result of temperatures that can dip to 30 degrees below zero.

Oil money that has already flowed into Kaktovik has helped transform it from a place where wood was burned for heat and melted ice was used for water. The town has a modern power plant, cable TV and a water and sewer system that was installed late last year. Some residents drive trucks. Some buzz through town on snowmobiles.

Years ago, Kaktovik was a seasonal home for the Inupiat. After World War II, the U.S. government built a radar site on the island that brought jobs and many permanent settlers, including some white residents. Many of those jobs have since been eliminated, and government is now the biggest employer.

Some still support drilling because they think development would create jobs.

Katheryn Aishanna, 18, a high school senior, said she wants to remain in Kaktovik with her family and friends but worries about a future with declining oil revenue. Standing in the school, where snowdrifts almost obscure the view from some windows, Aishanna said she was convinced oil drilling and animals could coexist.

"Oil is good," she said. "We need oil. It's a natural thing. If it's part of the earth, it's not evil. It was put there by God for us to use."

Some Inupiats who live in Kaktovik and elsewhere on the North Slope have an added financial incentive to support oil. Shareholders in Inupiat corporations could profit from oil development rights on 92,000 acres in the refuge if it is opened -- a result of the Alaska Native Claims Settlement Act of 1971 and a subsequent land swap with the federal government. Some of those shareholders have been lobbying to open the refuge.

Kaktovik has long had to battle the image that it wants oil out of greed. Its residents are often contrasted with Gwich'in people who live just outside the refuge and oppose drilling for fear it would harm the caribou, which is central to their culture.

Sonsalla, Kaktovik's mayor, said people who live on the island aren't looking to get rich; they just want to maintain their way of life. And he questioned how government services could be maintained without new oil money.

The mayor said it is hard to predict the impact of drilling on Kaktovik and its traditions. "Is it going to be a big mess?" Sonsalla asked. "I hope not. Is it going to benefit the community? Hopefully."

SIDENT BUSH

http://www.allheadlinenews.com/articles/7010798311 18 June 2008

President Bush Says Oil Reserves In Alaska Can Help Deflate Gas Prices

April 29, 2008 5:21 p.m. EST

Washington, D.C. (AHN) - With an eye on fuel prices, President George Bush took aim at Congress during his press conference on Tuesday morning. Amidst the list of reforms he set forth, Bush encouraged lawmakers to support the exploration and refinement of domestic oil reserves.

Bush's announcement from the White House Rose Garden came on a day when gas prices topped out at just over $3.60 per gallon--a national average that has risen by $1.40 over the past 18 months.

"One of the main reasons for high gas prices is that global oil production is not keeping up with growing demand," Bush said.

He pointed to the oil that lies beneath Alaska's Arctic National Wildlife Refuge (ANWR) as a source of relief for Americans who struggle to keep up with rising fuel prices.

ANWR could allow America to produce about one million new barrels of oil per day, Bush said, which translates to about 27 millions gallons of gas and diesel for American drivers who line up at the pump everyday.

Bush said the environmentally safe exploration of the Alaskan refuge would mean a 20 percent increase in oil that would likely result in lower gas prices. "And yet such efforts to explore ANWR have been consistently blocked," Bush said.

He also pointed to America's "lack of refining capacity" as an explanation for high gas prices. "It's been more than 30 years since America built its last new refinery," Bush said. "Yet in this area, too, Congress has repeatedly blocked efforts to expand capacity and build more refineries."

Though Bush offered up a number of suggestions to lower gas prices, he didn't say whether or not he'd support placing a summer suspension on the 18.4-cent federal tax that's tacked onto to every gallon of gas sold in the U.S.

"We'll look at any idea in terms of energy," Bush said. "Except, I will tell you this: that if Congress is truly interested in solving the problem, they can send the right signal by saying we're going to explore for oil and gas in the U.S. territories, starting with ANWR."

SIDENT BUSH

http://www.whitehouse.gov/infocus/energy/ 18 June 2008

President Bush Discusses Energy

Partial transcript from address made June 18, 2008

Good morning. I want to thank Secretary Kempthorne and Secretary Bodman for joining me. For many Americans, there is no more pressing concern than the price of gasoline. Truckers and farmers and small business owners have been hit especially hard. Every American who drives to work, purchases food, or ships a product has felt the effect. And families across our country are looking to Washington for a response.

High oil prices are at the root of high gasoline prices. And behind those prices is the basic law of supply and demand. In recent years, the world's demand for oil has grown dramatically. Meanwhile, the supply of oil has grown much more slowly. As a result, oil prices have risen sharply, and that increase has been reflected at American gasoline pumps. Now much of the oil consumed in America comes from abroad -- that's what's changed dramatically over the last couple of decades. Some of that energy comes from unstable regions and unfriendly regimes. This makes us more vulnerable to supply shocks and price spikes beyond our control -- and that puts both our economy and our security at risk.

In the long run, the solution is to reduce demand for oil by promoting alternative energy technologies. My administration has worked with Congress to invest in gas-saving technologies like advanced batteries and hydrogen fuel cells. We've mandated a large expansion in the use of alternative fuels. We've raised fuel efficiency standards to ambitious new levels. With all these steps, we are bringing America closer to the day when we can end our addiction to oil, which will allow us to become better stewards of the environment.

In the short run, the American economy will continue to rely largely on oil. And that means we need to increase supply, especially here at home. So my administration has repeatedly called on Congress to expand domestic oil production. Unfortunately, Democrats on Capitol Hill have rejected virtually every proposal -- and now Americans are paying the price at the pump for this obstruction. Congress must face a hard reality: Unless Members are willing to accept gas prices at today's painful levels -- or even higher -- our nation must produce more oil. And we must start now. So this morning, I ask Democratic Congressional leaders to move forward with four steps to expand American oil and gasoline production…

Third, we should expand American oil production by permitting exploration in the Arctic National Wildlife Refuge, or ANWR. When ANWR was created in 1980, Congress specifically reserved a portion for energy development. In 1995, Congress passed legislation allowing oil production in this small fraction of ANWR's 19 million acres. With a drilling footprint of less than 2,000 acres -- less than one-tenth of 1 percent of this distant Alaskan terrain -- America could produce an estimated 10 billion barrels of oil. That is roughly the equivalent of two decades of imported oil from Saudi Arabia. Yet my predecessor vetoed this bill.

In the years since, the price of oil has increased seven-fold, and the price of American gasoline has more than tripled. Meanwhile, scientists have developed innovative techniques to reach ANWR's oil with virtually no impact on the land or local wildlife. I urge members of Congress to allow this remote region to bring enormous benefits to the American people…

So today I'm proposing measures to expedite the refinery permitting process. Under the reformed process that I propose, challenges to refineries and other energy project permits must be brought before the D.C. Circuit Court of Appeals within 60 days of the issuance of a permit decision. Congress should also empower the Secretary of Energy to establish binding deadlines for permit decisions, and to ensure that the various levels of approval required in the refinery permitting process are handled in a timely way.

l take pressure off gas prices over time by expanding the amount of American-made oil and gasoline. We will strengthen our national security by reducing our reliance on foreign oil. We will benefit American workers by keeping our nation competitive in the global economy -- and by creating good jobs in construction, and engineering, and refining, maintenance, and many other areas.

The proposals I've outlined will take years to have their full impact. There is no excuse for delay -- as a matter of fact, it's a reason to move swiftly. I know the Democratic leaders have opposed some of these policies in the past. Now that their opposition has helped drive gas prices to record levels, I ask them to reconsider their positions. If congressional leaders leave for the 4th of July recess without taking action, they will need to explain why $4-a-gallon gasoline is not enough incentive for them to act. And Americans will rightly ask how high oil -- how high gas prices have to rise before the Democratic-controlled Congress will do something about it.

I know this is a trying time for our families, but our country has faced similar strains before and we've overcome them together -- and we can do that again. With faith in the innovative spirit of our people and a commitment to results in Washington, we will meet the energy challenges we face -- and keep our economy the strongest, most vibrant, and most hopeful in the world.

MPETITIVE ENTERPRISE INSTITUTE

http://www.anwr.org/archives/national_organizations_rally_for_anwr.php 19 June 2008

The following is a copy of the Joint Letter to the House and Senate

Joint Letter to House and Senate Leadership on Opening ANWR to Energy Exploration

Washington, D. C.
8th March 2006

Dear Mr. Speaker/Mr. Majority Leader,

The undersigned organizations are dismayed that an obstructionist bloc in the first session of the 109th Congress was able to thwart the will of majorities in both the House and the Senate to enact legislation to open a small portion of the Arctic National Wildlife Refuge in Alaska to oil and gas exploration. We urge you to move budget reconciliation legislation (and any other vehicle that can overcome the procedural obstacles that will no doubt be used again to try to block the majority in both chambers) as soon as possible to accomplish this important goal and pledge that we will strongly support your efforts.

We believe that there are several important reasons to open ANWR. First, contrary to claims by environmental pressure groups that the oil and gas ANWR potentially contains are only a few "drops in the bucket" and that oil companies are not interested in exploring ANWR's coastal plain, the U. S. Geological Survey's mean estimate of economically recoverable oil and gas reserves under the coastal plain of ANWR is 10.4 billion barrels of crude oil. Such an amount would increase proven U. S. crude oil reserves by 50% and is equivalent to approximately a quarter century of current imports from Saudi Arabia, one of our top foreign suppliers. The USGS estimate was based on assuming oil priced at $30 a barrel; assuming $60 a barrel would give a much higher estimate of economically recoverable reserves.

Second, environmental pressure groups contradict themselves by arguing that opening ANWR would be nothing but a payoff to "Big Oil". If it contains little oil, then it isn't much of a payoff. If it does contain billions of barrels of oil, then oil companies will bid for the right to explore. It is estimated that the winners will initially pay several billion dollars for exploration contracts. When production begins, these companies will pay a twelve-and-one-half percent royalty, split evenly between the federal Treasury and the State of Alaska, on every barrel of oil and every cubic foot of gas produced. In addition, companies will pay billions of dollars of corporate income tax on their profits from production in ANWR, and their shareholders will pay billions of dollars of individual income taxes on dividends paid out of these profits. The revenues that will flow into the federal treasury from oil and gas production in ANWR should be compared with the equally colossal expenditures that are necessary to subsidize many of the alternative energy technologies and fuels supported by environmental pressure groups.

Third, the benefits of producing domestically more of the energy we consume are well known. Producing oil and gas from ANWR will be a huge boon to our economy, create thousands of high-paying jobs across the country, make us less dependent on foreign suppliers, and reduce our trade deficit. Moreover, Hurricanes Katrina and Rita demonstrated that relying on any one area for a large portion of our oil and gas supplies is imprudent, even when that area is in the United States. Production in ANWR will diversify our sources of supply and keep the Trans-Alaska Pipeline in operation for many decades.

Fourth, again contrary to the claims of environmental pressure groups, we believe that there is compelling evidence that oil and gas production in the coastal plain is compatible with protecting the environmental quality of the refuge and the wildlife that depend on it. Oil production already occurs in a number of other U. S. Wildlife Refuges. Oil has been pumped at Prudhoe Bay just to the west of ANWR for three decades without major environmental degradation, and during that period the caribou herd has grown from 6,000 to 32,000.

n ANWR will be done with much more advanced technology than was used at Prudhoe Bay, which leaves a much smaller footprint on the land. The legislation that has passed both the House and the Senate would restrict disturbances of the land to 2,000 acres in the 1.5 million acre coastal plain. The coastal plain is not wilderness and was therefore not designated as a Wilderness Area when Congress expanded the refuge to 19 million acres in 1980. The coastal plain contains the Inupiat village of Kaktovik, roads, and former military installations. The eight million acres designated by Congress in 1980 as Wilderness Areas are far to the south and will not be affected by oil and gas production in the coastal plain.

Fifth, we believe that deference in setting federal land policies is due to the citizens and elected representatives of the States involved. Polls show that three quarters of Alaskans support opening ANWR. The Inupiat village of Kaktovik on the coastal plain officially supports opening ANWR. The Inupiat in Kaktovik own 94,000 acres in the coastal plain, and we believe that their rights to benefit from the resources they own should not be disregarded. Alaska's elected officials of both major parties overwhelmingly support opening ANWR, including Alaska's Senators, Representative, Governor, Legislature, and former two-term Democratic Governor Tony Knowles. They support opening ANWR because they know it will be of great economic benefit to their State and to the nation and because the experience of oil production at Prudhoe Bay has shown them that it can be done without harming the natural splendors of Alaska that they treasure.

For these reasons, we respectfully request that you make enacting budget reconciliation legislation to open the coastal plain of ANWR to oil and gas exploration one of your first and top goals for the second session of the 109th Congress. Thank you for your attention to our views.

Sincerely,

Fred Smith, President
and Myron Ebell, Director, Energy Policy
Competitive Enterprise Institute

RRA CLUB

http://www.sierraclub.org/arctic/ 18 June 2008

Save America's Arctic: Chill The Drills and Fight Global Warming

To the north of the Arctic Circle and beyond Alaska's Brooks Range mountains lies America's Arctic – the final frontier in American conservation. From Point Hope on Alaska's far western edge, to the pristine coastal plain of the Arctic National Wildlife Refuge in the east, this land—and the seas that surround it—are our single most endangered national treasure.

America's Arctic wilderness is under siege from local and global forces being shaped by human actions: Oil and gas drilling are combining with global warming to wreak havoc on this vast beautiful landscape.

The Arctic's rolling tundra and wild rivers, wetlands, ponds, deep lakes and sparkling coastal waters are home to a stunning array of wildlife. Nearly 200 species of birds visit and nest on the region's tundra and wetlands. Caribou, muskoxen, wolverines, grizzly and polar bears roam the vast expanse of land while walrus, bowhead and beluga whales ply the arctic waters. These creatures have roamed the far north for centuries. But now they are facing danger. All across their Arctic home, rapid climate change is altering their fragile habitat and the push to drill for oil is mounting.

Places in Danger: Arctic National Wildlife Refuge

Nestled between the Brooks Range Mountains and the shores of the Beaufort Sea in remote northeast Alaska, the narrow coastal plain of the Arctic Refuge is the biological heart of this untamed wilderness. The Refuge contains the greatest diversity of animal life of any conservation area in the circumpolar region.

But Big Oil, supported by the Bush administration and pro-drilling advocates in Congress, continues to concoct schemes to open the Arctic Refuge to oil and gas drilling- despite indisputable proof that oil drilling irreparably damages the fragile tundra and its wildlife.

Places in Danger: Teshekpuk Lake

In the far north of Alaska lies Teshekpuk Lake-a stunning land of coastal lagoons, clear, deep lakes, wet sedge grass meadows, and wide river deltas.

The area supports some of the Arctic's most important birds and wildlife. It is home to a 26,000-member caribou herd, and provides habitat for up to 60,000 molting geese each summer . Waterfowl, like Spectacled and Steller's Eiders and Yellow-billed Loons also rely on the wetlands of the western Arctic, as does one of the world's largest Pacific brant populations.

The vast network of wetlands surrounding Teshekpuk Lake is so important for wildlife that it has been recognized since 1977 by Congress and by three prior administrations as a federally-recognized 'special area.' Yet in January 2006, the Bush administration removed long-standing protections for Teshekpuk Lake - opening the fragile region to widespread oil and gas development.

If the Teshekpuk Lake area is opened to oil and gas development, we will feel it even as far south as the Great Lakes and the Gulf Coast, where each year birdwatchers and hunters look forward to the migration of waterfowl to and from Teshekpuk Lake.

Places in Danger: Utukok Uplands

To the south, the foothills of the Brooks Range rise in a region known as the Utukok Uplands. This special area provides critical habitat and calving grounds for the largest caribou herd in Alaska - the Western Arctic Caribou herd. The uplands also host the largest concentration of grizzly bears in the Arctic and the biggest population of wolverines in the world.

nds lack significant oil resources, the area is still not safe. Coal lies underneath these subtle rolling foothills of the Brooks Range. The coal industry-which creates 40 percent of our global warming pollution-is now threatening to open up one of our last frontiers to devastating and polluting mining practices. Most of the coal that the industry hopes to wrestle from the Arctic will not even be used to meet American energy needs. Instead, it will be shipped to Asia.

It simply doesn't make sense to destroy our most pristine wildlands and wildlife to mine for an outdated energy source like coal. And if we want to protect the Arctic from the worst effects of global warming, we need to stop the coal rush now.

Places in Danger: The Polar Bear Seas

The Arctic's Beaufort and Chukchi Seas-the Polar Bear Seas- provide critical habitat for polar bears and other important marine mammals such as beluga and bowhead whales and bearded and spotted seals.

The Chukchi Sea alone supports approximately one-tenth of the world's remaining polar bear population-a population under severe threat from global warming. But instead of working to save the polar bear, our leaders have added one more hurdle to its survival: oil drilling.

The Bush administration has opened the Beaufort Sea to offshore oil and gas drilling, despite strong opposition. Now, Bush's five-year leasing plan for the Arctic Ocean has dramatically expanded offshore leasing with sales covering 40 million acres in the Chukchi Sea and 33 million acres in the Beaufort Sea.

The mounting push to drill the Polar Bear Seas threatens to destroy the area forever.

There is a Better Way: Smart Energy Solutions

Most of our public lands in America's Arctic are already open to oil and gas leasing and the destructive activities associated with exploration and development. Activities like pipeline and well pad construction, along with road building destroy wildlife habitat, create air and water pollution and forever compromise the wild character of land and sea. But the U.S. Department of Interior and its sub agencies continue to issue new oil drilling leases in the places where wildlife live and raise their young.

Dirty energy like oil and coal amounts to a one-two punch for the Arctic: The region's wildlife suffers immediate threats from pollution, industry, and spills. But the inevitable impacts of this kind of development are more far-reaching: Burning the fossil fuels found in the Arctic will only accelerate global warming and hasten the disappearance of animals like the polar bear.

There is a better way. America's Arctic should be protected for the benefit of future generations. We don't need to sacrifice irreplaceable wildlife habitat in places like the Arctic National Wildlife Refuge, Teshekpuk Lake, the Utukok Uplands, and the Polar Bear Seas in the pursuit of oil.

American ingenuity has already produced clean energy solutions - including wind and solar power - that make drilling these sensitive areas unnecessary. Instead of ruining one of America's last truly wild expanses for a very limited amount of oil, we should be investing more in these technologies and producing more fuel-efficient cars.

DOC

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Arctic National Wildlife Refuge: Why Trash an American Treasure for a Tiny Percentage of Our Oil Needs?
Drilling for oil in America's premier wildlife sanctuary would deface the pristine landscape and threaten Alaskan wildlife.

On the northern edge of our continent, stretching from the peaks of the Brooks Range across a vast expanse of tundra to the Beaufort Sea, lies Alaska's Arctic National Wildlife Refuge. An American Serengeti, the Arctic Refuge continues to pulse with million-year-old ecological rhythms. It is the greatest living reminder that conserving nature in its wild state is a core American value.

In 2005, Congress twice affirmed their constituents' belief that America's remaining wilds are important and rejection of claims that Arctic Refuge oil is any sort of answer to the nation's dependence on foreign oil. In November 2005, leaders of the House removed provisions that would have allowed drilling in the refuge from a massive budget bill. And in December 2005, the Senate withstood an attempt by Republican leaders to attach Arctic drilling to a "must-pass" defense spending bill.

Despite these stinging defeats to their agenda, President Bush and pro-drilling forces in Congress are as intent as ever on opening the refuge to oil and gas interests. Keep reading to learn more about what's at stake in the continuing battle to protect America's premier wildlife sanctuary.

Americans Have Steadily Opposed Drilling the Arctic National Wildlife Refuge

The controversy over drilling in the Arctic Refuge -- the last piece of America's Arctic coastline not already open to oil exploration -- isn't new. Big Oil has long sought access to the refuge's coastal plain, a fragile swath of tundra that teems with staggering numbers of birds and animals. During the Bush administration's first term, repeated attempts were made to open the refuge. But time after time, the American public rejected the idea. Congress has received hundreds of thousands of emails, faxes and phone calls from citizens opposed to drilling in the Arctic Refuge, an outpouring that has helped make the difference. And polls have consistently shown that a solid majority of Americans oppose drilling; a December 2004 Zogby Survey found that 55 percent of respondents oppose drilling, and that 59 percent consider attaching this issue to the budget process to be a "backdoor maneuver."

Despite repeated failure and stiff opposition, drilling proponents press on. Why? They believe that opening the Arctic Refuge will turn the corner in the broader national debate over whether or not energy, timber, mining and other industries should be allowed into pristine wild areas across the country. Next up: Greater Yellowstone? Our Western canyonlands? Our coastal waters?

The drive to drill the Arctic Refuge is about oil company profits and lifting barriers to future exploration in protected lands, pure and simple. It has nothing to do with energy independence. Opening the Arctic Refuge to energy development is about transferring our public estate into corporate hands, so it can be liquidated for a quick buck.

Arctic Refuge Oil Is a Distraction, Not a Solution

What would America gain by allowing heavy industry into the refuge? Very little. Oil from the refuge would hardly make a dent in our dependence on foreign imports -- leaving our economy and way of life just as exposed to wild swings in worldwide oil prices and supply as it is today. The truth is, we simply can't drill our way to energy independence.

often say there are 16 billion barrels of oil under the refuge's coastal plain, the U.S. Geological Service's estimate of the amount that could be recovered economically -- that is, the amount likely to be profitably extracted and sold -- represents less than a year's U.S. supply.

It would take 10 years for any Arctic Refuge oil to reach the market, and even when production peaks -- in the distant year of 2027 -- the refuge would produce a paltry 1 or 2 percent of Americans' daily consumption. Whatever oil the refuge might produce is simply irrelevant to the larger issue of meeting America's future energy needs.

Handing On to Future Generations a Wild, Pristine Arctic? Priceless.

Oil produced from the Arctic Refuge would come at enormous, and irreversible, cost. The refuge is among the world's last true wildernesses, and it is one of the largest sanctuaries for Arctic animals. Traversed by a dozen rivers and framed by jagged peaks, this spectacular wilderness is a vital birthing ground for polar bears, grizzlies, Arctic wolves, caribou and the endangered shaggy musk ox, a mammoth-like survivor of the last Ice Age.

For a sense of what big oil's heavy machinery would do to the refuge, just look 60 miles west to Prudhoe Bay -- a gargantuan oil complex that has turned 1,000 square miles of fragile tundra into a sprawling industrial zone containing 1,500 miles of roads and pipelines, 1,400 producing wells and three jetports. The result is a landscape defaced by mountains of sewage sludge, scrap metal, garbage and more than 60 contaminated waste sites that contain -- and often leak -- acids, lead, pesticides, solvents and diesel fuel.

While proponents of drilling insist the Arctic Refuge could be developed by disturbing as little as 2,000 acres within the 1.5-million-acre coastal plain, a recent analysis by NRDC reveals this to be pure myth. Why? Because U.S. Geological Survey studies have found that oil in the refuge isn't concentrated in a single, large reservoir. Rather, it's spread across the coastal plain in more than 30 small deposits, which would require vast networks of roads and pipelines that would fragment the habitat, disturbing and displacing wildlife.

A Responsible Path to Energy Security

The solution to America's energy problems will be found in American ingenuity, not more oil. Only by reducing our reliance on oil -- foreign and domestic -- and investing in cleaner, renewable forms of power will our country achieve true energy security. The good news is that we already have many of the tools we need to accomplish this. For example, Detroit has the technology right now to produce high-performance hybrid cars, trucks and SUVs; if America made the transition to these more efficient vehicles, far more oil would be saved than the Arctic Refuge is likely to produce. Doesn't that make far more sense than selling out our natural heritage and exploiting one of our true wilderness gems?

DOC

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The Arctic National Wildlife Refuge

Protecting Life on the Coastal Plain

Why destroy America's foremost wildlife refuge for less oil than we consume in a single year?

Nestled between the Brooks Mountain Range and the Beaufort Sea in Northeast Alaska, the Arctic National Wildlife Refuge's coastal plain is home for nearly 200 wildlife species, including polar bears, musk oxen and caribou. Every summer, millions of tundra swans, snowy owls, eider ducks and other birds migrate there to nest, molt and feed. Because of its abundant and diverse wildlife, the refuge is often likened to Africa's Serengeti.

Scientists consider the coastal plain to be the biological heart of the entire refuge. It is this very heart that has been targeted by some members of Congress and oil companies even though there is relatively little oil there, if any. Any amount of oil from the refuge would not significantly reduce U.S. dependence on imported oil and would irreparably harm the wildlife that depend on this unique habitat.

If Congress allows oil drilling in the coastal plain, it would set a dangerous precedent. Not only would oil development permanently scar this pristine, fragile wilderness, but it also would open the door to industrializing America's last remaining untouched wildlands.

Oil development would permanently harm polar bear denning habitat

The Arctic Refuge coastal plain is the most important onshore denning area for Beaufort Sea polar bears, which range along 800 miles of the Arctic coast. Most of the year, the bears roam along the sea ice in search of seals and other food. In the fall, pregnant females seek den sites in which to give birth and nurse their young. Denning polar bears are extremely sensitive to industrial activity. Females may abandon their dens if disturbed, which usually is fatal for cubs unable to fend for themselves.

Oil development would permanently harm bird habitat

During the brief summer season, more than 135 bird species gather on the refuge's coastal plain to breed, nest and make migratory stopovers. Among the many species that rely on the area are snow geese, tundra swans, red-throated loons, snowy owls, eider ducks and a variety of shorebirds. Some of these birds are extremely sensitive to human disturbance. Snow geese, for example, depend on the coastal plain as a place to rapidly build up fat reserves for their 1,200-mile nonstop migration to Southern California and Mexico. Helicopters and airplanes can disturb snow geese from as far as 4 miles away. According to the Interior Department, these kinds of disturbances, along with destruction of prime feeding areas, could prevent the birds from accumulating the energy reserves essential to their arduous migration, threatening their survival.

Oil development would threaten caribou survival

The Porcupine caribou herd has been central to the culture of Gwich'in Indians in Alaska and Canada for 20,000 years. Every year, this vast herd of caribou travels hundreds of miles from Canada's Porcupine River region to the coastal plain, where females give birth in the spring. The plant growth on the plain at that time of year nourishes pregnant and nursing caribou, and cooling breezes along the coast help disperse insects that can drain more than a quart of blood a week from the calves and their parents. These unique conditions -- and the fact that there are fewer predators in the coastal plain -- offer newborn caribou a better chance of surviving their vulnerable first few weeks of life.

The U.S. Fish and Wildlife Service have concluded that oil development in the coastal plain could destroy this delicate balance, prompting a major decline or displacement of the Porcupine caribou. Industrial facilities, such as roads and pipelines, would force pregnant caribou and nursing mothers to abandon their preferred habitat. The only places left for the herd to go have substantially more predators, less high-quality forage, and significantly less relief from mosquitoes. According to a recent U.S. Geological Survey (USGS) study, even a

r of surviving calves -- less than 5 percent in a single year -- could reduce the size of the herd.

Advocates of oil development point to the Central Arctic herd, which inhabits the Prudhoe Bay area, as evidence that oil and wildlife can coexist. But Alaska's Department of Fish and Game reports that pregnant caribou have dramatically shifted away from the oil fields, calving instead where there are no industrial disturbances. Studies also show that as roads and pipelines grew closer together in the Central Arctic's Kuparuk oilfields, concentrated calving disappeared from this area and shifted to the south.

At 123,000 strong, the Porcupine caribou herd is significantly bigger than the Central Arctic herd, but relies on a calving area, the refuge coastal plain, one-fifth the size of Prudhoe Bay.

Furthermore, scientists from the National Academy of Sciences and the USGS have concluded that the Porcupine herd is especially threatened by development not only because of the absence of a safe alternative calving area, but also because of its slow reproduction rate.

Oil development would threaten muskoxen

Completely wiped out in Alaska in the late 19th century by hunters, muskoxen were successfully reintroduced in the northern portion of the state. A small population of these animals now lives year-round on the refuge's coastal plain. According to the Interior Department, oil development in the region would displace muskoxen from a large percentage of their preferred habitat in all seasons, which would reduce their numbers.

A unique wilderness at stake

The Arctic Refuge coastal plain is the most critical part of the delicate ecosystems that the Arctic National Wildlife Refuge was established to protect. It is too fragile -- and too valuable -- to be sacrificed for a relatively small amount of oil. We would not put a dam in the Grand Canyon, or cut down Sequoia trees for firewood, so why would we allow oil derricks in one of our last pristine wildernesses? Some places should be off-limits to oil drilling and industrial development, and the Arctic Refuge is one of them. We have a moral responsibility to save wild places such as the Arctic Refuge for future generations.

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The Arctic National Wildlife Refuge
Oil Development Damages Air, Water and Wildlife

Toxic spills and air pollution from permanent, year-round operations are destroying Alaska's fragile North Slope.

Once part of the largest intact wilderness area in the United States, Alaska's North Slope now hosts one of the world's largest industrial complexes, spanning some 1,000 square miles of once-pristine Arctic tundra. Prudhoe Bay and 26 other oilfields include the following:

- 28 oil production plants, gas processing facilities, and seawater treatment and power plants
- 38 gravel mines
- 223 production and exploratory gravel drill pads
- 500 miles of roads
- 1,800 miles of pipelines
- 4,800 exploration and production wells

All of this activity is taking place in an exceptionally fragile region. Because of the very short summer growing season, extreme cold at other times of the year, and nutrient-poor soils and permafrost, vegetation grows very slowly in the North Slope. Any physical disturbance -- bulldozer tracks, seismic oil exploration, spills of oil and other toxic substances -- can scar the land for decades. The National Academy of Sciences concluded it is unlikely that the most disturbed habitat will ever be restored and the damage to more than 9,000 acres by oilfield roads and gravel pads is likely to remain for centuries.

A close look at how four decades of this sprawling oil development has destroyed Prudhoe Bay dispels the myth that drilling can take place in the nearby Arctic National Wildlife Refuge coastal plain without permanently damaging the landscape and the wildlife that depends on it.

A toxic spill every day
Each year, the oil industry spills tens of thousands of gallons of crude oil and other hazardous materials on the North Slope. In fact, every day there is on average at least one spill either in the oil fields or at the Trans-Alaska Pipeline. From 1996 to 2004, there were some 4,530 spills of more than 1.9 million gallons of diesel fuel, oil, acid, biocide, ethylene glycol, drilling fluid and other materials. In the Arctic, the environmental damage from oil spills is more severe and lasts longer than in more temperate climates. Diesel fuel, for instance -- the most frequently spilled substance on the North Slope -- is acutely toxic to plants. Even after decades have passed, tundra vegetation has been unable to recover from diesel spills.

Oil operations pollute the air with tons of emissions
Each year, oil operations on Alaska's North Slope emit more than 70,000 tons of nitrogen oxides, which contribute to smog and acid rain. (That's three times more than Washington, D.C.'s annual NOx emissions, according to the Environmental Protection Agency.) Plumes of pollution from Prudhoe Bay have been detected in Barrow, Alaska, nearly 200 miles away. And pollutants from drilling operations, natural gas facilities and incinerators also have been detected in snow in the Prudhoe Bay area.

Although the overall impact of these air pollutants on Arctic ecosystems remains largely unknown, some Arctic species are known to be especially sensitive to air pollutants at levels below national air quality standards. North Slope oil facilities also release greenhouse gases, which are a major contributor to global climate change. Each year, they emit 7 million to 40 million metric tons of carbon dioxide and 24,000 to 114,000 metric tons of

en higher as North Slope oil is transported by tanker, refined, and eventually burned in engines or power plants.

Hazardous waste contaminates water and wetlands

For years, old reserve pits holding millions of gallons of drilling and other wastes pocked the North Slope. The pits typically contained a variety of toxic metals, as well as petroleum hydrocarbons and other harmful substances. Thanks partly to litigation by the Natural Resources Defense Council, handling methods for the waste in these reserve pits have improved.

While the oil industry has closed many of the pits, more than 100 remain to be cleaned. And, despite advances in disposal methods -- in which most drilling wastes are ground up and re-injected into wells -- problems remain. In 2000, for instance, British Petroleum (BP) was ordered to pay $22 million in civil and criminal fines and establish a new environmental management program because its contractors had illegally disposed of hazardous wastes containing benzene and other toxic chemicals. These crimes only came to light because a whistle-blower reported them to the EPA.

The Alaska Department of Environmental Conservation still lists more than 100 contaminated sites associated with oil industry operations on the North Slope. These sites contain a variety of toxic materials, including acids, lead, pesticides, solvents, diesel fuel, caustics, corrosives and petroleum hydrocarbons. Leakage from some sites has contaminated the surrounding tundra wetlands and waterways, which likely will be ruined for decades.