

June 2002

ALASKA'S NORTH SLOPE

Requirements for Restoring Lands After Oil Production Ceases



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United States General Accounting Office
Washington, D.C. 20548

June 5, 2002

The Honorable Richard A. Gephardt
Minority Leader
House of Representatives

The Honorable Nick J. Rahall
Ranking Minority Member
Committee on Resources
House of Representatives

The Honorable Edward J. Markey
House of Representatives

In response to your request, this report discusses the nature and extent of dismantlement, removal, and restoration requirements for oil industry activities that are occurring on both federal and state lands located on the North Slope of the state of Alaska. We include recommendations to the Secretary of the Interior aimed at ensuring that such lands managed by the Bureau of Land Management are properly restored after oil and gas activities cease.

As arranged with your offices, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days after the date of this letter. At that time, we will send copies to the Secretary of the Interior and to the heads of the Bureau of Land Management, the Minerals Management Service, and the Fish and Wildlife Service. We will also send copies to the governor of the state of Alaska. We will make copies available to others on request.

Please contact me at (202) 512-3841 if you or your staffs have any questions. Major contributors to this report are listed in appendix IV.

Barry T. Hill
Director, Natural Resources
and Environment

Executive Summary

Purpose

Alaska's arctic coastal plain, also referred to as the "North Slope," is a harsh yet sensitive environment that has been a center of controversy for the United States' energy and environmental policy throughout the past four decades. Since the opening of the 800-mile-long Trans-Alaska Pipeline in 1977, more than 13 billion barrels of oil have flowed from thousands of oil wells on the North Slope to international and domestic markets. During this period, North Slope oil has contributed about 20 percent of the United States' annual domestic production.

The process of finding and producing oil on the North Slope has required the build-up of a considerable infrastructure, including thousands of well sites; hundreds of miles of pipelines, roads, and airstrips; and numerous oil production facilities and living facilities. Most of this infrastructure is located on lands owned by the state of Alaska. However, oil companies and the state are now seeking additional sources of oil on adjoining federal lands to compensate for declining oil production on state lands. Eventually, even with additional oil production from federal lands, production on the North Slope will decline to the point that operating the Trans-Alaska Pipeline will no longer be profitable. After that, the oil industry's considerable infrastructure, estimated to be as much as \$53 billion, will no longer be needed. Concerned about whether this infrastructure will be removed from the North Slope and to what condition the land will be restored when oil production activities cease, the House Minority Leader, the Ranking Minority Member of the House Resources Committee, and Representative Edward Markey asked us to determine

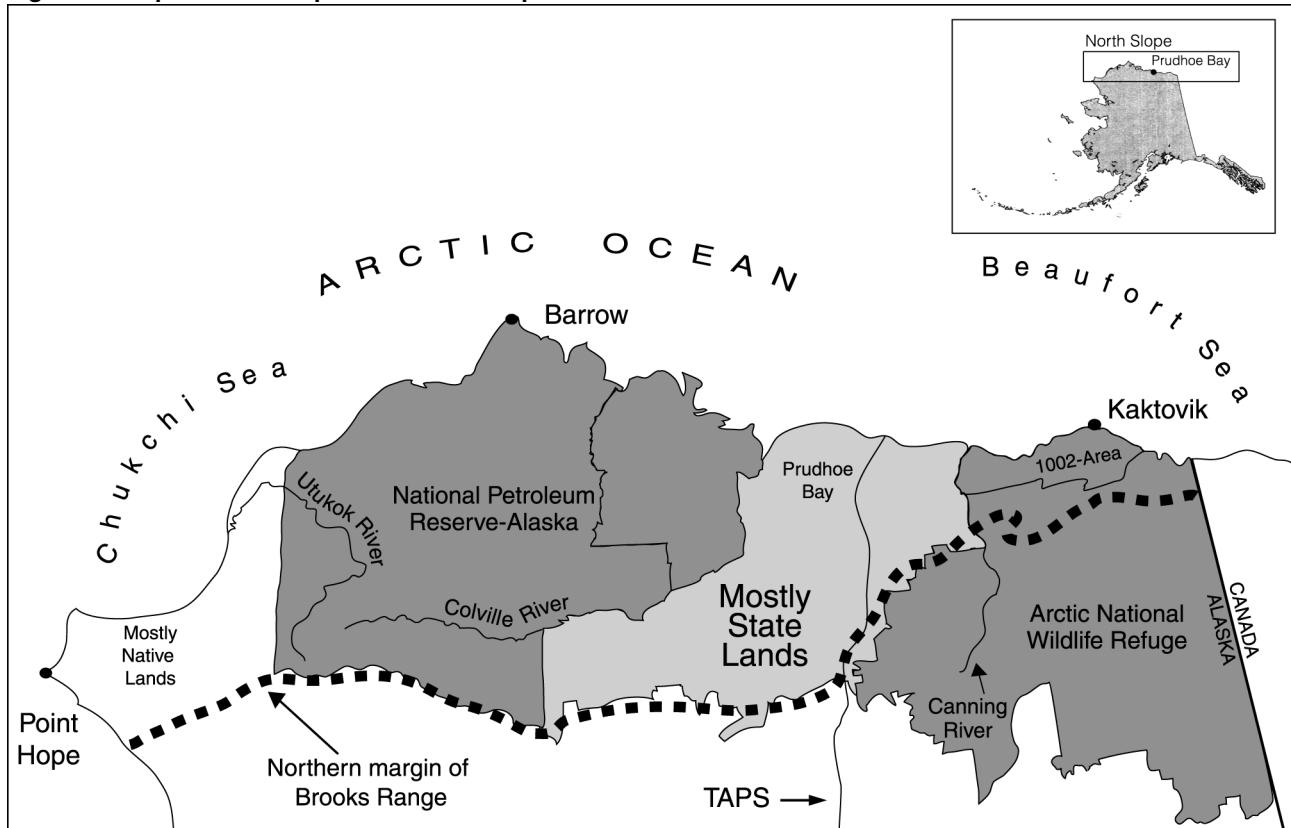
- the nature and extent of dismantlement, removal, and restoration requirements for existing oil industry activities on state-owned land on Alaska's North Slope, including how these requirements compare to those of other oil-producing states;
- whether any cost estimates exist for the dismantlement and removal of the infrastructure and for the restoration of North Slope state-owned land;
- what financial assurances the state of Alaska has that funds will be available to cover the eventual dismantlement, removal, and restoration costs and how these assurances compare to those of other oil-producing states; and

-
- the nature and extent of dismantlement, removal, and restoration requirements and financial assurances governing future oil industry activities on federal lands located on the North Slope and how these compare with requirements and financial assurances in other related industries, such as mining and nuclear power.

Background

Alaska's North Slope covers about 89,000 square miles of federal, state, and native land holdings stretching from the Brooks Range north to the Arctic Ocean—an area larger than the state of Utah (see fig. 1). Currently, most oil production on the North Slope takes place on state lands in the general vicinity of Prudhoe Bay, which, in 1968, was the site of the largest oil field ever discovered in North America. Recently, remote offshore oil production also began in the waters of the Arctic Ocean north of Prudhoe Bay. The state and the federal government are jointly responsible for regulating this oil production.

Figure 1: Map of North Slope Land Ownership



Notes: The areas designated in the map as the National Petroleum Reserve-Alaska and the Arctic National Wildlife Refuge contain some Alaska Native lands. Similarly, the area titled "Mostly State Lands" also contains some Alaska Native lands. Finally, the area on the far left portion of the map labeled "Mostly Native Lands" also includes some state and federal lands. The Trans-Alaska Pipeline System (TAPS) extends from Prudhoe Bay to Valdez, Alaska.

Source: GAO's adaptation of a Bureau of Land Management map.

Active oil exploration is also underway in the federally owned National Petroleum Reserve-Alaska, a 23-million-acre tract located west of Prudhoe Bay. The Bureau of Land Management manages the National Petroleum Reserve-Alaska for both oil resources and natural values. The Congress has not determined whether to open portions of the federally owned Arctic National Wildlife Refuge, east of Prudhoe Bay, to oil and gas development activities. The refuge, which is managed by the U.S. Fish and Wildlife Service, was created in 1960 and expanded in 1980 to its present size of 19 million acres—of these, about 8 million acres have been designated as wilderness. A 1.5-million-acre coastal section of the refuge was set aside in

1980 for study of its fish and wildlife resources as well as for possible oil and gas development, but the Congress would need to specifically authorize oil and gas development activity.

Oil industry activities in the Arctic require special environmental considerations because of the extremely cold temperatures and the sensitive nature of the surface tundra. The peat layer of the tundra, which is no more than 3 feet thick, consists of soils, plant life, and ponds. It rests upon permafrost, which may extend down 2,000 feet and creates an impermeable layer of frozen earth immediately below the thin active surface layer. Because moisture can't penetrate the permafrost, almost the entire North Slope is a wetland consisting of ponds and vegetation during the summer that are frozen and snow-covered during the remainder of the year. According to the Fish and Wildlife Service, tundra, which supports a wide variety of plants and animals, can be damaged easily if disturbed and may require decades to recover fully.

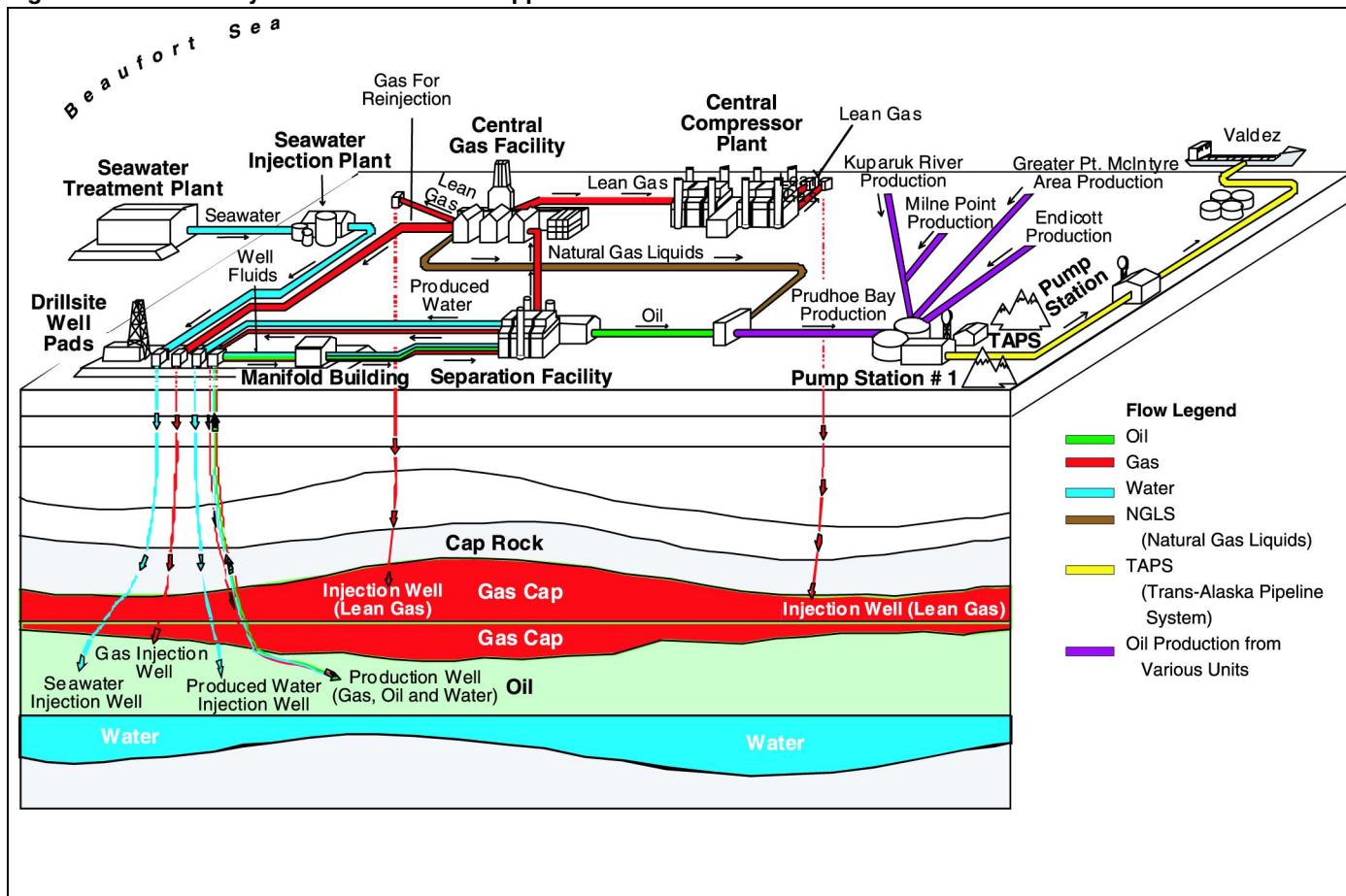
Federal, state, and local governments share responsibility for regulating oil industry activities on the North Slope. The state of Alaska, which owns the land where most current oil industry activity occurs, has primary responsibility for establishing requirements for how these lands will be restored when oil industry activity ceases. Specifically, two groups are responsible for developing dismantlement, removal, and restoration requirements: Alaska's Department of Natural Resources, which manages state oil and gas leases, and Alaska's Oil and Gas Conservation Commission, which issues permits for drilling wells on state, federal, and Alaska Native lands.¹ The Alaska Department of Environmental Conservation and the Alaska Department of Fish and Game provide additional regulatory guidance. The North Slope Borough, the area's local government, can regulate oil industry activities on state, native, and municipal lands, including dismantlement, removal, and restoration requirements, through zoning ordinances. In addition, local Alaska Native regional and village corporations control a considerable amount of surface lands and subsurface mineral rights on the North Slope and can establish environmental and reclamation requirements through contractual arrangements made with the oil companies. Finally, the U.S. Army Corps of

¹Alaska Native lands include lands deeded to native regional and village corporations that were created under the Alaska Native Lands Claim Settlement Act of 1971 as well as individual native land allotments. These lands include both surface rights and the rights to subsurface minerals.

Engineers, which issues permits for certain aspects of development on wetlands and navigable waters regardless of land ownership, also has the authority to require, through its permit process, the restoration of the land. Oil industry activities on federal lands located on the North Slope are primarily regulated by federal land management agencies. These agencies include the Department of the Interior's Bureau of Land Management, which manages the National Petroleum Reserve-Alaska, and Interior's Mineral Management Service, which oversees oil industry activities that occur in waters 3 or more miles off the coast. Three other federal agencies—Interior's Fish and Wildlife Service, the Department of Commerce's National Marine Fisheries Service, and the Environmental Protection Agency—have regulatory authority that may apply to resources affected by oil industry activities on federal, state, or private land.

The oil industry and many public landowners use the term “dismantlement, removal, and restoration,” or DR&R, to refer to the dismantlement and removal of infrastructure and the restoration of the land following the completion of extraction activities. DR&R can take many forms, from complete restoration (a natural state approaching original condition) to some form of enhanced rehabilitation (e.g., providing habitat that previously did not exist) to simply removing some structures. Oil exploration, which involves seismic mapping and test wells to measure potential reserves, requires relatively little permanent infrastructure and less surface disturbance than production activities. Recently, exploration on the North Slope has been conducted in the winter using ice roads and ice drilling pads that melt away after they are used, although they may still compress the tundra. After oil is found, production activities involve the development of an extensive infrastructure. Such infrastructure can include wells to extract the oil and re-inject byproducts and wastes into subsurface formations; pipelines and transmission lines for water, gas, oil, fuel, and electricity; industrial plants to separate the oil from water; housing and other structures for workers and support services; roads, ports, and airstrips to access and support the facilities; and the acres of gravel upon which most of this infrastructure is built (see fig. 2). The costs of constructing this infrastructure and the performance of any industrial work on the North Slope, including dismantlement, removal, and restoration activities, exceed similar costs in the rest of the U.S. because of the North Slope's remote location and harsh climate.

Figure 2: Prudhoe Bay Oil Production and Support Facilities



Note: This figure is intended to provide a general depiction of the production process associated with the Prudhoe Bay complex. Not all facilities or infrastructure associated with the complex are illustrated.

Source: GAO's adaptation of figures prepared by Phillips Petroleum and the Alaska Department of Natural Resources.

Results in Brief

The state of Alaska, which owns the lands where most of the North Slope's current oil production occurs, has adopted general dismantlement, removal, and restoration requirements that contain no specific stipulations on what infrastructure must be removed or to what condition the lands used for oil industry activities must be restored once production ceases. Alaska's requirements specify that the oil companies have to return the land to a condition that is satisfactory to the state—a condition that it has

yet to define. The removal of the infrastructure and restoration of the land is generally not required on a full scale until most oil and gas production ceases. Other entities, such as the Corps of Engineers, native landowners, and the local North Slope Borough, have the authority to impose dismantlement, removal, and restoration requirements; generally, however, they have not done so. The Corps prefers the landowner, in this case the state, to retain primary responsibility for developing dismantlement, removal, and restoration requirements. Alaska Native landowners and the North Slope Borough stated that they would generally defer to the state to impose such requirements. Dismantlement, removal, and restoration requirements in other oil producing states vary. Alaska's requirements are similar to those of some states but less explicit than those of other states, which create a fixed obligation to fully restore the land according to specific requirements.

Until the state of Alaska defines the condition in which it would like its lands returned, there is no way to accurately estimate the cost of dismantling and removing the infrastructure and restoring the disturbed land on Alaska's North Slope. Thus far, oil companies are the only entities to have estimated future dismantlement, removal, and restoration costs. To comply with generally accepted accounting principles, oil companies have estimated their future liability based on several assumptions, including what infrastructure will be removed; to what condition land will be restored when dismantlement, removal, and restoration requirements are implemented; and other variables. However, oil companies stated that without specific state requirements, these estimates are hypothetical. The companies' estimates are also considered proprietary and are therefore not publicly available. However, limited information obtained from oil company annual reports, a tax court case, and other sources indicate that the dismantlement, removal, and restoration liability for existing oil industry activities on the North Slope will be in the billions of dollars.

Existing financial assurances, such as bonding requirements, ensure the availability of only a small portion of the funds that are likely to be needed to dismantle and remove the infrastructure used for oil industry activities and to restore state-owned lands. The state of Alaska requires oil companies to post bonds or other forms of financial assurance as a condition for obtaining a lease and drilling permits. Such financial assurances total only about \$200,000 for each oil company's statewide drilling operations and \$500,000 to cover all of a company's oil and gas leases in the state. These amounts represent a small fraction of the funds that may be needed for dismantlement, removal, and restoration of state

lands on the North Slope should a company refuse to or be unable to pay. The local municipality, Alaska Native landowners, and the Corps of Engineers all have the authority to impose financial assurance conditions on oil industry activities on the North Slope, but none has ever done so, preferring to defer this authority to the state. In the past, when early North Slope oil exploration and development activities were improperly abandoned, the state had to assume financial responsibility for the dismantlement, removal, and restoration of these sites. The oil companies still operating on the North Slope are assisting the state in cleaning up and restoring these sites. Although the state has not developed any estimates of the total cost of this effort, such costs could be substantial. For example, as part of an agreement between the state and various oil companies, BP and Phillips Petroleum are spending about \$10 million to clean up and restore 14 abandoned North Slope sites.² Even though the state of Alaska's bonding requirements ensure only a small portion of the potential cost of cleaning up the North Slope, when compared to nine other major oil-producing states, Alaska's bonding requirements are generally higher.

Current dismantlement, removal, and restoration requirements and financial assurances for federal lands on the North Slope vary by agency, but are generally insufficient to ensure that any federal lands disturbed by oil industry activities will be restored. As oil production on state lands declines, oil companies and the state of Alaska are looking to develop federal lands in order to sustain North Slope production levels. The Bureau of Land Management, which oversees the National Petroleum Reserve-Alaska, has an overall restoration goal of returning the reserve to its previous use, which includes fish and wildlife habitat, after oil production ceases. However, the Bureau has yet to develop specific dismantlement, removal, and restoration requirements for companies to use to meet that goal. On the other hand, Interior's Minerals Management Service has specific dismantlement, removal, and restoration requirements for offshore drilling in federally regulated waters. In addition, both agencies have the authority to require full financial assurances to fund dismantlement, removal, and restoration. However, where Minerals Management has an escalating bond structure that considers, among other things, the future

²The state, BP, and Atlantic Richfield agreed to the "Charter for Development of the Alaskan North Slope" on December 2, 1999. As set forth in the charter, BP and Atlantic Richfield agreed to sell a predetermined percentage of their Alaska interests to a third "qualified company" prior to their merger in order to prevent a monopoly and to ensure continued competition on the North Slope. Phillips Petroleum purchased the stock of ARCO Alaska, Inc., and, with BP, assumed responsibility for fulfilling the charter obligations.

cost of reclamation, the Bureau uses minimum bond amounts that will only cover a fraction of the funds potentially needed to meet the future dismantlement, removal, and restoration costs. For example, the Bureau only requires a company to obtain a \$300,000 bond for all leases the company holds in the National Petroleum Reserve-Alaska. However, in 2001 the Corps approved about \$16 million to plug two abandoned wells and remediate contaminated soil at the two sites that are located in the National Petroleum Reserve-Alaska. Further, since the Congress is still considering whether or not to open the Arctic National Wildlife Refuge to oil and gas activities, no specific restoration goal or dismantlement, removal, and restoration requirements have been established for the refuge. In the past, prior to the establishment of such requirements and financial assurances, many oil exploration wells drilled by the federal government on federal lands on the North Slope were improperly plugged and abandoned. According to the Bureau of Land Management, these wells remain potentially costly environmental problems. In contrast to the varying federal requirements and financial assurances for oil industry activities on the North Slope, the Trans-Alaska Pipeline System and the mining and nuclear power industries have explicit dismantlement, removal, and restoration requirements that are set before any industry activities start. In addition, the federal agencies that regulate these entities require full financial assurance that funds will be available to meet these requirements.

Principal Findings

Existing North Slope Oil Industry Activities Are Subject to General Restoration Requirements

The state of Alaska's dismantlement, removal, and restoration requirements, which apply to most current oil industry activities on the North Slope, stipulate that oil companies return the land to a condition that is satisfactory to the state. Because this requirement has not been further defined, there is no specific guidance on what infrastructure needs to be removed and to what condition the land must be restored. The state may also waive requirements altogether if it decides that it wants the development to remain in place.

Alaska's dismantlement, removal, and restoration requirements are generally not imposed until all oil production in a unit ceases. To date, no units on the North Slope have ceased production. As a result, there is little indication of what DR&R the state will actually require oil companies to

perform. The federal and local governments also affect DR&R requirements on state-owned lands on the North Slope. However, at the federal level, Corps of Engineers permits, which are needed for certain aspects of development on wetlands, stipulate only that restoration of the area may be required. At the local level, the North Slope Borough may require a rehabilitation plan for the land before issuing a development permit, but it has never done so. Although oil companies accept the state's general requirements and like the flexibility they provide, the companies would prefer more specific requirements so that they could better estimate their future financial liabilities and make better cost-based restoration decisions.

Dismantlement, removal, and restoration requirements imposed in other oil-producing states vary. For example, Alaska's requirements mirror those in Louisiana and Pennsylvania. In contrast, other states, such as Florida and New Mexico, have more specific requirements that create a fixed obligation to, among other things, remove all surface material and structures and fully restore the land according to its original contour and with native vegetation.

**Dismantlement, Removal,
and Restoration Is Likely to
Be Costly**

Without specific requirements, it is impossible to arrive at any reasonable estimate of the future cost associated with the dismantlement and removal of North Slope infrastructure and restoration of the land. Under generally accepted accounting principles, oil companies are required to report their DR&R liabilities annually. However, these estimates are reported in aggregate for worldwide operations, and specific estimates for the North Slope are not available to the public. Dismantling and removing more than 30 years' worth of accumulated infrastructure—including 224 miles of pipeline; more than 10,000 acres of gravel pads, roads, and airstrips; and numerous production facilities and plants—will be an enormous undertaking, given the North Slope's remote location and harsh climate. Even more problematic will be the efforts to restore the sensitive arctic tundra, which may take decades to recover. Examining the increase in Phillips Petroleum's liabilities when they acquired Atlantic Richfield Company's assets on the North Slope in 2000 provides some indication of the magnitude of the oil company's potential cost for cleaning up the North Slope. At the time of the merger, Atlantic Richfield Company accounted for about 30 percent of the North Slope oil production. After the acquisition, Phillips increased its worldwide estimate of total future dismantlement, removal, and restoration costs by nearly \$1.6 billion. This increase was

primarily due to Phillips's acquisition of Atlantic Richfield's North Slope operations.

Existing Financial Assurances Are Insufficient to Fund the Potential Cost of Dismantlement, Removal, and Restoration on State-Owned Land

Oil companies are required to assure the availability of only a small portion of the funds needed to dismantle and remove existing infrastructure and restore the lands currently used for oil industry activities on the North Slope. The state of Alaska requires oil companies to post bonds for their wells and leases, but the state only requires each oil company to set aside a maximum of \$200,000 for all its wells and \$500,000 for all its oil and gas leases—a fraction of the potential total dismantlement, removal, and restoration cost. Other entities, such as the Corps of Engineers, local government, and native landowners, do not require any assurance that funds will be available to perform DR&R after oil production ceases. Alaska's bonding requirements are generally higher than eight of the nine other oil-producing states that we surveyed. Specifically, only California, Florida, and Michigan have higher bonding requirements than Alaska for wells, while only California and Pennsylvania require oil companies to post larger bonds for oil and gas leases than Alaska.

Future Oil Industry Activities on Federal Lands Are Subject to Uncertain Requirements and Financial Assurances

Oil companies and the state of Alaska are looking to federal lands for future oil development on the North Slope. These lands, which include the National Petroleum Reserve-Alaska, the Outer Continental Shelf, and the coastal plain of the Arctic National Wildlife Refuge, are managed by various federal agencies. The agencies have varying requirements and financial assurances for dismantlement, removal, and restoration activities. For example, in the National Petroleum Reserve-Alaska, the Bureau of Land Management has an overall restoration goal of returning the disturbed land to its previous primary uses as fish and wildlife habitat and for subsistence use by native villagers; however, it has yet to develop specific DR&R requirements to implement that goal. In addition, the Bureau currently uses minimum bond amounts that do not reflect differences in oil company experience and financial viability and are unlikely to cover the potential restoration costs that could be incurred. Further, since the Congress has not yet authorized oil and gas development in the Arctic National Wildlife Refuge, neither the Bureau nor the Fish and Wildlife Service—each of which currently has differing responsibilities for oil and gas activities in refuges—has a restoration goal for the refuge or any requirements in place to implement that goal. In addition, neither agency currently requires bonds in amounts that are sufficient to meet the potential cost of future restoration. In the past, as a result of inadequate dismantlement and

restoration requirements, about 80 wells drilled on federal lands in what is now known as the National Petroleum Reserve-Alaska remain improperly plugged and abandoned. Today, some of these wells are leaking oil and other substances that could result in an environmental hazard. Although the total cost of restoring these sites is unknown, a recent Bureau of Land Management internal working document estimated that the total cost to plug and abandon these wells would exceed \$100 million. According to the Bureau, federal monies will be used to restore these sites, because these wells predate the existence of DR&R requirements.

In contrast to federal lands on the North Slope, dismantlement, removal, and restoration requirements for the Trans-Alaska Pipeline System and for the mining and nuclear industries are predetermined and fixed. The Trans-Alaska Pipeline has mandatory DR&R requirements and fixed financial arrangements to comply with the requirements, which predate the pipeline's construction. In the mining industries, companies are typically required to submit abandonment plans and fully ensure that funds for future reclamation costs will be available through bonds and other financial arrangements made prior to initiating operations. Likewise, in the nuclear power industry, power plant licensees are required to submit abandonment plans and provide full financial assurance before plant decommissioning begins.

Recommendations for Executive Action

In order to ensure that the lands of the National Petroleum Reserve-Alaska are properly restored after oil and gas activities cease, we are recommending that the Secretary of the Interior instruct the Director of the Bureau of Land Management to issue specific dismantlement, removal, and restoration requirements that will allow the Bureau to meet its overall goal of returning the land to a condition that will sustain its previous uses including fish and wildlife habitat and subsistence uses. In addition, we recommend that the Bureau review its existing financial assurances for oil and gas activities in the National Petroleum Reserve-Alaska to determine whether they are adequate to assure the availability of funds to achieve its overall restoration goal.

Matter for Congressional Consideration

Any future decision to open additional federal lands, including those on Alaska's North Slope, to oil and gas activities is a public policy decision that rests with the Congress. In any such decision, one factor that would be important to consider is the restoration of the land after oil and gas

activities are completed. If the Congress wants to provide guidance on the condition to which these lands should be returned following the completion of such activities, it should consider providing in the authorizing statute

- a restoration goal that will allow the federal agency or agencies responsible for developing dismantlement, removal, and restoration requirements to have a clear understanding of what the Congress wants achieved; and
 - specific assurances that the federal agency or agencies responsible for implementing dismantlement, removal, and restoration requirements will obtain adequate financial assurances that funds will be available to meet the goal of returning the land to a condition that the Congress has specified.
-

Agency Comments and GAO's Evaluation

We provided copies of a draft of this report to the Department of the Interior and the state of Alaska for their review and comment. The Department concurred with the findings and recommendations of the report. The state of Alaska, however, raised concerns about the scope and appropriateness of the GAO review and disagreed with GAO's recommendations. Specifically, the state commented that it was not aware of any other circumstances where GAO resources were devoted to the review of state practices on state lands. GAO often examines state practices on state lands, especially if federal agencies have a regulatory role in the state activity or if federal agencies can learn from state practices. For example, GAO has reviewed the state of Florida's land acquisition program as it relates to the South Florida Ecosystem Restoration Initiative. In another example, GAO reviewed state management practices in state-owned parks, wildlife and waterfowl areas, and forests in New Mexico, North Carolina, and Utah and compared them to federal practices on federally owned land. Further, for state lands on Alaska's North Slope, federal agencies such as the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service have issued regulations that can significantly affect the state of Alaska's dismantlement, removal, and restoration requirements. It is within GAO's authority and responsibility to review the federal role with regard to this issue.

The state also commented that by performing this review, GAO was promulgating a particular political agenda, which also brought into question its credibility. We strongly disagree. The GAO has a statutory

obligation to fulfill requests from the Congress and its committees. To effectively accomplish this obligation, GAO prioritizes its work in accordance with its published congressional protocols. These protocols state that congressional mandates, senior leader requests, and committee leader requests receive the highest priority followed by committee member requests, and then by individual member requests. GAO does not differentiate between the majority and the minority staff when implementing these priorities. Congressmen who represent the highest of these priorities requested this work. To effectively support the Congress, GAO must be professional, objective, fact-based, nonpartisan, nonideological, fair, and balanced in all its work. All GAO products and services must conform to generally accepted and applicable auditing, accounting, investigative, and evaluation principles and standards. GAO strives to exercise the independence necessary to guarantee that its products and work conform to professional standards and the agency's core values of accountability, integrity, and reliability.

The state also disagreed with GAO's recommendations to the Department of the Interior. Specifically, concerning GAO's recommendation that the Bureau of Land Management issue specific dismantlement, removal, and restoration requirements prior to the initiation of oil production in the National Petroleum Reserve-Alaska, the state commented that it is better to address this issue when oil production ceases and the obligation actually becomes due. Although the state said it is not too early to think about appropriate requirements, it believes that the discretion it has to deal with particular dismantlement, removal, and restoration issues when they are about to occur provides the state with greater flexibility to respond to changes in such things as technology and the regulatory environment. GAO does not draw any conclusions nor make any recommendations concerning the appropriateness or inappropriateness of the state of Alaska's current dismantlement, removal, and restoration practices for its lands. GAO recognizes that overall restoration goals such as the Bureau of Land Management's goal of returning the National Petroleum Reserve-Alaska to a condition that will sustain its previous uses can change. In addition, GAO agrees that the specific processes used to achieve those goals can change as technology, science, and circumstances change. However, GAO believes that for federal lands on Alaska's North Slope it is appropriate to establish overall restoration goals and specific dismantlement, removal, and restoration requirements prior to oil and gas development and production activities. Doing so provides all interested parties, including the Congress, the federal land management agency, the oil companies, environmental groups, and the public, an opportunity to

make informed decisions about whether they would support such development on public lands. It also provides oil companies with better information on what is expected of them, which allows for better planning and budgeting to achieve restoration.

The state of Alaska commented that it also disagrees with GAO's recommendation on the level of financial assurances that are needed to ensure that required dismantlement, removal, and restoration activities take place. The state's disagreement appears to be based on a misinterpretation of GAO's recommendation. Specifically, the state commented that GAO is recommending the level of financial assurance that should exist for federal lands on the North Slope and that GAO believes that level should be higher than the financial assurances required by the state of Alaska for its lands. GAO did not make any determination of what level of financial assurance should exist to ensure that restoration occurs on federal lands on the North Slope. Further, GAO did not make any comparison of the state of Alaska's financial assurances to those of federal agencies that manage land on Alaska's North Slope. GAO found that for the National Petroleum Reserve-Alaska, the Bureau of Land Management's minimum bond amounts are (1) fixed, (2) do not reflect differences in oil company experience and financial viability, and (3) would only cover a fraction of the potential future cost of dismantlement, removal, and restoration. In the context of these findings, GAO recommends that the Bureau review its existing financial assurances for oil and gas activities in the National Petroleum Reserve-Alaska to determine whether they are adequate to ensure the availability of funds to achieve its overall restoration goal for the land after oil and gas activities cease. The Department of the Interior agrees with this recommendation and stated that the Bureau's review will focus on protecting the environment and taxpayers, should lessees default.

More detailed discussions of the comments from the Department of the Interior and the state of Alaska are included at the end of chapter 5. Both the Department and the state also provided clarifications on several technical points that have been included in the report as appropriate. The full text of the comments and GAO's responses are included in appendix II for the Department of the Interior and appendix III for the state of Alaska.

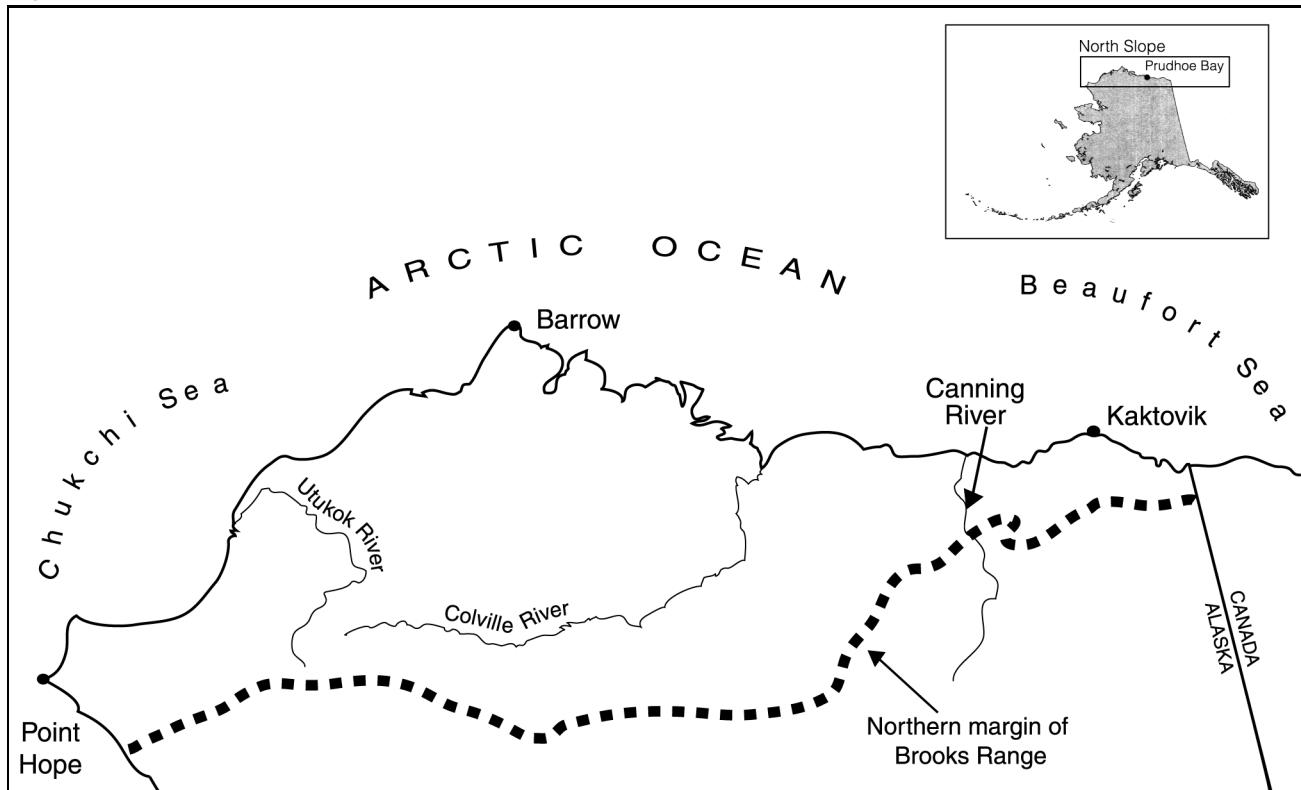
Introduction

The North Slope of Alaska—a vast, ecologically sensitive area north of the Arctic Circle—is home to the largest oil reserve in the United States. This sparsely settled area consists primarily of public lands owned by the federal government, state government, and Alaska Native corporations. To date, oil production activity has occurred mostly on state land and, to a limited extent, on Alaska Native lands. In the next couple of years, however, oil industry activity on federal lands adjacent to the state and Alaska Native corporation lands is expected to move from the exploration phase to the production phase. As of January 2002, only two companies—BP and Phillips Petroleum—operate producing oil fields on the North Slope. Several other large oil companies, including ExxonMobil, Anadarko, and Chevron, among others, also have ownership interests in this production under various collective operating agreements. Since the state lands were opened to oil industry activities, oil companies, federal, state and local governments have all shared in the profits. Once oil production ceases, responsibility for determining to what extent oil companies will have to dismantle and remove their production facilities and associated roads, pipelines, and airstrips, and restore the disturbed lands is generally divided among federal, state, and native entities, depending, in part, on who owns the land.

Alaska's North Slope Is a Sensitive Environment

Alaska's arctic coastal plain, often referred to as the "North Slope," extends from the foothills of the Brooks Range to the Arctic Ocean and from the Canadian border to Point Hope (see fig. 3). Covering approximately 89,000 square miles, this area is the boundary of the North Slope Borough—geographically the largest local government unit in the United States. The North Slope is also one of the least populated areas in the world, with a total population of about 7,400—of which almost 70 percent are native Inupiat Eskimo. It is a harsh climate with winter temperatures as low as -60° Fahrenheit and average annual wind speeds of 12 to 13 mph. For almost 2 months during the arctic winter, the sun never rises above the horizon. Snow generally remains on the ground until the beginning of June and begins accumulating again in September. Annual precipitation is quite low, averaging less than 5 inches per year.

Figure 3: Map of Alaska and the North Slope



Source: GAO's adaptation of a map prepared by the Department of the Interior's Bureau of Land Management.

The North Slope coastal plain is a vast treeless expanse of tundra vegetation. Many lakes, streams, and rivers are scattered across this generally flat terrain, despite the limited precipitation. Because the entire area is underlain by permafrost (permanently frozen subsoil), which allows no water absorption, the surface consists mostly of wetlands (see fig. 4). Accordingly, this area provides excellent habitat for a variety of wildlife, especially large numbers of breeding migratory birds and caribou that calve on the coastal plain. In addition, the immediate coastal area is inhabited by an estimated 2,000 polar bears that spend most of their time feeding, resting, and denning on the drifting ice pack in the Beaufort Sea. Permafrost is vulnerable to surface disturbance because such disturbance usually results in thawing and the subsidence and erosion of soil. Damage due to surface disturbance is very difficult to reverse. In order to prevent thawing of the permafrost and provide a stable foundation, any

development, such as roads, airstrips, and production facilities, must occur on gravel fill that is laid down to a depth of about 6 feet.

Figure 4: Aerial Photo of Area Surrounding Alpine Oil Field



Source: GAO.

Oil Industry Activity Occurs Primarily on State-Owned Lands

The current mix of federal, state, and Alaska Native lands on the North Slope evolved after Alaska achieved statehood in 1959. Before Alaska obtained statehood, the federal government owned almost all the land. The Alaska Statehood Act of 1958 gave the new state government the right to claim land in the newly formed state. In 1964, the state selected, among other areas, a corridor of federal land on the North Slope that was about 100 miles wide. On the basis of geophysical surveys, this land was thought to hold large oil deposits. In 1971, under the Alaska Native Claims Settlement Act (ANCSA), the Arctic Slope Regional Corporation (ASRC) claimed surface and subsurface mineral rights across the North Slope. In addition, eight village corporations claimed surface lands surrounding their villages. These claims resulted in Alaska Native corporation lands being scattered across the North Slope.

Soon after the state made its claims, it opened the North Slope lands to commercial leasing for oil industry activities. At first, exploration yielded only dry holes, but in 1968 Atlantic Richfield Company (ARCO) and Humble Oil (a predecessor of ExxonMobil Corporation) announced a major oil find in the Prudhoe Bay area of the North Slope. A year later, the companies announced plans to construct an 800-mile oil pipeline called the Trans-Alaska Pipeline System (TAPS), which opened in 1977. The pipeline is used to transport oil from Prudhoe Bay on the North Slope down the length of the state to Valdez, where it is then carried by oil tankers to markets primarily in the continental United States but also to other world markets.

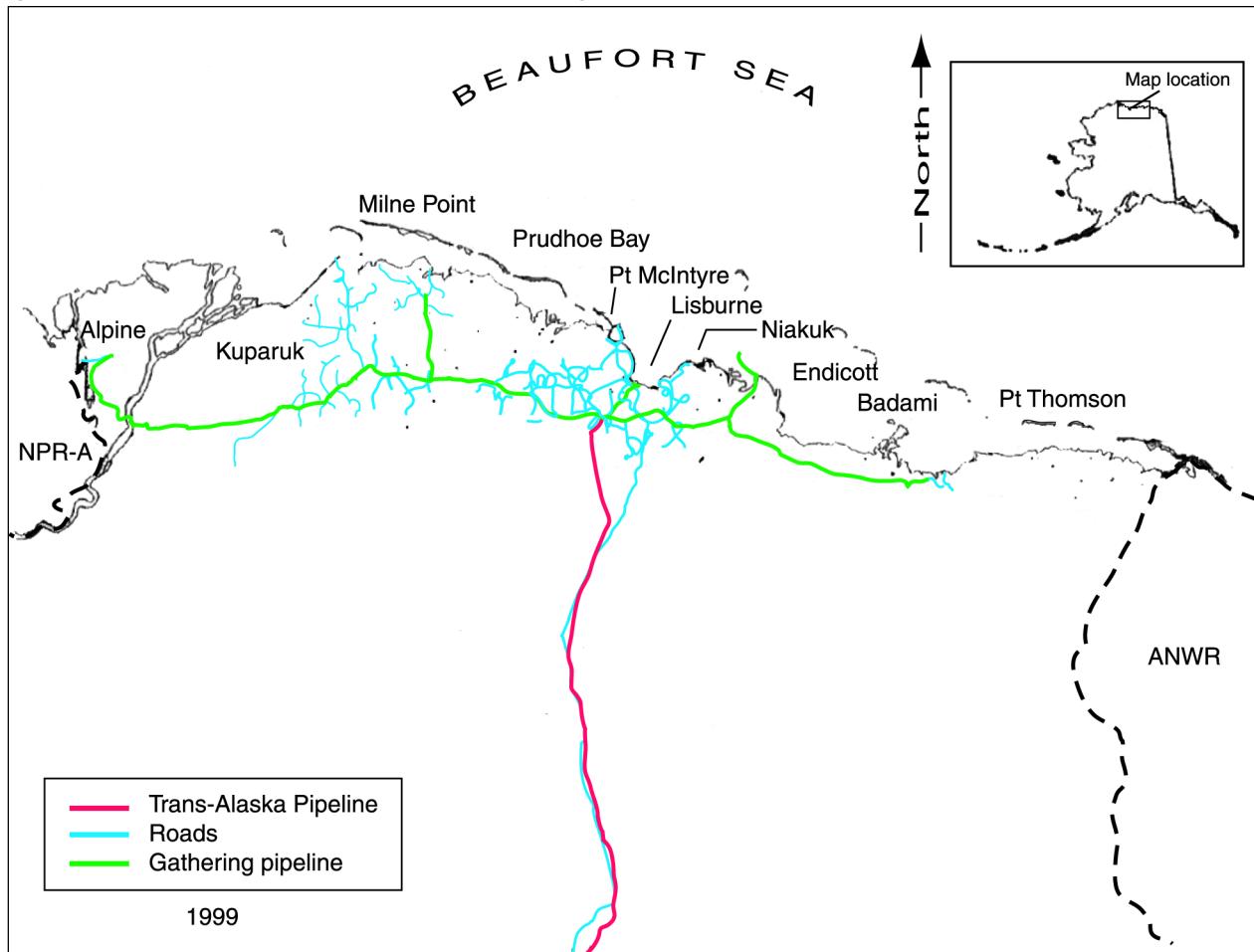
The federal government retained ownership of the land on either side of the state-owned lands on the North Slope; the National Petroleum Reserve-Alaska (NPR-A) lies to the west, and the Arctic National Wildlife Refuge (Arctic Refuge or ANWR) lies to the east. Management of the NPR-A, originally named the Naval Petroleum Reserve Number 4 Alaska, which is roughly the size of Indiana, was transferred from the Navy to the Department of the Interior's Bureau of Land Management (BLM) in 1977. In 1980, the Congress granted the Secretary of the Interior the authority to lease land in the NPR-A for oil and gas exploration. While the BLM issued some leases in the early 1980s, almost no exploration occurred. It was not until leases were issued under the 1998 Integrated Activity Plan/Environmental Impact Statement that the most current oil exploration in the NPR-A was initiated. In 2001, Phillips Petroleum and Anadarko announced the discovery of likely commercial quantities of oil in the NPR-A.

The Arctic National Wildlife Refuge was created in 1960, enlarged in 1980, and currently includes 19 million acres. In 1980, the Congress passed the Alaska National Interest Lands Conservation Act (ANILCA), which designated about 8 million acres of the Arctic National Wildlife Refuge as wilderness and as such prohibited oil industry activities. However, the coastal plain area of the refuge was not designated as wilderness. This area, known as the “1002 Area” after section 1002 of the Alaska National Interest Lands Conservation Act, was set aside for special study which would allow the Congress to subsequently decide whether to permit oil and gas industry activities, designate the area as wilderness, or make no changes. The Congress is currently debating the future status of this area.

The extent of North Slope industry activities has grown progressively since the first oil was discovered there in 1968. Figure 5 shows the current range of growth, which originally centered on Prudhoe Bay, the largest oil field (as measured by volume) in North America.³ As exploration has yielded additional finds, the network of wells, roads, pipelines, and production facilities has expanded from the border of the NPR-A almost to the border of the Arctic Refuge. As a result, state lands on the North Slope now contain a web of industrial complexes spread across 1,500 square miles of state and native lands.

³An oil field consists of a reservoir of oil in a shape that will trap hydrocarbons and that is covered by a layer of impermeable or sealing rock. A field refers to the surface area above the oil accumulation.

Figure 5: Development of North Slope Oil Producing Area in 1999



Note: The ANWR is an abbreviation for the Arctic National Wildlife Refuge and NPR-A is an abbreviation for the National Petroleum Reserve-Alaska.

Source: GAO's adaptation of a map prepared by BP.

A complete inventory of current North Slope infrastructure is not available. However, using information obtained from BP, the state, and data in a recent environmental impact statement (EIS), we identified the following infrastructure of wells, pipelines, roads, and facilities as presented in table 1 below.

Table 1: GAO's Estimate of North Slope Infrastructure, as of January 2000

Gravel fill^a	Gravel mines^b	Roads^b	Well pads^c	Wells^c	Pipelines^b	Facilities^b
10,653 acres (excluding the Dalton Highway and reclaimed and exploratory sites)	15 mines covering 1,601 acres	364 miles and 22 river crossings (excluding the Dalton Highway)	109	3,520 well sites	520 miles, excluding TAPS	<ul style="list-style-type: none"> • 13 production centers • 14 industrial plants • 5 docks and causeways • 5 airstrips

^aAero Map U.S. 1999.

^bLiberty Draft EIS.

^cAlaska Oil and Gas Conservation Commission data, December 2001 and March 2002.

North Slope oil production is organized by units, which are a collection of leases. Each unit has a cooperative plan for oil exploration, development, and operation within a geographic area covering one or more oil fields. The reason for organizing leases owned by different companies into a unit is to prevent waste and enhance oil recovery. Within each unit one leaseholder is designated as the unit's operator and is responsible for all oil production activities in the unit. The operator of a unit conducts oil field operations on behalf of leaseholders and is responsible for field operations, maintenance, and any current (but not future) DR&R expenses. As of 2001, two firms—BP and Phillips Petroleum—were performing most North Slope oil exploration and production activities.⁴ These two companies are also the only two operators of oil-producing units on the North Slope. ExxonMobil is the operator of the Point Thomson unit, but as of January 2002 that unit was not in production. Table 2 lists the North Slope units, production, operator, and ownership interests.

Table 2: North Slope Oil Units, Production, Operator, and Ownership

Unit	1999 Production (thousands of barrels)	Unit operator	2001 Working interest owners (approximate ownership share)
Badami	1,150	BP	BP 70% Petrofina 30%

⁴In 1998, BP merged with Amoco and in 2000 merged with ARCO. As part of the BP-ARCO merger, the U.S. required BP to divest itself of ARCO's Alaska assets. In 2000, Phillips Petroleum acquired ARCO's Alaska assets.

(Continued From Previous Page)

Unit	1999 Production (thousands of barrels)	Unit operator	2001 Working interest owners (approximate ownership share)
Colville River	Production began in 2000	Phillips Petroleum	Phillips Petroleum 78% Anadarko 22%
Duck Island ^a (Eider) (Endicott) (Sag Delta)	15,225	BP	BP 68% ExxonMobil 21% Unocal 10% Others 1%
Kuparuk	95,045	Phillips Petroleum	Phillips Petroleum 55% BP 39% Unocal 5% Others 1%
McCovey	Exploration; unit approved in 2000	Alberta Energy Corporation	Alberta Energy Corp. 33.3% Phillips Petroleum 33.3% Chevron 33.3%
Milne Point	19,586	BP	BP 100%
Northstar	Production began in 2001	BP	BP 98% Murphy 2%
Point Thomson	Exploration	ExxonMobil	ExxonMobil 37% BP 32% Chevron 25% Phillips Petroleum 5% Others 1%
Prudhoe Bay	273,243	BP	BP 26% ExxonMobil 37% Phillips Petroleum 36% Others 1%
Sakonowyak River	Exploration; unit approved in 2001	BP	BP 62% Alaska Venture Capital Group 38%
SE Delta	Exploration; unit approved in 2001	Phillips Petroleum	Phillips Petroleum 100%
Slugger	Exploration; unit approved in 2001	BP	BP 39% Phillips Petroleum 31% Chevron 30%
Total	404,249		

^aOwnership of the Duck Island Unit is based on a weighted average of production from three fields within the unit.

Sources: Alaska Department of Natural Resources, Division of Oil and Gas, 2000 Annual Report, and oil company data.

Many Entities Benefit from Revenues Generated by Oil Production on the North Slope

Federal, state, and local governments as well as the oil companies all share in the revenues generated by oil production on the North Slope. The nation has benefited from North Slope oil production in terms of jobs, corporate taxes, and royalties provided by oil and associated companies, and a reduction in oil imports and the balance of trade deficit. One estimate, made by a consulting firm hired by the oil companies, attributed \$40 billion in federal taxes and rents collected between 1977 and 1999 to North Slope oil production.⁵

The state of Alaska collects petroleum-based revenues from North Slope oil production and transportation in a variety of taxes (principally corporate income, severance, and property), royalty payments (generally 12.5 percent of the value of the oil), and bonuses and rents from oil leases.⁶ Because of the state's oil revenues, residents of Alaska pay no state income tax or state sales taxes. Oil revenues also fund about 80 percent of the state's general fund operating budget. In addition, in 1980, using mostly oil revenues, the state was able to establish a permanent fund that provides an annual dividend payment to every state resident.

The North Slope Borough, the local municipality, also uses revenues from North Slope oil production to fund its government services. Oil companies pay nearly all of the borough's property taxes and provide about 60 percent of borough revenues. A recent study developed by the Bureau of Land Management for the renewal of federal rights-of-way for the Trans-Alaska Pipeline System (TAPS) estimates that if the pipeline closed, the borough would lose almost \$1.9 billion (1998 dollars) in property tax revenues for a 30-year period starting in 2004.⁷

According to an analysis done by Alaska's Department of Revenue, for the fiscal year period 1988 through 2000 accounting profits (i.e., all returns on investment) for North Slope oil are split 41.6 percent to industry, 36.1

⁵L. Daniel Maxim, Everest Consulting Associates, September 2001, for the Alaska Oil and Gas Association.

⁶A small portion of Alaska's oil and gas revenues comes from the Cook Inlet area southeast of Anchorage. According to a former commissioner of the Alaska Department of Natural Resources, 90 percent of state oil and gas revenues are generated from the North Slope.

⁷When TAPS was constructed, it was granted a 30-year right-of-way across federal and state lands; the lease will expire in 2004. The BLM recently initiated development of an EIS as it determines whether to renew the federal lease.

percent to the state, and 22.3 percent to the federal government. A number of other studies support the level of revenues accumulated by industry, the state, and the federal government.⁸ For example, a 1989 state-commissioned study found that for the period 1969 to 1987 oil companies generated \$42.6 billion in net profits after taxes on total gross revenues of \$131 billion from the production and transportation of North Slope oil. The study estimated a similar split in accounting profits for this earlier period of 44 percent for industry, 30 percent to the state, and 26 percent to the federal government.⁹

Dwindling Production Focuses Greater Attention on the Disposition of Oil Company Infrastructure on the North Slope

The production of oil on the North Slope peaked in 1988 at 2 million barrels per day. By 1999, production had fallen to 1.1 million barrels per day, or about 16 percent of total U.S. production. Total production on the North Slope through 2000 was 13.3 billion barrels, while another 6.1 to 13.3 billion barrels of technically recoverable oil from known and undiscovered sources remain on the North Slope, according to the Department of Energy.¹⁰ As a result of declining production on state lands, efforts to develop federal lands on the North Slope have intensified.

Overall production on the North Slope will most likely continue to decline even as new fields are brought on line. According to the U.S. Department of Energy, most North Slope oil has already been produced. The remaining life of existing North Slope oil fields will depend partly on future economic factors. As oil fields age, the per-barrel cost to extract additional oil increases as each barrel requires greater effort to extract. Oil companies will continue to produce oil from a field only as long as it is profitable and will normally stop producing before an oil field is completely depleted. Because the cost of transporting oil from the North Slope tends to be higher than oil produced elsewhere in the United States, North Slope fields must produce at a lower cost to remain competitive. The amount of oil that can be produced at a profit, known as proven reserves, integrally depends

⁸We did not independently verify the results of any of these studies.

⁹Ed Deakin, Ph.D., director of the Institute of Petroleum Accounting at the University of North Texas, conducted the study from 1969 to 1987.

¹⁰Technically recoverable refers to the amount of oil that can be extracted using current technology. The economically recoverable amount is generally less because it considers the market price of oil and the cost to extract, process, and transport the oil to market, which generally increases as the recoverable amount declines.

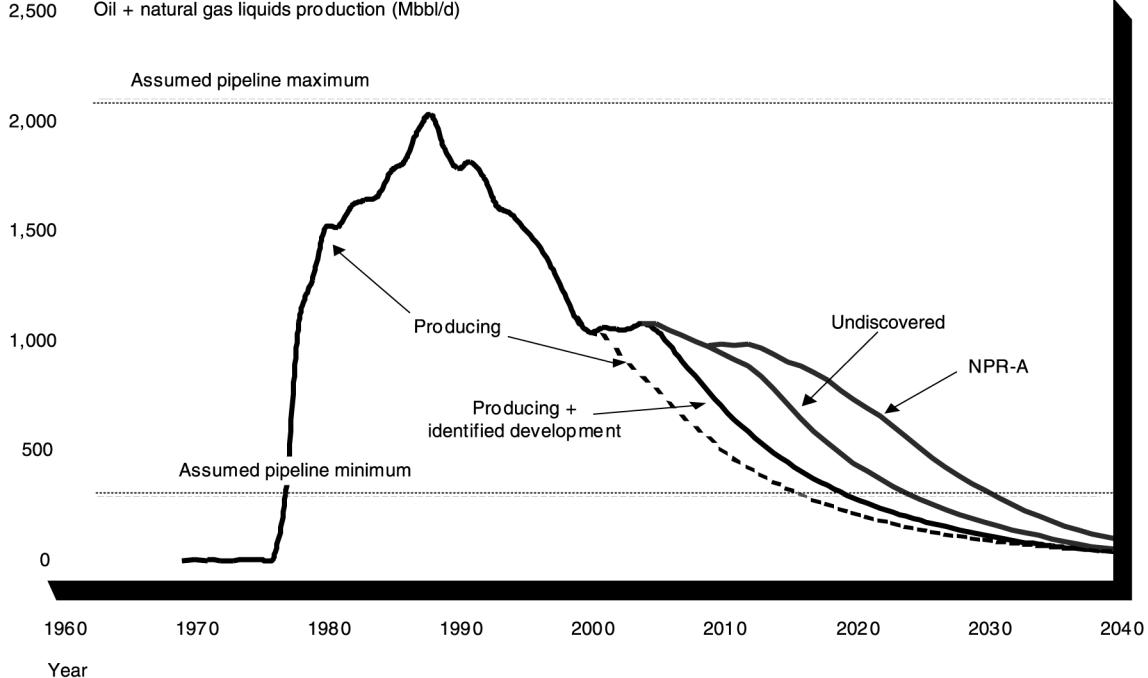
on the market price for the oil and its cost to produce. These two variables, the price and cost, change over time. If the price of oil increases or new technology makes extraction less costly, the amount of economically recoverable oil will increase. Conversely, if the price of oil decreases or the cost of oil production increases, the amount of economically recoverable oil will decrease.

The Trans-Alaska Pipeline is an additional and unique limiting factor in the North Slope's oil production. TAPS carries all North Slope oil field production and requires a minimum amount of oil flow to make it economical to operate. While the exact minimum operating level for TAPS depends on the mechanics of pumping decreasing quantities of oil through the pipeline, the cost to operate TAPS, and the market price of oil, currently the U.S. Department of Energy estimates the volume to be roughly 300,000 barrels per day. Once North Slope production falls below the minimum economic operating level, producing oil on the North Slope will no longer be profitable and TAPS will be shut down. Recent proposals to build a natural gas pipeline from the North Slope could additionally extend the projected life of North Slope fields because many of the existing fields contain considerable natural gas reserves.

In May 2001, the Department of Energy updated its estimates of North Slope production based on current production, undiscovered reserves, and future NPR-A production. These estimates exclude any production from the Arctic Refuge or the development of natural gas reserves. The new estimates, as shown in figure 6, have North Slope production falling below the TAPS minimum operating level of 300,000 barrels per day sometime between 2017 and 2031. In their application for lease renewal, the owners of TAPS anticipate that the pipeline will operate at least through 2034.

Figure 6: Alaska North Slope Oil Production History and Projections

2,500 Oil + natural gas liquids production (Mbbl/d)



Note: The NPR-A is an abbreviation for the National Petroleum Reserve-Alaska.

Source: Department of Energy, Energy Information Administration, May 2001.

Dismantlement and Removal of Infrastructure and the Restoration of Land Involves Many Agencies at Multiple Levels of Government

The end of oil and gas production on the North Slope will likely render much of the current infrastructure of production facilities, pipelines, and roads unnecessary. Responsibility for regulating and overseeing the dismantlement and removal of this infrastructure and restoring the land on which it was built will be the shared responsibility of the state, federal, and local governments, depending in part on which party owns the land.

Oil production requires the construction of a considerable infrastructure of, among other things, drilling pads, production facilities, pipelines, roads, airstrips, and gravel mines. Because most of this infrastructure has been built on state lands, the state is primarily responsible for regulating oil industry activity, including any requirements for dismantling and removing the infrastructure and restoring the land after oil production ceases. However, new oil production in the Arctic Ocean, combined with new oil discoveries in the NPR-A and the potential opening of the Arctic Refuge to

oil exploration, has elevated the importance of federal jurisdiction on the North Slope.

Alaska's regulation of dismantlement, removal, and restoration for the North Slope oil industry is principally divided among four state agencies: the Alaska Oil and Gas Conservation Commission (AOGCC), the Alaska Department of Natural Resources (ADNR), the Alaska Department of Environmental Conservation (ADEC), and the Alaska Department of Fish and Game. The Alaska Oil and Gas Conservation Commission issues permits for drilling oil wells throughout Alaska, regardless of land ownership. AOGCC is primarily concerned with maintaining the subsurface integrity of oil fields during exploration and production and the proper plugging and abandoning of wells after their use. The Alaska Department of Natural Resources leases state lands for oil and gas industry activities and collects royalties on oil and gas production in the state. Such leases stipulate how the land will be returned to the state after production ceases. In addition, the Alaska Department of Environmental Conservation, which regulates waste management practices at exploration, development, and production facilities on private, state, and federal lands, and the Department of Fish and Game, which oversees habitat issues, have a limited and principally advisory role in regard to DR&R.

Municipal government and Alaska Native corporations also have control over oil activities on the North Slope. The North Slope Borough, which encompasses all of the North Slope, has zoning authority over industry activities on non-federal lands on the North Slope. In addition, the borough is consulted under the Coastal Zone Management Act for development on federal lands. Alaska Native regional and village corporations own significant portions of surface and subsurface rights on the North Slope. These rights were the result of claims made under the Alaska Native Claims Settlement Act of 1971. In particular, the Arctic Slope Regional Corporation, a Fortune 500 Alaska Native corporation, owns 5 million acres of surface lands and subsurface mineral rights on the North Slope. In addition, eight Alaska Native village corporations own surface lands surrounding their villages on the North Slope. For example, the Kuukpik Village Corporation owns 146,000 acres of surface lands near the village of Nuiqsut on the Colville River, site of the Alpine oil field (Colville River Unit).

Several federal agencies also have responsibility for regulating oil activities on the North Slope. The Department of the Interior's Bureau of Land Management (BLM) manages the National Petroleum Reserve-Alaska and

also issues and oversees leases for oil activities on any federal lands. The Department of the Interior's Minerals Management Service (MMS) regulates oil activities on the Outer Continental Shelf, defined as 3 or more miles from shore. The U.S. Army Corps of Engineers issues permits for dredging or fill activities in U.S. waters, including wetlands. Almost the entire North Slope is designated wetland and, because gravel underlies most production facilities, airstrips, and roads, the Corps has a permitting role in basically all oil company construction activities. Interior's Fish and Wildlife Service (FWS), the Environmental Protection Agency (EPA), and the Department of Commerce's National Marine Fisheries Service (NMFS) can offer advisory comments to the Corps as part of the permit evaluation process. Further, the EPA also has veto authority over Corps permits. In addition, should the Congress decide to authorize oil industry activities in the Arctic Refuge, the FWS would oversee the issuance of right-of-way permits, while BLM would issue and oversee the federal leases. This regulatory construct assumes that the Arctic Refuge would be managed similarly to other refuges; various bills introduced in the 107th Congress to open the Arctic Refuge to oil and gas development were unclear on FWS's role and regulatory authority.¹¹

Objectives, Scope, and Methodology

The Minority Leader of the House of Representatives, the Ranking Minority Member of the House Resources Committee, and Representative Edward Markey asked us to examine dismantlement, removal, and restoration requirements for Alaska's North Slope. Specifically, we agreed to determine

- the nature and extent of dismantlement, removal, and restoration requirements for existing oil industry activities on state-owned land on Alaska's North Slope, including how these requirements compare to those of other oil-producing states;
- whether any cost estimates exist for the dismantlement and removal of the infrastructure and for the restoration of North Slope state-owned land;

¹¹For additional information on oil and gas activities in U.S. Fish and Wildlife Service refuges, see GAO's report *U.S. Fish and Wildlife Service: Information on Oil and Gas Activities in the National Wildlife Refuge System*, GAO-02-64R (Washington, D.C.: Oct. 31, 2001).

- what financial assurances the state of Alaska has that funds will be available to cover the eventual dismantlement, removal, and restoration costs and how these assurances compare to those of other oil-producing states; and
- the nature and extent of dismantlement, removal, and restoration requirements and financial assurances governing future oil industry activities on federal lands located on the North Slope and how these compare with requirements and financial assurances in other related industries, such as mining and nuclear power.

To determine the nature and extent of federal, state, and local requirements for dismantling, removing, and restoring existing industry activities on the North Slope, we met with federal, state, and local government officials; Alaska Native corporations; oil company spokesmen; outside experts; and interest groups. We also researched state and local statutes, regulations, policies, and analyses relating to DR&R requirements and practices in Alaska. Finally, we visited Alaska's North Slope in July 2001 to examine existing production facilities and DR&R reclamation projects. To compare Alaska's DR&R requirements to those of other states with oil production, we surveyed the 10 states, including Alaska, that account for nearly 90 percent of the domestic oil production in the United States, excluding federal offshore production.¹² For each state, we surveyed the office that issues permits for drilling oil and gas wells and the office that manages oil and gas leasing on state-owned lands. We asked each office to provide information on, among other things, its requirements for surface restoration.

To determine whether any cost estimates exist for the dismantlement and removal of infrastructure and restoration of the North Slope, we sought estimates from officials of federal and state government, oil companies operating on the North Slope, academicians, and various interest groups, including conservation and pro-oil development organizations. We also submitted a formal written request to the oil companies operating on the North Slope to estimate their future dismantlement, removal, and restoration liability. In addition, we met with petroleum accountants and studied financial reporting requirements to understand how oil company's estimate and report their DR&R liability. Finally, we obtained information

¹²The states we surveyed were Alaska, California, Florida, Louisiana, Michigan, New Mexico, Oklahoma, Pennsylvania, Texas, and Wyoming.

on the inventory of oil company assets that currently exist on the North Slope from oil companies, academics, and government agencies.

To determine what financial assurances exist that funds will be available to pay for dismantlement, removal, and restoration costs, we interviewed and obtained documentation from federal, state, and local government officials and Alaska Native corporations. We also researched federal, state, and local statutes, regulations, policies, and analyses relating to DR&R financial assurance requirements and practices in Alaska. To compare Alaska's financial assurances to those of other states with oil production, we surveyed the 10 oil-producing states, including Alaska, that account for nearly 90 percent of domestic oil production excluding federal offshore production. For each state, we surveyed the office that issues permits for drilling oil and gas wells and the office that manages oil and gas leasing on state-owned lands. We asked each office to provide information on what, if any, financial assurances it obtains to ensure that funds will be available for plugging and abandonment of oil and gas wells and surface reclamation.

Finally, to determine what dismantlement, removal, and restoration requirements and financial assurances exist for federal lands on the North Slope, we reviewed federal regulations and interviewed officials in Alaska and Washington, D.C., from the U.S. Army Corps of Engineers; the Department of the Interior's Bureau of Land Management, Minerals Management Service, and Fish and Wildlife Service; the Environmental Protection Agency; and the Department of Commerce's National Marine Fisheries Service. We also compared these requirements to reclamation requirements and financial assurance requirements for the Trans-Alaska Pipeline System and those found in the hardrock and coal mining industries and for nuclear power plants. The mining industry is comparable to the oil industry in that it extracts a nonrenewable resource from the ground and in so doing requires industrial facilities to process and deliver these resources. Likewise, we reviewed the nuclear utility industry because it generates electricity through a complex infrastructure with a fixed useful life span.

We conducted our work from March 2001 through March 2002 in accordance with generally accepted government auditing standards.

Current DR&R Requirements for Existing Oil Production Are Very General

The state of Alaska's dismantlement, removal, and restoration requirements, which apply to almost all existing oil production on the North Slope, offer no specifics on what infrastructure must be removed or to what condition lands used for oil industry activities must be restored. Additionally, the Corps of Engineers, the local North Slope municipality, and native landowners, all of which have authority to impose DR&R requirements, have for the most part not done so. The state, the oil industry, and environmental groups disagree about the benefits and risks associated with the state's general requirements. The state believes that its requirements are sufficient and provide flexibility, the oil companies like the flexibility but would prefer more specific guidelines, and environmental groups feel the requirements are so vague that there is no assurance that any dismantlement, removal, and restoration will occur. A comparison of Alaska's DR&R requirements to those of nine other oil-producing states reveals a spectrum of requirements; some states have general requirements like Alaska's, while other states have more explicit requirements that create a fixed obligation to fully restore the land according to specific standards.

The State of Alaska Determines DR&R Requirements for Existing Oil Production

Because existing oil production activities occur almost entirely on state lands, the state of Alaska largely determines the requirements for dismantling and removing the infrastructure and restoring the land following completion of oil activities. The state's requirements are very general, especially with regard to surface restoration requirements. Two agencies within the state have the authority to impose DR&R requirements upon the oil companies—the Alaska Oil and Gas Conservation Commission and the Alaska Department of Natural Resources. AOGCC issues permits for drilling oil wells throughout Alaska, regardless of land ownership. AOGCC is concerned primarily with maintaining the subsurface integrity of oil fields during exploration and production and the proper plugging and abandonment of wells after production ceases. AOGCC regulations impose specific requirements on oil companies for plugging and abandoning wells, but what will be required regarding surface restoration beyond the immediate well site is uncertain. ADNR leases state lands for oil and gas industry activities and collects royalties on oil and gas production in the state. ADNR lease agreements contain only general language regarding DR&R requirements. What specific surface dismantlement, removal, and restoration will be required is unknown and left to the discretion of the state. In addition, Alaska's Department of Environmental Conservation has certain statutory responsibilities for preventing air, land, and water pollution. Therefore, if a site on the North Slope is contaminated, ADEC

requires the polluter to remediate the site. The Corps of Engineers, which issues permits for certain aspects of development occurring on both private and public wetlands, also has only general DR&R requirements as part of its permitting process. The Corps prefers the landowner to have primary responsibility for establishing DR&R requirements. Finally, the local municipality and Alaska Native landowners have authority over existing industry activities on their lands through zoning and the development of coastal management plans. However, these entities have largely deferred to the state to impose DR&R requirements.

DR&R Requirements in State Drilling Permits

AOGCC drilling permits contain detailed requirements for well-plugging and abandonment, but provide minimal guidance on surface restoration. The primary purpose of AOGCC's well-plugging and abandonment regulations are to protect subsurface oil reservoirs and aquifers. An improperly plugged well could allow oil to escape from one pool to another, intrude into fresh water supplies, or cause fires or seepage. AOGCC regulations contain several pages of technical specifications on plugging a well, which involve setting a series of cement plugs to seal each stratum.¹³ As of March 28, 2002, 412 individual well sites on the North Slope have been plugged and abandoned—most of these well sites are in the Prudhoe Bay and Kuparuk units or were exploratory well sites in other units. As of that date, 3,108 well sites remain active (see table 3).

Table 3: Number and Status of North Slope Oil Well and Drill Sites, as of March 28, 2002

Unit	Number active well sites	Number of plugged and abandoned well sites	Total number of well sites
Prudhoe Bay	1,583	47	1,630
Kuparuk	1,037	62	1,099
Milne Point	254	4	258
Duck Island	112	1	113
Colville River	49	0	49
Pt. Thomson	1	14	15
Badami	9	0	9

¹³20 AAC 25.112 Well-Plugging Requirements.

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Unit	Number active well sites	Number of plugged and abandoned well sites	Total number of well sites
Northstar	8	0	8
All other units ^a	55	284	339
Totals	3,108	412	3,520
Number active drill sites	Abandoned drill sites	Total drill sites	
Production pads ^b	109	0	109
Total drill sites	164	284	448

^a Includes exploration wells not on pads.

^bWells not included in “All other units” are located on 109 pads.

Source: Alaska Oil and Gas Conservation Commission data.

In contrast, AOGCC’s post-production DR&R requirements for the surface area of a well site, which are known as location clearance requirements, are not nearly as specific as its well-plugging provisions. As shown in figure 7, AOGCC’s regulations for location clearance require the operator to remove equipment and other associated infrastructure from the location, fill and grade all pits, and leave the location in a clean and graded condition before a well site can be granted final clearance and the surety bond returned to the owner.¹⁴ AOGCC’s location clearance provisions are not specific as to the physical reach of DR&R around the well site—that is, whether it extends to the general vicinity of the well, to the well pad, or to the entire oil field. Further, AOGCC regulations defer to the relevant state or federal land management agency for the appropriate level of dismantlement, removal, and restoration.

¹⁴AOGCC’s offshore location clearance provisions [20 AAC25.172] require the removal of all platforms, equipment, casings, and pilings, unless a state or federal agency approves leaving the platform or offshore island in place. Depending on whether the well is drilled from an offshore platform, a mobile structure like a floating drilling vessel, or an island, the AOGCC requires the operator to remove the wellhead equipment and casing to a depth of at least 5 feet below the mudline. For offshore operations on an artificial island or shifting natural island, AOGCC regulations require the operator to remove the oil equipment and other associated infrastructure from the location, fill and grade all pits, and leave the location in a clean and graded condition.

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Figure 7: Alaska Oil and Gas Conservation Commission's Location Clearance Requirements

20 AAC 25.170. Onshore Location Clearance

- (a) At or after the time that a well drilled onshore is abandoned and before the earlier of one year after well abandonment or the expiration of the owner's rights in the property,
- (1) the operator shall remove the wellhead equipment and casing to a depth at least three feet below original ground level and install a well abandonment marker in accordance with 20 AAC 25.120; and
- (2) unless the operator demonstrates to the commission that the surface owner has authorized a different disposition to facilitate a genuine beneficial use, the operator shall
- (A) *remove all materials, supplies, structures, and installations from the location;*
- (B) *remove all loose debris from the location;*
- (C) *fill and grade all pits or close them in another manner approved by the commission as adequate to protect public health and safety; and*
- (D) *leave the location in a clean and graded condition.*

AOGCC location clearance requirements have yet to be tested because the oil companies have not abandoned all the well sites of any producing well pads on the North Slope. An AOGCC official stated that location clearance for a well site is not granted until all the wells on a well pad are plugged and abandoned.¹⁵ However, this official stated that as of December 2001 there were no instances where all wells on a production well pad located on the North Slope had been plugged and abandoned. As a result, AOGCC commissioners stated that they had not granted location clearances for any producing well sites on the North Slope. Figure 8 contains photos of producing well pads in the Prudhoe Bay and Kuparuk units.

¹⁵A well pad is a gravel platform built over the tundra with a collection of oil wells. Typically associated with producing wells, early exploratory wells also used gravel platforms.

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Figure 8: Series of Well Sites on Prudhoe Bay Unit and Kuparuk Unit Well Pads



Prudhoe Bay Unit Well Pad



Kuparuk Unit Well Pad

Source: GAO

DR&R Requirements in State Lease Agreements

The Alaska Department of Natural Resources administers lease agreements for oil industry activities on state-owned land in Alaska's North Slope. However, these agreements do not specifically describe DR&R requirements for the infrastructure and wetlands on which the infrastructure was built. ADNR has used several different lease forms on the North Slope. Many producing North Slope leases, including Prudhoe Bay, used a form [DL-1] that was in use until 1979. The rights upon termination provisions contained in the original and most current ADNR Competitive Oil and Gas Leases are similar (see fig. 9).¹⁶ Specifically, both leases give the lessee the right to remove from the leased area all machinery, equipment, tools, and materials. But the leases also provide that "when so directed by the state" or "at the option of the state," the lessee may leave its infrastructure behind. While the current lease termination provisions require the lessee to rehabilitate the leased areas to the "satisfaction of the state," ADNR has not defined what constitutes the "satisfaction of the state." The older lease has no specific rehabilitation provisions, stating that the lessee must "deliver up said lands in good order and condition."

¹⁶ Two other lease forms, with substantially similar termination provisions, were used prior to the most current lease form, which was introduced in 2000.

Figure 9: Alaska Department of Natural Resources Past and Recent Rights upon Lease Termination Provisions

Termination Provisions of a State of Alaska Competitive Oil and Gas Lease Form #DL-1 (Revised Oct 1963)

36. RIGHTS UPON TERMINATION. Upon the expiration or earlier termination of this lease as to all or any portion of said lands, *Lessee shall have the privilege at any time within a period of six months thereafter, or such extension thereof as may be granted Lessor, or removing from said land or portion thereof all machinery, equipment, tools, and materials other than improvements needed for producing wells.* Any materials, tools, appliances, machinery, structures, and equipment subject to removal as above provided which are allowed to remain on said land or portion thereof shall become the property of Lessor upon expiration of such period; provided, that Lessee shall remove any and all of such property when so directed by Lessor. Subject to the foregoing, *Lessee shall deliver up said lands or portion thereof in good order and condition.*

Termination Provisions of State of Alaska's recent Competitive Oil and Gas Lease Form #DOG 200004

21. RIGHTS UPON TERMINATION. Upon the expiration or earlier termination of this lease... *to remove from the leased area or portion of the leased area all machinery, equipment, tools, and materials.* Upon the expiration of that period or extension of that period and at the option of the state, any machinery, equipment, tools, and materials that the lessee has not removed from the leased area or portion of the leased area become the property of the state or may be removed by the state at the lessee's expense. *At the option of the state, all improvements such as roads, pads, and wells must either be abandoned and the sites rehabilitated by the lessee to the satisfaction of the state, or be left intact and the lessee absolved of all further responsibility as to their maintenance, repair, and eventual abandonment and rehabilitation.* Subject to the above conditions, *the lessee shall deliver up the leased area or those portions of the leased area in good condition.*

In addition to lease agreements, DR&R requirements are also addressed in unit agreements. The unit agreement contains termination provisions that are similar to those contained in the state oil and gas lease. For example, Article 15 of the state's standard unit agreement for 2001 reads "at the option of the State, all improvements such as roads, pads, and wells must either be abandoned and the sites rehabilitated by the Unit Operator to the satisfaction of the State, or be left intact and the Unit Operator absolved of all further responsibilities...."¹⁷ Similarly, the unit agreement states that the "Unit operator shall deliver up the Unit Area in good condition." The various owners of a unit are responsible for unit-wide DR&R. However, DR&R requirements are not activated for leases that are organized into a unit until the unit agreement is terminated, though the unit operator may voluntarily elect to perform some DR&R prior to termination. An ADNR official in the Division of Oil and Gas maintained that the state would not release a unit operator from its unit-wide DR&R obligations until all leases in the unit expired.

¹⁷*State Only Royalty Owner Unit Agreement* revised April 2001.

State Pollution Requirements

In addition to well permit and lease requirements, the state has established requirements and programs to address air and water contaminated by pollution. The Alaska Department of Environmental Conservation is charged with enforcing requirements for such things as the disposal of drilling mud and cuttings, the flaring of hydrocarbon gases, the discharge of wastewater, and the cleanup of oil spills. While many of these responsibilities affect oil company's ongoing activities, ADEC also determines if hazardous substances, including oil, have contaminated a site following oil industry activities. ADEC has standards to which a site must be minimally cleaned before it is considered uncontaminated. For example, ADEC has overseen the cleanup of oil company reserve pits in which drilling wastes were contained.

DR&R Requirements in the Corps of Engineers Permits

The U.S. Army Corps of Engineers issues permits to oil companies on the North Slope. These permits contain very general dismantlement, removal, and restoration requirements and only rarely contain specific requirements. Corps permits are issued under a variety of statutes for actions that affect wetlands or navigable waters whether located on federal, state, local, native, or private lands.¹⁸ Of these authorities, section 404 of the Clean Water Act, which allows for the placement of fill or dredged material, such as gravel for the construction of roads, pads, and airstrips, is the most common type of permit that the Corps issues in the North Slope. The Corps' DR&R requirements are contained in its permits as a general condition, which states that upon abandonment, the Corps "may require restoration of the area."¹⁹ The level of restoration that may be required is not specified in Corps regulations nor is it generally specified in the permit. Corps of Engineers officials noted that Corps permits are issued for all types of operations involving wetlands throughout the United States. As such, they indicated that their permits' general restoration language provides more flexibility to adapt the level of restoration to site-specific needs. Corps officials told us that specific restoration requirements, such as gravel removal upon abandonment of a site, are generally not appropriate, but may be warranted under special circumstances. In these

¹⁸Section 404 of the Clean Water Act of 1972; section 10 of Rivers and Harbors Act of 1899; section 103 of the Marine Protection, Research and Sanctuaries Act of 1972.

¹⁹According to the Corps, the current restoration language has been in effect since 1986; before 1986, Corps permits contained a general condition stating that a permittee must restore the area to the satisfaction of the district engineer.

instances, specific restoration requirements are established as special conditions to the permit. For example, the permit for the placement of gravel in the Alpine oil field in the Colville River Unit contains special conditions specifying areas where the permittee will remove the gravel, rehabilitate the gravel footprint area, and restore the hydrology of the project area upon abandonment. For other permits, when special circumstances do not occur, Corps officials stated that restoration requirements are better determined at the time of abandonment. The Corps was unable to determine how many of its more than 1,100 North Slope permits carried special conditions regarding dismantlement, removal, and restoration, though officials estimated that less than 1 percent of all their permits contained such conditions.²⁰

In addition to the permit itself, the Corps can also incorporate DR&R requirements into abandonment plans. The Corps requires permit holders to submit an abandonment plan when an oil company is planning to abandon a site. As of May 2001, only seven abandonment plans have been submitted, five of these stemming from offshore oil industry activities. According to Corps officials, the initial requests for abandonment plans do not contain minimum restoration requirements. Corps officials noted, however, that approved plans do contain site-specific restoration requirements. For abandonment of offshore facilities, such as gravel islands, removal of gravel would likely only be required if the gravel were found to be contaminated. For such projects in deep water, the abandonment requirements call for the removal of gravel bags used for erosion protection, removal of all hardware, plugging the well, and allowing the gravel island to erode naturally into the sea.

Corps of Engineers officials stated that the landowners or land manager should bear the primary responsibility for establishing DR&R requirements. In the case of current oil production on the North Slope, the landowner is the state of Alaska. Corps officials state that the Corps typically works with the state to determine appropriate dismantlement, removal, and restoration requirements and generally accepts the state's recommendations, provided that important aquatic resources are protected and there are no overriding factors of national public interest. For example,

²⁰Since 1979, the Corps has issued over 1,100 general and specific permits for the North Slope and denied 3. According to the Corps, about half of the gravel that has been used in the North Slope was put in place prior to 1979, not under Corps permits. In 1979, the Corps' Alaska District asserted its regulatory authority to include wet and moist tundra in Alaska.

the Corps approved the abandonment of several offshore exploratory islands that were subject to state leases and state-imposed DR&R requirements. Alaska's Department of Natural Resources established the DR&R requirements for the oil companies: plugging and abandoning the wells, removing all equipment, and allowing the gravel islands to erode naturally. If disagreements occur between the state and the Corps, they are usually resolved at the local level. However, in most circumstances, the Corps retains the authority to enforce its permit requirements for a site.

Local and Alaska Native DR&R Requirements

While the North Slope Borough and two Alaska Native corporations have the authority to impose DR&R requirements for certain North Slope oil fields, this authority is not always exercised; when it is, the requirements that are established vary.²¹ Specifically, the North Slope Borough has zoning authority over state and privately owned lands within its boundaries. The borough's Department of Planning and Community Services is responsible for ensuring proper land use through the zoning process. While the zoning regulations give the borough the authority to require a DR&R plan as a condition for project approval, an official stated that the borough has not required such a plan for any oil industry activities on the North Slope. Instead, the official stated, the borough would coordinate with state and federal authorities to develop dismantlement, removal, and restoration requirements as part of any abandonment plan.

The Kuukpik Corporation, which represents the Nuiqsut Village, owns a portion of the surface land on which the Alpine oil field is located (part of the Colville River Unit). According to the General Manager of the Kuukpik Corporation, a 1997 surface use agreement between ARCO and the Kuukpik Corporation requires that all chemicals and wastes, well fixtures, equipment, fill, pads, roads, grading, and other improvements be removed and all lands reclaimed and revegetated with native flora. In implementing this agreement, the operator is to provide Kuukpik with a plan for reclamation prior to initiating any activities. According to a Kuukpik official, although the corporation has not yet enforced this aspect of the

²¹Under the 1971 Alaska Native Claims Settlement Act, Congress granted the Indians, Eskimos, and Aleuts of Alaska title to over 40 million acres of land and nearly \$1 billion to settle their claims to land in Alaska. The ANCSA set up a two-tiered corporate structure and shareholding to administer settlement benefits. Village corporations such as the Kuukpik Corporation control the surface estate in land, while regional corporations such as the Arctic Slope Regional Corporation control the financial benefits and other lands, both surface and subsurface.

agreement, it is confident that the oil company will meet its DR&R obligations.

The Arctic Slope Regional Corporation, which shares subsurface rights with the state of Alaska for certain oil leases, including those in the Alpine oil field, by statute must defer to the state regarding termination provisions in the lease agreement. Specifically, the joint ASRC and ADNR oil and gas lease for the Alpine field states that at the option of the state, all improvements such as roads, pads, and wells must be abandoned and the site rehabilitated by the lessee to the satisfaction of both the state and ASRC. With regard to whether a lessee satisfactorily completes DR&R, an ASRC official stated that the lessee would need to satisfy the state, ASRC, and any village corporations that may have surface ownership.

Parties Disagree on Whether State Requirements Should Be More Specific

The state of Alaska, oil companies, and environmental groups hold different opinions on the adequacy of the state's current DR&R requirements. State officials believe that their DR&R requirements are sufficient and allow for greater flexibility to maximize eventual DR&R activities. Oil companies operating on the North Slope, while finding the state requirements to be acceptable, would prefer more specific guidance that allows them to better plan and estimate their future DR&R liability. Because the state has not specified what DR&R it will ultimately require, the oil companies have made different assumptions on their levels of liability. Finally, representatives from some environmental groups in Alaska believe that the state requirements are too vague and could allow the oil companies to walk away from their responsibilities. The general lack of agreement on what the requirements should be has led the state to not develop a land use plan for the North Slope.

State Officials View Alaska's DR&R Requirements as Sufficient

State of Alaska officials, including the Governor's Special Counsel, Alaska's Commissioner of Revenue, and the head of the Oil, Gas, and Mining Section of Alaska's Attorney General's office, stated that specific dismantlement, removal, and restoration requirements are not necessary for the restoration of the North Slope. They maintain that the DR&R requirements contained in state oil and gas leases are clear and contractually enforceable. Specifically, one state official emphasized, the principal requirement to close a lease is to dismantle and remove structures, equipment, and personal property, and to restore the land to a condition that is satisfactory to the state. He noted that this could include returning the site to its

original condition. The oil companies, state officials maintain, have cooperated with the state to date and have cleaned up some contaminated sites on the North Slope, even those where others caused the contamination. According to these state officials, general requirements are preferable to specific requirements because they provide the state and the oil companies with more flexibility. Specifically, given the fact that no one can predict when North Slope oil production will cease, general requirements allow the state to hold out for new technologies and processes that may change DR&R requirements. For example, until 1987, it was standard practice to contain drilling wastes in reserve pits. However, following a lawsuit by environmental groups, North Slope operators have developed and adopted a practice of grinding and re-injecting the wastes into the subsurface, a practice that the state and environmental groups prefer.

Oil Companies Accept the State's DR&R Requirements, but Would Prefer More Specific Guidance

Oil companies told us they accept the state's broad DR&R requirements. The companies agree that general requirements provide flexibility to 1) evaluate each site on its own merits and tailor restoration accordingly, 2) allow for changes in technology that affect how DR&R is performed, and 3) allow for changes in land use decisions. However, the two major operators on the North Slope—BP and Phillips Petroleum—also stated a preference for more specific DR&R guidance and policy from the state. According to spokesmen from these two companies, more specific guidance would allow the oil companies to better plan for existing activities and allow the companies to make better, cost-based restoration decisions. Currently, the general requirements have resulted in uncertainty surrounding the issue of how much infrastructure and gravel will be left in place. For example, an ExxonMobil spokesman stated that his company currently assumes that the state will only require a minimal amount of gravel to be removed on the North Slope; for this reason, the company does not include the cost of gravel removal when estimating its future DR&R liability. A Phillips Petroleum spokesman stated that his company assumes that some gravel will have to be removed, but could not specify how much. Finally, a BP spokesman stated that his company anticipates leaving some gravel in place, but also could not disclose the amount. He also stated that the Endicott Production Islands (Duck Island Unit)—two man-made gravel islands connected to shore by a 5-mile gravel causeway—would most likely be left in place and allowed to erode naturally after all the associated facilities are removed (see fig. 10).

Figure 10: Endicott Production Islands



Source: Arctic Power.

Environmental Groups Consider State DR&R Requirements Inadequate

Environmental groups in Alaska are critical of the state's DR&R requirements because the requirements are, in their view, vague and indefinite. Officials from the Trustees for Alaska, the Alaska Conservation Foundation, and the Sierra Club stated that the state's general requirements provide no assurance that DR&R will ever occur. Some officials believe that the state will waive oil company liability for performing DR&R on the North Slope in exchange for the production of oil that is only marginally profitable for the companies. The officials explained that the state has very little incentive to impose DR&R costs on the same oil companies that serve as the principal source of state revenue and payments to state residents. They believe that if the state must choose between oil companies spending

money on dismantlement, removal, and restoration or spending money on new oil production, the state will choose new oil production. These groups cite several historical examples, from the limited environmental review that took place before the initiation of oil industry activities on the North Slope to the current need for the state's reserve pit cleanup program—begun only after environmental groups settled a lawsuit with ARCO for violating the Clean Water Act.

Lack of Specific Requirements Reflects Disagreement within Alaska Over the Extent of DR&R and the Future Use of the North Slope Land

The state of Alaska once attempted to develop more specific DR&R guidance for the North Slope, but internal disagreement over the extent of restoration, including what gravel should be removed from the land, derailed those efforts. In the early 1990s, a state-industry task force was formed to clarify lease-closure policy. The task force recommended that gravel be allowed to remain at certain sites after lease closure. The state chose not to adopt this recommendation because Alaska's Department of Fish and Game insisted on the complete removal of all gravel and restoration of the land to its natural condition.

In addition, the state of Alaska has not developed a land use plan for the North Slope or identified the condition to which the state would like its lands returned after oil production ceases. Alaska's Department of Natural Resources' Division of Mining, Land, and Water is responsible for developing land use plans to guide the use, development, and disposal of state lands. Thus far, a state official reports, the ADNR has prepared area plans covering roughly 70 percent of state-owned land. However, according to an official in the Division of Mining, Land, and Water, there is no land use plan for the North Slope because its current use, resource development, is the state plan for the area. Some state and Alaska Native officials have stated that once oil production ceases, they believe the state should have a long-term goal of guaranteeing that the North Slope would support wildlife habitat and native subsistence.

Alaska's DR&R Requirements Are Similar to Some States', but Less Explicit Than Others'

DR&R requirements in the major oil-producing states vary; some states have general requirements like Alaska's, while others are much more explicit. We surveyed dismantlement, removal, and restoration requirements in nine other states: California, Florida, Louisiana, Michigan, New Mexico, Oklahoma, Pennsylvania, Texas, and Wyoming. In total, these nine states and Alaska account for nearly 90 percent of the oil produced in the United States, excluding federal offshore production. All nine states

surveyed have an oil and gas regulatory structure that is similar to Alaska's. Specifically, all 10 states have one office that regulates oil and gas industry activities at the wellhead (similar to AOGCC) and another office that manages oil and gas leases on state-owned lands (similar to ADNR).

All the states we surveyed have specific requirements for plugging and abandoning oil and gas wells that are similar to Alaska's. However, whether these wellhead requirements contained specific surface restoration requirements varied. For example, while well-plugging and abandonment provisions in all the states we surveyed mandated the removal of surface material and the filling and closure of all holes, only four states—Florida, Oklahoma, Pennsylvania, and Wyoming—mandated revegetation of the surface area, while only three states—Florida, Oklahoma, and Wyoming—mandated returning the site to a natural condition. Alaska, California, Louisiana, and New Mexico reported no such requirements.

We found greater variance in the survey responses regarding dismantlement, removal, and restoration requirements found in state oil and gas leases. For example, Florida requires a site to be restored to original condition to the greatest extent practicable. California reported that specific DR&R requirements are not determined until completion of an environmental review under the California Environmental Quality Act. In contrast, New Mexico, Oklahoma, Pennsylvania, and Wyoming reported that their oil and gas leases have mandatory requirements to remove surface material, such as equipment, debris, and structures; close holes; and revegetate the area upon lease termination. DR&R requirements in Alaska's oil and gas leases can require the lessee to rehabilitate the roads, pads, and wells “at the option of the state.” (See app. I for additional information on DR&R requirements in the states we surveyed.)

Actual Cost of DR&R Is Unknown, but Likely to Cost Billions of Dollars

The actual cost to dismantle and remove oil industry infrastructure and restore the land on Alaska's North Slope cannot be determined, but several indicators show that it is likely to amount to billions of dollars. Estimating the eventual cost of these actions is complicated by several factors, including the lack of specific requirements from the state and uncertain timeframes for restoration. Oil companies operating on the North Slope are the only entities that have estimated future dismantlement, removal, and restoration costs. Under generally accepted accounting principles, companies are required to report their liabilities annually, but these estimates are reported in aggregate for worldwide operations and specific estimates for the North Slope are not available to the public. However, limited information obtained from oil company annual reports, a tax court case, and other sources indicates that the current DR&R liability for existing infrastructure on the North Slope is in the billions of dollars.

Costs Depend on What DR&R Will Be Required, Which is Uncertain

Oil company spokesmen gave us two reasons that explain why estimating future DR&R costs for the North Slope is difficult. First, lacking specific federal, state, and local DR&R requirements, oil companies must make assumptions about the amount of DR&R they will ultimately be required to perform. A Phillips Petroleum spokesman pointed out that it is hard to develop a cost estimate for removing infrastructure when one does not know what infrastructure will be removed and what will remain in place. He explained that the state and local governments might decide to keep some of the infrastructure, such as roads and airstrips, but that determination has not been made and probably will not take place until after oil production ceases. Spokesmen from ExxonMobil and Phillips Petroleum stressed, for example, that estimating future DR&R costs is dependent upon gravel removal requirements.

Second, the length of time remaining in the life of oil production on the North Slope—20 to 30 years or more based on estimates of the economic viability of the North Slope oil fields and the Trans-Alaska Pipeline System—combined with the potential development of natural gas production adds further uncertainty to estimating DR&R costs. Spokesmen from five oil companies that currently have ownership interests in oil production on the North Slope told us that a number of other factors could change over time and could also affect their eventual DR&R costs, including:

- the addition of new infrastructure—wells, pipelines, roads, airstrips, and production facilities—as development continues;

-
- dismantlement and removal of some facilities, including the plugging of wells, before units are abandoned;
 - increases in the cost of services such as labor and transportation;
 - future market value of useable equipment and scrap material;
 - technological advances in drilling, production, and rehabilitation;
 - inflation;
 - alternative uses for facilities or gravel, such as for natural gas production; and
 - changes in environmental regulations or abandonment stipulations.

Oil Company Disclosures Provide Some Indication that DR&R Costs Will Likely Be in the Billions of Dollars

There is no definitive estimate of the cost of performing DR&R on the North Slope, but available evidence suggests that the total liability is in the billions of dollars. Generally accepted accounting principles require that oil companies estimate their future DR&R liability, but this liability only needs to be reported on a worldwide basis. Oil company spokesmen told us that their individual company estimates for DR&R liabilities on the North Slope were for internal use and not available to the public. Companies fear that if they make their internal estimates available, they could someday be used for a purpose other than the accounting estimates they were intended to be. Nevertheless, limited financial reporting, a tax court case, and a few limited studies indicate that the costs are likely to be substantial.

Generally Accepted Accounting Principles Require Estimation of DR&R Liability

Generally accepted accounting principles require oil companies to estimate their future DR&R liability. The Financial Accounting Standards Board (FASB) and the Securities and Exchange Commission require oil companies to estimate future DR&R costs in order to determine annual depreciation and amortization rates.²² However, accounting principles do

²²FASB requires companies using the successful efforts accounting method to capitalize those costs directly related to producing properties (Statement of Financial Accounting Standard 19, Dec. 1977). The Securities and Exchange Commission requires companies using the full cost accounting method to capitalize all costs incurred in exploration and development (SEC Regulation S-X, 17 CFR 210.4-10).

not require oil companies to separately report their DR&R liability for each operation, such as those on the North Slope. The intent of these principles is to match DR&R costs with associated oil revenue during the period in which the oil is produced, rather than when the actual expense is incurred.²³ In contrast, environmental contamination treatment costs—the costs to remove, contain, neutralize, or prevent existing or future contamination—are generally expensed in the current period, rather than capitalized, if the cost is probable and can be estimated.²⁴

As a result of the differing treatment of asset retirement costs and a desire to better disclose liabilities, the Financial Accounting Standards Board recently issued new rules for disclosing asset retirement liabilities. For financial statements issued for fiscal years beginning after June 15, 2002, oil companies will have to report the discounted amount of their DR&R liability at the time an asset is placed into service.²⁵ Spokesmen representing oil companies that operate on the North Slope told us that they were uncertain, at this time, how this new rule would be implemented or how it would affect their companies' balance sheets.

Oil Company Estimates Are Not Available to the Public

None of the five oil companies with substantial ownership interests in current oil production on the North Slope were willing to provide their estimated DR&R liability for these operations.²⁶ Spokesmen from these companies stated that their estimates have been calculated for accounting purposes only and were not intended for public review. While oil companies publish their worldwide liability estimates, they are not required to make public regional or field-wide estimates. The companies were reluctant to provide their accounting estimates for purposes other

²³For oil companies on the North Slope, this is accomplished through unit of production amortization. Generally, this means that an oil company estimates its total future DR&R liability and divides that by estimated reserves, which yields a per barrel accrual.

²⁴Contamination costs include costs resulting from oil spills, leaking underground tanks, pollution control equipment, site decontamination, environmental studies, and costs of fines.

²⁵Financial Accounting Standards Board, "Accounting for Asset Retirement Obligations," Statement 143, June 2001.

²⁶We contacted three companies that operate North Slope units—BP, ExxonMobil, and Phillips Petroleum—and two companies that are large nonoperating interest holders—Anadarko and Chevron.

than their own internal accounting. The BP spokesmen stated that any current cost estimates may not be valid with tomorrow's technology, and that costs calculated today represent a set of assumptions that will probably differ from when the actual costs are ultimately incurred.

Although no comprehensive estimates are available for future dismantlement, removal, and restoration costs for the North Slope, there are a number of indicators that, although not precise, imply that the order of magnitude of such costs could be in the billions of dollars. Specifically

- Phillips Petroleum's acquisition of ARCO Alaska increased its total DR&R liability by \$1.6 billion. Phillips Petroleum reported in its 2000 annual report that its acquisition of ARCO Alaska increased its total estimated future dismantlement, removal, and restoration costs from \$1.0 billion to \$2.6 billion. Prior to the merger, ARCO accounted for 30 percent of the North Slope oil production.
- Abandonment costs are a function of construction costs. For the proposed Liberty offshore project, MMS assumes that abandonment will cost roughly 5 percent of the original investment cost. With an estimated investment cost of \$500 million, MMS estimated that the planned Liberty project could eventually cost an estimated \$25 million to abandon. However, the MMS figure excludes gravel and pipeline removal. In another case, a detailed DR&R study of TAPS estimated that it will cost \$1 billion (1977 dollars) or approximately 11 percent of the original \$9 billion (1977 dollars) construction cost to dismantle and remove the pipeline and restore the land to a natural condition. A recent study of oil and gas industry capital investment on the North Slope from 1968 through 2001 estimated a cumulative investment of \$20.6 billion (1977 dollars), which if revalued in 2004 dollars (the earliest estimated time that major DR&R activities are assumed to begin on the North Slope) would be \$53.6 billion.²⁷ Estimating future DR&R costs based on this investment level and a DR&R cost percentage ranging from 5 to 11 percent of the total investment yields a DR&R estimate of \$2.7 billion to \$6 billion for existing North Slope infrastructure (2004 dollars).

²⁷Based on a time series analysis by Dr. Scott Goldsmith of the University of Alaska-Anchorage for the TAPS Renewal Environmental Report. The 2004 revaluation is based on Anchorage Consumer Price Index for Wage Earners (CPI-W) and is assumed to be the earliest that DR&R could commence on the North Slope.

- Exxon estimated nearly \$1 billion in DR&R costs for oil wells and oil production equipment and facilities at Prudhoe Bay. In a May 2000 U.S. Tax Court case, Exxon submitted detailed engineering studies to support its estimate that future DR&R costs for the Prudhoe Bay Field infrastructure installed as of 1984 would total \$928 million. (Exxon estimated that its share amounted to 22 percent of this cost based on its then current ownership percentage of the Prudhoe Bay field.) The DR&R cost estimate excluded any gravel removal or revegetation costs. The \$928 million included \$111.6 million in well-site DR&R costs—\$85 million for plugging 645 wells and \$26.6 million for closing the pits next to the wells and cleaning up the 37 well sites. In 1970, the cost of plugging each well was estimated at \$131,976 (1980 dollars). While the court found the estimated costs of well-plugging and related site restoration reasonably estimable, the court stated that the estimated DR&R costs relating to field-wide oil production equipment and facilities located in the Prudhoe Bay oil field were not sufficiently fixed and definite to base the tax accruals sought by Exxon. The court noted that neither the Alaska Oil and Gas Conservation Commission regulations for the years at issue, nor the particular oil and gas leases involved, contained express language imposing fixed and definite DR&R obligations on the oil companies relating to field-wide production facilities located in the Prudhoe Bay oil field. The court further noted that Alaska's general policy to permit development, while at the same time insisting that the environment be preserved or, if necessary, restored to the fullest reasonable extent, did not establish any specific oil company DR&R obligations with regard to Prudhoe Bay that could be legally recognized for federal income tax purposes. According to ExxonMobil spokesmen, the company has already accrued \$200 million in dismantlement, removal, and restoration costs for its North Slope operations, including its interest in Prudhoe Bay.

Financial Assurances That Funds Will Be Available for Projected DR&R Costs Are Limited

Despite incurring responsibility for some costly dismantlement, removal, and restorations that resulted from improperly abandoned sites, the state of Alaska's current financial assurances cover only a small portion of the potential cost of DR&R for existing infrastructure on the North Slope. In the past, several drilling and service companies that supported early North Slope oil industry activities went out of business and improperly abandoned their operations and sites. Without adequate financial assurances, the state of Alaska was left financially responsible for the costs of dismantlement, removal, and restoration. Oil companies currently operating on the North Slope have assisted the state in this cleanup effort and are spending millions of dollars to restore some of these abandoned sites. The state is the only entity on the North Slope that requires oil companies to post bonds for their activities on state lands. However, the state bond limits are set without regard to the potential future costs of DR&R. The Corps of Engineers, the local government, and Alaska Native landowners all have the authority to impose financial assurances, but have never done so, preferring to defer to the state. Still, in Alaska, where the cost of restoration might be significant, bonding requirements are higher than those of most other oil-producing states that we surveyed.

Previously Abandoned Sites on State Land Had Insufficient Financial Assurances

The state of Alaska is faced with a number of improperly abandoned sites on the North Slope. Most of these sites were the result of early oil industry activities by various oil companies and oil-related service companies, some of which have gone out of business. The state has identified 217 contaminated sites on state-owned North Slope lands; many sites are the responsibility of various federal agencies based on activities that occurred before statehood, as well as TAPS-related and various oil and service companies. Of these, the state has cleaned up and closed about 25 sites and is working with responsible parties, when possible, to clean up the rest. The state does not know how many non-contaminated sites on the North Slope also require DR&R.

The state has sought the assistance of the remaining North Slope oil companies to help fund and, in some cases, perform the cleanup of abandoned sites when no responsible party remains. For example, as part of the BP-ARCO merger, the state obtained an agreement from BP and Phillips Petroleum to clean up 14 abandoned North Slope sites. These sites, called "orphan sites," were suspected of being contaminated by hazardous substances. One of the commitments BP and Phillips Petroleum made under the agreement was to spend \$10 million to assess these 14 sites and clean them up by 2007. Additionally, BP and Phillips Petroleum agreed to

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identify, collect, and dispose of abandoned empty barrels found on the North Slope. According to state officials, the parties that caused the contamination or left the barrels are either unknown or unable to clean up the sites. The officials noted that some of these sites were contaminated and abandoned before environmental requirements were established and during a period when the state had little environmental oversight of activities on the North Slope. Further, in many of these cases, the companies were operating under state land use permits that contained minimal bonding requirements, not state oil and gas leases. In these cases, according to these officials, the state has little recourse against such companies. The state also asserts that in the absence of its agreement with BP and Phillips Petroleum, the state would have had to clean up the orphaned sites using state funds and on a less aggressive schedule. By the end of 2001, the state and the oil companies had inspected the abandoned contaminated sites, characterized them by type of contamination, and ranked them by risk priority. The state and the oil companies had also inventoried several abandoned oil drum sites, and the oil companies had completed dismantlement, removal, and restoration at five of the orphan sites.

One example of the dismantlement, removal, and restoration of a site abandoned on state lands is an area called Service City. Oil field service companies that operated near Prudhoe Bay used Service City. Beginning in the mid-1960s, these companies, operating under state leases, used the site for staging, servicing, and storing oil field equipment and supplies. By 1986, the area was essentially abandoned, leaving behind metal buildings, equipment, lead acid batteries, and tons of other debris and waste. By 1989, the leases for this area were not active, and some leases were in default for nonpayment of rent. As a result, the state revoked the area leases in 1990. That same year, BP took the lead for cleaning up Service City, working under a cooperative agreement between the state and three oil companies—BP, ARCO, and ExxonMobil. The cleanup and restoration of Service City is still ongoing and, according to BP, has already cost about \$2 million.

Alaska's Statewide Bonding Requirements for DR&R Cover Only a Small Portion of the Potential Liability

The state of Alaska's bonding requirements—established by the Alaska Oil and Gas Conservation Commission for well sites and by the Alaska Department of Natural Resources for oil and gas leases—cover multiple purposes and if called by the state would only cover a small portion of the potential total DR&R liability on the North Slope. AOGCC requires each operator to post a single bond to ensure that every well in the state is properly drilled, operated, maintained, repaired, and abandoned. ADNR's bonding provisions also allow a company to post a single bond to ensure its compliance with all lease conditions for all leases in the state, including provisions for royalty payments to the state and lease termination provisions. In both cases, the bond amounts are far less than the cost to reclaim a single well site, let alone all wells and other existing infrastructure on state-owned land on the North Slope.

Alaska's Well-Site Bonding Requirements

AOGCC's bonding requirements are insufficient to fully cover the cost of well-plugging and abandonment liabilities on the North Slope. AOGCC requires a bond of not less than \$100,000 to cover a single well, or a blanket bond of \$200,000 covering all of an operator's wells in Alaska. The bond remains in effect until the company abandons all wells covered by the bond and AOGCC provides final location clearance. According to its Commissioners, the AOGCC currently has blanket bonds from five companies to cover all the wells on state-owned land on the North Slope. With plugging and abandonment costs for a single well running as much as \$250,000, according to a 1991 state of Alaska legislative audit report, current bonding could fund only a small fraction of plugging and abandonment costs for all of the wells in the state, let alone the thousands of wells on the North Slope. The same audit report recommended that AOGCC increase its bond amounts.²⁸ The state did not adopt the audit report recommendation, and AOGCC Commissioners acknowledge that bonding amounts are still inadequate to fund all well-plugging and abandonment, particularly for companies that operate many wells under a single blanket bond.²⁹ However, these officials noted that companies are now required to plug and abandon wells that are no longer being used on an ongoing basis.

²⁸State of Alaska Legislature Budget and Audit Committee, Audit Control Number 08-4393-91, March 11, 1991.

Alaska's Oil and Gas Lease Bonding Requirements

Current ADNR bonding levels are far below the potential cost of dismantling and removing existing infrastructure and restoring the land used for oil industry activities on the North Slope. Although ADNR regulations require a bond of at least \$10,000 before oil companies can commence operations in the state, an ADNR official stated that currently ADNR requires a \$100,000 bond for single well operations. ADNR regulations also allow a lessee to furnish a statewide bond of \$500,000 to cover all of its oil and gas leases in the state. In place of separate bonds for each lease committed to a unit agreement, ADNR requires the unit operator to furnish a statewide oil and gas lease bond of \$500,000.

The ADNR can also require an unusual risk bond in addition to single well and statewide bonding requirements. State of Alaska regulations provide the ADNR Commissioner with the discretion to require additional financial assurances based on, among other factors, the degree of risk involved for the operations proposed or conducted on the lease, which includes, according to an ADNR Division of Oil and Gas official, the financial background of the lessee. However, this official told us that the ADNR has no formal mechanism or procedure in place to systematically evaluate the creditworthiness of a lessee. ADNR has required a lessee to post additional financial assurances in two cases. Specifically, in 1998, the state required XTO Energy (formerly Cross Timbers Oil Company) to post additional financial assurances before approving its acquisition from Shell Oil of two offshore oil platforms in the Cook Inlet.³⁰ Later in 2000, ADNR required an oil company in bankruptcy proceedings to post a \$3.8 million bond prior to obtaining approval to install a well platform in Cook Inlet.

Although state officials acknowledge that the financial assurances obtained in oil and gas leases are minimal, they maintain that the major operators on

²⁹The AOGCC may require bonding levels greater than the minimum levels of \$100,000 for a single well and \$200,000 for a statewide bond. However, an AOGCC official stated that the amount and criteria to increase these bonding levels are not specified by regulation or by statute, and AOGCC officials told us that they have not required a higher amount on the North Slope.

³⁰These financial assurances include a \$3 million bond to remove the immediate risk to the state of raising the cash to maintain and operate the offshore platforms should the lessee declare bankruptcy and a \$31 million escrow fund to pay for the actual cost of abandoning the facilities. Since the existence of proved oil and gas reserves serves as collateral for the lessee, XTO Energy would not have to start paying into the escrow account until the value of the proven reserves drops to a level insufficient to act as collateral for the cost of platform abandonment.

the North Slope are large corporations with the capacity to pay their eventual DR&R costs. A state official also noted that additional financial requirements, such as those imposed by the state on XTO Energy, might become more common if current leaseholders sold their interests to smaller companies as oil production on the North Slope declined.

According to a state official, as oil fields age and oil recovery becomes marginally profitable, it is common practice in the industry for the large operators to sell their interests to smaller companies. Since these smaller companies may have fewer resources to meet existing DR&R liabilities, the official noted that the state might require additional financial assurances. However, the state currently has no criteria to determine when additional financial assurances are needed.

The Corps of Engineers, Local Government, and Alaska Native Corporations Have Not Required Financial Assurances for DR&R Activities

The U.S. Army Corps of Engineers, the North Slope Borough, the Kuukpik Village Corporation, and the Arctic Slope Regional Corporation have not required oil companies to provide any financial assurances that funds will be made available to perform DR&R when oil production ceases on the North Slope. The Corps may attach financial assurance requirements to its permits, but it has never done so on the North Slope. According to the Corps, without specific restoration requirements, it is difficult to quantify the size of the bond and, further, there is no need to duplicate bonds required by other agencies. The Corps considers it the responsibility of the landowner—in this case, the state of Alaska—to ensure that funds are available to perform DR&R activities. The North Slope Borough has financial assurance provisions in its zoning regulations, but the borough's Director of Planning and Community Service stated that they have not specifically required oil companies to provide surety as a condition for zoning approval. Borough zoning regulations accept evidence of self-insurance, proof of financial responsibility, or the existence of sufficient surety filed with another government entity as fulfilling the borough's surety requirements. The Kuukpik Corporation's Surface Use Agreement with Phillips Petroleum contains a provision that allows the corporation to require financial assurances such as a performance bond or letter of credit. However, the General Manager of the Kuukpik Corporation stated that thus far, he does see a need for bonding since future DR&R costs are undetermined. The ASRC's Director of Lands stated that he relies on the state of Alaska bonding requirements to ensure that funds will be available to perform DR&R.

Major Oil Companies Operating on the North Slope Do Not Believe Full Financial Assurances Are Necessary

Although the two major oil companies currently responsible for oil production on the North Slope generally agree that the state's existing bond amounts would not cover the potential cost of future DR&R, they do not believe that increasing bond amounts is necessary. Spokesmen for BP and Phillips Petroleum said that their companies would do whatever the state ultimately decided in terms of DR&R, and both companies plan to meet or exceed their DR&R obligations. The spokesmen also stated that their companies have the assets to cover the costs of DR&R. Further, the Phillips Petroleum spokesman noted that requiring full financial assurances by increasing bond amounts ignores the fact that the companies have already accounted for this obligation on their financial statements. Additionally, spokesmen for both companies stated that all the North Slope operators are well capitalized and, therefore, the funding for DR&R is substantiated by the general credit of the companies and their partners. The Phillips Petroleum spokesman noted that, for this reason, the state has full assurance that whatever DR&R is required will occur. A BP spokesman further noted that his company has to behave in a responsible manner on the North Slope and elsewhere in order to operate in the United States. Finally, spokesmen for both BP and Phillips Petroleum added that instead of requiring the companies to spend money on financial assurance, a more beneficial return for all parties involved would result from allowing the companies to invest their resources in more North Slope research—including technology improvements for future DR&R—and for further exploration and production.

Alaska's Bond Amounts Exceed Those of Most of the Other Oil-Producing States We Reviewed

Bond amounts required by Alaska for oil companies operating on the North Slope are generally higher than those reported by the other nine oil-producing states we surveyed. Like Alaska, the other nine states have two offices that require bonding for oil and gas activities. These states have an office (like Alaska's AOGCC) that regulates the subsurface integrity of the oil or gas field and requires bonding to ensure that each well is properly plugged and abandoned. Each state also has another office (like Alaska's ADNR) that focuses on the management of oil and gas leases on state lands, and these offices also use bonds to ensure compliance with all the provisions of the lease, including DR&R provisions.

Alaska's AOGCC's minimum bonding amounts of \$100,000 for single well bonds and \$200,000 for statewide blanket bonds are generally higher than the bonding requirements of the other states we surveyed. Except for Alaska, Michigan, and Pennsylvania, the other states reported that the

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actual amount of a single well bond is determined by the depth of the well multiplied by an amount that ranged from \$1 per foot to \$10 per foot of depth. Three states—California, Florida, and Michigan—reported having higher blanket bonding levels than Alaska. Specifically, California has a \$1 million blanket bond that covers all of a company's wells in the state, Florida has a \$1 million blanket bond that covers a maximum of 10 wells in the state, and Michigan has a \$250,000 blanket bond. In addition, Louisiana, Michigan, and Texas reported that their blanket bonding amounts are based in part on the number of wells in the state.

For oil and gas leases on state lands, only two states—California and Pennsylvania—have financial assurance amounts greater than Alaska's. California, with only offshore oil and gas leases, reported that current assurances range up to \$1.25 million. Pennsylvania assesses a well-bonding requirement of up to \$100,000 per well, and some of its leases may contain numerous wells. Florida's bond amounts are the same as Alaska's, while three other states—New Mexico, Oklahoma, and Wyoming—reported having the discretion, like Alaska, to increase bonding levels on a case-by-case basis. Finally, Texas and Louisiana reported that they relied on their oil and gas well regulatory agency for DR&R requirements and thus had no financial assurance provisions in their oil and gas leases.

Specific DR&R Requirements and Improved Financial Assurances Should Be Considered for North Slope Federal Lands

To date, most North Slope oil production has taken place on state-owned lands and has, therefore, been subject to state DR&R requirements and financial assurances. However, as oil production on state lands declines, oil companies and the state of Alaska are looking to federal lands—the NPR-A, the Arctic Refuge, and offshore—to maintain North Slope oil production. Currently, DR&R requirements and financial assurances for these federal lands vary, depending on the responsible federal agency. For example, in the NPR-A, where only oil exploration has occurred, BLM has not yet developed DR&R requirements for oil production activities to meet its goal of returning disturbed land to its previous use. Furthermore, although BLM regulations allow for escalating bond amounts up to the full cost of DR&R, the current bond amounts in the NPR-A would only cover a fraction of the potential future DR&R liability. In contrast, for federally regulated offshore oil activities, MMS has developed explicit DR&R requirements for both oil exploration and production, and its bond amounts are based on an escalating scale that depends on, among other things, the estimated cost of future reclamation. Further, in the Arctic National Wildlife Refuge, which the Congress is currently considering whether to open to oil and gas development, no specific restoration goal or DR&R requirements exist for reclaiming the refuge if oil production occurs, and existing financial assurances are not adequate to cover the potential cost of restoration. Historically, oil exploration on federal lands on the North Slope was conducted through contracting for the Department of the Navy and the U.S. Geological Survey (USGS). The Navy exploration predicated any DR&R requirements, and financial assurances were through the federal government. Without DR&R requirements, early oil exploration activities resulted in improperly abandoned well sites and unrestored land—two problems that remain to this day.

In contrast to varying federal DR&R requirements and financial assurances for oil industry activities on the North Slope, the Trans-Alaska Pipeline System and the hardrock mining, coal mining, and nuclear power industries have explicit DR&R requirements that are set prior to the initiation of any activities. In addition, the federal agencies with regulatory authority over these three sectors require full assurance that funds will be available to meet these requirements.

As Oil Production on State Lands Declines, Development of Federal Lands Is Being Pursued

With oil production declining on state-owned lands, oil companies and the state of Alaska are seeking to develop production on federally regulated lands and waters of the North Slope. Three areas under the jurisdiction of the Department of the Interior are being considered: the National Petroleum Reserve-Alaska, which is managed by BLM; the Outer Continental Shelf (OCS), which is managed by MMS; and the coastal plain of the Arctic Refuge, which is managed by the Fish and Wildlife Service. The status of oil industry activities in each of these areas follows.

BLM manages the entire NPR-A, which according to USGS estimates holds oil reserves of between 800 million and 15.4 billion barrels. Following the completion of a 1998 Integrated Activity Plan/Environmental Impact Statement (IAP/EIS) on the potential impact of oil activities in the northeastern part of the NPR-A, BLM began to lease certain areas for oil and gas exploration.³¹ By May 2001, oil companies reported that they had discovered oil reserves in the NPR-A. The next step in this process is for the oil companies to submit a production plan. According to BLM, this may occur as early as 2003. However, before oil production can begin, BLM must complete another National Environmental Policy Act (NEPA) analysis, likely an EIS, to assess the environmental effects of such production.

To date, the only offshore oil production from the Outer Continental Shelf has occurred at BP's Northstar unit, which is located primarily in state-regulated water. The Northstar field is estimated to contain 175 million barrels of oil. In 1998, BP submitted another development and production plan to MMS for a proposed offshore project called Liberty, which would have been located solely in federally regulated water, 6 miles off of Alaska's north coast. BP estimated that the Liberty field contained 120 million barrels of economically recoverable oil. However, in January 2002, because of the high cost of developing the similar Northstar field, BP announced plans to focus its resources on its core oil production areas closer to Prudhoe Bay and to not pursue development of the Liberty project as

³¹The Naval Petroleum Reserves Production Act of 1976 gave the Secretary of the Interior the authority to conduct oil and gas leasing in the NPR-A. In 1980, the Congress directed the Secretary to undertake an expeditious program of competitive leasing of oil and gas in the NPR-A. The most current oil exploration activity is taking place as a result of BLM's 1998 IAP/EIS and Record of Decision. The IAP/EIS describes the future multiple-use management of 4.6 million acres of the NPR-A and made about 87 percent of the area available for oil and gas leasing.

proposed at this time. BP is re-evaluating alternative development strategies for this area. MMS officials told us that other oil companies were still examining the potential for oil exploration projects on the Outer Continental Shelf.

Finally, for the last 40 years, the Congress has been debating opening the coastal plain of the Arctic Refuge (known as the “1002 Area”) to oil and gas exploration. The USGS estimates that federal lands in the 1002 area likely contain between 4.3 billion and 11.8 billion barrels of technically recoverable oil, not all of which will be economically recoverable.³²

DR&R Requirements for Federal Lands on the North Slope Vary

Federal requirements for dismantling and removing oil industry infrastructure and restoring federal land when production ceases vary from agency to agency. Although BLM has an overall restoration goal for the NPR-A, it has specific requirements only for plugging and abandoning wells. Because only oil exploration activities have occurred in the NPR-A, BLM has yet to develop DR&R requirements for when oil production facilities are abandoned. The MMS has specific well-plugging and abandonment requirements that require the removal of all obstructions built for offshore oil activities. MMS can make exceptions to these requirements based on an end-of-the-life project review. For example, MMS requirements for some site-specific infrastructure, such as buried pipelines and gravel islands constructed for drilling sites, are not specified until the end of the field’s productive life. While the FWS has a general DR&R policy for oil industry activities in the National Wildlife Refuge System, specific requirements are developed at individual refuges. Because oil industry activities are not authorized in the Arctic Refuge, FWS has not yet developed any DR&R requirements for the refuge. Finally, the Corps of Engineers, which issues permits for certain activities that result in the loss of wetlands and for offshore structures, has the same very general restoration language in its permits for activities on federal land as it does for those on state land.

³²The U.S. Geological Survey also estimates that the entire 1002 area, including Native lands and state offshore lands, contains between 5.7 billion and 16 billion barrels of technically recoverable oil.

BLM Plans to Develop More Specific DR&R Requirements for the National Petroleum Reserve-Alaska

According to BLM's Field Manager in Alaska, BLM has an overall restoration goal of returning any land disturbed by oil industry activities in the NPR-A to a condition that is similar to its previous use. To achieve this goal, BLM has developed an overall general oil field abandonment standard for the northeast NPR-A as part of the development of an Integrated Activity Plan/Environmental Impact Statement. In addition, BLM has specific requirements for plugging and abandoning all types of wells and specific DR&R requirements for oil exploration activities. However, in the NPR-A, because the only oil-related activities that have occurred to date involve exploration, BLM has yet to develop DR&R requirements for oil production activities.

BLM's overall restoration goal for the NPR-A is to return the land to a condition that will support its previous use. In developing its 1998 IAP/EIS for the northeast NPR-A, the BLM identified the previous uses of the NPR-A to be primarily fish and wildlife habitat and subsistence use. Specifically, several areas within the northeast NPR-A contain wildlife habitat that includes important nesting, staging, and molting habitat for a large number of water birds and shore birds and also contains caribou calving and insect-relief habitat. The northeast NPR-A also contains numerous water bodies that provide spawning, migration, rearing, and over-wintering habitat for both anadromous and resident species of fish. Fish harvested from these waters are an important subsistence resource for the Alaska Native residents of Barrow and Nuiqsut. In addition, residents of Nuiqsut obtain approximately one-third of their subsistence diet from caribou.

In its 1998 IAP/EIS, BLM also developed a general DR&R standard for oil industry activities in the northeastern part of the NPR-A. The standard states that upon field abandonment or expiration of a lease, all facilities shall be removed and sites rehabilitated to the satisfaction of BLM. BLM may, however, determine that it is in the public's best interest to retain some or all of the facilities at the site. In addition, BLM has specific requirements for plugging and abandoning all wells in the NPR-A, whether they are used for oil exploration activities or oil production. Currently, the only oil-related activity occurring in the NPR-A is exploration.

In addition to the general standard for oil field abandonment and specific requirements for plugging and abandoning wells, BLM has also developed specific requirements for oil exploration activities in the NPR-A. For example, BLM requires that all exploration activities occur during the winter months so that ice pads are used to support exploration well rigs and ice roads are used to service the well sites. According to BLM, these

requirements limit the impact of exploration activities on the surface area. Further, at the end of the exploration season, BLM requires the companies to remove all drilling equipment and supplies, haul all debris to an approved disposal site, and chip and scrape ice pads to pick up any spills. Finally, after the ice pads and ice roads melt in the summer, the companies are required to conduct an inspection of each location and to pick up any remaining debris.

BLM officials stated that the agency plans to develop specific DR&R requirements for oil production activities in the NPR-A when oil companies apply for production permits. According to BLM officials, once oil companies request production permits, BLM will be required to conduct another NEPA analysis, likely an EIS. The officials stated they plan to use the NEPA analysis process to develop specific measures, including specific DR&R requirements, to mitigate the impact of oil production activities in the NPR-A and return the land to a condition that will support its previous use. Specifically, when a company submits an application for development, BLM requires the applicant to also submit a surface reclamation plan. Such a plan must be approved by BLM and is made a condition of the permit. Reclamation of the land may include reclaiming disturbed areas, reshaping topography, disposing of waste, and revegetating affected areas. For example, surface reclamation plans may require the reclamation of well pads by removing the fill material to the approximate height of the original ground contours and applying a specific seeding mixture to that land during a particular time of the year.

Furthermore, BLM's current regulations require oil companies to submit and obtain approval of well-abandonment plans before operators can begin well-plugging and abandonment activities. Well-abandonment plans not only address the plugging and abandonment of wells, but also include plans for removing drilling equipment and reclaiming the disturbed surface. In May 2001, oil companies conducting exploratory work in the NPR-A announced their first oil discoveries. According to BLM officials, the oil companies may submit production plans for these areas within the next year.

MMS Has Specific DR&R Requirements for Offshore Oil Wells

MMS has an overall goal of restoring offshore areas used for oil industry activities to their previous condition. Specifically, MMS regulations for offshore oil industry activities include specific well-plugging and abandonment requirements and, for restoration, generally require the removal of all obstructions in the water. For some site-specific

infrastructure, however, such as buried pipelines and the gravel used to construct man-made islands, restoration requirements are not specified until the end of the field's productive life.

MMS requires oil companies to submit a notice of intent to abandon a well before the companies start abandonment operations. The notice must show the reason for abandonment and include supporting data and a description of the proposed abandonment work. For well-plugging and abandonment, MMS regulations generally require that all structures be removed and all wellheads, casings, and other obstructions be removed to a depth of at least 15 feet below the seafloor or to a depth approved by the district supervisor. However, on the North Slope, during the EIS process for offshore projects, it was determined that specific restoration requirements for site-specific buried pipelines and man-made gravel islands used as drilling platforms would be determined later. Specifically, MMS may allow pipelines to be cleaned and abandoned in place if they constitute no hazard to navigation and commercial fishing and do not interfere with other uses of the Outer Continental Shelf. In addition, where oil companies have constructed gravel islands in the Beaufort Sea to conduct oil exploration activities, MMS has allowed these islands to erode naturally, as opposed to requiring their removal. MMS says that it has consulted with a federal/state task force that examined the effect of oil exploration activity on biological resources in the Beaufort Sea. The task force determined that leaving gravel islands in place is ecologically preferable to removing them, because it causes the least amount of disturbance. However, environmental groups and some local inhabitants are still concerned about the environmental consequences of leaving the islands in place. Finally, once an oil company completes its well-plugging and abandonment efforts, MMS requires the lessee to submit a well-abandonment report describing the manner in which the work was accomplished and certifying that the area was cleared of all obstructions. As of September 2001, there have been 30 exploratory wells drilled in the Beaufort Sea. According to MMS, all 30 wells have been permanently plugged and abandoned, and the drilling facilities have been removed.

Initially, all oil-related activity in federally regulated waters off the North Slope was exploratory. However, in November 2001, BP and the Department of the Interior announced the first offshore oil production activity on the North Slope at BP's Northstar project. Although the Northstar facilities are located in state waters, the oil reservoir extends into federal waters.³³ Consistent with its regulations, MMS will require detailed plans for the plugging and abandonment of wells on federal leases.

Fish and Wildlife Service DR&R Requirements

FWS has an overall goal of restoring to their original condition those wildlife refuges in which oil industry activities occur. Specifically, FWS has a general policy that requires the removal of all structures and equipment when oil industry activities cease, as well as the restoration of the area to its original condition, or as near to it as possible. FWS does not have more specific restoration requirements for oil activities that occur in the national wildlife refuge system. Instead, FWS allows its individual refuge managers to develop more specific restoration requirements, usually in consultation with BLM; these requirements are imposed as conditions to BLM leases and permits and to their own special-use permits and right-of-way permits.

Although oil industry activity is currently not permitted in the Arctic Refuge, if the Congress were to authorize such activity in a manner similar to other refuges, both BLM and FWS would manage it. Specifically, BLM would regulate subsurface activities by issuing drilling permits and would regulate the drill site surface area by issuing oil and gas leases in which FWS would provide recommendations on stipulations for all activities, including DR&R requirements. Under the National Wildlife Refuge System Administration Act, the Secretary of the Interior, through the FWS, manages surface activities within refuges. Specifically, FWS would regulate the surface area not covered by BLM leases through the issuance of special-use and right-of-way permits. Special-use permits authorize commercial activities, such as seismic surveys, in national wildlife refuges. Further, in Alaska, Title 11 of ANILCA provides for rights-of-way across federal conservation areas, such as the Arctic Refuge, for transportation and utility systems.³⁴ Specifically, right-of-way permits are provided for the construction of such things as roads and pipelines that are related to the commercial activity. These permits would contain requirements for restoration, revegetation, and the curtailment of erosion on the surface of the land. For example, in the Kenai National Wildlife Refuge in Alaska, a right-of-way permit was required for the reconstruction of a gravel road. The permit stated that upon cessation of drilling operations, the company would remove culverts, re-grade the roadway, and restore the area to its original topography and drainage patterns.

³³While the Northstar facilities are located within the 3-mile state limit, the field extends across the state/federal boundary. As such, the field is managed under a joint federal/state unit that includes both state and federal leases.

³⁴If the Congress opens the Arctic Refuge to oil and gas development, Title 11 of ANILCA also requires the Secretary of the Interior to grant access rights to Alaska Native inholdings that may be developed. Such inholdings are located throughout the refuge's coastal plain.

The Corps' DR&R Requirements for Federal Lands

The U.S. Army Corps of Engineers issues permits to oil companies on the North Slope that contain very general dismantlement, removal, and restoration requirements and only rarely contain specific requirements. The Corps issues permits for certain actions that affect wetlands or navigable waters regardless of land ownership. The Corps' DR&R requirements are contained in its permits as a general condition that states that upon abandonment "restoration of the area may be required." This is the same language that is used in all Corps permits, including those issued for oil industry activities on state-owned lands on the North Slope.

For federal lands, the Corps' position on restoration requirements is the same as its position on state-owned land; it believes that the landowner holds primary responsibility for DR&R requirements. In the case of the NPR-A, the Arctic Refuge, and the Outer Continental Shelf, the landowner is the responsible federal resource management agency. The Corps would prefer to accept the federal agencies' recommendations for dismantlement, removal, and restoration of an area, provided that important aquatic resources are protected and there are no overriding factors of national public interest. However, the Corps does maintain the authority to enforce the provisions of its permits if disputes with the landowner occur.

DR&R Requirements in Current Legislative Proposals

As of April 2002, the Congress had considered a number of bills and amendments that would authorize the opening of the Arctic Refuge's coastal plain to oil and gas industry activities.³⁵ In some cases, the bills and amendments included language that specified the condition to which the lands used for oil and gas activities should be returned after oil and gas production ceases. For example, in August 2001, the House of Representatives passed H.R. 4, which authorizes oil and gas activities in the Arctic Refuge. Concerning land restoration, H.R. 4 requires reclamation of the land to a condition capable of supporting the uses which the lands were capable of supporting prior to any oil exploration, development, or production activities, *or*, upon application by the lessee, "to a higher or better use" as approved by the Secretary of the Interior. H.R. 4 also requires

³⁵As of February 2002, four bills had been introduced in the 107th Congress that would open the Arctic National Wildlife Refuge's coastal plain to oil and gas development—H.R. 4, H.R. 39, H.R. 2436, and S. 388. In addition, in April 2002, the Senate considered and rejected an amendment (S.A. 3132) to the Senate energy bill (S. 517) to open the Arctic Refuge to oil and gas development. The House and Senate energy bills will be reconciled in conference committee.

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the removal of all oil and gas facilities, structures, and equipment upon completion of operations. However, the bill also states that the Secretary of the Interior may exempt from removal those facilities, structures, or equipment that the Secretary determines would assist in the management of the Arctic Refuge. A Senate bill and an amendment to open the Arctic Refuge to oil and gas exploration, S. 388 and S.A. 3132, respectively, contain a reclamation standard identical to that in H.R. 4.

The inclusion of the phrase “or to a higher or better use” to the surface reclamation goal contained in H.R. 4, S. 388, and S.A. 3132 could compromise the guidance that the land be reclaimed to a condition capable of supporting its previous use, which is predominantly wildlife habitat. Under H.R. 4, S. 388, and S.A. 3132, if the lessee requests, the restoration goal is subject to interpretation by the Secretary of the Interior on what would be a higher or better use of the land. According to a November 2001 report by the Congressional Research Service that discussed legal issues related to proposed drilling in the Arctic Refuge, under general zoning law, “higher or better” uses are those that “bring the greatest economic return.”³⁶ As such, those uses that are “higher and better” than undeveloped wildlife habitat could include many possibilities, such as the development of the area for tourism.

The reclamation requirements contained in H.R. 4, S. 388, and S.A. 3132 for the Arctic Refuge are similar to the state of Alaska’s general requirement for the dismantlement, removal, and restoration of its land on the North Slope. As previously discussed, this general requirement has resulted in differing interpretations of what will ultimately be required in terms of dismantlement, removal, and restoration on the North Slope by the parties involved. In April 2002, the Senate voted to block S.A. 3132, which would have authorized drilling for oil and gas in the Arctic Refuge. However, the Senate and House energy bills must still be reconciled in conference, where, once again, members of Congress have the opportunity to reconsider.

³⁶Congressional Research Service, *Legal Issues Related to Proposed Drilling for Oil and Gas in the Arctic National Wildlife Refuge*, CRS Report RL31115 (Washington, D.C.: Nov. 23, 2001).

Assurances That Funds Will Be Available to Implement Federal DR&R Requirements Are Limited

Generally, existing bond amounts for oil industry activities for federal lands on the North Slope will not cover the potential costs of eventual dismantlement, removal, and restoration activities. Financial assurances, such as bonds, can ensure that if a company defaults on a lease or contract, the obligations will still be completed. The amount of the financial assurance can be fixed or can vary and be based on, among other things, such factors as the company's experience and financial viability and the estimated cost of future restoration. While BLM has some bonding requirements on its land and on FWS refuges, its \$300,000 bond for all leases a company holds in the NPR-A and its \$25,000 amount for a statewide bond on refuges are unlikely to meet all restoration costs that could be incurred on the lands. Although both BLM and MMS have the authority to ensure that full funding be available for restoration activities, only MMS has implemented a general bonding structure that provides for higher bond amounts as the scope of oil industry activity increases. The Corps has not required any financial assurance that funds will be available to conduct DR&R requirements as part of its permit process on the North Slope.

In the NPR-A, the Bureau of Land Management requires oil companies to post a bond for oil activities conducted on federally leased land. BLM bonds are used to ensure compliance with all the terms of the lease, including the payment of rentals and royalties and the performance of DR&R. Specifically, BLM requires a minimum bond of \$100,000 per lease, or a \$300,000 bond for all leases a company holds in the NPR-A, or a rider upgrading a nationwide bond to \$300,000.³⁷ Currently, most companies operating in the NPR-A have nationwide bonds; these bond amounts will only cover a small fraction of the potential future DR&R liability.

Although BLM has the authority to require full financial assurance to fund the cost of DR&R, it has not yet done so. According to BLM officials, its current bond amounts are not intended to cover the full cost of future restoration activities, but instead serve as an assurance of performance. Generally, BLM officials in Alaska do not believe it necessary for major oil companies operating in the NPR-A to provide full financial assurance that they will comply with their lease requirements, including DR&R. BLM

³⁷BLM also requires a bond for geophysical exploration such as seismic surveys in the National Petroleum Reserve-Alaska. BLM requires an exploration bond of at least \$5,000 for the NPR-A, or a \$25,000 statewide exploration bond, or a \$50,000 nationwide exploration bond.

officials noted that these companies are large international firms whose future business depends on the successful completion of all lease requirements and whose total assets will easily cover the full cost of DR&R. BLM's field manager in Alaska stated that when the companies go from exploration to production in the NPR-A, BLM plans to determine whether the existing bonding amounts are adequate. At that time, if BLM deems it necessary, it can increase the required bond amounts. In addition, this official noted that if a large company sells its NPR-A interests to a smaller firm, BLM would again review the need to increase bond amounts.

In national wildlife refuges, BLM also issues leases for oil exploration, development, and production activities and requires companies to post a bond. FWS may require additional bonding from companies operating in a wildlife refuge as part of a right-of-way permit. Specifically, in wildlife refuges, BLM requires a minimum bond amount of \$10,000 per lease, \$25,000 for a statewide bond, or \$150,000 for a nationwide bond. In addition, if oil companies' activities such as the construction of roads or pipelines disturb refuge lands outside the BLM leased area, FWS requires the companies to post bonds as part of the process to obtain right-of-way permits.³⁸ The amounts of these bonds vary according to the scope and type of activity. FWS does not prescribe a set amount for the bond. According to an FWS official in Alaska, in the limited instances where FWS has required bonds, the bonds have not exceeded \$150,000. FWS officials stated that they believe neither BLM's nor FWS's bonding requirements are sufficient to cover the potential cost of future land restoration.

Some of the bills recently considered by Congress regarding the opening of the Arctic Refuge to oil and gas development also address the financial assurance issue. For example, S. 388 included a bonding requirement to ensure the financial responsibility of the lessee. Specifically, the Senate bill required the Secretary of the Interior to establish bonding requirements "to ensure the complete and timely reclamation of the lease tract and the restoration of any lands or surface waters adversely affected by lease operations after the abandonment or cessation of oil and gas operations on the lease." The bonding arrangement in S. 388 would have been in addition to any existing bonding requirements that could be applied by the federal agency or agencies responsible for managing oil industry activities in the

³⁸FWS also requires special-use permits for commercial activities, such as seismic surveys, on national wildlife refuges. As part of the special-use permits, FWS requires a certificate of insurance or the posting of a bond.

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Arctic Refuge. Under S. 388, the Secretary of the Interior, in accordance with an approved exploration or development and production plan, would determine the specific amount of the bond or financial arrangement. In contrast, H.R. 4 didn't address financial assurances or contain provisions for bonding. Under this bill, bonding requirements for the Arctic Refuge could be the same as those authorized for other refuges. As previously discussed, requiring the minimum BLM and FWS bond amounts would not be sufficient to cover the potential cost of future land restoration.

MMS has the authority to require companies conducting operations in federally regulated waters to provide full financial assurance that funds will be available to conduct dismantlement, removal, and restoration activities. MMS's bonding requirements for its offshore leases on the Outer Continental Shelf are based on an escalating scale and depend on what activity is occurring. Specifically, MMS regulations state that every owner of an OCS oil and gas lease must maintain a \$50,000 lease bond or a \$300,000 area-wide bond for all oil and gas leases in the state. The intended purpose of these bonds is to ensure compliance with all the terms and conditions of the lease. In addition, if exploration or development and production activities occur, MMS requires total bond amounts to increase to \$200,000 and \$500,000, respectively.³⁹ Furthermore, under MMS regulations, the regional director has the authority to require additional bonding if a determination is made that additional financial assurances are needed to cover potential underpayment of royalties or obligations to remove infrastructure, such as drilling platforms, and clear the seafloor of obstructions. According to MMS officials, the complete bonding package is intended to cover the delinquent royalties, abandonment, and final site clearance and takes into account, among other things, the company's experience and financial viability, as well as the estimated future cost of restoration.

³⁹The additional bond for exploration activities is not required if the lessee maintains an area-wide bond for \$1 million. Similarly, an additional bond for development and production activities is not required if the lessee maintains a \$3 million area-wide bond.

Previously Abandoned Oil Exploration Sites on Federal Lands Remain a Problem

The history of oil industry activities on federal lands of the North Slope demonstrates the importance of adequate financial assurances for the taxpayers. The federal government's oil exploration activities on the North Slope have resulted in its current DR&R responsibility for many improperly abandoned well sites. These well sites are now commonly known as legacy wells. Starting in 1945 and continuing through 1981, the U.S. Navy and the USGS drilled 126 wells in the area now known as the NPR-A.⁴⁰ According to BLM, the federal government is currently responsible for the cleanup of 102 of these wells. Ownership of the other 24 wells was transferred to the North Slope Borough to assist in gas production for local use.⁴¹ According to BLM, of the 102 wells, the Navy drilled 76 of them in the 1940s and 1950s, and drilled a single well in 1975 that was properly plugged and abandoned. The USGS was responsible for drilling the remaining 25 wells. According to BLM, 3 of the 25 USGS wells have been properly plugged and abandoned, 1 has not been properly plugged and abandoned, and USGS is currently using 21 for climate studies. According to USGS, these study wells are extremely valuable for long-term climate information and should remain unplugged. As a result of inadequate dismantlement and restoration requirements, about 80 wells drilled on federal lands under the federal government's direction remain improperly plugged and abandoned.

The federal government is responsible for cleaning up the improperly abandoned wells and drill sites. In 1976, the Navy initiated a cleanup program for its own well sites, which USGS assumed in 1977. In later years, USGS assumed responsibility for cleaning up both the Navy's and its own sites. Although no precise records exist, during a 7-year period the agencies collected and removed thousands of tons of debris and over 50,000 55-gallon drums, at a cost of over \$7 million (late 1970s and early 1980s dollars) from NPR-A sites. Additionally, in 1995, the state's Department of Environmental Conservation decided that no further cleanup work was required on 27 NPR-A drilling waste sites to reduce their risk to the area's surface waters. However, according to BLM officials, most of the abandoned wells and surrounding sites still need additional work,

⁴⁰The U.S. Geological Survey wells were drilled under a contract with Husky Oil Company. Five other wells were drilled in NPR-A, two by the U.S. Air Force, and three by the North Slope Borough. All five of these wells are now under the borough's jurisdiction.

⁴¹During early oil and gas exploration in the NPR-A, one of the discoveries was the Barrow Gas Field, which contained 24 wells. Ownership of these wells was transferred to the North Slope Borough and they currently provide gas to the people of Barrow.

including the proper plugging of wells and restoration of the surface area. The officials also noted that some of these legacy wells have leaked oil, gas, and other substances, and have the potential to create a future environmental hazard. However, remote locations and severe weather make it difficult to access the well sites and very expensive to reclaim them. For example, in 1999, BLM authorized a study of the cost to properly plug and abandon 11 Navy well sites in the Umiat area of the NPR-A. The contractor conducting the study estimated the cost to be almost \$7 million. However, in 2001, when the Corps of Engineers approved the plugging and surface remediation of 2 of the 11 Umiat well sites under an existing contract, the total cost had escalated to about \$16 million. According to the Corps, this cost escalation was caused primarily by increases in the cost of accessing the area, unanticipated problems with plugging one of the wells, and an increase in the amount of surface that needed to be rehabilitated. Further insights on the cost of cleaning up of these old well sites are provided in a September 2001 BLM draft internal working document. The document estimates that just plugging the wells in NPR-A will cost more than \$100 million over the course of 10 to 20 years.

Another example of an abandoned site on federal land is at Sagwon, Alaska. Sagwon served as an oil company aviation base and staging area. It was built in the 1960s and was used commercially until the mid-1970s. However, it was not until 1975 that the owner obtained a lease from BLM to operate an airport on the property. In 1985, after the site had been abandoned, BLM approached the lessee, asking it to remove roughly 4,500 metal drums and several tons of scrap metal, clean up unused drilling fluids, and remove other miscellaneous debris left on the site. The lessee refused and later filed for bankruptcy. In 1993, BLM asked oil companies that may have used the airfield to help clean up the site. In response, BP, ARCO, and Alyeska (TAPS's operating company) voluntarily agreed to clean up the 2,500-acre site. According to BP officials, by the time the cleanup was finished in 2000, it cost \$2 million to complete and required the removal of 138 tons of waste from the site. Although the surface dismantlement, removal, and restoration is finished, according to a BLM official, some subsurface issues remain.

DR&R Requirements and Financial Assurances for TAPS and the Mining and Nuclear Power Industries Are Explicit

DR&R requirements and financial assurances for similar infrastructure and other energy-related industries are more explicit than those applied to the oil industry on the North Slope. The Trans-Alaska Pipeline System, which is similar in purpose and geography to other oil industry infrastructure on the North Slope, has DR&R requirements and fixed financial arrangements. TAPS established these requirements prior to construction of the pipeline and negotiated the financial arrangements later. Furthermore, both hardrock and coal mining have reclamation requirements for surface lands that are determined before the initiation of any mining activities. Federal regulators also require mining companies to demonstrate full financial assurance that these requirements will be met. Finally, decommissioning requirements for all nuclear power plants are established by federal regulation; the regulations also require financial assurances sufficient to fully fund decommissioning.

DR&R Requirements and Financial Assurances for TAPS

The Trans-Alaska Pipeline System has DR&R requirements contained in the 1974 right-of-way lease agreement between the federal government and the state of Alaska. Specifically, the 30-year right-of-way lease contains a stipulation that when the pipeline is no longer used (“completion of use”) the lessee shall “promptly remove all improvements and equipment...and shall restore the land....”⁴² In general, this stipulation has been understood to mean the complete dismantlement and removal of the above-ground portion of the pipeline (the buried portion of the pipeline would be purged of residue and capped in place) and associated infrastructure and restoration of the land on which the pipeline was built. The lease does not provide specific restoration requirements; instead, it requires the lessee to restore the land to a condition that is approved by federal and state officers. Even so, the U.S. Tax Court found in May 2000 that “in contrast to the generally vague language of the [state] leases relating to oil company [dismantlement, removal, and restoration] obligations... language in the TAPS right of way...is more specific.”⁴³

Regarding financial assurances, the Federal Energy Regulatory Commission, which regulates pipeline fees, permits the pipeline owners

⁴²Stipulations for the Right of Way Lease for the Trans-Alaska Pipeline, Section 1.10, May 3, 1974. The current lease is up for renewal before May 2004.

⁴³*ExxonMobil Corporation v. Commissioner of Internal Revenue*, United States Tax Court, 114 T.C. 293, May 3, 2000.

(Alyeska) to collect tariffs from pipeline users sufficient to fully fund eventual DR&R. The amount collected by TAPS's owners for DR&R has varied by year of operation, ranging between \$127 million in 1980 and \$2.4 million in 1999, for a total of \$1.5 billion in collections through 1999. The tariffs were last adjusted in 1985 under a settlement agreement between the TAPS's owners, the state of Alaska, and the Department of Justice.⁴⁴ The pipeline's owners do not have to place collected funds for DR&R in escrow or any other special account. Instead, TAPS's owners can reinvest those funds as they choose, but retain a liability to fund DR&R costs. If funds collected exceed the cost of DR&R, as some assert they will, the owners of the pipeline may realize additional benefits if they are not required to refund excess funds collected.

Mining Reclamation Requirements and Financial Assurances

The federal government requires other extractive industries, such as hardrock mining and coal mining, to restore surface land that is disturbed during mining operations and related activities. For example, both BLM, which regulates hardrock mining on its lands, and Interior's Office of Surface Mining (OSM), which regulates the surface aspects of coal mining itself or through states with approved programs for regulation of surface coal on any land, require operators to obtain approval of their reclamation plans before mining operations can begin. As part of the approval process, operators are required, by regulation, to develop a reclamation plan that describes in detail how land that is disturbed will be restored after mining activities cease. The plan must describe how the operator will reclaim the land to meet specific requirements, such as backfilling and grading the mine pit; reshaping the disturbed land to blend with pre-mining natural topography; achieving successful revegetation; and removing roads and structures that are not approved for retention. Mining operators are required to perform the activities specified in their approved reclamation plan or face a financial penalty.

Both BLM and OSM require the hardrock and coal mining industries, respectively, to provide financial assurance sufficient to cover the full cost of reclamation before mining operations can begin. Under federal regulations, companies that engage in hardrock mining on BLM lands or

⁴⁴The consortium of companies that own TAPS today includes BP Pipelines (Alaska) Inc., 50.01%; ExxonMobil Pipeline Company, 20.34%; Amerada Hess Corporation, 1.5%; Phillips Transportation Alaska, Inc., 23.7%; Unocal Pipeline Company, 1.36%; and Williams Alaska Pipeline Company, L.L.C., 3.08%.

surface coal mining on any lands must submit a cost estimate for the DR&R activities specified in their reclamation plan before the start of mining activities. The cost estimate must represent the full amount that the regulatory authority—BLM, OSM, or state—would need to reclaim the disturbed area if the mining operator were unwilling or unable to complete the planned reclamation. The estimate must also include the regulatory agency's cost to contract with a third party to do the work and administer the contract. Mining operators may provide financial assurance in many different forms, such as pledged assets of the operator including cash, certificates of deposit, negotiable bonds, and investment-grade securities; surety bonds; or irrevocable letters of credit.

**Nuclear Power
Decommissioning
Requirements and Financial
Assurances**

The Nuclear Regulatory Commission, the federal entity that regulates the nation's civilian use of nuclear power and materials, requires its licensees, as a condition for obtaining a license to operate a nuclear power plant, to agree to decommission (i.e., clean up) the plant after operations cease. The commission has specific requirements for acceptable radiation levels that decommissioning must accomplish. Such requirements vary depending upon, among other things, the proposed future use of the land. For example, a decommissioned site may have unrestricted future use if the residual radiation at the site would not cause a person to receive a total effective dose equivalent in excess of 25-millirems of radiation per year after decommissioning, and this level of reduction is as low as is reasonably achievable.⁴⁵ The commission does not require the licensee to submit a decommissioning plan before obtaining a license. Rather, within 2 years following permanent cessation of a plant's operations, the licensee must provide the commission with a plan describing the decommissioning activities that the licensee will perform to meet a radiation standard. Such activities may include removing the spent nuclear fuel, dismantling structures containing radioactive materials that were created in the power-generating process, and removing other materials that were contaminated during the process. The Nuclear Regulatory Commission does not release the plant licensee from its liability for the site until decommissioning is completed and the license is terminated.

Nuclear power plant licensees must also provide financial assurance that the decommissioning work will be done, and must provide the assurance

⁴⁵A millerem, or 1/1000 of a rem, is a measure of radiation absorption. A rem is a unit of dose equivalent from ionizing radiation to the total body or any internal organ or organ system.

before plant decommissioning begins. Beginning at plant licensing, and at various times throughout a plant's operations, the commission reviews the adequacy of the financial assurance. The financial assurance amount must be equal to or greater than the amount specified in the commission's regulations; amounts are based on the type of reactor and its power level. Plant licensees may provide financial assurance in one or more of the following ways:

- periodic deposits (at least annually) into a trust fund outside of the owner's control;
- prepayment of the entire estimated decommissioning liability into a trust fund outside of the owner's control;
- obtaining a surety bond, insurance, letter of credit, or line of credit payable to a trust established for decommissioning costs; or
- guaranteeing the payment of decommissioning costs, provided that the guarantor (usually an affiliate or parent company of the owner) passes specific financial tests.

Conclusions

In the past, the lack of dismantlement, removal, and restoration requirements and inadequate financial assurances have led to some improperly abandoned sites and subsequent environmental problems on both federal and state land located on Alaska's North Slope. To date, most oil production has occurred on state-owned land, and for this reason the state of Alaska has borne responsibility for cleaning up these sites when oil companies or their related industries have failed to do so. However, with oil exploration activities underway in the NPR-A and on the Outer Continental Shelf, and the Congress currently debating whether to open the Arctic Refuge's coastal plain to oil and gas development activities, the need for federal dismantlement, removal, and restoration requirements, and assurances that funds will be available to implement those requirements, is becoming increasingly important. Presently, the Bureau of Land Management has not established specific DR&R requirements for oil production activities in the NPR-A. In addition, its current minimum bond amounts are fixed, do not reflect differences in company experience and financial viability, and would only cover a fraction of the potential future cost of DR&R. Furthermore, since the Congress has not yet authorized oil and gas industry activities in the Arctic Refuge, neither the Bureau of Land Management nor the Fish and Wildlife Service has developed specific

DR&R requirements for the refuge. The Fish and Wildlife Service, like the Bureau, uses bond amounts that are not sufficient to meet the potential future cost of restoration. Both agencies need to ensure that their financial guarantees are adequate in case a company is unwilling or unable to pay for returning the land to whatever standard has been established. To do otherwise would leave the taxpayer with an unacceptable risk.

Paramount to the development of any DR&R requirements should be a determination of what the ultimate restoration goal of these areas should be. In the NPR-A, this decision has been made; that is, the Bureau wants the land returned to a condition that will support its previous uses, such as fish and wildlife habitat and subsistence use by Alaska Native villagers. What remains to be done is for the Bureau to establish specific DR&R requirements that will allow companies to meet that goal. Should the Congress decide to open the Arctic Refuge to oil industry activities, it would be important for the Congress to consider establishing a legislatively mandated restoration goal for the disturbed area. This would allow the Secretary of the Interior to establish specific DR&R requirements aimed at meeting that goal. In turn, specific requirements would provide oil companies with another piece of information they need to make better investment decisions on whether the potential benefits of oil industry activities in the Arctic Refuge are worth the cost. Goals, like all plans, can change over time. However, if a restoration goal for the Arctic Refuge is not established before oil exploration begins, there will only be continued debate similar to that faced by the state of Alaska on its restoration requirements for state-owned land on the North Slope. In addition, establishing a mechanism that would ensure that funds were available to meet those requirements would protect taxpayers, should lessees default.

Recommendations for Executive Action

In order to ensure that the lands of the National Petroleum Reserve-Alaska are properly restored after oil and gas activities there cease, we are recommending that the Secretary of the Interior instruct the Director of the Bureau of Land Management to issue specific dismantlement, removal, and restoration requirements that will allow the BLM to meet its overall goal of returning the land to a condition that will sustain its previous uses, including fish and wildlife habitat as well as subsistence uses. In addition, we recommend that the BLM review its existing financial assurances for oil and gas activities in the National Petroleum Reserve-Alaska to determine whether they are adequate to ensure the availability of the funds needed to achieve its overall restoration goal.

Matter for Congressional Consideration

Any future decision to open additional federal lands to oil and gas activities, including those on Alaska's North Slope, is a public policy decision that rests with the Congress. In making such a decision, one factor that would be important to consider is the restoration of the land after oil and gas activities are completed. If the Congress wants to provide guidance on the condition to which these lands should be returned following the completion of such activities, it should consider providing in the authorizing statute

- a restoration goal that will allow the federal agency or agencies responsible for developing dismantlement, removal, and restoration requirements to have a clear understanding of what the Congress wants achieved, and
- specific assurances that the federal agency or agencies responsible for implementing dismantlement, removal, and restoration requirements will obtain adequate financial assurances that funds will be available to meet the goal of returning the land to a condition that the Congress has specified.

Agency Comments and Our Evaluation

The Department of the Interior agreed with our recommendation that the Bureau of Land Management issue specific dismantlement, removal, and restoration requirements that will allow the Bureau to meet its overall goal of returning the land to a condition that will sustain its previous uses, including both fish and wildlife habitat and subsistence uses. The department stated that the Bureau plans to accomplish this by attaching special stipulations and conditions of approval on a lease-by-lease basis. The state of Alaska, however, disagreed with this recommendation. The state commented that dismantlement, removal, and restoration requirements can be better addressed when oil production ceases and the obligation actually becomes due. The state believes that this approach provides greater flexibility and will allow the state to ultimately issue requirements that reflect changes in, among other things, technology and the regulatory environment. The state also commented that our recommendation does not recognize the scope of the government's power to change the regulatory standards it adopts and ignores the fact that specific standards that seem appropriate today may not be appropriate at some distant point in the future. We did not draw any conclusions nor make any recommendations concerning the appropriateness or inappropriateness of the state of Alaska's current dismantlement, removal,

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and restoration practices for its lands. Currently, the state has no restoration goal for its North Slope lands that have been used for oil and gas activities. Without a restoration goal, we agree with the state that it would be difficult to issue specific DR&R requirements. We also acknowledge in our report that restoration goals and the specific processes used to achieve those goals can change as technology, science, and circumstances change. However, the Bureau of Land Management has established a restoration goal for its lands used for oil and gas activities in the National Petroleum Reserve-Alaska. That goal is to return the lands to a condition that will sustain its previous uses, including both fish and wildlife habitat and subsistence uses. As such, we believe, and the Department of the Interior concurs, that it is appropriate for the Bureau to establish specific dismantlement, removal, and restoration requirements to achieve that goal prior to the initiation of oil production activities. Doing so will provide the oil companies with better information on what is expected of them, which will allow them to make better investment decisions, and if they decide to proceed, will allow for better planning and budgeting to achieve restoration.

The state of Alaska also commented that it disagrees with GAO that the Congress, when considering opening additional federal lands to oil and gas activities, should consider establishing a restoration goal for that land in the authorizing statute. In general, the state believes that, as with dismantlement, removal, and restoration requirements, restoration goals can be better set at some future date closer to the actual time that oil and gas activities cease. The state points out in its own comments that both oil companies and environmentalists, two groups that are usually opposed, would prefer to know what restoration activities the state has planned for the North Slope because each currently perceives a risk that their view of the appropriate level of DR&R may not be adopted by the state in the future. By recommending the establishment of restoration goals for federal lands prior to the start of oil and gas activities, it is our intent to alleviate such concerns and allow all interested parties the opportunity to make informed decisions on these matters before the land is used. Further, establishing goals prior to oil and gas activities would provide for greater transparency and allow for agreements to be reached on what restoration will be required.

The Department of the Interior also agreed with our recommendation that the Bureau of Land Management review its existing financial assurances for oil and gas activities in the National Petroleum Reserve-Alaska to determine if they are adequate to ensure that funds will be available to

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achieve its overall restoration goal. The department stated that this review would focus on protecting the environment and taxpayers, should lessees default. The state of Alaska, however, commented that it disagrees with this recommendation. According to the state, GAO is suggesting that financial assurances greater than those required by the state of Alaska should be adopted for federal lands on the North Slope, even though Alaska's bonding requirements are among the highest in the nation. Our report does not make any comparison of the state of Alaska's financial assurances to those of federal agencies that manage land on the North Slope. Further, the report does not make any determination regarding what level of financial assurance should exist. GAO does report that the Bureau's current minimum bond amounts are fixed, do not reflect differences in oil company experience and financial viability, and would only cover a fraction of the potential future cost of DR&R. We also state that the level of financial assurance required will vary depending on such factors. As a result, we continue to believe that the Bureau should review its existing financial assurances for oil and gas activities in the National Petroleum Reserve-Alaska to determine whether they are adequate to assure the availability of funds necessary to achieve its overall restoration goal for the land after oil and gas activities cease.

Comparison of Alaska's DR&R Requirements and Financial Assurances with Those of Other Oil-Producing States

The following tables summarize information that we collected on DR&R requirements and financial assurances from 10 oil-producing states, including Alaska. These 10 states account for nearly 90 percent of the domestic oil production in the United States, excluding federal offshore production. The states are Alaska, California, Florida, Louisiana, Michigan, New Mexico, Oklahoma, Pennsylvania, Texas, and Wyoming. We selected these states based on U.S. Energy Information Administration projections of their 1999 oil production and their geographic diversity.

Table 4 shows that as reported by oil well permitting agencies in each state, all the states have mandatory surface restoration requirements for drill sites, such as removing surface material, closing or filling drill holes, and restoring the contour of the land.

Table 4: State Oil and Gas Well Permitting Surface Restoration Provisions

State	Remove surface material	Remove structures	Close or fill holes	Restore contour	Revegetate or reseed	Return to natural state or condition
Alaska	Mandatory		Mandatory	Mandatory		
California	Mandatory	Mandatory	Mandatory	Mandatory		^a
Florida ^b	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory
Louisiana	Mandatory	Mandatory	Mandatory	Discretionary		
Michigan	Mandatory	Mandatory	Mandatory	Mandatory	Discretionary	
New Mexico	Mandatory	Mandatory	Mandatory	Mandatory		
Oklahoma	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory
Pennsylvania	Mandatory	Mandatory	Mandatory	Discretionary	Mandatory	Discretionary
Texas	Mandatory	Mandatory	Mandatory	Mandatory	Discretionary	Discretionary
Wyoming	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory

^aThe California Department of Conservation responded to this survey question by stating "the site must be cleaned up and restored to as near its natural state as possible."

^bThe Florida Department of Environmental Protection stated that exceptions may be granted on all of these provisions upon request of the landowner, provided that other natural resources are not endangered. It also stated that all surface land owned by the state of Florida is returned to the original condition.

In addition, all states but Alaska reported mandatory requirements to remove all structures. Other requirements, such as restoring the surface of the land to a natural state or condition, were less common. Only three states—Florida, Oklahoma, and Wyoming—reported mandating restoration of the surface to a natural state or condition.

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Table 5 shows a greater variance in surface restoration provisions as reported by the states' oil and gas lease management offices.

Table 5: State Oil and Gas Lease Surface Restoration Provisions on State-Owned Lands

State	Remove surface material	Remove structures	Close or fill holes	Restore contour	Revegetate or reseed	Return to natural state or condition
Alaska	Discretionary	Discretionary	Discretionary	Discretionary	Discretionary	Discretionary
California ^a						
Florida ^b						
Louisiana ^c						
Michigan ^d						
New Mexico	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	
Oklahoma	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory
Pennsylvania	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	
Texas	Mandatory	Mandatory	Mandatory	Mandatory		
Wyoming	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory ^e

^aThe California State Lands Commission responded to our survey by stating that leases that are being abandoned and quitclaimed must undergo an environmental review under the California Environmental Quality Act. They added that this review would specify the surface restoration requirements of the leased lands.

^bThe Florida Department of Environmental Protection cited the following in response to the survey question: "After the cessation of any oil, gas, or mineral lease, the site shall be restored by the lessee to the original condition to the greatest extent practicable." (Florida Administrative Code, Chapter 18-2.018 (3)(8)(a))

^cThe Louisiana Department of Natural Resources did not submit a written response to our survey.

^dThe Michigan Department of Natural Resources responded to this survey question by citing a provision in the Michigan Oil and Gas lease that states that "restoration shall be completed within nine (9) months of surface disturbance within the premises for well site(s), pipeline(s), road(s) and other oil and gas development activities unless otherwise specifically approved in writing by the Lessor's authorized representative. Restoration shall be pursuant to requirements identified within the Surface Use Permit, easement or other similar written permission for the development activity."

^eThe Wyoming Office of State Lands and Investments added that the site is to be returned to the natural state or condition "as closely as possible."

Specifically, four states—New Mexico, Oklahoma, Pennsylvania, and Wyoming—reported that their oil and gas leases contain mandatory requirements to remove surface material and structures, close or fill holes, and revegetate the area upon lease termination. Four states—California, Florida, Louisiana, and Michigan—could not describe their surface restoration provisions in the checklist format we requested and provided either a written or verbal response. In the case of California, a California

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State Land Commission official stated that specific DR&R requirements are not determined until an environmental review under the California Environmental Quality Act. Florida reported that it requires the site to be restored by the lessee to the original condition to the greatest extent practicable. Alaska reported discretionary requirements for all the items in the checklist, because all of its lease termination provisions are at the option of the state.

Table 6 describes the financial assurance provisions each state reported including in its permits to drill wells.

Table 6: State Oil and Gas Well Permitting Financial Assurance Provisions for Well-plugging and Abandonment

State Office or Agency	Single wells	Blanket provisions	Other
Alaska Alaska Oil and Gas Conservation Commission	Not less than \$100,000 to cover a single well.	Not less than \$200,000 for a blanket bond covering all wells in the state.	The Commission will allow an amount less than \$100,000 if the operator can demonstrate that well abandonment and location clearance will cost less than \$100,000. The Commission can increase the security amount, which is at the discretion of the Commissioner.
California Department of Conservation, Division of Oil, Gas, and Geothermal Resources	Single well bond amounts are based on the depth of the well as follows: \$15,000 for a well up to 5,000 feet deep \$20,000 for a well 5,000 to 10,000 feet deep \$30,000 for a well 10,000 or more feet deep.	Blanket bond amounts are based on the number of wells an operator owns, and whether or not idle-well coverage is provided \$100,000 – for operators with 50 or fewer wells and does not provide long-term idle-well coverage \$250,000 – for operators with more than 50 wells and does not provide long-term idle-well coverage \$1 million – Covers all wells and provides long-term idle-well coverage.	Wells idle for 5 years or longer that have been released from individual or certain blanket bond coverage are subject to one of the following options: an annual fee, an escrow account, a \$5,000 bond, or a well elimination plan.
Florida Department of Environmental Protection, Florida Geological Survey	Single well drilling security amounts are based on the depth of the well: \$50,000 for a well up to 9,000 feet deep, or \$100,000 for producer well; \$100,000 for a well more than 9,000 feet deep, or \$200,000 for producer well.	Each blanket bond may cover up to 10 wells, regardless of well depth, and is \$1,000,000.	The Florida Department of Environmental Protection is authorized to increase the amount of security based on estimates of potential liability for damages to persons or property.

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State Office or Agency	Single wells	Blanket provisions	Other
Louisiana Department of Natural Resources, Office of Conservation	Single well financial assurance amounts are based on well depth: \$1 per foot for a well up to 3,000 feet deep \$2 per foot for a well 3,001 to 10,000 feet deep \$3 per foot for a well more than 10,000 feet.	Blanket bond amounts depend on the number of wells covered by the bond: \$25,000 for up to 10 wells \$125,000 for 11 to 99 wells \$250,000 for more than 99 wells.	The amount of security may be increased at the discretion of the Commissioner of Conservation.
Michigan Department of Environmental Quality, Geological Survey Division	Single well financial assurance amounts are determined by the depth of the well: \$10,000 for a well up to 2,000 feet deep \$20,000 for a well 2,000 to 4,000 feet deep \$25,000 for a well 4,000 to 7,500 feet deep \$30,000 for a well more than 7,500 feet deep.	Blanket bond amounts depend on the number and depth of the wells: \$100,000 for up to 100 wells less than 2,000 feet deep \$200,000 for up to 100 wells 2,000 to 4,000 feet deep \$250,000 with no limit on the number of wells or their depth.	The Michigan Department of Environmental Quality does not have the authority to alter the amount of security, but compliance agreements may require addition bond if the general operations bond is not adequate to cover plugging and restoration costs of the well plus other obligations under the compliance agreement. This additional bonding is not required if the permittee has a \$250,000 blanket bond.
New Mexico New Mexico Energy, Minerals and Natural Resources Department, Oil Conservation Division	The amount of single well financial assurance depends on the depth and location of the well: Northwest part of New Mexico: \$5,000 for a well less than 5,000 feet deep \$7,500 for a well 5,000 to 10,000 feet deep \$10,000 for a well more than 10,000 feet deep Southeast part of New Mexico: \$7,500 for a well less than 5,000 feet \$10,000 for a well 5,000 to 10000 feet \$12,500 for a well more than 10,000 feet deep.	Blanket financial assurance may be deposited in lieu of one well financial assurance. Such assurance is in the amount of \$50,000.	
Oklahoma Oklahoma Corporation Commission, Oil and Gas Conservation Division	Single well financial assurance provisions are based on the total depth of the well at \$2 per foot.	Blanket assurances are available at \$25,000.	The Commission may alter the amount of security depending on the history of the company and whether they have fines in excess of \$2,000.

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State Office or Agency	Single wells	Blanket provisions	Other
Pennsylvania Department of Environmental Protection, Bureau of Oil and Gas Management	Single well financial assurance is \$2,500.	Blanket assurances are \$25,000.	These financial assurance provisions only apply to wells drilled after April 17, 1985. The Pennsylvania Department of Environmental Protection may revise the amount of security required every 2 years, based on the projected cost to perform well-plugging.
Texas Railroad Commission of Texas, Oil and Gas Division	For operators without an organizational form of security, wells that have been inactive for 36 months must be covered by an individual bond or letter of credit calculated at \$3 per foot of depth for land wells, \$60,000 for bay wells, and \$250,000 for offshore wells.	An organization may file a single bond, letter of credit, or cash deposit covering all wells operated by one of two ways: \$2 per foot of aggregate depth for all wells operated by company; or based on the number of wells: \$25,000 for up to 10 wells \$50,000 for 11 to 99 wells \$250,000 for more than 99 wells.	Texas statute also gives the operator the option of filing financial security as an Unbonded Operator by remitting 12% of the bond otherwise required (or, alternatively, after qualification and a hearing at which they show that bonds are not available at reasonable cost, \$1,000). As Unbonded Operators, they are still subject to single-well bonding requirements.
Wyoming Wyoming Oil and Gas Conservation Commission	Financial assurances for a single well depend on well depth at: \$10,000 for a well less than 2,000 feet deep \$20,000 for a well more than 2,000 feet deep.	Blanket provisions are available at \$75,000.	

Specifically, while Alaska reported higher financial assurance provisions than most of the surveyed states, three states—California, Florida, and Michigan—reported higher amounts. Eight of the 10 states we surveyed reported single-well financial assurance provisions based at least in part on the depth of the well. Pennsylvania and Alaska were the only two states to report rates not based on well depth. All the states surveyed included blanket financial assurance provisions, which covered more than one well, though five states reported that the amount of financial assurance required is based on the number of wells covered.

Finally, table 7 shows the financial assurance provisions each state reported for its oil and gas leases.

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Table 7: State Oil and Gas Lease Financial Assurance Provisions that Cover Well-plugging and Abandonment on State-Owned Lands

State Office or Agency	Single lease provisions	Blanket provisions	Other
Alaska Department of Natural Resources, Division of Oil and Gas	Before operations commence on oil or gas lease, a bond in the amount of at least \$10,000 must be furnished to ADNR. ADNR currently requires a \$100,000 bond for single-well operations.	\$500,000, though the Commissioner may also require an additional unusual risk bond. For a unit, instead of separate bonds for each lease, the unit operator must furnish a lease bond of \$500,000.	The Commissioner may require a bond greater than the amount specified where a greater amount is justified by the nature of the surface, the uses and improvements on or in the vicinity of the lease, and the degree of risk involved.
California State Lands Commission	Most current offshore state leases were issued from 1938 to 1968 with initial performance bond requirements of \$25,000 for leases issued before 1956 and \$50,000 for leases issued after 1957.	A California State Land Commission official stated that California has blanket securities to cover all offshore leases ranging from \$4 million to \$45 million to cover the performance of lease requirements.	
Florida Department of Environmental Protection, Division of State Lands	Prior to commencement of drilling, the state of Florida may require proof of financial responsibility. Currently the Division of State Lands policy requires a \$100,000 surety bond.		
Louisiana Department of Natural Resources, Office of Mineral Resources, State Mineral Board, Petroleum Lands Division, Leasing Section	None. Relies on the Louisiana Department of Natural Resources, Office of Conservation, for financial assurance provisions.	None. Relies on the Louisiana Department of Natural Resources, Office of Conservation, for financial assurance provisions.	

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State Office or Agency	Single lease provisions	Blanket provisions	Other
Michigan Department of Natural Resources, Land and Mineral Lease Services		The Department of Natural Resources requires a Lease Performance Bond to ensure compliance with all express and implied covenants of the lease. The department has a bond schedule that ties the amount of the bond to the total number of state minerals held under the lease. The bond schedule is as follows: \$10,000 – 0-5,000 acres under lease \$25,000 – 5,001-10,000 acres under lease \$50,000 – >10,000 acres under lease.	The Department of Natural Resources may increase or decrease the bonds if the lessee drops state leases to the point that the acreage held under the lease is less than required for the bond it currently carries; it can replace the existing lease performance bond in accordance with the schedule. If the lessee acquires additional state leases that would push its total acreage under lease to the next bonding level, it would have to submit a new bond in accordance with the bonding schedule before it could acquire the additional leases.
New Mexico State Land Office, Oil Gas, and Minerals Division	The State Land Office allows the use of single-lease bonds of \$10,000.	The State Land Office allows the use of multi-lease (blanket) bond of \$20,000.	A "megabond" in the amount of \$25,000 may be used for state leases for oil and gas, minerals, coal, geothermal resources, or rights-of-way. The single lease and multi-lease bonds are minimum amounts and "are deemed sufficient unless and until the Commissioner determines, or one or more surface lessees or purchasers show the Commissioner, that such an amount is not adequate in a given case." (State Land Office Rule 1.016)
Oklahoma Commissioners of the Land Office, Minerals Management Division		\$10,000 blanket bond or pay into the performance fund as a one-time payment. The performance fund is based on the number of leases owned.	On a case-by-case basis, the Commissioners can require more bonding to cover a major problem.

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(Continued From Previous Page)

State Office or Agency	Single lease provisions	Blanket provisions	Other
Pennsylvania Department of Conservation and Natural Resources, Bureau of Forestry, Minerals Section	Well-plugging bond (per well): Well depth/Minimum Bond <2,500 feet/ \$5,000 2,500-5,000 feet/ \$10,000 5,000-8,500 feet/ \$30,000 8,500-10,000 feet/ \$50,000 >10,000 feet/ \$100,000 Oil and gas lease bond (per lease) conditioned on the faithful compliance to all lease terms, including removal of equipment and well abandonment: \$25,000.		The surety for both blanket and plugging bonds can be altered by the terms of the lease agreement if the Department of Conservation finds that the cost estimates for the actual plugging of any class of wells are generally exceeding the required security. All Pennsylvania state oil and gas leases have an inflation clause that allows the department to inflate the amount of surety required at the rate of inflation of the "All Commodities Index" as published by the federal Department of Labor. This readjustment period is every 5 years.
Texas General Land Office	None. Relies on the Texas Railroad Commission for financial assurances.	None. Relies on the Texas Railroad Commission for financial assurances.	
Wyoming Office of State Lands and Investments	At least \$10,000 per lease.	At least \$100,000 blanket bond for all leases.	The Office of State Lands and Investments has the unilateral ability to change the amount of security depending on the number and depth and type of well or exploration activity, surface uses in conjunction with production, and the observed amount of environmental responsiveness.

Two states, Texas and Louisiana, reported that their oil and gas leases did not contain financial assurance provisions that covered DR&R. Rather, they stated that they relied instead on the well permitting office in their state for financial assurance that proper DR&R would be performed. Alaska's financial assurances are higher than most of the states we surveyed except California, Florida, and Pennsylvania. A California State Lands Commission official stated that while California's performance bonding provisions are not specified in California statute, the bonding amounts are specified in the oil and gas lease, which range from \$25,000 in earlier leases to \$1.25 million in a later lease. In addition to performance bonds, the California State

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Lands Commission can require additional assurance for DR&R, and these amounts have ranged up to \$7.5 million. Florida reported a single lease provision that matches Alaska's at \$100,000, but no blanket bond provision. Finally, Pennsylvania reported a well-plugging bond of \$100,000 per well for well depths in excess of 10,000 feet and an additional \$25,000 bond to ensure dismantlement, removal, and restoration and cover miscellaneous problems or missed royalty payments. By comparison, ADNR's financial assurances are either a \$100,000 single-lease bond that cover all wells in a lease, or a \$500,000 statewide blanket bond that covers all leases in the state.

Comments from the Department of the Interior



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

MAP 22 JUL

In Reply Refer To:
3100 (310)

Mr. Barry T. Hill
Director, Natural Resources and Environment
U.S. General Accounting Office
441 G Street, Room 2T23
Washington, D.C. 20548

Dear Mr. Hill:

Thank you for the opportunity to review and comment on the U. S. General Accounting Office's (GAO) draft report entitled "ALASKA'S NORTH SLOPE: Requirements For Restoring Lands After Oil Production Ceases (GAO-02-357)." The Minerals Management Service, the Bureau of Land Management (BLM) and the Fish and Wildlife Service have all reviewed the report and either concur with the comments below or had no additional comments.

The Department of the Interior (DOI) concurs with the GAO's findings and the recommendation that the BLM issue specific dismantlement, removal, and restoration requirements that will allow the BLM to meet its overall goal of returning the land to a condition that will sustain its previous uses including fish and wildlife habitat, as well as subsistence uses. The BLM will accomplish this by attaching special stipulations and conditions of approval on a lease-by-lease basis.

The DOI also concurs with the recommendation that the BLM review its existing financial assurances for oil and gas activities in the National Petroleum Reserve-Alaska to determine if they are adequate to ensure that funds will be available to achieve its overall restoration goal. This review will focus on protecting the environment and taxpayers should lessees default.

In regard to the Matter for Congressional Consideration, as you know, Congress has provided a good foundation to protect Alaska's North Slope from environmental degradation and to meet both Alaskan Native and taxpayer concerns. Specific guidance is found in the Federal Land Policy and Management Act of 1976, the Alaska National Interest Lands Conservation Act of 1980, and the Naval Petroleum Reserves Production Act (Public Law 94-258) which authorizes leasing in the National Petroleum Reserve-Alaska.

Appendix II
Comments from the Department of the
Interior

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Specific editorial comments are listed in the enclosed. If you have any further questions, please contact, Gene Terland, Acting Associate State Director, BLM Alaska State Office, at (907) 271-5076, or Jean Fend, Audit Liaison Officer, BLM Management Systems Group, at (202) 452-5153.

Sincerely,


for P. Lynn Scarlett
Assistant Secretary
Policy, Management and Budget

Enclosure

Appendix II
Comments from the Department of the
Interior

U.S. Department of the Interior
Comments on U.S. General Accounting Office Draft Report, entitled
“ALASKA’S NORTH SLOPE: Requirements For Restoring Lands After Oil Production Ceases”
(GAO-02-357)

In response to the above draft report, the Department of the Interior, Bureau of Land Management (BLM), offers the following comments:

Technical Comments/Editorial Comments:

Page 9, last paragraph: It could be argued that the current bonding levels are sufficient to ensure restoration as no industry related sites on Federal lands have required Federal funds to be expended for cleanup. Federal funds have been expended on Government legacy wells. It is correct to state that the financial assurances are insufficient to pay for future cleanup.

Page 10, line 13: “ . . . cost of reclamation, the Bureau currently uses fixed bond amounts” It would be more accurate to say, “ . . . the Bureau currently uses a **minimum** bond amount”

Page 10, line 22: Suggest adding in the words in bold. “In the past, prior to the establishment of such requirements and financial assurances, many oil exploration wells drilled **by the Federal Government** on Federal lands on the North Slope (**referred to as legacy wells**) were improperly plugged and abandoned. According to the Bureau of Land Management (BLM), these wells **potentially** remain costly environmental problems to this day.”

Page 13, first full paragraph, line 10: Suggest changing the sentence to read: “In addition, the Bureau currently uses **minimum** bond amounts that”

Page 14, 1st partial paragraph, line 3: Suggest changing to read: “In the past, as a result of inadequate dismantlement and restoration requirements, about 80 **legacy** wells drilled on”

Page 68, 1st paragraph, line 10: Comment on the sentence that reads “Furthermore, the current bond amount for the National Petroleum Reserve-Alaska would only cover a fraction of the potential future DR&R liability.” However, BLM regulations allow for escalating bond amounts up to the full cost of DR&R.

Page 88, 1st partial paragraph, line 4: Suggest adding the word in bold type. “In addition, its current **minimum** bond amounts are fixed” This stresses that flexibility remains an option.

Comments from the State of Alaska

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

STATE OF ALASKA

DEPARTMENT OF NATURAL RESOURCES OFFICE OF THE COMMISSIONER

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May 24, 2002

Jim Yeager
Assistant Director
Natural Resources and Environment
U.S. General Accounting Office (Room 2964)
441 G. St. NW
Washington DC 20548

Re: Alaska's Comments on GAO's Draft Report on North Slope Restoration Requirements, GAO-02-357

Dear Mr. Yeager:

Alaska Governor Tony Knowles has asked me to respond to the April 25 letter of Director Barry T. Hill, which solicited the State of Alaska's comments on the draft report entitled *ALASKA'S NORTH SLOPE: Requirements For Restoring Lands After Oil Production Ceases* (GAO-02-357). The State appreciates the opportunity to offer its comments before the report is issued in final form.

The GAO's investigation of the dismantlement, removal and restoration (DR&R) standards and practices applicable to Alaska's North Slope leases was instigated over 13 months ago, at the request of Congressman Markey of Massachusetts and several other ardent political opponents of new oil and gas exploration in Alaska. At that time, Governor Knowles wrote the Comptroller General questioning the investigation's scope and legitimacy. Several considerations prompted the Governor's April 4, 2001 letter. First, so far as Alaska is aware, the power and resources of the GAO have never before been devoted to the investigation of State practices on State lands. Second, for the GAO to accede to such an unprecedented request when it was tied so obviously to a particular political agenda seemed to call into question the GAO's credibility.

The Comptroller General sought to allay Governor Knowles' concerns in a response dated April 13, 2001. While that letter contained inaccurate assumptions about the role of federal agencies on State lands, and confused environmental clean up responsibilities with DR&R—a confusion that persists, unfortunately, in the draft report¹—at bottom, the Comptroller General justified the investigation on the

¹ Generally, DR&R under an oil and gas lease is a contractual term that addresses the removal of material, equipment and structures related to oil and gas development after oil and gas operations cease. It also covers the restoration of the leased land to its original condition or a condition that is otherwise acceptable to the lessor. Environmental cleanup, on the other hand, generally refers to requirements imposed by law to protect health and safety. Lessees must comply with all applicable environmental laws, regardless of the DR&R obligations, or the lack of such obligations, under their leases. On the other hand, the fact a lessee has cleaned up a lease in compliance with applicable environmental laws does not mean that it has satisfied its DR&R obligations to the lessor, even where the lessor is the government.

Consequently, the State recommends that the draft report delete references to "cleanup" activities when it means to address DR&R requirements.

"Develop, Conserve, and Enhance Natural Resources for Present and Future Alaskans."

Appendix III
Comments from the State of Alaska

Jim Yaeger
May 24, 2002
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basis that information the GAO develops regarding DR&R activities on State lands "could provide useful lessons learned for consideration in connection with future development activities" in the Arctic National Wildlife Refuge (ANWR) and the National Petroleum Reserve-Alaska (NPRA).

In Alaska's view, it is clearly legitimate for the federal government to look at Alaska's experience before coming to final policy decisions regarding appropriate DR&R standards on federal lands. There remains, however, a serious question regarding whether the GAO is the right federal agency to do the looking.

On the very first page of the draft report, the GAO acknowledges that the real reason this investigation was begun was not to educate the federal government about the appropriate DR&R standards to be employed on federal lands, but rather because several Minority Members of the House were "[c]oncerned about whether this [estimated \$53 billion worth of existing oil and gas] infrastructure will be removed from the North Slope and to what condition the land will be restored when oil production activities cease"

As is evident, the lands on which this infrastructure exists are lands owned by the State of Alaska that have been expressly set aside by the State for the purpose of oil and gas exploration and development. Whether the State will require all traces of oil and gas activity to be erased from its lands at some indefinite point in the future is, quite frankly, not a federal concern. Consequently, we believe it would have been more appropriate for the GAO to respectfully decline the Minority Members' request, rather than attempt to imbue its investigation with a legitimate federal purpose.

Nevertheless, the State has devoted substantial resources to assist GAO staff in its effort to understand past, present, and probable future oil and gas development activity on the North Slope. As you know, there has been considerable correspondence between GAO staff and staff of Alaska's Department of Natural Resources, Department of Environmental Conservation, Oil and Gas Conservation Commission, and Department of Law. The State appreciates the effort expended by GAO staff to understand the nature of oil and gas development on the North Slope, and believes it did a remarkable job.

See comment 1.

Even so, there are several points in the report that, in the State's view, must be corrected or clarified. In addition, the State has general comments on the recommendations of the report, which we have organized into two sections. The first deals with the GAO's recommendations to the Congress and the Secretary of the Interior relating to "specific" DR&R requirements. The second deals with the GAO's recommendations to the Congress and the Secretary regarding "adequate" financial assurances of DR&R performance. We have attempted to incorporate our suggestions for correcting or clarifying specific points at appropriate places in our more general comments on the GAO's recommendations.²

See comment 2.

² Several of our comments, however, do not fit neatly into the discussion of the GAO's recommendations, since they concern statements by the GAO that have no logical relationship either to those recommendations or to the alleged purpose for instituting the investigation in the first instance. For example, the draft report repeatedly employs anti-development rhetoric, such as the reference at page 23 to the Prudhoe Bay area as a "web of industrial complexes spread across 1500 square miles of state and native lands." Putting aside the GAO's use of the factually meaningless term "web," the entire Prudhoe Bay Unit—which includes not just Prudhoe Bay, but also the facilities and infrastructure for the North Prudhoe, West Beach, Lisburne, Niakuk, Pt. McIntyre, Midnight Sun, and Aurora Participating Areas—is less than one-third the size quoted. There are, moreover, no Native Corporation lands in the Unit. The statement preceding this quote, that exploration has yielded a "network of . . . roads [that] . . . has expanded from the border of the National Petroleum Reserve-Alaska (NPR-A) to almost the border of the Arctic National Wildlife Refuge," is also untrue. Fifty or so miles west of Pump Station 1, the Colville River Unit borders NPR-A, but there are no roads that reach it—unless you count the ice roads that are used in winter and melt in summer. To the east, the closest producing unit to ANWR is the Badami Unit, but it, too, has no roads that reach it. And, from the eastern edge of Badami, you still have another 20 miles to go before you reach ANWR.

Jim Yaeger
May 24, 2002
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“Specific” DR&R Requirements

The GAO recommends that the Secretary of the Interior direct the Bureau of Land Management to promulgate regulations containing “specific” DR&R requirements that will allow BLM “to meet its overall goal of returning the land [within the NPRA] to a condition that will sustain its previous uses including fish and wildlife habitat as well as subsistence uses.” Similarly, it recommends to Congress that, if it is considering opening additional federal lands to oil and gas activities, and “wants to provide specific guidance on the condition to which these lands should be returned,” it should consider placing a “specific restoration goal” in the authorizing statute.

To put it another way, the GAO concludes that it is better to decide today the specific DR&R requirements to be met 30, 40 or 50 or more years hence, rather than to address those specific requirements when the DR&R obligations actually become due. Perhaps that is the best approach, even in a sparsely populated and relatively new and undeveloped oil and gas province such as the North Slope, but the GAO fails to adequately explain why.

See comment 3.

The GAO describes the companies’ DR&R obligations under the State’s North Slope leases as “general,” which is not the whole truth. For example, the GAO transforms a specific provision in the State’s lease, which requires the lessee to “remove any and all” materials, tools, appliances, machinery, structures, and equipment from the lease when so directed by the State, into a statement that “the lessee may leave its infrastructure behind” if so directed by the State. (Draft report at 41.) Moreover, the GAO repeatedly mischaracterizes the State’s DR&R requirements as the prerogative of the lessees rather than an absolute duty to the State. For example, at several points the GAO claims that State standards tell the companies they “should” return the lands to a condition that is satisfactory to the State, when of course the leases stipulate that the companies *must* do so. The GAO also suggests this requirement is unimportant, because the State has not told the companies today what it expects of them several decades from now. In other words, the GAO’s “analysis” assumes that its conclusion is correct—being specific today is better than giving the State absolute discretion to address the specifics when DR&R becomes due—without an explanation that justifies that preconception.

See comment 4.

The GAO offers, without critical examination, the viewpoints of two, usually opposed, groups as support for its recommendation on “specific” DR&R standards. The first is the view of the industry members doing business on the North Slope. These industry members allegedly want more specific DR&R standards so that they may better estimate their future financial liabilities. The second is the view of

Because it is not drawn to scale, the map the GAO offers to show the extent of North Slope development (draft report at 24) creates another false impression of that development. When we raised this point previously with GAO staff, we were told that they could not draw the roads, pipelines and other North Slope facilities to scale because, if they did, it would be impossible to see those facilities. That is a fair point, but it does not explain why the GAO fails to acknowledge that the map exaggerates the scope of North Slope development. It also begs the question why the GAO chose to describe the nature of the North Slope’s development the way it did—an impenetrable “web”—as opposed to something like “a level of development so sparse that a map in this report drawn to scale would not even show it.” Perhaps the report could be more forthcoming by noting that the map is not to scale, with an explanation that it is presented solely to show the relative locations of facilities, and not their size or extent.

The State also questions the purpose of including in the draft report an incomplete discussion of the State’s fiscal regime, the creation of the State’s Permanent Fund, estimates of how much money has been made by various entities from oil development on State lands, and the like. It is difficult to fathom, for example, how the existence of a State sales tax, or lack thereof, is relevant to a federal policymaker’s decision on the appropriate level of DR&R on federal lands. These portions of the report are unnecessary, and only partially accurate, and should be deleted.

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environmentalists, who speculate that future politicians will lack the will to enforce DR&R standards, or that the DR&R requirements in State leases will be traded away for additional incremental production.

Though the GAO believes these groups' views are comparable—and thus ostensibly justify its conclusion—the underlying intent of each is actually diametrically opposed. The industry members, of course, would prefer specific standards that minimize their future liability. The environmentalists, on the other hand, want standards that reflect their policy views, regardless of cost. Each perceives a risk that their view of the appropriate level of DR&R may not be adopted in the future, so they would like to see it adopted now. This is a perfectly natural position for both groups to take, but it doesn't follow that adopting specific DR&R standards today is the best policy choice for government.

See comment 5.

Moreover, while government generally cannot require industry to provide greater DR&R than that stipulated in its lease contract (this is one critical distinction between traditional DR&R requirements and environmental clean up requirements), the idea that adopting specific regulatory standards today provides certainty in the future is not really true. It ignores the scope of government's power to change the regulatory standards it adopts. It also ignores that circumstances change, and that specific standards that seem appropriate today may not be appropriate at some distant point in the future.

For example, Alaska could have incorporated into its original leases and regulations a specific requirement that all gravel used to build pads to support production facilities be removed from the tundra and returned to the quarries from which it came. Alaska discovered, however, that in some cases returning gravel to its quarries might be a bad idea. One example we shared with GAO staff involved several gravel quarries that were discovered to provide overwintering habitat for certain species of fish that are used for subsistence by North Slope residents. "Restoring" the leases by removing the gravel and filling these quarries would in fact reduce North Slope subsistence opportunities. Similarly, there is ample literature documenting caribou using gravel pads and roads for insect relief, and migratory birds nesting along man-made impoundments. These uses may not in themselves determine whether it is a good idea to restore the lands to their prior condition, but they may be relevant to the State's determination. Both examples reflect circumstances Alaska could not have reasonably anticipated when the State's leases were originally drafted.

See comment 6.

To be clear, Alaska is not saying that it is too early to think about appropriate DR&R requirements on federal lands. In fact, to the extent the GAO's recommendations can be read to suggest that the federal government should begin thinking about those standards, Alaska wholeheartedly agrees. Nevertheless, the State does not believe it is self-evident that it is better to adopt specific standards today for DR&R activities that may not take place for half a century. On the contrary, Alaska views the discretion it has—to deal with particular DR&R issues as those issues arise—to be a significant benefit. Among other things, it allows the government to make decisions based upon all the facts, rather than upon assumptions about the future.

In summary, the draft report offers no facts or analysis supporting a conclusion that the federal government would be better off limiting its discretion in the manner the GAO recommends. The State believes that the draft report supports, at best, a recommendation that the Congress consider directing the Secretary of the Interior to evaluate whether adopting specific DR&R requirements is in the best interests of the United States, and to provide a report of her findings to the Congress with recommendations for appropriate action.

See comment 7.

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“Adequate” Financial Assurances

The other set of recommendations in the draft report relate to the financial assurances that need to be in place to ensure the required level of DR&R actually takes place. In essence, the GAO suggests that financial assurances far greater than those required by the State should be adopted for federal lands, even though Alaska’s bonding requirements are among the highest in the Nation. The GAO’s analysis falls short in a number of respects.

See comment 8.

The GAO’s claim that Alaska’s financial assurance requirements are insufficient to cover anticipated North Slope DR&R costs is not accurate. The GAO ignores that the real financial assurance of these obligations comes from the balance sheets of the companies doing business on the North Slope. Only if you believe that Exxon Mobil Corporation, British Petroleum, and Phillips Petroleum Company are likely to simultaneously go bankrupt, or otherwise jointly default on their lease obligations, at the time the DR&R obligations become due is there a genuine risk that Prudhoe Bay DR&R obligations will not be met. It would be economically irrational to fashion federal assurance provisions on the assumption that something like this will occur.

See comment 9.

The GAO relies on a number of other faulty factual premises. It states, for example, that there are “fixed financial arrangements” for the Trans Alaska Pipeline System, and uses that to suggest that similar arrangements would be appropriate for production facilities on federal lands. In fact, the “fixed financial arrangement” to which the GAO refers is an accounting mechanism embedded in the tariff methodology for the pipeline. It allows the pipeline owners to collect a stipulated amount for DR&R in the rates they charge. The GAO fails to acknowledge that this is effectively no different than the accounting done by the companies producing oil on the North Slope. These companies record on their books an estimate of their eventual North Slope DR&R obligations which, ultimately, will have to be met from the money these companies have earned producing oil. In both cases, the real guarantee that DR&R will take place is the financial wherewithal of the companies that are operating the facilities.

See comment 10.

The GAO also attempts to use the alleged number of “improperly” plugged and abandoned wells on the North Slope to justify a conclusion that greater financial guarantees are appropriate. Most of these wells, however, were plugged in accordance with the standards that existed at the time. It is not accurate, therefore, to describe them as “improperly” plugged. Moreover, because most of these wells were actually drilled by the federal government on federal lands that remain today in federal ownership, they are not “abandoned” in the usual sense. In sum, the existence of these old federal wells offers no support for imposing additional financial assurance provisions on new federal lessees.

See comment 11.

Further, it is wrong for the GAO to cite problems associated with old surface use leases, issued to individuals or companies that sought to provide services to the oil and gas industry, to support its conclusion about new financial assurance provisions for oil and gas leases. It is like recommending pesticides for an orange grove today because you saw worms in apples many years ago. At best, this evidence supports a reexamination by the federal government of the financial assurance provisions applicable to surface use leases issued to the service industry. Because the examples the GAO cites do not involve oil and gas leases, they do not support its conclusion.

See comment 12.

The real question is not whether the amounts reserved under the State’s or federal government’s general bonding requirements are large enough to cover any conceivable estimate of future DR&R costs, but whether the assurances given—including contractual commitments—are, under all the circumstances,

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adequate. The State acknowledges that there may be times when bonding beyond the base amount set in State law may be necessary; but it is better to address such a circumstance with a solution that is tailored to the problem. For example, there have been several instances in which the State has refused to allow a company to transfer its leases to a less financially secure company, until that new company has provided a bond or other financial assurances sufficient to cover the full estimated costs of DR&R.³

See comment 13.

By approaching its bonding requirements this way, the State strikes a balance that seeks to maximize the benefits of its oil and gas resources for its citizens. Where there is little risk the lessee will fail to perform its DR&R obligations, this approach avoids imposing costs that merely tend to discourage otherwise prudent oil and gas investments. Where the failure of performance is a significant risk, however, Alaska does not allow the development to proceed until it obtains assurances that are sufficient to ameliorate that risk.

See comment 14.

In short, the GAO's recommendation is not economically rational. Moreover, the draft report fails to point to any relevant, credible evidence that supports its recommendation that significant changes to the federal government's financial assurance requirements for oil and gas leases are necessary. The State therefore recommends that the GAO delete those recommendations before issuing its final report.

Sincerely,



Pat Pourchot
Commissioner
Department of Natural Resources

cc: John Katz, Dir State And Fed Relations
David Ramseur, Chief of Staff
Marty Rutherford, Deputy Commissioner
Jack Griffin, Assistant Attorney General

³ The GAO cites these examples deep in its draft report, but fails to acknowledge their significance. In addition, the reference to a \$1.8 million bond is incorrect. The correct amount is \$3.8 million. Draft report at 62.

The following are GAO's comments on the state of Alaska's letter dated May 24, 2002.

GAO's Comments

1. GAO often examines state practices on state lands, especially if federal agencies have a regulatory role in the state activity or if federal agencies can learn from state practices. For example, GAO has reviewed the state of Florida's land acquisition program as it relates to the South Florida Ecosystem Restoration Initiative (*South Florida Ecosystem Restoration: A Land Acquisition Plan Would Help Identify Lands That Need to Be Acquired*. GAO/RCED-00-84. April 5, 2000). In another example, GAO reviewed state management practices in state-owned parks, wildlife and waterfowl areas, and forests in New Mexico, North Carolina, and Utah and compared them to federal practices on federally owned land. (*Land Ownership: Similarities and Differences in the Management of Selected State and Federal Land Units*. GAO/RCED-97-158. June 27, 1997). Further, for state lands on Alaska's North Slope, federal agencies such as the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service have issued regulations that can significantly affect the state of Alaska's dismantlement, removal, and restoration requirements. It is within GAO's authority and responsibility to review the federal role on this issue.

The state also commented that by performing this review, GAO was promulgating a particular political agenda, which also brought into question its credibility. We strongly disagree. The GAO has a statutory obligation to fulfill requests from the Congress and its committees. To effectively accomplish this obligation, GAO prioritizes its work in accordance with its published congressional protocols. These protocols state that congressional mandates, senior leader requests, and committee leader requests receive the highest priority followed by committee member requests, and then by individual member requests. GAO does not differentiate between the majority and the minority staff when implementing these priorities. Congressmen who represent the highest of these priorities requested this work. Specifically, House Minority Leader Richard A. Gephardt; Ranking Minority Member, House Committee on Resources, Nick J. Rahall; and member of the House Committee on Resources, Edward J. Markey. To effectively support the Congress, GAO must be professional, objective, fact-based, nonpartisan, nonideological, fair, and balanced in all its work. All GAO products and services must conform to generally accepted and applicable auditing, accounting, investigative, and evaluation principles.

and standards. GAO strives to exercise the independence necessary to guarantee that its products and work conform to professional standards and the agency's core values of accountability, integrity, and reliability. It should also be noted that this review draws no conclusions and makes no recommendations on the appropriateness or inappropriateness of the state of Alaska's current DR&R requirements for its lands. We used the knowledge gained from the state's experiences on the North Slope to draw conclusions and make recommendations to federal land managers.

We disagree with the state's contention that our report does not draw a distinction between dismantlement, removal, and restoration requirements and environmental cleanup. Our report clearly defines DR&R requirements as the dismantlement and removal of infrastructure and the restoration of the land following the completion of oil and gas activities. Our report also distinguishes between the DR&R requirements imposed by Alaska's Department of Natural Resources and Alaska's Oil and Gas Conservation Commission and the requirements for air and water contaminated by pollution. We note that Alaska's Department of Environmental Conservation enforces these requirements, which include the cleanup of oil spills. We further distinguish between DR&R requirements and cleanup of environmental contamination in our analysis of the costs of DR&R requirements. We acknowledge that in some instances, especially for orphan well sites located in the National Petroleum Reserve-Alaska, both DR&R and environmental cleanup are necessary and discussed together. However, in these cases, we believe we appropriately characterize the required actions.

2. We agree with the state that the report incorrectly describes Prudhoe Bay as an area that spreads across 1,500 square miles and contains Native Corporation lands. We meant this sentence to be a description of state lands on the North Slope and have changed the report accordingly.
3. Establishing overall restoration goals and corresponding specific DR&R requirements prior to development is not an inflexible exercise. As stated in the report, we recognize that established goals can change and the process used to achieve those goals can also change as technology and circumstances change. However, we believe that to avoid confusion and concerns about what, if anything, might happen to federal lands used for oil and gas development, it is important to

establish restoration goals and corresponding dismantlement, removal, and restoration requirements prior to the initiation of such activities. We believe that such action will provide a number of benefits. First, it will allow all interested parties, including the Congress, the federal land management agency, the oil companies, environmental groups, and the public, to know what is planned for the restoration of the land after oil and gas activities cease. Such information will allow all interested parties to make more informed decisions about whether they will support or carry out such development. Second, oil companies will have better information on what is expected of them and thus will be better able to compare the benefits of oil production to the total costs before deciding whether to make such an investment. If they do decide to proceed, it will also allow the companies to better plan and budget for the eventual cost of restoration, which improves the likelihood that the needed funds will be available. Finally, if there is a public record of the planned restoration activities, it increases the likelihood that such restoration will occur or that any modification of planned restoration is justified.

4. Alaska's current lease stipulations, which are reprinted in the report, state that, at the option of the state, all improvements such as roads, pads, and wells "shall" either be abandoned and the sites rehabilitated by the lessee to the satisfaction of the state, or left intact and the lessee absolved of all further responsibility as to their maintenance, repair and eventual abandonment and rehabilitation. We did not characterize the obligation of the lessee as optional, but one that can be waived at the discretion of the state. However, we did use the word "should" to characterize the lessee's obligation instead of the word "shall." We agree with the state that the word "must" is a more appropriate characterization of the state's actual use of the word "shall" in the lease. Therefore, we have revised the report by replacing our use of the word "should" with the word "must," when appropriate.
5. We believe that because the state lacks a restoration goal for its lands on the North Slope and corresponding DR&R requirements, that these two usually opposed groups—oil companies and environmentalists—are concerned about what will be required and what will ultimately happen to the land. By recommending the establishment of restoration goals for federal lands, and the issuance of specific DR&R requirements to achieve those goals, it is our intent to alleviate such concerns and allow all interested parties to make informed decisions on these matters before the land is used. Establishing goals and requirements

prior to development would provide for greater transparency and would allow agreements to be reached on what restoration will be required before the loss of any leverage for ensuring adequate performance.

6. We agree with the state that the development of new technology and science as well as changing circumstances can cause regulatory agencies and policymakers to revise their DR&R requirements. However, we do not agree with the state that these acts are mutually exclusive. Establishing overall restoration goals and related specific DR&R requirements prior to development is not the same as dictating the process used to achieve these goals and requirements. For example, a goal of returning the land to as near as the original condition as possible and a corresponding requirement to remove gravel from abandoned development to achieve that goal does not dictate how that gravel is to be disposed of. Nor do establishing goals and DR&R requirements as part of the lease negate the ability of the lessor to alter those requirements at a later date, if the lease allows for such a modification.
7. We do not agree with the state. We do not offer any comments, draw any conclusions, or make any recommendations as to whether the state of Alaska's current DR&R practices are appropriate or inappropriate for its lands. However, we do believe that for federal lands subject to federal regulatory authority and responsibility on Alaska's North Slope, it is appropriate to establish restoration goals and DR&R requirements prior to development for the reasons stated in the report.
8. GAO is not recommending a specific level of financial assurance for federal lands on the North Slope. Rather, we state, and the Department of the Interior agrees, that the current financial assurances required by the Bureau of Land Management for oil and gas activities in the National Petroleum Reserve-Alaska would only cover a fraction of the potential future cost of DR&R. For this reason, GAO recommends, and again the Department of the Interior agrees, that the Bureau should review its existing financial assurances for the National Petroleum Reserve-Alaska to determine whether they are adequate to ensure the availability of funds needed to achieve its overall restoration goal.
9. We believe that the state's current bonding requirements are insufficient to cover the likely eventual cost of DR&R. The state has agreed with this statement in the past. We recognize in the report that

the state has chosen to place most of its reliance that funds will be available to perform whatever DR&R requirements the state may eventually establish on the overall financial condition of the companies currently operating on the North Slope. However, the state has no assurance that these firms will continue to operate on the North Slope or that, once the oil is depleted, they will be as committed to the state's intentions as the state may believe.

10. We agree that the owners of the Trans-Alaska Pipeline System (TAPS) do not escrow the actual funds collected for DR&R. We did not review whether requiring this to occur would have been a more appropriate mechanism for the regulators of the pipeline to employ to ensure that DR&R requirements are met. However, the state fails to note two very important differences between the financial assurances that exist for DR&R requirements for TAPS and the financial assurances that exist for oil and gas activities on state land on the North Slope. First, the DR&R requirements for the owners of TAPS are more definite than the requirements that have yet to be determined for state lands. Second, by defining these requirements, the owners of TAPS have been able to create a formula known to all parties for determining an amount to be collected from the users of the pipeline to meet DR&R requirements.
11. About 100 wells located in the National Petroleum Reserve-Alaska were drilled by the federal government and are still its responsibility. BLM, the federal agency responsible for managing the National Petroleum Reserve-Alaska, has specifically stated that many of these wells were improperly plugged and may pose an environmental hazard. These wells, and the risks they represent, provide an important illustration of the substantial costs involved in attempting to rectify this problem. For example, in 2001, when the Corps of Engineers approved the plugging and surface remediation of just two of these well sites, the total cost was about \$16 million. Further, in 2001, BLM estimated that just properly plugging the abandoned wells in the National Petroleum Reserve-Alaska would cost more than \$100 million over the course of 10 to 20 years.
12. We believe that abandoned surface leases used to support oil and gas activities on the North Slope provide another useful illustration of the costs of cleaning up and restoring such environments. In addition, because the state had inadequate restoration requirements and financial assurances in these old leases, they also illustrate the risks involved in having to correct the problem today.

13. GAO acknowledges in its report that in two instances the state has sought and obtained additional financial assurances before it would approve the transfer of a lease to a less financially secure company. However, as stated in the report, the state currently has no criteria to determine when additional financial assurances are needed.
14. The state feels that GAO is making a recommendation that will unnecessarily impede future oil and gas activities on federal lands on the North Slope. To the contrary, we report that the Minerals Management Service, which regulates offshore oil industry activities on federal lands, sets its bond amounts based on an escalating scale that depends on, among other things, the company's experience and financial viability, as well as the estimated future cost of reclamation. These requirements have not impeded oil companies from exploring and recently initiating the production of oil from offshore facilities located in federally regulated waters. We also report, and the Department of the Interior agrees, that the current financial assurances required by the Bureau of Land Management for oil and gas activities in the National Petroleum Reserve-Alaska are minimum fixed amounts that do not take into consideration differences in company experience and financial viability and would only cover a fraction of the potential future cost of DR&R. As such, we believe that the Bureau should review its existing financial assurances for the National Petroleum Reserve-Alaska to determine whether they are adequate to ensure the availability of funds needed to achieve its overall restoration goal. The Department of the Interior agreed with this recommendation and stated that the Bureau's review will focus on protecting the environment and taxpayers, should lessees default.

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