CONSTITUTION OF THE
STATE OF ALASKA
Article VIII, Section 1

It is the policy of the State to encourage the settlement of its land and the development of its resources by making them available for maximum use consistent with the public interest.

Information about Alaska's natural resources is available from the Office of the Commissioner, Department of Natural Resources, 400 Willoughby Center (5th floor), Pouch M, Juneau, Alaska 99811 (phone 907-465-2400).
OIL-AND-GAS RESOURCES OF ALASKA

History of Oil-and-gas Exploration and Development

Oil seeps in Alaska were first reported by Russian traders over 130 years ago. The first exploratory wildcat well was drilled on the Iniskin Peninsula on the west side of lower Cook Inlet in 1898, and in 1902, the first commercial hydrocarbon discovery was drilled at Katalla, Gulf of Alaska. The Katalla field produced oil until 1931, when the topping plant burned. This plant had supplied refined petroleum products to the Kennecott Copper Mine at McCarthy.

The first major oil field in Alaska was discovered in 1951 on the Kenai Peninsula, when the Richfield Oil Company initially drilled the Swanson River field. Other commercial oil-and-gas discoveries in the area soon delineated the Kenai Peninsula as a major petroleum-producing province.

The Atlantic Richfield Company discovered the supertgiant field, Prudhoe Bay, in 1968. At the time of discovery, this field had producible reserves of approximately 9.6 billion barrels of oil and 26 trillion cubic feet of gas. In 1977, after nearly 4 years of
The Prudhoe Bay discovery well was drilled by the Atlantic Richfield Company in 1967-68. C-130 Hercules planes were used to fly in the drill rig, camp, and all drilling supplies. Photograph by C.G. Mull, March 1968.

construction—and at a cost of $7.7 billion—the Trans-Alaska Pipeline System was completed. Since then, oil has moved through the pipeline from Prudhoe Bay to Valdez, where it is loaded onto tankers for shipment to refineries along the west coast.

Current Prospects

Approximately 85 percent of the State of Alaska's current revenue is derived from royalties and taxes paid on state-owned oil-and-gas leases. Production from many Cook Inlet fields is declining, and production from the Prudhoe Bay field is expected to substantially decline in the 1990s.

Indications from current North Slope oil-and-gas exploration are encouraging. Recently discovered accumulations in the following areas are estimated to total 2.5 billion barrels of recoverable oil.

- Kuparuk field: Approximately 1.2 billion barrels of recoverable oil; currently producing over 190,000 barrels per day.
- Duck Island - Sag Delta area: 1.1 billion barrels of in-place oil with up to 350 million barrels recoverable, not including an unknown quantity of free and associated gas. Production is from Endicott Group rocks that are not productive in the Kuparuk and Prudhoe Bay fields.
- Point Thompson area: Estimates of 350 million barrels of recoverable condensate (very high gravity, high-quality oil) and 6 trillion cubic feet of recoverable gas.
- Lisburne Pool: 3 billion barrels of in-place oil that underlie the producing Sadlerochit reservoir (Prudhoe Bay field); possibly 500 million barrels recoverable.
- Milne Point area: 60 million barrels of recoverable oil.
- Gwydyr Bay area: 30 million barrels of recoverable oil.

Other discoveries are in the early stages of delineation:

- West Sak - Ugnu area: These shallow sands contain large reserves of heavy oil. Fifteen to 25 billion barrels of oil may be in place in the West Sak sands, with as much as 3 to 5 billion barrels ultimately recoverable. Although preliminary hot-water-injection projects are being conducted, commercial production is uncertain. Commercial development of heavy oil in the shallow Ugnu sands (6 to 11 billion barrels in place) is currently beyond the technological capability of industry.
- Seal Island: The discovery well produced up to 5,000 barrels of 40° gravity oil and 10 million cubic feet of gas per day. Delineation wells are currently being drilled.

Construction of North Star Island was completed in 1985. Concrete blocks replace the traditionally used gravel-filled bags that protect other gravel islands from erosion by pack ice and wind-driven summer waves. Other man-made gravel islands have been effectively used for oil-and-gas drilling operations. Photograph courtesy of AIC-Martin, 1985.

Colville Delta: In 1985 Texaco announced a discovery well that produced from 414 to 1,076 barrels of oil per day. No estimate of in-place reserves has been made.

According to the National Petroleum Council (1981), estimates for undiscovered, conditional, in-place oil resources in Alaska range from 2.5 to 14.6 billion barrels onshore and 4.6 to 24.2 billion barrels offshore (35-percent and 5-percent probability levels, respectively).

Between September 1984 and August 1985, exploratory drilling proceeded at a moderate to fast pace. Of nine new wells drilled on state leases, Texaco announced one discovery at Colville Delta No. 1. Nineteen wildcat wells were drilled on federal leases in the St. George Basin, Norton Sound, Navarin Basin, lower Cook Inlet - Shelikof Strait, and Beaufort Sea areas, but none encountered commercial-grade hydrocarbon deposits. Additionally, one dry hole was drilled onshore on a federal lease in the National Petroleum Reserve Alaska.

Six federal outer continental shelf wells are operating in the state. Additional permitted locations will be drilled during the fall of 1985 or during the 1986-87 winter drilling season.

Development activity is extensive in both the Prudhoe Bay and Kuparuk fields. Delineation and development drilling are especially active on the Seal Island and Milne Point accumulations. During the past year, the private sector proceeded with development of the Endicott reservoir at Duck Island and successfully used the first Concrete Island Drilling System (CIDS).

Resource Estimates

The map of Alaska (p. 9) identifies the state's hydrocarbon resources based on estimates by the U.S. Geological Survey and National Petroleum Council. These estimates were made in 1981 and were subsequently modified from Ehm (1983) for this document. Resource estimates released in July 1984 by the U.S. Department of Interior Minerals Management Service (Cooke, 1985) are also shown on the map. The Alaska Department of Natural Resources Division of Geological and Geophysical Surveys recently published Special Report 32 (Ehm, 1983), which shows major oil-and-gas basins in Alaska.

Oil-and-gas Leasing Program

The Alaska Department of Natural Resources is responsible for managing Alaska's oil-and-gas resources. Annually a 5-year schedule for the leasing of state land for oil-and-gas exploration is submitted to the Legislature. The major purpose of this schedule is to facilitate the orderly assessment and development of Alaska's petroleum resources. All Alaskans, including local citizens and governments, environmental groups, the oil-and-gas industry, and the business sector benefit from a fixed and predict-
able leasing program because an established leasing schedule permits the public to comment on areas that may be leased, allows business and labor to plan employment or business opportunities, permits the petroleum industry to allocate a portion of its resources to petroleum exploration and development, and gives local, state, and federal governments adequate time for presale evaluation, assessment, and mitigation of impacts. The 5-year lease-sale schedule may be obtained from the Alaska Department of Natural Resources Division of Oil and Gas (1985).

**Exploration Activity in the Arctic National Wildlife Refuge**

Oil-industry interest is currently focused on the Arctic National Wildlife Refuge (ANWR) in anticipation of a Congressional decision about leasing within the refuge. The Congressional decision, which is to be made in 1986 or 1987, will partly be based on estimates by federal and state geologists of probable oil resources within the refuge.

The Department of Natural Resources Division of Geological and Geophysical Surveys is conducting a petroleum-resource analysis of ANWR. During the summer of 1985, in cooperation with the Bureau of Land Management, Survey geologists conducted extensive field studies in the refuge. The information collected during this field program will be used to interpret confidential seismic and well data, including 1984 and 1985 ANWR seismic and offshore data within the 6-mile limit.

**References Cited**


Ehm, Arlen, 1983, Oil and gas basins map of Alaska: Alaska Division of Geological and Geophysical Surveys Special Report 32, scale 1:2,500,000, 1 sheet.

