



## Fact Sheet

# Prudhoe Bay

### Background

The Prudhoe Bay field is the largest field in North America and the 18th largest field ever discovered worldwide. Of the 25 billion barrels of original oil in place, more than 13 billion barrels can be recovered with current technology.

Prudhoe Bay field was discovered on March 12, 1968, by ARCO and Exxon with the drilling of the Prudhoe Bay State #1 well. A confirmation well was drilled by BP Exploration in 1969. The next 8 years saw frenetic activity as ARCO, BP, Exxon, and other companies with lease holdings in the vicinity worked to delineate the reservoir, resolve equity participation, and put together an initial infrastructure. Prudhoe Bay came on stream in June 20, 1977, rapidly increasing production until the field's maximum rate was reached in 1979 at 1.5 million barrels per day. This rate was maintained until early 1989, and is currently declining by 10% per year. Production totaled approximately 475,000 barrels per day on January 1, 2004. More than 10 billion barrels have already been produced.

Prior to 2000 the Prudhoe Bay field was comprised of the East Operating Area, operated by ARCO, and the West Operating Area, operated by BP Exploration. Upon acquisition of ARCO by BP and sale of ARCO Alaska assets to Phillips Petroleum, the two operating areas were consolidated and BP became the sole operator of Greater Prudhoe Bay. Although BP operates the field, a total of nine companies have an interest in the field leases. The profits and costs are shared amongst the owners, according to their ownership.

### Ownership

BP Exploration (Operator), 26%  
 ConocoPhillips Alaska Inc., 36%  
 ExxonMobil, 36%  
 Others, 2%

Source:  
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<b>Greater Prudhoe Bay Fast Facts</b>	Discovered	1968
	Production started	1977
	Oil production wells	1114
	Participating field area (including satellites)	213,543 acres
	Daily production (thousands)	475,000 bbls/day
<b>Total cumulative production (1/1/05)</b>	<b>BP Net</b>	<b>Gross</b>
	4395	10,839
<b>Midnight Sun Fast Facts</b>	Production started	1998
	Oil production wells	2
	Participating field area (including satellites)	3,112 acres
	Daily production (thousands)	5,500 bbls/day
<b>Aurora Fast Facts</b>	Production started	2000
	Oil production wells	10
	Participating field area (including satellites)	7,519 acres
	Daily production (thousands)	9,000 bbls/day
<b>Orion Fast Facts</b>	Production started	2002
	Oil production wells	3
	Participating field area (including satellites)	18,853 acres
	Daily production (thousands)	11,000 bbls/day
<b>Polaris Fast Facts</b>	Production started	1999
	Oil production wells	10
	Participating field area (including satellites)	11,681 acres
	Daily production (thousands)	4,000 bbls/day
<b>Borealis Fast Facts</b>	Production started	2001
	Oil production wells	27
	Participating field area (including satellites)	7,757 acres
	Daily production (thousands)	19,000 bbls/day

### Location

The Prudhoe Bay field is located 650 miles north of Anchorage and 400 miles north of Fairbanks. It is 1200 miles from the North Pole and 250 miles north of the Arctic Circle. Pump Station 1, the beginning of the Trans Alaska Pipeline, is located within the perimeter of the Prudhoe Bay field.

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## Geologic Features

The Prudhoe Bay field, like many oil fields, consists of layers of porous rock that contain gas, oil, and water. The water, being the heaviest, lies in the lower rock layers of the field. The oil lies above the water, and the gas rests atop the oil. The oil, gas, and water are held in the Prudhoe Bay field by changes in the rock type (stratigraphy) and by the tilt and faulting of the rock layers. Sandstones are porous and allow the fields' fluids to flow through them. Shales, however, act as barriers to fluid flow. Thus, whenever a sandstone layer meets a shale layer, either through faulting or as a factor of how the rock was originally deposited, the shale stops the fluid flow and the fluids are trapped.

The oil at Prudhoe Bay is trapped in the Sadlerochit formation, a sandstone and gravel structure nearly 9,000 feet underground. In some locations the oil-bearing sandstone was 600 feet thick during the field's early life. Today, average thickness of the oil bearing zone is about 60 feet.

## Natural gas

The field contains an estimated 46 trillion cubic feet of natural gas (in place) in an overlying gas cap and in solution with the oil. Of that, about 26 trillion cubic feet are classified as recoverable.

## Investment

The major owners have invested more than \$25 billion to develop the Prudhoe Bay field and the transportation system necessary to move Prudhoe Bay crude oil to market.

## Satellite Fields

Since 1998 five satellite fields have been discovered and developed within the unit boundaries of the Prudhoe Bay oil field. These fields are Midnight Sun, Aurora, Orion, Polaris, and Borealis. One of the key objectives of the field's development has been to maximize sharing of existing infrastructure, including production and support facilities. The production wells for these satellite fields are located on one of the Prudhoe production pads. The liquids are processed through Prudhoe Bay facilities.

