1.3 History of Trans Alaska Pipeline System

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After oil was discovered at Prudhoe Bay in 1968, a reliable system was needed to transport crude oil from Alaska's North Slope to Lower 48 refineries. Many methods were discussed — ice-breaking tank vessels to traverse the Northwest Passage, giant tanker airplanes, and extending the Alaska Railroad to Prudhoe Bay. Ultimately, the oil companies determined that the most economic transport method was a hot-oil pipeline from the North Slope oil fields to the Port of Valdez, where the oil could be loaded onto tank vessels and shipped to the U.S. West Coast.

As a result of disputes over Native land claims, in 1966, then Secretary of the Interior Stewart Udall called a temporary halt on development, homesteading, and federal and state land selection on all public lands in Alaska. This freeze was still in effect when the oil companies applied for a federal right-of-way permit for the pipeline in 1969.

In 1969 Congress passed the National Environmental Policy Act (NEPA), requiring an environmental impact statement (EIS) for major federal actions that significantly affect the quality of the human environment. At about the same time, several Native villages claimed land that the pipeline and haul road would cross, and filed suit in federal court to halt construction of the haul road. In addition, three environmental organizations filed a federal suit claiming the pipeline project violated NEPA and the Mineral Leasing Act of 1920 (MLA).

Native land claims were mostly settled in December 1971 when the Alaska Native Claims Settlement Act (ANCSA) was signed. ANCSA created Alaska Native regional corporations and provided almost $1 billion and 44 million acres to Alaska Natives. As part of this legislation, Native land claims along the proposed pipeline right-of-way were resolved, making it possible for the federal and state governments to grant essential licenses and permits. Meanwhile, the U.S. Department of the Interior was drafting an EIS for the pipeline project, which generated 12,000 pages of testimony during the public comment period. One issue raised was the lack of discussion on an alternate pipeline route through Canada to the U.S. Midwest. The court of appeals for the District of Columbia subsequently ruled that broad consideration of alternatives was required under NEPA, and as a result, the Canadian route had to be evaluated. The final EIS determined that neither route presented a distinct environmental advantage. Ultimately, timing was a critical factor — the Canadian route was forecast to take two to six years longer to complete than the Alaskan route.

The Department of the Interior released the final EIS in March 1972 (BLM, 1972). The six-volume report stressed the need for Alaskan oil on the U.S. West Coast and the country's immediate need for domestic oil. Later that year, in an atmosphere of growing concern over U.S. dependence on foreign oil, then Secretary of the Interior Rogers C.B. Morton declared the trans-Alaska pipeline to be in the national interest. The federal injunction against the pipeline project was lifted. However, in 1973, the appeals court ruled that the proposed right-of-way and special land use permits for the pipeline did not comply with the MLA. In places, the proposed right-of-way exceeded the 54-foot width allowed under the MLA. To obtain a wider right-of-way, approval from Congress was required.

Extensive debate surrounded the pipeline issue in Congress. Environmentalists remained concerned about potential risks associated with the pipeline. However, the Arab oil embargo influenced public opinion in favor of a new domestic source of oil. President Richard Nixon signed the Trans-Alaska Pipeline Authorization Act on November 16, 1973, after a vote cast by Vice President Spiro Agnew broke a deadlock in the Senate. The pipeline authorization act was intended "to insure that, because of...the national interest in early delivery of North Slope oil to domestic markets, the trans-Alaska oil pipeline be constructed promptly without further administrative or judicial delay or impediment." The Act directed the Secretary of the Interior to authorize the federal right-of-way for the pipeline, which he did on January 23, 1974. The State of Alaska issued its right-of-way lease on May 3, 1974.

Both the Federal Agreement and Grant of Right-of-Way for the Trans-Alaska Pipeline (Federal Grant) and the State Right-of-Way Lease for the Trans-Alaska Pipeline (State Lease) were negotiated agreements entered into by the

TAPS owners. Under the Federal Grant, the owner companies agreed to: 1) "employ all practicable means and measures to preserve and protect the environment..." in construction, operation, and maintenance of the pipeline; 2) "balance environmental amenities and values with economic practicalities and technical capabilities..."; and 3) "manage, supervise and implement the construction, operation, maintenance and termination of the Pipeline System in accordance with sound engineering practice, to the extent allowable by the state of the art and development of technology."

Through the delays in the early 1970s, Alyeska Pipeline Service Company — the company established by the owners to build and operate the Trans Alaska Pipeline System (TAPS) — worked on the design and specifications of the pipeline in coordination with the U.S. Geological Survey, the Bureau of Land Management, the U.S. Army Corps of Engineers, the Alaska Department of Fish and Game, and other federal and state agencies. Data from pipeline field tests, simulation modeling, and a detailed study of permafrost slowly altered the shape of the project. Where permafrost was mapped as thaw-unstable, and in earthquake zones — both regions mainly south of the Brooks Range — plans for a buried pipeline were changing to an aboveground mode. Once the rights-of-way were obtained, Alyeska had to obtain more than 1,300 federal and state permits for constructing and operating the pipeline (Table 1.3-1).

Construction of the pipeline system finally began in April 1974 when Alyeska began moving 37,500 tons of equipment by air and truck to the Yukon River, then north by ice road. Construction of TAPS required that 73 million cubic yards of gravel be mined, stockpiled, hauled, and laid down. This meant designing and permitting hundreds of detailed gravel-mining plans.

Construction of the permanent Haul Road (now the Dalton Highway, or Alaska State Route 11) was started on April 29, 1974, and completed on September 29 of that year. The first pipe was laid at the Tonsina River crossing of the Richardson Highway, 75 road miles north of Valdez, on March 27, 1975; the final pipeline weld was finished on May 31, 1977. Oil began flowing down the pipeline on June 20, 1977, and on August 1, the *ARCO Juneau* was the first tanker to leave Valdez carrying North Slope crude oil — after six years of controversy, an additional three years of construction, a workforce that ultimately totaled 70,000 people, and $8 billion (Table 1.3-2).

TAPS and the VMT are described in detail in Sections 1 and 2 of this Environmental Report. The 800-mile-long pipeline crosses 34 major rivers and some 800 smaller streams and three mountain ranges. The VMT includes facilities for crude oil storage and ballast water treatment, as well as fixed-platform and floating berths for oil tankers.

The baseline and environmental monitoring studies conducted along the pipeline by industry and agency researchers over the past 20 years has included water quality studies in Port Valdez; long-term revegetation experiments; fisheries investigations of water bodies crossed by or near the pipeline; and surveys of caribou, moose, bear, waterfowl, and other wildlife. (These studies are discussed as appropriate in the relevant sections of this Environmental Report.) The result is that the TAPS ROW, like the North Slope oil fields, is one of the most intensively studied regions in Alaska.

During the past 20 years, Alyeska's engineers have worked with other experts to develop innovations in low-

Table 1.3-1. *Facts about construction of TAPS, 1974-1977 (APSC, 2000).*

Category	Data
Archaeological Surveys before Construction	Approximately 330 sites, cost approx. $2.2 million
Soils Surveys before Construction	Approximately 3,500 bore holes and 15,000 soil samples
Permits Required	515 federal, 832 state
Notices to Proceed Required	465 federal, 403 state
Temporary Facilities	29 construction camps, 14 airfields (3 became permanent)
Materials	Approximately 3 million tons shipped to Alaska, approx. 73 million cubic yards of gravel used
Workforce	Approximately 70,000 over life of construction project (1969 - 1977), peak was 28,072 in October 1975

temperature engineering (Gilders, 1997). Alyeska also pioneered other advancements in pipeline operation. For example, a drag reducing agent was initially injected into the pipeline at Pump Station 1 in July 1979, two years after startup. It was considered experimental at the time but is now standard procedure. Alyeska developed the world's first ultrasonic corrosion-inspection pig. This pig measures and records the thickness of the pipeline's walls using ultrasonic transducers, identifying areas of possible corrosion before they become problems.

On March 24, 1989, the *Exxon Valdez* ran aground on Bligh Reef in Prince William Sound and spilled 257,000 barrels of oil. The spill brought about changes designed to prevent future spills of this magnitude. The Ship Escort/Response Vessel System (SERVS) was established following the *Exxon Valdez* spill in response to an executive order by the Governor of Alaska requiring every outbound tanker to be accompanied by two escort vessels until the tanker had left Prince William Sound.

The 1989 oil spill also gave added impetus to the establishment of a coordinated regulatory body to oversee the planning, construction, operation, and maintenance of all Alaska pipelines and associated facilities. The Joint Pipeline Office (JPO) was established in 1990 with representatives from various federal and state agencies. The JPO now includes the following agencies:

State of Alaska Agencies:

- Department of Natural Resources
- Department of Environmental Conservation
- Department of Fish and Game
- Department of Labor
- Division of Governmental Coordination
- Department of Transportation/Public Facilities

Federal Agencies:

- Bureau of Land Management
- Department of Transportation/Office of Pipeline Safety
- Environmental Protection Agency
- U.S. Coast Guard
- U.S. Army Corps of Engineers

Agency representatives conduct unannounced inspections of facilities, review permit applications, and oversee every aspect of pipeline operations in Alaska.

In 1991, Alyeska began the largest post-construction project in the pipeline's history: the Atigun reroute. The reroute began as a result of information supplied by smart pigs used during the first years of the ongoing corrosion investigation. Discovery of corrosion in the buried section of pipe running through Atigun River valley led to the replacement of an 8.5-mile section of pipe.

Table 1.3-2. *Key events in the history of the Trans Alaska Pipeline System.*

Date	Event
March 1968	Oil discovered at Prudhoe Bay
August 14, 1970	Alyeska Pipeline Service Company incorporated by the owner companies
March, 1972	Department of Interior issues final environmental impact statement for TAPS
November 16, 1973	Trans-Alaska Pipeline Authorization Act signed into law
January 23, 1974	Federal Agreement and Grant of Right-of-Way
May 3, 1974	State Lease
April 29, 1974	Haul Road construction begins
September 29, 1974	Haul Road construction completed
May 27, 1975	First pipe laid (Tonsina River)
October 11, 1975	Yukon River bridge completed
May 31, 1977	Final pipeline weld
June 20, 1977	First oil flows from Pump Station 1
July 28, 1977	First oil reached VMT
August 1, 1977	First oil-laden tanker (ARCO Juneau) leaves Valdez Marine Terminal
July 1, 1979	Drag reducing agent first used
1988	Peak average daily throughput of 2.03 million bbl/day
March 24, 1989	Exxon Valdez oil spill
July 10, 1989	Alyeska Ship Escort/Response Vessel System established
1990	Federal Oil Pollution Act of 1990
1990	Joint Pipeline Office established
1990	Prince William Sound Regional Citizens Advisory Council contract signed with Alyeska
1990	HB 567 enacted by Alaska Legislature amending oil pollution laws
1991	Atigun reroute
1993	Congressional hearings on TAPS operations
March 5, 1994	10 billionth bbl reaches VMT
1996-1997	Pump Stations 2, 6, 8, and 10 taken offline and placed on standby due to lower throughput
1997	Tanker vapor recovery system added at VMT
August 12, 1997	15,000th tanker leaves VMT
April 27, 2000	13 billionth barrel reaches VMT

Except for occasional shutdowns for maintenance or troubleshooting, the pipeline has operated continuously since June 1977. TAPS has transported approximately 13 billion barrels of crude oil. The peak average daily throughput of 2.03 millions barrels per day was reached in 1988, and that rate dropped to approximately 1.08 million barrels per day in 1999.