

*Alaska State Right-of-Way Application
for the
Alaska Natural Gas Transportation System
(Alaska Portion)*

PROJECT DESCRIPTION

*Alaskan Northwest Natural Gas Transportation Company
(ANNGTC)
and
TransCanada Alaska Company, LLC
(TransCanada Alaska)*

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Additional Information About the ANGTS Project Can Be Found At:

<http://www.foothillspipe.com/index.html>

INTRODUCTION

For many years, TransCanada Corporation (TransCanada) and its affiliates have been promoting and supporting the development of the Alaskan Natural Gas Transportation System (ANGTS or Project) to transport stranded Alaskan natural gas by pipeline to the lower 48 states. This Project Description summarizes the background of these efforts and defines the scope of the Alaskan Segment of the proposed Project in support of the Alaska State Right-of-Way Application which follows.

BACKGROUND

ANGTS is the gas pipeline project approved in accordance with the Alaska Natural Gas Transportation Act of 1976 (ANGTA) in the U.S., the Northern Pipeline Act in Canada, and the Agreement between the United States of America and Canada on Principles Applicable to a Northern Natural Gas Pipeline (Agreement on Principles). As approved, the ANGTS is a 4,800-mile international pipeline project commencing at Prudhoe Bay and paralleling the Trans Alaska oil pipeline system (TAPS) to Fairbanks, where it angles southeast, following the Alaska Highway to the Alaska-Yukon border with Canada, down through the Yukon Territory and northern British Columbia, and into Alberta. In Alberta, the pipeline splits into two legs. The Eastern Leg proceeds southeast, crossing the U.S.-Canada border at Monchy, Saskatchewan and terminating near Chicago. The Western Leg proceeds southwest, crossing the U.S. Canada border near Kingsgate, British Columbia and terminating at a point near Antioch, California.

The Alaskan Northwest Natural Gas Transportation Company (ANNGTC) in Alaska and Foothills Pipe Lines Ltd. (Foothills) in Canada propose to design, build and operate the 1,750-mile yet-to-be constructed portion of the ANGTS to transport Alaska North Slope (ANS) natural gas from Prudhoe Bay, Alaska to a major trading and infrastructure hub in Alberta, Canada. Foothills, a wholly-owned subsidiary of TransCanada, has already constructed, and owns and operates the Eastern and Western Legs of ANGTS in Canada, or 30% of the Canadian portion of the ANGTS. For planning and design purposes, ANNGTC and Foothills are analyzing a pipeline to a point at Boundary Lake, Alberta, Canada. The selection of Boundary Lake follows the original routing of the ANGTS. An extension by Foothills of the existing ANGTS facilities to the Project at Boundary Lake would provide shippers with access to existing and expanded downstream North American pipeline infrastructure that will provide more than sufficient

take away capacity for ANS gas to be delivered to North American markets.

ANNGTC is the person selected and designated by the President,¹ the United States Congress,² and the Federal Energy Regulatory Commission (FERC)³ to construct and operate the Alaska segment of the ANGTS. As such, ANNGTC is the current holder of the certificate of public convenience and necessity issued for the Project, the grantee of a right-of-way for the Project across federal lands in Alaska, and the holder of Clean Water Act Section 401 and Section 404 and Coastal Zone Management Act / Alaska Coastal Management Program permits and authorizations for the Project. ANNGTC is wholly owned by TransCanada which owns and operates one of the largest, most sophisticated, remote controlled natural gas pipeline networks in the world. These companies have strong track records with stakeholders, including communities and regulatory agencies. TransCanada and its subsidiaries have accumulated a significant base of knowledge and information pertaining to building and operating a gas transportation system through Alaska and northern Canada, and maintain policies and management systems to construct and operate the ANGTS.

As fully described below, a great deal of history surrounds the ANGTS.

With the passage of ANGTA, Congress determined that "the expeditious construction of a viable natural gas transportation system for delivery of Alaskan natural gas to United States markets is in the national interest." To avoid the U.S. inter-agency cross-jurisdictional issues that significantly delayed and increased the cost of TAPS, ANGTA established, among other things, a streamlined process to reach an expedited decision on the selection and construction of a transportation system for delivery of Alaskan gas to lower-48 markets.

To that end, ANGTA vested decisional responsibility in the President, subject to Congressional review, to select the natural gas transportation system for the delivery of ANS gas to the lower-48 states. The statute also provided for the establishment of the Office of Federal Inspector (OFI), to which were transferred certain authorities of the Departments of Interior, Transportation, Agriculture, Treasury, Labor, and Energy, the Environmental Protection Agency, the Army Corps of Engineers, and the Federal Energy Regulatory Commission. The OFI has primary

¹ Executive Office of the President, Decision and Report to Congress on the Alaska Natural Gas Transportation System, Sept. 22, 1977.

² H.R.J. 621, 95th Cong. (1977).

³ Alcan Pipeline Co., et al., 1 FERC ¶ 61,248 (1977).

responsibility for the coordination of federal permitting, enforcement of permit conditions, and facilitation and oversight of the construction and initial operation of the U.S. portions of the ANGTS.

Following several years of comparative hearings in both Canada and the United States, on September 20, 1977, the two countries consummated the Agreement on Principles. That Agreement designates the Alcan Project as the superior project and states specific terms and conditions under which the project would be built with the joint cooperation of the U.S. and Canadian governments.

On September 22, 1977, President Carter issued his "Decision and Report to Congress on the Alaska Natural Gas Transportation System," which incorporates by reference the terms and conditions of the Agreement on Principles. In his Decision, the President officially designated (i) Alcan Pipeline Company (predecessor to ANNGTC) to construct and operate the portion of the ANGTS within Alaska; (ii) Northern Border Pipeline Company to construct and operate the U.S. portion of the Eastern Leg of the ANGTS; and (iii) Pacific Gas Transmission Company and Pacific Gas & Electric Company to construct the U.S. portion of the Western Leg. The President's Decision became final under ANGTA on November 2, 1977, by a Joint Resolution of Congress. Later in 1977, the Federal Energy Regulatory Commission (FERC) issued conditional certificates of public convenience and necessity authorizing the construction of the Alaska segment and Eastern and Western Legs of the ANGTS.

In April 1978, the Canadian Parliament enacted the Northern Pipeline Act, which granted certificates of public convenience and necessity to the Foothills affiliates responsible for the construction and operation of the 2,000-mile Canadian portion of the ANGTS. The Act also established the Northern Pipeline Agency and gave it the authority to oversee the construction of the system in Canada.

The President's Decision, the Northern Pipeline Act, and "Reasons for Decisions" of the Canadian National Energy Board authorizing Foothills' construction of the Canadian portion of the ANGTS identified the benefits of prebuilding portions of the ANGTS in Canada and in the lower-48 states in advance of the entire system. In early 1980, the FERC issued certificates of public convenience and necessity authorizing the construction and operation of the Eastern and Western Legs of the ANGTS (also known as the "prebuild" segments of the ANGTS). However, only after the U.S. government provided further assurances to Canada that the entire ANGTS, including the Alaska segment, would be constructed, did the Canadian government authorize the additional

export volumes needed to support the construction of the Eastern and Western Legs. Major portions of the Eastern and Western Legs in both the U.S. and Canada subsequently were constructed.

Meanwhile, the ANNGTC, a partnership formed to construct the Alaskan segment of the ANGTS, proceeded with key technical work and related government approvals. For example, a right-of-way grant for the Alaskan segment was issued by the U.S. Department of the Interior; numerous design approvals and environmental authorizations, such as the wetlands permits under Section 404 of the Clean Water Act, were issued by U.S. authorities; a conditional certificate of public convenience and necessity was issued by the FERC; and an easement agreement was executed by the Government of Canada and Foothills, subject to certain Canadian governmental consents.

In addition, the ANNGTC filed in 1981 an application with the State of Alaska for a right-of-way lease of State lands needed for the ANGTS. A substantial amount of work was done and money expended on the right-of-way lease. By early 1982, however, market changes resulted in a decrease in demand for ANS natural gas. As a result, in the spring of 1982, the ANNGTC announced a suspension of activities on the unbuilt portions of the ANGTS.⁴ Given this, a final right-of-way lease across State lands was never procured. However, this application has neither been finally acted upon by the Commissioner of Natural Resources nor withdrawn by the ANGTS sponsors, and is still viable and pending.

Given the extensive amount of work done and money expended on obtaining the right-of-way lease, the ANNGTC decided to maintain the lease application in good standing so that a right-of-way lease could be expeditiously obtained once gas markets improved and the ANGTS was remobilized. To that end, the

⁴ In January 1992, Michael Bayer, the U.S. Federal Inspector for the ANGTS, sent President Bush a report that essentially recommended abandonment of the entire ANGTS legal infrastructure. While the ANGTS sponsors did not object to abolition of the Office of Federal Inspector, they strongly opposed abrogation of the core ANGTS authorities, that is, ANGTA, the President's Decision, and the U.S.-Canada Agreement. Although the OFI was subsequently dismantled, the authorities of OFI were transferred pursuant to the Energy Policy Act of 1992 to the Secretary of Energy. Thus, the Congress and the President rejected the recommendation to abandon the ANGTS legal infrastructure. As of today, the legal and regulatory status of the unbuilt portions of the ANGTS in both Alaska and Canada remain unchanged. The ANGTS remains legally authorized in both countries to construct a natural gas transportation Project to deliver ANS gas to the lower-48 states.

ANNGTC has done much work to keep its pending lease application current.

This work includes:

- Resolving State right-of-way and related transportation issues, such as responding to requests for information from the State regarding use of the Yukon River Bridge, completing a “Thermal Effects Study” of pipeline construction effects on the Dalton Highway, and advancing negotiation of an “Agreement on Highway Use, Maintenance and Repairs” with the State;
- Refined project cost estimating;
- Periodic reconnaissance of the right-of-way route;
- Frost heave engineering and other technical work completed in support of the State right-of-way application, including the expenditure of more than \$30 million on the development of base route maps, drawings and surveys, more than \$77 million on the development of geotechnical data, and more than \$19 million on environmental-related data; and
- Extension and maintenance of the ANGTS’s Clean Water Act section 404 permits.

On March 26, 2001, the ANNGTC, through its authorized agent Foothills Pipe Lines Alaska, Inc. (Foothills Alaska), notified the State Pipeline Coordinator that it would like the State to resume processing its application for a right-a-way lease for the ANGTS. Pursuant to Foothills Alaska’s request, the Alaska Department of Natural Resources, Gas Pipeline Office, issued a Public Notice that it “intends to do so.” Throughout 2001 and much of 2002, Foothills Alaska worked diligently on updating the pending State right-of-way application.

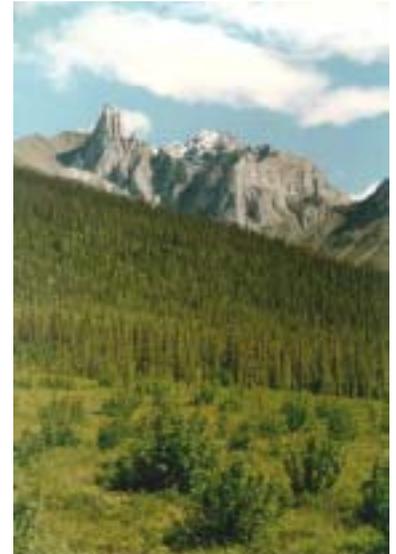
In June 2004, pursuant to the Memorandum of Understanding between the State of Alaska and TransCanada entered into on April 19, 2004 (“MOU”), TransCanada, through ANNGTC (by its authorized agent, Foothills Alaska) and TransCanada Alaska Company, LLC (TransCanada Alaska), submitted an updated application for the State right-of-way lease. ANNGTC and TransCanada Alaska (the “Co-applicants”) are co-applicants for the State right-of-way lease for the Project under AS 38.35.050(d). The ANNGTC Board of Partners has delegated to Foothills Alaska the specific duty, on behalf of ANNGTC, to prepare, file and prosecute with the appropriate Federal, State and local agencies and other governmental authorities, such applications and requests for permits, authorizations and certificates as may be necessary for the further development of the

ANGTS in Alaska. ANNGTC, Foothills Alaska, and TransCanada Alaska are all wholly-owned entities of TransCanada.

TransCanada’s designation of TransCanada Alaska as a Co-applicant under the application, in addition to ANNGTC as the original applicant, provides an alternate TransCanada entity to whom the right-of-way lease can be issued at TransCanada’s designation and in furtherance of the objectives of the MOU. Specifically, the MOU provides that (1) the State will expeditiously resume processing TransCanada’s lease application and (2) once the commercial arrangements with respect to the Project are sufficient to secure financing for the Project, TransCanada would be willing to convey, pursuant to certain specifically stated terms and conditions, the State right-of-way lease to a third party. The potential transfer of the lease pursuant to the terms of the MOU is facilitated by the addition of the second Co-applicant and will help to ensure that the lease will be used to benefit the entity that ultimately will develop the Project.

PURPOSE AND NEED FOR COMPLETING THE PIPELINE

There is a developing consensus that ANS gas will be needed in the continental United States by the end of this decade. Both government and private organizations estimate, on average, that there was a shortfall in annual natural gas production in the lower-48 states of about 4 trillion cubic feet (Tcf) in 2002 and that this shortfall will increase to over 6 Tcf in 2015. Gas demand is expected to grow in each sector — residential, commercial and industrial — with about 40% of the increase resulting from gas consumed in electric power generation. Gas consumed annually by electricity generation alone is estimated to increase by over 2 Tcf between 2002 and 2015. Even with increased supplies of Canadian gas exports to the U.S., virtually all government and industry forecasts indicate a need to connect new sources of supply to satisfy the



increasing demand for natural gas in the lower-48 states.

ANS natural gas reserves are the largest untapped gas resource in North America, and the development of that resource would greatly enhance U.S. national energy security. The ANGTS was originally conceived as a critical component of U. S. energy policy and can now fulfill that promise.

Furthermore, the U.S. Congress and the Canadian Parliament, as well as the countries' respective regulatory bodies, have already approved the ANGTS project and route. Moreover, the ANGTA and Northern Pipeline Act create expedited and efficient procedures for completing the ANGTS. It is a cost-effective and environmentally sound project, which can be in service and transporting gas in the 2012 time frame.

The ANGTS is the only natural gas transportation project currently authorized under U.S. and Canadian statutes to transport ANS gas to the lower-48 states. Moreover, the comprehensive statutory and regulatory foundation for the ANGTS — including ANGTA, the President's Decision, the Northern Pipeline Act, and the Agreement on Principles — remain in place and provide unique and streamlined procedures for expediting construction of the ANGTS. The authority of the OFI, as transferred to the Secretary of Energy and delegated to the Assistant Secretary for Fossil Fuel, also continues in effect today with respect to expediting and coordinating federal permitting, enforcement of permit conditions, and facilitation and oversight of the construction and initial operation of the U.S. portions of the ANGTS.

On top of this legal and regulatory foundation unique to the ANGTS, stands the substantial work that already has been done by the ANGTS sponsors. Much of the Eastern and Western Legs of the ANGTS has already been constructed and expanded in Canada and the U.S. and has been in operation for many years (Phase 1). Substantial progress has been made on completion of the remainder of the ANGTS (Phase 2). The ANNGTC, in conjunction with the principal Prudhoe Bay gas producers, constructed and operated a number of full-scale field test site programs. The ANNGTC also has conducted extensive mile-by-mile data gathering along the entire pipeline route in Alaska. The ANGTS sponsors have spent hundreds of millions of dollars in both Alaska and Canada to confirm northern pipeline engineering design and construction techniques related to construction and operation in permafrost, frost heave and thaw settlement, stabilization of disturbed areas and environmental disturbance mitigation. Much of this data will be deployed in the current design studies.

While market constraints have delayed the construction of the northernmost portions of the ANGTS, the certificates and permits issued by Canadian, U.S., and Alaskan authorities remain valid. Indeed, the ANGTS sponsors have maintained approvals and authorizations in effect, continued to conduct engineering and other pipeline feasibility studies, and investigated the applicability of new technologies to reduce the cost of construction of the ANGTS.

The ANGTS also will provide construction and operational jobs and new business opportunities for Alaskan citizens along its overland route. Moreover, the ANGTS provides obvious opportunities to serve demand for natural gas not only in the lower-48 states, but also along the route in Alaska. The residents of these areas currently are confronted with extraordinarily high energy costs. The ANGTS will provide to these residents, for the first time, low cost clean natural gas for home heating, electricity generation, and potential industrial development.

COMPLETING THE ANGTS

Completing the Alaskan portion of the ANGTS will involve construction, operation and maintenance of a natural gas pipeline system extending nearly 750 miles from Prudhoe Bay, Alaska to the Canadian border near Beaver Creek, Yukon. The components of the ANGTS are described in the following sections.

The ANGTS is an interstate pipeline subject to ANGTA, the Natural Gas Act and the regulations promulgated thereunder and various other federal statutes and regulations. Therefore, the ANGTS sponsors will, among other things, seek from the FERC a final certificate of public convenience and necessity and work with the OFI to obtain Notices to Proceed pursuant to ANNGTC's right-of-way grant across federal land. In doing so, the ANGTS sponsors will update the significant amounts of environmental data already developed by the ANNGTC in conjunction with its Section 404 permits, the federal right-of-way grant and previous work on the FERC certificate, and will propose appropriate mitigation.

Given this, the pipeline and aboveground facilities would be designed, constructed, operated, and maintained in accordance with, among other things:

- Department of Transportation regulations in 49 CFR 192, "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards;"
- 18 CFR 380.12, "FERC's Environmental Reports for Natural Gas Act Applications," and FERC environmental policy guidelines thereunder;

- Federal Right-of-Way Grant for the Alaska Natural Gas Transportation System Alaska Segment, Serial No. F-24538 (December 1, 1980), as such may be updated and/or amended from time to time.
- FERC conditional certificate of public convenience and necessity, issued on December 16, 1977, as such is finalized.
- U.S. Army Corps of Engineers “wetlands” permits, issued under section 404 of the Clean Water Act.

The current design of the pipeline system has been optimized and modernized using the latest in proven technology, including a higher operating pressure. Compared to the 1981 application the current design minimizes the environmental footprint of the pipeline system with regard to compressor stations by over 60%. The Co-applicants recognize that when commercial arrangements with respect to the Project are sufficient to secure financing of the Project, the initial capacity of the pipeline and, therefore, the number and location of the compressor stations, as well as other components of the Project, may change or need to be further optimized. Any updating of the Project will require the approval of the FERC through the tiering off of existing environmental analysis of the Project. The Co-applicants will secure any necessary amendments or other authorizations from the State necessitated by any amendment to the facilities authorized to be constructed by the FERC.

The components of the ANGTS include the pipeline, compressor stations, metering stations, other permanent facilities such as regional operations and maintenance center (O&M Center), roads, and temporary facilities used for construction such as material sites, roads, workpads, and construction camps. In addition, a gas conditioning facility would be constructed in Prudhoe Bay. The following points summarize the characteristics of the major components of the ANGTS:

Pipeline

- 744.7 miles in length, 48-inch diameter, Grade X-80 steel pipe, wall thickness of 1.042 inch as required for Class 1, Div. 2 pressure containment
- Buried throughout, except at compressor stations, metering stations, certain river crossings, and major faults
- 2,500 pounds per square inch maximum operating pressure, gas chilled to near freezing temperatures

Compressor Stations

- 6 stations at startup; 13 stations ultimately
- 44,000 horsepower (ISO) gas turbine driven centrifugal compressors, Rolls Royce RB 211 or equivalent
- Propane cycle gas chiller plants utilizing 6,000 horsepower (ISO) propane compressors, Solar Centaur 50 or equivalent
- Gas turbine driven electric power generators, two per station, each 3,000 horsepower
- Fenced, gravel pad, pile-foundation metal building

Other Permanent Facilities

- Two custody transfer gas metering stations
- O&M Center
- Workpads, storage yards

Temporary Facilities

- Material Sites (gravel pits)
- Access Roads
- Workpads (gravel, ice, snow or grade)
- Construction Camps
- Miscellaneous (bridges, etc.)

Pipeline

The pipeline route will adhere to the corridor concept as originally stated in the President’s Decision, and will maximize utilization of existing facilities and rights-of-way. The route originates at Prudhoe Bay in northern Alaska. The pipeline connects to the gas conditioning plant at the Prudhoe Bay metering station, designated Milepost 0. The pipeline alignment was approved by the Bureau of Land Management, OFI and the State Pipeline Officer.

The pipeline route follows the Trans Alaska Pipeline System (TAPS) in a southerly direction to about Milepost 274 near Prospect Creek. The pipeline then follows TAPS in a southeasterly direction to about Milepost 535 at Delta Junction. Here the line diverges from the TAPS route, and continues in a southeasterly direction to the Alaska/Yukon border at about Milepost 745. The Alaska Segment of the pipeline connects with the Canadian Segment at a metering station on the Canadian border.

Pipe size will be 48-inch outside diameter. Maximum allowable operating pressure will be 2500 psig. Initial annual average daily capacity of the pipeline will be 4,500 million standard cubic feet per day (MMSCFD).

The system will be capable of being expanded, through addition of seven compressor stations, to give an annual average daily throughput of 5,900 MMSCFD.

The mainline pipe material will meet the requirements of the Code of Federal Regulations (CFR) Title 49, Part 192 and API-5L, Grade X80. Pipe wall thickness will be 1.042 inch for pressure containment in Class 1, Div. 2 locations, and will increase according to class location requirements. The pipe will be externally and internally coated. Pipeline corrosion control will be provided by a combination of external coating and a cathodic protection system.

There are provisions for six intermediate gas delivery points along the pipeline⁵.

- Anaktuvuk Pass
- Fairbanks
- Delta Junction
- Dot Lake
- Tok
- Northway

Mainline block valve assemblies will be provided at a nominal spacing of 20 miles and at compressor station locations. Launchers and receivers for pipeline in-line inspection devices (pigs) will be installed at compressor and metering stations.

The pipe will be installed in a buried mode, except at compressor and metering stations, and at fault crossings and some large river crossings.

The pipeline will cross 24 major streams and rivers requiring special construction considerations such as heavy wall pipe, continuous concrete coating or set-on concrete weights. At some locations, aerial crossings will be used. There will be approximately 80 road crossings, all uncased and using heavy wall pipe. The pipeline will cross TAPS at approximately 23 locations, the TAPS fuel gas line at 10 locations, and other pipelines at 3 locations.

⁵ These general locations and the specific alignment stationing are subject to commercial and technical evaluation and, when necessary, approval of the Federal Energy Regulatory Commission. The pipeline system in Alaska will transport natural gas but will not own any of the gas being transported. Therefore, arrangements will have to be made with the gas owner (either the State of Alaska or another gas shipper) by the entity that would transport or distribute the gas within Alaska. Additional delivery points may also be authorized and will be included in the design when resolved.

Gas to be transported will be provided initially to the pipeline from the Prudhoe Bay Gas Conditioning Plant. Pipeline quality gas will range from a hydrocarbon mixture with 89 percent methane, and a gross higher heating value of 1076 Btu/SCF, to 86 percent methane and a gross higher heating value of 1121 Btu/SCF.

The conditioning facility at Prudhoe Bay will receive the gas from the Central Gas Facility, remove carbon dioxide and excess liquids to pipeline specifications, compress it to the delivery pressure of 2500 psig, and chill it to 30°F. The pipeline will be designed and operated to maintain the soil around the buried sections of the pipeline in a frozen state in areas of continuous permafrost. In areas of discontinuous permafrost, the operating temperature of the gas in the pipeline will be between 5°F and 40°F, depending on the season of the year.

Compressor Stations

Six compressor stations will be constructed at the same time as the pipeline. Ultimately there could be up to thirteen stations built. The locations of compressor stations along the pipeline will be based on hydraulic design criteria and adjustments for compatibility with surrounding land use and sensitive environmental areas. The anticipated location of the initial six compressor stations is noted on Table 7. The number and location of compressor stations may change or need to be further optimized based on final capacity and design parameters. For reference, Table 7 also notes the location of the compressor sites identified in the 1981 application.

Compression equipment will consist of a 44,000 HP (ISO) Dry Low Emission (DLE) gas turbine powered single stage centrifugal compressor with dry gas seals. The compressor packages will be equipped with "low noise" compressor intake and exhaust, and a sound reducing unit enclosure and compressor building.

Compressor station components will be extensively modularized to minimize on-site construction and commissioning work in remote locations. Each compressor station will include areas for periodic habitation (for maintenance and emergency occupancy), control and service functions, as well as utility and power generation equipment. Permanent living quarters may be required at some compressor stations.

Foundations will generally use steel piles. In permafrost areas, the gas compressor and warehouse buildings will sit on insulated, ventilated gravel pads with thermopiles to remove heat dissipated from the building. Other buildings and small skids will be designed with an airspace or insulation between the

building and the ground to preserve the ground thermal regime. Active or passive refrigeration systems will be used where required to minimize settlement in permafrost.



Compressor stations will include gas-chilling facilities to control the natural gas discharge temperature. Multiple trains of propane cycle gas chillers will chill gas, provide operating flexibility and support a modular approach to design and construction.

Electrical power requirements will generally be supplied through on-site generation, although detailed design may utilize grid power, where available.

Pipeline gas will be used to power the drivers for the gas compressors, refrigerant compressors and electric generators.

The compressor station sites will consist of a fenced gravel pad, with a pile-foundation metal building housing the turbine, compressor and chiller units.

Each compressor station site will require about 25 acres, and the metering stations about 5 acres of land. Compressor stations will include compressors, refrigeration equipment, utilities, control room, gas scrubber unit, and temporary living quarters.

The pipeline system will be controlled remotely from a central gas control center currently planned for Calgary, Alberta Canada using a Supervisory Control and Data Acquisition (SCADA) system. Compressor stations and pipeline operating conditions will also be monitored from the O&M Center to be located most likely in or near Fairbanks. In addition, compressor stations and mainline block valves will have local control systems which can shut down the compressor

station or close a mainline block valve automatically in the event of an emergency. Each compressor station will include a control system that will interface through the SCADA link to the central gas control facility and O&M Center.

The communication system will include voice and SCADA intertie to each compressor and metering station and the mobile radio system. A basic communication system will be installed during the construction phase to provide voice and data links between the pipeline and compressor station construction locations. This basic communication system will later be modified to provide the operational communications systems. Mobile and fixed communication systems will be satellite-based, with microwave back-up. Data communications will provide worldwide access through commercial lines, as well as to the other pipeline segments in Canada and the lower-48 states.

Gas Conditioning Facility

A conditioning facility will be constructed to condition gas prior to its entering into the linear pipeline. A lease application for the use of state lands for such a facility is currently pending under the State of Alaska's Right-of-Way Leasing Act, AS 38.35. There are several reasons for pursuing a lease for the conditioning facility separately, both physically and temporally, from a lease for the linear pipeline. The timing of ground-disturbing activities for a conditioning facility differs from that associated with the pipeline. Moreover, the stipulations appropriate for the linear pipeline differ significantly from those appropriate for the conditioning facility.

At the present time, considerable uncertainties also remain with respect to the conditioning facility. Until commercial negotiations with the producers are concluded, it will not be known who will construct and/or own the facility; whether custody to the gas would be transferred at the inlet or the outlet of the facility; or to what extent the ANGTS could and/or will utilize a portion of the producers' Miscible Gas Project facility. Once ownership issues regarding the conditioning facility are settled through ongoing commercial discussions, it will be known whether the conditioning facility will be constructed and/or owned by ANNGTC or by some other entity. The extent to which the existing Miscible Gas Project facility will be used by the ANGTS will also be determined.

As a result of these uncertainties and the significance of the commercial negotiations, the ANGTS sponsors will, as soon as commercial negotiations are concluded, provide an update to this Project Description, and if the ANNGTC is to construct and/or own the conditioning facility, move forward on the

pending lease application for the conditioning facility. In the alternative, a third party will seek a lease from the state to construct and/or own the conditioning facility.

Other Permanent Facilities

The Operations and Maintenance facilities will provide facilities and equipment required for maintenance and operation of the pipeline, compressor and metering stations.

An O&M Center will most likely be located in the Fairbanks area to serve the Alaska region.

The O&M Center may include the following:

- A warehouse for storing spare parts inventory
- A garage and maintenance shop, including maintenance equipment
- Offices
- A secondary operations control center with related supervisory control equipment, power supplies and communications equipment.



Storage buildings will be placed at compressor stations, Deadhorse and Delta Junction to house small equipment and parts.

Two metering stations will be built into the pipeline. One will measure the quantity of gas supplied to the pipeline from the Gas Conditioning Plant at Prudhoe Bay, and the other will measure the gas delivered to the Canadian Segment at the Alaska/Yukon border. Furthermore, additional facilities for receipt and/or delivery of natural gas in Alaska will be constructed, as necessary.



Temporary Facilities

Temporary facilities will include those facilities required to support the construction phase activities, including an Alaskan Construction Headquarters, the construction camps for the pipeline and compressor station construction, existing airfields, access roads, and approximately 300 material (borrow) and spoil disposal sites.

A site near Fairbanks will serve as the Alaskan Headquarters during construction. The facility will be used by ANNGTC construction contractors and government agency personnel as the central control point to provide construction support services.

Seventeen pipeline construction camps will be needed along the route, including one located near the Fairbanks Alaskan Construction Headquarters. These camps will be capable of accommodating between 250 and 1,700 persons, depending on location and planned use and will be self-contained, including power, lighting, incineration, water and sewer systems.

The existing sites (Franklin Bluffs, Happy Valley, Toolik, Galbraith, Atigun, Chandalar, Dietrich, Coldfoot, Prospect Creek, Old Man, Five Mile, Livengood and Delta) will be utilized if feasible. Contamination in the pads resulting from past fuel spillage is an important consideration at several existing construction camps. ANNGTC will conduct investigations at these sites and evaluate their suitability for use. New pipeline construction camps are under consideration at Knob Ridge, Tok and Northway.

Construction camps will also be located at the compressor station sites, if feasible. These will be much smaller than the pipeline camps.

A pipe yard at Fairbanks will be provided to receive mainline pipe, store, externally coat, and double-joint pipe as required. Construction material and pipe storage yards will be needed along the route as required for logistics support of construction activities.

Access roads will be constructed or upgraded to provide access to stations, new material sites; pipeline spreads, and related facilities. Because of the proximity of the pipeline route to the Dalton and Alaska Highways these access roads will be relatively short in length. In addition, the ANNGTC will resolve any issues regarding use of the State's highways during construction with the appropriate State agencies.

Land Requirements

The land requirements for the ANGTS include:

- Ownership: state land (50%; some of which is subject to federal right-of-way grant), federal land (36%), and private land (14%; predominantly Alaska Native Corporation).
- Construction right-of-way on state land of 500 feet, with 600 feet width at stream and river crossings. The entire width normally would not be used during construction but is needed to provide room for construction access across variable terrain conditions. Overall, about 21,000 acres of construction right-of-way could be involved.
- After construction, the right-of-way width for operation of the pipeline will be 54 feet on federal right-of-way and 100 feet on state right-of-way, corresponding to an overall area of about 7,000 acres.
- Initially six and subsequently up to a total of thirteen compressor stations will be constructed. Each of these will occupy about 25 acres. The two metering stations will occupy about 5 acres each.
- Material sites (gravel pits) will be re-opened or new ones developed as needed for obtaining gravel and other materials to construct work pads, access roads and for use in trench backfill. Existing gravel pits that were opened for the construction of TAPS, the Dalton Highway and the Alaska Highway will be used to the extent possible.
- Access to the compressor stations, valves and other locations will be mostly by existing Dalton and Alaska Highway road systems, with minimal new access road construction required.

Construction Methods

General Pipeline Construction Procedures

In Alaska, it is assumed that the pipeline construction work will be completed in 12 sections (including the Atigun Pass and Yukon River sections). Each section would be assigned as part of a package to one of four contractors. Each package could include both summer and winter work. The Alaska portion of the pipeline route includes approximately 75% winter construction work, allowing the work to be completed in two years.

Mainline pipeline construction activities will be completed during both the summer and winter seasons. In most cases, the designation of an area of work as summer or winter construction will be dependent on the ability of the terrain to support construction equipment. Terrain that cannot support construction equipment during the summer is normally designated as winter construction.

The construction plan is based on completing all mainline and compressor station construction activities within two years. Construction support activities will start approximately one year prior to mainline construction and will continue for two years. Construction support activities include double jointing pipe, stockpiling pipe, clearing, aggregate processing, camp mobilization, and some access road construction. Generally, existing roads and highways will provide access to the pipeline. Some short temporary access roads will be required in certain locations but will be limited in number and length. Also, some permanent, high-grade access roads will be needed to provide access to compressor station sites.



Each pipeline spread will be provided with one or two stockpile sites for pipe. Stockpile sites will be

surfaced with gravel to allow movement of material during all types of weather.

Field construction crews will be housed in temporary work camps during construction. Each pipeline spread will have a designated camp located near the center of the spread, beside or near a stockpile site.

Prior to the start of construction, the applicants will finalize surveys, locate the centerline and construction workspace, and complete land or easement acquisition. The right-of-way will be surveyed and staked, and existing utility lines will be located and marked to prevent accidental damage during pipeline construction.

Clearing of the pipeline right-of-way will generally be completed either one year or one season ahead of the mainline construction activities. This will result in a longer effective construction season.

Topsoil will be stripped where it is appropriate, then stockpiled and salvaged for rehabilitation of the soil profile after construction.

Grading in Alaska will utilize conventional grading methods in non-permafrost areas, and gravel and snow pads to protect the northern tundra and permafrost.

Welding will be completed using mechanized welding equipment. The use of mechanized welding equipment will increase the productivity of the welding process and provide welds that are of consistently higher quality than welds completed manually.

Chain trenchers will be used for ditching through permafrost areas where necessary and where geotechnical conditions permit. The use of chain trenchers eliminates the need to drill and blast in most permafrost and reduces the amount of imported backfill. In non-permafrost areas, conventional ditching methods will be used, which will include the use of backhoes and wheel trenchers. Hard rock will be drilled and blasted, then the broken rock removed by backhoes. Modern heavy construction equipment in use today will have the capacity to construct the pipeline.

Pipeline pressure testing will generally be completed during the same season as mainline construction. During detailed construction planning, consideration will be given to such testing alternatives as using air as a test medium or using a freeze inhibitor in permafrost zones to prevent the test medium from freezing.

Construction workpads will consist of gravel, ice, snow or graded surfaces on which equipment can work. The selection of these workpad types will be based on criteria of geography, terrain, the potential for soil and

vegetation impacts, and other design considerations. Vegetation will be removed by mechanical cutting.

The trench will be dewatered, cleaned of debris, and padded as necessary before the pipeline is lowered into the trench. If the excavated material is rocky, the pipeline will be padded with select fill from material sites or by separating suitable material from the existing trench spoil.

Cleanup and restoration of the construction areas will begin after the backfilling and pressure testing. The work areas will be final graded and restored to approximate pre-construction contours. Surplus construction material and debris will be removed and recycled. Permanent erosion controls (water bars or slope breakers) will be installed, and the construction work areas will be seeded soon afterward. In areas of winter construction, seeding and other revegetation work may be delayed until summer when conditions are suitable.

Specialized Pipeline Construction Procedures

Construction at roads and highway crossings will be done in accordance with requirements of applicable permits or approvals. Most paved roads will be crossed by boring underneath the roadbed and installing heavy wall pipe. Pits will be excavated on both sides of the road at the depth of the pipeline and a hole equal to the diameter of the pipe will be bored under the road. The pipe section will then be pushed through the borehole. If additional pipe sections are required, these are usually welded to the first section of pipeline in the bore pit before being pushed through the bore hole. There would be little or no disruption to traffic on roads that are bored.

Other roads and driveways may be bored or crossed by trenching across the road. Traffic mitigation plans will be developed to minimize disruptions in traffic on high use roadways.

Drilling and blasting will be necessary in areas of hard rock such as mountain passes. Decisions regarding the location and timing of blasting will take into consideration the activities of fish and wildlife that could be disturbed.

Special construction techniques will be used for stream crossings to minimize impacts to riparian and aquatic resources. Horizontal directional drilling and boring methods of inserting the pipeline beneath river channels, as well as open cut, flume, or dam and pump techniques will be evaluated for crossings. Site-specific crossing designs will be based on local environmental and geotechnical conditions, cost, logistics, and available technology.

Where construction occurs on natural grade, topsoil (if significant amounts are present) will be stockpiled to

the side of the workpad prior to ditching to preserve the material for aiding revegetation.

Compressor Stations Construction Procedures

Ultimately a total of thirteen compressor stations might be constructed. The initial design will include six compressor stations. The compressor station components will be modularized to minimize on-site construction and commissioning work in remote locations. Each compressor station will include areas for periodic habitation (for maintenance and emergency occupancy, control & service functions), as well as utility & power generation equipment. Some permanent housing facilities may be required at specific compressor stations.

Compressor building foundations will generally be driven steel piles, and building modules will be designed with airspace between the building and the ground to preserve the ground thermal regime.

Other Permanent Facility Procedures

Access roads, workpads, storage yards, and other permanent facilities will be constructed to support the operation and maintenance of the pipeline system. These will include gravel pads and may have structures (buildings) for storage of equipment and materials for operation and maintenance of the pipeline system. These will be constructed using conventional gravel pad techniques appropriate for the region, terrain and local conditions. Conventional diesel-powered equipment including dozers, graders, loaders, and trucks will be used for construction.

Unlike TAPS, which has a requirement for maintaining permanent access throughout the system for oil spill response, the ANGTS involves only gaseous hydrocarbons that would dissipate into the atmosphere if released and not require a spill response. Permanent access throughout the pipeline system is not necessary. Access to the pipeline for routine inspection and maintenance will involve travel on existing access roads. In areas where there are no existing roads, ice or snow roads may be constructed for winter access to perform routine work. In the event of an emergency situation where equipment would need to access an off-road area, temporary work pads and roads would be utilized and specialized techniques would be used to reduce potential impacts.

The close proximity of the pipeline route to the existing highways minimizes the need for new access roads. Access routes to the pipeline will utilize existing roads and trails where possible. The access points along the highways will be restricted as appropriate to prevent unauthorized access and potential environmental damage caused by vehicle travel.

Operation & Maintenance

ANNGTC will operate the pipeline in accordance with U.S. Department of Transportation (USDOT) safety regulations in 49 CFR 192 and other federal and state requirements. The right-of-way will be patrolled, and erosion or unstable conditions will be repaired as necessary. Pipe movement and general condition will be monitored, using various proven methods including internal inspection devices, and mitigating action will be taken if necessary. Vegetation maintenance, if necessary, would be done by physical methods such as brushing or mowing; no herbicides or other chemicals will be used for vegetation control. Monitoring the cathodic protection system will be done during regular cathodic protection surveys.

Safety

The USDOT safety regulations for natural gas pipelines require specific class locations for pipe wall thickness based on population density. Pipe wall thickness may also be increased during final design as the chosen mechanism to provide control of ductile fracture and to accommodate pipe movement caused by frost heave or thaw settlement. All external pipe surfaces will be coated with a high integrity coating such as fusion-bonded epoxy, or a multi-layer pipe coating system to help prevent corrosion or environmental cracking. Where additional weight is required for buoyancy control, site specific evaluation will determine whether concrete coating, concrete weights, screw anchors or grouted anchors will be used. Heavy wall pipe will be installed at the appropriate depth at road and railroad crossings to withstand vehicle traffic loads.

Pipeline System Lifetime & Decommissioning

There are no plans for any decommissioning of the pipeline facilities. Decommissioning would be subject to approval by the appropriate state and federal agencies.

MITIGATION

ANNGTC is committed to working cooperatively with the State of Alaska and its resource agencies to develop ways to mitigate the potential adverse environmental, social and economic effects of the ANGTS. In this regard, ANNGTC will update the significant amounts of environmental data already developed in conjunction with its section 404 permits, the federal right-of-way grant, and previous work on the FERC certificate, and will propose appropriate mitigation to address the impacts of the project.

The ANGTS will operate under a comprehensive Environmental Management Program (EMP) to guide all aspects of planning, design, construction,

operation, maintenance, and, if needed, eventual decommissioning. The EMP will be based on the environmental management policies and standards of ANNGTC and TransCanada (as attached) and the ANGTS-specific criteria for environmental protection. The EMP will follow the International Standards Organization (ISO) 14001 template for these programs.

ANNGTC will develop environmental protection programs to specifically plan for and manage the ANGTS's interactions with the land, water, vegetation, fish and wildlife, and human resources of the State. The environmental protection programs will define the principles or criteria to select specific mitigation methods.

Project Planning

The location of the ANGTS facilities has been selected specifically to minimize impacts through selection of a route that parallels existing transportation corridors (Dalton Highway and Alaska Highway). This early project planning reduces the need to extend new roads to create access to construct and operate the pipeline and compressor stations. Existing right-of-way terrain, TAPS, and other pipelines and roads limit specific route locations within these corridors to some extent in certain locations.

The pipeline will be buried entirely except at compressor stations, certain large river crossings, and at major fault crossings.

Construction

The ANGTS will be constructed in a manner that complies with applicable laws and regulations, and achieves environmental protection appropriate for the circumstances encountered.

Construction activities will create the greatest potential for adverse effects to the environment and to people living in or traveling in the construction area. The season and method of construction for the pipeline have been carefully designed to minimize potential impacts to the environment.

Winter construction will be used in much of the Arctic region segments of the pipeline due to the presence of continuous permafrost and extensive wetlands. Winter construction using ice and snow pads to support vehicles and equipment reduces the impacts on the native soils and vegetation. Winter construction will also be used in other regions.

The opportunity for impact will be minimized in part by the relatively short period of time that a construction spread will be working at any single location. As the construction spread moves down-line, the backfilling and cleanup crews will begin the rehabilitation

process. For winter construction, revegetation will be initiated the following summer. Where summer construction is performed, the backfilling and cleanup crews will be closely followed by the rehabilitation crews installing permanent erosion control, preparing the soil, and seeding and transplanting.

Construction camps which will house and feed pipeline workers, will be set up at strategic locations to minimize travel time to the work site. Several of the old TAPS construction sites along the Dalton Highway will be used. Buses will be used to transport the workers to the work site.

Operation

Once the pipeline is operational, there will be only minor activities that will provide evidence of its presence, other than the surface structures, such as compressor stations, valves, and metering stations.

Compressor stations will be unmanned and visited by maintenance inspectors every few days. The compressor stations will be equipped with low-noise compressor units to reduce the potential impacts to workers and the surrounding environment. Compressor station sites generally will be located in remote areas.

The operation of the pipeline system will involve only a relatively small staff based in Alaska. The effects of the ANGTS on Fairbanks, the location of the Alaska Operations and Maintenance facility, will be minor during operation of the pipeline system.

CONCLUSION

As an interstate natural gas pipeline, the Alaska portion of the ANGTS is subject to federal law and to regulation under the Natural Gas Act, in addition to any applicable State law requirements. In this regard, the design, construction, operation, maintenance, and termination of the Project must be undertaken in a manner consistent with conditions and stipulations included in various federal permits and authorizations, including a certificate of public and convenience and necessity from FERC, a right-of-way across federal lands from the Bureau of Land Management, Clean Water Act section 404 (wetlands) permits from the U.S. Army Corps of Engineers, and Clean Water Act section 401 permits and Coastal Zone Management Act / Alaska Coastal Management Program determinations from the State of Alaska in support of the section 404 permits. Project activities also will be conducted in a manner consistent with conditions and stipulations included in a State right-of-way lease for the Project, in addition to other State and local requirements.

Health, Safety and Environment Commitment Statement

The executive leadership team, management and employees at TransCanada are committed to being an industry leader in health, safety and environmental practices, to maintaining a safe and healthy workplace and to protecting environmental quality.

We believe excellence in Health, Safety and Environment practices is vital to the well being of all people everywhere and essential to all aspects of our global business.

The following principles will guide and measure our corporate goals and objectives in Health, Safety and Environment:

- ⇒ we conduct our business so it meets or exceeds all applicable laws and regulations and minimizes risk to our employees, the public and the environment;
- ⇒ we are committed to continuously improving our Health, Safety and Environment performance;
- ⇒ we will continually promote employee safety on and off the job;
- ⇒ we believe all occupational injuries and illnesses are preventable;
- ⇒ we will respect the diverse environments and cultures in which we operate;
- ⇒ we will endeavor to do business with companies and contractors which share our expectations for Health, Safety and Environment performance and commitment and we will regularly assess their performance;
- ⇒ we will use our influence with companies in which we have partial ownership, to meet the Health, Safety and Environment Commitment of TransCanada, and
- ⇒ we support open communication between TransCanada, the public, the scientific community and policy makers and public interest groups who research, develop and implement standards for Health, Safety and Environmental protection.

At TransCanada, we believe all employees are responsible and accountable for Health, Safety and Environment Performance.