
Alaska State Right-of-Way Application for the Alaska Natural Gas Transportation System

This application is submitted pursuant to AS 38.35.050 and in accordance with the requirements of the Alaska Administrative Code, Section 11 AAC 80.005 “Applications for Right-of-Way Leases”. The application responds to all questions raised in this code. The following additional papers and documents also support and form part of the application:

- Project Description
- Table 1 – Land Ownership Line List
- Table 2 – Stream Crossings
- Table 3 – Pipeline Construction Camp Locations
- Table 4 – Airfield Locations
- Table 5 – Access Road Locations
- Table 6 – Material Sites and Storage Yard Locations
- Table 7 – Facility Site Location and Size
- Table 8 – Legal Description of State Lands Committed or Reserved
- Table 9 – Permit List
- Financial Information – TransCanada Annual Reports for 2001, 2002 and 2003
- Technical Information Supplement
- Environmental Information Supplement
- Subsistence and Socioeconomic Information Supplement
- Alignment Sheets (“Land Use and Ownership”, Rev 4B)

1. Date of Application:

This filing, dated June 1, 2004, is an updated application for a State right-of-way lease for the Alaska Natural Gas Transportation System (“ANGTS” or “Project”), which supplements the Alaskan Northwest Natural Gas Transportation Company’s (“ANNGTC”) original application filed on April 15, 1981.

2. Name and Address of Co-Applicants:

Pursuant to the Memorandum of Understanding between the State of Alaska and TransCanada Corporation (“TransCanada”) entered into on April 19, 2004, the updated application is submitted by TransCanada, through ANNGTC (by its authorized agent, Foothills Pipe Lines Alaska, Inc. (“Foothills Alaska”)) and TransCanada Alaska Company, LLC (“TransCanada Alaska”). ANNGTC and TransCanada Alaska (the “Co-applicants”) are co-applicants for the 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.¹

Alaskan Northwest Natural Gas Transportation Company
by its agent Foothills PipeLines Alaska, Inc.
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TransCanada Alaska Company, LLC
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¹ TransCanada has established TransCanada Alaska as a Delaware corporation and is in the process of registering the company to do business in the State of Alaska.

PART I – PROPOSED ROUTE

The Alaskan portion of the proposed ANGTS will begin in Prudhoe Bay and end at the Canadian border (see attached *Natural Gas Pipeline Land Use and Ownership – Alaska Segment of the Alaska Natural Gas Transportation System, Alignment Rev. 4, Drawing Rev. 4B (“Alignment Sheets”)*). Natural gas to be transported will be provided to the pipeline from the Prudhoe Bay Gas Conditioning Plant (“GCP”). The pipeline will connect to the GCP at the Prudhoe Bay Metering Station, designated as Milepost 0. The pipeline route follows the Trans Alaska Pipeline System (“TAPS”) corridor 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.

From there, the line diverges from the TAPS corridor, and continues in a southeasterly direction generally following the Haines Pipeline Right-of-Way and the Alaska Highway to the Alaska/Yukon border at Milepost 745. The Alaskan Segment of the pipeline connects with the Canadian Segment at a metering station at the Alaska/Canada border.

3. Point of Origin:

The point of origin for the natural gas pipeline is the GCP, located in Prudhoe Bay, Alaska (Township 11N, Range 14E, Section 10, Umiat Meridian, approximately five miles northeast of TAPS Pump Station 1 (see attached Alignment Sheets).

4. Point of Termination:

As approved, the ANGTS is a 4,800-mile international pipeline project commencing at Prudhoe Bay and paralleling the 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 ANNGTC, in Alaska, and Foothills Pipe Lines Ltd. (“Foothills”), in Canada, propose to design, build and operate the 1,750-mile portion of the ANGTS to transport Alaska North Slope natural gas from Prudhoe Bay, Alaska, to a major trading and infrastructure hub in Alberta, Canada. For planning and design purposes, the Co-Applicants 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, and, with an extension by Foothills of the existing Prebuild facilities to the Project at Boundary Lake, permits consideration of the most efficient utilization of the existing and expanded downstream North America pipeline infrastructure.

The Alaska portion of the pipeline will terminate at the approximate location of the United States Customs Station, Alaska-Yukon Border (Section 1, Township 9 North, Range 23 East, Copper River Meridian).

5. Total proposed length.

The total proposed length for the Alaska segment of the ANGTS is 745 miles.

6. Total length proposed to cross State lands.

The total length proposed to cross State lands is 365.9 miles, which includes uplands and submerged lands². This total length does not include University of Alaska or Mental Health Trust lands. Legal descriptions for all lands crossed by the proposed construction right-of-way are tabulated on the attached *Table 1 – Land Ownership Line List*. Land ownership for these lands is also given on Table 1.

7. Attach a map or plat showing the proposed alignment of the centerline of the pipeline right-of-way, and indicate the areas of upland ownership throughout the length of the proposed right-of-way.

The proposed pipeline system is shown on the attached Alignment Sheets. Land ownership is shown on the Alignment Sheets and on Table 1.

The following general criteria, to the extent reasonably practicable, were used in the selection of the pipeline route:

- Utilize existing transportation corridors.
- Maximize use of existing facilities such as workpads, highways, access roads, airports, material sites, disposal sites and communications.
- Minimize crossing the TAPS and other pipelines.
- Minimize crossing roads and highways.
- Minimum separation between the proposed natural gas pipeline and TAPS to be at least 200 feet, wherever possible.
- Locate the pipeline downslope of TAPS or the Dalton Highway wherever practical.
- Minimize impacts to cross drainage.
- Avoid thaw-unstable slopes as much as possible.
- Minimize traversing areas with frost susceptible soils.
- Avoid bracketing roads and highways between the natural gas pipeline right-of-way and existing rights-of-way.

² On December 1, 1980, ANNGTC received a Federal right-of-way grant that vested in ANNGTC certain legal rights to the use of Federal lands. Pursuant to the process established by the Alaska Statehood Act (P. L. 85-508; 72 Stat. 339) and the Alaska National Interest Lands Conservation Act (P. L. 96-487; 94 Stat. 2371), certain Federal lands included in the Federal grant have been, or may be in the future, transferred to the State, subject to "valid existing rights." The Co-applicants request that the State right-of-way lease include any lands and interests therein included in the Federal grant to which the State, subsequent to the effective date of the State right-of-way lease, obtains an interest sufficient to permit the State to lease such lands and interests under State law. This request is intended to ensure the continuity of a complete right-of-way for the entire route of the pipeline in the event that certain lands originally subject to the Federal grant could become no longer subject to the grant, such as possibly upon the renewal of the Federal grant.

- Minimize adverse impacts on the environment; avoid sensitive areas.
- Avoid negative socioeconomic impacts to the communities in the pipeline corridor and Alaska as a whole.
- Maximize route cost effectiveness.

The ANGTS sponsors recognize that when commercial arrangements with respect to the Project are sufficient to secure financing of the Project there may be areas in the alignment that need to be reviewed and further optimized (such as areas of encroachment of housing, etc.). Any updating of the Project will require the approval of the Federal Energy Regulatory Commission (“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.

8. Proposed crossings of streams and other bodies of water. (For each crossing indicate the width and depth of the stream or water body.)

The attached *Table 2 – ANGTS Stream Crossings* lists rivers and streams along the proposed pipeline route. Table 2 also denotes navigable streams. Width and depth of each crossing have been provided in a previous submittal to the State of Alaska. Width and depth will be confirmed and retransmitted to the State prior to construction.

Major river crossings include: Atigun River, Dietrich River, Middle Fork Koyukuk River, Hammond River, South Fork Koyukuk River, Jim River, Prospect Creek, Yukon River, Hess Creek, Tolovana Creek, Tatalina River, Chatanika River, Little Chena River, Salcha River, Tanana River, Gerstle River, Johnson River, Robertson River, Tok River, Gardner Creek, and Scottie Creek.

9. Attach a map or plat showing the proposed alignment of the centerline of the pipeline right-of-way where it crosses the beds of streams or other bodies of water.

See attached Alignment Sheets.

10. Width of the proposed temporary right-of-way required for construction for each segment of the pipeline route on lands.

The proposed temporary construction right-of-way for all segments of the pipeline route on lands subject to this application will be 500 feet, except at river and stream crossings where it will be 600 feet. For lands that are subject to the ANNGTC’s Federal right-of-way grant, the width of the right-of-way is 50 feet plus the ground occupied by the pipeline and such additional width as may be authorized. In addition, the Federal right-of-way grant gives ANNGTC the right to make temporary use of additional Federal lands in the vicinity of the pipeline at such locations as the Secretary of the Interior, or her delegate, finds are necessary in connection with the construction, operation, maintenance, or termination of the pipeline, or to protect the environment or public safety.

11. Size and location of any sites, in addition to the proposed right-of-way, requested on a temporary basis during construction.

Temporary facilities that will be required to support the construction phase activities include the pipeline and compressor station construction camps, airfields, access roads, material sites and storage sites.

Construction Camps

It is anticipated that there will be sixteen pipeline construction camps, plus one located near a construction headquarters in Fairbanks, Alaska (the “Fairbanks Alaskan Construction Headquarters”). The sixteen camps along the pipeline will be located on thirteen existing sites if possible, and three new sites. These camps will be self-contained, including power, lighting, incineration 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 and evaluate the ability to utilize these sites. New pipeline construction camps are under consideration at Knob Ridge, Tok and Northway.

It is likely that only four (4) pipeline camps will be operational at any one time. Detailed planning will determine how many will be in operation at one time. The pipeline construction camp footprint, which is sized for approximately 1,700 people, will be 30 - 35 acres, including office requirements, and other support activities. Existing pads and gravel sources will be utilized to the extent practical. See attached *Table 3 – Pipeline Construction Camp Locations*.

There will be compressor station construction camps at compressor station sites, which will be sized to accommodate between 150 – 250 people. Detailed planning will determine how many will be in operation at one time.

There will also be much smaller camps associated with pipe logistics and other pre-construction activities.

Airfields

Twelve (12) airfields may be used to support construction activities, ten private airfields and two public airfields. See attached *Table 4 – Airfield Locations*. In addition, Anchorage, Fairbanks and Dead Horse airports may be used during construction and operation of the pipeline.

Access Roads

Access roads will be constructed or upgraded to provide access to stations, new materials sites, pipeline spreads, and related facilities. See attached *Table 5 – Access Road Locations*. 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, prior to construction, the ANNGTC will resolve, with the appropriate agencies, any issues regarding use of the State’s highways during construction.

Material Sites and Storage Yards

Areas to receive first consideration for use will be available abandoned stockpiles from previous mining operations, then, areas of large unvegetated gravel bars. See attached *Table 6 – Material Sites and Storage Yard Locations*. Areas to receive consideration for development after other sites have been exhausted will include: first level terrace remnants within active floodplains, side sloughs of active floodplains that have established marsh habitat, and areas where it may be desirable to leave some silty spoil materials as future plant and wildlife habitat.

12. Width of the proposed right-of-way required for operating the completed pipeline for each segment of the pipeline route on State lands.

The width of the permanent right-of-way on State lands subject to this application for operating the pipeline will be 100 feet, except at specific locations where a wider right-of-way may be requested. For related facilities, the permanent right-of-way width will be 50 feet outside any structure³.

13. Size and location of any sites, in addition to the proposed pipeline right-of-way, requested for the operation of the completed pipeline.

The Co-Applicants request that the lease specifically cover the related facilities listed in the attached *Table 7 – Facility Site Location and Size*.

Additional sites required for operation of the pipeline may include:

- Airfields. Some existing airfields will be required for construction. No new airfields will be constructed.
- Maintenance facilities. Where possible, maintenance facilities will be sited where there are existing facilities, such as at compressor site locations.
- Material sites. Some material sites may be required for maintenance activities. If so, they will be existing sites, or sites developed for construction.
- Access roads. Access roads will connect facilities required for operations. As above, existing roads will be used to the extent practical.

³ For lands that are subject to the ANNGTC's Federal right-of-way grant, the width of the permanent right-of-way is 50 feet plus the ground occupied by the pipeline and such additional width as may be authorized. For related facilities on lands subject to the ANNGTC's Federal right-of-way grant, the permanent right-of-way extends 25 feet beyond the related facility. In addition, the Federal right-of-way grant gave ANNGTC the right to make temporary use of additional Federal lands in the vicinity of the pipeline at such locations as the Secretary of the Interior, or the Secretary's delegate, finds are necessary in connection with the construction, operation, maintenance, or termination of the pipeline, or to protect the environment or public safety.

14. Legal description of State lands within the proposed pipeline right-of-way that are reserved or committed to any purpose. (For each tract of such States lands, state the purpose to which it is reserved or committed.)

Legal descriptions for lands within the proposed pipeline right-of-way which are reserved or committed to other purposes are listed in the attached *Table 8 – Legal Description of Lands Reserved or Committed*. Such reservations/commitments occur where the pipeline crosses oil and gas leases, other pipelines, and public roads.

The Co-Applicants request that the lease cover the State's interests in the Yukon River Bridge, the location of which is shown on Alignment Sheet 64. If the Yukon River Bridge crossing, after consultation with the State and Federal Highway Administration, is determined not to be available, the Co-Applicants will consult with all relevant State and Federal authorities to develop an alternative crossing site.

PART II – PROJECT DESCRIPTION

The current design of the pipeline system, as reflected in this application, had been optimized and modernized using the latest in proven metallurgical technology, including a higher operation pressure. The current design minimizes the environmental footprint of the pipeline system with regard to compressor stations by over 60%. The ANGTS sponsors 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 Federal Energy Regulatory Commission (“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.

15. Substance(s) to be transported:

Natural gas comprised of the following lean and rich cases:

**ANGTS Gas Composition – NPS 48 X 2500 psi
Mole %**

Component	Lean	Rich
N2	0.67	0.63
H2S	0.00	0.00
CO2	1.50	1.50
C1	89.31	86.08
C2	6.09	7.23
C3	2.06	3.76
NC4	0.19	0.44
IC4	0.13	0.32
NC5	0.02	0.01
IC5	0.02	0.01
NC6	0.01	0.01
Specific Gravity	0.626	0.654
BTU/SCF	1076	1121

16. Size, engineering and design characteristics and amount of each type of pipe to be used:

The 745-mile long Alaskan segment of the pipeline will be 48-inches in diameter and constructed of X-80 steel. The majority of the pipeline will be in Class Location 1, resulting in a required wall thickness of 1.042 inches. Heavier walled pipeline may be specified where the pipeline is at a different Class Location, at road crossings, or at major river crossings or as a mitigative measure to counter geohazards, such as frost heave or thaw settlement.

17. Size, number and location of pumping, compressing, heating or refrigeration stations:

Initially, six (6) initial volume compressor stations will be constructed for the 4,500 MMSCFD case. The number of compressor stations is dependent upon the volume of gas transported through the pipeline (see response to Question 18). Each station site will require approximately 25 acres to provide the necessary spacing between buildings, and between buildings and outside equipment. The location of each building and the outside equipment depends on the equipment functions within the building and the distances to other buildings and equipment.

Most compressor stations will be provided with a refrigeration system to chill the natural gas. Refrigeration plant capacities will vary from one station to another.

Two mainline metering stations will be constructed; one at the point of origin and one at the Alaska-Canada border. Each metering station will require approximately five (5) acres.

Compressor station and meter station locations are listed in the attached *Table 7 – Facility Site Location and Size*.

18. Transportation capacity of the proposed pipeline:

Transportation capacity of the proposed pipeline will initially have an average daily volume of 4,500 million standard cubic feet per day (MMSCFD) with a future potential capacity of 5,900 MMSCFD.

19. Estimated life of the pipeline:

The pipeline is designed for a minimum service of 50 years.

20. Planned temperature at which each substance will be transported and whether it will be heated or refrigerated to maintain the temperature.

The operating temperature of the gas in the pipeline will be between 5 and 40 degrees Fahrenheit under normal operating conditions. Brief excursions from this operating temperature range may occur without affecting pipeline integrity. The design of the pipeline system will consider the need to keep the operating pipe temperature from degrading permafrost or from causing excessive frost heave in initially unfrozen frost susceptible soils.

21. The pipeline will be (check as appropriate):

- Supported over the surface along its entire length
- On the surface along its entire length
- Partially buried along its entire length
- Completely buried along its entire length

X None of the above (If this is checked, attach a map showing which portions of the pipeline are planned to be over the surface, on the surface, partially buried and wholly buried.)

The pipeline will be buried for its entire length except where piping comes aboveground at compressor and metering stations, and at up to five (5) aerial river crossings. Possible candidates for aerial crossings are the Middle Fork of the Koyukuk River (MP 233.7); Hammond River (MP 231.8); Yukon River (MP 363.2); Lower Tanana River (MP 540.5); and the Upper Tanana (MP 667.6). These crossing locations are shown on the attached Alignment Sheets.

22. Describe the methods to be employed for partially or completely burying any portion.

Technical Information Supplement (TIS), Section 13 – Ditch Configuration and Section 32 – Construction (attached) provide mode concepts that have been developed to demonstrate how the design criteria will be used for reasonably anticipated right-of-way conditions. The sections are not intended to be a complete representation of all design modes that may be used during the mile-by-mile design. Other cost-effective modes will likely be developed and current concepts modified during the final design of the Project, which then will be applied to site-specific areas of the pipeline alignment.

23. Describe any bridges, trestles, other structures or berms for the support of the proposed pipeline.

See *TIS Section 14 – Bridges and Section 15 – Road and Railroad Crossing* for a description of bridge and utility crossings and *Section 16 – River, Stream and Wetland Crossings*.

If the Yukon River Bridge crossing, after consultation with the State and the Federal Highway Administration, is determined not to be available, the Co-Applicants will consult with all relevant State and Federal authorities to develop an alternative crossing site.

24. Describe the proposed method for all stream crossings and crossings of other bodies of water.

See *TIS Section 16 – River, Stream, and Wetland Crossings* for a description of the proposed methods for water crossings.

25. Describe the proposed methods for grades, cuts or fills.

See *TIS Section 9 - Workpad Design, and Section 10 – Clearing* for typical sections for cut, fill, or grades.

26. Discuss planned facilities for spill or leak prevention and containment.

See *ENVIS Section 5 - Oil and Hazardous Substances Management*.

27. Proposed access roads, airstrips, heliports, float plane facilities, communication facilities, storage sites for equipment and materials, material sites, and material disposal sites, whether planned for construction, operation or maintenance support:

Access Roads: Access roads to the pipeline Right-of-Way are shown on the attached Alignment Sheets and their respective legal descriptions are listed in Table 5. All compressor stations and the mainline valves sites will also require an access road. Additional information regarding access roads is presented in *TIS Section 7 – Access Roads*.

Airstrips: Existing airfields, as described in the response to Question 11, will be used to support construction of the pipeline and compressor stations. Use of the airfields will be based upon the logistical requirements during construction, and availability of services at operational airports. Some of these airfields may also be used to support operations, although none are designated for use during operations at this time. The proximity of surface accessibility of existing operational airfields to the pipeline or compressor station construction camps will also be considered.

Heliports: All construction camps, compressor stations and mainline metering stations will have helicopter landing sites for emergency and other purposes.

Float Plane Facilities: No float plane facilities are associated with the Project.

Communication Facilities: Communications will be supported to the extent practical using existing infrastructure. Project communication requirements will vary as the project progresses from startup to operations. A detailed Communications Plan will be developed during final design. Additional information regarding communications facilities is presented in *TIS Section 33 - Communications*.

Storage Sites: Existing or commercial storage sites will be used to the maximum extent practical. In locating new sites, preference will be given to existing disturbed areas such as unused or abandoned TAPS storage yards and depleted mineral material sites where consistent with project needs and other constraints herein. Additional information regarding siting and design of storage facilities are presented in *TIS Section 8 – Storage Yards*.

Material Sites: Borrow excavation will be required to provide material for construction of access roads, pipeline work pads, pipeline bedding and padding, protective barriers, and aggregates for concrete or slurry. Information on material sites is presented in *TIS Section 5 – Material Sites*.

Disposal Sites: Disposal sites will be required for unusable or excess excavated materials. Location and design features of disposal sites will include special consideration of siltation and erosion control, impact on visual resources, use of previously disturbed areas, and long-term stability and restoration. Detailed plans will be prepared for each spoil disposal site. Additional information on disposal sites is presented in *TIS Section 6 – Spoil Disposal*.

28. Size, number, approximate location and planned duration of field camps:

Temporary camps required for construction of the gas pipeline system will be developed at the compressor stations and several locations along the pipeline route. These locations are listed in the attached *Table 3 – Pipeline Construction Camp Locations* and *Table 7 – Facility Site Location and Size*. Individual pipeline construction camps will vary in size to accommodate between 250 and 1,700 persons depending upon location and planned use. It is anticipated that during construction, labor force adjustments may be required to maintain scheduled progress within specific pipeline spreads. Therefore, dormitory units and support systems may be moved from one camp to another to accommodate this labor adjustment.

Compressor station construction camps will be located adjacent to the permanent compressor station facilities. Station camps will accommodate 150 to 250 persons and camps will be planned to facilitate expansion similar in concept to pipeline construction camps, should construction scheduling/progress deviations warrant such action.

A listing of pipeline and compressor station construction camps, along with their approximate mileposts, is given in *Table 7 - Facility Site Location and Size*. Construction will last approximately three years including pre-construction activities. There will be up to 17 construction camps located along the route, including one located near the Fairbanks Alaskan Construction Headquarters. Detailed planning will determine how many will be in operation at one time. There could also be smaller camps associated with the pipe logistics and other pre-construction activities. As stated in response to Question 11, existing sites will be utilized for a majority of the camps, subject to investigations and evaluations of existing contamination at those sites.

29. Size, number and approximate location of housing for personnel operating or maintaining the pipeline:

Emergency quarters will be provided at all compressor stations, and personnel living quarters may be provided at selected compressor station/operation and maintenance locations along the alignment. Staffing numbers and locations are yet to be finalized. For the portions of the pipeline system near population centers, it is anticipated that operations and maintenance staff will reside in their private residences.

30. Size, number and approximate location of health care facilities:

Each construction camp will have a first aid dispensary. During construction, camps will be staffed with paramedics to provide treatment of minor ailments and first aid, and to stabilize serious injuries prior to Medivac to a qualified treatment center.

Permanent pipeline facilities will include first aid supplies for the attendant personnel, who will have first aid training. Primary medical support will require Medivac; therefore, an all-weather helicopter pad will be constructed at each permanent facility and at each construction camp.

Additional information regarding the medical facilities is contained in attached *TIS Section 32 – Construction*.

31. Approximate number of persons to be employed during construction:

The number of persons to be employed in Alaska during construction will be approximately 8,000 at peak.

32. Approximate number of persons to be employed to operate and maintain the pipeline:

For the initial 4,500 MMSCFD case, the number of persons to be employed to operate and maintain the pipeline is approximately 105. This does not include contract employees.

33. Planned commencement date for construction.

Assuming a commercial agreement in mid-2005, initial pre-construction activities are expected to commence in the fourth quarter of 2008.

34. Estimated construction time:

The estimated construction time is approximately 3 years, including pre-construction activities, compressor stations and pipeline construction.

35. Planned commencement date for operations:

Assuming a commercial agreement in mid-2005, it is planned that the commencement of commercial operations will occur in early 2012 following commissioning.

36. Estimated cost of materials:

The estimated cost of materials is approximately \$2 billion (in 2004 dollars) without allowance for funds used during construction (“AFUDC”).

37. Estimated cost of construction and installation:

The estimated cost of construction and installation is approximately \$4.8 billion (in 2004 dollars) without AFUDC. Installation costs include all indirect costs including engineering, project and construction management, project development and contingency.

38. Estimated annual cost for operations and maintenance:

The estimated annual cost for operations and maintenance is \$74 million (in 2004 dollars) per year for the initial 4,500 MMSCFD case.

PART III – AVAILABILITY OF INTERCONNECTIONS, TERMINAL FACILITIES AND STORAGE FACILITIES

39. Describe how the proposed pipeline will connect with planned field gathering systems, if any.

The proposed pipeline covered by this Right-of-Way Lease application will commence at the outlet side of the proposed Prudhoe Bay Gas Conditioning Plant which is not part of the pipeline system. Field gathering systems, which are also not a part of the pipeline system, are upstream of the conditioning plant.

A conditioning plant will be constructed to condition gas prior to its entering into the linear pipeline. A lease application for the use of 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 arrangements with respect to the Project are sufficient to secure financing of the Project, 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. As a result of these uncertainties and the significance of the commercial negotiations, the Co-applicants will, as soon as these negotiations are concluded, provide an update. If one of the Co-applicants is to construct and/or own the conditioning facility, it will 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.

40. Discuss the technical and economic feasibility of providing connections with other field gathering systems at intermediate points along the proposed pipeline.

The Co-applicants recognize the State's interest in the development of Alaska's hydrocarbon resources and in utilizing gas resources to increase the standard of living of the State's residents and to advance existing and potential sectors of the State's economy. To this end, the Co-applicants will act in accordance with certain requirements pursuant to the Natural Gas Act to act in a not unduly discriminatory manner.

Connections with other field gathering systems at intermediate points along the ANGTS will be constructed pursuant to the terms and conditions specified in the Project's natural gas tariff, as approved by FERC. FERC regulations and policies require that interstate natural gas pipelines apply a non-discriminatory policy in determining whether or not to construct new facilities, including delivery facilities and laterals, and specify in their tariffs the policy on financing of construction, including when the pipeline will pay for the construction or contribute to the cost of construction. See answers to questions 41 and 44.

41. Discuss the technical and economic feasibility of providing connections or interchanges with other pipelines at intermediate points along the proposed pipeline.

Connections and interchanges with other pipelines at intermediate points along the ANGTS will be constructed pursuant to the terms and conditions specified in the Project's natural gas tariff, as approved by the FERC. FERC regulations and policies require that interstate natural gas pipelines apply a non-discriminatory policy in determining whether or not to construct new facilities, including delivery facilities and laterals, and specify in their tariffs the policy on financing of construction, including when the pipeline will pay for the construction or contribute to the cost of construction.

If the Project were to seek an interconnection, it would have to:

- (1) File an application for a certificate with the FERC;
- (2) Make a "prior notice" filing (a filing which affords those who oppose the interconnection an opportunity to demand a full certificate proceeding); or
- (3) Construct under "automatic authorization" (construction without an application or prior notice, requiring after-the-fact reporting), the type of filing depending on the physical nature of the interconnection and cost of construction.

The Project would consider initiating an interconnection with another pipeline if such interconnection were economically, operationally, and legally feasible, and practicable, and if such interconnection would benefit the Project and the Project's shippers.

Where another pipeline desires access to the Project's pipeline, the factors that the Project may consider in determining the feasibility of providing new interconnections include:

- Impact on pipeline operations and operational feasibility;
- Impact on services to other customers;
- Ability to comply with safety and environmental laws and regulations; and
- Suitability of arrangements for reimbursement of construction costs and/or adequacy of volumes of gas to be transported to support the extra investment and operation expenses required for the delivery facilities.

42. Describe the location, area and capacity of proposed tank farms or other storage facilities.

Other than diesel fuel and/or gasoline storage at construction camps, compressor stations, and operation and maintenance sites, no tank farms or storage facilities are proposed. Fuel storage facilities will be designed and operated in accordance with 18 AAC 75.

43. Provide locations of and describe any terminal delivery facility of the proposed pipeline.

There are no terminal delivery facilities associated with the proposed pipeline. The proposed pipeline will interconnect with the facilities of Foothills Pipe Lines (South Yukon) Ltd. at the international boundary, at the approximate location of the United States Customs Station, Alaska-Yukon Border (Section 1, Township 9 North, Range 23 East, Copper River Meridian). A metering station will be located in the vicinity of the U.S. Customs Border facility.

44. Discuss the technical and economic feasibility of providing delivery facilities at intermediate points along the proposed pipeline.

The ANGTS proposed pipeline design provides for the addition of gas delivery points for natural gas delivery at six intermediate locations in Alaska, currently identified as: Anaktuvuk Pass, Fairbanks, Delta Junction, Dot Lake, Tok and Northway. These general locations and the specific alignment are subject to commercial and technical evaluation and, when necessary, approval by the FERC. The ANGTS 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 owners by the entity that would use such intermediate delivery points to transport or distribute the gas within Alaska.

Additional delivery facilities will be constructed pursuant to the terms and conditions specified in the Project's natural gas tariff, as approved by FERC. FERC regulations and policies require that interstate natural gas pipelines apply a non-discriminatory policy in determining whether or not to construct new facilities, including delivery facilities and laterals, and specify in their tariff the policy on financing of construction, including when the pipeline will pay for the construction or contribute to the cost of construction.

Factors that the Project may consider in determining the feasibility of providing these or other intermediate delivery facilities include:

- Impact on pipeline operations and operational feasibility;
- Impact on services to other customers;
- Ability to comply with safety and environmental laws and regulations; and
- Suitability of arrangements for reimbursement of construction costs and/or adequacy of volumes of gas to be transported to support the extra investment and operation expenses required for the delivery facilities.

PART IV – SAFEGUARDS FOR PERSONS, PROPERTY, THE PUBLIC AND THE ENVIRONMENT

As an interstate natural gas pipeline, the Project is subject to federal law and to regulation by the FERC under the Natural Gas Act. In connection with their efforts to develop the Project, ANNGTC has obtained several important and valuable permits and authorizations that are required under federal law for the construction, operation, maintenance, and termination of the Project. Specifically, it has obtained: a Conditional certificate of public convenience and necessity from FERC; a right-of-way grant across federal lands from the Bureau of Land Management; two Clean Water Act (“CWA”) Section 404 permits from the U.S. Army Corps of Engineers; and CWA Section 401 permits and Coastal Zone Management Act (“CZMA”)/Alaska Coastal Management Plan (“ACMP”) determinations from the State of Alaska in support of the Section 404 permits. These permits and authorizations, together with the State right-of-way lease that is the subject of this application, will require the Co-Applicants to comply with specified conditions and stipulations (collectively, “State and Federal Conditions and Stipulations”) in conduction Project activities.

45. Describe your plans to detect and abate any condition possibly arising from the construction, operation, maintenance and termination of all or part of the proposed pipeline that may cause or threaten to cause a hazard to the safety of workers on the pipeline project.

During construction, operation, maintenance and termination activities, a Project Safety Program will be implemented to ensure that every employee working on the project is provided with safe working conditions. Further, the Program will ensure compliance with provisions of the Occupational Safety and Health Act and other federal, State, and local safety codes that may apply. The major objectives of the Safety Program are to:

- Enable construction of the project with minimum risk to health, life, and property, with particular consideration given to problems inherent in the scope, complexity, and location of the construction activities.
- Set forth requirements to all contractors and subcontractors in the interest of maximizing safe practices in a consistent manner, with uniform procedures given to the administration, inspection, and reporting functions.
- Emphasize the benefits of safe practices and the training of personnel for sustaining effective construction safety for the duration of the project.
- Ensure that federal and State regulations relative to safety, health, fire and environmental protection are observed by all contractors involved in the Alaska Segment.

All new employees will be required to complete a safety education program that will include review of appropriate safety manuals and regulations (*see TIS Section 32 – Construction*). All employees will be expected to wear personal protection equipment and clothing appropriate for their work assignments and climate conditions.

A Fire Protection Program will also be established. The objectives of the program will be prevention, early detection, control spreading, extinguish promptly, care for and/or evacuate the injured; and re-establish routine operations.

Security plans and policies developed for the Project will be executed on a Project-wide basis. Security personnel will be responsible for specific site areas and camps. The security program will be monitored for compliance, violations, and incidents that could disrupt the continuity of the project. Close coordination will be required between contractors, the company security department, public law enforcement agencies, and other appropriate parties to ensure that prompt assistance is available at all times.

Prior to the commissioning and startup of the pipeline, the maintenance personnel will be trained in system operation and maintenance, basic characteristics of natural gas, and required safety practices that must be observed while working on facilities handling or containing natural gas. They will become familiar with procedural requirements, maintenance manuals, or specific instructions on maintenance of specific components and the emergency plan, including predetermined employee response or responsibility during an emergency. The training will also include detailed instructions on the plan developed for purging and loading the line.

The pipeline will have an expected life of at least 50 years. Any decommissioning of the pipeline facilities would be subject to approval by the appropriate State and federal agencies, including FERC abandonment approval under section 7(b) of the Natural Gas Act.

46. Describe your plans to detect and abate any condition possibly arising from the construction, operation, maintenance or termination of all or any part of the proposed pipeline that may cause or threaten to cause a hazard to the public health and safety.

The Co-Applicants will prepare and submit a Public Information Plan, and a Law Enforcement and Public Safety Plan for State review prior to construction. These plans will provide the basis for safeguarding public health and safety, and will be in compliance with applicable State and Federal Conditions and Stipulations. Public meetings will be held to inform affected communities about the Project, including proposed construction and operation and associated safety concerns.

Construction

Established safe construction practices along with a strong quality control program will ensure the health and safety of the public during and after construction of the gas line. The Co-Applicants and their contractors and subcontractors will observe and comply with all applicable federal, State and local laws and regulations related to public health and safety, including 49 CFR Parts 191 and 192 (federal pipeline safety regulations). These federal regulations provide stringent standards for pipe materials, pipe design, components, corrosion protection, testing, operation and maintenance. Priority will be placed on measures that will prevent hazardous situations from arising as well as detection and abatement measures.

During construction, a priority will be placed on eliminating or limiting opportunities for interaction between the public and construction activities. Close monitoring and communication will be the primary means for detecting any situations that may endanger public health and safety during construction of the pipeline.

Operations / Maintenance

Safeguarding public health and safety during operations and maintenance activities will be based on adherence to pipeline safety codes, industry standards, and implementation of best practicable technologies available. Key elements will include a leak detection program; installation of valves at strategic locations; a comprehensive leak response plan; a detailed pipeline inspection program; and a comprehensive pipeline contingency plan. A public information program will be implemented with communities near the pipeline system to make residents aware of the presence of the pipeline and potential hazards.

Termination

Safeguards for the public will be the same as those discussed above for construction of the pipeline.

For further safety measures, refer to the response to Question No. 45.

47. Describe your plans to detect and abate any condition possibly arising from the construction, operation, maintenance or termination of all or any part of the proposed pipeline that may cause or threaten to cause serious and irreparable harm or damages to public or private property.

The Project will be planned, designed, constructed, operated and maintained, and terminated in a manner to prevent serious and irreparable harm or damage to public and private property, in compliance with the State and Federal Conditions and Stipulations. The development of the Project design will apply specific technical engineering and environmental protection criteria for the protection of public and private property involved with construction and operation. These criteria are specified in the Technical and Environmental Information Supplements to this Application. The sections listed below in particular present criteria for safeguarding public and private property:

- *TIS Section 3 – Design Basis and Considerations*
- *TIS Section 10 - Clearing*
- *TIS Section 11 - Drainage and Erosion Control*
- *TIS Section 12 - Construction Rehabilitation*
- *TIS Section 35 – Quality*
- *TIS Section 32 – Construction*
- *TIS Section 34 - Operating and Maintenance Plan*

During procurement and construction, inspectors will monitor activities to ensure that:

- Specified materials are installed.
- Appropriate testing of the materials prior to installation is conducted.
- Materials are installed in accordance with design specifications.
- Construction methods are in accordance with applicable project quality standards for workmanship.
- Quality control testing will be performed to check the compliance of completed work products with applicable project quality standards.

At the conclusion of construction, the accumulated records will be compiled and reviewed to confirm that the system is ready for initial operation.

The Project's Operating and Maintenance Plan (*TIS Section 34*) will include procedures for inspecting, testing, and maintaining the pipeline facilities, as set forth in manufacturer's manuals and pipeline safety codes. Operational controls to protect public and private property will include, surveillance and monitoring, corrosion control, valve inspections, pipeline operating and maintenance procedures, emergency plans, employee training, and inspection plans.

48. Describe your plans to detect and abate any condition possibly arising from the construction, operation, maintenance or termination of all or any part of the proposed pipeline that may cause or threaten to cause serious and irreparable harm or damages to vegetation or timber.

The Project will be planned and designed, constructed, operated and maintained, and terminated in a manner to prevent serious and irreparable harm or damages to vegetation and timber, and in compliance with the State and Federal Conditions and Stipulations.

The Project will prevent unnecessary damage to vegetation by applying appropriate environmental criteria in the planning and design phases. This includes the selection of key Project elements:

- Pipeline route and facility locations.
- Construction methods.
- Construction schedules.
- Rehabilitation methods.
- Right-of-Way maintenance methods.

The Project pipeline route was selected to reduce any negative impacts to vegetation and timber resources by exclusively utilizing two existing transportation corridors, the Dalton Highway from Prudhoe Bay to Delta Junction and the Alaska Highway from Delta Junction to the U.S.-Canadian border. This early project planning reduces the need to extend new access roads to construct and operate the pipeline and compressor stations. Alternative pipeline routings would involve substantial damage to vegetation and timber to create road access into otherwise inaccessible areas.

The Project previously completed the first step in addressing the protection of vegetation and timber resources along the selected pipeline route by identifying and mapping the mosaic of vegetation community types along the entire 745-mile pipeline right-of-way (ROW) (*Vegetation Types Alignment Sheets Series, 1978, by ANNGTC*).

The Project will take advantage of opportunities to avoid injury to vegetation through the use of special construction methods, including the use of ice and snow pads to support working equipment and to provide access roads to haul pipe and equipment. This is a proven method for avoiding damage to tundra vegetation on the North Slope. The application of this and other construction methods in the Project will be determined by applying specific criteria as described in *TIS Section 32*. In addition, the Project will take advantage of the natural protections provided to vegetation during winter dormancy.

Rehabilitation of areas that are disturbed by construction of the Project will be performed according to the criteria and methodologies described in *TIS Section 12*. The rehabilitation program will integrate other programs such as drainage and erosion control (*TIS Section 11*), visual resource protection (*ENVIS Section 6*), and fish and wildlife protection (*ENVIS Section 7*), among others, in the selection of site-specific rehabilitation methods. The revegetation program will focus on creating conditions that are suitable for colonization of the disturbed areas by adjacent native plants, including timber-producing species.

Native vegetation, including timber-producing species, will be allowed to colonize and establish in the ROW. Within the permanent ROW, some clearing of invading trees and brush will be necessary to allow aerial inspection and maintenance in accordance with company policies, specifications and procedures, and federal pipeline safety regulations (see *TIS Section 34*).

The pipeline ROW will cross approximately 17 miles of the Tanana Valley State Forest (“TVSF”) between MP 510 and MP 527 located about 40 miles southeast of Fairbanks. Timber within TVSF will be cleared and managed in accordance with applicable laws, regulations, and Forest policies.

Operation and routine maintenance of the Project will not impact vegetation or timber. Major maintenance work such as the replacement of pipe sections, valves, or other buried components of the system may impact vegetation and timber that have colonized the ROW. Clearing and grading necessary to provide access to and clearing for work pads could impact the vegetation and timber.

The pipeline will have an expected life of at least 50 years. Any decommissioning of the pipeline facilities would be subject to approval by the appropriate State and federal agencies, including FERC abandonment approval under section 7(b) of the Natural Gas Act.

49. Describe your plans to detect and abate any condition possibly arising from the construction, operation, maintenance and termination of all or any part of the proposed pipeline that may cause or threaten to cause serious and irreparable harm or damages to fish or other wildlife or to their habitats.

The Project will be planned and designed, constructed, operated and maintained, and terminated in a manner to prevent serious and irreparable harm or damages to fish and wildlife resources, and consistent with the State and Federal Conditions and Stipulations. The Project's overall approach for protecting fish and wildlife resources is presented in the *ENVIS Section 7*. Following is a summary of that approach.

Prevention of harm or damage to fish and wildlife resources will provide the primary level of protection, and involves two key steps for this Project:

1. Identification of the fish and wildlife resources in the area of the Project and their sensitivities to Project activities or facilities.
2. Applications of appropriate environmental protection criteria in the planning and design phases of the Project.

The fish and wildlife resources in the area of the Project were previously studied and the sensitive time periods and locations were determined from research and field studies done in coordination with and federal resource agencies. The Project documents that resulted from previous work include:

- Project's Environmental Master Guide
- List of Sensitive Environmental Areas and Activity Restrictions
- List of Stream Crossings and Activity Restrictions

These documents are described further in *ENVIS Section 7*. The Project will continue to coordinate with State and federal resource agencies to evaluate and update the baseline fish and wildlife information and associated activity restrictions.

The prevention of damage to fish and wildlife resources in the planning and design phase of the Project involves selection of several key Project elements, including:

- Pipeline route and facility locations.
- Pipeline system design.
- Construction methods.
- Construction schedules.
- Rehabilitation methods.
- ROW maintenance methods.

The pipeline route was selected to reduce, to the extent reasonably practicable, harm to fish and wildlife resources by exclusively utilizing two existing transportation corridors, the Dalton, Elliott, and Richardson Highways from Prudhoe Bay to Delta Junction and the Alaska Highway from Delta Junction to the U.S.-Canadian border. This early project planning has reduced the

need to extend new access roads to construct and operate the pipeline and compressor stations. Alternative pipeline routings would involve substantial habitat alteration and destruction to create road access into otherwise inaccessible areas.

Compressor station sites were selected to avoid, to the extent reasonably practicable, harm to fish and wildlife resources by applying the Project's baseline fish and wildlife information and the associated activity restrictions as criteria. The other permanent Project facilities would be located in existing developed areas including maintenance facilities at Fairbanks.

Inherent in the Project design are key features that will help prevent, to the extent reasonably practicable, harm to fish and wildlife resources, including:

- The pipeline will be buried entirely except at compressor stations, certain large river crossings, and at major fault crossings in compliance with pipeline safety regulations. The buried design will avoid creating a potential obstruction to ungulate and other large mammal movements across the ROW (as opposed to the aboveground portions of TAPS). Wildlife will have unobstructed access across the ROW.
- Permanent work pads and access roads are not necessary throughout the system for spill response (as is the case with TAPS). Instead, native vegetation will be allowed to colonize and establish in the ROW.
- Compressor stations will not be occupied, reducing the amount of human activity and the potential for interactions with wildlife at the stations. Overall, there will be very little human activity along the ROW associated with the Project operation.

Construction of the Project will take advantage of reasonably available opportunities to avoid harm to fish and wildlife habitat through the use of special methods, including the use of ice and snow pads to support working equipment and to provide access roads to haul pipe and equipment. This is a proven method for avoiding damage to tundra vegetation on the North Slope. The construction methods are described in *TIS Section 32*.

Construction methods for pipeline crossings of rivers, streams and wetlands have been identified to avoid, to the extent reasonably practicable, harm to fish and fish habitat as described in *TIS Section 16*. The approach includes categorization of crossing types and selection of appropriate methods by applying specific selection criteria.

The construction schedule selected for the Project contributes substantially toward reducing impacts to fish and wildlife resources. By avoiding, when practicable, the seasons when most fish and wildlife species are present and active, the opportunity for direct impacts to most organisms will be avoided. The conditions of frozen soil and dormant vegetation in the winter will provide natural protections to the habitat during construction.

Rehabilitation of fish and wildlife habitat that may be disturbed by construction of the Project will be performed according to the criteria and methodologies described in *TIS Section 12*. The rehabilitation program will integrate other programs such as drainage and erosion control (*TIS Section 11*), visual resource protection (*ENVIS Section 6*), and water resource protection (*ENVIS Section 8*), among others, in the selection of site-specific rehabilitation methods. The

rehabilitation program will apply specific criteria for creating conditions that are suitable for colonization of the disturbed areas by adjacent native plants, including important wildlife browse and cover species.

Native vegetation, including timber-producing species, will be allowed to colonize and establish in the ROW. Within the permanent ROW, some clearing of invading trees and brush will be necessary to allow aerial inspection and maintenance in accordance with company policies, specifications and procedures, and federal pipeline safety regulations (see *TIS Section 34*).

The Project will develop, establish, and maintain environmental protection programs that will be integrated into the planning and design, construction, and operation phases. These include programs directed specifically at fish and wildlife protection (*ENVIS Section 7*) and others that are directed at habitat protection, including:

- Air Quality Protection (*ENVIS Section 2*)
- Waste Management (*ENVIS Section 4*)
- Oil and Hazardous Materials Management (*ENVIS Section 5*)
- Water Resources Protection (*ENVIS Section 8*)
- Contaminated Sites Management (*ENVIS Section 9*)
- Noise Control (*ENVIS Section 12*)

A key component of the Project's approach for protecting fish and wildlife resources is the training and education of construction managers, supervisors, and workers through a Briefings, Orientation and Education Program (*ENVIS Section 11*).

Integration of fish and wildlife protection and other environmental protection approaches into the overall Project organization will be accomplished through a Project Environmental Management System (PEMS) as described in *ENVIS Section 1*. The PEMS will reflect the policies and management systems of Project owner companies and the principles for such management systems as set out in the International Organization for Standardization (ISO) 14001 standards. The PEMS will focus on achieving a high level of environmental protection and ensuring compliance with regulatory requirements.

Monitoring of fish and wildlife protection during all phases of the Project will be accomplished through the inspection program initiated under the Quality Management Program (*TIS Section 35*). The inspection program will be integrated with the PEMS to provide a comprehensive Project-wide system, implemented through all Project phases, to detect and abate conditions that could cause serious and irreparable harm or damage to fish and wildlife resources.

50. Describe your plans for restoring areas of vegetation or timber damaged or harmed directly or indirectly by the construction, operation, maintenance or termination of all or any part of the proposed pipeline.

Areas disturbed by construction of the Project will be rehabilitated to restore the natural functions of vegetation and timber production, as well as erosion control, wildlife habitat, visual resources, and other relevant resource functions, in compliance with the State and Federal

Conditions and Stipulations. The Project's overall approach for rehabilitation is presented in *TIS Section 12*.

Cleanup and erosion control work will be applied to all areas used or disturbed during the construction of the pipeline system. This includes the pipeline construction zones, access roads, material sites, temporary storage areas, disposal sites, and campsites. Temporary structures and debris will be removed. Large rock fragments will be used for riprap material or will be blended into the surrounding terrain within the ROW. Materials that cannot be used for revegetation will be disposed of in approved sites. All waterways will be cleared of temporary structures placed during construction and will be rehabilitated to prevent interference with fish migrations and natural drainage patterns.

Revegetation will include seeding and planting of all disturbed areas suitable for vegetation, in accordance with written recommendations from the local soil conservation authority or the State. The revegetation program will focus on creating conditions that are suitable for colonization of the disturbed areas by adjacent native plants, including timber-producing species. Revegetation will be used as appropriate for controlling erosion (*TIS Section 11*). Planting schedules will be planned for optimum seasonal growth periods. Seeding of the final grade of the construction zone, material sites, and disposal sites will be done with conventional equipment and methods including aerial seeding and hydroseeding. Fertilizer, mulches, and soil stabilizers may be used appropriately to enhance growth and prevent erosion.

Native vegetation, including timber-producing species, will be allowed to colonize and establish in the ROW. Within the permanent ROW, some clearing of invading trees and brush will be necessary to allow aerial inspection and maintenance in accordance with company policies, specifications and procedures, and federal pipeline safety regulations (*TIS Section 34*).

Methods for restoring areas of vegetation harmed during operation and maintenance and termination activities will be the same as those described here for construction.

51. Describe your plans for abating erosion and restoring areas eroded as a direct or indirect result of the construction, operation, maintenance or termination of all or any part of the proposed pipeline.

The Project's approach for controlling erosion is presented in *TIS Section 11*. Rehabilitation of eroded areas will be performed as described in *TIS Section 12* and summarized in the response to Question No. 50.

The Project is designed to avoid erosion through the application of appropriate environmental protection criteria, developed in compliance with the State and Federal Conditions and Stipulations, in the planning and design phases of the Project, including the selection of key Project elements:

- Pipeline route and facility locations.
- Construction methods.
- Construction schedules.

- Rehabilitation methods.
- ROW maintenance methods.

The pipeline route was selected to utilize two existing transportation corridors, the Dalton, Elliott, and Richardson Highways from Prudhoe Bay to Delta Junction and the Alaska Highway from Delta Junction to the U.S.-Canadian border. This early project planning has reduced the need to extend new access roads to construct and operate the pipeline and compressor stations. Alternative pipeline routings would involve substantial earthwork and associated erosion potential to create road access into otherwise inaccessible areas.

The pipeline route was also selected to avoid natural hazard areas such as eroding river channels, active floodplains, high-angle slopes, active landslide areas, and others. In areas where natural erosion areas cannot be avoided, the route is designed to reduce the pipeline's exposure to the forces of the erosion and the potential for accelerating erosion. This is accomplished in most areas by reducing the distance of the pipeline crossing by crossing as close to a 90 degree angle as possible. In certain regions such as the Brooks Range, the options for avoiding these hazards are limited because the route is constrained within narrow river valleys between actively eroding mountain slopes, riverbanks, the Dalton Highway, and TAPS. Compressor station sites were also selected to avoid areas of natural hazards such as eroding mountain slopes and riverbanks.

Construction of the Project will utilize a range of temporary and permanent erosion control methodologies as described in *TIS Section 11*. The pipeline crossings at rivers, streams and wetlands warrant special consideration for controlling erosion because of the potential disruption of erosion-prone streambanks. Construction methods for crossing these, and the criteria for selecting specific crossing techniques, are described in *TIS Section 16*. The Project approach for these crossings, as described in *TIS Section 16*, involves categorization of the stream or river based on the size and hydrologic characteristics of the watercourse and selection of specific crossing techniques is determined by applying criteria, including the protection of streambanks and avoiding erosion. The special construction technique of directional drilling to install the pipeline beneath certain river channels and avoid streambank erosion will be evaluated on a site-by-site basis. In general, the suitability of this technique for a large diameter pipeline in Alaska is greatly limited by the existing geotechnical conditions. Bridges will be used to extend the pipeline across certain large rivers and avoid creating riverbank erosion, as described in *TIS Section 14*.

The Project construction schedule will aid in preventing erosion. The frozen soil conditions during winter will provide natural protection from disturbances such as compaction, mixing, rutting, and drainage alteration that can cause erosion during and after the construction activate. The normally low water levels of streams and rivers during winter will reduce the amount of in-water work that is necessary. In many small, intermittent drainages, flow will be absent during the winter. Saturated soils in wetlands will be frozen solid during the winter, providing protection from compaction and rutting resulting from the weight of equipment and pipe transported across the surface.

Rehabilitation of areas disturbed by erosion resulting from Project activities will be performed in accordance to the criteria and methodologies described in *TIS Section 12*. The rehabilitation

program will be integrated with the drainage and erosion control program (*TIS Section 11*) and other protection programs including visual resource protection (*ENVIS Section 6*), fish and wildlife protection (*ENVIS Section 7*), and water resource protection (*ENVIS Section 8*), among others, in the selection of site-specific rehabilitation methods. The rehabilitation program will apply specific criteria for creating conditions that are suitable for colonization of the disturbed areas by adjacent native plants, including important wildlife browse and cover species.

Maintenance of the permanent ROW will involve some clearing of invading trees and brush to allow aerial inspection in accordance with federal pipeline safety regulations as described in *TIS Section 34*.

52. Describe your plans for quality control and your procedures for inspection and testing the pipeline, both during and after construction.

The objective of the Project's Quality Management Program will be to ensure management and regulatory authorities that project activities are in compliance with project requirements, especially the State and Federal Conditions and Stipulations. Within these stipulations, references will be made to other requirements (e.g., DOT 49 CFR Parts 191 and 192), which in turn will dictate design and construction requirements.

Construction inspection will be performed in accordance with the ROW stipulations and the project Quality Management Program. Engineering and Construction Management Contractors will perform construction inspection for pipeline construction work. The quality requirements and acceptance criteria for construction activities will be contained in the specifications and drawings prepared by the Engineering and Construction Management Contractors and furnished to the Construction Contractors.

Inspectors will inspect pipe received for storage and verify that the pipe is free from dents, gouges, or damage to the pipe beveled ends. Inspection will also ascertain that the pipe is stacked properly to prevent damage and that the storage area has sufficient drainage.

Inspectors will verify that the ditch centerline is staked and that depth, width and other parameters meet ditch specifications. Material disposal will be inspected. If required, pipe bedding material will be checked at both the source and the ROW. Depth of material and compaction will be checked at specific intervals along the length of the ditch, depending upon terrain conditions. Inspectors will verify that the correct materials are used for padding and backfill and that the operation provides for placement, compaction, and testing in accordance with drawings and specifications.

Welding procedures will be in accordance with API 1104. Pipeline construction welding inspectors will confirm the contractor's use of authorized procedures. A coherent and comprehensive weld traceability program will be developed for the pipeline system that will prevent the uncertainties that lead to costly rework and re-inspection. The weld traceability program will provide for: (1) documented evidence of the conformance of welding operations; (2) documentation for weld and joint ID numbers; and (3) the location of the weld within the pipeline system.

Valve assemblies and sites, supports, and equipment will be inspected to verify compliance with installation requirements and equipment specifications.

The Construction Contractor will perform pressure testing in accordance with approved procedures. Engineering Contractor staff will monitor the test activities and verify that all work activities are performed in accordance with Project specifications. The Engineering Contractor staff will have the authority for starting and terminating the tests.

Detailed operational requirements will be written for inclusion in the Quality Management Program. These requirements will be completed in time to allow for the development and implementation of necessary audit processes prior to initiating pipeline operations. See *TIS Section 35 - Quality Management Program*, for more information on quality assurance.

53. Describe your plans to ensure compliance by your contractors and subcontractors with the safeguards and stipulations of the right-of-way lease, if issued.

The Project will ensure the ability to exercise control over construction contractors and subcontractors through contractual agreements that mandate compliance with the State and Federal Conditions and Stipulations. The Project's approach for Quality Management is presented in *TIS Section 35*.

From the environmental perspective, ensuring compliance by contractors involves clearly defining what is required with respect to the stipulations and then making compliance part of the contractual arrangements with contractors. The steps in the overall process are:

- Developing designs, plans, procedures and schedules that reflect stipulations.
- Defining designs, plans, procedures and schedules in specifications, drawings and requirements.
- Attaching specifications, drawings and requirements to contracts.
- Inspecting/monitoring work to ensure and document compliance.

A Quality Management Program will be developed to ensure compliance with environmental and technical stipulations. The Manager of Quality Management Systems will provide leadership and have overall accountability for quality management. This manager will also be responsible for developing and implementing a Quality Management Program and will assure management and government agencies that:

- Plans for quality monitoring and auditing are comprehensive and are directed toward critical technical and environmental areas.
- Co-Applicants' staff, Engineering and Construction Management Contractors, and their supervisory project personnel area are aware of all of the requirements applicable to their work, including restraints and limitations imposed by the State and Federal Conditions and Stipulations.
- Nonconformance is being reported, and correction action implemented.

- All quality-related documents are comprehensive, with sufficient detail to provide accurate status and adequate traceability.
- Work is being performed in accordance with approved policies, procedures, drawings and specifications.
- The Quality Management staff are promptly notifying management when issues arise regarding nonconformance with quality requirements.

During the preliminary construction phase, procedures and specifications will ensure that technical and environmental concerns are addressed. The Engineering and Construction Management Contractors will establish procedures for the inspection of pre-construction activities as directed by the Quality Management Program. The Project will audit the activities as the work proceeds.

Construction inspection will be performed in accordance with the State and Federal Conditions and Stipulations and the Project's Quality Management Plan. The Pipeline Engineering and Construction Management Contractors will perform construction inspection for pipeline construction work. The Compression and Facilities Engineering and Construction Management Contractors will perform construction inspection for compression and metering stations, and for operation and maintenance facilities.

The quality requirements and acceptance criteria for construction activities will be contained in the specifications and drawings prepared by the Engineering and Construction Management Contractors and furnished to Construction Contractors.

Construction inspection plans and procedures for training will emphasize the early recognition and resolution of potentially serious problem areas.

The Manager of Quality Management Systems will ensure the development of quality management processes and associated auditing is in compliance with approved project processes and procedures.

The Environmental Management Contractor will develop an environmental briefing program for presentation to supervisory and field personnel and federal field representatives. Quality Management personnel will receive additional training in the applicable stipulations, regulations and restrictions, quality control procedures, and engineering documents.

PART V – SPECIAL SAFEQUARDS FOR NATIVES AND OTHERS SUBSISTING ON THE BIOTIC RESOURCES OF THE GENERAL AREA OF THE PROPOSED RIGHT-OF-WAY

54. Describe your plans and procedures to protect the interests of individuals living in the general area of the proposed right-of-way who rely on fish, wildlife and biotic resources of the area for subsistence purposes.

The Project will establish and maintain a policy of protecting fish, wildlife, and other subsistence resources, and to avoid, where possible, the disruption of subsistence activities. The Project's approach for protecting subsistence users is described in SSIS01. Protection strategies for subsistence resources and other relevant environmental issues are presented in other ENVIS sections, including:

- Air Quality Protection (*ENVIS Section 2*)
- Waste Management (*ENVIS Section 4*)
- Oil and Hazardous Substance Management (*ENVIS Section 5*)
- Fish and Wildlife Protection (*ENVIS Section 7*)
- Water Resource Protection (*ENVIS Section 8*)
- Contaminated Sites Management (*ENVIS Section 9*)
- Noise Control (*ENVIS Section 12*)

These sections describe environmental protection strategies that will help protect subsistence users through protection of subsistence resources. The following response summarizes the Project's approach to protecting the interests of subsistence users.

The Project is designed to prevent damage to and interference with subsistence resources and activities along the pipeline route through the application of appropriate environmental protection criteria in the planning and design phases. This includes the selection of key Project elements:

- Pipeline route and facility locations.
- Construction schedules.
- Rehabilitation methods.
- ROW maintenance methods.
- ROW access policy.

The Project pipeline route was selected to reduce the damage to subsistence resources and intrusions into subsistence use areas by exclusively utilizing two existing transportation corridors, the Dalton, Elliott and Richardson Highways from Prudhoe Bay to Delta Junction and the Alaska Highway from Delta Junction to the U.S.-Canadian border. This early project planning reduces the need to extend new access roads to construct and operate the pipeline and compressor stations. Alternative pipeline routings would involve substantial damage to subsistence resources and create intrusions into otherwise inaccessible areas to create road access. Increased access could lead to competition for subsistence resources and interfere with

traditional subsistence activities. Compressor station sites were selected to avoid subsistence use areas and sensitive fish and wildlife habitats that provide subsistence resources.

Inherent in the Project design are key features that help to prevent damage to subsistence users and resources, including:

- The pipeline will be buried entirely except at compressor stations, certain large river crossings, and at major fault crossings in compliance with pipeline safety regulations. The buried design will avoid creating a potential obstruction to foot travel by subsistence users across the ROW (as opposed to the aboveground portions of TAPS). Also, wildlife will have unobstructed access across the ROW.
- Permanent work pads and access roads are not necessary throughout the entire system for spill response (as is the case with TAPS). Such roads and pads would increase the opportunity for competition for subsistence hunting and fishing in otherwise remote, inaccessible areas. Instead, native vegetation will be allowed to colonize and establish in the ROW.
- Most compressor stations will not be permanently occupied, reducing the amount of human activity and the potential for interactions with wildlife and subsistence users at the stations or on roads by travel to and from the stations. Overall, there will be very little human activity along the ROW associated with the Project operation.

The construction schedule selected for the Project contributes substantially toward avoiding damage to subsistence users and resources. By avoiding the seasons when most subsistence activities are conducted, the opportunity for direct impacts to users is avoided.

Rehabilitation of fish and wildlife habitats that are disturbed by construction of the Project will be performed according to the criteria and methodologies described in *TIS Section 12*. The rehabilitation program will integrate other programs such as drainage and erosion control (*TIS Section 11*), visual resource protection (*ENVIS Section 6*), and water resource protection (*ENVIS Section 8*), among others, in the selection of site-specific rehabilitation methods. The rehabilitation program will apply specific criteria for creating conditions that are suitable for colonization of the disturbed areas by adjacent native plants, including plant species that provide subsistence uses directly or provide browse and cover for wildlife species used for subsistence.

Native vegetation, including timber-producing species, will be allowed to colonize and establish in the ROW. Within the permanent ROW, some clearing of invading trees and brush will be necessary to allow aerial inspection and maintenance in accordance with company policies, specifications and procedures, and federal pipeline safety regulations (*TIS Section 34*).

Access to the permanent ROW by subsistence users will be allowed to conduct hunting, fishing and gathering activities. Since permanent pads and access roads will not be built throughout the entire ROW, vehicular traffic will be limited.

A key component of the Project's approach for protecting subsistence users and resources is the training and education of construction managers, supervisors, and workers through a Briefing, Orientation and Education Program described in *ENVIS Section 11*.

PART VI – FINANCIAL INFORMATION

55. Describe the probable financing requirements for the proposed pipeline.

The pipeline will be financed with 20% equity (provided by current Project Sponsors and other future partners) and 80% debt. The debt will be provided by commercial lenders.

56. Attach an annual financial statement and balance sheet for each applicant, prepared in accordance with generally accepted accounting principles for each of the applicant's three fiscal years immediately preceding the date of this application. A firm of reputable and independent Certified Public Accountants must certify the financial statement.

The annual financial statements for TransCanada are attached to this Application. TransCanada is the sole owner of TransCanada Alaska and of Foothills Alaska who is the agent for ANNGTC.

PART VII – OTHER INFORMATION

57. Name and address of the proposed general contractor(s) for constructing the pipeline:

General contractors have not been selected for construction of this project. The State will be notified of award of major construction contracts.

58. Name and address of the proposed operator of the pipeline:

The pipeline operator will be ANNGTC and/or TransCanada Alaska, both of which are wholly-owned by TransCanada, or an appropriate affiliate of TransCanada which may be designated in the future. Addresses for both ANNGTC and TransCanada Alaska are provided in response to Question 2.

59. Other information you believe may aid in the consideration of this application.

The following information is provided to further assist with the review of this application:

- A Permit List is attached to the Application (Table 9) and includes permits and authorizations that may be required for the construction and operation of the ANGTS.
- A Project Description is included with the Application to provide further details pertaining to plans for completion of the Project.
- Information Supplements are also included with the Application:
 - Technical Information Supplement
 - Environmental Information Supplement
 - Subsistence and Socioeconomic Information Supplement