FortisBC Kingsvale – Oliver Natural Gas Pipeline Reinforcement Project

Application Information Requirements For an Application for an Environmental Assessment Certificate

and

Federal Environmental Impact Statement Guidelines

DRAFT Revision 4
May 11, 2012

FOR SUBMISSION TO:

BRITISH COLUMBIA
The Best Place on Earth
ENVIRONMENTAL ASSESSMENT OFFICE

AND

Canadian Environmental Assessment Agency

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FORTIS BC™

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PREFACE TO THE AIR

The purpose of this Application Information Requirements (AIR) document is to identify the issues to be addressed and the information to be provided in an Application for an Environmental Approval Certificate for the Kingsvale – Oliver Natural Gas pipeline Reinforcement Project ("KORP", the "KOR Project", or the "Project").

The AIR will also serve the needs of the *Canadian Environmental Assessment Act* (*CEA Act*) and will represent the Environmental Impact Statement (EIS) Guidelines document of the federal process.

The KOR Project consists of looping the existing FortisBC pipeline system between Kingsvale, British Columbia and Oliver, British Columbia over a length of approximately 161 km, a 1km pipeline extension near Yahk and the addition of compression facilities at Kingsvale, Trail, and Yahk, British Columbia.

The KOR Project triggers the B.C. Environmental Assessment (EA) process due to the pipeline exceeding 323.9 mm in diameter, and the length of the pipeline loop exceeding 40 km. The KOR Project triggers the Federal EA process as a result of Authorization or Permits likely required under the *Fisheries Act,* the *Navigable Waters Protection Act,* and the *Indian Act*. The completion of both the Provincial and Federal EA processes are required prior to construction of the KOR Project.

It is understood from discussions with the B.C. Environmental Assessment Office (BCEAO), and the Canadian Environmental Assessment Agency (CEA Agency) that a cooperative EA process will be undertaken in order to minimize or eliminate duplication.

The KOR Project lies within the claimed territories of the Nlaka'pamux, Ktunaxa, and Okanagan Nations. In addition, the Project is located in the Thompson and Okanagan Regions of the B.C. Ministry of Environment and the Southern Interior Forest Region. It is anticipated that representatives of these organizations as well as relevant Federal agencies (*e.g.*, DFO, Transport Canada) will be involved in the development of the final AIR through their participation in Working Groups established by the BCEAO.

Public comments received by FortisBC or through the review of the AIR document organized by the BCEAO will be considered in the finalization of the AIR.

Continuing and next steps in the EA process include:

- Review by the Working Group and finalization of the AIR document;
- Continuing consultation and communication with Aboriginal groups;
- Continuing Public Consultation;

- Preparation of the Application for an Environmental Approval Certificate (EAC) and filing with the BCEAO;
- Review of the EAC Application by Aboriginal groups, government agencies, local government and the public;
- Decision regarding an Environmental Approval Certificate; and
- Preparation of a federal Comprehensive Study Report and Minister's Decision.

CONTENT

This section will provide an outline of all document components, including volumes, sections, sub-sections, list of references, appendices, figures, tables, and photographs in the AIR and the Application.

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TABLE OF CONCORDANCE

A Table of Concordance will be prepared in the Application that presents all requirements for content and methodological approaches in the approved AIR that are to be addressed by the Application, with volume, section, and page references.

PREFACE TO THE APPLICATION

The following will be provided in the Application:

- A statement that the proposed Project is subject to review under the *B.C. Environmental Assessment Act*;
- A statement that the proposed Project will be subject to review under the *CEA Act*;
- A statement that the Application has been developed pursuant to the AIR approved by the EAO with input from the CEA Agency, and complies with relevant sections provided in the Section 11 Order;
- A statement that the Application has been developed pursuant to federal information requirements as communicated by the CEA Agency and/or federal Responsible Authorities (RAs); and
- An identification of agencies, Aboriginal groups, and other parties involved in the development of the Application.

LIST OF ABBREVIATIONS AND ACRONYMS

A List of Abbreviations and Acronyms will be provided in the EAC Application. It will be based on the following list, added to as necessary.

Acronym	Definition
ARD	Acid Rock Drainage
AOA	Archaeological Overview Assessment
AIA	Archaeological Impact Assessment
AIR	Application Information Requirements
ALC	Agricultural Land Commission
EAC Application	Application for an Environmental Assessment Certificate, and meets the needs of the federal Environmental Impact Statement
BCEAA	*British Columbia Environmental Assessment Act*
BCEAO	British Columbia Environmental Assessment Office
BCUC	British Columbia Utilities Commission
CDC	Conservation Data Centre
CEA	Cumulative Effects Assessment
CEA Agency	Canadian Environmental Assessment Agency
CEA Act	*Canadian Environmental Assessment Act*
CPCN	Certificate of Public Convenience and Necessity
CSA	Canadian Standards Association
CWS	Canadian Wildlife Service
DFO	Fisheries and Oceans Canada
DPAs	Development Permit Areas
EA	Environmental Assessment
EAC	Environmental Assessment Certificate
EIS	Environmental Impact Statement
EIS Guidelines	Environmental Impact Statement Guidelines
EMP	Environmental Management Plan
ESAs	Environmentally Sensitive Areas
Foothills	Trans Canada Pipeline Limited Foothills BC
ITS	Interior Transmission System
IWMS	Identified Wildlife Management Strategy
km	Kilometre
kPa	Kilopascal
KORP	Kingsvale – Oliver Natural Gas Pipeline Reinforcement Project (also referred to as "KOR Project" or "Project")
LSA	Local Study Area
LRMP	Land and Resource Management Plan
m	metre

Acronym	Definition
MACs	Matrix Activity Centres
ML	Metal Leaching
mm	millimetre
MOE	Ministry of Environment
NWPA	*Navigable Waters Protection Act*
OCP	Official Community Plan
OGC	Oil and Gas Commission
psig	pounds per square inch gauge
RA(s)	Responsible Authority(ies) under the CEA Act
RISC	Resources Information Standards Committee
RSA	Regional Study Area
SARA	*Species at Risk Act*
SCADA	Supervisory Control and Data Acquisition
SCP	Southern Crossing Pipeline
Spectra	Spectra Energy T-South
SRMZs	Special Resource Management Zones
TC	Transport Canada
TUS	Traditional Use Study
VC	Valued Component
WHAs	Wildlife Habitat Areas
WHMIS	Workplace Hazardous Materials Information System
WMAs	Wildlife Management Areas

EXECUTIVE SUMMARY

This section of the EAC Application will concisely provide the reader with a description of the Project and the methods, results, recommended mitigation measures, and proponent's conclusions from the assessment.

Application Subsections	**Content**
None	• A concise description of all key facets of the Project suitable for use as a stand-alone document. • A general outline of key impact issues and proposed mitigation strategies and measures; including biophysical and socio-economic effects as well as cumulative effects. • A succinct description of information distribution activities, including government agency, Aboriginal and public consultation measures undertaken. • A summary of issues raised, and solutions suggested, during these consultations. • Proponent's conclusions and determinations regarding the significance of environmental effects.

1.0 PURPOSE OF THE APPLICATION

The following will be provided in the Application:

- A summary of the purpose of the Application; and
- A statement that the Application fulfills the federal requirements for an EA decision in addition to the BC EA process.

2.0 PROPOSED PROJECT OVERVIEW

2.1 Proponent description

FortisBC Energy Inc. (FortisBC) is a leading provider of energy and utility services. FortisBC is an investor-owned utility corporation headquartered in British Columbia. FortisBC is the principal natural gas distributor in British Columbia and is a regulated utility under the *B.C. Utilities Commission Act*.

FortisBC Energy Inc. is an indirect wholly owned subsidiary of Fortis Inc., which serves approximately 2,100,000 customers. This successful Canadian-owned and operated parent company provides the strong direction upon which FortisBC's commitment to customers is built.

The Fortis energy companies in British Columbia provide electricity, natural gas, piped propane and alternative energy solutions delivering more energy than any other utility in the province, approximately 21 per cent of the total energy consumed in British Columbia. The companies employ more than 2,000 people and serve more than 1.1 million customers in 135 communities.

With respect to the proposed Project, communication should be sent to:

FortisBC Energy Inc.
16705 Fraser Highway
Surrey, British Columbia V4N 0E8

Attention: Mr. Art Kanzaki, P.Eng.
Project Director

Telephone: 604.592.7475
Email: Art.Kanzaki@fortisbc.com

2.2 Proposed project description

2.2.1 Project rationale

This section describes the purpose of and need for the Project as required for the Federal EA. FortisBC is proposing to loop its existing natural gas transmission pipeline system between Kingsvale (located south of Merritt in the Coldwater River valley), and Oliver in the South Okanagan, including the addition of new compression facilities and a 1 km pipeline extension at Yahk.

The Project is referred to as the Kingsvale – Oliver Natural Gas Pipeline Reinforcement (KOR) Project, or KORP.

Figure 1 illustrates the location of the proposed pipeline loop.

The new shale gas developments in northeast BC are driving infrastructure development as shippers seek to find ways to move the new production to market. This is creating an opportunity to expand transportation services to provide improved access to markets for the growing gas production. By removing a physical constraint on its pipeline system, FortisBC is well-positioned to capture this opportunity to the benefit of its customers.

FortisBC currently sources natural gas from the Spectra Energy T-South (Spectra) pipeline at its Kingsvale Compressor Station and transports the gas on its Interior Transmission System (ITS) through the existing 12 inch (305 mm) diameter pipeline to its control station near Oliver (referred to as the Oliver Y Control Station) and can deliver through the existing Southern Crossing 24-inch pipeline (SCP) to TransCanada Pipeline Limited Foothills BC (Foothills) at Yahk. FortisBC also sources Alberta gas from Foothills at Yahk, which is transported in the opposite direction via SCP to the existing 12-inch ITS and via Spectra to the Lower Mainland.

FortisBC is currently evaluating the feasibility of constructing a new pipeline loop (also bi-directional) to enable expanded flows of natural gas between Kingsvale and Oliver. The existing Southern Crossing Pipeline (SCP) that FortisBC constructed in 2000, would be used to transport the additional natural gas between the terminus of the KOR Project at the Oliver Y Control Station and the site of a new compressor station adjacent to the existing connection to Trans Canada Pipeline Limited Foothills BC (Foothills) pipeline near Yahk. FortisBC intends to deliver to or receive from Foothills, increased flows of natural gas at its current interconnection at Yahk.

The KOR Project is expected to provide the following benefits to FortisBC customers:

- Improve access to competitively priced natural gas;
- Provide more competitive tolls by using interconnecting pipeline infrastructure;
- Improve the security and reliability of natural gas supply;
- Offset potential rate increases over time; and
- Increase British Columbia's transmission system capacity.

The KOR Project entails the following components:

- Constructing a new 24 inch (610 mm) diameter 161 kilometre (km) long natural gas transmission pipeline generally alongside the existing FortisBC pipeline between the existing Kingsvale Compressor Station connection to the Spectra pipeline near Merritt and the existing Oliver Y Control Station.
- Constructing a new compressor station at a new location near the existing SCP-Foothills pipeline connection near Yahk including a one km extension of the existing FortisBC Southern Crossing Pipeline (SCP) to connect to the proposed Yahk compressor station.

- Adding additional compressor capability adjacent to the Kingsvale Compressor Station.
- Constructing a new compressor station on the SCP system in the vicinity of Trail.

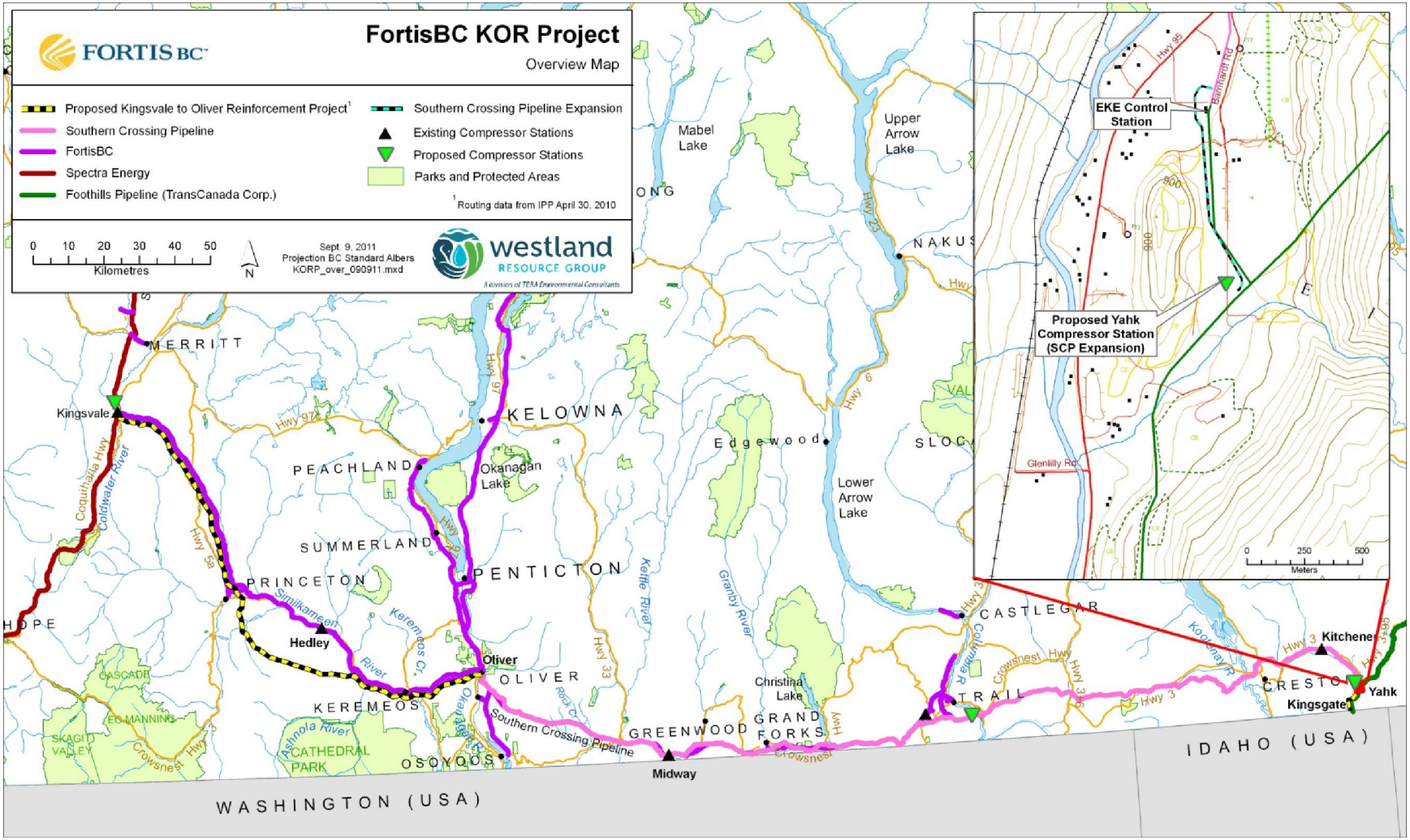

Figure 1. General location of the KOR Project

The KOR Project is subject to the *B.C. Environmental Assessment Act* since the proposed diameter of the pipeline is greater than 323.9 mm and the length of the pipeline loop exceeds 40 km.

The KOR Project may require Authorizations under the *Fisheries Act* (Fisheries and Oceans Canada) and the *Navigable Waters Protection Act* (Transport Canada) as a result of several river and stream crossings that will be required. The Project will likely require timber removal on the Reserves of the Lower Similkameen Indian Band requiring a Timber Permit issued under the Indian Timber Regulations of the *Indian Act.* In addition, the Project crosses two Indian Reserves of the Lower Similkameen Indian Band that will require a land permit (*Indian Act).* The Project will likely require a Comprehensive Study Review under the *CEA Act* as a consequence of the pipeline exceeding greater than 75 km of new, non-abutting right-of-way.

Total construction expenditures on the KOR Project are currently estimated to be approximately $440,000,000 (in 2011 dollars) of which labour will comprise approximately 40% ($175,000,000), and goods and services approximately 60% ($265,000,000).

Construction expenditures on the KOR Project are forecast to lead to a total of approximately 1,760 person-years of direct employment in British Columbia, and approximately 940 person-years of indirect employment in British Columbia.

2.2.2 Project description

The KOR Project includes all of the following facilities and activities associated with their construction, operation, maintenance, and foreseeable changes, and where relevant, the abandonment, decommissioning, and rehabilitation of sites relating to the pipeline and appurtenances:

- Approximately 161 km of greater than 508 mm (20-inch) and not more than 762 mm (30-inch) diameter 1440 pounds per square inch gauge (psig) (9930 kilopascal [kPa]) maximum operating pressure (MOP) natural gas transmission pipeline loop between the existing FortisBC Kingsvale Compressor Station and the existing FortisBC Oliver Y Control Station.
- The installation of a new compressor station near the existing FortisBC connection to the Foothills pipeline near Yahk including an approximate 1 km lateral extension of the existing 610 mm (24 inch) 1440 psig (9930 kPa) MOP FortisBC SCP to connect with the proposed compressor station.
- The installation of additional compression facilities adjacent to the existing Kingsvale Compressor Station potentially including a new interconnect (to be constructed by Spectra) with the Spectra pipeline.
- The construction of a new compressor station along the existing Southern Crossing Pipeline in the vicinity of Trail in the West Kootenay.
- The installation of new odorant facilities within the existing FortisBC property at the Oliver Y Control Station.

- Isolation valves along the pipelines.
- Supervisory Control and Data Acquisition (SCADA) System linking pipeline and compressor facilities to the FortisBC Control Center in Surrey, British Columbia.
- Necessary communication links and power supply to service compressor stations, meter stations, and other pipeline facilities.
- Various temporary construction workspace, access roads, potential work camps, offices, pipe and material storage areas, and equipment laydown areas, to be restored and revegetated, where appropriate, following construction.
- Pipeline operations and maintenance and vegetation management along the rights-of-way.

2.2.3 Right-of-way characteristics

The width of the existing FortisBC pipeline right-of-way is generally 18 m (60 feet) between Kingsvale and Oliver; however, the right-of-way may be wider (up to 30 m) where existing loops have been installed. For example, there is a 12 inch (305 mm) as well as a 3 inch (76 mm) FortisBC pipeline in the right-of-way between Kingsvale and Princeton.

The proposed KOR Project pipeline loop between Kingsvale and Oliver is intended to generally parallel the existing pipeline right-of-way but may or may not be located within the existing right-of-way at constrained locations. Therefore, some additional right-of-way will be required in certain locations to safely accommodate the existing pipelines and the new pipeline loop.

In addition, the proposed KOR Project loop segment between Princeton and the Similkameen Valley near the Ashnola Indian Reserve (approximately 61 km) does not follow existing right-of-way and requires an entirely new right-of-way, with an easement of 18 m (60 feet).

Temporary workspace will also be required along the entire route in order to accommodate pipeline construction and additional workspace will be required at select locations (*e.g.*, for road, rail, and watercourse crossings, sharp sidebands, etc.). The overall width of the proposed construction right-of-way (statutory right-of-way plus additional working space) is expected to be 25 m to 35 m (assuming an 18 m wide easement).

Figure 2 illustrates a typical cross-section of the work space showing the width of the area needed for construction in a typical pipeline installation.

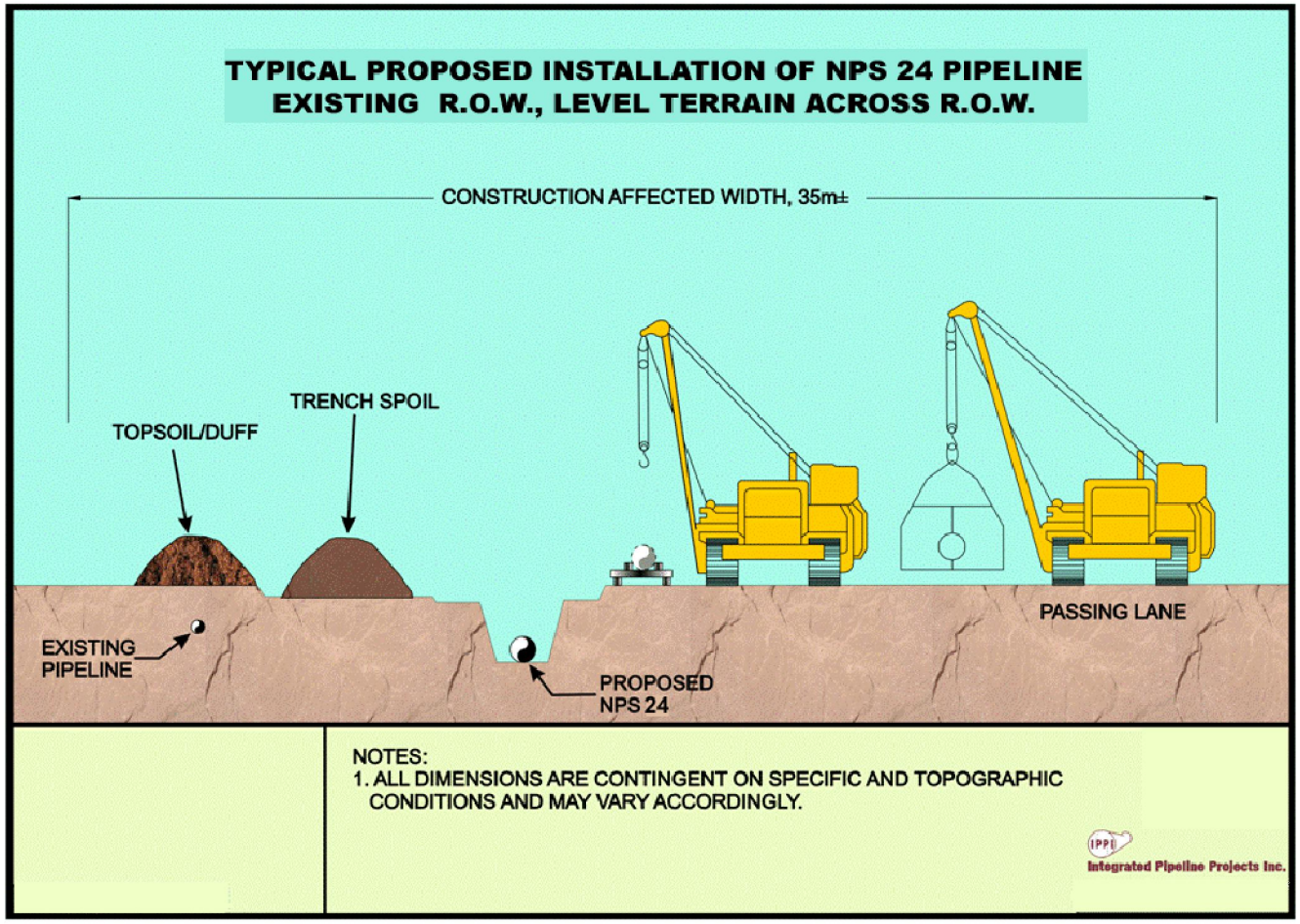

Figure 2. Typical pipeline installation method

2.2.4 Project activities

Pending a final decision to proceed with the Project and obtaining required regulatory approvals (including a Certificate of Public Convenience and Necessity from the B.C. Utilities Commission (BCUC)) construction of the Project is currently scheduled to commence in late 2015 at the earliest, with completion of construction in the Fourth Quarter of 2016 (Figure 3). In an effort to minimize environmental and land use impacts, FortisBC proposes to schedule right-of-way clearing for the winter of 2015/2016 with pipeline construction to immediately follow in the Second Quarter of 2016.

Pipeline construction activities are generally sequential. Consequently, the duration of a specific activity at a given location can be relatively short. However consecutive phases of the pipeline construction process are expected to overlap as construction progresses along the right-of-way (logging and clearing; right-of-way preparation; trench excavation; pipeline installation; backfilling and clean-up activities) and therefore the duration of overall impact at a given location can be lengthy. These activities will be occurring concurrently at different sections of the pipeline.

Compressor station and pipeline construction will likely commence concurrently. Site construction and equipment installation at the compressor stations (existing and new) is expected to take several months.

Restoration of disturbed areas will commence following construction and be completed in 2016.

In addition to the pipeline easement (or right-of-way) and associated temporary workspace, lands will be required for staging and stockpile sites, equipment storage, and possibly borrow pits (to supply fill material). Existing disturbed areas or areas already designated for such activities will be utilized wherever feasible. Compressor stations will be located on land already owned by FortisBC or on Crown or private land acquired for that purpose.

The following report sections describe standard pipeline and compressor station construction activities, and typical equipment requirements.

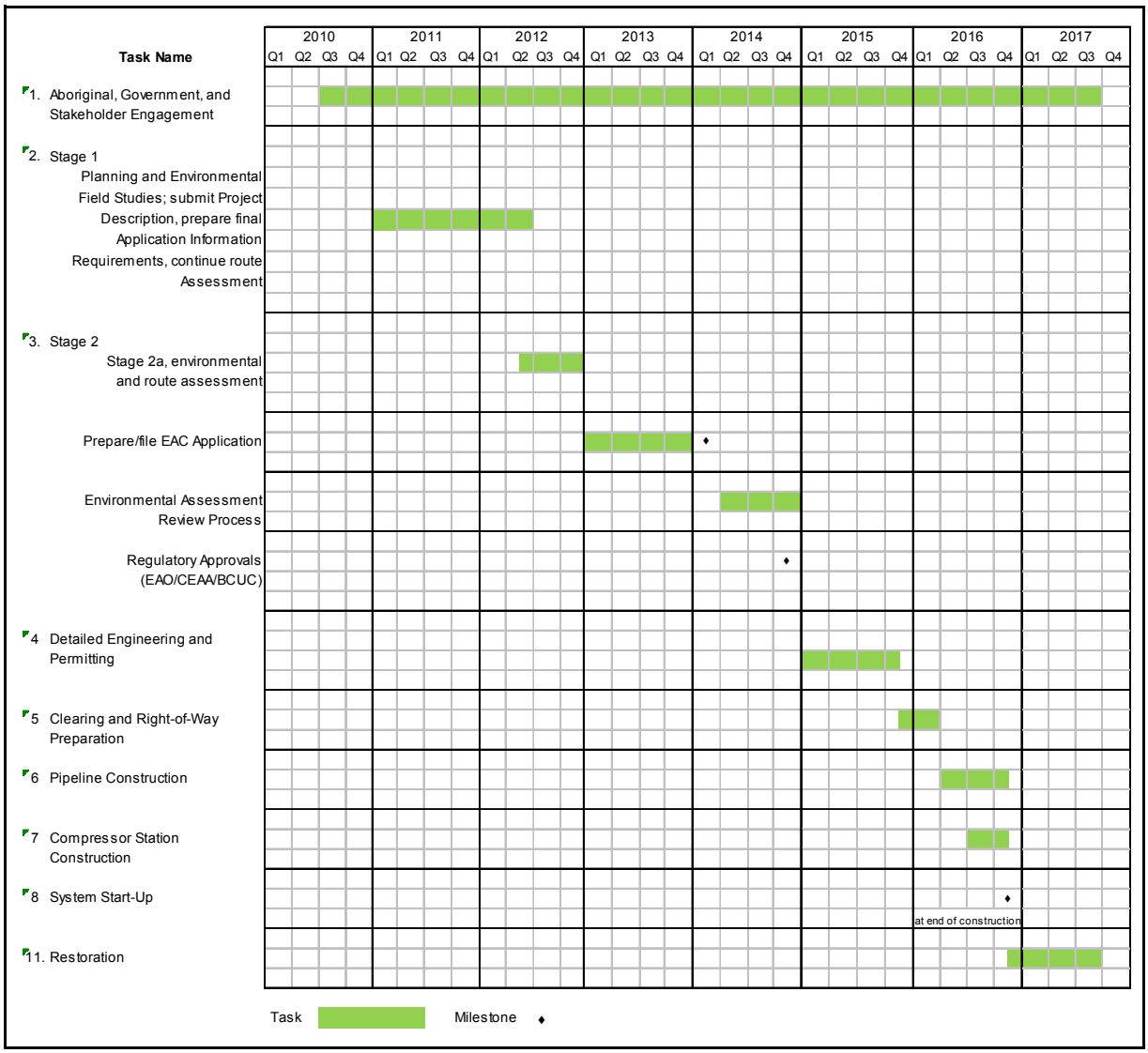

Figure 3. Proposed project schedule

2.2.4.1 Pipeline clearing and construction activities

Standard pipeline construction activities and typical equipment requirements are outlined in the following:

Construction Phase	Associated Activities and Equipment Required
Engineering	The proposed pipeline will be designed and constructed in accordance with all applicable Canadian Standards Association (CSA) and FortisBC Gas Standards and Oil and Gas Commission (OGC) regulations.

Construction Phase	Associated Activities and Equipment Required
Construction Survey	Activities include line-of-sight clearing with chain saws, flagging and staking of the boundaries of the construction right-of-way, temporary workspace and facility sites as well as marking trench line and existing utilities. Avoidance areas, such as protected habitats, archaeological sites, or rare plant communities, will be appropriately fenced or flagged.
Clearing	Snow, trees, stumps, brush, and other vegetation will be generally cleared from the construction right-of-way and extra temporary workspace. Salvageable timber will be cut, decked, and hauled to local mills (if merchantable). Non-salvageable vegetative debris will be burned unless required for mulch, corduroy, rollback, etc. Equipment used during clearing activities will include chainsaws, feller-bunchers or other tree clearing equipment, as well as bulldozers and backhoes.
Topsoil Salvage	Topsoil will be salvaged to ensure that the soil capability is maintained. The width and depth of topsoil salvage depends on the land use, soil conditions, microtopography, regulatory agency requests, and grading requirements. Equipment used during topsoil handling activities includes bulldozers, graders and backhoes.
Grading	Following topsoil salvage, grading will be conducted on irregular ground surfaces (including temporary workspace) to provide a safe work surface. Graders, backhoes and bulldozers will be used for this activity. Blasting may be required where hard bedrock is encountered.
Stringing and Welding	The pipe will be transported by truck from the stockpile sites to the right-of-way. The pipe will be bent, lined-up, welded, joint-coated and inspected prior to being lowered into the trench. Equipment used during stringing and welding activities includes pipe trucks, booms, pick-up trucks, and x-ray or ultrasonic inspection equipment mounted on pick-up trucks.
Trenching	The trench will be excavated using tracked excavators to a depth sufficient to ensure the depth of cover is in accordance or in excess of applicable codes. Typical depth of cover will be a minimum of 0.6 m and may vary based on land use up to 1.2 m. Trenching will generally occur after stringing, bending and welding. Road and railway crossings will be bored.

Construction Phase	Associated Activities and Equipment Required
Lowering-In	The pipe will be lowered into the trench using sideboom tractors. Trench dewatering may be necessary at certain locations during lowering-in (*e.g.,* to ensure acceptable bedding for pipe, to prevent the pipe from floating or for performing tie-in welds).
Backfilling	The trench will be backfilled using backhoes, graders, bulldozers or specialized backfilling equipment. Backfill material will generally consist of native trench spoil material. Displaced subsoils will be crowned over the trench to compensate for settlement and after settlement, any excess trench spoil will be feathered out over adjacent portions of the right-of-way.
Testing	The completed pipeline will be pressure tested in sequential segments, using water as the test medium. The water will be drawn from suitable sources and returned to the appropriate watersheds in accordance with permit requirements.
Clean-Up and Restoration	Initial clean-up and reclamation procedures will be initiated immediately following construction using bulldozers, backhoes and graders. Final restoration will be completed once weather and soil conditions permit, likely in the year following construction. Garbage or debris remaining along the right-of-way will be removed regularly and disposed of in compliance with local regulations. The right-of-way contours will be returned to a stable and maintenance free condition. Compacted subsoils will be ripped and the topsoil replaced. All disturbed upland areas will be seeded with an appropriate seed mix, and special land restoration measures will be applied as required.
Watercourse Crossings	Watercourse crossing methods will be decided in consultation with engineering and environmental specialists. Crossing methods typically used during watercourse construction include open cut, isolation (*e.g.,* dam and pump, flumes), boring and horizontal directional drill.

2.2.4.2 Compressor station construction activities

Standard compressor station construction activities and typical equipment requirements are outlined in the following:

Construction Phase	Associated Activities and Equipment Required
Engineering	The proposed compressor station will be designed and constructed in accordance with all applicable CSA and industry standards and OGC and other applicable regulations.
Site Preparation	Initial site preparation will involve surveying, clearing, salvage and storage of topsoil, excavating and removal of unsuitable fill, grading, site drainage, placement and compaction of a gravel surface on work areas, laying of foundation and installation of building support pads. Equipment used during site preparation activities will include chainsaws, mowers, feller-bunchers or other timber clearing equipment, as well as bulldozers, and backhoes.
Facility Construction	Installation of the new compressor station will entail building new structures, installing compression, pipe, valves and electronics equipment, tying new pipe into pipelines, pressure testing all piping, testing safety systems and instruments, final commissioning of new equipment and control systems and perimeter fencing construction.

2.2.4.3 Operations and maintenance

Scheduling of operations and maintenance will coincide with regular aerial and ground patrol of the existing FortisBC pipeline and associated facilities. Operations and maintenance activities along the existing FortisBC system will be expanded to include the new Project facilities.

As part of routine operations and maintenance procedures, patrols will be conducted to visually inspect for environmental issues, evidence of pipeline damage, erosion and wash-out areas, areas of sparse vegetation, damage to permanent erosion control structures, exposed pipe, and other potential problems that may affect the integrity or safe operation of the pipeline and facilities. The operating pipeline will also be regularly inspected by internal in-line inspection tools. In the event that an actual or suspected pipeline integrity problem is identified, the buried pipeline will be exposed and inspected visually and with specialized equipment where required. Repairs will be made as needed. Maintenance digs will be conducted in a manner similar to the pipeline construction activities.

The pipeline right-of-way and areas within the compressor station site that are not required for ongoing operations and maintenance will be restored to pre-construction conditions.

Vegetation control (including weeds), if warranted, will be conducted in accordance with FortisBC's standard practices for vegetation control, as approved by the appropriate agency.

2.2.4.4 Decommissioning and abandonment

It is difficult at this time to predict when or how the Project facilities will be decommissioned and abandoned at the end of the Project's useful life. The existing pipeline has been successfully operating for approximately 40 years and will be safe and reliable for many more years. The useful life of the KOR Project has no end date at this time, therefore decommissioning is not anticipated in the foreseeable future. As a result this decommissioning cannot be meaningfully described at this time.

The pipeline industry has experience with pipeline abandonment and guidance documents from the industry are available for review and use where applicable. There are three categories under which pipeline decommissioning and abandonment may fall, namely: pipeline removal; abandonment-in-place; and a combination of abandonment-in-place and pipeline removal. These would have to be considered in light of conditions that might prevail at the time of decommissioning. Any decommissioning or abandonment activities will require prior approval by the BCUC, the OGC, and other relevant agencies.

2.2.5 Resource and material requirements

2.2.5.1 Energy and water requirements

Compressors proposed for the KOR Project are expected to be operated by natural gas and require additional energy from electrical sources only for minor utility needs for lighting and control, etc. However, if reliable electrical supply is available for use at the proposed new compressor station south of Trail, FortisBC will consider electrical drives for the compressors at this location. Water requirements at the compressor stations during operations are limited and generally only required for general cleanup, landscaping, and potable uses.

The environmental assessment will address water requirements during construction and proposed sources as well as potential impacts, cumulative effects, and proposed mitigation.

Withdrawal and return of water for hydrostatic testing of the pipeline will be undertaken in consultation with appropriate regulators, including the Fisheries and Oceans Canada, the Oil and Gas Commission, and BC Ministry of Environment. All applicable regulations, guidelines and codes of practice relating to water withdrawal and discharge will be adhered to.

2.2.5.2 Excavation and fill requirements

Excavation for pipeline construction in addition to the trench line will include grading of steep slopes or uneven terrain. Requirements for additional excavation will be addressed in the environmental assessment. Fill may be required along the proposed pipeline route where

trench rock cannot be replaced directly over the pipeline. Grading and contouring will also be required at the proposed compressor station, in addition to importing gravel. The environmental assessment will address specific needs for excavation and fill and potential sources, in addition to any associated environmental effects and proposed mitigation including any special measures that may be required in "special areas" outlined in the Land and Resource Management Plan (LRMP) process.

2.2.5.3 Toxic and hazardous materials

Specific identification of hazardous substances, potential impacts, spill prevention, and emergency contingencies will be addressed in the environmental assessment. Hydrocarbons and hydraulic fluids are the primary toxic materials to be used during construction of the Project. Activities associated with Project construction that may involve other substances of concern include welding and weld testing, hydrostatic testing, and horizontal directional drilled/bored crossings. FortisBC has a number of systems in place (including, its pipeline integrity management, SCADA, aerial and ground patrol, and emergency response systems) to both prevent incidents and ensure rapid and effective response to spills of hazardous materials such as gasoline and diesel fuel.

2.2.5.4 Waste disposal

Waste will be controlled according to FortisBC's waste management plan. Storage and transportation of waste material will be conducted in accordance with the Transportation of Dangerous Goods, Workplace Hazardous Materials Information System ("WHMIS"), and any other provincial regulations. Waste will be collected daily during the construction phase of the Project, and will be disposed of at landfill sites appropriate for the nature of the waste.

2.3 Scope of the proposed project

The scope of the KOR Project includes all of the following facilities and activities associated with their construction, operation, and maintenance, restoration, decommissioning and abandonment of a natural gas pipeline and associated facilities including the following components and activities:

- Approximately 161 km of greater than 508 mm (20-inch) and not more than 762 mm (30-inch) diameter pipe between the existing FortisBC Kingsvale Compressor Station and the existing FortisBC Oliver Y Control Station;
- The installation of a new compressor station near the existing FortisBC connection to the Foothills pipeline near Yahk including a 1 km lateral extension of the existing Southern Crossing Pipeline to connect with the proposed compressor station;
- The installation of additional compression facilities adjacent to the existing Kingsvale Compressor Station potentially including a new interconnect with the Spectra pipeline (to be constructed by Spectra);
- The construction of a new compressor station along the existing Southern Crossing Pipeline in the vicinity of Trail;
- The installation of new odorant facilities near the existing FortisBC property at the Oliver Y Control Station;
- Isolation valves along the pipeline;
- Supervisory Control and Data Acquisition (SCADA) System linking pipeline and compressor facilities to the FortisBC Control Centre in Surrey, B.C.;
- Necessary communication links and power supply to service compressor stations, meter stations, and other pipeline facilities;
- Cathodic protection facilities;
- Temporary construction surface disturbances or facilities, including: construction workspace; access roads, bridges, isolation techniques; work camps; pipe and material storage areas; and equipment laydown areas;
- Crossings of watercourses during construction of the pipelines;
- Crossings of watercourses during construction of temporary and permanent access roads and bridges, including upgrade of existing roads and bridges;
- Water withdrawals and releases during hydrostatic testing; and
- Pipeline monitoring, and vegetation and access management during operations and decommissioning along the right-of-way.

2.4 Alternatives to the project and alternative means of undertaking the proposed project

The EAC Application will include:

- Brief description of Project alternatives to looping the existing pipeline system in order to meet the Project objectives;
- Identification of the key issues in considering the alternative means of proposed Project;
- An analysis of the alternative means of carrying out the proposed Project that are environmentally, technically, and economically feasible; and
- Identification of the rationale for selecting the preferred alternative.

This analysis will be done to a level of detail which is sufficient to allow technical and regulatory agencies, the public, and Aboriginal groups to compare the proposed project with alternatives to meeting the Project's needs and achieving its purpose, and alternative means of carrying out the project that are environmentally, technically, and economically feasible.

2.5 Project land use

The EAC Application will include:

- A description of land ownership and land use regime;
- An identification of LRMPs that the Project crosses and their management objectives;
- An identification of existing and proposed management and monitoring programs;
- An identification of other developments in the general area of the proposed Project; and
- An identification of reasonably foreseeable future projects and those that are certain to proceed.

2.6 Project benefits

The EAC Application will include:

- Initial capital construction cost estimates;
- Estimated annual operating costs (excluding labour) over the life of the proposed Project;
- Employment estimates;
- Contractor supply services estimates;
- Annual government revenues for the construction and operational phases of the proposed Project;

- Statement of references, information sources, and assumptions used in the determination of Project benefits;
- Identification of Project contributions to healthy living; and
- Identification of Project contributions to community development and capacity building.

2.7 Applicable permits

The EAC Application will include a list of all applicable provincial and federal licences, permits, and/or approvals required for the construction, operation, and decommissioning of the proposed Project, and the associated responsible regulatory authority.

As well, it will be stated if a request for concurrent permitting is being requested.

Permits and Authorizations required under Federal legislation may include, but not be limited, to the following:

- Comprehensive Study and approval under the *Canadian Environmental Assessment Act*
- Authorization under the *Fisheries Act*
- Permits under the *Navigable Waters Protection Act*
- Permits under the *Indian Act* for timber removal as well as a Land Permit for the right-of-way through the two reserves of the Lower Similkameen Indian Band.
- Permits under the *Species at Risk Act* for potential impacts to listed plant and animal species through the two reserves of the Lower Similkameen Indian Band.

3.0 ASSESSMENT PROCESS

3.1 Provincial and Federal EA process

3.1.1 Pre-application stage

The EAC Application will include:

- List of the government agencies, local government and Aboriginal groups likely to be involved in the EA;
- List of applicable milestones; and
- Issues tracking tables for the preparation of the AIR and the Application separated into Public, Aboriginal groups, Local Government, Provincial Agencies, and Federal Agencies.

3.2 Aboriginal group information distribution and consultation

The EAC Application will summarize consultation activities undertaken with the identified Aboriginal groups potentially affected by the proposed Project.

The KOR Project area lies in the claimed territories of the Nlaka'pamux, Ktunaxa, and Okanagan Nations. Within these three Nations, the following First Nations and First Nation Organizations have been identified:

Nicola Tribal Association

- Coldwater Indian Band
- Cook's Ferry Indian Band
- Nicomen Indian Band
- Nooaitch Indian Band
- Shackan Indian band
- Siska Indian Band
- Upper Nicola Band (also a member of the Okanagan Nation Alliance)

Okanagan Nation Alliance

- Westbank First Nation
- Lower Similkameen Indian Band (pipeline crosses two reserves)
- Upper Similkameen Indian band
- Osoyoos Indian Band
- Penticton Indian Band
- Okanagan Indian Band

- Upper Nicola Band

Nlaka'pamux Nation Tribal Council

- Ashcroft Indian Band
- Boothroyd Indian Band
- Boston Bar First Nation
- Oregon Jack Creek Indian Band
- Lytton First Nation
- Spuzzum First Nation
- Kanaka Bar First Nation
- Skuppah First Nation

Ktunaxa Nation Council

- Tobacco Plains Indian Band
- ?Akisq'nuk First Nation
- Lower Kootenay Band
- St. Mary's Band

Unaffiliated

- Splatsin First Nation
- Lower Nicola Indian Band
- Shuswap Indian Band

The EAC Application will summarize consultations with First Nations. In addition, the Application will describe the means of information distribution and consultation used and will summarize issues, concerns, and interests identified during these consultations, and how these matters were addressed.

3.3 Public and agency information distribution and consultation

The KOR Project is located in the following areas of the province:

- Thompson-Nicola Regional District
- Okanagan-Similkameen Regional District
- Kootenay-Boundary Regional District
- Central Kootenay Regional District
- Village of Keremeos
- Town of Princeton
- Town of Oliver
- City of Merritt

- East Kootenay Regional District

The following provincial ministry regions and districts are crossed by the Project:

- Southern Interior Forest Region (Cascades, Okanagan-Shuswap, Rocky Mountain and Arrow-Boundary Forest Districts)
- Ministry of Environment – Thompson, Okanagan and Kootenay regions

The EAC Application will summarize consultations with the public and other key stakeholders, federal, provincial, and local government agencies.

In addition, the Application will describe the means of information distribution and consultation used and will summarize issues, concerns, and interests identified during these consultations and how these matters were addressed.

3.3.1 Pre-application consultation

The EAC Application will contain an outline of consultations undertaken in the pre-application stage, covering both the preparation of the AIR and the Application.

3.3.2 Consultation planned during application review

The EAC Application will include:

- A description of the public consultation program proposed for the Application review;
- A description of the proposed programs for consultation with government agencies, and local government; and
- Documentation of the proposed methods and process to resolve outstanding issues.

4.0 ABORIGINAL GROUP INFORMATION REQUIREMENTS

4.1 Background information

The EAC Application will contain the following information:

- Identification of Aboriginal groups that could potentially be impacted by the proposed Project and their asserted or established traditional territories;
- Maps of the asserted or traditional territories; and
- Background information for each of the potentially affected Aboriginal groups.

4.2 Aboriginal rights

The EAC Application will contain the following information:

- Identification of present, past, and anticipated future uses of the proposed Project area;
- Identification of any specific asserted Aboriginal rights provided by Aboriginal groups or other sources;
- Identification of potential impacts of the proposed Project on uses and asserted rights provided by Aboriginal groups; and
- Describe mitigation measures to avoid or reduce identified impacts.

4.3 Other Aboriginal interests

The EAC Application will contain the following information:

- Identification of Aboriginal interests with respect to social, economic, environmental, heritage, and health effects of the proposed Project not identified in Section 4.2 above; and
- Description of how those interests have been addressed.

4.4 Aboriginal consultation

The EAC Application will contain the following information:

- A summary of past and planned Aboriginal consultation activities; and
- Description of key Aboriginal issues of relevance to the EA and responses to those issues.

4.5 Summary

The EAC Application will contain the following information:

- Identification of Aboriginal interests raised by Aboriginal groups that may be impacted by the proposed works and the accommodation measures which

address potential effects on Aboriginal interests. This information will be provided in the form of a table.

5.0 ENVIRONMENTAL ASSESSMENT METHODS

This chapter of the EAC Application will provide a definition of the Scope of the Environmental Assessment as set out in the BCEAA Section 11 Order and federal input related to the *CEA Act*.

The scope of the environmental assessment will include an assessment of the Project's potential direct, indirect, and cumulative effects on the Project setting. It will focus on effects for which a reasonably direct causal link can be demonstrated between the Projects scoped components (so-called "scope of the project") and the Project setting.

5.1 Scope of Environmental Assessment

- Describe the issues scoping process, including the influence of consultations on the identification of potential environmental, social, economic, heritage, and health effects and effects on Aboriginal interests.
- For the purpose of the assessment, a Valued Component (VC) approach will be followed. The main categories of the VCs that are proposed will include:
    - Fisheries and Aquatic Environment
    - Terrestrial Environment; Wildlife and Vegetation
    - Geophysical Environment
    - Surface Water Hydrology and Groundwater
    - Navigable Waters
    - Community and Regional Infrastructure and Services
    - Agriculture Land and Resource Use
    - Aesthetics and Viewsheds
    - Contaminated Sites
    - Employment and Economy
    - Atmospheric Environment
    - Species and Ecosystems at Risk
    - Archaeological and Heritage Resources
    - Aboriginal Groups' Community and Traditional and Contemporary Land Use
    - Country Foods
    - Human Health and Safety
    - Noise
    - Capacity of Renewable Resources

5.2 Assessment area boundaries

Study area boundaries for the environmental assessment will be defined in time and space. The Application will clearly indicate the study area boundaries used for each component of the impact assessment, including the rationale for adopting the study area boundaries.

Studies within the defined study areas will take into account the timeframes over which the effects originating from the construction, operation, maintenance, and decommissioning of Project components are anticipated to occur.

Spatial (space) boundaries will be based on the zone of Project influence beyond which the effects of the Project are expected to be non-detectable. Multiple study area boundaries will be employed, if necessary, reflecting the range of geographic areas within which specific effects may be experienced.

Since the Application is to address effects for which a reasonably direct causal link to the scoped Project components can be established, the study area(s) for most of the anticipated biophysical environmental issues are expected to be limited to the Local Study Area (1 km on both sides of the pipeline centre line). For the environmental impact assessment including the archaeological and health assessment, most of the effort is likely to focus on characterizing the immediate Project footprint (approximately 100 m wide centred on the pipeline centerline, access roads requiring upgrading and temporary facilities) and the nearby vicinity where environmental effects may be detectable. Spatial boundaries for the socio-economic/community and Aboriginal groups' assessments will extend to local communities.

The Spatial Boundaries for the assessment will consider one or more of the following study areas:

A Project Footprint (PF) study area (approximately 100 m wide) made up of the area directly disturbed by clearing, construction and clean-up activities, including associated physical works and activities (permanent right-of-way, temporary construction workspace, temporary access routes, temporary stockpile sites, temporary staging areas, construction work camp, off-load areas, borrow pits, facility sites).

A Local Study Area (LSA) consisting of a 2 km buffer centred on the pipeline right-of-way. The LSA is intended to capture most direct and indirect effects of Project activities and facilities. This is the zone of influence within which plants (50 m), animals (500 m), and humans (500 m to 800 m) are most likely to be affected by Project construction and operation. The width of the LSA will vary somewhat depending on the specific resource in question. For example, wildlife studies will expand to a 50 km buffer where necessary to ensure potential effects on elements such as grizzly bear movement are captured or a larger downstream area may be studied at major river crossings to assist with mitigation/ compensation planning.

A Regional Study Area (RSA) that will include relevant portions of the Traditional Territories of potentially affected Aboriginal groups as well as local communities most likely to experience socio-economic effects of the Project. The RSA for the CEA will be 15 km on both sides of the pipeline center line (total width 30 km).

The Temporal Boundaries (or time frames) that will be used in the assessment include the clearing and construction, operation and maintenance, and decommissioning and abandonment phases of the Project. The construction period (includes clearing, grading, trenching, testing, commissioning, and clean-up) for the Project is expected to take approximately eight months. Construction of the compressor stations and associated infrastructure will extend over a period of up to nine months. The operations phase will be considered to commence following construction and extend an estimated 100 years. Primary restoration activities will extend over an approximately ten month period, with the bulk of activity in the spring and summer of the year following construction. Temporal Boundaries for possible Decommissioning and Abandonment of the Project are uncertain, but will be considered beyond the operations phase of greater than 50 years or more. A project schedule is provided in the Project Description.

5.3 Identification of project – environment interactions

Develop an issues identification table to assist in identifying areas of potential interaction between Project components or activities and the environment. As per the requirements of the *CEA Act*, the matrix will consider the potential effects that may arise during construction, operation and maintenance, and decommissioning of the Project.

For all relevant VCs, the assessment will include the following scenarios:

- Baseline alone (before the project scenario);
- Project alone;
- Project plus baseline; and
- Cumulative (project, plus baseline, plus all other approved or reasonably foreseeable projects)

5.4 Assessment of environmental effects

Describe the assessment methods used to identify and evaluate potential effects of the Project. Specify and provide rationale for where provincial standards for resource inventory and assessment methods (*i.e.*, RISC Standards) were not used, or were modified.

5.5 Development of mitigation and environmental management strategies

Describe the methods used, including the influence of public, Aboriginal, and agency consultations, to identify and develop mitigation and management strategies to avoid, reduce, or otherwise mitigate potential effects of the Project.

Describe potential compensation measures that may be offered where any adverse effects of the Project cannot be avoided or mitigated, and are predicted to be "significant" based on the methods used to determine Significance of Residual Effects described in Chapter 9.0 of this draft AIR. Describe the feasibility of the compensation measures and limitations to successful and effective implementation. Where direct compensation is not possible, or where there are limitations to the implementation of compensation, describe potential consequences to the valued ecosystem components or valued social components.

5.6 Determination of significance of residual effects

Outline the general rationale and criteria used to determine the significance of environmental effects, including the establishment of clearly defined threshold criteria or standards beyond which residual environmental effects would be considered significant. Discipline-specific significance criteria will be presented in Chapter 9.0.

5.7 Cumulative effects assessment

The EAC Application will include:

- The methodology and rationale used to identify other developments including reasonably foreseeable future developments that may, in concert with the potential effects of the proposed Project on the identified VCs lead to cumulative impacts/effects; and
- A description of the developments identified.

6.0 ENVIRONMENTAL EFFECTS ASSESSMENT

This chapter of the EAC Application will describe:

- How the environmental assessment was undertaken;
- Data sources used in the assessment;
- Potential effects of the Project and measures to avoid, mitigate or compensate for those effects; and
- Any identified residual effects.

In this chapter, the Application will describe the likely effects of the Project on the environment, on the socio-economic, socio-community and public health conditions, and on Aboriginal interests.

This assessment will be based on the information gathered by the baseline studies and other information gathered. A determination of the significance of residual effects for each VC will be undertaken by FortisBC, although it is noted that the federal RAs have the responsibility of determining significance under the *CEA Act*.

Supporting documents will be referenced and attached as appendices, where appropriate.

6.1 Fisheries and aquatic habitat

6.1.1 Project setting and characterization

Describe freshwater aquatic habitat and aquatic resources (*i.e.*, biological values including fish and fish passage, aquatic plants, in stream and riparian habitat and water quality) within the study area to be defined for assessing potential effects on fisheries and aquatic habitat. Valued Components (VCs) will include provincially Red-listed (*i.e.*, extirpated, endangered, or threatened) resources, Blue-listed (*i.e.*, of special concern) resources, and *Species at Risk Act* (SARA) listed taxa, and species of regional importance (prioritized by government agencies, Aboriginal, or public concern) that use waterbodies in the study area for spawning, rearing, feeding, migration and/or overwintering.

6.1.2 Assessment of potential effects

Identify and evaluate potential effects of construction and operation activities on the following fisheries and aquatic habitat components:

a) Fish populations (including Species-at-Risk);
b) Instream and riparian habitat (including sensitive and critical habitats);
c) Potential introduction and proliferation of aquatic and semi-aquatic invasive plant species;

d) Fish passage; and
e) Water quality.

Describe the potential effects of the Project on any fisheries management or habitat enhancement areas along the corridor that may be potentially affected by the construction and operation of the pipeline.

6.1.3 Mitigation and environmental management

Identify mitigation measures and environmental management strategies to avoid, minimize, or otherwise mitigate potential effects of construction and operation activities on fisheries and aquatic habitat.

Discuss the effectiveness and limitations of identified mitigation measures and environmental management strategies.

6.1.4 Potential residual effects

Identify potential residual effects of construction and operation activities on fisheries and aquatic habitat, and the related consequences after mitigation measures and environmental management strategies have been applied. Chapter 9.0 describes the procedures for an analysis of the significance of potential residual effects and Chapter 10.0 discusses the Cumulative Effects Assessment.

6.2 Terrestrial environment; wildlife and vegetation

6.2.1 Project setting and characterization

Describe terrestrial wildlife and vegetation resources (*i.e.*, terrestrial wildlife species/subspecies, vegetation species/subspecies, and rare ecological communities) within the study area to be defined for assessing potential effects on wildlife and vegetation. Rare ecological communities will include Red- and Blue-listed wetland communities where they may be affected by the Project. Valued Components (VCs) will include provincially Red-listed (*i.e.*, extirpated, endangered, or threatened) resources, Blue-listed (*i.e.*, of special concern) resources, migratory birds, *Species at Risk Act* (SARA) listed taxa, taxa listed under the provincial Identified Wildlife Management Strategy (IWMS), species listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), and species of regional importance (prioritized by government agencies or public concern) whose known range overlaps the study area, and for which suitable habitat may be present. The assessment of rare plants and plant communities will include bryophytes (mosses and liverworts) and lichens, as well as vascular plants.

In order to fully understand possible project effects on potentially impacted wetlands, where applicable, a "wetland functions assessment" will be undertaken that will include migratory birds as well as *Species at Risk Act* and COSEWIC-listed species.

6.2.2 Assessment of potential effects

Identify and evaluate potential effects of construction and operation activities on terrestrial wildlife resources (vertebrates and invertebrates), vegetation resources, Species-at-Risk, delineated critical or important wildlife habitats, and sensitive ecosystems based on the following:

a) Habitat alteration, loss, and fragmentation;
b) Displacement and disturbance of wildlife;
c) Access management;
d) Potential avian collisions and electrocutions;
e) Areas defined as critical habitat in recovery strategy(s) posted on the *Species at Risk Act* Public Registry; and
f) Areas defined as critical habitat in draft recovery strategy(s) posted on the *Species at Risk Act* Public Registry or otherwise available from responsible government agencies, at the time of the assessment and where applicable to the Project.

Describe the potential effects of the Project on terrestrial wildlife and vegetation resource management areas, such as Wildlife Habitat Areas (WHAs), Wildlife Management Areas (WMAs), and Special Resource Management Zones (SRMZs).

In regard to the "Federal Policy on Wetland Conservation", and where it applies, the assessment will include:

- A discussion on the mitigation hierarchy, and how it was applied; this discussion will document all efforts to avoid adverse impacts to migratory birds, species at risk and their habitats, and wetlands associated with the aforesaid;
- The manner by which any residual effects would be mitigated; and
- Where applicable, the provision of a "Wetland Compensation Plan" for the Project.

6.2.3 Mitigation and environmental management

Identify mitigation measures and environmental management strategies to avoid, minimize, or otherwise mitigate potential effects of construction and operation activities on wildlife and vegetation.

Discuss the effectiveness and limitations of identified mitigation measures and environmental management strategies. In particular, undertake an analysis on the effectiveness of wetland restoration and re-creation related to similar landscapes crossed by the Project based on data available from recent studies, in order to structure an effective and Project-specific mitigation plan.

6.2.4 Potential residual effects

Identify potential residual effects of construction and operation activities on wildlife and vegetation, and the related consequences, after mitigation measures and environmental management strategies have been applied. Chapter 9.0 describes the procedures for an analysis of the significance of potential residual effects and Chapter 10.0 discusses the Cumulative Effects Assessment.

6.3 Geophysical environment

6.3.1 Project setting and characterization

Describe the geophysical environment along the pipeline corridor.

6.3.2 Assessment of potential effects

Identify and evaluate potential effects resulting from the interaction between construction and operation activities and the geophysical environment. The geotechnical and natural hazards assessment will address the following components:

a) Soil conditions that could affect the location, constructability, maintenance, and short- and long-term integrity and performance of the pipeline system;
b) Slope stability conditions that could affect the integrity of the pipeline and compressor stations;
c) Project-related slope stability conditions that could have adverse effects on the environment, property or public safety;
d) Surface erosion from access road construction and right-of-way clearing that could introduce sediment to fish habitat; and
e) Acid Rock Drainage (ARD) and Metal Leaching (ML) potential along the pipeline corridor.

6.3.3 Mitigation and environmental management

Identify mitigation measures and environmental management strategies to avoid, minimize, or otherwise mitigate potential effects resulting from the interaction between construction and operation activities and the geophysical environment.

6.3.4 Potential residual effects

Identify potential residual effects resulting from the interaction between construction and operation activities and the geophysical environment, and the related consequences, after mitigation measures and environmental management strategies have been applied. Chapter 9.0 describes the procedures for an analysis of the significance of potential residual effects and Chapter 10.0 discusses the Cumulative Effects Assessment.

6.4 Surface water hydrology and groundwater

6.4.1 Project setting and characterization

Describe the surface water hydrology and groundwater conditions at representative locations within various watersheds along the pipeline corridor based on available published information, including typical annual hydrographs, base flows, extreme high and low flows, and the groundwater hydraulic regimes.

Identify existing water licences, user and usage, including surface water points of diversion and registered groundwater wells, along the pipeline corridor. The assessment will include the identification of all sources of drinking water (surface and groundwater) as well as water used for recreational and agricultural purposes within the local study area. This will include water intakes for drinking water treatment facilities and sources that are consumed directly. Particular attention will be paid to Watershed Management Areas.

6.4.2 Assessment of potential effects

Identify and evaluate potential effects of construction, operation and maintenance activities on surface water hydrology and groundwater.

In particular, evaluate the potential impacts on drinking water quality during all phases of the Project as well as the potential for cumulative effects.

6.4.3 Mitigation and environmental management

Identify mitigation measures and environmental management strategies to avoid, minimize, or otherwise mitigate potential effects of construction and operation activities on surface water hydrology and groundwater conditions.

Where a potential impact on drinking water is identified, the application will provide a description of the measures that will be employed to inform all potentially effected water treatment facilities, well owners, and licensed surface water users. In addition, measures to be used to mitigate any risk to human health will be detailed.

Discuss the effectiveness and limitations of identified mitigation measures and environmental management strategies, and any plans for monitoring drinking and recreational water quality will be outlined.

6.4.4 Potential residual effects

Identify potential residual effects of construction and operation activities on surface water hydrology and groundwater conditions, and the related consequences, after mitigation measures and environmental management strategies have been applied. Chapter 9.0 describes the procedures for an analysis of the significance of potential residual effects and Chapter 10.0 discusses the Cumulative Effects Assessment.

6.5 Navigable waters

6.5.1 Project setting and characterization

Describe locations of pipeline and access road bridge crossings over potentially navigable waterbodies and watercourses.

Summarize vessel use (commercial and recreational) within potentially navigable waterbodies and watercourses that will be crossed by the pipeline and/or bridges.

As required by Transport Canada, provide drawings for aerial crossings consistent with Transport Canada's requirements under the *Navigable Waters Protection Act*, including watercourse name and number (if applicable), crossing width, height to the pipeline measured from bankfull width, water depth, longitude, latitude, and height of the proposed crossing and location of the structures.

The assessment will include a review of the water crossings in regard to Transport Canada's "Minor Works and Waters Order" to determine compliance with the Order. Those water course crossings that fit the Order will be identified to Transport Canada. For those water course crossings that do not fit the Order, the following information will be provided:

- Name of waterbody and location of proposed crossing (latitude and longitude);
- Photos of the waterbody taken upstream, downstream, and across the waterbody at the proposed crossing location;
- Known navigational use of the waterbody;
- Physical characteristics of the waterbody at the crossing location (*e.g.*, length, width, depth, seasonal flow, fluctuations); and
- Conceptual plans of the crossing showing all dimensions including minimum clearance above the highwater mark in the case of an aerial crossing and depth of burial in the case of a buried pipeline.

This same assessment of the "Minor Works and Waters Order" will be undertaken for access road bridge crossings and those watercourse crossings that fit the Order will be identified. For those watercourse crossings that do not fit the Order, the same information will be provided, including conceptual plans for any proposed bridge or existing bridge upgrade. This will include information regarding legal ownership of any existing bridges along the proposed access route, as well as the length and width of the structure crossing the waterbody. In addition, the Order will be used to determine if erosion protection works resulting from the new road work and upgrades to the existing road system, or for the buried pipeline, are required. Where this assessment fits the Order, the protection works will be identified to Transport Canada in the Application.

Where fisheries habitat compensation works are required (see Section 6.1), that may have a direct or indirect effect on navigation, these works will be identified in the Application to the extent that they are known at the time.

6.5.2 Assessment of potential effects

Identify and evaluate potential effects of construction and operation activities on navigation.

6.5.3 Mitigation and environmental management

Identify mitigation measures and environmental management strategies to avoid, minimize, or otherwise mitigate potential effects of construction and operation activities on navigation.

Identify engineering design standards and criteria for maintaining specified height requirements for pipelines and bridges above navigable waters.

Recommend optimal periods for undertaking construction activities to reduce potential effects on vessel use (commercial and residential) within navigable waters.

Describe proposed communication protocols in accordance with Transport Canada requirements.

Describe regulatory requirements for the identification of aerial crossings over navigable waters to minimize potential for conflicts with vessel and aircraft navigation.

6.5.4 Potential residual effects

Identify potential residual effects of construction and operation activities on navigation, and the related consequences, after mitigation measures and management strategies have been applied. Chapter 9.0 describes the procedures for an analysis of the significance of potential residual effects and Chapter 10.0 discusses the Cumulative Effects Assessment.

6.6 Community and regional infrastructure and services

6.6.1 Project setting and characterization

Describe existing urban land use along the pipeline corridor based on sources including, but not limited to, Official Community Plan (OCP) designations and local government zoning bylaws and designations.

6.6.2 Assessment of potential effects

Identify and evaluate potential effects of construction and operation activities on the following urban land use components:

a) Existing and future urban land uses;

b) Access to land;

c) Development Permit Areas (DPAs) and/or Environmentally Sensitive Areas (ESAs); and

d) Relevant policies identified in other local, regional, provincial and/or federal documents.

6.6.3 Mitigation and environmental management

Identify mitigation measures and environmental management strategies to avoid, minimize, or otherwise mitigate potential effects of construction and operation activities on urban land use.

6.6.4 Potential residual effects

Identify potential residual effects of construction and operation activities on urban land use, and the related consequences, after mitigation measures and environmental management strategies have been applied. Chapter 9.0 describes the procedures for an analysis of the significance of potential residual effects and Chapter 10.0 discusses the Cumulative Effects Assessment.

6.7 Agriculture land and resource use

6.7.1 Project setting and characterization

Describe existing agriculture land and resource use along the pipeline corridor based on sources including, but not limited to, Agricultural Land Reserve (ALR) maps, soils and land capability maps, OCP designations, and local government zoning bylaws and designations. Information collected for agricultural properties will include land ownership, property size, right-of-way length, width and area of right-of-way on each property, current land use, and land capability for agriculture.

6.7.2 Assessment of potential effects

Identify and evaluate potential effects of construction and operation activities on the following agriculture land and resource use components:

a) Potential disruption to agriculture production, including range use;

b) Potential soil disturbance and compaction;

c) Potential disruption to drainage and irrigation works;

d) Potential disruption to livestock movement and livestock watering facilities;

e) Potential introduction and proliferation of invasive plant species;

f) Bio-security issues; and

g) Potential effects on farm worker and livestock safety.

6.7.3 Mitigation and environmental management

Identify mitigation measures and environmental management strategies to avoid, minimize, or otherwise mitigate potential effects of construction and operation activities on agriculture land and resource uses. Mitigation strategies may include reclamation and rehabilitation measures.

6.7.4 Potential residual effects

Identify potential residual effects of construction and operation activities on agriculture land and resource use, and the related consequences, after mitigation measures and environmental management strategies have been applied. Chapter 9.0 describes the procedures for an analysis of the significance of potential residual effects and Chapter 10.0 discusses the Cumulative Effects Assessment.

6.8 Forestry land use

6.8.1 Project setting and characterization

Describe forestry land use along the pipeline corridor.

6.8.2 Assessment of potential effects

Identify and evaluate potential effects of construction and operation activities on the following forestry land use components:

a) Direct and permanent loss of productive forest land from the provincial forest and area-based tenures outside of the provincial forest, associated with both the removal for new rights-of-way and the widening of existing rights-of-way;

b) Temporary alteration of the productive forest land base associated with the clearing required outside of the rights-of-way to provide pipeline security and reliability;

c) Indirect loss of productive forest land from the timber harvesting land base, by way of potential compensatory removals or alienation of forest land elsewhere as the result of direct Project-related removals affecting designated forest reserves;

d) Change in forest management regime within and adjacent to the Project corridor, considering the potential changes in wildfire hazard that may result from construction-related clearing and future (operational) vegetation management activities;

e) Risk to forest productivity resulting from the potential introduction or spread of invasive plant species; and

f) A description of timber to be cleared on Indian Reserve land, including the biogeoclimatic zone, the area and length of land to be cleared, species and volume to be harvested, post-construction vegetative description of the right-of-

way, reforestation, and noxious weed control measures.

6.8.3 Mitigation and environmental management

Identify mitigation measures and management strategies to avoid, minimize, or otherwise mitigate potential effects of construction and operation activities on forestry land use.

6.8.4 Potential residual effects

Identify potential residual effects of construction and operation activities on forestry land use, and the related consequences, after mitigation measures and management strategies have been applied. Chapter 9.0 describes the procedures for an analysis of the significance of potential residual effects and Chapter 10.0 discusses the Cumulative Effects Assessment.

6.9 Land and resource use

6.9.1 Project setting and characterization

Describe parks and protected areas, forest recreation sites and trails, public recreation sites, and other Crown land areas having tenure or other registered interest, along the pipeline corridor. Include relevant environmental values and land use planning designations.

6.9.2 Assessment of potential effects

Identify and evaluate potential effects of construction and operation activities on patterns of human activity and related values associated with parks and protected areas, designated forest recreation sites and trails, other focal areas for outdoor (non-urban) recreation activity and staging, and other Crown land areas having tenure or other registered interest for commercial recreation activity, hunting guide-outfitting, trapping, and mineral exploration and development, considering:

a) Potential disruptions (short-term) or changes (long-term) in land use;
b) Potential restrictions or changes in access to Crown land and resources;
c) Potential disruption or changes to established/typical patterns of recreation activity, and/or changes in valued recreation experience/sensory dimensions; and
d) Potential encroachment of the pipeline and associated facilities on the legislated boundaries of parks and protected areas.

Summarize potential effects of construction and operation activities on relevant environmental values (*e.g.*, wildlife, vegetation, etc.) within parks and protected areas.

6.9.3 Mitigation and environmental management

Identify mitigation measures and environmental management strategies to avoid, minimize, or otherwise mitigate potential effects of construction and operation activities on parks and

protected areas, forest recreation sites and trails, public recreation sites, and other Crown land areas having tenure or other registered interest.

6.9.4 Potential residual effects

Identify potential residual effects of construction and operation activities on parks and protected areas, forest recreation sites and trails, public recreation sites, and other Crown land areas having tenure or other registered interest, and the related consequences, after mitigation measures and environmental management strategies have been applied. Chapter 9.0 describes the procedures for an analysis of the significance of potential residual effects and Chapter 10.0 discusses the Cumulative Effects Assessment.

6.10 Aesthetics and viewsheds

6.10.1 Project setting and characterization

Describe visual aesthetics and viewsheds along the pipeline corridor.

6.10.2 Assessment of potential effects

Identify and evaluate potential effects of construction and operation activities on regional visual aesthetics associated with new or expanded right-of-way.

6.10.3 Mitigation and environmental management

Identify mitigation measures and management strategies to avoid, minimize, or otherwise mitigate potential effects of construction and operation activities on visual aesthetics and viewsheds.

6.10.4 Potential residual effects

Identify potential residual effects of construction and operation activities on visual aesthetics and viewsheds, and the related consequences, after mitigation measures and management strategies have been applied. Chapter 9.0 describes the procedures for an analysis of the significance of potential residual effects and Chapter 10.0 discusses the Cumulative Effects Assessment.

6.11 Contaminated sites

6.11.1 Project setting and characteristics

Summarize historical land uses and activities in the Project area as a basis for determining potential sources of contamination.

Describe applicable regulatory requirements for the Project area.

Identify processes, operations, and types of material used along the pipeline corridor.

6.11.2 Assessment of potential effects

Identify and evaluate areas of potential soil and/or groundwater contamination within 500 m of the Project area due to historical and current land uses based on a literature review. The assessment will include a review of activities for properties immediately adjacent to the Project area with respect to having a potential for impacting the soil and/or groundwater. If the review warrants, a site visit would be conducted by accessing the corridor and visually inspecting the adjacent sites from the pipeline right-of-way.

Identify sites within the right-of-way where contaminated material may require management activities during construction.

6.11.3 Mitigation and environmental management

Develop a contaminated materials management plan for areas within the right-of-way that require management of contaminated materials during proposed construction activities.

6.11.4 Potential residual effects

Identify potential residual contamination within the right-of-way, and the related consequences, after mitigation measures and environmental management strategies have been applied. Chapter 9.0 describes the procedures for an analysis of the significance of potential residual effects and Chapter 10.0 discusses the Cumulative Effects Assessment.

6.12 Employment and economy

6.12.1 Project setting and characterization

Describe the existing social, economic, and community conditions along the pipeline corridor.

6.12.2 Assessment of potential effects

Identify and evaluate potential effects (*i.e.,* potential adverse effects and potential benefits) of construction and operation activities on the following socio-economic components:

a) Employment and training;
b) Income;
c) Procurement of local goods and services;
d) Government and Aboriginal groups' costs and revenues;
e) Housing and accommodations;
f) Property values;
g) Local infrastructure and services; and
h) Transportation and traffic.

6.12.3 Mitigation and environmental management

Identify mitigation measures and management strategies to avoid, minimize, or otherwise mitigate potential adverse socio-economic effects.

Identify opportunities to enhance potential socio-economic benefits of Project construction and operation activities, where possible.

6.12.4 Potential residual effects

Identify potential residual socioeconomic effects of Project construction and operation activities, and the related consequences, after mitigation measures and management strategies have been applied. Chapter 9.0 describes the procedures for an analysis of the significance of potential residual effects and Chapter 10.0 discusses the Cumulative Effects Assessment.

6.13 Atmospheric environment

6.13.1 Project setting and characterization

Describe existing air quality along the pipeline corridor, and in particular at the proposed compressor stations.

6.13.2 Assessment of potential effects

Identify and evaluate potential effects of construction and operation activities on maintaining air quality that is consistent with both provincial and federal standards and quality-of-life related issues.

6.13.3 Mitigation and environmental management

Identify mitigation measures and environmental management strategies to avoid, minimize, or otherwise mitigate potential effects of construction and operation activities on air quality.

6.13.4 Potential residual effects

Identify potential residual effects of construction and operation activities on air quality after, and the related consequences, mitigation measures and environmental management strategies have been applied. Chapter 9.0 describes the procedures for an analysis of the significance of potential residual effects and Chapter 10.0 discusses the Cumulative Effects Assessment.

6.14 Archaeological resources

6.14.1 Project setting and characterization

An Archaeological Overview Assessment (AOA) will initially be undertaken to identify archaeological, palaeontological, historical or architectural sites and/or areas with the potential for archaeological or palaeontological sites along the proposed pipeline corridor. This will be followed by an Archaeological Impact Assessment (AIA) covering areas of archaeological potential.

6.14.2 Assessment of potential effects

The EAC Application will contain the results of an archaeological impact assessment (AIA) consistent with existing provincial guidelines and in accordance with permitting provisions of the *Heritage Conservation Act*, R.S.B.C. 1996, c. 187.

The objectives of the AIA will be to search for and document archaeological sites in potential conflict with the Project, determine site significance, assess potential Project impacts, and provide recommendations on mitigating potential adverse impacts.

Identify and evaluate potential effects of construction and operation activities on sites, structures or things of historical, palaeontological, or architectural significance.

6.14.3 Mitigation and environmental management

If archaeological sites are identified as a result of the AIA, the EAC Application will outline mechanisms for avoidance or appropriate mitigation of potential adverse effects of the Project. The EAC Application will also provide procedures to be followed in the event that archaeological materials are unexpectedly encountered during Project development. Archaeological impact management measures may include Project monitoring, if necessary, to ensure that potential adverse impacts to archaeological resources which could not be predicted or evaluated prior to construction are addressed.

If historical, palaeontological, or architectural sites are identified, the EAC Application will outline mechanisms for avoidance or appropriate mitigation of potential adverse effects of the Project.

Describe permitting requirements for mitigation or site alteration (if any).

6.14.4 Potential residual effects

Identify potential residual effects of construction and operation activities on archaeological, historical, palaeontological, and architectural resources, and the related consequences, after mitigation measures and environmental management strategies have been applied. Chapter 9.0 describes the procedures for an analysis of the significance of potential residual effects and Chapter 10.0 discusses the Cumulative Effects Assessment.

6.15 Aboriginal community and land use

6.15.1 Project setting and characterization

Provide an overview of the ethnographic context and traditional territories of Aboriginal peoples along the pipeline corridor.

Describe the locations of First Nations Reserves relative to the pipeline corridor.

Provide relevant summary information on Aboriginal groups, including number of registered members.

Summarize Aboriginal interests along the pipeline corridor that may be indicated through consultation with Aboriginal groups, Traditional Use Study (TUS), or other technical baseline studies conducted by or in collaboration with Aboriginal groups.

The application will also provide a description of land ownership including lot numbers and ownership type for the two reserves of the Lower Similkameen Indian Band crossed by the Project.

The application will contain a description of any land use plans or policies of the Lower Similkameen Indian Band where the project crosses the two reserves.

6.15.2 Assessment of potential effects

Identify and evaluate potential effects of construction and operation activities on past, present, and prospective Aboriginal land use values, including traditional, cultural, spiritual, and subsistence practices in the vicinity of the Project.

Identify and evaluate the potential effect of the Project on current use of lands and resources for traditional purposes, and other indirect effects as defined under environmental effects in Section 2(1) of the *CEA Act*.

Describe potential socioeconomic effects of Project construction and operation activities on Aboriginal communities along the pipeline corridor.

6.15.3 Mitigation and environmental management

Identify mitigation measures and management strategies to avoid, minimize or otherwise mitigate potential effects of construction and operation activities on Aboriginal interests.

6.15.4 Potential residual effects

Identify potential residual effects of construction and operation activities on Aboriginal interests, and the related consequences, after mitigation measures and management strategies have been applied. Chapter 9.0 describes the procedures for an analysis of the

significance of potential residual effects and Chapter 10.0 discusses the Cumulative Effects Assessment.

6.16 Country foods

6.16.1 Project setting and characterization

Summarize the current understanding of country food (traditional foods) use in the Local Study Area. Country Foods to be considered are those foods that are trapped, fished, harvested, or grown for medicinal or subsistence purposes, or obtained from recreational pursuits such as sport fishing and game hunting.

6.16.2 Assessment of potential effects

Identify and evaluate potential effects of construction and operation activities on the use of country foods and any potential contamination that may result from the Project.

6.16.3 Mitigation and environmental management

Identify mitigation measures and management strategies to avoid, minimize, or otherwise mitigate the potential effects of the Project on country foods.

6.16.4 Potential residual effects

Identify potential residual effects of construction and operation activities on country foods, and the related consequences, after mitigation measures and environmental management strategies have been applied. Chapter 9.0 describes the procedures for an analysis of the significance of potential residual effects and Chapter 10.0 discusses the Cumulative Effects Assessment.

6.17 Human health and safety

6.17.1 Project setting and characterization

Summarize existing human health and safety issues, air quality, and water quality and quantity along the pipeline corridor.

Information regarding Noise and Country Foods VC's will be cross-referenced to this section of the report.

6.17.2 Assessment of potential effects

Identify and evaluate potential public health effects related to predicted Project-induced effects along the pipeline corridor.

6.17.3 Mitigation and environmental management

Identify intended mitigation measures and environmental management strategies to avoid, minimize, or otherwise mitigate potential public health effects of construction and operation activities, including measures for ongoing communications with the public regarding potential public health risks.

6.17.4 Potential residual effects

Identify potential residual effects of construction and operation activities on human health and safety, and the related consequences, after mitigation measures and environmental management strategies have been applied. Chapter 9.0 describes the procedures for an analysis of the significance of potential residual effects and Chapter 10.0 discusses the Cumulative Effects Assessment.

6.18 Noise

6.18.1 Project setting and characterization

Summarize existing noise characteristics along the pipeline corridor with special attention to proposed compressor station locations and areas of habitation.

6.18.2 Assessment of potential effects

Identify and evaluate potential effects of construction and operation on noise levels. Undertake modelling of noise levels resulting from compressor station operation.

6.18.3 Mitigation and environmental management

Identify mitigation measures and management strategies to minimize or otherwise mitigate potential noise effects of construction and operation, particularly with respect to the operation of new compressor stations.

6.18.4 Potential residual effects

Identify potential residual effects of construction and operation activities on noise levels, after mitigation measures have been applied. Chapter 9.0 describes the procedures for an analysis of potential residual effects and Chapter 10.0 discusses the Cumulative Effects Assessment.

6.19 Capacity of renewable resources

The Canadian Environmental Assessment Agency determined that a Comprehensive Study under the *CEA Act* is required, and that the following assessment will be conducted.

6.19.1 Project setting and characterization

Summarize existing information on renewable resources along the Project corridor and the need for those resources presently and in the future.

6.19.2 Assessment of potential effects

Evaluate whether there are renewable resources along the Project corridor for which there is a current or future need, the capacity to meet of which is likely to be significantly affected.

6.19.3 Mitigation and environmental management

Identify mitigation measures and management strategies to avoid, minimize or otherwise mitigate potential effects of construction and operation activities on the capacity of renewable resources along the Project corridor.

6.19.4 Potential residual effects

Identify potential residual effects of construction and operation activities on renewable resources, and the related consequences, after mitigation measures and environmental management strategies have been applied. Chapter 9.0 describes the procedures for an analysis of the significance of potential residual effects and Chapter 10.0 discusses the Cumulative Effects Assessment.

7.0 EFFECTS OF THE ENVIRONMENT ON THE PROJECT

7.1 Landslides

Evaluate potential effects of landslides on the Project.

Based on the soil conditions, topography and geological features along each of the sections of the pipeline corridor, evaluate areas of potential slope instability, debris flows, and rockfall hazards.

Identify and recommend engineering design and construction mitigation features to avoid or minimize potential effects on the Project due to landslides.

7.2 Earthquakes

Evaluate potential effects of earthquakes on the Project.

Based on soils conditions and geological features along each of the sections of the pipeline corridor, evaluate areas of potential seismic risk.

Identify and recommend engineering design and construction mitigation features to avoid or minimize potential effects on the Project due to earthquakes.

7.3 Snow avalanches

Evaluate potential effects of snow avalanches on the Project.

Identify and recommend engineering design and construction mitigation features to avoid or minimize potential effects on the Project due to snow avalanches.

7.4 Climate

Evaluate potential effects of wind on the Project.

Evaluate potential effects of precipitation on the Project.

Confirm engineering design and construction criteria and standards to avoid or minimize effects from extreme wind, snow, and ice events.

Evaluate potential effects of lightning and storm events on the Project.

Evaluate potential effects of climate change on the Project.

7.5 Wildfires

Evaluate fire hazard risk to the pipeline infrastructure, and to nearby communities and land uses resulting from invasive plants, accumulation of slash, and other fuel sources along the right-of-way.

Recommend vegetation management practices and applications along the right-of-way which minimize risk of potential wildlife fire hazards.

Recommend control strategies to maintain fire response emergency access along the right-of-way.

7.6 Flooding

Evaluate seasonal flows (including peak flows) that can be expected in selected watercourses along the pipeline corridor, and identify where there may be areas of potential flooding risk to aboveground facilities and substations.

Identify potential constraints and areas where flooding and seasonally high flows within the watercourses along the pipeline corridor will need to be managed during construction and operation of Project facilities.

Identify and recommend engineering design features and considerations to protect Project facilities from flooding.

8.0 ACCIDENTS AND MALFUNCTIONS

This Chapter will address potential environmental effects of accidents and malfunctions following implementation of the mitigation measures (*i.e.*, post-mitigation), that may occur in connection with the Project as required by Section 16(1)(a) of the *CEA Act*. The Chapter will also address those emergency response measures that have been developed by FortisBC for the operation of their existing transmission system and which will be applied to the KOR Project, and will provide a determination of the significance of adverse environmental effects.

8.1 Natural gas leaks and mitigation

Identify potential for accidents and malfunctions due to possible natural gas leaks to construction personnel and the general public during construction and operation of the Project.

Identify mitigation measures consistent with industry standard safety procedures and protocols to avoid or minimize potential for environmental effects and effects on public safety associated with natural gas leaks.

8.2 Terrain hazards and mitigation

Identify potential for accidents and malfunctions due to terrain hazards and associated construction activities (*e.g.*, right-of-way clearing, tree felling).

Identify mitigation measures consistent with industry standard safety procedures and protocols to avoid or minimize potential for environmental effects and effects on public safety associated with accidents and malfunctions due to work within steep terrain.

8.3 Traffic hazards and mitigation

Identify potential for traffic-related accidents and malfunctions to public safety due to requirements to access sections of the right-of-way from public roads and private driveways.

Recommend procedures and protocols to be implemented to avoid or minimize potential conflicts with construction traffic within residential, suburban, and agricultural areas including farming operations.

8.4 Hazardous materials spills

Identify potential for fuel and other hazardous material spills as a result of accidents and malfunctions associated with construction and operation of the Project.

Provide recommendations for avoiding or minimizing risk of fuel and hazardous material spills through implementation of spill prevention and emergency response procedures.

9.0 SIGNIFICANCE OF RESIDUAL EFFECTS

This Chapter will identify and evaluate the significance of potential residual effects after mitigation measures have been applied to each of the geophysical, biological, archaeological, cultural, and socio-economic technical disciplines. Residual effects are defined as environmental changes that result from the Project after mitigation measures have been incorporated. As much as possible, the "significance" of residual effects is quantified with an assessment of the level of effect according to defined parameters and evaluation criteria. It is recognized that the final determination of significance rests with the federal Responsible Authorities under the CEA Agency, and with the BCEAO.

The "significance" of predicted residual effects after mitigation measures have been applied will be assessed as described in the Reference Guide: Determining Whether a Project is Likely to Cause Significant Adverse Environmental Effects (FEARO, 1994). It is intended that application of defined criteria will enable a systematic and objective determination of "significance", which is both defensible and transparent, and which reduces or eliminates biases in deciding the importance of adverse effects following mitigation.

Contents

The EAC Application will:

- Document the methods used to assess the significance of residual effects;
- Summarize the significance of potential residual effects after mitigation measures have been applied to each of the technical disciplines included in Chapter 6.0; and
- Include a determination that potential residual effects are either "not significant" or "significant".

A table will be included that contains the following for each VC:

- Concise summary of potential adverse environmental effects;
- Summary of proposed mitigation and compensation measures;
- A brief description of potential cumulative effects;
- Reference to applicable standards and guidelines;
- Comments from the public, and responses;
- Comments from Aboriginal groups and individuals, and responses;
- Relationship of the VC to an Aboriginal group's potential or established treaty right; and
- Reference to the "List of Commitments" that summarizes the timing and responsibility of each of the actions for which a commitment (including special management practices and design features) has been made.

10.0 CUMULATIVE EFFECTS ASSESSMENT

This Chapter will outline the scope and methodology for conducting a cumulative environmental effects assessment, as required by Section 16(1)(a) of the *CEA Act*, as well as by the BCEAO.

Cumulative environmental effects are broadly defined as effects that are likely to result from the Project in combination with other projects or activities that have been or will be carried out, following implementation of the mitigation measures (*i.e.*, post-mitigation). The cumulative effects assessment will be consistent with the recommended five-step framework outlined in the Cumulative Environmental Effects Practitioners Guide (CEA Agency, 1999b), as well as the requirements of the BCEAO for cumulative effects assessment.

10.1 Scoping

Describe methods used to "scope" the cumulative effects assessment, such as spatial and temporal boundaries used to define which other projects or activities are to be considered.

Consider only those projects that are considered to be "certain" (the action will proceed or there is a high probability the action will proceed), and "reasonably foreseeable" (the action may proceed, but there is some uncertainty about the conclusion).

Define "significance criteria" to be used in the determination of cumulative effects.

10.2 Analysis of cumulative effects assessment

Identify and evaluate potential cumulative effects.

Recommend measures to minimize or preclude potential cumulative effects, where possible. D iscuss the effectiveness and limitations of identified measures.

Determine "significance" of potential cumulative effects based on implementation of recommended mitigation measures.

Identify recommended monitoring programs to evaluate the effectiveness of mitigation measures in reducing potential adverse cumulative effects.

11.0 ENVIRONMENTAL MANAGEMENT PROGRAM

This Chapter will include the framework of an Environmental Management Program that reflects FortisBC's environmental policies and includes a series of Environmental Management Plans (EMPs) that describe the environmental practices and procedures to be applied during the construction and operation of the Project. The EMPs will outline FortisBC's approach to Project planning and the development of mitigation, monitoring and other measures to be implemented to manage or avoid adverse effects.

Detailed EMPs will be developed during the detailed design phase, and in consultation with the relevant permitting agencies and Aboriginal groups prior to construction.

Content

The EAC Application will contain, within the context of an Environmental Management Program, an overview of principal components to be included in each of the EMPs proposed for the construction and operations of the Project, including but not limited to:

11.1 Construction environmental management plan components

a) Fisheries Habitat Protection, Mitigation, and Compensation;
b) Wildlife Resource and Habitat Protection and Mitigation;
c) Sediment and Erosion Control;
d) Vegetation Management (including control of invasive plant species);
e) Spill Prevention and Emergency Response;
f) Construction Waste Management;
g) Air Quality and Dust Control (including the burning of wood waste during logging and clearing);
h) Noise Management (including noise associated with any blasting that may be required during Project construction);
i) Archaeological Impact Management;
j) Landscape Design and Site Restoration;
k) Traffic Safety Management; and
l) Health and Safety.

11.2 Operational environmental management plan components

a) Spill Prevention and Emergency Response;
b) Vegetation Management (including control of invasive plant species);
c) Wildfire Management; and
d) Health and Safety.

11.3 Decommissioning management plan

The Decommissioning Management Plan will be prepared prior to future decommissioning activities in accordance with the regulatory regime and environmental sensitivities at that time and will likely include EMPs relating to:

a) Environmental Planning and Mitigation Measures;
b) Cultural Impact Mitigation Measures;
c) Socio-economic Mitigation Measures; and
d) Public Health and Safety Procedures.

12.0 ENVIRONMENTAL MONITORING AND FOLLOW-UP PROGRAMS

This Chapter will provide the framework for environmental monitoring and follow-up programs to be undertaken during and post construction. Environmental monitoring programs will be outlined to evaluate the performance of the environmental mitigation and compensation strategies in achieving regulatory compliance, and in minimizing potential adverse effects. Construction and post-construction monitoring programs (if required), will be developed in consultation with Aboriginal groups and agencies having jurisdiction.

12.1 Environmental construction monitoring

Describe the framework of an environmental monitoring program to inspect and evaluate the implementation and performance of mitigation measures and habitat compensation strategies to be undertaken during the construction phase of the Project.

Outline the framework for the reporting mechanisms for the environmental monitoring program, including which agencies and Aboriginal groups are to receive copies of environmental reports.

Outline a framework for communication protocols with Aboriginal groups, local governments, landowners and other parties.

12.2 Post-construction environmental monitoring

Describe the framework for any post-construction environmental monitoring programs required for the Project. Post-construction environmental monitoring, or "follow-up" programs, will be designed to evaluate the performance of the mitigation and compensation strategies against baseline, compliance or real-time data, and to implement additional measures to achieve the desired outcome, where deemed necessary. The EAC will describe the proposed "follow-up" program plan in sufficient detail to allow independent judgment that it will deliver the type, quantity, and quality of information required to verify predicted effects (or absence of them), and to confirm EA assumptions and mitigation effectiveness. These "follow-up" programs will include monitoring of wetland functional recovery.

The Application will provide the following information in regard to the post-construction environmental monitoring and follow-up programs:

- Objectives of the overall programs;
- Management structure of the programs including an outline of roles and responsibilities, information management, and reporting;
- Description of the main components of the programs and each monitoring activity under that component;

- Objectives of each monitoring activity; and
- A schedule for the implementation and finalization of the program.

13.0 CONCLUSIONS AND COMMITMENTS

This Chapter will provide clear conclusions of the environmental assessment. These conclusions will also provide a clear summary of commitments made to avoid, reduce or otherwise mitigate potential effects of the Project through design features, best management practices, and other mitigation measures.

13.1 Conclusions

Summarize potential environmental effects and recommended mitigation measures, habitat compensation strategies, and EMPs related to the construction and operation of the Project.

Clearly indicate whether the Project is predicted to result in significant adverse environmental, socio-economic/community, Aboriginal, and/or other effects.

Clearly indicate whether there are predicted effects from the environment on the Project, such as natural hazards and extreme climatic events.

Describe how the EA process provided a benefit to Canadians, on the basis of:

- Environmental benefits;
- Sustainable development;
- Public and Aboriginal participation;
- Technological innovations;
- Increases in scientific knowledge; and
- Community and social benefits.

13.2 Commitments

Summarize commitments made to avoid, reduce or otherwise mitigate potential effects of the Project, with reference to a comprehensive Table of Commitments and Assurances.

13.2.1 Aboriginal consultation

Summarize commitments developed through consultation with Aboriginal groups that were made to avoid, reduce or otherwise mitigate potential effects of the Project.

13.2.2 Public consultation

Summarize commitments developed through consultation with public stakeholders that were made to avoid, reduce or otherwise mitigate potential effects of the Project.

14.0 REFERENCES

The EAC Application will provide a list of references.

APPENDICES

The EAC Application will provide applicable appendices to the Application.