KITIMAT – SUMMIT LAKE PIPELINE LOOPING PROJECT

ASSESSMENT REPORT

With Respect to Review of the Application for an Environmental Assessment Certificate Pursuant to the *Environmental Assessment Act*, S.B.C. 2002, c. 43

> Prepared by Environmental Assessment Office

> > May 12, 2008



Environmental Assessment Office

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List of Acronyms and Abbreviations

Application	Application for an Environmental Assessment Certificate
BC	Rritish Columbia
	Dritich Columbia Environmental Accessment Act (S. P. C.
DUEAA	2002, c. 43)
CEAA	Canadian Environmental Assessment Act
	(S.C. 1992, c. 37)
CEA Agency	Canadian Environmental Assessment Agency
Certificate	Environmental Assessment Certificate issued pursuant to BCEAA
EA	Environmental Assessment
EAO	BC Environmental Assessment Office
ESD Omineca	Environmental Stewardship Division Omineca Region
ESD Skeena	Environmental Stewardship Division, Skeena Region
KING	Kitimat Liquefied Natural Gas Project
KSI Project	Proposed Kitimat–Summit Lake (KSL) Pipeline Looping
	Project
LNG	Liquefied Natural Gas. A natural gas, consisting primarily
	of methane, cooled to -160 ⁰ Celsius, which condenses
	the gas to a liquid at atmospheric pressure, and which
	reduces its volume by a factor of 600
MAL	Provincial Ministry of Agriculture and Lands
MARR	Provincial Ministry of Aboriginal Relations and
	Reconciliation
MEMPR	Provincial Ministry of Energy, Mines and Petroleum
	Resources
MED	Ministry of Economic Development
MOFR	Provincial Ministry of Forests and Range
MOE	Provincial Ministry of Environment
MOT	Provincial Ministry of Transportation
MTSA	Provincial Ministry of Tourism Sport and the Arts –
	includes archaeological resource functions
PNG	Pacific Northern Gas Ltd initial Project Proponent
Project	Proposed Kitimat_Summit Lake (KSL) Pipeline Looping
	Project
Proponent	Pacific Trail Pipelines Limited Partnership
PTP	Pacific Trail Pipelines Limited Partnership, Project
	Proponent
Section 11 order	Procedural Order issued under section 11 of BCEAA
Section 13 order	Procedural Order issued under section 13 of BCEAA

Executive Summary

Background

The Project

Pacific Trail Pipelines Limited Partnership (the Proponent) proposes to construct approximately 463 kilometres of 914 millimetre (36 inch) diameter buried pipe between Kitimat and Summit Lake (KSL) as a loop to the existing Pacific Northern Gas Ltd. (PNG) natural gas pipeline, and to convey 1 billion cubic feet per day of natural gas from the proposed Kitimat Liquefied Natural Gas (KLNG) facility to the Spectra Energy Transmission pipeline facilities (the Project) (**Figure 1**). The proposed KLNG facility was issued an Environmental Assessment (EA) Certificate on June 6, 2006.

The Project also includes:

- one new compressor station located near the mid-point of the pipeline;
- a 2 kilometre long, 254 millimetre (10 inch) lateral pipeline to connect the KSL pipeline to the existing Pacific Natural Gas Ltd. transmission pipeline at Kitimat; and,
- temporary access roads.

The Project would be constructed in a new pipeline right-of-way between Kitimat and Endako and within or adjacent to the existing PNG pipeline right-of-way for most of the distance from Endako to Summit Lake. The permanent statutory right-of-way for the KSL pipeline will be 18 metres in width. During pipeline construction, a right-of-way of approximately 28 to 35 metres will typically be required.

The Project involves at least 589 watercourse crossings in four major watersheds: the Kitimat, Skeena, Fraser and Peace. Of these, at least 109 watercourse crossings are confirmed to be fish-bearing. A further 39 watercourse crossings are being assessed to determine if they are fish-bearing.

The Proponent has proposed four types of stream crossing techniques:

- open cut is proposed for non-fish bearing stream crossings only
- flow isolation during low flow periods is the proposed method for most fish-bearing stream crossings
- horizontal directional drilling is proposed at twelve crossing locations; and,
- aerial crossing of the Clore River.

For each crossing, the Proponent has proposed primary and secondary crossing techniques; if the primary technique proves unfeasible (e.g. horizontal directional drilling) a secondary method will be pursued.

A number of alternative routes for the Project to follow as it crosses the Coast Mountains have been identified in the Application and were further discussed during the Application review period. Based on a range of selection criteria, the Proponent determined that the proposed route was best and asked the Enironmental Assessment Office (EAO) to continue its assessment of this alignment for the Project.



KSL Project Location Map and Pipeline Route Alignment

The Project Proponent

Pacific Trail Pipelines Limited Partnership (PTP) is the Proponent and will own and operate the Project.

PNG was the original Proponent for the Project. In July 2006, PNG and Galveston LNG Inc, parent company of the proponent for the KLNG Project, formed a new limited partnership, PTP, which became Proponent. PTP is a 50-50 partnership between PNG and Galveston LNG Inc.

Project Schedule, Capital Costs and Employment

Project construction is currently scheduled to commence in the third quarter of 2010.

Project capital costs are estimated at \$1.1 billion (2006 dollars), of which approximately \$750 million will be for installation of the pipeline and related facilities. Approximately 1,200 - 1,500 jobs will be created over a 24 month (approximate) clearing and construction phase. Few if any permanent jobs will be created to operate the Project.

The Proponent has made commitments regarding communicating with local communities, including First Nations, about procurement and employment or business opportunities.

Provincial Approvals

In addition to an EA Certificate, the Project requires the following provincial approvals and authorizations:

- approval under the Water Act for water withdrawal and for works in and about a stream;
- approval for timber harvesting and disposal under the Forests Act;
- approval under the Heritage Conservation Act for various activities;
- Statutory Right-of-Way Agreements under the Land Act;
- road use permits under the Forests Act and the Highways Act; and,
- a Certificate of Public Convenience and Necessity pursuant to the B.C. Utilities *Commission Act.*

Under the *Oil and Gas Commission Act*, the Oil and Gas Commission is responsible for issuing all provincial approvals related to the Project, with the exception of a Certificate of Public Convenience and Necessity pursuant to the *BC Utilities Commission Act*.

Federal Approvals

The Project potentially impacts matters regulated by the federal government, including: salmon and salmon habitat; migratory birds; *Species at Risk Act* listed species (especially White Sturgeon – *Species at Risk Act*, Schedule 1); and navigable waters.

The Project requires approvals or authorizations under the following federal statutes, which triggers the *Canadian Environmental Assessment Act*.

- section 35(2) of the Fisheries Act, for the harmful alteration, disruption or destruction of fish habitat; and
- section 5(1) of the Navigable Waters Protection Act, for works that will cause an obstruction to navigation.

Provincial and Federal Review of the Project

Review Schedule

The Application was accepted for review by the EAO on October 11, 2007.

On March 31, 2008, the 180-day time limit for completion of the review of the Application was suspended for 24 days, at the Proponent's request, to allow the Proponent to provide additional information to complete the review. On April 18, 2008, the Proponent requested an additional 10-day suspension of the Application review timeline in order to allow the Project Working Group to review the draft Assessment Report. The 180-day review was officially resumed on May 4, 2008 and concluded on May 12, 2008 with the referral of this Assessment Report to the Ministers for their decision.

Harmonized Review

The Project is subject to review under both the *British Columbia Environmental Assessment Act* (BCEAA) and the *Canadian Environmental Assessment Act* (CEAA). In accordance with the Canada – British Columbia Agreement on Environmental Assessment Cooperation (2004), the Project EA commenced as a harmonized review. The EA process became de-harmonized when the federal Responsible Authorities, the Department of Fisheries and Oceans and Transport Canada, decided to undertake the federal EA as a Comprehensive Study rather than a Screening; this change was made to be consistent with the result of a federal court decision on a different EA process.

De-harmonizing the provincial and federal Project EAs means the provincial and federal EA processes for the Project will be completed on very different timelines, with potentially different scopes, and a separate provincial Assessment Report and federal Comprehensive Study Report. The CEA Agency believes the Comprehensive Study process requirements will be completed by the fall of 2008 and a federal decision would follow completion of these requirements.

Scope of Project

The Scope of the Project for the purposes of the provincial EA under the BCEAA includes the following on-site and off-site physical works, as well as the activities associated with the construction, operation and maintenance, restoration, decommissioning and abandonment of these works:

- approximately 463 kilometres of 914 millimetre (36 inch) diameter pipe;
- one new compressor station in the proposed pipeline system;
- isolation valves along the pipeline;
- approximately 2 kilometres of 254 millimetre (10 inch) diameter lateral pipeline connecting the existing PNG transmission facilities at the existing Methanex Meter Station to the Project pipeline for bi-directional flow (loop) on the existing PNG transmission system;
- cathodic protection facilities;
- measurement and odorant injection equipment at the Methanex Meter Station;
- temporary construction surface disturbances or facilities, including: construction workspace; access roads; bridges, flumes; 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.

This definition of the Scope of the Project was endorsed by the Responsible Authorities as identifying federal information requirements for the EA under CEAA, although with the express qualification that they had not confirmed the review track for the federal, EA under CEAA. The Project Scope for the federal EA under CEAA may change based on the outcome of the project scoping exercise required for a Comprehensive Study, as mentioned above.

Public Consultation and Issues

During the Project EA, the EAO required two public comment periods:

- a 30-day public comment period on the draft Terms of Reference from March 15 to April 16, 2007. Four written comments received by the EAO, and,
- a 45-day public comment period on the Application from October 17 to November 30, 2007. During this public comment period, the Proponent held open houses in Smithers, Terrace, Kitimat, Burns Lake, Vanderhoof, Prince George and Summit Lake between October 22 and November 2, 2007. Eleven written comments were received by the EAO.

Comments from the public on the Project were generally favourable, but concerns were raised about potential Project effects, including effects on: water quality and fish, especially in the Upper Kitimat Valley, wildlife, especially grizzly bear near the Kitimat River, angling guiding in the Zymoetz watershed, access control for livestock near Ormond Creek, and greenhouse gas emissions.

The Proponent carried out a public consultation program for both the Pre-Application and Application Review stages, and submitted summaries of these, that met the requirements of the EAO.

First Nations Consultation

The Project is located in the asserted territory or Treaty area of the following 17 First Nations:

- Haisla Nation;
- Kitselas First Nation;
- Lax Kw'alaams Indian Band;
- Metlakatla Indian Band;
- Wet'suwet'en Nation, as represented by the Office of the Wet'suwet'en;
- Skin Tyee First Nation;
- Nee Tahi Buhn Indian Band;
- Carrier Sekani Tribal Council (representing the six First Nations noted below);
- Lheidli-T'enneh Indian Band;
- McLeod Lake Indian Band;
- West Moberly First Nations; and,
- Halfway River First Nation.

The EAO made a decision at the outset of the EA process to use an approach of "deep consultation" (with respect to the Haida spectrum of consultation) with these First Nations in order to develop and implement measures to avoid or minimize impacts to Aboriginal rights or Treaty rights. The EAO offered capacity funding to all First Nations during both the Pre-Application and Application Review phases of the EA process. The Halfway River First Nation became involved in the EA during the Application Review stage.

The Carrier Sekani Tribal Council, representing the Wet'suwet'en First Nation (Broman Lake Band), Burns Lake Indian Band, Saik'uz First Nation, Nadleh Whut'en Indian Band, Nak'azdli Indian Band and Stellat'en First Nation, declined to participate on the Project Working Group or to engage in the provincial EA process during the Application review period. The EAO kept the Carrier Sekani Tribal Council and member First Nations fully informed at all key steps in the review.

Eleven First Nations participated or met with the EAO and other agencies during the Application Review period. A wide range of issues of concern to First Nations were identified and discussed. Part D of the Assessment Report provides more specific information on EAO consultations with each First Nation and **Appendix E**; the Working Group Issues Tracking Table provides more detail on the issues raised and the responses to those issues.

Some of the key issues that were raised by First Nations include:

- the Proponents choice of pipeline route;
- terrain stability, soil erosion and the risk of damage to fish habitat; direct impacts to fish and fish habitat, particularly in the Kitimat, Clore, Morice, Stuart and Salmon River systems;
- impacts to water quality at all stream crossings; particularly strong concerns were expressed about maintaining reference water quality standards in the Morice Water Management Area and the risk of impact in the already-impacted Kitimat Valley;
- impacts to wildlife and wildlife habitat, particularly in the Kitimat, Clore and Morice valleys and adjacent mountains along the pipeline route;
- concerns about specific watercourse crossings, including methods proposed;
- impacts to wetlands;
- access management;
- the need for additional archaeological studies;
- impacts to cultural heritage sites and trails;
- impacts to plant gathering sites and the ability of First Nations to continue to carry our traditional activities;
- cumulative impacts;
- the need for additional studies on wildlife and fish to properly plan for construction activities;
- the need for detailed environmental protection plans and monitoring;
- First Nation involvement in developing the environmental protection and monitoring plans and in the monitoring activities;
- invasive weeds encroaching in the right-of-way;
- noise impacts;
- impacts to traplines or the ability to trap;
- safety concerns;
- concerns about the Project being potentially converted to a liquid petroleum transmission pipeline in the future;

- capacity to participate in the EA review and in subsequent studies;
- compensation for lost use and/or benefit to First Nations from inability to access a resource use site;
- implications for tanker traffic to supply the pipeline; and,
- contamination of country foods.

The majority of the First Nation concerns were raised through the Working Group meetings and examples of how they have been addressed can be found in the following section. Examples of how First Nations concerns and community issues are being addressed include commitments to:

- involve First Nations in additional fish and wildlife studies that will be undertaken in their territories;
- involve First Nations in the development of certain plans (e.g. environmental protection plan; access management plan, monitoring plans) as they affect their territories;
- involve First Nations in implementing monitoring plans;
- further community liaison during planning and construction of the Project;
- notify First Nation trappers prior to work being initiated;
- flag off plants and material gathering sites identified by First Nations off of the Project footprint prior to construction;
- contact First Nations to ensure a member of the community advises on activities in areas used for ritual purposes, including the scheduling of when those activities occur;
- work with First Nations to ensure a community member advises on activities in areas and trails traditionally used by First Nations and to restore areas so that trails will be fully functional following the restoration phase of the Project; and,
- ensure the Project activities will have no effect on people's ability to collect food following construction of the Project.

The Haisla Nation wrote to the EAO indicating that they support the Project receiving a Provincial EA Certificate, subject to certain conditions (which are being met). Other First Nations indicated general support for the Project but would not provide a definitive statement until they fully recognized the outcome of all EA issues and during discussions relating to economic benefits are concluded (these discussions are separate from the EA Process). The Office of the Wet'suwet'en stated that they are not supportive of the Project as proposed, primarily due to any risk of impacts in the culturally sensitive Morice/Gosnell area.

Working Group Review of Application

The EAO established a KSL Pipeline Looping Project Working Group in November 2005, comprised of representatives of federal, provincial and local government agencies and First Nations whose interests may potentially be affected by the Project.

Working Group members undertook the following activities, based on the mandate of the organizations they represent:

- reviewing and commenting on versions of the draft Application Terms of Reference;
- reviewing and commenting on the Application;
- providing advice on issues raised during the course of the assessment of the Project; and,

 providing advice on the assessment findings to be reported to provincial ministers at the conclusion of the EA.

Working Group meetings and conference calls were held in April 2006 (Interagency Orientation Meeting), October 2006, May 2007, October 2007, December 2007, January 2008 and March 2008 to identify specific issues and concerns with information, and to resolve issues. Working Group members also reviewed the draft Assessment Report.

Summary of Key Review Issues

Key issues involving potential adverse effects of the Project related to the following topics were raised during the EA:

Geophysical environment:

- slope stability, especially in upper Kitimat, Clore, Gosnell and Morice Valleys; and,
- erosion and control of sedimentation.
- Aquatic environment and fisheries:
 - construction impacts on salmon and salmon habitat, especially in the Kitimat, Morice, Burnie and Salmon Rivers and Gosnell, Chist and Hunter Creeks;
 - construction impacts on Dolly Varden, bull trout, coastal cutthroat trout and their habitats;
 - water quality monitoring;
 - fisheries stream assessments; and,
 - hydrostatic testing program.

Terrestrial environment and wildlife:

- construction effects on grizzly bear, mountain goat, moose, northern goshawk, and trumpeter swan habitat;
- wildlife movement corridors; and,
- Habitat restoration and compensation for lost habitat.
- Species and Ecosystems at Risk:
 - construction effects on White Sturgeon and their habitat, in the Stuart River; and,
 - rare plants and plant communities.
- Land and resource use:
 - increased public access into previously inaccessible areas.

First Nations Community and Land Use:

- routing of the pipeline;
- loss of use or benefit of a resource;
- access management; and,
- additional fish and wildlife studies.

Issues identified by the Working group were thoroughly reviewed in Working Group meetings and separately with key parties. Numerous new mitigation measures and commitments were made by the Proponent in response. These issues and the new or amended commitments created are summarized in the Working Group Issues Tracking Table (**Appendix D** of the EAO Assessment Report); the Compendium of Proponent Commitments is contained in **Appendix E** of the Assessment Report, and attached to the EA Certificate as Schedule B.

Examples of the means used to address some of the key issues through mitigation measures and commitments made by the Proponent are shown in the following table; a more complete discussion can be found in the Assessment Report.

Examples of Key Issues, Mitigation Measures and Commitments to Address Issues				
Issue / Effect	Resolution / Mitigation Measures	Residual Effects / Significance	Party Responsible	
Geophysical Environment				
Slope Stability / Erosion Control and Sedimentation: Further assessment of the erosion potential of soils is required, given the occurrence of steep slopes, large logged off areas, terrain instabilities and the potential for natural hazards.	 Proponent has committed to: undertake additional terrain stability investigations as part of project design following certification. If areas of instability be identified, they will be subject to further geotechnical investigations which may lead to engineering design solutions or local route adjustments; additional precautions (specified in Commitments Table) in known areas of debris flows; review draft environmental management plans with other interested parties; all sediment-laden water to be pumped will be discharged onto stable vegetation a minimum of 5 metres from any flowing watercourse and discharge points will be monitored; regular inspections of areas susceptible to erosion during construction and monitoring of the right-of-way and access roads after construction; and, implement adequate erosion controls on upslope areas to prevent release of harmful concentrations of suspended sediment. 	No residual effects are anticipated with use of all mitigation measures.	Proponent	
Aquatic Environment and	Fisheries			
<u>Construction Impacts on</u> <u>Salmon and Salmon</u> <u>Habitat</u> <u>Construction Impacts on</u> <u>Dolly Varden, bull trout,</u> <u>coastal cutthroat trout and</u> <u>their habitats</u>	 The Proponent has committed to undertake mitigative measures to address potential loss or degradation of instream fish habitat, including: use horizontal directional drilling as the primary crossing method at key specified river crossings; minimize the number of watercourse crossings by adopting environmental objectives during route selection. Where feasible avoid important instream habitats; undertake surveys of specific sites with Dolly Varden to assess whether mature individuals are present and likely to spawn, and to use 	Residual effects will be addressed by habitat compensation measures, developed with Department of Fisheries and Oceans.	Proponent Department of Fisheries and Oceans MOE	
Disturbance of instream fish habitat is likely to	 work with the Ministry of Environment (MOE) and others to evaluate potential life stage sites 			

Examples of Key Issues, Mitigation Measures and Commitments to Address Issues				
Issue / Effect	Resolution / Mitigation Measures	Residual Effects / Significance	Party Responsible	
occur where instream crossing methods are used at fish-bearing streams. Direct and indirect mortality to fish may occur as a result of blasting, hydrocarbon spills, entrainment at water intakes, instream construction activities, and increased fishing pressure	 with respect to short and long term access risks and develop strategies to limit access; submit a draft Access Management Plan with MOE and others for review; select vehicle and pipeline crossing methods that reduce direct and indirect effects on productive fish habitat; adhere to instream work windows and minimize instream work period; and, implement adequate erosion control on upslope areas and non-fish-bearing watercourses, to prevent release of harmful concentrations of suspended sediment to fish-bearing waters. The Proponent has committed to undertake mitigative measures to address potential direct and indirect effects to fish mortality including: use of isolation techniques on pipeline watercourse crossings; adhering to instream work windows and minimize instream work period; and, salvage fish from instream construction areas prior to dewatering, trenching and other construction activities. 	Any residual effects that may occur are deemed to be less than significant.	Proponent	
Water Quality Monitoring: Concerns about impacts to water quality in the Morice Water Management Area, leading to impacts to fish and fish habitat.	 The Proponent has committed to: engage the Office of the Wet'suwet'en in the development of a water sampling program and to develop an appropriate reference state sampling program; and, design water quality monitoring to include multiple samples for larger streams and a range of sample sites. 	Any residual effects that may occur are deemed to be less than significant.	Proponent	

Examples of Key Issues, Mitigation Measures and Commitments to Address Issues				
Issue / Effect	Resolution / Mitigation Measures	Residual Effects / Significance	Party Responsible	
Fisheries Stream Assessments Concerns about some fish studies being done during low water year resulting in incorrect data, and about insufficient full life cycle fisheries data in certain watercourses.	 The Proponent has committed to: revisit crossing sites in the Gosnell Creek and Upper Morice River to determine if fish may be present under normal flow conditions; re-sample Welch Creek when fish are most likely to be present and modify the in-stream work window and crossing method as appropriate; review data from other crossing sites to determine if a similar re-assessment should be done; amend crossing methods where indicated by new data; and, undertake additional studies on areas of high value / high risk and incorporate traditional knowledge where applicable. 	Any residual effects that may occur are deemed to be less than significant. If residual effects occur they will be addressed by habitat compensation measures developed with Department of Fisheries and Oceans.	Proponent Department of Fisheries and Oceans MOE	
Hydrostatic testing Program Concerns about volume of water extracted for use and how/where it will be discharged following use.	 The Proponent has committed to: a hydrostatic test plan that sets specifications to manage discharge water quality and temperature; address erosion and mass wasting concerns; limit withdrawal to no more than 10% of flow and ensure there is enough flow to accommodate a 10% withdrawal; review the hydrostatic test plan with MOE Oil and Gas Commission and others; and, address the risks to juvenile fish and sensitive periods that are to be avoided, locations for withdrawal in the hydrostatic test plan. 	Any residual effects that may occur are deemed to be less than significant.	Proponent MOE Oil and Gas Commission	
Terrestrial Environment an	nd Wildlife	•	•	
Effects on Various Species and Movement Corridors	The Proponent has committed to undertake mitigative measures to address potential direct and indirect effects to wildlife and wildlife habitat, including:	Any residual effects that may occur are deemed to be	Proponent MOE	
Habitat Restoration and Compensation for Lost Habitat	 pipeline routing and of clearing and construction scheduling have reduced the potential impacts to wildlife and wildlife habitat; conduct a pre-construction "route walk" by a wildlife specialist prior to clearing and construction to identify sites, movement corridors, etc; record any site-specific wildlife habitat features 	less than significant.	First Nations	
Direct and indirect effects	(e.g. wildlife trees, stick nests etc) in select locations;			

Examples of Key Issues, Mitigation Measures and Commitments to Address Issues				
Issue / Effect	Resolution / Mitigation Measures	Residual Effects / Significance	Party Responsible	
to wildlife and wildlife habitat including important seasonal habitats (<i>e.g.</i> reproductive areas), specific habitat features (e.g. dens and mineral licks), and where protective or thermal cover is cleared in wildlife movement corridors.	 where appropriate, salvage cut deciduous tree debris for redistribution on alignment post-construction as coarse woody debris; a range of specific measures to respond to concerns regarding grizzly bear, mountain goats, northern goshawk; participating in a Wildlife/Wildlife Habitat sub-committee to develop compensation and mitigative strategies and more; and, undertake additional studies with involvement of others. 			
Species and Ecosystems	at Risk			
Construction Effects on White Sturgeon in the Stuart River. Rare Plants and Communities	 The Proponent has committed to: horizontal directional drilling as the primary crossing method of the Stuart River; if drilling proves infeasible, to consider an aerial crossing if that is determined acceptable to the local community; and, identify rare plants and communities at the site level and minimize impacts; modifications to the project footprint will be considered to avoid or reduce impact. 	Any residual effects that may occur are deemed to be less than significant.	Proponent Department of Fisheries and Oceans MOE	
Land and Resource Use		Γ	Γ	
Increased Public Access into Previously Inaccessible Areas Increased access may increase pressures on fish and wildlife or other resources.	 The Proponent has committed to: implement an Access Management Plan with control measures (e.g. berms etc. at strategic points) to minimize unauthorized motorized access; funding to monitor unauthorized motorized use in identified land management zones and to assess efficacy of control strategies; the Access Management Plan will address streams deemed to be of high fisheries values and PTP will work with MOE and others to identify locations requiring access management; and, block off access by recreational vehicles where highly erodible and sediment producing soils are encountered (specific sites are known). 		MOE	

Conclusions

During the EA of the KSL Project, the EAO sought input and advice from the Working Group and the public on issues or concerns about the risks of adverse effects from the Project. Where potential for adverse effects was identified the EAO worked with others to ensure mitigation measures and Proponent commitments were established to avoid or minimize residual effects.

Having regard to all of the information contained in the Proponent Documents and Correspondence (**Appendix A** of the Assessment Report) and in the EAO Assessment Report, the EAO concludes that there are no significant residual or outstanding adverse effects as a result of the Project being designed, constructed, operated and maintained as described in these documents. This conclusion takes into account the position of position of federal agencies at the end of the provincial EA review.

The EAO is satisfied that:

- the Final Documentation (see Part F, Section 1 for list of documents) adequately identifies and addresses the potential adverse environmental, social, economic, and health, heritage effects;
- public and First Nations consultation, and the distribution of information, satisfy the requirements of the EA Act;
- issues identified during the review process by the public, First Nations, federal, provincial and local government agencies were adequately addressed by the Proponent during the review of the Application; and,
- practical means have been identified to prevent or reduce to an acceptable level any potential adverse effects.

Part A General Background

1. INTRODUCTION

1.1 Purpose of this Assessment Report

Pacific Trail Pipelines Limited Partnership (the Proponent) proposes to construct approximately 463 kilometres of 914 millimetres (36 inch) diameter pipe between Kitimat and Summit Lake (KSL), including installation of one new compressor station along the proposed pipeline system, to convey natural gas and as a loop to the existing Pacific Northern Gas Ltd. natural gas pipeline (the Project).

On October 11, 2007 the Proponent submitted an Application to the Environmental Assessment Office (EAO) for an Environmental Assessment Certificate (Application) for the Project, pursuant to the *Environmental Assessment Act, S.B.C. 2002, c. 43* (BCEAA). On January 24, 2008, the Proponent submitted an Amendment to their Environmental Assessment Certificate Application to the EAO.

The purpose of this Assessment Report is to:

- describe the Project;
- summarize the process for the review of the Application;
- report on the adequacy of the Proponent's distribution of information during the Application Review;
- report on whether the Application has adequately identified and assessed the potential significant adverse environmental, economic, social, heritage and health effects of the Project, including potential effects on First Nation interests;
- summarize the issues considered during the review of the Application; and,
- report on whether practical means have been identified to prevent or reduce to an acceptable level any potential adverse effects of the Project.

This Assessment Report, together with the Application, will be submitted to the Provnicial Ministers of Environment and Energy, Mines and Petroleum Resources for their review and decision on whether or not to issue an environmental assessment (EA) certificate for the Project.

Where an issue regarding potential significant effects required additional information or commitments from the Proponent, this report provides background information on the issue and the Proponent's response. A concluding statement is provided by the EAO as to whether the proposed mitigation measures and related commitments will prevent or reduce to acceptable levels potentially significant adverse effects of the Project.

A complete list of all issues raised during the review of the Application is appended to this report in **Appendix C** (Public Issues and Proponents Responses Tracking Table) and **Appendix D** (Working Group Issues and Proponents Responses Tracking Table). **Appendix E** contains a Compendium of Proponent Commitments made during the EA review to mitigate potentially adverse effects of the Project.

This Assessment Report meets the requirements of an Assessment Report under BCEAA and also serves to inform the required Comprehensive Study Report under the *Canadian Environmental Assessment Act*, SC 1992, c.37 (CEAA). It captures the process followed, issues raised, potential effects and the Proponent's proposed mitigation measures for the purposes of both federal and provincial reviews, and to the extent possible will be the common basis for federal and provincial environmental assessment decisions. The federal Responsible Authorities, Fisheries and Oceans Canada andTransport Canada, and the Canadian Environmental Assessment Agency (CEA Agency) have participated in the cooperative provincial/federal EA. The federal environmental assessment is still ongoing.

1.2 Provincial and Federal Environmental Assessment Processes

1.2.1 Provincial Process and BCEAA Requirements

On November 2, 2005, the Proponent submitted a Project Description to the EAO for the KSL Pipeline Looping Project.

On November 23, 2005, the EAO issued an order under section 10(1)(c) of the BCEAA, designating the Project as a reviewable project under that Act, and requiring the Proponent to obtain an EA certificate before proceeding with the Project. The Project was considered reviewable, pursuant to the BCEAA *Reviewable Project Regulation* (BC Reg. 370/02) because it includes a new transmission pipeline facility with a diameter of > 323.9 millimetres and a length of \geq 40 kilometres.

On February 20, 2006, the Proponent submitted a revised Project Description for the KSL Pipeline Looping Project proposing a revised pipeline route.

On February 28, 2007, the EAO issued an order under section 11 of the BCEAA outlining the scope, procedures and methods to be applied in the Pre-Application and Application Review stages of the assessment. The section 11 order was amended by a section 13 order issued September 20, 2007.

Draft Terms of Reference for the Application were developed by the Proponent, with input from the EAO, federal and provincial agencies, local governments and First Nations. These Terms of Reference were approved by the EAO on May 18, 2007 as the information required by the EAO under section 16(2) of BCEAA.

In August, 2007, the Proponent submitted an Application to the EAO. The Application was evaluated against the Approved Terms of Reference for the Application and returned to the Proponent for revisions. The revised Application was evaluated in September 2007 and accepted by the EAO on October 11, 2007.

On January 24, 2008, the Proponent submitted an Amendment to their Application to the EAO with minor amendments to the proposed pipeline route and a revised usage of a temporary construction site.

1.2.2 Federal Process and CEAA Requirements

An EA of a project is required under the *Canadian Environmental Assessment Act*, SC 1992, c.37 (CEAA), as amended, if a federal authority will be required to exercise certain powers or perform certain duties or functions in respect of a project for the purposes of enabling the project to be carried out, in whole or in part.

A federal EA is required for the proposed KSL Project as the Department of Fisheries and Oceans and Transport Canada have determined, as per Section 5 of the CEAA, that certain components of the Project are likely to require an authorization or approval. Specifically, the Department of Fisheries and Oceans contemplates the issuance of an authorization pursuant to section 35(2) of the *Fisheries Act* for the harmful alteration, disruption or destruction of fish habitat and Transport Canada contemplates the issuance of an approval pursuant to section 5(1) of the *Navigable Waters Protection Act*. Thus, the Department of Fisheries and Oceans and Transport Canada are Responsible Authorities in relation to the proposed KSL Project and both are required to ensure that an EA is conducted pursuant to the CEAA.

On November 3, 2006, the Responsible Authorities posted a Notice of Commencement on the federal Canadian Environmental Assessment Registry. The federal EA was originally initiated as a screening under the CEAA. On April 18th, 2008 the Responsible Authorities amended the Notice of Commencement on the Canadian Environmental Assessment Registry website to reflect a change in the type of federal EA being conducted from a screening to a comprehensive study. The change was made as a result of a Federal Court decision which determined that a comprehensive study is required when the "proponent's development proposal" includes one or more components described on the *Comprehensive Study List Regulations* of the Act.

The KSL Project, as described by the proponent, is a prescribed project which requires a comprehensive study pursuant to paragraph 14(a) of the *Comprehensive Study List Regulations* under CEAA, which reads:

14(a) the proposed construction of an oil and gas pipeline more than 75 km in length of a new right of way.

The Comprehensive Study process requires preparation of a federal "scoping document" that is distributed to the public for formal review and comment, in order to obtain input on the proposed scope of the project for the purpose of the EA, the factors proposed to be considered, the proposed scope of those factors, and the ability of the Comprehensive Study process to address the issues related to the project. A scoping document has been drafted and a request for input posted on the Canadian Environmental Assessment Registry with formal comment due by June 4th, 2008. A report is then made by the Responsible Authorities to the federal Minister of Environment, who determines whether the assessment will continue as a Comprehensive Study, or whether the assessment will be referred to a mediator or a review panel.

If the EA continues as a comprehensive study, a Comprehensive Study Report will be prepared. The Responsible Authorities must ensure there are opportunities for public participation during the conduct of the comprehensive study. The public has opportunities to apply for federal participant funding to allow them to review the Comprehensive Study Report and prepare their comments. Upon completion the Responsible Authorities will submit the Comprehensive Study Report to the federal Minister of the Environment and to the CEA Agency. The CEA Agency will invite the public to comment on the Comprehensive Study Report prior to the federal Minister of Environment making a decision. Comments received from the public are forwarded to the federal Minister of Environment to be considered in a decision.

The federal Minister of Environment reviews the Comprehensive Study Report and any public comments filed in relation to its contents. If the Minister is of the opinion that additional information is necessary or actions are needed to address public concerns, the Minister may request the Responsible Authorities to address these concerns. Once these concerns are addressed, the Minister issues an EA decision statement that includes:

- the Minister's opinion as to whether the Project is likely to cause significant adverse environmental effects; and,
- any additional mitigation measures or follow-up program that the Minister considers appropriate.

The Minister then refers the project back to the Responsible Authorities for a course of action or decision.

If it has been determined that the project is not likely to cause significant adverse environmental effects, a Responsible Authority may exercise any power or perform any duty or function that would permit the project, or part of the project, to be carried out, such as issuing a permit or authorization.

The CEA Agency anticipates that these comprehensive study process requirements will be completed by the fall of 2008.

1.2.3 Harmonized Review Process

The Canada/British Columbia Agreement for Environmental Assessment Cooperation (2004) provides for harmonized, coordinated environmental assessment processes to avoid uncertainty and duplication where a project is subject to review under both BCEAA and CEAA. Pursuant to this Agreement, the coordinated assessment was led by British Columbia. Each government will make project related decisions on matters within its own legislative authority.

The assessment was carried out as a harmonized review for the majority of the review period. Owing to the decision to carry out a Comprehensive Study at a late stage, this assessment report cannot be fully characterized as a joint report, however it has been written to enable the federal agencies to use it, to a large extent, as the basis of the Comprehensive Study Report.

2. PROJECT DESCRIPTION

2.1 Proponent

Pacific Northern Gas Limited (PNG) was the original proponent for the Project. On July 17, 2006 PNG and Galveston LNG Inc, parent company of the proponent for the Kitimat Liquefied Natural Gas Project (KLNG), formed a new company, Pacific Trail Pipelines Limited Partnership (PTP), that became proponent for the Project. PTP is a 50-50 partnership between PNG and Galveston LNG Inc. PTP will own and operate the Project.

PNG is a registered company in British Columbia with corporate headquarters located at Suite 950, 1185 West Georgia Street, Vancouver, BC V6E 4E6. Mr. Greg B. Weeres, Vice-President, Operations and Engineering, is the corporate contact for the KSL Project.

Pacific Trail Pipelines Limited Partnership is a registered British Columbia limited partnership headquartered at Suite 950, 1185 West Georgia Street, Vancouver, BC V6E 4E6. Mr. Greg B. Weeres, Vice-President Operations and Engineering for Pacific Northern Gas Ltd, is the partnership contact for the KSL Project.

2.2 Project Description, Location and Rationale

The purpose of the Project is to build a natural gas transmission pipeline loop from the proposed Kitimat Liquefied Natural Gas (KLNG) facility, the outlet pipeline of which is located in the District of Kitimat, to the Spectra Energy Transmission pipeline facilities located east of the Village of Summit Lake, approximately 50 kilometres north of Prince George. The proposed KLNG facility was issued an EA Certificate on June 6, 2006.

The Project will enable Pacific Northern Gas Ltd. (PNG) to increase the capacity of the existing natural gas transmission pipeline to meet shipper demand as well as to reverse the direction of flow so that the existing pipeline and the new pipeline loop can flow natural gas in both a westerly and an easterly direction providing increased security of supply to PNG customers.

The Project is located entirely within British Columbia and crosses the Regional Districts of Kitimat-Stikine, Bulkley-Nechako, and Fraser- Fort George. The Project commences within the District of Kitimat municipal boundaries and is located near the communities of Kitimat, Terrace, Smithers, Telkwa, Houston, Burns Lake, Endako, Fraser Lake, Vanderhoof, Prince George, and Summit Lake. **Figure 1** illustrates the location of the Project.



FIGURE 1 - KSL Project Location Map and Pipeline Route Alignment

The Project involves the construction of approximately 463 kilometres of 914 millimetres (36inch) diameter buried pipe between Kitimat (kilo post 0) and Summit Lake (kilo post 463), designed initially to transport 1 billion cubic feet per day of natural gas from the KLNG terminal to the Spectra Energy Transmission pipeline at Summit Lake. The Project includes one new compressor station (approximately 10,000 horsepower) located near the mid-point of the new pipeline at approximately kilometre post 246.5, the installation of associated above ground facilities including isolation block valves at specific locations within the designated right-of-way and cathodic protection measures to protect the pipeline from corrosion.

A 254 millimetre (10 inch) lateral pipeline, approximately 2 kilometres in length, will be constructed to connect the KSL pipeline at approximately kilo post 0.3 to the existing PNG transmission pipeline at its western most terminus at the existing Methanex meter station site at Kitimat. Pressure control, metering, and odorant injection equipment will also be installed at the existing Methanex meter.

The Project will be constructed along a new right-of-way between Kitimat and Endako (from kilo post 0 to approximately kilo post 300), and within or adjacent to the existing PNG pipeline right-of-way from Endako to Summit Lake (from approximately kilo post 300 to kilo post 463). The permanent statutory right-of-way for the KSL pipeline will be 18 metres in width. Where the KSL pipeline is adjacent to the existing PNG right-of-way, which is typically 18 metres wide, an additional 10 metres of permanent right-of-way will be required, making the total permanent right-of-way width approximately 28 metres wide. The compressor station facilities will occupy an approximately 5 hectare site, of which roughly one hectare will be cleared, with the remaining area serving as a buffer. During pipeline construction, a wider right-of-way will be required to accommodate ditch material, pipe and construction equipment, difficult terrain and unique construction activities (e.g. horizontal directional drilling). While workspace requirements will vary with location, a total of 35 metres will typically be required during construction.

The Project, including the pipeline and temporary and permanent access roads, includes a total of 589 watercourse crossings in four major watersheds: the Kitimat, Skeena, Fraser and Peace. It has been determined that 109 watercourse crossings are fish-bearing. Further field assessments are required on 39 streams to confirm whether they are fish-bearing; for the purposes of this review, these streams are considered fish-bearing until shown otherwise.

Four types of stream crossing techniques are proposed:

- 1. open cut is proposed for non-fish bearing stream crossings only;
- 2. flow isolation during low flow periods is the proposed method for the majority of fish-bearing stream crossings;
- horizontal directional drilling is proposed at several crossing locations (subject to favourable geotechnical investigations): Little Wedeene River, Wedeene River, Chist Creek, Unnamed Creek at kilo post 109.3, Gosnell Creek side channel at kilo post 109.8, Gosnell Creek, Morice River, Endako River and Stuart River, and three crossings of the Salmon River; and,
- 4. aerial crossing of the Clore River is proposed because the crossing is located in a narrow ravine.

For each of the 589 watercourse crossings, the Proponent has identified primary and alternate stream crossing techniques.

The Proponent's January 24, 2008 Amendment to their EA Application proposed three minor changes to the proposed pipeline route in the vicinity of:

- 1. Hunter Creek between approximately kilo post 61.5 and 63;
- 2. Hoult Creek between approximately kilo post 74 and 76.3; and,
- 3. the Burnie River crossing between approximately kilo post 98 and 101.5.

The Amendment added a temporary construction camp at kilo post 126 at a site originally proposed as a pipe and material storage area.

A portion of the Project lies within the asserted traditional territories of the following First Nations: Haisla Nation; Kitselas First Nation; Lax Kw'alaams Indian Band; Metlakatla Indian Band; Wet'suwet'en Hereditary Chiefs, as represented by the Office of the Wet'suwet'en; Skin Tyee First Nation; Nee Tahi Buhn Indian Band; Wet'suwet'en First Nation (Broman Lake Band); Burns Lake Indian Band; Saik'uz First Nation; Nadleh Whut'en Indian Band; Nak'azdli Indian Band; Stellat'en First Nation; and the Lheidli-T'enneh Indian Band. A small portion of the Project also lies within an area that is subject to a specific claim by the West Moberly First Nations; an area that is the subject of litigation amongst Treaty 8 First Nations, Canada and the Province (in which litigation the parties take differing positions as to the western boundary of Treaty No. 8); and the "Claimed Traditional Territory" of the McLeod Lake Indian Band, as that term is defined in the *McLeod Lake Indian Band Adhesion and Settlement Agreement.*

2.3 Capital Costs and Employment

Capital cost of the Project is estimated at approximately \$1.1 billion. Approximately \$750 million of this amount is for the installation of the pipeline and related facilities. The Proponent has developed procurement objectives to encourage the use of local and regional human resources in the design, planning, construction and operation of the Project, wherever practical.

Construction of the pipeline portion of the Project will be divided into five segments or "spreads." Each spread will have a peak employment of 500 to 700 and average above 300 for a period of about four months. In addition, a construction and environmental inspection team together with survey and other specialized personnel will add about 80 people per spread. The Compressor Station workforce will be substantially smaller and is expected to be accommodated locally. During the approximate six month construction period for the compressor station, the workforce will average about 30 people and the peak employment will be about 100 people. Few if any new employees will be required to operate the Project following construction.

3. PROJECT ALTERNATIVES

The Proponent considered a number of potential pipeline routes.

In the initial Project Description submitted by the Proponent to the EAO (November 2005), the proposed pipeline route for the Project was adjacent to the existing PNG transmission system throughout most of its length between Kitimat and Summit Lake. This included crossing the Coast Mountains using Telkwa Pass. Subsequent geotechnical assessments led the Proponent to believe the Telkwa Pass route had sufficient terrain instability concerns to make it unsuitable for a new large pipeline.

The revised Project Description submitted to the EAO (February 2006) proposed a different pipeline alignment, using the Mount Nimbus area to cross the Coast Mountains. This route is the subject of this Report.

The review of the EA Application also included discussion of a number of potential alignment alternatives along two sections of the pipeline route: the Kitimat Valley, and the Coast Mountain Area.

On January 9, 2008 and January 28, 2008, the Proponent provided the EAO additional information comparing a number of route alternatives through the Coast Mountains.

These route alternatives, and the Proponent's assessment of them, are described in **Attachment 1** of this Report.

4. RELATED STATUTORY APPROVALS

4.1 **Provincial Approvals**

In accordance with section 9 of BCEAA, no provincial approvals can be issued to construct or operate the Project until the EA review is completed and an EA certificate is issued.

Issuance of an EA Certificate does not guarantee that necessary authorizations, permits, licences and approvals will also be granted. These approvals are granted at the discretion of provincial regulatory agencies following their independent determinations of compliance with the appropriate requirements.

4.1.1 Concurrent Provincial Approvals

The Proponent has chosen not to make application under section 23 of BCEAA and the Concurrent Permitting Regulation for concurrent provincial approvals related to the Project. Therefore provincial authorizations, permits, tenures or licenses that are required for the Project to proceed (should an EA Certificate be issued) will be addressed by the appropriate authorities in accordance with their procedures and timelines.

4.1.2 Post-EA Certification Provincial Approvals

In addition to requiring an EA Certificate under the BCEAA, the Project requires the following provincial approvals and authorizations:

- approval under the Water Act for water withdrawal and for works in and about a stream;
- approval for timber harvesting and disposal under the Forests Act;
- approval under the Heritage Conservation Act for various activities;
- Statutory Right-of-Way Agreements under the Land Act;
- road use permits under the Forests Act and the Highways Act; and,
- a Certificate of Public Convenience and Necessity pursuant to the B.C. Utilities *Commission Act.*

The Project must also comply with the Wildlife Act and the Environmental Management Act.

Under the *Oil and Gas Commission Act,* the Oil and Gas Commission is responsible for issuing all provincial approvals related to the Project, with the exception of a Certificate of Public Convenience and Necessity pursuant to the *BC Utilities Commission Act.*

4.2 Federal Approvals

The Project also requires the following approvals and authorizations which trigger the *Canadian Environmental Assessment Act*:

- authorization pursuant to section 35(2) of the Fisheries Act; and
- approval pursuant to subsection 5(1) of the Navigable Waters Protection Act.

The Project must also comply with the following federal statutes:

- the Migratory Birds Convention Act, 1994, and
- the Species at Risk Act.

Part B Information Distribution and Consultation

1. PROJECT WORKING GROUP

Project working groups are used by the EAO as the primary source of policy and technical expertise for considering issues identified during project assessments. In addition to conducting the EA review, the Working Group reviews information and consultation requirements for provincial statutory permit approvals. It also reviews federal information needs when an assessment is conducted as a harmonized federal/provincial review.

The EAO established a KSL Pipeline Looping Project Working Group in November 2004, comprised of representatives of federal, provincial and local government agencies and First Nations whose interests may potentially be affected by the Project. The following First Nations were invited to participate on the Working Group:

- Haisla Nation;
- Kitselas First Nation;
- Lax Kw'alaams Indian Band;
- Metlakatla Indian Band;
- Wet'suwet'en Hereditary Chiefs, as represented by the Office of the Wet'suwet'en;
- Skin Tyee First Nation;
- Nee Tahi Buhn Indian Band;
- Carrier Sekani Tribal Council, representing the Wet'suwet'en First Nation (Broman Lake Band), Burns Lake Indian Band, Saik'uz First Nation, Nadleh Whut'en Indian Band, Nak'azdli Indian Band and Stellat'en First Nation;
- Lheidli-T'enneh Indian Band;
- McLeod Lake Indian Band; and,
- West Moberly First Nations.

The Halfway River First Nation expressed a desire to participate on the Working Group in 2007 and was subsequently invited.

The Treaty 8 Tribal Association was also invited by the EAO to be a member of the Working Group as the Association has been identified as a technical advisory group for Treaty 8 First Nations. A resolution passed by the Chiefs of the Carrier Sekani Tribal Council was provided to the EAO in January 2006 confirming that the Carrier Sekani Tribal Council would represent six Carrier Sekani Tribal Council member Bands noted above.

The Working Group members are identified in Appendix B.

Working Group members undertook the following activities, based on the mandate of the organizations they represent:

- reviewing and commenting on versions of the draft Application Terms of Reference;
- reviewing and commenting on the Application;
- providing advice on issues raised during the course of the assessment of the Project; and,
- providing advice on the assessment findings to be reported to provincial ministers and the federal Minister of Environment at the conclusion of the EA.

Working Group meetings and conference calls were held in April 2006 (Interagency Orientation Meeting), October 2006, May 2007, October 2007, December 2007, January 2008 and March 2008 to identify specific issues and concerns with information, and to resolve issues. Notes from Working Group meetings in the Application Review stage are available on the EAO website as identified in **Appendix A**.

2. MEASURES UNDERTAKEN WITH GOVERNMENT AGENCIES

2.1 Government Agency Consultation Measures Undertaken by EAO

Through the section 11 order the EAO ensured the Proponent consulted with other federal, provincial and local government agencies.

During Application Review, the EAO led Working Group and sub-group discussions to identify, document and resolve as much as possible Project-related issues.

Appendix D provides a summary of government agency issues raised during the Application Review stage.

2.2 Government Agency Consultation Measures Undertaken by Federal Agencies

The CEA Agency and responsible agencies participated in the Project Working Group and sub-group discussions to consult with other government agencies.

2.3 Government Agency Consultation Measures Undertaken by Proponent

The section 11 order issued by the EAO required the Proponent to carry out consultations with federal, provincial and local government agencies during Pre-Application and Application Review stages, using direct consultation as well as the Project Working Group.

The Proponent's government agency consultation program included the following local governments: District of Kitimat, City of Terrace, Town of Smithers, Village of Telkwa, Village of Granisle, District of Houston, Village of Burns Lake, Village of Fraser Lake, District of Fort St. James, District of Vanderhoof, Regional District of Kitimat-Stikine, Regional District of Bulkley-Nechako, Regional District of Fort St. James and Regional District of Fraser-Fort George, as well as community representatives in Fort Fraser and Summit Lake.

During Application Review, the Working Group and its sub-groups and consultations directly with agencies were used to identify, document and resolve as much as possible, Project-related issues.

3. MEASURES UNDERTAKEN WITH THE PUBLIC

3.1 Public Consultation Measures Undertaken by EAO

The EAO is responsible for ensuring Project information is adequately distributed and that the public is consulted at key stages of a project EA.

The section 11 order issued by the EAO required specific public consultation activities on the draft Terms of Reference during the Pre-Application stage and the EA Application during the Application Review stage.

Pursuant to the section 11 order, a 30-day public comment period on the draft Terms of Reference was held from March 15 to April 16, 2007. Copies of the draft Terms of Reference were made available in nine public libraries in communities along the proposed pipeline corridor. Four written comments were received by the EAO. No open houses were held during this period as the Proponent had already held nine open houses between September 25 and October 5, 2006 (the EAO attended some of these) and had established a large mailing list of interested parties who were periodically updated on the status of the Project and the EA review.

Pursuant to the section 11 order, a 45-day public comment period on the Application was held from October 17 to November 30, 2007 and copies of the Application were again made available in nine public libraries. In addition, the EAO attended seven open houses held in local communities between October 22 and November 2, 2007. Eleven written comments were received by the EAO.

Appendix C provides a summary of public issues raised during the Application Review stage.

Throughout the EA process, the EAO utilized its electronic Project Information Centre to make relevant information, meeting records and correspondence related to the Project available to the public.

3.2 Public Consultation measures Undertaken by Federal Agencies

The CEA Agency and the Responsible Authorities are required to provide opportunities for public review and comment on the scoping document and the Comprehensive Study Report. The public has opportunities to apply for participant funding to allow them to review the Comprehensive Study Report and prepare their comments.

A scoping document has been drafted and a request for input posted on the Canadian Environmental Assessment Registry with formal comment due by June 4th, 2008. The RAs will draft and submit the Comprehensive Study Report to the federal Minister of the Environment and to the CEA Agency. The CEA Agency will invite the public to comment on the Comprehensive Study Report prior to the federal Minister of Environment making a decision. Comments received from the public are forwarded to the federal Minister of Environment to be considered in a decision.

It is anticipated that public consultation during the Comprehensive Study Review and on the Comprehensive Study Report will be conducted during the summer and fall of 2008.

3.3 Public Consultation Measures Undertaken by Proponent

The Proponent initiated a consultation program in September 2005 that included landowners whose property was within 500 metres of the proposed pipeline route, municipal mayors, councils and chief administrative officers, regional district chairs and directors, forestry industry representatives, and potentially affected First Nations. The purpose of this program was to determine interest in, and issues associated with, the proposed Project.

Other public consultation activities during Pre-Application included open houses between September 25, 2006 and October 5, 2006 in nine communities along or near the KSL Project route, including Burns Lake, Fraser Lake, Vanderhoof, Prince George, Summit Lake, Terrace, Kitimat, Smithers and Houston. The objectives of the open houses were to: introduce the KSL Project including rationale and benefits, proposed routing, project studies, schedule, and approvals process; solicit public comment on the KSL Project; and identify project issues. Pursuant to the section 11 order, the Proponent also sought public comment on the draft Terms of Reference during a 30-day public comment period that was held from March 15 to April 16, 2007. Copies of the draft Terms of Reference were made available in nine public libraries in communities along the proposed pipeline corridor.

Application Review phase public consultations included an EAO mandated 45-day public review period on the Application pursuant to the section 11 order, between October 17 and November 30, 2007. The Proponent made copies of the Application available in nine public libraries, and held seven open houses in local communities between October 22 and November 2, 2007. Eleven written comments were received by the EAO.

4. MEASURES UNDERTAKEN WITH FIRST NATIONS

4.1 First Nation Consultation Measures Undertaken by EAO

Portions of the Project lie within the asserted traditional territory of the following First Nations:

- Haisla Nation;
- Kitselas First Nation;
- Lax Kw'alaams Indian Band;
- Metlakatla Indian Band;
- Wet'suwet'en Hereditary Chiefs, as represented by the Office of the Wet'suwet'en;
- Skin Tyee First Nation;
- Nee Tahi Buhn Indian Band;
- Carrier Sekani Tribal Council, representing the Wet'suwet'en First Nation (Broman Lake Band), Burns Lake Indian Band, Saik'uz First Nation, Nadleh Whut'en Indian Band, Nak'azdli Indian Band and Stellat'en First Nation; and,
- Lheidli-T'enneh Indian Band.
A portion of the Project lies within an area asserted by the West Moberly First Nations and Halfway River First Nation to be within the boundary of Treaty 8. A portion is also within the "Claimed Traditional Territory" of the McLeod Lake Indian Band, as that term is defined in the McLeod Lake Indian Band Adhesion and Settlement Agreement with the exception of Halfway River First Nation. All of these First Nations were advised by the EAO early in the Pre-Application phase of the EA process for the Project, and invited to participate on the Project Working Group. Halfway River was invited to participate on the Working Group on November 22, 2007.

Four other First Nations were also advised of the Project, but either declined or did not respond to invitations to participate: Yechooche, Lake Babine, Carrier Cheslatta and Nazko.

The EAO offered capacity funding to all First Nations who participated in the review. For the most part, the EAO decided early in the review process to enter into a model of "deep consultation" with participating First Nations. For more information refer to Part E, First Nation Consultation Report.

4.2 First Nation Consultation Measures Undertaken by Federal Agencies

The Responsible Authorities consulted First Nations through their participation on the Project Working Group. Representatives of the Responsible Authorities also consulted with First Nations by accompanying the EAO to many of the meetings organized to consult with First Nations. First Nation consultation will continue throughout the comprehensive study review period.

4.3 First Nation Consultation Measures Undertaken by Proponent

The section 11 order issued to the Proponent by the EAO required the Proponent to consult with the First Nations identified above on the potential effects of the Project on their asserted aboriginal rights or on treaty rights.

The Proponent began communicating between August and October 2005, during Pre-Application, with the following First Nations about the Project:

- Haisla Nation;
- Kitselas First Nation;
- Lax Kw'alaams Indian Band;
- Metlakatla Indian Band;
- the Office of the Wet'suwet'en;
- Skin Tyee First Nation;
- Nee Tahi Buhn Indian Band;
- Carrier Sekani Tribal Council;
- Lheidli-T'enneh Indian Band; and
- McLeod Lake Indian Band.

Initial contact was made with the West Moberly First Nations in April 2006 and following a request from Halfway River First Nation to become involved in the process, the Proponent began communicating with them in December 2007. The Treaty 8 Tribal Association was notified about the Project in May 2006.

The main purpose of these consultations was to begin learning from First Nations about their interests and how they might be affected by the Project and how any potentially negative effects might be mitigated, to negotiate agreements for the preparation of traditional use studies, and to explore how First Nations might benefit in the short and long term from the Project.

During Application Review, the Proponent continued to meet with these same First Nations, and made effort to consult with Halfway River First Nation. Discussions with First Nations during this phase dealt mainly with potential effects of the Project on their interests, mitigation of potential negative effects, including by possible realignments of the pipeline route, and potential benefits of the Project for First Nations. Discussions between the Proponent and First Nations on mitigation of potential Project impacts took place both at the Working Group and in meetings outside the Working Group setting.

5. CONSULTATION SUMMARY

As noted, **Appendices C and D** of this Report contain a complete list of issues identified by the public, First Nations and government agencies during the review of the Proponent's Application, and the Proponent's response to these issues.

The public, First Nation and government agency notification and consultation process has complied with the procedures outlined in the section 11 and section 13 procedural orders issued to the Proponent for the Project.

All issues raised by the public, First Nations, federal, provincial and local government agencies during the review of the Project, that were deemed to be within the scope of the review, have been considered in the Application Review process and the documents generated as part of the review.

PART C Review of Application

1. ASSESSMENT OF POTENTIAL PROJECT EFFECTS

1.1 Project Scope

The project scope is defined in the section 11 order, and identifies: which physical facilities and activities comprise a project for purposes of the assessment, including the on-site and off-site facilities that are necessary for a project to function and the activities that are associated with the operation of those facilities; and which project development phases – construction, operations, modification, dismantling and abandonment – are to be included in the assessment.

The section 11 order defined the Scope of the Project, for the purposes of the provincial EA under the BCEAA, as including the construction, operation and maintenance, restoration, decommissioning and abandonment of a natural gas transmission pipeline and associated facilities, including the following components and activities:

- approximately 463 kilometres of 914 millimetres (36 inch) diameter pipe;
- one new compressor station in the proposed pipeline system;
- isolation valves along the pipeline;
- approximately 2 kilometres of 254 millimetres (10 inch) diameter lateral pipeline connecting the existing PNG transmission facilities at the existing Methanex Meter Station to the Project pipeline for bi-directional flow (loop) on the existing PNG transmission system;
- cathodic protection facilities;
- measurement and odorant injection equipment at the existing Methanex Meter Station;
- temporary construction surface disturbances or facilities, including: construction workspace; access roads; bridges, flumes; 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.

The provincial Scope of the Project as defined in the section 11 order was confirmed in the Approved Terms of Reference. The Terms of Reference were finalized prior to a determination by federal departments on which project components would be subject to review under CEAA, and prior to a federal government decision on the project scope or the appropriate process to take to complete an EA under CEAA.

As required under CEAA, the Responsible Authorities determine the federal scope of project, factors to be considered and scope of those factors. The federal scope has been outlined in a scoping document. After completion of public review on the proposed scope and review by the federal Minister of the Environment, a final federal scope will be posted on the Canadian Environmental Assessment Registry.

1.2 Scope of Assessment

The Scope of the Assessment for the purposes of the provincial EA under the BCEAA is outlined in the section 11 order as requiring consideration of:

- the potential for adverse environmental, social, economic, health and heritage effects of the Project taking into account practical means to prevent or reduce to an acceptable level any potential adverse effects of the Project; and,
- the potential for adverse effects of the Project on First Nations' Aboriginal Interests or Treaty rights, as the case may be, taking into account practical means to prevent or reduce to an acceptable level any potential adverse effects of the Project.

Based on consultations with the CEA Agency, Responsible Authorities, Working Group and First Nations, the scope of the assessment for the purposes of the BCEAA and the harmonized EA under CEAA was further described in the Approved Terms of Reference as requiring an analysis of the potential direct, indirect and cumulative environmental effects of the Project, for which a reasonably direct causal link can be demonstrated, on specified "valued" environmental and social components of the Project setting, referred to respectively as Valued Environmental Components" and "Valued Social Components are: the geophysical environment, the atmospheric environment, the aquatic environment, fish and fish habitat, the terrestrial environment, wildlife, wildlife habitat and vegetation, species and ecosystems at risk, archaeological and heritage resources, First Nations interests, land and resource use, aesthetics and viewsheds, human health and safety, employment and the economy, community and regional infrastructure and services, and navigable waters.

To meet the specific requirements under Section 16 of CEAA, the scope of the assessment for the purposes of the federal EA was described in the Approved Terms of Reference as including the following factors:

- need for the Project and purposes of the Project;
- alternative means of carrying out the Project that are technically and economically feasible and the environmental effects of any such alternative means;
- environmental effects of the Project, including the environmental effects of malfunctions or accidents that may occur in connection with the Project and any cumulative environmental effects that are likely to result from the Project in combination with other projects or activities that have been or would be carried out;
- measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the Project;
- significance1 of the residual environmental effects of the Project, after the application of mitigation measures;
- effects of the environment on the Project;
- capacity of renewable resources that are likely to be significantly affected by the Project to meet present and future needs; and,
- need for, and the requirements of, any follow-up program in respect of the Project.

¹ CEAA defines "significance" as determined by a combination of scientific data, regulated thresholds, standards, social values and professional judgment. It must be determined in a transparent, systematic and supportable fashion.

The Scope of the Assessment as described in the Approved Terms of Reference was also endorsed by the Responsible Authorities as identifying federal information requirements for a Comprehensive Study under CEAA. This endorsement came with the express qualification that the Terms of Reference were being finalized prior to a determination by federal departments on which project components would be subject to review under CEAA, and prior to a federal government decision on the project scope or the appropriate process to complete an EA under CEAA.

1.3 Study Area Boundaries

The Approved Terms of Reference required the Proponent to assess the potential effects of the Project on the specified Valued Environmental Components and Valued Social Components at three spatial scales:

- the Project Footprint study area is the area directly disturbed by clearing, construction and clean-up activities, including associated physical works and activities (i.e. 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). The Project Footprint is approximately 40 metres wide;
- the Local Study Area is an approximately 2 kilometres buffer centred on the pipeline right-of-way. The Local Study Area is intended to captures most direct and indirect potential effects of Project activities and facilities. The width of the Local Study Area varies somewhat depending on the specific Valued Environmental Components or Valued Social Components in question. For example, wildlife studies require a 50 kilometre study area where necessary to ensure potential effects on elements such as grizzly bear movement are captured. In some cases, a downstream area may be studied at major river crossings to assist with fisheries mitigation/compensation planning; and,
- the Regional Study Area includes relevant portions of the Traditional Territories of First Nations whose interests are potentially affected by the Project as well as local communities most likely to experience socio-economic effects of the Project (e.g. Kitimat, Terrace, Houston, Burns Lake, Fraser Lake, Vanderhoof, Summit Lake, Prince George). For the cumulative effects assessment the study area is approximately 15 kilometres on both sides of the pipeline centreline.

The Approved Terms of Reference also identified the temporal boundaries for the Project as:

- Clearing and Construction Phase: approximately 26 months, anticipated to commence September 2008 to and be completed by November 2010;
- Operations Phase: estimated to be 100 years, anticipated to commence in November 2010 following construction; and,
- Decommissioning and Abandonment Phase: uncertain.

1.4 Impact Assessment Methodology

The Approved Terms of Reference required the Proponent to employ the following impact assessment methodology in order to determine anticipated impacts of the Project on the project setting, as defined by the specified Valued Environmental Components and Valued Social Components:

- 1. describe the Project facilities and activities;
- identify and describe those components of the Project setting (environmental, socioeconomic, heritage, First Nations, etc.) that will be or could be affected by Project development;
- 3. describe the nature and extent of the direct, indirect, and cumulative effects of any interaction between the Project and the existing Project setting and characteristics (environmental, socio-economic, etc.);
- 4. describe measure(s) available to manage and mitigate the impacts identified above;
- 5. identify the magnitude, duration and frequency, reversibility, and extent (geographic or otherwise) of any residual effects of the Project after mitigation measures are applied;
- 6. identify the probability of occurrence (likelihood) of any residual effect; and,
- 7. provide the Proponent's determination of the significance of any residual effects.

The Approved Terms of Reference require the Proponent to apply CEAA standards for evaluating the nature and extent of any residual adverse effects, and whether the adverse effects are significant, based on the following criteria: extent (*magnitude* and *geographic extent*); *occurrence* (duration and frequency); *reversibility*, and *context*.

Significant Residual Effects

The Approved Terms of Reference also required the proponent to employ the CEAA definition of **Significant Residual Effects**, for the purposes of item #7, Proponent's determination of the significance of any residual effects: a high probability of occurrence of residual effect that cannot be avoided or mitigated, having a combination of characteristics that render it unacceptable to the public, regulators, other interests, or that exceeds standards or contravenes legal requirements.

The federal Responsible Authorities are responsible for making a final determination of the significance of residual effects under CEAA.

1.5 Information Considered in Assessment

The EAO, CEA Agency, federal Responsible Authorities and other review participants considered a range of information in conducting the Project EA and for the purpose of assessing the potential effects of the Project:

- the information, analysis and commitments contained in documents that are considered to be Application components, including: the Proponent's October 11, 2007 EA Application and supporting Baseline Studies and Appendices, and the Proponent's January 24, 2008 Amendment to their EA Certificate Application;
- other documents and correspondence provided to the EAO or other review participants by the Proponent after the submission of the EA Application on October 11, 2007;
- issues raised by the public during the Application review, and the Proponent's response;

- issues raised by government agencies during Application review, and the Proponents response; and,
- comments and submissions from First Nations to the EAO, Responsible Authorities or Proponent respecting potential impacts of the Project on asserted aboriginal rights and title or Treaty rights, and the Proponents response.

The Application components and relevant correspondence between the Proponent and the EAO or other review participants are identified in **Appendix A** of this Report.

Issues raised by the public during the Application review and Proponent's response are identified in **Appendix C** of this Report. Issues raised by the Working Group (including federal and provincial agencies, local governments and First Nations) during the Application review and Proponent's response are identified in **Appendix D** of this Report. Comments and submissions from First Nations to the EAO or Proponent respecting potential impacts of the Project on asserted aboriginal rights and title or Treaty rights and measures taken to address these issues are discussed in Part E of this Report.

1.6 Structure of Application Review

The Application review in the remainder of Part C of this Report comprises:

- an assessment of Project impacts on Valued Environmental Components specified in the Approved Terms of Reference: the geophysical environment, the atmospheric environment, the aquatic environment, fish and fish habitat, the terrestrial environment, wildlife, wildlife habitat and vegetation, species and ecosystems at risk, and archaeological and heritage resources; and,
- 2. an assessment of Project impacts on Valued Social Components specified in the Approved Terms of Reference: land resource use, aesthetics and viewsheds, human health and safety, employment and the economy, community and regional infrastructure and services, and navigable waters.

The assessment of potential Project impacts on each Valued Environmental Components and Valued Social Components is structured in four sections:

1. Background

Background information on the existing setting as well as spatial and temporal boundaries used in the evaluation, provided by the Proponent in the Application;

- 2. Project Effects Identified in the Application and Proposed Mitigation Potential Project effects and proposed mitigation, as identified in the Application and other documents provided by the Proponent;
- 3. Issues Raised During Application Review and Proposed Mitigation Issues associated with potential effects of the Project raised by the public, government agencies and First Nations during the Application review that required additional information or new commitments and/or mitigation measures from the Proponent to be considered as satisfactorily addressed. In some cases, topic headings also highlight issues that were frequently raised, and accordingly warranted reiteration of the Proponent's design features or mitigation measures to address these recurring issues; and,

4. Conclusion on Effects and Mitigation

Conclusions of the EAO on the significance of the predicted residual effects arising from the Project after mitigation.

Compendium of Proponent Commitments

A key product of the Application review process is the development of a Compendium of Proponent Commitments to mitigate potential project impacts, including commitments made by the Proponent in the Application, and commitments agreed to by the Proponent during application review to mitigate potential project impacts identified by the public, government agencies and First Nation during this phase of the process. The Compendium of Proponent Commitments is contained in **Appendix E**. This list of commitments is intended to be attached to, and become a legally enforceable part of, an EA Certificate that may be issued for the Project.

2. ENVIRONMENTAL EFFECTS

2.1 Geophysical Environment

2.1.1 Background

Physiography and Topography

The pipeline route crosses multiple physiographic and topographic regions.

The start of the Project is measured from the head of the Kitimat Arm in Douglas Channel. From kilo post 0 to kilo post 42 the pipeline route is located in the Kitimat Ranges of the Coast Mountains,. The elevation of this section of the route varies from a few metres above sea level to 200 metres above sea level. From kilo post 42 to kilo post 74, the pipeline route trends eastward through the Kitimat Range of the Coast Mountains, climbing to approximately 400 metres, following the glaciated valleys of the Kitimat River and Hoult Creek which are flanked by steep, rocky slopes typical of the Coast Mountains.

At kilo post 74, the pipeline route leaves the valley floor and proceeds up the rocky side-slopes of Mount Hoult to a ridgeline and drainage divide north of Mount Nimbus, at approximately 1,600 metres above sea level. The route then descends Mount Nimbus to near the valley floor of the Clore River drainage. At kilo post 88, the pipeline route crosses the Clore River and proceeds through irregular ridges and troughs of the Bulkley Range and before descending to the crossing of the Burnie River at approximately 785 metres above sea level.

At kilo post 99, the pipeline route crosses the Burnie River and enters the Interior Plateau, at an elevation of approximately 800 metres above sea level. Near kilo post 113, the pipeline enters the Gosnell Creek drainage and begins to traverse low to moderate relief hills and plains of the Nechako Plateau. This area is characterized by flat and gently rolling terrain varying from 800 metres above sea level to 1,500 metres above sea level, with thick deposits of glacial soils covering virtually the entire surface. At approximately kilo post 330, east of Fraser Lake, the pipeline route enters the Fraser Basin and traverses this physiographic section to kilo post 462.5. This area is of lower elevation than the Nechako Plateau but is also characterized by mostly gently rolling terrain covered extensively by glacial soils with few bedrock exposures.

<u>Soils</u>

The pipeline route contains a variety of soil conditions.

A soil survey was conducted along those portions of the pipeline route where the route crosses land within the Agricultural Land Reserve as well as within adjacent land that has potential for agricultural and grazing use.

Surficial geologic materials from which the soils are derived consist mainly of till, glaciofluvial and glaciolacustrine deposits. Till deposits occupy about 37% of the areas investigated; stone-free to slightly stony glaciolacustrine deposits occupy about 42%; and glaciofluvial sands and gravels occupy about 15%.

The dominant soils, occupying about 70% of the route surveyed, consists of well to moderately well drained Orthic Gray Luvisols, with little or no topsoil in forested areas. Topsoil thickness in cleared and developed fields varies from 10 centimetres to 20 centimetres and is usually brown to dark brown in colour. These soils are non-saline and non-sodic, sometimes weakly calcareous and strongly acid to neutral in soil reaction (pH).

Other soils, but of minor extent, include: Orthic Regosols developed on silt loam to gravelly sand textured recent fluvial material on the floodplains of the major creeks and rivers; very poorly drained Typic or Fibric Mesisols developed on moss peat greater than a metre thick; and rock outcrops which have less than 10 centimetres of weathered material at the surface.

Geology

The pipeline route crosses diverse geological regions, with varying potential for acid rock drainage and metal leaching.

Between kilo post 0 and kilo post 16 bedrock geology is largely comprised of calc-alkaline volcanic rocks of the Nicola Group (layered volcanic rocks and minor sedimentary rocks of Triassic time). From kilo post 16 to kilo post 42, quartz diorite intrusive rocks occur that belong to the Coast Plutonic Complex (mostly homogenous igneous rocks with minor inclusions of volcanics and sediments). Acid rock drainage and metal leaching potential are considered moderate for the Nicola Group rocks and low for the Coast Plutonic Complex.

Between kilo post 42 and kilo post 113, the route crosses a variety of rock types. Calc-alkaline volcanics and quartz diorite and granodiorite rocks are prevalent up the Kitimat River Valley, the Hoult Creek Valley and over the divide into the Clore drainage. The Burnie River Valley is underlain by a short section of sedimentary rocks. Acid rock drainage and metal leaching potential are considered low for this section of the pipeline, except for a short section of moderate potential near kilo post 75.

From kilo post 113 to kilo post 462.5 bedrock types are typified by flat to gently dipping tertiary lava flows which cover older volcanic, sedimentary and intrusive rocks. The sedimentary rocks are dominantly chert, pebble conglomerate, shale and sandstone while the volcanic rocks are chiefly andesite, basalt and associated tuffs and breccias. Bedrock exposures are rare due to the thick mantle of glacial deposits (till, lacustrine and glacio-fluvial materials). The potential for acid rock drainage and metal leaching in this section of the pipeline route is mixed. Moderate to high potential exists in the vicinity of the Equity Silver Mine, between kilo post 150 and kilo post 250. The remainder of the area rated as moderate with the exception of the section between kilo post 310 to kilo post 462, which has low potential.

Hydrology and Groundwater

Hydrological and groundwater conditions along the pipeline route vary.

Between approximately kilo post 0 and kilo post 17 the main landform is the Kitimat River estuary and floodplain, a broad low-relief plain within a few metres of sea level. Main creeks entering from the west side of the valley include Little Wedeene River (proposed crossing at kilo post 13), Raley Creek, and the Wedeene River (proposed crossing at kilo post 17). Hicks Creek and Chist Creek (proposed crossing at kilo post 39) are located on the east side of the valley. Upstream of the proposed crossings, the Wedeene and Little Wedeene rivers are single-channel winding watercourses with occasional vegetated islands.

Downstream of the proposed crossings, both rivers meander and are subject to channel shifting and avulsion. The proposed crossing of Chist Creek is located along a single-channel reach. Upstream and downstream of the proposed crossing, Chist Creek is subject to channel shifting. In addition to these major crossings, the proposed right-of-way crosses many unnamed streams, most of which are single-channel winding creeks fed from headwaters in the surrounding benches and mountain slopes.

The groundwater table is typically within 1 or 2 metres of the ground surface adjacent to a water body. Between waterbodies the groundwater table is expected to be two or more metres below the ground surface and typically mirrors the topography, although in a more subdued manner. Because this region is so close to sea level, drainage on the valley bottom is generally poor. Many wetlands, swamps and marshlands exist along the estuary and the occurrence of glaciomarine clays at surface or at depth contributes to the poor drainage in the area. Springs and seepage zones are expected to be common, especially on the lower portions of the valley walls.

From kilo post 35 to kilo post 40, the pipeline route crosses an extensive, flat, pro-glacial sand and gravel delta. Borehole logs indicate that the groundwater table is likely 5 to 10 metres below the ground surface. From kilo post 42 to approximately kilo post 113, the pipeline route crosses relatively narrow river floodplains, alluvial fans, colluvial aprons, and benches of glacial till.

The groundwater table in this area of the pipeline is typically within 1 or 2 metres of the ground surface adjacent to a water body. Between waterbodies the groundwater table is expected to be two or more metres below the ground surface and typically mirrors the topography, although in a more subdued manner.

From approximately kilo post 113 to the terminus of the pipeline route at kilo post 462.5, the route crosses the Nechako and Fraser Basin. The groundwater table in this area is typically within 1 or 2 metres of the ground surface adjacent to a water body. Between waterbodies the groundwater table is expected to be two or more metres below the ground surface and typically mirrors the topography, although in a more subdued manner.

Palaeontological Resources

Palaeontological resources comprise fossils or other evidence of ancient life; including plants, animals, and single-celled organisms (this is distinct from archaeological resources).

A palaeontological assessment was conducted of the pipeline right-of-way. The study confirmed that the pipeline route passes through local areas of good palaeontological potential, although the pipeline route overall is of low potential. The study recommended field checks of 8-14 locations in the Terrace-Kitimat corridor and 9-11 locations in the Interior Plateau region of the corridor.

Natural Hazards

The pipeline route is susceptible to a range of natural hazards, including flowslides, soil slides, debris flows and rockslides.

Glaciomarine deposits in the Kitimat River Valley between kilo post 0 and kilo post 27 have contributed to large retrogressive flows slides on low slope angles (<10°). Poor drainage in lowland areas, high pore pressures in fine sand strata and discontinuous lenses in between the clay layers, active down-cutting of stream channels through the clays, and zones of groundwater discharge are the main contributing factors to slope failures in these soils. An earth flow occurred in this general area at Mink Creek, approximately 6 kilometres southwest of the Terrace airport, in December 1993. Two other large earth flows occurred in 1962 on the eastern side of Lakelse Lake. The proposed pipeline route does not traverse these locations.

Large soil slides in fine-grained glacial till are also possible in the area between kilo post 13 and kilo post 42. These slides typically can occur on slopes greater than 20 degrees in fine-grained glacial till and colluvium. A slide of this type occurred in 1991 along the existing PNG pipeline, 3 kilometres south of the Highway 3 crossing of the Kitimat River. The slope failure may have been triggered by high pore pressures following an unusually wet winter. The proposed pipeline route does not traverse this location.

At kilo post 49, kilo post 61, and from kilo post 70 to kilo post 74, a number of mountain streams subject to debris flow cross the proposed right-of-way and have built colluvial cones onto the valley floor. Debris flow activity has occurred near kilo post 73 within the past 5 years. Debris flows, often called "washouts" and "mudslides", generally begin on an open slope as a debris slide but are often channelled in an existing creek gully where they can entrain a significant amount of water. They can transport a considerable amount of material (soil, rock, and trees) and are capable of floating and transporting large boulders, concrete and unsecured bridge abutments.

In the more mountainous portions of the pipeline route between kilo post 69 and kilo post 95, rock slides are a hazard. The proposed pipeline corridor has been routed around two large, dormant, rock slides in volcanic rocks within the Clore River Valley between kilo post 89 and kilo post 95. This area of the Coast Mountains has recently experienced three large rock avalanches: Howson (1999), Zymoetz (2002), and Harold Price (2002). The Howson rock avalanche severed the existing PNG pipeline in the Telkwa pass and the Zymoetz rock avalanche severed the PNG pipeline 22 kilometres southeast of Terrace.

Contributing factors to these rock slides are oversteep slopes remaining from the last glaciation, unfavourable bedrock structure, and in case of the volcanic rocks, relatively weak and weathered bedrock. Regional groundwater flows may also contribute to the (re-) activation of these large rock slides by elevating the pore pressures along the unfavourable bedrock structures. Stabilisation of these large rock slides is not practical mainly due to excessive cost and challenging access. The recent cluster of rock slides in this area also suggests that they may be the result of other global factors such as climate change. Glaciers are melting and may be debutressing new slopes and creating unstable slope conditions. Degrading alpine permafrost and increased average precipitation may also be causal factors to these recent events.

In the Nechako Plains section of the pipeline route between kilo post 270 and kilo post 462.5, the occurrence of clayey (medium to high plastic) glaciolacustrine silts can be problematic for slope stability and a nuisance for construction. These glaciolacustrine soils are typically 50% to 80% clay, 20% to 50% silt, and 55% to 10% fine sand. The bedding planes within these soils have been pre-sheared by glacial activity and this can contribute to deep-seated earth slides. Steep cut slopes, intense precipitation events, uncontrolled surface water, and groundwater seepage are other factors that can combine with these soils to trigger small to medium earth slides. The proposed right-of-way in this section does not cross any identified active earth slides. However, the following sections of the pipeline route may be susceptible to construction triggered erosion and earth slides because the pipeline traverses or is adjacent to steep natural slopes: Kilo post 343 to kilo post 408 (east of Fraser Lake, on left (north) bank of the Nechako River); kilo post 436 to kilo post 438 (around the Salmon River 1 crossing); and kilo post 455 to kilo post 457 (around the Salmon River 3 crossing).

2.1.2 Project Effects Identified in the Application and Proposed Mitigation

In the Application and supplemental materials, the Proponent assessed the potential for environmental effects of each phase of the Project on the geophysical environment, and proposed measures to mitigate these potential effects.

Potential Effects and Proposed Mitigation

Project activities associated with clearing, construction and restoration, including blasting, grading, trenching, soil storage, infilling, slope stabilization trenching may have the following effects on the geophysical environment:

- alteration of local topography and localized soil instabilities;
- groundwater erosion;
- surface water erosion;
- earth, debris and rock flows and slides;
- loss of topsoil through wind and water erosion;
- lowering of soil capability caused by soil mixing, compaction and rutting;
- disturbance of palaeontological resources;
- impacts on other parallel linear developments; and,
- exposure of acid generating rock and rock subject to metal leaching.

Project operations and maintenance may have the following effects on the geophysical environment and soils:

- soil erosion along the right-of-way;
- minor terrain instabilities; and,
- soil compaction, trench subsidence, and lowering of soil capability.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential effects on the geophysical environment, including the following:

Terrain and Soil Instabilities

- geotechnical engineering expertise was engaged during route selection to ensure that areas susceptible to debris/earth slides were identified and avoided to the extent feasible;
- for cuts greater than 10 metres in height, or where fine-grained soils are anticipated, soil cut slope design and support provisions should be designed and then refined by a qualified registered professional during construction in advance of the road/right-ofway heading. The primary purpose of this effort is to minimize the potential for cut slope failures that could impact the environment or impact worker safety and disrupt the construction schedules;
- minimise ground excavation and travel along or adjacent to soil slopes immediately
 after or during periods of intense precipitation during October and November prior to
 freeze up, in the spring during spring thaw and during August thunderstorm season;
 and,
- post slide mitigation will be designed to maximize slope stability, minimise further erosion and downstream impacts such as sedimentation of watercourses.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential terrain and soil instabilities, see Application Section 7.2.1.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project for terrain and soil instabilities, after the application of mitigative measures:

- alteration of local topography and minor, localized instabilities that may occur in fill material from right-of-way grading;
- minor trench subsidence or a crown may remain over the ditch line; and,
- areas of minor terrain instability may occur.

These residual effects are considered to be reversible in the medium-term, of medium magnitude, and are deemed to be less than significant.

Surface and Groundwater Erosion

- as a pipeline trench infilled with coarse/disturbed backfill tends to attract natural groundwater flows, pipeline design along right-of-way slopes will include designs to re-direct surface water away from the right-of-way, re-direct groundwater in the trench to the surface and to the margins of the right-of-way and into existing drainage courses;
- surface water and groundwater control in the form of ditches, cross ditches, re-contouring, re-vegetation, drains, and berms on the access roads and along the right-of-way will be incorporated in the pipeline design as determined by a qualified and experienced geoscientist or engineer; and,
- minimise ground excavation and travel along or adjacent to soil slopes immediately
 after or during seasons of intense precipitation such as October and November prior to
 freeze up, in the spring during spring thaw and during August thunderstorm season.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential effects for surface and groundwater erosion, see Application Section 7.2.1.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project on for surface and groundwater erosion, after the application of mitigative measures:

• no residual effects were identified.

Soil Capability

- salvage the total thickness of topsoil to a maximum depth as indicated on the Environmental Work Sheets. An Environmental Inspector will provide interpretation based on the Soils Assessment Report;
- salvage duff and upper root zone material to a maximum of 15 centimetres to 20 centimetres using the Environmental Work Sheets as a guide;
- salvage, store, and subsequently replace separately the topsoil or root zone material from subsoil wherever grading occurs; and,
- store spoil material over the existing PNG pipeline only under conditions where the spoil can be completely returned during final clean-up.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential effects on soil capability, see Application Section 7.2.1.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project on soil capability, after the application of mitigative measures:

- minor mixing of topsoil or root zone material with subsoil will likely occur; and,
- loss of topsoil or root zone material through wind and water erosion.

These residual effects are considered to be reversible in the short-term, of low magnitude, and are deemed to be less than significant.

Natural Hazards

- geotechnical engineering expertise was engaged during route selection to ensure that areas of potential terrain instability were identified and avoided to the extent feasible;
- for cuts greater than 10 metres in height, or where fine-grained soils are anticipated, soil cut slope design and support provisions should be designed and then refined by a qualified registered professional during construction in advance of the road/right-ofway heading. The primary purpose of this effort is to minimize the potential for cut slope failures that could impact worker safety and disrupt the construction schedules, and impact to the environment; and,
- stabilisation of large rock slides is generally not practical mainly due to excessive cost and challenging access. Therefore avoiding the rock slides altogether and understanding their causes in order to avoid additional rock slide susceptible terrain are typically the best risk management techniques for pipeline routing.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential effects related to natural hazards, see Application Section 7.2.1.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project related to natural hazards, after the application of mitigative measures:

• no residual effects were identified.

Palaeontological Resources

- undertake the examination of specified gravel pits prior to construction to allow determination of palaeontological resource value and to develop appropriate mitigation strategies;
- monitor trenching activities where warranted; and,
- where discoveries are made, engage the resource specialist to assist in determining the appropriate sampling procedures, if warranted.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential effects on palaeontological resources, see Application Section 7.2.1.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project on palaeontological resources, after the application of mitigative measures:

no negative residual effects were identified.

Acid Rock Drainage and Metal Leaching

- an assessment has been made to classify and determine the boundaries of the potential acid rock drainage/metal leaching zones along the KSL pipeline route. Where warranted, a verification program will be undertaken to help develop specific construction stage monitoring and/or mitigation plans within each zone, where there is a high acid rock drainage/metal leaching potential;
- areas of the pipeline that will cross colluvium or require rock excavations would include varying degrees of field inspections (assuming favourable access and logistics), mapping and sampling for laboratory testing of acid rock drainage and metal leaching properties. Sampling frequency and testing requirements will be more onerous for the high zones and less onerous for those areas considered to have moderate potential for acid rock drainage/metal leaching;
- general recommendations for each of the identified zones include:
 - high potential: relatively closely spaced sampling to achieve representative material based on volume of each lithological unit to be excavated, detailed acid base accounting, solids chemistry and leach extraction analyses, potential testing of 'effective' buffering capacity and kinetic characteristics;
 - moderate potential: adequate sampling to confirm classification and be considered representative of lithology to be encountered, detailed acid base accounting, solids chemistry and leach extraction analyses; and
 - low potential: limited to no sampling to confirm classification, analysis of indicator parameters such as sulphur and inorganic carbon; and,

 rock with high acid rock drainage/metal leaching potential that has been excavated will require engineered containment to minimise its impacts on the environment. These containment facilities will require monitoring and maintenance.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential effects for acid rock drainage and metal leaching, see Application Section 7.2.1.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project for acid rock drainage and metal leaching, after the application of mitigative measures:

• no residual effects were identified.

2.1.3 Issues Raised During Application Review and Proposed Mitigation The following key issues concerning potential effects of the Project on the geophysical environment were raised by the public, government agencies and First Nations during the EA:

1. Erosion control measures need to be supported by a minimum of two years sediment control monitoring.

Proponent Response: the Proponent has made a new commitment to provide the Environmental Stewardship Division, Ministry of Environment, Omineca Region with an opportunity to review and comment on their draft Post Construction Monitoring Plan.

2. Erosion control measures need to be implemented and maintained on upslope areas, and sediment laden water must be pumped and discharged onto stable vegetation located a minimum of 5 metres from any flowing watercourse or wetland. The discharge points should be monitored to ensure that mass wasting does not occur as a result of water loading on the local soils.

Proponent Response: the Proponent has made a new commitment to include the terminology "and maintain" when referring to erosion control measures in all their Environmental Protection Plans and all Environmental Monitoring Plans. The Proponent has also made new commitment to ensure that all sediment laden water to be pumped will be discharged onto stable vegetation located a minimum of 5 metres from any flowing watercourse or wetland, and that discharge points will be monitored to ensure that mass wasting does not occur as a result of water loading on the local soils. 3. Further assessment of the erosion potential of soils for the western portion of the pipeline route is required, given the occurrence of steep slopes, large logged off areas, terrain instabilities and the potential for natural hazards.

Proponent Response: the Proponent has made a revised commitment to undertake additional terrain stability investigations as part of project design following certification. Should areas of instability be identified, they will be subject to further geotechnical investigations which may lead to engineering design solutions or local route adjustments.

4. A site stability field assessment and geotechnical risk assessment of the Project, including the pipeline route and new and upgraded access roads, is required, especially in the Upper Kitimat Valley and areas of similar characteristics. Additional terrain assessment work is also required where there are creeks with substantial flood flows, for all route sections with hillslopes of greater than 50%, or greater than 30% where there are important resources less than 100 metres down slope, and at kilo post 26 and kilo post 35 where there is evidence of land failures and sloughing.

Proponent Response: as noted under Issue #3, the Proponent has made a revised commitment to undertake additional terrain stability investigations as part of project design following certification. Should areas of instability be identified, they will be subject to further geotechnical investigations which may lead to engineering design solutions or local route adjustments. This commitment encompasses additional terrain and geotechnical investigations for the landscapes mentioned.

5. Pipeline trenching and access road construction may intercept and divert surface or subsurface water and cause drainage water concentrations, creating risk of landslides.

Proponent Response: the Proponent has made a revised commitment to undertake additional terrain stability investigations where warranted as part of the project design and this work will assist in determining where surface and subsurface flows may pose a risk to landslide activity and to the appropriate mitigation measures.

A complete list of issues concerning potential effects of the Project on the geophysical environment identified by the public, government agencies and First Nations during the Application review stage of the Project's EA, and the Proponent's response to these issues, is contained in **Appendices C and D** of this Report.

2.1.4 Conclusion on Effects and Mitigation

During the Project EA, the EAO and the Responsible Authorities have considered: the Application; additional Project review material listed in **Appendix A**; public, government agency and First Nations comments on the potential effects of the Project; the advice of technical experts from provincial and federal agencies; discussions of the Working Group; and the Proponent's commitments to undertake measures to mitigate potentially adverse effects of the Project.

Based the above, the EAO concludes that all potential adverse effects of the Project on geophysical environment that were identified by the public, provincial and federal government agencies and First Nations have been satisfactorily addressed by the Proponent's responses and commitments to undertake mitigation measures, and that none will result in significant residual effects.

Accordingly, provided that the Proponent undertakes the mitigation measures indicated above and implements the actions described in the Compendium of Proponent Commitments listed in **Appendix E** (particularly Section 3), the EAO concludes that the Project will not result in significant adverse effects geophysical environment.

The Responsible Authorities have not yet made a determination on the likelihood of significant adverse environmental effects arising from the project after mitigation significance on geophysical environment. This process will continue with a comprehensive study review under CEAA.

2.2 Atmospheric Environment

2.2.1 Background

Climate

The pipeline route traverses three Ecoprovinces, or areas with consistent climate: the Coast and Mountains Ecoprovince (kilo post 0 to kilo post 93.5), the Central Interior Ecoprovince (kilo post 93.5 to kilo post 320), and the Sub Boreal Interior Ecoprovince (kilo post 320 to kilo post 462.5).

The climatic processes of the Coast and Mountains Ecoprovince are influenced by its adjacency to the Pacific Ocean. Frontal systems arrive from the Pacific Ocean and move over the steep coastal mountains before reaching the central interior.

The Central Interior Ecoprovince is characterized by a flat topography and distinct seasons. Situated on the leeward side of the Coast Mountains, the climate is characterized by colder winters, warmer summers, and a rainy season during the late spring and early summer months.

The Sub Boreal Interior Ecoprovince is less influenced by moist Pacific Ocean air and can be defined as having a continental climate with warm summers and cold winters. Arctic air frequently dominates during the winter and early spring. This cold air brings heavy snowfall to areas of high elevation.

Air Quality

Air quality is determined by the character and volume of emissions, regional topography, and the weather conditions in the area.

The mountainous topography surrounding Kitimat and Terrace creates an airshed historically sensitive to air emissions generated by human activities, including industrial processes. The air emission contaminants of concern to human health in the Kitimat area are particulate matter (PM10 and PM2.5), nitrogen oxides (NO and NO2), sulphur dioxide, total reduced sulphur, hydrogen fluoride, and polycyclic aromatic hydrocarbons. Notable emissions are those associated with the Alcan aluminium smelter and the Eurocan paper mill, the Kitimat industrial centre at the southern end of the Kitimat River Valley. In the summer, valley haze

can occur and prevailing inflow (southerly) winds blow plumes from the industrial centre northwards toward Terrace.

The most common air pollutants in the Bulkley Valley-Lakes District airshed, which includes the communities of Smithers, Telkwa, Houston, and Burns Lake, are fine particulates (PM_{10} and $PM_{2.5}$). The Bulkley Valley-Lakes District Airshed Management Plan identifies beehive burners, debris burning, residential and commercial space heating, and road dust as sources of fine particulates. Springtime peaks in ambient particulate levels are common to each community in the Bulkley Valley-Lakes District airshed, possibly due to an increase in road dust as the streets thaw and sand is released from the ice and entrained into the atmosphere. The pipeline route is located in a high smoke sensitivity area at the Highway 35 crossing (approximately kilo post 245), and along the 700 Road and Highway 16 (approximately kilo post 250 to kilo post 275).

In the Omineca Region, which includes Vanderhoof, Prince George, and Summit Lake, the most common air pollutants are fine particulates (PM_{10} and $PM_{2.5}$), total reduced sulphur, and sulphur dioxide. Road dust and industrial activity, including sawmills, pulpmills, and beehive burners, and woodstoves are the main sources of fine particulates. Oil and gas refineries, sewage treatment facilities, and automobile catalytic converters also generate total reduced sulphur. Air quality tends to deteriorate through the winter when temperature inversions are stronger, there are more emission sources (i.e. wood stoves), and pollutants that are otherwise broken down by the longer hours of solar radiation during the rest of the year, persist through the shorter winter days.

Although the air quality in the Project regional study area varies between airsheds, the primary pollutants that are monitored because of their ill effects on human health and widespread distribution include:

- PM10 (suspended particulate matter less than 10µm in diameter);
- PM2.5 (suspended particulate matter less than 2.5µm in diameter);
- Ozone;
- Sulphur dioxide (SO₂); and,
- Nitrogen dioxide (NO₂).

Greenhouse Gas Emissions

Greenhouse gas emissions² have a global effect that cannot easily be measured on a local or regional scale.

To assess greenhouse gas emissions in accordance with the CEA Agency document Incorporating Climate Change Considerations in Environmental Assessment: General Guidance for Practitioners, the Proponent collected information regarding provincial and national greenhouse gas inventories as well as the industry profile of emissions. The Environment Canada Report on Canada's Greenhouse Gas Inventory indicates that in 2004, Canada emitted approximately 758 million tonnes of greenhouse gases, of which

² Greenhouse gases other than CO₂ are generally quantified in terms of CO₂ equivalence. The equivalence factor has generally been agreed to be the relative global warming potential of the gas as estimated by the Intergovernmental Panel on Climate Change, the major international scientific body that is co-ordinating research on the climate change issue.

approximately 66.8 million tonnes were generated in BC. Emissions from the transportation and distribution of crude oil, natural gas, and other products in Canada are reported to be 8.52 million tonnes of greenhouse gases in 2004. In BC, the same industry released approximately 1.12 million tonnes of greenhouse gases in 2004.

2.2.2 Project Effects Identified in the Application and Proposed Mitigation

In the Application and supplemental materials, the Proponent assessed the potential for environmental effects of each phase of the Project on the atmospheric environment, and proposed measures to mitigate these potential effects.

Potential Effects and Proposed Mitigation

Project activities associated with clearing, construction and restoration may have the following effects on the atmospheric environment:

- greenhouse gas emissions, such as carbon monoxide, sulphur dioxide, nitrogen oxides, and volatile organic compounds. From combustion of fossil fuels associated with the transport of equipment and material to the pipeline construction site, the operation of heavy equipment, and the temporary and longer-term clearing of site vegetation (in particular, forest cover) and changes to land-use and vegetative cover;
- dust generated by construction traffic on the right-of-way and unpaved access, roads and from blasting, and,
- smoke from slash burning associated with the removal of trees and vegetation.

Project operations and maintenance may have the following effects on the atmospheric environment:

- fugitive greenhouse gas emissions from pipeline operations;
- greenhouse gas emissions from Compressor Station operations; and,
- emissions of common air contaminants (i.e. Nox, NO₂, TSP, PM10, PM2.5, CO, and VOC) and schedule 1 substances (i.e. acetaldehyde, benzene, formaldehyde, and PAH) from Compressor Station operations.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential effects on the atmospheric environment, including the following:

Greenhouse Gas Emissions

- consider fuel economy when purchasing, upgrading, and maintaining the vehicle fleet;
- use well-maintained equipment to minimize emissions;
- maximize equipment use when running and minimize unnecessary idling of equipment;
- use multi-passenger vehicles to transport crew to site to the extent practical to limit the amount of traffic and accompanying emissions;
- adhere to the Air Quality and Dust Control Plan; and,
- minimize the amount of greenhouse gas emissions associated with clearing of vegetation by following existing linear disturbances where feasible.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential effects on greenhouse gas emissions, see Application Section 7.2.2.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project on greenhouse gas emissions, after the application of mitigative measures:

- fugitive greenhouse gas emissions from pipeline operations; and,
- greenhouse gas emissions from Compressor Station operations.

These residual effects are considered to be of low magnitude and are deemed to be less than significant.

Air Emissions and Dust

- apply water to exposed soil piles if wind erosion occurs;
- apply water to the Project footprint during dry conditions at intersections and near residences and other sensitive areas;
- control vehicle speeds to reduce traffic-induced dust dispersion and resuspension from the operation of heavy vehicles;
- post speed limit signs in sensitive areas;
- ensure trucks hauling sand, dirt, or other loose materials are covered; and,
- adhere to the Air Quality and Dust Control Plan to be developed prior to construction.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential effects on air emissions and dust, see Application Section 7.2.2.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project on air emissions and dust, after the application of mitigative measures:

- short-term increase in vehicle emissions from construction equipment;
- short-term increase in dust arising from construction traffic; and,
- emissions of common air contaminants from compressor station operations.

These residual effects are of low magnitude, reversible in the short-term except for compressor station emissions which will continue for the life of the project, and deemed to be less than significant.

<u>Smoke</u>

- conduct burning in compliance with local government bylaws, the BC Open Burning Smoke Control Regulation, and the Forest Fire Prevention and Suppression regulation;
- prior to burning, explore options to reduce, reuse, or recycle as much material as possible; and,
- adhere to the Air Quality and Dust Control Plan.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential effects related to smoke, see Application Section 7.2.2.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project related to smoke, after the application of mitigative measures:

• no residual effects were identified.

2.2.3 Issues Raised During Application Review and Proposed Mitigation

The following issue concerning potential effects of the Project on the atmospheric environment were raised by the public, government agencies and the First Nations during the EA:

1. Greenhouse Gas Emissions.

Proponent Response: the Proponent noted in the EA Application (Section 7.2.2) that the residual affects of the Project on Green House Gas emissions, during all project phases, including operation of the compressor station, would be less than significant.

No other significant issues concerning potential effects of the Project on the atmospheric environment were identified by the public, government agencies and First Nations during the Application Review stage of the Project's EA.

2.2.4 Conclusion on Effects and Mitigation

During the Project EA, the EAO and the Responsible Authorities have considered: the Application; additional Project review material listed in **Appendix A**; public, government agency and First Nations comments on the potential effects of the Project; the advice of technical experts from provincial and federal agencies; discussions of the Working Group; and the Proponent's commitments to undertake measures to mitigate potentially adverse effects of the Project.

Based the above, the EAO concludes that all potential adverse effects of the Project on atmospheric environment that were identified by the public, provincial and federal government agencies and First Nations have been satisfactorily addressed by the Proponent's responses and commitments to undertake mitigation measures, and that none will result in significant residual effects.

Accordingly, provided that the Proponent undertakes the mitigation measures indicated above and implements the actions described in the Compendium of Proponent Commitments listed in **Appendix E** (particularly Section 3), the EAO concludes that the Project will not result in significant adverse effects atmospheric environment.

The Responsible Authorities have not yet made a determination on the likelihood of significant adverse environmental effects arising from the project after mitigation significance on atmospheric environment. This process will continue with a comprehensive study review under CEAA.

2.3 Aquatic Environment and Fisheries

2.3.1 Background

Fish and Fish Habitat

Based on both existing information and field work, the Proponent identified a total of 37 fish species and subspecies are present in the Project area. The 16 species included in the Fish and Fish Habitat Valued Environmental Components for the Project are listed below.

Species	Reason for Selection
White sturgeon	Fisheries Act, BC Red (G4T1QS1), COSEWIC (E)
Bull trout	Fisheries Act, BC Blue (G3S3), LRMPs
Coastal cutthroat trout	Fisheries Act, BC Blue (G4T4S3S4)
Dolly Varden	Fisheries Act, BC Blue (G5S3S4), LRMPs
Eulachon	Fisheries Act, BC Blue (G5S2S3), LRMPs
Summer steelhead trout	Fisheries Act, Regionally Important Wildlife
Chinook salmon	Fisheries Act, LRMPs
Chum salmon	Fisheries Act, LRMPs
Coho salmon	Fisheries Act, LRMPs
Pink salmon	Fisheries Act, LRMPs
Rainbow trout	Fisheries Act, LRMPs
Sockeye salmon	Fisheries Act, LRMPs
Kokanee	Fisheries Act, LRMPs
Burbot	Fisheries Act, LRMPs
Whitefish	Fisheries Act, LRMPs
Winter steelhead trout	Fisheries Act, LRMPs

TABLE 1 – Fish and Fish Habitat Valued Environmental Components

The pipeline route crosses four major watersheds:

- Kitimat watershed. A total of 45 stream crossings occur in this watershed between kilo post 0 and kilo post 74, including crossings of Duck Creek, Goose Creek, Little Wedeene River and wetland, Wedeene River, Trout Creek, Cecil Creek, Chist Creek and Hunter Creek;
- Skeena watershed. Includes the Zymoetz (Copper) watershed and Bulkley Watershed. There are four stream crossings in the Zymoetz watershed between kilo post 80 and kilo post 104, including crossings of Zymoetz River and Burnie River. There are a total of 31 stream crossings in the Bulkley watershed between kilo post 104 and kilo post 174 and between kilo post 195 and kilo post 214, including crossings of Gosnell Creek, Crystal Creek, Morice River, Cedric Creek, Lamprey Creek, Fenton Creek and Owen Creek;

- Fraser watershed. Includes the Nechako watershed and Stuart watershed. There are 39 stream crossings in the Nechako watershed between kilo post 174 and kilo post 195 and between kilo post 214 and kilo post 362, including crossings of Parrot Creek, Allin Creek, Tchesinkut Creek, Sam Ross Creek, Endako River, Stern Creek, Ormond Creek, Dog Creek, Nine Mile Creek, Kluk Creek, Halsey Creek, Trankle Creek and Clear Creek. There are five stream crossings in the Stuart watershed between kilo post 174 and kilo post 195 and between kilo post 362 and kilo post 408, including crossings of Stuart River, QH Creek, Breadalbane Creek and Chinohchey Creek. There are also 14 stream crossings elsewhere in the Fraser watershed between kilo post 174 and kilo post 195 and between kilo post 408 and kilo post 454, including Crocker Creek and three crossings of Salmon River; and,
- Peace watershed. There are four stream crossings in this watershed between kilo post 454 and kilo post 462.5, including crossings of Balsam Creek, Echo Creek, Thorpe Creek and Miller Creek.

The Proponent assessed a total of 589 potential watercourse pipeline and access road crossing locations, based on existing mapping or field inventory. It was determined that 109 watercourse crossings are fish-bearing, and that 39 streams require further field assessment to determine whether they are fish-bearing or non-fish-bearing. Streams requiring further assessment have been treated as fish-bearing until shown otherwise.

The Proponent has assigned watercourse crossings a sensitivity rating of Low, Moderate or High, based on:

- fish presence or absence;
- diversity of fish species and life stages present;
- average habitat potential to support fish at the time of sampling; and,
- potential for habitat to support fish at other times (e.g. winter low-flow).

The Proponent developed a biologically-based instream work window for each watercourse crossing by considering fish-bearing status, species present, life stages present, life history timing, and habitat types within the zone of influence, in discussion with the Department of Fisheries and Oceans and the Ministry of Environment (MOE). Where instream work will occur outside biologically based work windows, additional mitigation measures will be employed. A habitat compensation plan will be developed as necessary.

Proposed stream crossing construction methods and techniques for pipeline and access road watercourse crossings are based on instream work windows, regulatory requirements, physical constraints and project construction scheduling needs. Four types of stream crossing techniques are proposed:

- 1. <u>open cut</u> with or without sediment control is proposed for non-fish bearing stream crossings only;
- flow isolation during low flow periods is proposed for the majority of fish-bearing stream crossings. Flow isolation construction techniques involve temporary diversion around the worksite and are governed by section 44 of the *BC Water Act* and subsection 35(2) of the federal *Fisheries Act*;

- <u>horizontal directional drilling</u> is proposed at nine crossing locations (subject to favourable geotechnical investigations): Little Wedeene River, Wedeene River, Chist Creek, Unnamed Creek at kilo post 109.3, Gosnell Creek side channel at kilo post 109.8, Gosnell Creek, Morice River, Endako River and Stuart River and three crossings of the Salmon River; and,
- 4. <u>aerial crossing</u> of the Clore River is proposed because the crossing is located in a narrow ravine.

For each steam crossing, the Proponent has identified primary and alternate stream crossing techniques.³ The Department of Fisheries and Oceans will only be issuing *Fisheries Act* 35(2) authorizations of the primary method. Authorization of the alternate will only be considered when all attempts at using the primary techniques have failed.

Surface Hydrology

The Water Survey of Canada maintains a hydrologic database for its hydrometric recording stations throughout the region. The Water Survey of Canada hydrometric data is available at 33 hydrometric stations in the hydrologic sub-zones along the pipeline route. A surface water hydrologic baseline was prepared from the Water Survey Canada data and consists of:

- regional peak flows for the 100-year and 200-year return periods for each of the hydrologic sub-zones;
- minimum, mean and maximum monthly flow equations for each of the three hydrologic sub-zones; and,
- flow-duration curves of daily flows at key Water Survey Canada stations and for select months corresponding to the proposed construction window. Monthly flow duration curves were also prepared for each of the hydrologic sub-zones.

The design criteria for the pipeline and access road crossings stipulates design floods with return periods of either 1:100 or 1:200 years.

Water Quality

Water quality parameters including conductivity, water temperature, and pH were measured at all watercourse crossings. A visual assessment of water clarity was also recorded.

Water quality deterioration resulting from previous land use activities in the Local Study Area is difficult to determine, as there is insufficient baseline water quality data available to assess geographic or temporal trends. It can be assumed that the quality of water in waterbodies down slope from agriculture, industry, forestry operations, settlements, and highways and roads may be affected by these land uses. The greatest concentration of agricultural land in the Local Study Area is located between kilo post 330 and kilo post 336. The pipeline route crosses two properties identified as industrial lands, the Methanex Plant between kilo post 0 and kilo post 1.8 and the Kitimat Service Centre between kilo post 3 and kilo post 4.6. The largest human settlement area crossed by the pipeline route is the Town of Kitimat. Forestry activities occur throughout the Local Study Area and therefore are the greatest potential impact to water quality.

³ The Proponent's full list of primary and secondary stream crossing techniques is set out in the Application in Table 6.3-3.

2.3.2 Project Effects Identified in the Application and Proposed Mitigation

In the Application and supplemental materials, the Proponent assessed the potential for environmental effects of each phase of the Project on the aquatic environment and fisheries, and proposed measures to mitigate these potential effects.

Potential Effects and Proposed Mitigation

Fish and Fish Habitat

Project activities associated with the clearing, construction, and restoration of the Project area, and Project operations and maintenance, will interact directly or indirectly with fish and fish habitat, and will result in the following potential effects:

- 1. direct and indirect mortality of fish;
- 2. loss or degradation of instream fish habitat;
- 3. loss or degradation of riparian habitat;
- 4. loss or degradation of habitat connectivity; and,
- 5. interbasin transfer of aquatic organisms.

1. Direct and Indirect Mortality to Fish

During the clearing, construction, and restoration phases of the KSL Project, direct and indirect mortality to fish may occur as a result of blasting, hydrocarbon spills, entrainment at water intakes, instream construction activities, and increased fishing pressure.

During the operations and maintenance Project phase, maintenance of the travel corridor will also potentially result in increased access to fish-bearing streams. Increased access can result in greater levels of fishing pressure on fish species.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential direct and indirect effects to fish mortality, including the following:

- use isolation techniques on pipeline watercourse crossings as indicated in the EA Application;
- adhere to instream work windows and minimize instream work period;
- salvage fish from instream construction areas prior to dewatering, trenching, and other construction activities;
- use qualified environmental monitors during all instream construction activities, and follow emergency procedures for all incidents as will be presented in the forthcoming Environmental Protection Plan;
- implement adequate erosion control on upslope areas and non-fish-bearing watercourses, to prevent release of harmful concentrations of suspended sediment to fish-bearing waters;
- follow the Department of Fisheries and Oceans requirements when blasting in the vicinity of watercourses;
- pump intakes, in compliance with Department of Fisheries and Oceans requirements, should not disturb streambeds and should be screened with a maximum mesh size of 2.54 millimetres and approach velocity of 0.038 metres per second;
- water for hydrostatic testing should be removed from streams at no more than 10% of existing flows; and,
- pipeline construction personnel should not fish on the worksite.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential direct and indirect effects to fish mortality, see Application Section 7.2.3.

Significance of Residual Effects

The Proponent identified and assessed the following direct and indirect residual effects of the Project to fish mortalities, after the application of mitigative measures:

instream construction activities will cause fish mortalities.

Fish salvage efficiency is anticipated to be sufficiently high at all instream sites that this residual effect to fish mortalities is deemed to be less than significant.

2. Loss or Degradation to Instream Fish Habitat

During the clearing, construction and restoration phases of the KSL Project, disturbance of instream habitat will occur at the majority of pipeline crossings, since trenching of the watercourse will be required to complete most crossings. Habitat may be altered either by physical alteration of instream habitat at crossing sites, or by physical alteration of instream habitat through sediment release at pipeline or vehicle crossings. Ten crossings are intended to be completed using horizontal directional drilling or aerial techniques; these crossings will require no instream work and therefore have no effect on instream habitat. On crossings requiring a buried pipeline, mitigation and restoration will offset most impacts to instream fish habitat, by controlling suspended sediment releases, restoring or maintaining streambank stability, and restoring or creating instream cover at all fish-bearing crossings. Instream habitat at all fish-bearing stream crossings will be restored with the intent of replicating or improving existing conditions.

Project operations and maintenance may require instream activity if emergency situations occur where the pipeline becomes exposed.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential loss or degradation of instream fish habitat, including the following:

- minimize the number of watercourse crossings by adopting environmental objectives during route selection. Where feasible avoid important instream habitats;
- select vehicle and pipeline crossing methods that reduce direct and indirect effects on productive fish habitat;
- adhere to instream work windows and minimize instream work period;
- implement adequate erosion control on upslope areas and non-fish-bearing watercourses, to prevent release of harmful concentrations of suspended sediment to fish-bearing waters;
- welding, coating, weighting, and where applicable, testing, of the pipe should be completed prior to commencement of instream trenching;
- crossings should commence only after ensuring that sufficient equipment and supplies are available to complete the crossing in an efficient and timely manner;
- isolate instream construction areas where surface flow is present (on both fish-bearing and non-fish-bearing watercourses) and implement measures to reduce downstream sediment input, as discussed in the Environmental Protection Plan.

- salvage streambed surface material for return to top layer of streambed during backfilling;
- salvaged surface material should be placed above the high water mark in a manner that does not block drainage or runoff;
- excavated instream materials should be contained using appropriate techniques (e.g. berms, silt fences or straw bale filters), to ensure that sediment-laden water and spoil do not re-enter the waterbody;
- water from flumes, pump-arounds, diversions, or other methods should be released to downstream areas using dissipation structures, to avoid causing erosion or sediment release;
- sediment-laden trench water should be pumped onto stable surfaces in a manner that does not cause erosion of soils or release of suspended sediments to watercourses;
- hard ditch plugs at least 3 metres wide should be left in place until the crossing has been initiated;
- horizontal directional drilling is proposed to cross fish streams that cannot be isolated;
- use qualified environmental monitors during all stream crossing construction activities, and follow emergency procedures for all incidents as presented in the Environmental Protection Plan;
- restore streambed and banks, based on pre-construction habitat surveys. Restore rearing potential with adequate stream depth and instream structures. Restore spawning areas with gravel placement. Maintain or restore natural drainage and channel configurations;
- where feasible, salvage and return aquatic vegetation and organic debris removed from the construction area following trench backfilling;
- contour and stabilize banks and approach slopes and install temporary berms, silt fences, or cross ditches in locations where run-off may flow into a watercourse; and,
- seed exposed soils with native seed mix prior to spring freshet wherever possible.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential loss or degradation of instream fish habitat, see Application Section 7.2.3.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project on loss or degradation of instream fish habitat, after the application of mitigative measures:

- where crossing constructions occur outside specified work windows sediment release is expected to cause a residual effect to fish habitat; and,
- where open cut crossing methods are used, due to the infeasibility or failure of horizontal directional drilling, sediment release is expected to cause a residual effect to fish habitat.

The Proponent has committed to offset these residual effects using habitat compensation measures, to be developed in consultation with the Department of Fisheries of Oceans, to ensure that the residual effects are less than significant. For the Proponent's Draft Conceptual Compensation Plan for Fish Habitat, see Application **Appendix F**.

3. Loss or Degradation to Riparian Habitat

During the clearing, construction and restoration phases of the KSL Project, impacts to riparian areas may occur at both pipeline and vehicle crossings. Riparian zones form a physical transition zone between aquatic and terrestrial ecosystems, and there are often strong physical and biological interactions between the two. For fish, riparian zones offer three important functions: streambank stability (e.g. roots adhere streambank soils and prevent erosion), instream cover (e.g. large and small woody debris, overhanging vegetation), and food (e.g. contribution to invertebrate drift in streams). Streambank stability and instream cover are important primarily on fish-bearing watercourses; food inputs from riparian areas may be important on both fish-bearing and non-fish-bearing watercourses.

Operational activities along the pipeline route will involve the maintenance of a 3-5 metre wide travel corridor on select sections of the right-of-way. Vegetation on these corridors must be maintained at an early seral stage. Maintenance of the travel corridor will potentially result in loss of riparian vegetation, with concomitant effects on aquatic species.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential loss or degradation of riparian habitat, including the following:

- implement mitigation measures at all watercourse crossings, as summarized above for non-fish-bearing watercourses. Additional mitigation measures for fish-bearing watercourses are presented in the Environmental Protection Plan, and include:
 - postpone clearing of slopes and banks until immediately prior to construction and leave a temporary uncleared buffer zone of 10 metre width as measured from the high water mark;
 - where earlier clearing is necessary, leave the vegetative ground mat and root structure intact;
 - maintain low vegetation or vegetative ground mat within the 10 metre buffer of watercourses to the extent practical by walking, storing, and constructing over the undisturbed areas;
 - pump isolated trench water onto stable surfaces in a manner that does not cause erosion of soils and sedimentation of watercourses;
 - use appropriate restoration techniques (e.g. brush bundles, willow staking, seed with native seed mix, etc.) to enhance recovery of disturbed riparian areas and reduce erosion risk; and,
 - to the extent feasible, use horizontal directional drilling to minimize impact to high value riparian areas.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential loss or degradation of riparian habitat, see Application Section 7.2.3.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project on loss or degradation of riparian habitat, after the application of mitigative measures:

 there will be a residual loss of food inputs from riparian areas at both pipeline and vehicle crossings within the Project footprint area.

The loss of food inputs from riparian vegetation within the Project footprint area is expected to result in only temporary and negligible reductions in food availability for fish and the residual effect is deemed to be less than significant.

4. Loss or Degradation of Habitat Connectivity

During the clearing, construction, and restoration phases of the KSL Project, loss or degradation of habitat connectivity may occur at pipeline or vehicle crossing sites, where these sites become barriers to fish movement.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential loss or degradation of habitat connectivity, including the following:

- adhere to instream work windows and minimize instream work period;
- use qualified environmental monitors during all instream construction activities, and follow emergency procedures for all incidents as presented in the Environmental Protection Plan;
- maintain adequate water flows downstream of instream construction sites;
- water for hydrostatic testing should be removed from streams at no more than 10% of existing flows;
- restore pipeline crossing sites to ensure adequate depth and velocities; and,
- maintain connectivity at all vehicle crossings of fish-bearing watercourses through appropriate construction and installation techniques.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential loss or degradation of habitat connectivity, see Application Section 7.2.3.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project on loss or degradation of habitat connectivity, after the application of mitigative measures:

• no residual effects were identified.

5. Interbasin Transfer of Aquatic Organisms

The KSL pipeline route crosses watercourses in four major watersheds: the Kitimat, Skeena, Fraser, and Peace. It is assumed that many organisms are locally-adapted to conditions in each watershed. Movement and migration likely occurs within each watershed and to some extent among watersheds. Potentially, disease organisms or invasive species can be transferred among watersheds during hydrostatic testing of the pipe or by equipment that is used in stream crossings when it is moved from one stream location to another.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential interbasin transfer of aquatic organisms, including the following:

 for all hydrostatic testing, return test water for discharge to its source watershed to prevent inter-basin transfer of aquatic organisms.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential interbasin transfer of aquatic organisms, see Application Section 7.2.3.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project on interbasin transfer of aquatic organisms, after the application of mitigative measures:

• no residual effects were identified.

Surface Hydrology

Potential effects of the Project for surface and groundwater erosion, and proposed mitigation, are discussed in Section 2.1 of this Report.

No other potential effects of the Project on surface hydrology were identified in the Application and no additional mitigation measures were proposed.

Water Quality

Potential effects of the Project on domestic water supply and quality, and proposed mitigation, are discussed in Sections 3.1 and 3.3 of this Report.

No other potential effects of the Project on water quality were identified in the Application and no additional mitigation measures were proposed.

2.3.3 Issues Raised During Application Review and Proposed Mitigation

The following key issues concerning potential effects of the Project on the aquatic environment and fisheries were raised by the public, government agencies and the First Nations during the EA:

1. Include independent third party auditors as part of surface water quality sampling and monitoring programs.

Proponent Response: the Proponent made new a commitment to discuss nad provide independent third party audits of federal *Fisheries Act* 35(2) authorizations as required / requested by the Department of Fisheries and Oceans.

2. Surface water quality sampling and monitoring programs at stream crossings in the Morice Lake watershed, before during and after construction, to ensure protection of fish and country foods, as well as current sources of water for domestic and agricultural purposes.

Proponent Response: the Proponent made new commitments to engage the Office of the Wet'suwet'en in the development of a surface water sampling

program, and to work with Office of the Wet'suwet'en to develop a reference state sampling program.

3. Monitor ground water quantity and quality where relevant to fish species present.

Proponent Response: the Proponent made a revised commitment to monitor groundwater quantity and quality where groundwater is deemed relevant to fish species present at the crossing site.

4. Potential effects of proposed horizontal directional drill crossing of the Stuart River on the white sturgeon population.

Proponent Response: the Proponent made a revised commitment to undertake more detailed studies of the viability of a horizontal directional drill crossing of the Stuart River during the design phase of the project, and to consider moving the proposed crossing to a new location if necessary. The Proponent also made a new commitment to work with the Environmental Stewartship Division Omineca Region (ESD Omineca), and others, to develop a plan for acquiring additional information on white sturgeon use for the purpose of mitigating possible impacts to this species, should horizontal directional drilling not prove to be a feasible crossing method for the Stuart River.

5. Potential effects of new road access into upper watersheds on Dolly Varden, bull trout and coastal cutthroat trout spawning or staging areas.

Proponent Response: the Proponent made revised commitment to work with MOE and other agencies to identify specific locations of concern and develop strategies to limit access to these areas. This will include an evaluation of potential rearing, staging and spawning sites with respect to short and long term access risks. The product of this evaluation will be provided to Omineca Region, Environmental Stewardship Division, and other interested parties for their review. The Proponent also made a new commitment to undertake surveys prior to construction of specific sites with Dolly Varden to assess whether mature individuals are present and likely to spawn. Where mature Dolly Varden are present and spawning within the zone of potential Project effects is possible, mitigation will be applied to encourage fish to select spawning sites outside the zone of potential Project effects. Should impacts within this zone occur, the Proponent has committed to prepare mitigation and compensation plans to address habitat and fish loss.

6. Increased public access to streams that have significant fisheries values.

Proponent Response: the Proponent made a revised commitment to address access management at streams deemed to be of high fisheries values and at sensitive crossing sites in the Access Management Plan, and to work with MOE and others in identifying locations requiring access management.

7. Increased angling pressure on areas of concern.

Proponent Response: the Proponent made a new commitment to work with MOE to determine areas of concern and to ensure that appropriate methods are used to measure and monitor possible effects and to address these effects where they occur.

8. The draft conceptual fisheries habitat compensation plan does not take into account past habitat degradation in the upper Kitimat Valley caused by logging activities.

Proponent Response: the Proponent made a new commitment to consult with the Haisla Nation to identify appropriate compensation opportunities.

9. Baseline fisheries data for the Kitimat River watershed is insufficient because it was collected after extensive logging activity took place and does not allow for a proper assessment of any potential impacts or effects, direct or cumulative, from the Project.

Proponent Response: the Proponent made a new commitment to work with the Haisla Nation and regulatory agencies in order to ensure that the KSL Project does not result in negative effects on the Kitimat Watershed. Should this require additional baseline studies to be undertaken following Project certification, the Proponent will discuss undertaking them.

10. The proposed pipeline crossing of Chist Creek is located at a sensitive salmon spawning and grizzly bear foraging site.

Proponent Response: the Proponent made a new commitment to move the pipeline crossing alignment closer to the existing road bridge if test hole investigations indicate that horizontal directional drilling is not feasible at the proposed location. The revised location would be determined in consultation with the Kitselas First Nation. The Proponent also committed that, in the event that horizontal directional drilling proves to be infeasible at Chist Creek, an aerial crossing will be considered should that method be acceptable to the local community.

11. Aquatic habitat has not been assessed for some proposed watercourse crossings for reactivated or new access roads.

Proponent Response: the Proponent made a new commitment to complete any outstanding assessments for stream crossings for new and reactivated access roads prior to clearing and construction.

12. Some fisheries data collected in 2006 may not accurately reflect fish values because of extremely water flow levels.

Proponent Response: the Proponent made a new commitment to revisit some crossing sites in the Gosnell and upper Morice watersheds which were identified in the Application as non fish-bearing in order to determine if fish may be present

under normal flow conditions. The Proponent also commits to carry out an assessment of data from other crossing sites in order to identify other streams where this form of additional assessment should be done. This additional assessment of crossing sites will be carried out in consultation with the Department of Fisheries and Oceans prior to the detailed planning and design of these crossings and appropriate amendments made to crossing methods if warranted.

13. Timing windows for construction of potential flow isolation crossings of Gosnell creek tributary need to be modified to avoid impacts to bull trout, Dolly Varden and Coho salmon.

Proponent Response: the Proponent made a new commitment to consider other horizontal directional drill crossing locations for Gosnell Creek tributaries should geotechnical investigations prove that horizontal directional drilling is infeasible for the three Gosnell crossings (at kilo post 109.3, kilo post 109.8 and kilo post 110), and prior to altering the crossing method to isolated open cut. The Proponent has also committed to undertake any instream work required at these locations between August 1 and September 15.

14. Habitat compensation may be required for crossings where construction occurs outside of proposed timing windows or at other high value sites.

Proponent Response: the Proponent made a revised commitment to discuss compensation options and opportunities with the Department of Fisheries and Oceans and others, as needed, and to implement specific compensation measures before clearing and construction in order to address this issue. . Details will be documented in the Compensation Plan for Fish and Fish Habitat which will be developed with the Department of Fisheries and Oceans.

15. Blasting at recently spawned sites may damage incubating eggs.

Proponent Response: the Proponent made a revised commitment to implement more conservative guidelines than those required by the Department of Fisheries and Oceans for blasting in situations where the un-eyed egg stage of fish are present at crossing locations, and to ensure that spawning is taken into account in the implementation of blasting specifications.

16. Intakes for water withdrawal for hydrostatic testing may impact juvenile fish.

Proponent Response: the Proponent made a revised commitment to provide a detailed Hydrostatic Test Plan to the Department of Fisheries and Oceans and others, for review prior to implementation, and acknowledged that emerging juvenile fish are a key concern.

17. Sedimentation in fish bearing watercourses arising from machinery and vehicle access during construction.

Proponent Response: the Proponent made a new commitment to prepare an Access Management Plan in consultation with agencies prior to clearing and construction, and acknowledges that this Plan must consider factors such as the

requirement to close roads due to poor weather conditions. The Proponent also commits to obtain and/or develop Best Management Practices for access roads in consultation with agencies prior to construction.

18. Maintenance of fish access to all habitats.

Proponent Response: the Proponent made a new commitment to include maintenance of fish movements as an objective in the Environmental Management Plans for both the pipeline right-of-way as well as structures associated with all new access construction and upgrades.

19. Advise sports fisheries groups in Kitimat area about Project routing and construction schedule.

Proponent Response: the Proponent made a new commitment to meet with the Kitimat Sport Fisheries Committee as well as the local Sport Fishery Retail Outlets and Fishing Charter Guides to inform them about project routing and clearing/construction activities in order to determine appropriate means of communicating with licensed anglers.

20. Risk of impacts to fisheries values in the Morice Valley.

Proponent Response: the Proponent made a new commitment, that if it is decided that the Tommy-Thautil Creek route alternative is the preferred routing for the Project, fisheries and other studies will be undertaken for this route; this could potentially realign the Project outside of the Morice Valley for approximately 30 kilometres.

21. Risk of impacts to fisheries values at the three crossings of the Salmon River.

Proponent Response: the Proponent made a new commitment to use horizontal directional drilling as the primary crossing method for the three Salmon River crossings, if this method is proven feasible.

Potential effects of the Project on the aquatic environment and fisheries generated a large number of issues and considerable discussion during the Application Review. A complete list of these issues identified by the public, government agencies and First Nations, and the Proponent's response to these issues, is contained in **Appendices C and D** of this Report.

2.3.4 Conclusion on Effects and Mitigation

During the Project EA, the EAO and the Responsible Authorities have considered: the Application; additional Project review material listed in **Appendix A**; public, government agency and First Nations comments on the potential effects of the Project; the advice of technical experts from provincial and federal agencies; discussions of the Working Group; and the Proponent's commitments to undertake measures to mitigate potentially adverse effects of the Project.
Based the above, the EAO concludes that the Project may have the following residual effects on the aquatic environment and fisheries, after the application of the Proponent's mitigation measures:

- Fish mortalities caused by instream construction activities
- Loss or degradation of instream fish habitat due to sediment release caused by construction activities at pipeline and vehicle crossings
- Loss of riparian habitat due to loss of food inputs from riparian vegetation caused by construction activities at pipeline and vehicle crossings

The EAO also concludes that any residual effects of the Project related to fish mortalities will be of low magnitude and would be less than significant, based on the Proponent's commitment to undertake fish salvage at instream work locations prior to construction, overseen by qualified environmental monitors.

The EAO also concludes that any residual effects of the Project related to loss or degradation of instream fish habitat or riparian habitat at pipeline and vehicle crossings would be localized and of short-term duration, would be offset through habitat compensation measures required by the Department of Fisheries and Oceans pursuant to section 35(2) of the *Fisheries Act*, and would be less than significant.

The EAO further concludes that all other potential adverse effects of the Project on the aquatic environment and fisheries that were identified by the public, provincial and federal government agencies and First Nations have been satisfactorily addressed by the Proponent's responses and commitments to undertake mitigation measures, and that none will result in significant residual effects.

Accordingly, provided that the Proponent undertakes the mitigation measures indicated above and implements the actions described in the Compendium of Proponent Commitments listed in **Appendix E** (particularly Section 3), the EAO concludes that the Project will not result in significant adverse effects on the aquatic environment and fisheries.

The Responsible Authorities have not yet made a determination on the likelihood of significant adverse environmental effects arising from the project after mitigation significance on aquatic environment and fisheries. This process will continue with a comprehensive study review under CEAA.

2.4 Terrestrial Environmental and Wildlife

2.4.1 Background

Wetlands

The Project footprint crosses a total of 97 wetlands representing approximately 4.7% of the pipeline route length. 67 of the identified wetlands have been previously disturbed by human activities, such as roads, linear rights-of-way, agricultural activity, or logging.

A total of 34 wetland sites identified along the Project footprint were subject to field investigations focussed on defining the wetland location and identifying wetland types.

Information about vegetative composition, wildlife habitat potential, and previous disturbance to the wetlands was collected.⁴

Vegetation

The following vegetation community types were identified along the Project footprint:

- wetlands;
- mature and old Douglas-fir dominated forest;
- mature and old Aspen dominated forest;
- mature and old Riparian and Floodplain forest;
- mature and old Coniferous forest;
- subalpine and alpine plant communities; and,
- grasslands.

Wetlands occur throughout the entire length of the Project footprint, in the Coastal, Mountain, and Interior regions. Coastal wetlands occur in low-lying areas associated with floodplains, wetland margins, or receiving sites at the toe of slopes. Mountain wetland habitats in the Project footprint occur in the subalpine elevations of the Engelmann Spruce Subalpine Fir and Mountain Hemlock biogeoclimatic zones. Interior wetland habitats occur in riparian areas and other low-lying areas of the Local Study Area.

Mature and old Douglas-fir forest often has important wildlife habitats, including nesting, roosting, and thermal habitats. Mature and old Douglas-fir forests are structurally complex, having canopy gaps containing multi-storied vegetation layers, and a large number of standing dead trees and downed woody debris. The Local Study Area occurs at the northern extent of the Interior Douglas-fir range. There are 11 mature or old Douglas-fir stands in the Project footprint, found between: kilo post 307.1 and kilo post 312.8, kilo post 320.4 and kilo post 325.5, and kilo post 336.2 and kilo post 336.5.

Aspen stands are common throughout the Project footprint, but mature stands are rare, and of high value. These stands provide valuable wildlife habitat, and are important components of the landscape biodiversity. Aspen stands, and individual aspen trees within conifer stands are of particular importance in the Nadina Forest District (kilo post 95.9 to kilo post 288.1), which is experiencing an unprecedented mountain pine beetle epidemic. There are 56 stands with trembling aspen as the dominant or co-dominant species in the Project footprint, but only four stands that are old and have not been previously disturbed. These stands are located between kilo post 149.9 to kilo post 150, kilo post 263.1 to kilo post 264.1, kilo post 264.4 to kilo post 264.7, and kilo post 297.2 to kilo post 297.4.

Riparian and floodplain forests are typically mixed deciduous and coniferous forest in moist and wet soils. These habitats usually have extremely high productivity and the increased plant biomass has a complex form and structure that ameliorates climatic conditions and provides food, cover, and nesting habitat for both terrestrial and aquatic wildlife. A total of 24 stream crossings are located in mature and old riparian and riparian floodplain forests representing approximately 11.3 kilometres of the route. In the Coastal Region riparian zones are typically floodplain sites and range from low-bench plant communities dominated by

⁴ The complete list of wetlands found in the Project area is listed in the Proponent's Application in Table 6.4-1.

willows to middle-bench areas of black cottonwood, red alder, and dense shrub understories and high-bench communities dominated by conifers. Riparian areas in the Mountain Region are productive forests adjacent to small streams or low-productivity forests that occur on seepage slopes, at slope-toes or surrounding fens. Mountain riparian areas typically have a coniferous tree cover and variable shrub and herb cover. The Interior Region riparian areas are moist to wet forests in low-lying areas, at slope-toes or bordering waterways. Many of the riparian forests in the Interior Region have been converted to agricultural use. Natural Interior Region riparian areas have a mixed tree cover and the shrub and herb layers vary from sparse to very dense. Floodplain forests, with low, middle and upper-bench communities are also found adjacent to the large interior rivers, such as the Stuart and Salmon rivers.

Mature and old forests contain long-lived (i.e. greater than 100 years old), shade-tolerant tree species that are uneven or multi-aged. The mature and old forests are characterized by a long natural rotation between stand-replacing events and minimal evidence of human disturbance. Mature and old coniferous forests dominated by western hemlock, mountain hemlock, subalpine fir, white bark pine, lodgepole pine, black spruce, Engelmann spruce, hybrid spruce, and white spruce occur in approximately 150 kilometres of the Project footprint. There are approximately 13 kilometres of mature and old coniferous forest in the Coast Region, 23 kilometres in the Mountain Region, and 114 kilometres in the Interior Region, though a large part of the mature and old forest in the Interior Region has been attacked by the mountain pine beetle and forest harvesting is occurring or planned for many of the affected areas. 55% of the mature and old forest in the Project footprint is adjacent to existing roads or rights-of-way. The majority of the undisturbed mature and old forest crossed by the pipeline route is in the subalpine forests of the Mountain Region, between kilo post 74.9 and kilo post 112.

Subalpine and alpine plant communities occur in high elevation heath lands between kilo post 74.9 and kilo post 116.2. These areas are currently pristine and are not adjacent to other disturbances such as logging or other rights-of-way. Subalpine and alpine plants are slow to establish and grow and very susceptible to disturbance. Two specific subalpine and alpine plant communities will be impacted by the Project, between kilo post 76.5 to kilo post 80.3 (3,800 metre of pipeline disturbance) and kilo post 95.6 to kilo post 96.0 (400 metres of pipeline disturbance).

The pipeline route crosses a single grassland between kilo post 242.5 and kilo post 243.5. The ecological integrity of this area has been compromised by past and current agricultural practices.

Forest Health

The KSL pipeline route crosses forests that have been affected by mountain pine beetle, Spruce Beetle, and Tomentosus root rot. The Interior Region along the KSL pipeline route is one of the hardest-hit areas of the mountain pine beetle infestation. An estimated 80% of the province's inventory of merchantable lodgepole pine is predicted to be dead by 2013. Mountain Pine Beetle has either attacked or killed the mature pine component in the majority of remaining forest stands. The Chief Forester of BC has authorized an increased Annual Allowable Cut and expedited harvest of lodgepole pine in order to salvage wood from dead pine. The KSL pipeline route is in areas affected by mountain pine beetle between kilo post 100 and kilo post 462.2. The spruce bark beetle is a pest of mature spruce trees. This forest pest is present along the entire KSL pipeline route. Because of the current mountain pine beetle outbreak, spruce trees will become the dominant species in the Interior Region of the Local Study Area.

Tomentosus is a root-infecting fungus found most frequently in spruce and pine stands of the central and northern interior of BC. This root rot can be found along the entire length of the pipeline route. Tomentosus root rot spreads primarily through root contact and can survive in infected large stumps for decades. Tomentosus root rot occurs mostly in second-growth stands, where the previously infected trees inoculate juvenile trees, and ultimately kills young and maturing trees.

Invasive Plant Species

Invasive plants and noxious weeds are non-native plants that have been introduced to BC. They are highly competitive and difficult to control because they have few plant pathogens or insect predators. Weeds typically become established on disturbed ground and in high traffic areas, such as urban and rural developments, industrial land, and transportation and utility corridors. Management actions that will reduce weed establishment and spread include pre-disturbance control of existing weeds, minimizing soil disturbance, seeding bare soils, controlling the spread of new weeds, and maintaining healthy plant communities.

Noxious weeds and invasive plant species in BC are regulated by the *Weed Control Act*, the *Forest and Range Practices Act*, and the *Integrated Pest Management Act*. Weeds on pipeline corridors are also regulated by the *Pipeline Act*. The *Weed Control Act* prohibits the sale or movement of designated noxious species and requires the control of noxious weeds on all private and public land in BC. The *Forest and Range Practices Act* requires users of provincial forest land to prevent the introduction or spread of "prescribed species of invasive plants" as defined by Forest Regions and Regional Invasive Plant Committees.

The *Integrated Pest Management Act* regulates weed control actions, specifically the use and sale of pesticides. The *Pipeline Act* requires all companies to "root out and destroy each year, before they have matured to seed, thistles and noxious weeds growing on its land adjacent to its pipelines."

The North West Invasive Plant Council is the regional weed committee in the Northern Interior Forest Region and the Project area. The North West Invasive Plant Council has identified two categories of weed species of concern on the Project area: Category 1 Plants that are extremely invasive because they will invade and dominate undisturbed habitats. Category 2 Plants that will invade undisturbed habitats but they will not dominate the entire site. There are 25 noxious and invasive plant species in the North West Invasive Plant Council Category 1 and Category 2 weed lists.

Wildlife and Wildlife Habitat

Wildlife and wildlife habitat Valued Environmental Component species were selected based on the following considerations: whether the species occurs locally in the study area; is considered at risk provincially, by the BC Conservation Data Centre, or federally, by the Committee on the Status of Endangered Wildlife in Canada and/or the *Species at Risk Act*, is of management concern in the applicable Land and Resource Management Plan and/or have Special Resource Management Zones associated with them; is considered to play an important ecological role (i.e. keystone or umbrella species, important predator or prey), or is considered particularly sensitive to habitat change; is hunted or trapped by aboriginal communities, or is considered of commercial value in the tourism, trapping and hunting industries; and, it and/or its habitat is protected by legislation such as the BC *Wildlife Act*, the *Migratory Birds Convention Act*, or the *Species at Risk Act*.

Wildlife and wildlife habitat Valued Environmental Components for the Project are listed below.

Species	Reason for Selection			
Mammals				
Grizzly Bear	COSEWIC-SC, SARA, BC – Blue (S3), IWMS			
	Prince George, Vanderhoof, Lakes, Morice and Kalum LRMPs			
Black Bear	Kalum LRMP (Kermode)			
Grey Wolf	Omineca Region; trapped traditionally and commercially.			
Red fox	Trapped traditionally and commercially			
Lynx	Trapped traditionally and commercially			
Cougar	Trapped traditionally and commercially			
Wolverine, <i>luscus</i> subspecies	COSWIC – SC, BC – Blue (S3), IWMS, BC Wildlife Act			
Fisher	BC-Blue (S2S3), Kalum, Morice LRMPs, Omineca Region, BC Wildlife Act			
Northern river otter	Trapped traditionally and commercially			
Marten	Prince George, Vanderhoof LRMPs, Omenica and Skeena Regions			
Ermine	Trapped traditionally and commercially			
Woodland caribou	COSEWIC – T, SARA, BC Blue (S3S4), Morice LRMP, Skeena Region			
Moose	Prince George, Vanderhoof, Morice, Kalum LRMPs, Omineca Region			
Elk	Prince George, Vanderhoof LRMPs, Omineca Region			
Deer (mule and white-tailed)	Prince George, Vanderhoof, Morice LRMPs			
Mountain Goat	Morice, Kalum LRMPs, ungulate winter ranges			
Beaver	BC Wildlife Act			
Muskrat	BC Wildlife Act			
Snowshoe hare	Trapped traditionally and commercially; important prey species.			
Bats	Skeena Region			
Birds				
Breeding Birds	Migratory Birds Convention Act, Canadian Wildlife Service			
Migratory Birds	Migratory Birds Convention Act			
Trumpeter Swan	Prince George, Vanderhoof LRMP			
Harlequin Duck	Skeena Region			
Wood Duck	Skeena Region			
Sandhill Crane	BC-Blue (S3S4B), Vanderhoof LRMP			
Great Blue Heron	Coastal subspecies: COSEWIC – SC, SARA, BC-Blue (S3BS4N), IWMS			
	Interior subspecies: Vanderhoof LRMP			
Northern Goshawk	Coastal subspecies: COSEWIC – T, SARA, BC-Red			
	Interior subspecies: Morice LRMP, Skeena Region			
Bald Eagle	BC Wildlife Act			
Golden Eagle	BC Wildlife Act			
Osprey	BC Wildlife Act			
Grouse	Species of traditional interest			

TABLE 2 – Wildlife and Wildlife Habitat Valued Environmental Component's

Species	Reason for Selection	
Caspian Tern	BC-Blue (S3B)	
Marbled Murrelet	COSEWIC – T, SARA, BC-Red (S2BS4N), IWMS	
Brown Creeper	Skeena Region	
Amphibians		
Coastal Tailed Frog	COSEWIC – SC, SARA, BC-Blue (S3S4), IWMS, Kalum LRMP	

Wildlife habitat categories of the Local Study Area are based on the terrestrial ecosystem mapping. Categories were developed by grouping site series within and across biogeoclimatic variants. Categories have similar soil moisture regimes and species composition. Categories are based on three geographical regions in the Local Study Area: Coastal Region, Mountain Region, and Interior Region.

Habitats of the Coastal Region contain the site series found in the Coastal Western Hemlock biogeoclimatic zone sections of the Local Study Area. Coastal Wildlife Habitats occur in the valley bottom between kilo post 0 and kilo post 74.9 and kilo post 81.5 and kilo post 90.5. Extensive forest harvesting has occurred in the Coast Region study area and few mature (101 to 250 years) and old (greater than 250 years) patches remain. The Coastal Wildlife Habitats host the highest density of Grizzly Bear in the Local Study Area. Within the Local Study Area, coastal tailed frogs only occur in the Coastal Region of the Local Study Area. The Coastal Region also supports the coastal subspecies of northern goshawk. There are five types of Wildlife Habitats that dominate the Project footprint in the Coastal Region: Coastal Closed Forest; Coastal Floodplain Forest; Coastal Scrub Forest: Costal Wetlands; and Coastal Avalanche Tracks.

The Mountain Region is characterized by site series found in the Engelmann Spruce and Subalpine Fir, Mountain Hemlock, and Alpine (BAFAunp and CMAunp) biogeoclimatic zones. Plant communities of the Mountain Region occur on high elevation slopes and peaks between kilo post 74.9 and kilo post 81.5 and kilo post 90.5 and kilo post 116.2. There are seven Mountain Wildlife Habitat types were identified in the Project footprint: Mountain Wetland; Mountain Riparian Forest; Mountain Open Forest; Mountain Closed Forest; Mountain Scrub Forest; Mountain Avalanche Track; and Mountain Meadows.

The Interior Region comprises the site series of the Sub-boreal Spruce biogeoclimatic zone. The Interior Region occupies the valley bottom and lower slopes from the western extent of the Morice River drainage, near Gosnell Creek, to the eastern terminus of the pipeline at Summit Lake (from kilo post 116.6 to kilo post 462.5). There are six types of Interior Wildlife Habitats that occur in the Project footprint: Interior Wetland; Interior Riparian Forest; Interior Closed Forest; Interior Open Forest; Interior Scrub Forest; and Interior Grassland.

2.4.2 Project Effects Identified in the Application and Proposed Mitigation

In the Application and supplemental materials, the Proponent assessed the potential for environmental effects of each phase of the Project on the terrestrial environment and wildlife, and proposed measures to mitigate these potential effects.

Potential Effects and Proposed Mitigation

Wetlands

Project activities associated with clearing, construction, and restoration of the Project area will interact with wetlands in the Project footprint and Local Study Area along the entire pipeline

route. Potential Project effects on wetlands include impacts on wetland hydrologic function, wetland water quality function, and wetland habitat. The Project footprint crosses approximately 96 wetlands. The hydrologic function and water quality of these wetlands can be altered or degraded by pipeline clearing, construction, or restoration activities. Approximately 67, or 70%, of the wetlands may have experienced previous changes in hydrology or water quality due to the construction and maintenance of existing roads, railways, pipelines, and powerlines, or because they occur adjacent to or within a logging cutblock. The remaining 29 wetlands crossed by the pipeline route are undisturbed. The previous disturbance of wetlands is taken into account for the mitigation planning and effects assessment.

Project operations and maintenance activities may be required for sections of the pipeline in or adjacent to wetlands, and have the potential to alter or degrade wetland hydrology, by changing water flow patterns through wetlands, and wetland water quality, by introducing sedimentation into the systems.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential effects on wetlands, including the following:

- greenfield portion of the KSL pipeline route selected to minimize the number of wetland crossings;
- schedule construction during frozen ground conditions, to the extent practicable;
- use low ground pressure equipment or install temporary work pads for heavy vehicle/equipment crossing through wetland in unfrozen ground conditions;
- install berms, cross ditches and silt fences at the base of approach slopes to wetlands and between the wetland and the disturbed area;
- conduct grading adjacent to wetlands away from the wetland to the extent practical to reduce the risk of sediment and other material entering the wetland;
- store excavated material in a manner that does not interfere with natural drainage patterns;
- recontour pre-construction profile in wetlands during final clean-up;
- schedule post-construction pipeline maintenance activities during winter to the extent feasible. Consider above measures for work in wetlands during operations where feasible;
- narrow down the area of disturbance and protect the wetland by using fencing, clearly mark the wetland boundaries using flagging and limit traffic in the restricted area, where feasible;
- where feasible, minimize the width of grubbing through wet areas during construction to facilitate the re-establishment of shrub communities;
- where feasible, minimize clearing of vegetation, and narrow area of disturbance, and protect the wetland by using flagging, and limiting traffic in the flagged areas;
- if practical, leave an undisturbed organic mat as a buffer zone, if working at wetland edges, to limit the potential sediment to enter the wetland; and,
- adhere to spill prevention measures outlined in a KSL Environmental Protection Plan.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential effects to wetlands, see Application Section 7.2.4.

The Proponent identified and assessed the following residual effects of the Project on wetlands, after the application of mitigative measures:

• no residual effects were identified.

Vegetation

Construction of the KSL Project will involve clearing of vegetation along the entire pipeline route. Project activities associated with the clearing, construction and restoration of the pipeline route will potentially alter or degrade wetland vegetation, which is of known importance as feeding, cover, and nesting habitat for a variety of wildlife species; alter or degrade eleven stands of mature to old Douglas fir forests between kilo post 307 and kilo post 337; alter or degrade mature to old aspen forests at four locations between kilo post 149 and kilo post 298; alter or degrade mature and old riparian and floodplain forests in 24 locations; alter or degrade mature coniferous forests between kilo post 74.9 and kilo post 112 and elsewhere along the pipeline route; alter or degrade non-forested alpine and sub alpine areas between kilo post 74.9 and kilo post 116.2; and alter or degrade grassland areas between kilo post 242.5 and 243.5.

Project operations will involve maintenance of a 3-5 metre wide travel corridor on select sections of the right-of-way, and maintenance of an 18 metre wide right-of-way along the Methanex Lateral pipeline, in which trees and tall vegetation must be removed and maintained at an early seral stage. These maintenance activities will delay the re-establishment of natural plant communities.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential effects on vegetation, including the following:

- greenfield portion of the KSL pipeline route was selected to minimize clearing of mature vegetation;
- seed disturbed areas of the Project footprint with the appropriate native seed mix;
- revegetate disturbances on moderate and steep slopes with an appropriate seed mix and approved cover crop to minimize erosion potential and rapidly establish a vegetative cover;
- plant previously forested temporary workspace with tree species approved by BC Ministry of Forests and Range (MOFR) and forest licensees;
- monitor the effectiveness of revegetation efforts during the Post-Construction Monitoring Program of the right-of-way. Inspect moderate and steep slopes during regular aerial patrols. Undertake remedial work where warranted; and,
- revegetate any post-construction maintenance disturbances using appropriate native seed mixes.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential effects to vegetation, see Application Section 7.2.4.

The Proponent identified and assessed the following residual effects of the Project on vegetation, after the application of mitigative measures:

- approximately 88 hectares of wetland habitat will be altered or degraded by construction activities;
- approximately 32 hectares of mid-seral to old Douglas-fir dominated forest will be cleared for the Project;
- approximately seven hectares of mid-seral to old aspen-dominated forest will be cleared for the Project;
- approximately 46 hectares of riparian and floodplain forest will be cleared for the Project;
- approximately 600 hectares of mature and old coniferous forest will be cleared for the Project;
- approximately 16.8 hectares of subalpine and alpine habitat will be disturbed by the Project;
- approximately four hectares of grassland area will be disturbed by the Project; and,
- maintenance of vegetation at an early seral stage along travel corridors on the pipeline right-of-way.

These residual effects are localized to the Project footprint, considered to be of low-tomedium magnitude and reversible in the medium-to-long term through restoration, and are deemed to be less than significant.

Forest Health

Clearing, construction and restoration of the Project area will involve clearing of trees for the pipeline alignment and associated temporary workspace, and potentially could accelerate the spread of three forest pathogens that currently affect forests surrounding the area to be cleared: the mountain pine beetle infestation in the pine-dominated forests east of the Coast Mountains; and both the spruce beetle infestation and various types of root rot which are present at much lower intensity along the entire pipeline route.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential effects on forest health, including the following:

- adopt Standard Operating Procedures for storage, hauling and milling of mountain pine beetle Infested Wood as specified by MOFR Forest Districts;
- remove and process spruce trees harvested from the pipeline route before spruce beetle flight period (May to July), to reduce risk of infestation of adjacent spruce stands; and,
- remove and burn stumps of susceptible harvested trees from Project footprint.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential effects for forest health, see Application Section 7.2.4.

The Proponent identified and assessed the following residual effects of the Project for forest health, after the application of mitigative measures:

• no residual effects were identified.

Invasive Plant Species

Activities associated with the clearing, construction and restoration of the Project area could cause the introduction and acceleration of the spread of invasive plants. This potential exists along the entire pipeline route.

Project operations will involve maintenance of a 3-5 metre in wide travel corridor on select sections of the right-of-way. Use of this travel corridor by maintenance vehicles may lead to the introduction or spread of invasive plants.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential effects of invasive plant species, including the following:

- implement an Invasive Plant Management Plan to minimize the introduction and spread of noxious weeds during Project construction activities;
- employ standard weed control measures, such as cleaning of equipment of seeds and vegetative debris attached to the equipment prior to arrival on the right-of-way;
- pre-treat heavily infested weed areas along the route by chemical, hand or mechanical means prior to construction where directed by the appropriate authority;
- minimize weed spread by cleaning equipment in contact with topsoil prior to moving from an area of high weed infestation;
- restore native vegetation as quickly as practical following ground disturbing activities; and,
- monitor the right-of-way during post-construction monitoring and operations for areas of new weed growth. Undertake measures to control weeds at these locations.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential effects for invasive plant species, see Application Section 7.2.4.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project for invasive plant species, after the application of mitigative measures:

- introduction of invasive species to previously undisturbed areas immediately after construction; and,
- introduction or spread of invasive species as a result of operations and maintenance activities.

The residual effect of introduction or spread of invasive plant species is considered to be reversible in the medium-term, and is deemed to be of low magnitude.

Wildlife and Wildlife Habitat

Project activities associated with the clearing, construction, and restoration of the Project area, and Project operations and maintenance, will interact directly or indirectly with wildlife and wildlife habitat, and will result in the following potential effects:

- 1. alteration or degradation of habitat;
- 2. direct and indirect wildlife mortality; and,
- 3. sensory disturbances to wildlife.

1. Alteration or degradation of habitat. Clearing, construction and restoration activities will cause direct and indirect effects on wildlife and wildlife habitat when they occur in important seasonal habitats (*e.g.* reproductive areas), specific habitat features (*e.g.* dens and mineral licks), and when protective or thermal cover is cleared in wildlife movement corridors. The pipeline route crosses a number of important seasonal habitats used by wildlife Valued Environmental Component species, including:

- four migratory bird staging areas between kilo post 190 and kilo post 415;
- four areas of high suitability breeding habitats for the Northern Goshawk between kilo post 74 and kilo post 94. There are no known nest records in these suitable breeding habitats. The Coastal Northern Goshawk is red-listed in BC, listed as 'Threatened' by Federal Committee on the Status of Endangered Wildlife in Canada, and is included in Schedule 1 of Species at Risk Act (S.C. 2002, c. 29);
- a nesting area for the Interior Northern Goshawk near kilo post 217. This subspecies is not listed provincially or federally, but is of management interest in the Skeena Region, and its management is addressed in the Morice Land and Resource Management Plan;
- 23 wetlands that may provide suitable breeding habitat for wood ducks between kilo post 4.6 and kilo post 459.3;
- areas with suitable nesting habitat for sandhill cranes between kilo post 325 and kilo post 365. Sandhill cranes are a blue-listed species in BC;
- one area with potentially suitable habitat for marbled murrelet nesting between kilo post16.9 and kilo post 17.2. The marbled murrelet is provincially red-listed, listed as 'Threatened' by Federal Committee on the Status of Endangered Wildlife in Canada, and is included in Schedule 1 of Species at Risk Act;
- three moose wintering areas, associated with wetland habitats, between kilo post 239 and kilo post 280;
- two mountain goat winter habitat areas between kilo post 74 and kilo post 100;
- 25 areas where key grizzly bear feeding and movement habitats occur have been identified between kilo post 25 and kilo post 460. Grizzly bear denning areas have been identified between kilo post 65 and kilo post 108. Grizzly bears are provincially blue-listed, listed as "Special Concern" by Federal Committee on the Status of Endangered Wildlife in Canada, and are included in Schedule 1 of Species at Risk Act; and,
- 52 streams assessed to have moderate to high suitability for coastal tailed frogs between kilo post 1.3 and kilo post 74.25. Coastal tailed frogs are provincially blue-listed, listed as "Special Concern" by Federal Committee on the Status of Endangered Wildlife in Canada, and are included in Schedule 1 of Species at Risk Act.

Clearing, construction and restoration activities associated with the Project may also interact with and cause the loss of specific habitat features such as stick nests, wildlife trees, or dens, etc., along the entire length of the pipeline route.

The pipeline route interacts with 16 wildlife movement corridors that are associated with major river corridors along the entire pipeline route. There are also a large number of less defined movement corridors throughout the Project area. Clearing, construction, and restoration activities associated with the Project may lead to disturbances and alterations of wildlife movement patterns.

Project operations and maintenance activities on the right-of-way will involve periodic tree clearing and vegetation management. Clearing of the travel corridor will alter wildlife habitat, especially for ground nesting birds.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential alteration or degradation of wildlife habitat, including the following:

- Pipeline routing and scheduling of clearing and pipeline construction have reduced the potential impacts to wildlife and wildlife habitat as follows:
 - the route is located adjacent to the existing PNG right-of-way, other linear disturbances such as roads, and power lines for approximately 60% of its length, thereby minimizing the disturbance to wildlife habitat;
 - the route crosses large areas of currently disturbed forest (cutblocks, beetle killed forest, and early seral regenerating forest);
 - the pipeline route generally avoids wetland and riparian areas; and,
 - pipeline construction is scheduled, in some areas, during frozen soil conditions when fewer wildlife species (e.g. migratory birds) are present in the Local Study Area.
- where appropriate, salvage cut deciduous tree debris for redistribution on alignment post-construction as coarse woody debris;
- inform the pipeline construction workforce regarding wildlife and habitat protection measures prior to initiation of work by means of compulsory pre-job orientations;
- conduct a pre-construction survey (route walk) in select locations to record any sitespecific wildlife habitat features (e.g. wildlife trees, stick nests etc);
- removal of wildlife trees on the Project footprint will be avoided. If wildlife tree(s) cannot be retained, they will be replaced whenever practical;
- avoid site-specific habitat features, whenever practical;
- post-construction monitoring of any site-specific habitat feature installations;
- leave gaps in set-up and welded pipe, spoil piles, and trench to allow wildlife to cross the right-of-way. Locate gaps at obvious game trails. Coincide breaks in pipe with gaps in topsoil or root zone material, spoil, snow (if present) and rollback (if present) windrows;
- install or maintain trench plugs across open trench to allow the cross-ditch movement of wildlife to and from the seasonal ranges along designated wildlife movement corridors and to special habitat features;
- salvage and redistribute coarse woody debris in suitable habitat types for use by small mammals and other wildlife species, as appropriate and practicable; and,
- use native plant species to maintain biodiversity, reduce weed cover, and help create wildlife movement corridors.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential alteration or degradation of wildlife habitat, including species-specific mitigation, see Application Section 7.2.4.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project on alteration or degradation of wildlife habitat, after the application of mitigative measures:

- approximately 40 hectares of high suitability coastal northern goshawk habitat will be cleared. This residual effect is considered to be of low magnitude because breeding home ranges of coastal northern goshawks are generally between 700 hectares and 19,000 hectares in size. This residual effect is concentrated on the Project footprint, is considered to be reversible in the long-term, and is deemed to be less than significant;
- approximately one hectare of suitable marbled murrelet nesting habitat will be cleared. Because of the adjacency of this habitat to mostly early-seral forests, the residual effect of clearing one hectare of suitable marbled murrelet habitat is considered to be of low magnitude, reversible over the long-term, and is deemed to be less than significant;
- approximately 18 hectares of mountain goat winter range will be crossed by the pipeline route. This residual effect is localized on the Project footprint, is considered reversible over the medium-term and of medium magnitude, and deemed to be less than significant;
- suitability of 52 streams used by coastal tailed frogs will be altered. This residual effect is localized on the Project footprint, is considered reversible in the long-term and of medium magnitude, and is deemed to be less than significant; and,
- seasonal movement patterns of wide ranging predators (e.g. grizzly bear, grey wolf, lynx, cougar, wolverine) will be altered. Changes in wildlife movements will occur at scales ranging from the Project footprint to the Regional Study Area. This residual effect is considered to be reversible in the medium-term, of low magnitude, and is deemed to be less than significant.

2. Direct and indirect wildlife mortality. The clearing, construction, and restoration of the Project could directly or indirectly result in wildlife mortality along the entire length of the pipeline route. Wildlife mortality may result directly from construction activities (e.g. wildlife becomes trapped in the pipeline trench for extended periods, and wildlife vehicle collisions). The western mountainous section of the KSL pipeline route crosses undisturbed areas with limited human access. By establishing new access to these areas, there will be new opportunities for increasing authorized and unauthorized hunting, an indirect wildlife mortality effect of the KSL Project. Also, the increased presence of people in the Project area during clearing, construction and restoration activities may lead to habituation by wildlife, and thus cause indirect mortality of wildlife due to human-wildlife conflicts.

Project operations and maintenance activities which involve personnel travel to and from the pipeline right-of-way, or along the right-of-way, have the potential for wildlife-vehicle collisions.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential direct and indirect effects to wildlife mortality, including the following:

- report any incidents or collisions with wildlife to the Environmental Inspector who will notify local wildlife authorities and the police as appropriate;
- remove trapped animals from the pipeline trench at the start of each day before conducting construction activities that may have the potential to harm an animal in the trench;
- capture and move coastal tailed frogs prior to stream crossing activities;
- implement a Wildlife Incident Contingency Plan in the event of a wildlife encounter or wildlife mortality;
- minimize construction vehicles traveling to and from the worksite (e.g. use multi-passenger vehicles to transport workers), to the extent practical;
- travel to and from the worksite during daylight hours, whenever practical;
- implement an Access Management Plan;
- monitor the effectiveness of access management measures;
- implement a Bear Management Plan;
- inform the pipeline construction workforce regarding wildlife and habitat protection measures prior to initiation of work with compulsory pre-job orientations; and,
- collect garbage daily in bear-proof containers and dispose in approved locations.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential direct and indirect effects to wildlife mortality, see Application Section 7.2.4.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project to wildlife mortalities, after the application of mitigative measures:

- incidental construction-related mortality of coastal tailed frogs. Because the generation time of coastal tailed frogs is relatively long, this residual effect is reversible over the medium-term. This residual effect occurs on the Project footprint, is of low magnitude, and is deemed to be less than significant;
- risk of wildlife-vehicle collisions will increase during construction. This residual effect occurs at scales ranging from the Project footprint to the Regional Study Area, is considered to be reversible in the short-term and of medium magnitude, and is deemed to be less than significant; and,
- authorized and unauthorized hunting during and post-construction will increase. This
 residual effect occurs at scales ranging from the Project footprint to the Regional Study
 Area, is considered to be reversible in the long-term and of medium magnitude, and is
 deemed to be less than significant.

3. Sensory disturbances to wildlife. Clearing, construction, and restoration activities associated with the Project have the potential to result in sensory disturbances to wildlife along the entire length of the pipeline route. Sensory disturbances often result in wildlife leaving and avoiding areas with construction activities.

Consequences of sensory disturbances are most severe during important life cycle events, or in important seasonal ranges, when the animals are already energetically stressed. The pipeline route crosses the following wildlife habitats and ranges that support wildlife during sensitive life cycle events or stressful seasons:

- four migratory bird areas between kilo post 190 and kilo post 413;
- bird nesting areas along entire pipeline route;
- three moose winter habitats areas between kilo post 239 and kilo post 280;
- two mountain goat winter habitat areas between kilo post 74 and kilo post 100; and,
- 25 areas identified as key grizzly bear feeding and movement habitats exist between kilo post 25 and kilo post 460; and grizzly bear denning areas exist between kilo post 65 and kilo post 108.

Project operations and maintenance activities on the pipeline right-of-way have the potential to disturb wildlife on important seasonal ranges.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential effects on sensory disturbances to wildlife, including the following:

- pipeline routing and scheduling of clearing and pipeline construction have reduced the potential sensory disturbances to wildlife during important life cycle stages;
- inform the pipeline construction workforce regarding wildlife and habitat protection measures prior to initiation of work with compulsory orientations; and,
- conduct a pre-construction survey (route walk) to record any site-specific wildlife habitat features (e.g. wildlife trees, stick nests).

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential effects on sensory disturbance to wildlife, including species-specific mitigation, see Application Section 7.2.4.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project on sensory disturbances to wildlife, after the application of mitigative measures:

• no residual effects were identified.

2.4.3 Issues Raised During Application Review and Proposed Mitigation

The following key issues concerning potential effects of the Project on the terrestrial environment and wildlife were raised by the public, government agencies and the First Nations during the EA:

1. Proposed "Bear Management Plan" should be replaced with a "Problem Wildlife Plan" in recognition that there are other problem wildlife species.

Proponent Response: the Proponent made a revised commitment to consider other "problem wildlife" species as part of the Bear Management Plan. The Proponent also made a new commitment that firearms will not be permitted on the job site, including the construction camps.

2. The Traffic Management Plan needs to include awareness of wildlife and the risk of wildlife-vehicle collisions.

Proponent Response: the Proponent made a revised commitment to address potential wildlife impacts and necessary mitigation measures in the Traffic Management Plan.

3. Concerns about potential Project impacts on mountain goat habitat, winter range, and natal areas, particularly in the Hoult Creek, Nimbus Mountain, and Clore River areas.

Proponent Response: the Proponent made a new commitment to ensure detailed clearing and construction planning will account for disturbances to mountain goats, and to adopt regional measures that have been developed by MOE to mitigate risk and disturbance to mountain goats. The Proponent also made a revised commitment not to undertake clearing or construction activities within 500 metres of mountain goat winter habitat between kilo post 74 and kilo post 100 from October 15 and May 15, and to include members of the Kitselas First Nation in access management and construction monitoring programs. The Proponent made a new commitment to fund additional mountain goat studies to be undertaken by the Kitselas First Nation.

4. Concerns about potential Project impacts on moose wintering areas in the Kitimat Valley.

Proponent Response: the Proponent made a new commitment to consider moose habitat in the Kitimat Valley in access management planning and in the restoration of the right-of-way and temporary workspace.

5. Concerns about potential Project impacts on grizzly bears and identified candidate grizzly bear Wildlife Habitat Areas in the Kitimat Valley., particularly between kilo post 39 and kilo post 39, kilo post 60.5 and kilo post 63, and kilo post 65 and kilo post 100.

Proponent Response: the Proponent made new commitments to consider Grizzly bear habitat and seasonal movements in access management planning and to involve Kitselas First Nation in any bear habitat investigations prior to construction. The Proponent also made a revised commitment to extend the grizzly bear and black bear timing window to ensure that no clearing or construction activities occur within 200 metre of an active grizzly bear or black bear den between November 1 and May 31. The Proponent submitted a Project amendment in January 2008 to move the proposed pipeline alignment in the Hunter Creek area to better avoid higher value grizzly bear habitat. The Proponent made a new commitment to fund additional grizzly bear studies to be undertaken by the Kitselas First Nation.

6. Concerns about potential Project impacts on northern goshawk habitat.

Proponent Response: the Proponent made a revised commitment to undertake construction phase monitoring of northern goshawk nest areas occurring within 500 metres of the construction footprint.

7. Compensation for terrestrial habitat loss or disturbance to wildlife.

Proponent Response: the Proponent made a new commitment to participate in a Wildlife and Wildlife Habitat Sub-committee for the KSL Project. PTP views the work of this sub-committee will be to:

- develop compensation and mitigative strategies commensurate with projectrelated terrestrial wildlife habitat losses and disturbances to wildlife;
- oversee the implementation of proponent (PTP) funded compensatory work, and,
- recommend adaptive management strategies, as required, once pipeline restoration work is completed.

The Proponent anticipates that the work of the committee will continue post EA certification, through the detailed design phase of the project and extend to post-construction monitoring, if an EA Certificate is issued. The Proponent suggests this committee would also address terrestrial vegetation issues as well (e.g. at-risk plant communities).

8. Selection and responsibilities of Environmental Inspector.

Proponent Response: the Proponent made a new commitment to provide the duties and responsibilities of the Environmental Inspector(s) to ESD Omineca; and to confer with ESD Omineca prior to the final selection of the Environmental Inspector(s).

9. Post-Construction Monitoring Program.

Proponent Response: the Proponent made a new commitment to seek MOE input into the draft Post-Construction Monitoring Program prior to finalization.

A complete list of issues concerning potential effects of the Project on the terrestrial environment and wildlife identified by the public, government agencies and First Nations during the Application Review stage of the Project's EA, and the Proponent's response to these issues, is contained in **Appendices C and D** of this Report.

2.4.4 Conclusion on Effects and Mitigation

During the Project EA, the EAO and the Responsible Authorities have considered: the Application; additional Project review material listed in **Appendix A**; public, government agency and First Nations comments on the potential effects of the Project; the advice of technical experts from provincial and federal agencies; discussions of the Working Group; and the Proponent's commitments to undertake measures to mitigate potentially adverse effects of the Project.

Based the above, the EAO concludes that all potential adverse effects of the Project on terrestrial environment and wildlife that were identified by the public, provincial and federal

government agencies and First Nations have been satisfactorily addressed by the Proponent's responses and commitments to undertake mitigation measures, and that none will result in significant residual effects.

Accordingly, provided that the Proponent undertakes the mitigation measures indicated above and implements the actions described in the Compendium of Proponent Commitments listed in **Appendix E** (particularly Section 3), the EAO concludes that the Project will not result in significant adverse effects terrestrial environment and wildlife.

The Responsible Authorities have not yet made a determination on the likelihood of significant adverse environmental effects arising from the project after mitigation significance on terrestrial environment and wildlife. This process will continue with a comprehensive study review under CEAA.

2.5 Species and Ecosystems at Risk

2.5.1 Background

Species and ecosystems at risk for the purposes of this section are those that been designated by federal or provincial regulation or legislation as being threatened, endangered or extirpated.

Federally, the Committee on the Status of Endangered Wildlife in Canada identifies species of conservation interest. Committee on the Status of Endangered Wildlife in Canada is an independent body of experts responsible for determining species considered to be at risk based on the best available scientific data, community knowledge, and Traditional Environmental Knowledge. The federal *Species at Risk Act* provides legal designation and protection for species that have been assessed by Committee on the Status of Endangered Wildlife in Canada as being in a risk category.

Provincially, the Conservation Data Centre, in cooperation with scientists and experts throughout the province, identifies BC's most vulnerable vertebrate animals, vascular plants and ecosystems. Species are listed as red, blue, or yellow. Red-listed species are designated as endangered, threatened, or extirpated. The Blue List includes species that are not immediately threatened, but are of concern because they are sensitive to human activities or natural events. Under the *Wildlife Act* and *the Forest and Range Practices Act* two categories of species at risk have been provincially designated: species at risk; and regionally important wildlife. These two categories comprise 'Identified Wildlife', as defined by the Identified Wildlife Management Strategy. This strategy provides direction, policy, procedures, and guidelines for managing Identified Wildlife to minimize effects of resource extraction activities on Crown lands.

The Project footprint potentially impacts on six aquatic species, nine wildlife species and four rare plant communities which are on Committee on the Status of Endangered Wildlife in Canada, *Species at Risk Act* or provincial lists. These species and ecosystems at risk are identified in the following table.

Species	COSEWIC	SARA	BC CDC	IWMS		
Fish						
White Sturgeon	Endangered	Schedule 1	Red	No		
Interior Fraser Coho Salmon	Endangered	No	Not assessed	No		
Eulachon	Not assessed	No	Blue	No		
Dolly Varden	Not assessed	No	Blue	No		
Bull Trout	Not assessed	No	Blue	No		
Coastal Cutthroat Trout	Not assessed	No	Blue	No		
Plants and Plant Communities						
Sitka Spruce- Salmonberry	Not assessed	No	Red	No		
Old growth Whitebark Pine	Not assessed	No	Blue	No		
Saskatoon-Slender wheatgrass	Not assessed	No	Red	No		
Hybrid white spruce/Ostrich-fern	Not assessed	No	Red	Yes		
Wildlife						
Woodland caribou	Threatened	Yes	Blue	Yes		
Wolverine	Special Concern	No	Blue	Yes		
Grizzly Bear	Special Concern	Yes	Blue	Yes		
Fisher	Not assessed	No	Blue	Yes		
Coastal Northern Goshawk	Threatened	Yes	Red	Yes		
Marbled Murrelet	Threatened	Yes	Red	Yes		
Great Blue Heron	Special Concern	Yes	Blue	Yes		
Sandhill Crane	Not at Risk	No	Blue	Yes		
Coastal Tailed Frog	Special Concern	Yes	Blue	Yes		

TABLE 3 – Species and Ecosystems at Risk Potentially Impacted by Project

2.5.2 Project Effects Identified in the Application and Proposed Mitigation

In the Application and supplemental materials, the Proponent assessed the potential for environmental effects of each phase of the Project on species and ecosystems at risk, and proposed measures to mitigate these potential effects.

Potential Effects and Proposed Mitigation

Fish and Fish Habitat

The Project footprint crosses several streams used by the six fish species at risk which are on Committee on the Status of Endangered Wildlife in Canada, *Species at Risk Act* or provincial lists:

- White Sturgeon occur in the Nechako River and the Stuart River. The pipeline follows, but does not cross, the Nechako River from kilo post 325 to kilo post 343, coming within 420 metres of the Nechako at kilo post 343, and crosses the Stuart River by horizontal directional drilling at kilo post 389;
- Interior Fraser coho are presumed to be within the range of numerous watercourses crossed by the pipeline, although none were found within this range during inventories. Coho from this population are assumed to be or present in very low numbers at best;
- Eulachon occur in the lower reaches of the Kitimat River. The pipeline crosses numerous tributaries of the Kitimat River, but comes no closer than 750 metres of the mainstream;
- Dolly Varden occur in moderate abundance in a number of watercourses west of the Morice River watershed that are crossed by the pipeline;
- Bull trout were not located in the Project area. Distinguishing between bull trout and Dolly Varden can be difficult in the field. Mitigation measures directed at one of these species are presumed to also be appropriate for the other; and,
- Coastal Cutthroat trout occur in moderate abundance in streams in the Kitimat River watershed and in lesser abundance in the Morice River watershed.

The primary potential Project effects on these fish species at risk are release of toxic substances during construction, disruption of suitable habitat, loss of riparian vegetation and increased access to fish-bearing streams.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential effects on fish species and habitats at risk, including the following:

- use of specialized crossing techniques, such as flow isolation methods or horizontal directional drilling;
- adherence to least risk windows for instream construction;
- procedures to prevent release of hydrocarbons from construction machinery;
- control of erosion and sediment inputs from instream and upslope construction activities;
- all intakes will be screened according to the Department of Fisheries and Oceans guidelines and water releases will use appropriate dissipation devices to minimize scour and erosion;
- environmental monitoring of construction activities; and,
- implement management practices and emergency procedures outlined in an Environmental Protection Plan.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential effects on fish species and habitats at risk, including species-specific mitigation, see Application Section 7.2.5.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project on fish species and habitats at risk, after the application of mitigative measures:

• no residual effects were identified.

Any likely spatial or temporal impacts to listed fish species or their habitats were deemed to be less than significant.

Plants and Plant Communities

The Project footprint crosses four rare plant communities which are on Committee on the Status of Endangered Wildlife in Canada, *Species at Risk Act* or provincial lists:

- <u>Sitka Spruce-Salmonberry Community</u>: occurs in one area on the pipeline route between kilo post 17.0 to kilo post 17.3;
- <u>Old Growth Whitebark Pine Forest</u>: occurs in three areas on the pipeline route between kilo post 95.0 and kilo post 97.2, kilo post 99.1 and kilo post 99.2, and kilo post 100.5 and kilo post 102.2;
- <u>Saskatoon-Slender Wheatgrass Community</u>: occurs in one area on the pipeline route between kilo post 242.5 and kilo post 243.4; and,
- <u>Hybrid White Spruce/Ostrich-fern Community</u>: occurs in one area on the pipeline route between kilo post 449.5 and kilo post 450.2.

These plants and plant communities will be lost or altered by Project clearing and construction, and operations activities involving maintenance of the right-of-way.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential effects on plants and plant communities at risk, including the following:

- pipeline routing criteria applied to the Project included following existing linear disturbances to the extent feasible, thereby minimizing the amount of disturbance to plant communities at risk;
- contain project footprint to the minimum area required to efficiently and safely build the pipeline;
- fence off the plant community at risk where it occurs next to the construction right-ofway to restrict pipeline construction traffic;
- retain mature and old components of plant communities whenever practical;
- survey previously undisturbed portions of the pipeline route that have suitable rare plant habitat for the presence of rare plants before grubbing; and,
- monitor the effectiveness of mitigation measures during the Post-Construction Monitoring Program.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential effects on plants and plant communities at risk, including species-specific mitigation, see Application Section 7.2.5.

The Proponent identified and assessed the following residual effects of the Project on plants and plant communities at risk, after the application of mitigative measures:

- approximately 1 hectare of Sitka Spruce-Salmonberry rare plant community will be cleared;
- approximately 9 hectares of rare Old Growth Whitebark Pine forest will be cleared;
- approximately 4 hectares of Saskatoon-Slender Wheatgrass rare plant community will be cleared; and,
- approximately 3 hectares of Hybrid White Spruce/Ostrich Fern rare plant community will be cleared.

These residual effects are considered reversible through restoration using native plants, and are deemed to be less than significant.

Wildlife and Wildlife Habitat

The Project footprint crosses several habitats used by the nine wildlife species at risk which are on Committee on the Status of Endangered Wildlife in Canada, *Species at Risk Act* or provincial lists:

<u>Woodland Caribou</u>: the pipeline route crosses a summer feeding area between kilo post 95 and kilo post 130, but avoids sensitive winter ranges and calving ranges; <u>Wolverines</u>: widely distributed at low densities throughout the Project area; Grizzly bear: widely distributed throughout the Project area. 25 areas where key grizzly

- bear feeding and movement habitats exist have been identified between kilo post 25 and kilo post 460. Grizzly bear denning areas have been identified between kilo post 65 and kilo post 108. The pipeline route also crosses two unroaded, mountainous areas between kilo post 75 and kilo post 104 which are subject less pressure from authorized and unauthorized grizzly bear hunting than neighbouring roaded areas. The Methanex Lateral pipeline is in an area known to be used by grizzly bear during spring. Introduction of access during the clearing, construction and restoration phase of the Project will allow for greater human access, and the risk of mortality related to authorized and unauthorized hunting will increase. Operational and maintenance activities on the pipeline right-of-way, including the Methanex Lateral pipeline, have the potential to disturb grizzly bear on important seasonal feeding or breeding ranges;
- <u>Fishers</u>: distributed throughout the pipeline route, but are generally only found in black cottonwood floodplain habitats;
- <u>Coastal Northern goshawk</u>: the pipeline route crosses four areas of high suitability breeding habitat for coastal northern goshawk between kilo post 74 and kilo post 94, although there are no known nest records in these suitable breeding habitats;
- <u>Marbled murrelet</u>: the pipeline route crosses one area with potentially suitable habitat for marbled murrelet nesting between kilo post 16.9 and kilo post 17.2;
- <u>Great blue heron</u>: both the coastal and interior subspecies great blue heron occur in riparian or wetland habitats adjacent to rivers or lakes throughout the Project area, but there are no known great blue heron rookeries in the Project footprint;
- <u>Sandhill crane</u>: the pipeline route crosses areas with suitable nesting habitat for sandhill cranes between kilo post 325 and kilo post 365. Pipeline operations and maintenance activities on the right-of-way will involve periodic tree clearing and vegetation management; and,

<u>Coastal tailed frog</u>: the pipeline route crosses 52 streams assessed to have moderate to high suitability for coastal tailed frogs between kilo post 1.3 and kilo post 74.25. In the highly unlikely event that scheduled pipeline operations and maintenance activity occurs in streams used by coastal tailed frogs, there is potential for alteration or degradation of the stream habitat.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential effects on wildlife species and habitats at risk, including the following:

- implement a Wildlife Incident Contingency Plan in the event of a wildlife encounter;
- work expeditiously to maintain a tight construction spread from trench opening to backfill in order to minimize potential barriers and hazards in important wildlife habitats;
- pipeline routing avoids sensitive woodland caribou winter ranges and calving ranges;
- use native plant species to maintain biodiversity and reduce weed cover in woodland caribou summer feeding areas;
- no clearing or construction activities are to occur within 200 metres of an active grizzly bear or black bear den between November 1 and April 30;
- minimize the clearing of vegetation adjacent to roads to the extent practical;
- Restore disturbed right-of-way areas with natural shrub species to enhance bear security and feeding habitat;
- no general logging and clearing activities to occur within the migratory bird nesting period other than minor areas adjacent to a previously cleared area that has been pre-surveyed and following consultation with the Canadian Wildlife Service; and,
- minimize clearing of mature and old coniferous forest habitat.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential effects on wildlife species and habitats at risk, including species-specific mitigation, see Application Section 7.2.5.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project on wildlife species and habitats at risk, after the application of mitigative measures:

- construction phase sensory disturbance to grizzly bears at feeding and reproduction sites;
- construction phase disturbance to grizzly bears movement patterns;
- increased unauthorized hunting of grizzly bears during and post-construction in previously unroaded mountainous areas;
- approximately 40 hectares of high suitability coastal northern goshawk habitat will be cleared;
- approximately 1 hectares of suitable marbled murrelet breeding habitat will be cleared;
- incidental mortality of individual coastal tailed frogs at all life stages; and,
- diminish instream and adjacent habitat suitability of 52 streams used by coastal tailed frogs.

These residual effects are considered reversible through mitigation, and deemed to be less than significant.

2.5.3 Issues Raised During Application Review and Proposed Mitigation

The following key issues concerning potential effects of the Project on species and ecosystems at risk were raised by the public, government agencies and the First Nations during the EA:

1. Stuart River Crossing may impact White Sturgeon.

Proponent Response: the Proponent has made a revised commitment to consider an aerial crossing of the Stuart River if the preferred horizontal directional drilling crossing method proves to be infeasible and if an aerial crossing would be acceptable to the local community.

2. Impacts to Grizzly Bear habitat in the Kitimat Valley

Proponent Response: The Proponent submitted a Project amendment in January 2008 to move the proposed pipeline alignment in the Hunter Creek area to better avoid higher value grizzly bear habitat. The Proponent made a new commitment to identify candidate grizzly bear Wildlife Habitat Areas on future versions of the Environmental Worksheets to be used during future planning and construction.

A complete list of issues concerning potential effects of the Project on species and ecosystems at risk identified by the public, government agencies and First Nations during the Application Review stage of the Project's EA, and the Proponent's response to these issues, is contained in **Appendices C and D** of this Report.

2.5.4 Conclusion on Effects and Mitigation

During the Project EA, the EAO and the Responsible Authorities have considered: the Application; additional Project review material listed in **Appendix A**; public, government agency and First Nations comments on the potential effects of the Project; the advice of technical experts from provincial and federal agencies; discussions of the Working Group; and the Proponent's commitments to undertake measures to mitigate potentially adverse effects of the Project.

Based the above, the EAO concludes that all potential adverse effects of the Project on species and ecosystems at risk that were identified by the public, provincial and federal government agencies and First Nations have been satisfactorily addressed by the Proponent's responses and commitments to undertake mitigation measures, and that none will result in significant residual effects.

Accordingly, provided that the Proponent undertakes the mitigation measures indicated above and implements the actions described in the Compendium of Proponent Commitments listed in **Appendix E** (particularly Section 3), the EAO concludes that the Project will not result in significant adverse effects species and ecosystems at risk.

The Responsible Authorities have not yet made a determination on the likelihood of significant adverse environmental effects arising from the project after mitigation significance on species and ecosystems at risk. This process will continue with a comprehensive study review under CEAA.

2.6. Archaeological and Heritage Resources

2.6.1 Background

Heritage property is protected in BC under the *Heritage Conservation Act*. Heritage property includes heritage sites or objects that are of historical, cultural, aesthetic, scientific or educational worth or usefulness as a site or object of value to BC, a community, or an Aboriginal people. Heritage property also includes archaeological sites, which are physical evidence of human use or occupation, such as burial sites, rock art, ancient stone carvings, remains of ancient houses and campsites, shell middens, culturally modified trees, early trading posts and gold mining sites. Archaeological sites pre-dating 1846 (the assertion of British sovereignty in the territory of BC), whether recorded or otherwise, may not be altered or disturbed except as authorized under the *Heritage Conservation Act*. In some circumstances archaeological sites post-dating1846 are also protected from disturbance under the *Heritage Conservation Act*.

An Archaeological Overview Assessment study was undertaken of the proposed pipeline corridor to identify impacts to both known and potential archaeological resources. The Archaeological Overview Assessment study focused on background research and an extensive literature and file review, but included a field reconnaissance component that was guided by a preliminary archaeological site potential scheme and information about the location and nature of previously documented archaeological resources along the proposed pipeline corridor.

The field reconnaissance component resulted in the identification of approximately 28 kilometres of pipeline alignment deemed to be of high archaeological potential, 45 kilometres deemed to have medium potential. The remaining pipeline sections were deemed to have a low to negligible archaeological site potential. All high and medium potential areas, as well as the locations of previously recorded archaeological sites that fall within or lie in close proximity to the proposed pipeline alignment, were the subject of a subsequent Archaeological Impact Assessment.

The Archaeological Impact Assessment included a detailed examination of both surface and sub-surface deposits within the 81 areas deemed to have either a medium or high potential for containing archaeological evidence of past First Nations land-use or occupation. In addition, all previously recorded archaeological site locations within or in close proximity to the pipeline study corridor were also examined to verify their location and to determine if they were situated within the project impact zone. All previously recorded site areas found to lie within the project impact zone were subjected to a detailed surface inspection and to sub-surface shovel testing, as were many of the high potential areas. Areas of medium archaeological potential were subjected to a detailed surface inspection, as were a few additional areas where evidence of surface or sub-surface archaeological deposits or remains was found in the course of field examinations. The area examined consisted of a 100 metres wide corridor centred on the pipeline route (i.e. 50 metres on both sides of the pipeline centreline).

The areas selected for Archaeological Impact Assessment field survey by the Archaeological Overview Assessment are referred to as archaeological survey units and were assigned identifiers based on their relation to pipeline kilometre posts. The Archaeological Impact Assessment identified:

- five pre-1846 archaeological sites protected by the *Heritage Conservation Act*, two of which were previously unrecorded;
- nine culturally modified tree sites, including six post-1846 sites and three post-1846 sites; and,
- two historic sites (a trap box and a small cabin).

The Archaeological Impact Assessment study results are summarized in the following table.

TABLE 4 – Archaeological and Heritage Sites Potentially Impacted by Project

Kilo post	Site Identifier	Archaeological and Heritage Site Type
46	GbTc 2	Previously recorded post 1846 CMT site
130	GbSu 1	Previously recorded surface lithic scatter
163	CMT T-6	Newly identified post 1846 CMTs
	CMT T-5	Newly identified post 1846 CMTs
165	GbSr 5	Previously recorded cultural depressions, post 1846 CMTs
	GbSr 7	Previously recorded cultural depressions, subsurface lithic scatter
304	CMT T-4	Newly identified post 1846 CMTs
311	CMT T-3	Newly identified post 1846 CMTs
	GaSe 25	Previously recorded post-1846 CMT site
315	HIST T-2	Newly identified historic trap box
	CMT T-2	Newly identified post 1846 CMTs
	CMT T-1	Newly identified post 1846 CMTs
327	RCMT-1	Previously recorded post-1846 CMT site
330	GaSd T-1	Newly identified subsurface lithic scatter
413	GbRt T-1	Newly identified subsurface lithic scatter
458	HIST T-1	Newly identified historic cabin

2.6.2 Project Effects Identified in the Application and Proposed Mitigation

In the Application and supplemental materials, the Proponent assessed the potential for environmental effects of each phase of the Project on archaeological and heritage resources, and proposed measures to mitigate these potential effects.

Potential Effects and Proposed Mitigation

A total of 16 archaeological and heritage sites may be permanently lost or compromised by the Project.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential effects on archaeological and heritage resources, including the following:

- avoid impact on archaeological and heritage sites, where feasible;
- if avoidance is not practical, a mitigation strategy will be developed and implemented;

- the Proponent will undertake appropriate site mitigation measures for each site to ensure that the loss or alteration of these sites will not constitute a loss to the regional archaeological record. Each site is unique in its components and scientific value and therefore site-specific mitigation recommendations will be designed for each archaeological site individually;
- the mitigation strategy will be designed to adequately mitigate the effects of the Project by reasonably compensating for the removal, loss, disruption, modification, or alteration of archaeological and heritage resources as a result of the Project. It is anticipated that information gained through implementation of a mitigation strategy, including but not limited to, systematic data recovery through controlled excavation and/or surface collection, and stem round sampling, as appropriate, will be valuable to the archaeological record and to understanding the prehistory of the study area;
- employ an Archaeological Resources Monitoring Plan for the purpose of implementing the mitigation measures; and,
- implement a contingency plan for the management of archaeological or heritage resources discovered during construction.

The Proponent identified and assessed the following residual effects of the Project on archaeological and heritage resources, after the application of mitigative measures:

 Residual Effect: construction may result in the permanent loss or alteration of archaeological or heritage sites.

With the implementation of appropriate site mitigation, the residual effects to archaeological and heritage resources, while permanent, are considered to be low in magnitude. An Archaeological Resources Monitoring Plan will be developed to ensure that the commitments on mitigation measures are followed. A Contingency Plan will also be developed for the management of archaeological or heritage resources discovered during construction to mitigate potential impacts. The residual effect is deemed to be less than significant.

Issues Raised During Application Review and Proposed Mitigation

The following key issues concerning potential effects of the Project on archaeological and heritage resources were raised by the public, government agencies and the First Nations during the EA:

1. Haisla Nation requests that an archaeologist be on site during construction activities that may impact on any archaeological sites within their territory that have been identified in the Archaeological Overview Assessment and Archaeological Impact Assessment.

Proponent Response: the Proponent made a revised commitment to have an archaeologist on-site during soil disturbing activities in the archaeological potential areas identified in the Kitimat Valley.

A complete list of issues concerning potential effects of the Project on archaeological and heritage resources identified by the public, government agencies and First Nations during the Application Review stage of the Project's environmental assessment, and the Proponent's response to these issues, is contained in **Appendices C and D** of this Report.

2.6.4 Conclusion on Effects and Mitigation

During the Project EA, the EAO and the Responsible Authorities have considered: the Application; additional Project review material listed in **Appendix A**; public, government agency and First Nations comments on the potential effects of the Project; the advice of technical experts from provincial and federal agencies; discussions of the Working Group; and the Proponent's commitments to undertake measures to mitigate potentially adverse effects of the Project.

Based the above, the EAO concludes that all potential adverse effects of the Project on archaeological and heritage resources that were identified by the public, provincial and federal government agencies and First Nations have been satisfactorily addressed by the Proponent's responses and commitments to undertake mitigation measures, and that none will result in significant residual effects.

Accordingly, provided that the Proponent undertakes the mitigation measures indicated above and implements the actions described in the Compendium of Proponent Commitments listed in **Appendix E** (particularly Section 3), the EAO concludes that the Project will not result in significant adverse effects archaeological and heritage resources.

The Responsible Authorities have not yet made a determination on the likelihood of significant adverse environmental effects arising from the project after mitigation significance on archaeological and heritage resources. This process will continue with a comprehensive study review under CEAA.

3. SOCIO-ECONOMIC EFFECTS

3.1 Land and Resource Use

3.1.1 Background

Land and Resource Plans

The pipeline route crosses five provincial Land and Resource Management Plan areas:

- Kalum Land and Resource Management Plan (approved in 2002), from kilo post 0 to kilo post 95.6;
- Morice Land and Resource Management Plan (approved in 2007), from kilo post 95.6 to 215.2;
- Lakes Land and Resource Management Plan (approved in 2002), from kilo post 215.2 to kilo post 288.2;
- Vanderhoof Land and Resource Management Plan (approved in 1997), from kilo post 288.2 to kilo post 388.9; and,
- Prince George Land and Resource Management Plan (approved in 1999), from kilo post 388.9 to kilo post 462.2.

Land and Resource Management Plans are sub-regional integrated resource plans that provide both broad, strategic management direction for provincial lands and resources across a Land and Resource Management Plan area, and more specific management direction for Land and Resource Management Plan sub-zones that have unique environmental, social or economic values. In some cases, more specific management direction for Land and Resource Management Plan sub-zones is also provided in Sustainable Resource Management Plans, which set out direction for operational planning and day-to-day resource management decisions.

The Project is broadly consistent with general management direction contained in the Land and Resource Management Plans. The pipeline route crosses a number of sub-zones which are given specific management direction in the Land and Resource Management Plans which have implications or the Project. Most notable is the direction in the Morice Land and Resource Management Plan for the following sub-zones: the Burnie-Shea Lakes land use zone, which has been proposed as a protected area with provision to allow future pipeline development; the Thautil-Gosnell land use zone which is to be managed as a high biodiversity area; and the Morice River land use zone, which is to be managed to conserve aquatic and riparian values.

The "General Management Direction" for water in the Morice Land and Resource Management Plan includes a specific objective to "provide the maximum practicable water quality within the defined Morice Water Management Area." The intent of this designation is to "maintain hydrological integrity, including water quality and quantity, within the Morice Water Management Area. The desired outcome is to ensure that the habitat and water quality supporting salmon and other fish is not negatively impacted". A water monitoring program and an area based water management plan were to be developed by March 2008. The Project crosses the Morice Water Management Area from approximately kilo post 80 to kilo post 140. The Morice Water Management Area was created to recognize the significance of the water and fisheries values in this area to the Office of the Wet'suwet'en. The Project also crosses both the Kalum Sustainable Resource Management Plan area and the Lakes Sustainable Resource Management Plan area for which direction is provided for both Old Growth Management Areas and Ungulate Winter Range.

The only municipality crossed by the pipeline route is the District of Kitimat, from kilo post 0 to kilo post 9.4. The District of Kitimat's Official Community Plan contains guidelines and regulations governing industrial, residential, commercial and recreational land use within the District. Seven other communities are within the Regional Study Area: Terrace, Smithers, Houston, Burns Lake, Fraser Lake, Vanderhoof and Prince George.

The pipeline route also crosses approximately 41 kilometres of land within the Agricultural Land Reserve, and includes approximately 800 hectares of Agricultural Land Reserve land.

Current Use of Lands and Resources

Forestry is a major activity along the pipeline route, which crosses the Kalum, Nadina, Vanderhoof, and Prince George Forest Districts. The Project crosses a number of area-based forestry tenures, including two private Tree Farm Licences, seven Woodlot Licences, and two Community Forest Agreements, as well as 14-volume-based forestry tenures and 17 Crown Range Tenures.

The pipeline route crosses 51 privately owned residential and/or light industrial properties, primarily farms, ranches or woodlots, including eight clusters of private residences, all located between kilo post 240.1 and kilo post 461.6. The route also crosses heavy industrial properties in the Kitimat area, as well as 38 active aggregate pits, and 20 active mineral tenures.

Tourism and outdoor recreation opportunities, including fishing, canoeing, kayaking, hiking, wildlife viewing, cross-country and backcountry skiing, snowmobiling, and hunting are also important activities along the pipeline route, which crosses 5 commercial recreation tenures, 45 registered traplines,11 guide outfitting areas,12 hiking trails and numerous wildlife viewing areas and paddling, snowmobile and all terrain vehicle routes, and passes within less than a kilometre of 10 forest recreation sites.

The pipeline route does not cross any national parks, established provincial parks or ecological reserves, or municipal parks but does cross the proposed Burnie-Shea Protected Area, designated in the Morice Land Resource Management Plan, between kilo post 95.6 and 100.5, as well as a Regional Park Reserve located in the Regional District of Fraser-Fort George, between kilo post 459.3 and kilo post 459.6.

First Nation Commercial Interests

A number of First Nations maintain forest-based commercial interests in portions of the Project Land Study Area and the Regional Study Area.

The Haisla Nation, through Haisla Forestry Ltd., holds a forest licence and has prepared a Sustainable Forest Plan which covers approximately the first 65 kilometres of the pipeline route. Although Haisla Forestry Ltd has no immediate plans to harvest in this area, they are concerned the Project will restrict their access and result in reduced volumes in their licence operating areas and interference with Haisla cultural and sacred sites.

Between kilo post 79.0 and kilo post 95.6 is part of Tree Farm Licence 1 held by Coast Tsimshian Resources Ltd. Kitselas Forest Products has a current area of operations under Forest Licence to Cut A77426 within the Tree Farm License.

Moricetown Band Council co-manages a forest licence in Nadina Forest District with Canfor Pulp Limited, but its operations will not be affected by the Project. The Office of the Wet'suwet'en has developed a Sustainable Use Plan for its Chiefs' territories and is in the process of negotiating its consonance with the Province's Land and Resource Management Plans. The Office of the Wet'suwet'en and the Province have reached agreement regarding the Morice Land Resource Management Plan and are in the process of implementing key aspects of that agreement at present. The outstanding area of disagreement is the Burnie-Shea Lakes (Tazdli Wiyez Bin) and there may be questions about the compatibility between the project and management directions in the Morice River and Thautil-Gosnell resource management zones.

Between kilo post 299.0 and kilo post 306.0, the Stellat'en First Nation holds non-replaceable Forest Licence A72920. The Basghelh non-replaceable Forest Licence (A75068) between kilo post 288.1 and 299.0, and between kilo post 306.0 and 355.2, is co-managed by the Nadleh Whut'en First Nation, Canfor, and West Fraser. The Saikuz First Nation holds Nonreplaceable Forest Licence A72189 between kilo post 360.8 and 366.4. It is currently operating in the Blue Mt. Demonstration Forest, which will not be affected by the Project. The Lheidli T'enneh First Nation is in the process of identifying an area for a proposed Community Forest in the Summit Lake area at the eastern end of the Project route.

Domestic Water Supply and Quality

There are ten registered wells are within 200 metres of the pipeline route, and an additional 25 that are within the Project Land Study Area. There are also two surface water licences within 200 metres of the pipeline route, and an additional twenty within the Land Study Area.

Contaminated Sites

Based on a search of MOE's contaminated sites database, two contaminated sited were identified in the Project footprint: the Eurocan Mill Site in Kitimat (kilo post 0 to kilo post 2); and the Electrical Substation Complex on Endako Mine Road in Fraser Lake (kilo post 03). The contaminants identified in the database of the two sites were polychlorinated biphenyls and extractable petroleum hydrocarbons.

A gravel pit at kilo post 1.0 of the pipeline route, associated with the old Eurocan Mill Site (presently known as the Methanex Plant Site), is not mentioned in the database, but may also be a contaminated site.

<u>3.1.2 Project Effects Identified in the Application and Proposed Mitigation</u> In the Application and supplemental materials, the Proponent assessed the potential for environmental effects of each phase of the Project on land and resource use, and proposed measures to mitigate these potential effects.

Potential Effects and Proposed Mitigation

Land and Resource Plans

Project activities associated with the clearing, construction, and restoration of the Project area, and Project operations and maintenance may:

- conflict with identified management policies in land use plans, including the Kitimat Linkage Grizzly Bear Management Area (Kalum Land Resource Management Plan), the Proposed Burnie Shea protected area (Morice Land Resource Management Plan), Herd Dome Area Specific Management Zone (Morice Land Resource Management Plan), Thautil-Gosnell Area Specific Management Zone (Morice Land Resource Management Plan), Morice River Area Specific Management Zone (Morice Land Resource Management Plan), the Nourse-Allin-Maxan Trail Recreation Emphasis Zone (Lakes Land Resource Management Plan) and the Tchesinkut Lake Recreation Emphasis Zone (Lakes Land Resource Management Plan);
- conflict with future industrial land use adjacent to the project route in the Kitimat Valley;
- infringe on provincially designated Old Growth Management Areas;
- infringe on provincially designated Mountain Goat Ungulate Winter Range Areas; and,
- conflict with forest licensee operational plans and commitments.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential effects on land and resource plans, including the following:

- minimize disruption of fish, wildlife, and vegetation (See Sections 7.2.3 Aquatic Environment and 7.2.4 Wildlife and Terrestrial Habitat);
- implement a Restoration Plan to restore disturbed areas;
- deactivate and restore temporary access routes and sites required to construct the Project once Project construction is complete;
- implement an Access Management Plan, including access control measures where needed (e.g. signage, road closures, snowmobile restrictions etc.) to minimize unauthorized motorized access. At strategic access points, install berms or equivalent, and plant vegetation to help prevent motorized access;
- undertake discussions with landowners and municipal planners responsible for the Terrace Rural Official Community Plan (1997) of the District of Kitimat during detailed Project design to identify ways to minimize potential disruption of future industrial development;
- work with Integrated Land Management Bureau to identify appropriate mitigation measures for altering Old Growth Management Areas;
- undertake discussions with forest licensees to discuss planning issues;
- discuss the issuance of one Master Licence to Cut for the pipeline route with BC MOFR and the BC Oil and Gas Commission to minimize planning costs for licensees;
- provide forest licensees with information and protocols regarding timeframes for approval of pipeline crossings, weight restrictions, standard operating procedures, and blasting restrictions; and,
- discuss mitigation measures with forest licensees for economic losses related to construction of the Project.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential effects on land and resource plans, see Application Section 7.2.8.

The Proponent identified and assessed the following residual effects of the Project on land and resource plans, after the application of mitigative measures:

 unauthorized motorized use of the proposed Burnie-Shea Protected Area and Herd Dome Area Specific Management Zone in the medium term as vegetation regrows.

The Proponent will implement a Restoration Plan, install physical and vegetation barriers to help prevent unauthorized motorized access at strategic points, provide financial resources to monitor unauthorized motorized use and assess the efficacy of access control strategies to minimize unauthorized access. The number of potential motorized users is considered low, due to isolation, difficulty in crossing the Burnie River, and steep, rugged topography. This residual effect is concentrated on the Project footprint, is considered to be of medium magnitude and to be reversible in the long-term, and is deemed to be less than significant.

Current Use of Lands and Resources

Project activities associated with the clearing, construction, and restoration of the Project area, and Project operations and maintenance may result in:

- permanent loss of harvestable timber from the Project right-of-way;
- temporary removal of timber from Project workspace and temporary facilities;
- disruption of forestry operations;
- increased risk of forest fire due to Project construction;
- inconvenience to landowners in the Project Land Study Area;
- disruption of aggregate pits;
- conflicts with mineral claims;
- disruption of agricultural crop production and ranching activities;
- disruption of commercial fish, wildlife, and nature-based operations;
- disruption of public recreational use;
- disruption of recreational activity at unnamed lake located 525 metres from the Compressor Station site;
- disruption of seasonal hunting activities; and,
- increased public use of the pipeline route.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential effects on the current use of lands and resources, including the following:

- work with MOFR and tenure holders to ensure appropriate recovery and processing of salvageable wood from the Project right-of-way;
- discuss mitigation measures with forest tenure holders for demonstrated economic losses;
- PTP will communicate with MOFR to discuss hauling restrictions for beetle-killed wood;
- locate storage areas, construction camps, and temporary facilities in disturbed areas or other areas acceptable to the MOFR to minimize forest impacts, particularly on nonpine timber supply;
- ensure temporary sites are replanted with appropriate tree species to restore the productive forest, as directed by MOFR. Communicate with MOFR to discuss hauling

restrictions for beetle-killed wood. Discuss mitigation measures with forest tenure holders for demonstrated economic losses;

- implement a Traffic Management Plan to maintain safe and efficient traffic movement for forestry operations, especially in areas with heavily used roads;
- implement an Access Management Plan to reduce areas of potential conflict between forestry operation and pipeline construction, and to minimize future pipeline crossing issues;
- develop a Communication Plan with MOFR District offices, MOFR Regional Protection Office in Prince George, and Forest Licensees to share Project schedules, maps, and other Project information. Key elements of the plan should include notification of all forest tenure holders prior to commencement of land clearing and construction activities;
- negotiate Road Use Agreements with permit holders for roads potentially affected by the Project. Discuss Project schedules, timeframes necessary for access, expected traffic volumes and timing, road maintenance, road upgrades planned by PTP and licensees, road safety issues and signage, radio frequencies and protocols, and load, weight, and blasting restrictions, where applicable;
- leave Forest Service Roads and other roads used for construction in a condition equal, or better than, the pre-construction state, if desired by forest licensees and the MOFR;
- place traffic signage on major highways and main Forest Service Roads to notify resource users of construction activities, the presence of heavy equipment, radio frequencies, and main access points to the Project;
- implement a Forest Fire Prevention Plan that specifies how the requirements of the Wildfire Act will be met, including measures for slash handling and burning procedures. Conduct a Fire Risk Assessment near settled areas;
- ensure slash burning and construction crews have fire-fighting equipment on site that is capable of controlling fire that may result from Project activities. Ensure that Project construction personnel participate in fire training;
- consult with the private landowners to determine and resolve any concerns associated with clearing, construction, and restoration activities. Provide landowners with Project scheduling and other relevant information prior to Project clearing, construction, and operation;
- minimize noise near residences (See Section 7.2.11 Human Health and Safety);
- avoid construction of the Project in aggregate pits, where feasible;
- notify mineral claim holders prior to commencement of land clearing and construction activities. Provide Project routing and scheduling information, as required;
- notify agricultural crop producers near the pipeline route prior to commencement of land clearing and construction. Provide Project routing and scheduling information, as required, and identify specific access needs through the construction phase;
- restore soil productivity in agricultural areas crossed by the pipeline route (See Section 7.2.1 Geophysical and Soil Environment);
- operators, trappers, and guided hunting and fishing operators prior to initiating clearing or construction activities to provide updates on project scheduling, and to allow operators to remove traps and other equipment from the pipeline route;
- ensure that the Project work force does not disturb cabins, trapline equipment, or facilities associated with trapping, guide outfitting, or tourism operations along the pipeline route;
- provide construction schedules and other relevant information on anticipated trail closures to hiking, snowmobile, cross-country ski, mountaineering, and other outdoor

clubs, and provide similar information to visitor centres to reach the general public and visitors;

- enable seasonal hunting activities to occur outside of a designated 1 kilometre no shooting zone along the pipeline route during Project clearing, construction, and restoration. Use signage to inform hunters of the 1 kilometre no shooting zone; and,
- implement an Access Management Plan to minimize unintended motorized access.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential effects on the current use of lands and resources, see Application Section 7.2.8.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project on the current use of lands and resources, after the application of mitigative measures:

- permanent removal of approximately 620 metres hectares of land from forest land base on the Project right-of-way and permanent reduction in commercial timber producing capacity. Negotiated agreements will be developed with forest licensees to provide compensation for economic losses. This residual effect is considered to be permanent and low in magnitude, and is deemed to be less than significant;
- construction phase traffic effects on Forest Service Roads and forestry operations. An Access Management Plan, Road Use Agreements, signage, and notification of resource operators and residents will resolve most of the access-related issues. However, isolated road use overlaps may still occur between forestry operations and Project construction. Delays or other traffic conflicts will be minimized, and signage and other information will be provided to road users. This residual effect of road delays for forestry operations is considered to be short-term and medium in magnitude, and is deemed to be less than significant;
- construction phase disruption of commercial fish, wildlife, and nature-based operations. The Proponent will discuss mitigation and possibly compensation with commercial recreation and tourism operators, trappers, and guided hunting and fishing operators for demonstrated economic loss associated with Project activities. This residual effect of the construction phase disruption is considered to be medium in magnitude and reversible in the medium-term, and is deemed to be less than significant; and,
- construction phase disruption of public recreation use. Signage and public service announcements will be used to inform recreational users of potential disruption of activity or noise disturbance and direct them away from active construction areas. Many alternative recreation opportunities are available to local residents and visitors during the Project construction period. This residual effect is considered to be medium in magnitude and reversible in the short-term, and is deemed to be less than significant.

First Nation Commercial Interests

No potential negative effects were identified.

Domestic Water Supply and Quality

Project activities associated with the clearing, construction, and restoration of the Project area, and Project operations and maintenance may alter domestic surface water supply and quality for downstream users through sediment input to streams, contamination of

watercourses from accidental spills or leaks from construction equipment, alteration of water supply and quality during hydrostatic testing. In addition, in unusual circumstances, trenching, blasting, and soil replacement may interrupt groundwater flows to shallow wells or result in sediments or nitrates entering well water.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential effects on domestic water supply and quality, including the following:

- identify the location of registered and unregistered points of diversion within 200 metres down slope and 100 metres upslope of clearing, construction, and restoration activities;
- monitor pH, turbidity, total dissolved solids, total suspended solids, and true colour at these locations before, during, and after construction; if blasting will occur in the area, also monitor nitrates;
- monitor nitrate levels in water wells within 200 metres of blasting sites before and after the blasting occurs;
- install cross ditches, trench breakers, or subdrains where substantial subsurface seepage is encountered at depth on sloping terrain;
- implement and adhere to a Hazardous Waste Management and Spill Plan and Emergency Response Plan;
- implement and adhere to a Surface Water Quality and Sediment Control Plan;
- select appropriate waterbody crossing techniques to minimize the risk of sedimentation to the extent practicable;
- implement and adhere to a Hydrostatic Test Plan; and,
- provide potable water to residents if water supply is degraded.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential effects on domestic water supply and quality, see Application Section 7.2.8.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project on domestic water supply and quality, after the application of mitigative measures:

- brief, low level increases in domestic water turbidity associated with the installation and removal of dams, flumes, and pumps near surface water points of diversion. Monitoring will be undertaken to identify and correct any sediment input resulting from construction activity. This residual effect is reversible in the immediate to short-term, of low to medium magnitude, and is deemed to be less than significant; and,
- disruption of water well flows and quality by construction activities. Relatively few wells are known to exist near the pipeline route, and pipeline installation rarely affects aquifers or wells. Mitigation provides for rectification or compensation to the well owner and, if warranted, the provision of water of equal or better quality and quantity until repaired. This residual effect is reversible in the short-term, of low magnitude, and is deemed to be less than significant.
Contaminated Sites

Disturbance of previously contaminated soil during clearing, construction, and restoration activities could harm workers and release contaminants, such as Polychlorinated Biphenyls or Extractable Petroleum Hydrocarbons, into air or water.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential effects on contaminated sites, including the following:

- for the Eurocan Mill Site, Kitimat, and electrical sub-station complex, Fraser Lake:
 - determine boundaries of contamination and avoid, where feasible;
 - if contamination is encountered during Project construction, ensure a qualified environmental consultant conducts a Detailed Site Investigation before construction continues; and,
 - dispose of contaminated material disturbed by Project activities in accordance with BC Contaminated Sites Regulation.
- for unregistered sites of concern:
 - if contamination is encountered along the pipeline route, ensure a qualified environmental consultant conducts a Detailed Site Investigation before construction continues; and,
 - dispose of contaminated material disturbed by Project activities in accordance with BC Contaminated Sites Regulation.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project on contaminated sites, after the application of mitigative measures:

• no residual effects were identified.

3.1.3 Issues Raised During Application Review and Proposed Mitigation

The following key issues concerning potential effects of the Project on land and resource use were raised by the public, government agencies and the First Nations during the EA:

1. Concerns that the pipeline corridor will result in public access to currently inaccessible areas for hunting, motorized recreation and other purposes.

Proponent Response: the Proponent confirmed an existing commitment to prepare an Access Management Plan that will eliminate all new access created by the Project.

2. Concerns that the pipeline corridor will result in public access to currently inaccessible areas between the Gosnell and Clore Rivers.

Proponent Response: the Proponent made a new commitment to work with the Office of the Wet'suwet'en in the development of the Access Management Plan.

3. Concerns that the pipeline corridor will result in public access to currently inaccessible areas near the Parrott Lakes.

Proponent Response: the Proponent made a new commitment to work with the Skin Tyee First Nation in the development of the Access Management Plan.

4. Concerns that the pipeline corridor will result in public access and increased recreational traffic off bald Hill Road near Burns Lake.

Proponent Response: the Proponent made a new commitment to work with the resident of the Bald Hill Road area to discuss access control measures.

5. Concerns that the Proponent's access management plan will isolate MORF licensed timber harvesters from their timber supply.

Proponent Response: the Proponent made a new commitment to include MOFR and licensees in the development of the Access Management Plan in order prevent timber being isolated.

6. Concerns that clearing width for the pipeline right-of-way and potential impacts on sensitive zones in the Morice River Management Zones designated in the Morice Land Resource Management Plan.

Proponent Response: the Proponent has made a new commitment to; where practical and warranted, consider reducing the clearing width of the pipeline right-of way in these sensitive areas.

7. Concerns that a portion of the pipeline right-of-way north of Fraser Lake will create a corridor for livestock grazing on Crown land to easily move to private land.

Proponent Response: the Proponent has made a new commitment to discuss the construction of livestock management measures in this area with the local community.

8. Concerns that the Project will impact on licensed angling guide businesses using the Zymoetz watershed, including the Clore River.

Proponent Response: the Proponent has made a new commitment to contact these angling guides to discuss the potential impacts of the Project on their businesses.

A complete list of issues concerning potential effects of the Project on land and resource use identified by the public, government agencies and First Nations during the Application Review stage of the Project's EA, and the Proponent's response to these issues, is contained in **Appendices C and D** of this Report.

3.1.4 Conclusion on Effects and Mitigation

During the harmonized EA, the EAO and the Responsible Authorities have considered: the Application; additional Project review material listed in **Appendix A**; public, government agency and First Nations comments on the potential effects of the Project; responses by the Proponent; and the discussions of the Working Group.

Based on the information in this Report, provided that the Proponent conducts the mitigation measures as indicated above and implements the actions described in the Compendium of Proponent Commitments listed in **Appendix E** (particularly Section 8), the EAO is satisfied that the Project is not likely to result in significant adverse effects on land and resource use.

The Responsible Authorities have not yet made a determination on the likelihood of significant adverse environmental effects arising from the project after mitigation on the terrestrial environment. This process will continue with a comprehensive study review under CEAA.

3.2 Aesthetics and Viewsheds

3.2.1 Background

A large number of areas along the pipeline route have been identified as being visually sensitive in the Kalum, Morice, Lakes District, Vanderhoof and Prince George Land Resource Management Plans, including viewsheds that can be seen from hiking trails, lakes, navigable rivers, recreation sites, public viewpoints, and primary and secondary public roads. The MOFR and the BC Ministry of Agriculture and Lands (MAL) have also identified "areas of visual concern" crossed by the pipeline route that include viewpoints near or in communities, recreation areas, and land and water travel corridors. Maintaining the visual quality of viewsheds from these observation points is important to local residents, First Nation communities, tourism operators, visitors, and government agencies.

3.2.2 Project Effects Identified in the Application and Proposed Mitigation

In the Application and supplemental materials, the Proponent assessed the potential for environmental effects of each phase of the Project on aesthetics and viewsheds, and proposed measures to mitigate these potential effects.

Potential Effects and Proposed Mitigation

Project activities associated with the clearing, construction, and restoration of the Project area and Project operations will create visual disturbances at the following locations which have been identified as visually sensitive and/or designated as of scenic value in land use plans or by MOFR and MAL:

- Enso Recreation Site viewpoint (400 metres west of kilo post 18.4);
- Upper Kitimat Recreation Site-viewpoint Kitimat Lookout (south of kilo post 43.5);
- Burnie River Valley (between kilo post 98 and kilo post 101);
- Morice River Valley (between kilo post 134 and 144);
- Maxan Trail (between kilo post 224 and 232);
- Tchesinkut Lake viewpoint (between kilo post 244.5 and kilo post 273.5);
- Short sections along Highway 16 viewpoints (between kilo post 273.5 and kilo post 276 and at kilo post 298);
- Ormond Creek Trail (between kilo post 315.0 and kilo post 315.3);
- Nyan Wheti Trail (at kilo post 326.4);

- Omineca Trail (at kilo post 364.4);
- Stuart River Valley Paddling Route (at kilo post 388.8); and,
- Salmon River Valley Paddling Route (at kilo post 449.2).

New, temporary access roads and shoe-flys created construction purposes will cause disturbances of viewscapes, particularly in the Upper Hoult, Clore, Burnie and Morice areas, as will construction and operation of the Methanex Lateral and compressor station.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential effects on aesthetics and viewsheds, including the following:

- the visual impact of the Project will be mitigated by implementation of a Restoration Plan;
- the visual impact of the Project will be mitigated by planting screens of trees and shrubs, vegetated berms at trail crossings and between footprint and trail;
- all new access roads and shoo-flys will be completely deactivated following pipeline construction;
- invasive vegetation will be controlled along new access routes; and,
- seed mixtures and planting to be used to restore new access routes will be developed in consultation with resource management agency staff (MOE, and MOFR).

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential effects on aesthetics and viewsheds, including site specific mitigation, see Application Section 7.2.13.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project on aesthetics and viewsheds, after the application of mitigative measures:

- viewscapes from recreational sites will be altered;
- views from hiking trails will be altered;
- viewscapes in the Burnie River and Morice River valleys will be altered; and,
- disturbance of viewscapes in areas where new access roads are constructed.

These residual visual effects are considered to be of low to medium magnitude, will largely be reversed by restoration and vegetation re-growth in the medium to long term, and are deemed to be less than significant.

3.2.3 Issues Raised During Application Review and Proposed Mitigation

All issues concerning potential effects of the Project on aesthetics and viewsheds raised by the public, government agencies and the First Nations during the EA were addressed by the Proponent in the Application.

3.2.4 Conclusion on Effects and Mitigation

During the harmonized EA, the EAO and the Responsible Authorities have considered: the Application; additional Project review material listed in **Appendix A**; public, government agency and First Nations comments on the potential effects of the Project; responses by the Proponent; and the discussions of the Working Group.

Based on the information in this Report, provided that the Proponent conducts the mitigation measures as indicated above and implements the actions described in the Compendium of Proponent Commitments listed in **Appendix E** (particularly section 13), the EAO is satisfied that the Project is not likely to result in significant adverse effects on aesthetics and viewsheds.

3.3 Human Health and Safety

3.3.1 Background

Air Quality

Air quality in the Project Regional Study Area is outlined in Section 2.2.1 of this Report, under the heading Atmospheric Environment.

Water Quality

There is little or no monitoring for most drinking water sources in the Project Land Study Area and baseline water quality information was not available, with the exception of the Kitimat River near the Kitimat town site and Fraser Lake. According to the Northern Health Authority, all surface water supplies outside of these communities must be considered to be of doubtful quality, unless it has been subject to adequate treatment.

Water quality is discussed in Section 2.3.1 of this Report, under the heading Aquatic Environment and Fisheries and in Section 3.1.1 of this Report under the heading Land and Resource Use.

Noise and Light

Background noise levels in the Project Land Study Area are primarily determined through the presence of highways, active Forest Service Roads, and industrial activities. Much of the pipeline route is located in sparsely populated areas. Back-country noise levels are very low.

3.3.2 Project Effects Identified in the Application and Proposed Mitigation

In the Application and supplemental materials, the Proponent assessed the potential for environmental effects of each phase of the Project on human health and safety, and proposed measures to mitigate these potential effects.

Potential Effects and Proposed Mitigation

Project activities associated with the clearing, construction, and restoration of the Project area and Project operations and maintenance may have the following effects on human health and safety:

<u>Air Quality</u> (Also discussed in Section 2.2, Atmospheric Environment)

Project activities associated with the clearing, construction, and restoration of the Project area, and Project operations and maintenance may result in:

alteration of air quality contributing to adverse health effects; and,

air emissions from the compressor station.

Water Quality (Also discussed in Section 3.1, Land and Resource Use)

Project activities associated with the clearing, construction, and restoration of the Project area, and Project operations and maintenance may result in:

- alteration of domestic surface water supply and quality for downstream users; and,
- alteration of water well flow and quality.

Noise and Light

Project activities associated with the clearing, construction, and restoration of the Project area, and Project operations and maintenance may result in:

- noise caused by Project clearing, construction and restoration;
- noise from operation of the compressor station; and,
- lighting at the compressor station.

Human Safety

Project activities associated with the clearing, construction, and restoration of the Project area may result in:

• risks to public safety.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential effects on human health and safety, including the following:

Air Quality

- adhere to an Air Quality and Dust Control Plan;
- maintain equipment frequently to minimize emissions;
- use multi-passenger vehicles to transport crew to site to the extent practical to limit the amount of traffic and accompanying emissions;
- apply water to exposed soil piles, near residences, and in sensitive areas to reduce dust;
- reduce vehicle speeds to decrease traffic-induced dust dispersion and resuspension from the operation of heavy vehicles;
- where practical, and where necessary, ensure trucks hauling sand, dirt, or other loose materials are covered;
- provide notification of construction activities in areas near residences. Allow time for local residents to leave the area who may have sensitivities to poor air quality; and,
- conduct burning in compliance with local government bylaws, the BC Open Burning Smoke Control Regulation, and the Forest Fire Prevention and Suppression regulation.

Water Quality

- identify the location of registered and unregistered points of diversion within 200 metres downslope and 100 metres upslope of clearing, construction, and restoration activities;
- monitor pH, turbidity, total dissolved solids, total suspended solids, and true colour of user's water before, during, and after construction. If blasting in the area, also monitor nitrates;
- monitor nitrate levels in water wells within 200 metres of blasting sites before and after the blasting occurs;
- install cross ditches, trench breakers, and/or subdrains where substantial subsurface seepage is encountered at depth on sloping terrain;
- implement and adhere to a Hazardous Waste Management and Spill Plan and Emergency Response Plan;
- implement and adhere to a Surface Water Quality and Sediment Control Plan;
- select appropriate waterbody crossing techniques to minimize the risk of sedimentation;

- implement and adhere to a Hydrostatic Test Plan;
- provide potable water to residents if water supply is degraded; and,
- where required, compensate affected water users.

Noise and Light

- notify residents of Project scheduling prior to clearing, construction, or restoration;
- generally, confine work to between 7am and 7pm near to occupied seasonal and permanent residences (e.g. kilo post 287 to kilo post 291.8), unless otherwise approved by the appropriate authority;
- adhere to local noise by-laws, where in existence; and,
- maintain equipment, and minimize unnecessary noise through the use of standard noise reduction technologies (e.g. mufflers).

Human Safety

- implement an Access Management Plan to coordinate access to the pipeline route. Ensure ongoing communication between PTP staff, contractors, forestry operations, government representatives, and other resource users during the clearing, construction, and restoration phases;
- implement a Traffic Management Plan to ensure road users are aware of safety protocols and procedures;
- provide construction notification to local media;
- use signage near populated areas and on access routes near the pipeline route that will be affected by Project construction or increased traffic levels to alert the public about ongoing construction activities; and,
- install fencing around the perimeter of excavations in public areas, if required to meet provincial and local safety standards.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential effects on human health and safety, see Application Section 7.2.11.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project on human health and safety, after the application of mitigative measures:

- air emissions during the clearing, construction, and restoration phase may cause irritation for some residents. The Project is located away population centres, and construction periods in localized areas are relatively short. This residual effect is expected to be reversible in the short-term, is of medium magnitude, and deemed to be less than significant;
- brief, low level increases in domestic water turbidity associated with the installation and removal of dams, flumes, and pumps near surface water points of diversion. Monitoring will be undertaken to identify and correct any sediment input resulting from construction activity. This residual effect is reversible in the immediate to shortterm, of low to medium magnitude, and is deemed to be less than significant;
- disruption of water well flows and quality during construction phase. Mitigation
 provides for compensation to the well owner and, if warranted, the replacement of
 water of equal or better quality and quantity until repaired. This residual effect is
 reversible in the medium-term, is of low magnitude, and is deemed to be less than
 significant;

- construction phase increase in noise levels during clearing and construction. Notification will be provided to local area residents prior to Project construction. This residual effect is expected in the short-term at specific locations, of medium in magnitude, and is deemed to be less than significant; and,
- long term increase in noise levels by operation of the compressor station. Noise emissions are expected to be permanent and below acceptable standards. This residual effect is considered long-term, of medium in magnitude, and is deemed to be less than significant.

3.3.3 Issues Raised During Application Review and Proposed Mitigation

All issues concerning potential effects of the Project on human health and safety raised by the public, government agencies and the First Nations during the EA were addressed by the Proponent in the Application.

3.3.4 Conclusion on Effects and Mitigation

During the harmonized EA, the EAO and the Responsible Authorities have considered: the Application; additional Project review material listed in **Appendix A**; public, government agency and First Nations comments on the potential effects of the Project; responses by the Proponent; and the discussions of the Working Group.

Based on the information in this Report, provided that the Proponent conducts the mitigation measures as indicated above and implements the actions described in the Compendium of Proponent Commitments listed in **Appendix E** (particularly Section 11), the EAO is satisfied that the Project is not likely to result in significant adverse effects on human health and safety.

The Responsible Authorities have not yet made a determination on the likelihood of significant adverse environmental effects arising from the project after mitigation on the terrestrial environment. This process will continue with a comprehensive study review under CEAA.

3.4. Employment and Economy

3.4.1 Background

The economy of the Regional Study Area is strongly tied to primary resource extraction, value-added processing, services, and tourism.

The unemployment rate in the Regional District of Kitimat-Stikine has historically been higher than the provincial average. In the period between 1996 and 2001, the unemployment rate in the Regional District of Kitimat-Stikine rose from 13.7% to 17.2%, while the provincial rate fell from 9.6% to 8.5% over the same period. The District of Kitimat is a manufacturing hub and resource-based community. The economy is dependent on a few large firms. The two largest employers in Kitimat are Alcan and Eurocan. The Coast Mountain School District is the community's third largest employer. The Terrace economy has recently suffered with the downturn in wood prices resulting in mill closures and associated job losses. The Terrace had a 25% income dependency on forestry, mining, and fishing in 2000, and this dependency on the primary sector results in vulnerability to economic cycles.

In the Regional District of Bulkley-Nechako, agriculture, forestry, mining, and tourism are the main economic sectors. The Mountain pine beetle is prevalent in the regional district and, in Vanderhoof, 73% of the forest is comprised of pine. The world's largest sawmill is located in Houston. The unemployment rate in the Regional District of Bulkley-Nechako held steady between 1996 and 2001 at about 12.5%. The Regional District of Bulkley-Nechako's unemployment rate is higher than the provincial average, as is the participation rate. There are three major employers in Houston, including Canadian Forest Products, Houston Forest Products sawmill, and Huckleberry Copper Mine. Burns Lake community is highly dependent on the primary sector. Three of the largest timber licensees in the area are Babine Forest Products, Decker Lake Forest Products, and Cheslatta Forest Products. The West Fraser Timber Company sawmill and Endako Mine are the largest employers in the community of Fraser Lake. Mineral reserves at the Endako Mine are projected to keep the mine operational until 2013. Endako Mine is Canada's largest molybdenum producer. The communities of Vanderhoof and Fraser Lake are in the Nechako Local Health Area. The Nechako Local Health Area is more heavily reliant on goods production (mainly forest products) than the provincial average. Vanderhoof is also a service hub for farmers on the surrounding high-quality agricultural land.

In the Regional District of Fraser Ft. George, a large proportion of people are employed in the forestry, mining, and tourism sectors. Prince George is the transportation, government, and services hub for Northern BC.

3.4.2 Project Effects Identified in the Application and Proposed Mitigation

In the Application and supplemental materials, the Proponent assessed the potential for environmental effects of each phase of the Project on employment and the economy, and proposed measures to mitigate these potential effects.

Potential Effects and Proposed Mitigation

Project activities associated with the clearing, construction, and restoration of the Project area and Project operations and maintenance may have the following effects on employment and the economy:

- increased project and employee spending in communities in the Regional Study Area;
- project construction will increase employment in communities in the Regional Study Area; and,
- increase in local employment for the construction of the Methanex Lateral and Compressor Station.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential effects on employment and the economy, including the following:

- PTP is committed to a procurement program that actively promotes local opportunities, including Aboriginal businesses;
- PTP will communicate with local economic development offices, First Nations, and regional employment agencies to identify workforce needs and potential opportunities for local employment; and,
- PTP will continue to encourage local economic benefits throughout the life of the Project.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential effects on employment and the economy, see Application Section 7.2.10.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project on employment and the economy, after the application of mitigative measures:

- construction phase increase in local and regional business activity;
- construction phase increase in local employment; and,
- increase in local employment during construction of permanent facilities.

These residual effects are considered to be either beneficial or of low to medium magnitude and short term, and are deemed to be less than significant.

3.4.3 Issues Raised During Application Review and Proposed Mitigation

The following key issues concerning potential effects of the Project on employment and the economy were raised by the public, government agencies and the First Nations during the EA:

1. Local Business and employment opportunities related to the Project.

Proponent Response: the Proponent has made a new commitment to communicate with local communities and Chambers of Commerce 6 to 12 months ahead of construction regarding potential service and supply opportunities related to the Project. The Proponent has also made a new commitment to work directly with Kitimat Employment Services well in advance of clearing and construction work for the purpose of assisting in maximizing local and northern employment.

A complete list of issues concerning potential effects of the Project on employment and the economy identified by the public, government agencies and First Nations during the Application Review stage of the Project's EA, and the Proponent's response to these issues, is contained in **Appendices C and D** of this Report.

3.4.4 Conclusion on Effects and Mitigation

During the harmonized EA, the EAO and the Responsible Authorities have considered: the Application; additional Project review material listed in **Appendix A**; public, government agency and First Nations comments on the potential effects of the Project; responses by the Proponent; and the discussions of the Working Group.

Based on the information in this Report, provided that the Proponent conducts the mitigation measures as indicated above and implements the actions described in the Compendium of Proponent Commitments listed in **Appendix E** (particularly Section 10), the EAO is satisfied that the Project is not likely to result in significant adverse effects on employment and the economy.

3.5 Community and Regional Infrastructure and Services

3.5.1 Background

The pipeline route crosses three regional districts: the Regional District of Kitimat-Stikine, from kilo post 0 to kilo post 109; the Regional District of Bulkley-Nechako, from kilo post 109 to kilo post 399; and the Regional District of Fraser-Fort George from kilo post 399 to kilo post 462.2.

As indicated previously, the pipeline route crosses the District of Kitimat, from kilo post 0 to kilo post 9.4. Seven other communities are within the Regional Study Area, but are not crossed by the pipeline route: Terrace, Smithers, Houston, Burns Lake, Fraser Lake, Vanderhoof and Prince George.

As discussed elsewhere, a number of First Nation communities are potentially affected by the Project: Haisla Nation; Kitselas First Nation; Lax Kw'alaams Indian Band; Metlakatla Indian Band; Office of the Wet'suwet'en as represented by the Office of the Wet'suwet'en Chiefs; Skin Tyee Nation; Nee Tahi Buhn Indian Band; Carrier Sekani Tribal Council, representing the Wet'suwet'en First Nation (Broman Lake Band), Burns Lake Band, Saik'uz First Nation, Nadleh Whut'en Band, Nak'azdli Band and Stellat'en First Nation; Lheidli-T'enneh Band; McLeod Lake Indian Band; West Moberly First Nations and Halfway River First Nations.

The communities within the Project Regional Study Area have community or regional district operated sewage treatment facilities and public water infrastructure. Many residents live outside municipal or city boundaries and rely upon private wells and septic fields. Regional districts and municipalities operate landfills and transfer stations in the Regional Study Area and there are private recyclers located in many of the communities. Hazardous waste haulers exist in the Project Regional Study Area. Landfills are located in Kitimat, Thornhill, Houston, Vanderhoof, and Prince George. Transfer stations are found in the smaller communities.

Both volunteer and career fire departments are responsible for fire suppression in the communities of the Project Regional Study Area. Structural fires that occur outside of a fire protection area (i.e. remote areas) are typically not be attended to by urban fire departments.

The Project route is wholly located in the area managed by the Northern Health Authority. Hospital and ambulance services are available in all the communities in the Project Regional Study Area.

The Provincial Emergency Program requires local governments or to prepare emergency plans and maintain an emergency management organization. These plans are meant to ensure the safety of citizens when a situation escalates beyond the first responder level. The Provincial Emergency Program has two regional offices in the Regional Study Area including the Northwest Region office in Terrace and the Northeast Region office in Prince George. Provincial Emergency Program relies on pipeline companies to develop response plans, which are then shared with Provincial Emergency Program and Local Authorities. Industry has a statutory responsibility to inform Local Authorities of project plans before they initiate development.

The availability of motel accommodation varies in communities within the Project Regional Study Area. There is ample accommodation in Prince George, offering more than 1,300 rooms. However, in smaller communities, the number of rooms available is limited and occupancy rates are highly variable throughout the year.

The pipeline route crosses five main provincial highways that serve the Project Regional Study Area, including Highway 37 (kilo post 37.0), Highway 35 (kilo post 244.5), Highway 16 (kilo post 298.0), Highway 27 (kilo post 355.3), and Highway 97 (kilo post 460.4). The pipeline route is adjacent to Highway 16 from kilo post 273.4 to kilo post 275.8. The pipeline also crosses 195 single lane secondary roads and 135 Forest Service Roads.

The pipeline route crosses the Canadian National rail line four times, at kilo post 17.0, kilo post 298.0, kilo post 457.2, and kilo post 460.5.

3.5.2 Project Effects Identified in the Application and Proposed Mitigation

In the Application and supplemental materials, the Proponent assessed the potential for environmental effects of each phase of the Project on community and regional infrastructure and services, and proposed measures to mitigate these potential effects.

Potential Effects and Proposed Mitigation

Project activities associated with the clearing, construction, and restoration of the Project may have the following effects on community and regional infrastructure and services:

- increased demand on existing emergency services in the Regional Study Area;
- worker and project requirements for goods and services in Regional Study Area communities;
- waste generation through clearing, construction, and restoration activities and at work camps;
- work camp requirement for water, sewage, and garbage disposal;
- disruption of existing transmission lines, pipelines, and other underground services;
- construction across the Canadian National rail line;
- increase in traffic volumes along and across highways 37, 35, 16, 27, and 97 and other paved roads during clearing, construction, and restoration; and,
- worker use of accommodation facilities may displace visitors.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential effects on community and regional infrastructure and services, including the following:

- implement an Emergency Response Plan for Project-related emergencies;
- communicate with RCMP and fire departments, and with local emergency personnel, to examine issues such as staffing requirements, and appropriate access routes for evacuation;
- ensure PTP medical response staff are on duty during Project construction. This will include full-time ambulance and First Aid personnel at Project work sites;
- transport waste in accordance with provincial and federal regulatory requirements and local guidelines. Comply with other existing legislation, regulations, policies, permits, codes, and orders in effect with respect to waste management;
- implement a Bear Management Plan to minimize potential effects on bears;
- truck in potable water needs to the work camp;
- toilets will be contained and waste will be trucked off site to a location that is acceptable to authorities having jurisdiction on these matters;
- other wastes, including kitchen waste and garbage will be transferred to appropriate facilities off-site;
- Waste Management Plan will be followed to minimize potential concerns;
- implement a Traffic Management Plan for highways and paved roads to manage vehicular movements during clearing, construction, and restoration phases of the Project;
- avoid disruption of rail service as a result of Project construction;
- identify existing infrastructure through discussions with regional district staff and local residents and by other means prior to construction, where required;
- locate and expose all known locations of underground facilities in accordance with prescribed, safe methods;
- provide construction work camps; and,
- communicate with hotel associations, chambers of commerce, and other community representatives when accommodation needs and schedules are clearly known.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential effects on community and regional infrastructure and services, see Application Section 7.2.9.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project on community and regional infrastructure and services, after the application of mitigative measures:

- construction phase increase in economic activity and business for local suppliers;
- construction phase increase in local community population and use levels at recreational facilities and other community facilities; and,
- construction phase increase in traffic on highways and other paved roads.

These residual effects are considered to be either beneficial or of low to medium magnitude and short term, and are deemed to e less than significant.

3.5.3 Issues Raised During Application Review and Proposed Mitigation

The following key issues concerning potential effects of the Project on community and regional infrastructure and services were raised by the public, government agencies and the First Nations during the EA:

1. Contingency planning with local governments.

Proponent Response: for the purposes of contingency planning, the Proponent has made a new commitment to advise the District of Kitimat, local fire Departments/RCMP detachments, general hospitals and Northern Health Authority six months ahead of construction activity regarding construction scheduling, activity peaks and critical contacts.

2. Coordinating hydrostatic testing schedules with local governments.

Proponent Response: the Proponent has made a new commitment to contact the District of Kitimat engineering department in advance of construction in regard to water use for hydro-static testing within the boundaries of the District of Kitimat.

3. Coordinating major supply deliveries with local governments.

Proponent Response: the Proponent has made a new commitment to contact the District of Kitimat engineering department in regard to large scale deliveries to check for compatibility with any local road works.

A complete list of issues concerning potential effects of the Project on community and regional infrastructure and services identified by the public, government agencies and First Nations during the Application review stage of the Project's environmental assessment, and the Proponent's response to these issues, is contained in **Appendices C and D** of this Report.

3.5.4 Conclusion on Effects and Mitigation

During the harmonized EA, the EAO and the Responsible Authorities have considered: the Application; additional Project review material listed in **Appendix A**; public, government agency and First Nations comments on the potential effects of the Project; responses by the Proponent; and the discussions of the Working Group.

Based on the information in this Report, provided that the Proponent conducts the mitigation measures as indicated above and implements the actions described in the Compendium of Proponent Commitments listed in **Appendix E** (particularly Section 9), the EAO is satisfied that the Project is not likely to result in significant adverse effects on community and regional infrastructure and services.

3.6. Navigable Waters

3.6.1 Background

The *Navigable Waters Protection Act* requires that the construction or placement of any structure or physical works in, upon, over, under, through, or across any navigable waterway in Canada is reviewed and approved under section 5 of *the Act*, and that an approval under section 5(1)(a) must be obtained from Transport Canada for crossings that will cause an obstruction to navigation. "Navigable waterway" for the purposes of the *Act* includes any body of water capable of being navigated by floating vessels of any description for the purpose of transportation, commerce or recreation.

Transport Canada conducted a preliminary evaluation of the proposed watercourse crossings along the pipeline route and determined that there are currently 21 crossings that will cross 19 navigable waters (three crossings are of the Salmon River). Regulatory approval will be required under section 5(1)(a) of the *Navigable Waters Protection Act* for any of these crossings which Transport Canada determines will create an obstruction to navigation.

For the 21 watercourse crossings that Transport Canada has determined cross navigable waters, the proposed primary crossing techniques are as follows:

- 11 are proposed to be constructed using flow isolation techniques in low flow periods;
- nine are proposed for horizontal directional drilling; and,
- one is proposed for an aerial crossing (across the Clore River).

With the exception of the Morice River crossing, flow isolation or open cut techniques are recommended as a contingency or alternate construction technique should the horizontal directional drilling technique prove to be impractical. A new bridge is proposed as the alternate crossing method at the Morice River and Chist Creek crossings.

Watercourse crossings of navigable waters that will require instream works, (including temporary, flumes, trenching, berms, cofferdams or bridges) will require Transport Canada approval under the *Navigable Waters Protection Act* unless they meet the criteria laid out in Transport Canada guidelines for pipeline crossings (TP 14593E).

Flow isolation and open cut construction techniques require temporary closure of all or part of the stream during construction. The temporary flow diversion plans must be approved by Transport Canada prior to construction. The Clore River Bridge and the contingency Morice River and Chist Creek pipeline bridges will require Transport Canada approval. Horizontal

directional drill crossings should have no impact on the streamflow or the channel and the Proponent will be required to follow Transport Canada guidelines for pipeline crossings (TP 14593E), thus they will not have to receive approval from Transport Canada to construct.

Temporary bridges will also be required for the movement of construction equipment and vehicles across 4 of the 19 watercourses that Transport Canada has determined are navigable waters:

- Clore River, at kilo post 88.0 (Clearspan Bridge);
- Burnie River, at kilo post 99.6 (Bailey Bridge with supports);
- Crystal Creek, at kilo post 124.5 (Bailey Bridge with supports); and,
- Salmon River, 3 crossings at kilo post 43 0.5, kilo post 441.2 and kilo post 449.2 (use existing bridges or Bailey Bridge).

3.6.2 Project Effects Identified in the Application and Proposed Mitigation

In the Application and supplemental materials, the Proponent assessed the potential for environmental effects of each phase of the Project on navigable waters, and proposed measures to mitigate these potential effects.

Potential Effects and Proposed Mitigation

Project activities associated with the clearing, construction, and restoration of the Project area may result in the following impacts on navigable waters:

- proposed flow isolation and open cut construction techniques involving temporary closure of all or part of Unnamed Channel (kilo post 6.9), Little Wedeene Wetland (kilo post 12.2), Hunter Creek (kilo post 63.4), Burnie River (kilo post 99.6), Crystal Creek (kilo post 124.5), Owen Creek (kilo post 165.3), Allin Creek (kilo post 215.2), Tchesinkut Creek (kilo post 278.9), Salmon River (kilo post 430.3 kilo post 441.2 kilo post 449.2):
 - disruption of commercial guided fishing and nature-based operations; and,
 - disruption of public recreational use of streams crossed by the Project during clearing, construction, and restoration phase.
- proposed temporary Bailey bridges over the Burnie River (kilo post 99.6), Crystal Creek (kilo post124.5) and Salmon River (kilo post 430.3, kilo post 441.2 and kilo post 449.2)), may have the following potential effects on navigable waters during project construction:
 - temporary disruption of public recreational use of the identified navigable streams during bridge installation and removal.

Because all of the temporary bridges will be removed following the clearing, construction and restoration phase, there will be no adverse effects during operation of the pipeline. The only pipeline bridge that is proposed to remain will be the structure over the Clore River that will support the pipeline. This structure, due to its height above the river, will not interfere with the navigability of the Clore River.

If it is decided that during decommissioning and abandonment of the pipeline that the pipe should be removed from the watercourse crossing, the Proponent will again seek approval for this work from Transport Canada under the *Navigable Water Protection Act*.

Proposed Mitigation

The Proponent committed in the Application to undertake mitigative measures to address potential effects on navigable waters, including the following:

- notify commercial guided fishing operations prior to initiating construction activities to provide updates on construction scheduling;
- provide construction schedules and other relevant information to outdoor clubs and similar organizations and to Visitor Centres in order to reach the general public and visitors;
- use signage to inform river users of the presence of construction activity; and,
- where deemed necessary, provide information on where portages can be used to get around temporary construction activity.

For the full list of mitigative measures the Proponent committed in the Application to undertake to address potential effects on navigable waters, see Application Section 7.2.12.

Significance of Residual Effects

The Proponent identified and assessed the following residual effects of the Project on navigable waters, after the application of mitigative measures:

• no residual effects were identified.

3.6.3 Issues Raised During Application Review and Proposed Mitigation

The following key issues concerning potential effects of the Project on navigable waters were raised by the public, government agencies and the First Nations during the EA:

1. Rebuilding of bridges and new bridges will require review by Transport Canada Navigable Water Protection Division.

Proponent Response: the Proponent has made new commitments to ensure that plans for the rebuilding of bridges and new bridges are reviewed by Transport Canada-Navigable Water Protection Division, and to provide information on temporary bridges or road crossings for waterways on access roads for Transport Canada Navigable Water Protection Division approval.

2. Instream works in a navigable waterways conducted for habitat compensation must be reviewed by Transport Canada-Navigable Water Protection Division.

Proponent Response: the Proponent has made new commitments to inform Transport Canada-Navigable Water Protection Division of Fish Compensation Plans that may impact navigable waterways.

3. Low water diversions, boulder clusters and other stream restoration techniques can have high risks to navigation and human safety.

Proponent Response: the Proponent has made new commitments to provide Transport Canada-Navigable Water Protection Division with information on restoration techniques that may interfere with navigation for their review prior to implementation

3.6.4 Conclusion on Effects and Mitigation

During the harmonized EA, the EAO and the Responsible Authorities have considered: the Application; additional Project review material listed in **Appendix A**; public, government agency and First Nations comments on the potential effects of the Project; responses by the Proponent; and the discussions of the Working Group.

Based on the information in this Report, provided that the Proponent conducts the mitigation measures as indicated above and implements the actions described in the Compendium of Proponent Commitments listed in **Appendix E** (particularly Section 12), the EAO is satisfied that the Project is not likely to result in significant adverse effects on navigable waters.

The Responsible Authorities have not yet made a determination on the likelihood of significant adverse environmental effects arising from the project after mitigation on navigable waters. This process will continue with a comprehensive study review under CEAA.

PART D Canadian Environmental Assessment Act Requirements

This section provides an overview of the additional information that will be required as part of the federal environmental assessment under the Canadian Environmental Assessment Act for the proposed pipeline development as scoped by the federal Responsible Authorities. A basic outline of the type of information that will be addressed in the federal comprehensive study report is provided below. Additional detail will be included in the federal comprehensive study report, including:

- the environmental effects of the project, including the environmental effects of malfunctions or accidents that may occur in connection with the project and any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out;
- the significance of the environmental effects referred to above;
- comments from the public that are received in accordance with CEAA and its regulations;
- measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project;
- the purpose of the project;
- alternative means of carrying out the project that are technically and economically feasible and the environmental effects of any such alternative means;
- a consideration of the "need for" the project and "alternatives to" the project.
- the need for, and the requirements of, any follow-up program in respect of the project; and,
- the capacity of renewable resources that are likely to be significantly affected by the project to meet the needs of the present and those of the future.

As defined under CEAA, "environmental effect" means, in respect of a project:

- any change that the project may cause in the environment, including any change it may cause to a listed wildlife species, its critical habitat or the residences of individuals of that species, as those terms are defined in subsection 2(1) of the Species at Risk Act
- b) any effect of any change referred to in paragraph (a) on
 - *i)* health and socio-economic conditions
 - ii) physical and cultural heritage
 - *iii)* the current use of lands and resources for traditional purposes by aboriginal persons, or
 - *iv)* any structure, site or thing that is of historical, archaeological, paleontological or architectural significance, or
- c) any change to the project that may be caused by the environment, whether any such change or effect occurs within or outside Canada;

The federal EA will include an evaluation of the nature and extent of the residual adverse environmental effects after applying mitigation and whether the adverse environmental effects are significant. The prediction of significance should be based on such factors as: magnitude, geographic extent, duration, permanence/reversibility, and ecological context. Clearly supported and traceable conclusions will be provided (based on descriptions of the existing environment, the project and their interaction) and a description of the predicted effectiveness of the mitigation measures to be applied. Under section 79 of the *Species at Risk Act*, the Responsible Agencies must identify adverse effects of the project on listed species and their critical habitat or residences. The Responsible Agencies must also ensure that measures are taken to avoid or lessen adverse effects and that effects are monitored. Mitigation measures must be consistent with recovery strategies and action plans for the species.

1. ALTERNATIVE MEANS OF UNDERTAKING THE PROJECT

As outlined in the Terms of Reference and specifically as required under CEAA, the federal Comprehensive Study Report is to include a review of the alternatives to the Project and the reasons behind selecting the preferred alternative as well as an analysis of the alternative means of carrying out the Project that are technically and economically feasible and the environmental effects of any such alternative means.

"Alternative means" of carrying out the Project are defined as the various technically and economically feasible ways that the Project can be implemented. As required under section 16(2)(b) of CEAA, alternatives means must be considered for a Comprehensive Study. For the proposed project, alternative means concentrate on routing options.

Part A, Section 3 and Attachment 1 of this Report provide a description of a number of potential pipeline routes. The Comprehensive Study Report will provide a brief background of the alternatives studied by the Proponent and the rationale that led to preferred route option. It will also include an assessment of the various alternate pipeline routes that are technically and economically feasible and the environmental effects of any such alternative means. This analysis should identify the preferred alternative to the Project based on the relative consideration of the environmental, economic and technical benefits and costs.

2. EFFECTS OF THE ENVIRONMENT ON THE PROJECT

In addition to evaluating the effects of the Project on the environments, changes to the Project that may arise as a result of the environment will also be considered. The assessment of the effects of the environment on the Project included identifying the environmental factors deemed to have possible consequences on the Project, the likelihood and severity of their occurrence and mitigation measures planned to minimize their impact. The environmental conditions or events discussed in regard to their potential to affect the Project include but may not be limited to consideration of natural hazards such as: extreme weather events (lightning, heavy precipitation, extreme temperatures, flooding, and wind); natural seismic events; fire; slope stability and mass wasting events (e.g., debris flows/torrents; rock fall; snow avalanche); winter; and, climate change. Proposed mitigation, including design strategies, will be considered in the evaluation of the effects of the environment on the project and the determination of their significance.

3. ENVIRONMENTAL EFFECTS OF ACCIDENTS AND MALFUNCTIONS

Pursuant to the CEAA, consideration of the environmental effects of any potential project-related accidents or malfunctions is required. The assessment will include consideration of the potential accidents, malfunctions and unplanned events that could occur in any phase of the project, the likelihood and circumstances under which these events could

occur, and the environmental effects that may result from such events, assuming contingency plans are not fully effective.

Potential effects identified by the proponent that will be assessed include but are not necessarily limited to: spot spills of fuel or hydrocarbons from construction equipment; pipeline break or rupture; forest fires that could potentially be caused by clearing and construction activities; fly rock from blasting; a transportation accident (vehicles and equipment used during clearing and construction; and the release of drilling mud into a watercourse.

4. CAPACITY OF RENEWABLE RESOURCES

Under CEAA, the comprehensive study EA needs to include a consideration of the capacity of renewable resources that are likely to be significantly affected by the Project to meet the needs of the present and those of the future.

Development of the Project may affect renewable resources including: agriculture/ranching; trapping; forestry; guide outfitting/hunting; outdoor recreation; and potable water and an analysis will be provided on how the project may affect the capacity of these resources to support future and present uses.

5. CUMULATIVE ENVIRONMENTAL EFFECTS ASSESSMENT

Section 16(1) of CEAA requires any screening or comprehensive study to include consideration of "any cumulative environmental effects that are likely to result from the Project in combination with other projects or activities that have been or will be carried out". Cumulative environmental effects are changes to the biophysical environment or socio-economic setting (only from a biophysical change) caused by an activity in association with other, past, present and future human activities. Cumulative effects assessment is done to ensure the incremental effects resulting from the combined influences of various actions are considered. These combined effects may be significant even though the effects of each action, when individually assessed, are considered insignificant. Cumulative effects assessment includes effects that are likely to result from the Project in combination with other projects or activities that have been or will likely be present in a reasonable temporal and spatial scale.

The cumulative effects assessment will include, but not necessarily be limited to: existing pipelines and infrastructure (roads, power lines, railways); other proposed pipeline developments; other land and resource use activities (forestry including mountain pine beetle infestation, agriculture, and hunting); and recreation activities.

The Responsible Authorities have not reached a conclusion on the adequacy of the cumulative effects assessment for this Project.

6. FOLLOW-UP PROGRAM

6.1 CEAA Requirements for Effects Monitoring and Follow-up Program

Under CEAA, the need for, and requirements of, a follow-up program must be considered during a comprehensive study. The purpose of a follow-up program is to verify the accuracy

of the EA and determine the effectiveness of measures taken to mitigate the potential adverse environmental effects of the Project. The Comprehensive Study EA will provide the basis for determining the nature of the follow up program, its associated requirements and who will be responsible for implementing and reporting on its various components.

6.2 **Proponent Commitments and Obligations**

Proponent commitments and obligations with respect to the follow up program will be outlined in the comprehensive study report.

PART E First Nations Consultation Report

1. FIRST NATIONS INTERESTS

1.1 Scope of Section

This section represents a summary review and assessment of the following matters:

- the First Nations setting;
- key issues and concerns identified by those First Nations that have asserted Aboriginal rights (including title) to the area encompassed by the proposed Kitimat to Summit Lake Pipeline Looping Project;
- the specific identification of asserted Aboriginal rights that may potentially be impacted by the Project and the prima facie strength of those assertions, the degree of potential adverse effects on those rights, and the EAO's view as to where on the Haida spectrum the proper consultative procedure should be located;
- key issues and concerns identified by First Nations that are parties or adherents to Treaty No. 8;
- the specific identification of Treaty rights that may potentially be impacted by the Project, the EAO's conclusions as to the degree to which the contemplated conduct would adversely affect those rights, and the EAO's view on where on the Haida spectrum the proper consultative procedure should be located;
- the process of consultation engaged in by the Pacific Trail Pipelines Limited Partnership (PTP or Proponent) or it's predecessor, Pacific Northern Gas Ltd., under the direction of the EAO, and by the EAO itself, on behalf of the Province, both preceding and during the environmental assessment review (EA review) of the proposed Project, and the accommodation measures that have been utilized or that are contemplated; and,
- having regard to the overall consultation and accommodation process, the EAO's conclusion as to the reasonableness of the process in the circumstances and the EAO's conclusion as to whether the Crown duties have been discharged.

1.2 Background

1.2.1 First Nations Setting

The Project crosses areas indicated by a number of First Nations to be their traditional territory. Section 4.1 of Part A of the EAO Assessment Report identifies those First Nations who were invited to participate in the Working Group based on potential impacts to their identified traditional territories or Treaty lands. These First Nations are:

- Haisla Nation;
- Kitselas First Nation;
- Lax Kw'alaams Indian Band;
- Metlakatla Indian Band;
- Wet'suwet'en Hereditary Chiefs (as represented by the Office of the Wet'suwet'en);
- Skin Tyee First Nation;
- Nee Tahi Buhn Indian Band;

- Wet'suwet'en First Nation (Broman Lake Band), Burns Lake Indian Band, Saik'uz First Nation, Nadleh Whut'en Indian Band, Nak'azdli Indian Band and Stellat'en First Nation; (all represented by the Carrier Sekani Tribal Council);
- Lheidli-T'enneh Indian Band;
- McLeod Lake Indian Band;
- West Moberly First Nations, and,
- Halfway River First Nation.

The following sections (beginning with Section 1.3) address the Aboriginal Interests or Treaty Rights, as the case may be, of the above First Nations that are not addressed elsewhere in this assessment report.

The EAO offered capacity funding to all First Nations in 2006/07 during Pre-Application work (except Halfway River First Nation who were not involved in the review at that time) and in early 2008 during the Application Review to assist First Nations in their contributions to the Application Review.

The Proponent signed Memoranda of Understanding and/or a Memorandum of Agreement with all First Nations except Halfway River First Nation. These agreements provided capacity funding for both Pre-Application and Application Review activities. With the exception of one Memorandum of Agreement, the agreements also included undertakings on the part of the Proponent with regard to short and long-term economic benefits. The exception was made at the request of the representative tribal organization.

The EAO provided multiple notices to four additional First Nations to determine their interest in participating in the review process because the project corridor passed near to their asserted territories. These First Nations include the Yekooche First Nation, the Cheslatta Carrier Nation, the Nazko First Nation and the Lake Babine Nation. The Yekooche First Nation and the Lake Babine Nation confirmed that the Project was outside of their respective consultative territories. None of these First Nations participated in the review process and the assessment did not indicate that the Project would adversely affect their interests.

1.2.2 Information Sources

Written information sources that were generally drawn upon include the Project Application, **Appendix I** of the Project Application (*"A Literature Review of First Nations in the Environs of the KSL Pipeline Looping Project"* by Dr. Dorothy Kennedy) and traditional use studies that were commissioned by the Proponent and prepared by the First Nation (these studies are summarized in the Application and were provided to the EAO for internal use only). In some instances additional background information on some First Nations was also available from existing sources (such as other EA Projects, assessment reports or information available on First Nation websites).

The Proponent's summary reports on consultations undertaken with First Nations during Pre-Application and Application Review have also informed this section.

Additional information has been drawn from correspondence and direct discussions with First Nations, including discussions at Working Group meetings and in specific meetings with First Nation representatives.

Finally, each First Nation has had an opportunity to review and provide input on those parts of this section affecting their rights and interests. First Nations were provided with an opportunity to include their views in this report.

1.3 Haisla Nation

1.3.1 Introduction

This section addresses potential effects of the proposed KSL Pipeline Looping Project on the asserted Aboriginal rights, including Aboriginal title, of the Haisla Nation as outlined in Section 1.1.

1.3.2 Information Sources

The Proponent commissioned a report entitled 'Haisla Traditional Use and Occupancy of the Proposed PNG Pipeline Corridor through the lower Kitimat River Valley"⁵ to document Haisla traditional use activities of the Project area. This document was created with widespread community involvement.

The Haisla Nation have also provided EAO, the CEA Agency and the Responsible Authorities with additional information on their traditional and current use of these areas through correspondence and meetings during the EA process.

1.3.3. Haisla Aboriginal Rights

Setting: Haisla Nation

The Haisla Nation's traditional territory is made up of 54 wa'wais or traditional stewardship areas. According to Haisla oral law, or nuyem, their traditional heritage imposes a stewardship obligation on each Haisla to protect the land from wasteful misuse and ungrateful harvesting of its resources.

Each Haisla clan has ownership over sections of the territory and their own village sites. Each clan's territory is divided into wa'wais areas, or a watershed owned by the person who holds the particular clan name that entails possession of the wa'wais. Thus, besides being Haisla territory, each wa'wais belongs communally to a clan and is also individually owned by the member of that clan, who is the wa'wais owner's name-holder. Regulation of activity in the clan territories, then, falls to the clans and to the Haisla Nation as a whole group. There are 5 Haisla clans and 54 Haisla wa'wais.

The main Haisla Nation community is Kitamaat Village located 10 kilometres south of Kitimat at the end of Douglas Channel. Haisla Nation Indian Reserves located nearest to the Project are Kitamaat No 1, Kitamaat No 2, Walth No 3, Jugwees (Minette Bay) No 5, Bees No 6 and Hendreson's Ranch; the closest is 4.5 kilometres away from the proposed project.

⁵ "Haisla Traditional Use and Occupancy of the Proposed PNG Pipeline Corridor through the lower Kitimat River Valley" was prepared by the Kitimaat Village Council, with the assistance of anthropologist Jay Powell, PhD, who worked under the direction of the Haisla Environmental Relations Manager. Where information in this section is taken from that document, it will be referred to as the "Traditional Use and Occupancy Study".

Traditional Occupation and Use of the Project Area

The proposed Project starts in Kitimat near the head of Douglas Channel and proceeds northwards for approximately 32 kilometres where it turns eastward into the upper Kitimat Valley and continues through another 7 kilometres of Haisla Nation territory. Most of the following information is taken from the Traditional Use and Occupancy Study.

While the proposed pipeline does not include locations sacred to the Haisla Nation, the entire 39 kilometers stretch of the pipeline corridor is considered to be spiritual, no more or less than any area of Haisla Nation territory. The Project area is presumed by traditional Haisla Nation to have a spirit presence that oversees the behaviour of visitors to the area. This is significant, in part, because it clarifies why Haisla Nation will wish to monitor the intentions and activities of visitors to their traditional territory such as those involved in construction and operation of the proposed Project. This is consistent with the stewardship obligations of a wa'wais holder.

The Haisla Nation recognize ritual locations throughout their territory. While there are no known community or personal ritual sites in the proposed pipeline corridor, Haisla Nation stress that proper communication prior to any activities which could impacts such sites is essential. Similarly, there are no known Haisla Nation burial sites in the proposed corridor, but Haisla Nation require that any discovery of a burial site must lead to a cessation of activity pending an archaeological review and consultation.

As noted earlier, the Project passes through four wa'wais, or stewardship areas. These are:

- 1. Yaksda a Beaver clan wa'wais (Moore and Anderson Creek watersheds; kilo post 0 to approximately kilo post 4);
- 2. Giyu'yuwa a Fish clan wa'wais (west side of lower Kitimat River; approximately kilo post 4 to kilo post 12.5);
- 3. Niqwa & Wadin a Blackfish clan wa'wais areas (Big and Little Wedeene River watersheds; approximately kilo post 12.5 to kilo post 35); and,
- 4. Na'labila a Blackfish clan wa'wais (upper Kitimat River valley; approximately kilo post 35 to kilo post 42).

All of the wa'wais were and are used extensively by the Haisla Nation for hunting, trapping, fishing and harvesting of a wide range of subsistence resources (for example, many types of fur-bearing animals, birds, fish and berries to name a few). As a result of this use, it was noted that archaeological sites may be uncovered during development and some areas were noted as needing a particularly careful approach. Old cabins and traditional village sites have been noted in the general vicinity of the proposed Project, along with a request to avoid such sites. Other artefacts, such as culturally modified trees or cedar bark stripping grounds have also been noted to be present in the general area.

In some places the proposed Project crosses through or near to specific hunting or fishing sites, raising concerns about impacts to these activities. For example, the Traditional Use Occupancy Study notes the ancient Giyu'yuwa village was located at the junction of the Big Wedeene and Kitimat Rivers and a weir and fishtrap were located here. The proposed Project also crosses or runs adjacent to important fish bearing streams (such as the Little Wedeene, the Big Wedeene, Aveling Creek and Cecil Creek). Patches of old growth forest that are highly respected by the Haisla Nation are also identified and care for such patches is considered very important.

The Haisla Nation also has clear interests in the Project beyond kilo post 42, even though it is recognized as being in the territory of the Kitselas Nation. This is because the proposed alignment is immediately upstream from Haisla Nation territory for a distance beyond kilo post 42. The Chist Creek area was noted to be of particular concern due to traditional Haisla Nation use of riparian areas and the lower part of the Creek.

In a broader sense, the Haisla Nation have expressed an overarching concern regarding their traditional approaches to stewardship and to cultural protocols that visitors to the area should recognize when dealing with the Haisla Nation.

Current Occupation and Use of the Project Area for Traditional Purposes

Today, Haisla Nation people continue to fish, hunt, trap and gather food, bark and medicinal plants in the Project area; the Traditional Use and Occupancy Study makes reference to the multi-generational Haisla Nation use of the pipeline corridor. The specific sites noted above, such as the important fishing streams, remain important for current use as well.

There are five traplines in the general Project area. Most wa'wais owners have registered traplines with the same boundaries as their stewardship areas. The wa'wais Niqwa and Wadin is divided into a Niqwa trapline (in the Big Wedeene watershed) and the Wadin trapline (in the Little Wedeene watershed).

Issues and Concerns identified by the Haisla Nation

The key issues and concerns identified by the Haisla Nation about the proposed Project include:

- the choice of the Upper Kitimat/Nimbus route for the pipeline route poses high environmental risks;
- analyes of alternate routes was inadequate and information on the feasibility of routes was provided too late in the review process;
- terrain stability, soil erosion and the risk of damage to fish habitat, particularly in the Upper Kitimat valley that has already been impacted by other activities;
- risk of impact to wildlife habitat and wildlife;
- the need for additional more detailed studies to be carried out along the proposed route; examples include additional baseline studies, such as fisheries information, including determining habitat utilization by different life stages of various fish species in the tributaries and main stem of the Kitimat River; site-specific construction plans; environmental protection plans, access management plans, accident malfunction, emergency preparedness and other contingency plans; and more;
- the need for sufficiently detailed mapping of the proposed route to properly assess impacts;
- archaeological studies must be carried out at important sites identified in the archaeological impact assessment and information cross checked with Haisla Nation information; sites of specific concern were identified in the Traditional Use Occupancy Study;
- habitat restoration work will need to be included in the project work plan and occur beyond the footprint, particularly in the upper Kitimat River valley where habitat damage exists due to past logging activities and road disturbances; habitat restoration work, road repair and slope contouring is needed where steep slopes, terrain instability and potential for future degradation exists, including outside the Project footprint;

- the project certificate must specify that the pipeline is for transmission of natural gas only and not for other substances (oil, petroleum condensate, etc.) in the future;
- potential for impacts on Haisla families being able to carry out traditional activities in their Wa'wais;
- the cumulative effects assessment has not adequately accounted for how natural variations in seasonal or weather conditions affect habitat utilization by fish and wildlife, or the timing for construction, particularly given the limited baseline information for fisheries;
- ongoing consultation with the proponent on activities, information, plans and studies after EA Certification, including capacity funding to fully participate in future planning and development;
- capacity funding to participate in the EA review, to reach agreements and to carry out appropriate community ratification processes; and,
- ensuring there is an ongoing government to government dialogue with the Province.

Haisla Nation Aboriginal Rights

The information provided in the Traditional Use Occupancy Study indicates that historically the Haisla Nation people used the lands surrounding the Project area as part of their subsistence and cultural activities. The Haisla Nation have stressed the importance of water quality and the fisheries associated with these. In particular Haisla Nation have expressed concern about incremental impacts to fisheries and wildlife values from the proposed Project on the already impacted upper Kitimat River watershed.

The January 9, 2006 letter from legal counsel for the Haisla Nation, states:

The Haisla Nation has a strong prima facie claim of Aboriginal rights and title to its Traditional Territory. In particular, the Haisla Nation's claim to Aboriginal rights and title to the Kitimat River area is strong and well-documented. Accordingly, any permits issued in this area will likely constitute prima facie infringements of the Haisla Nation's Aboriginal interests and title. This letter specifically speaks to Haisla Nation's rights to fish, hunt and gather and to make land use decisions, including choice of modern commercial uses; it expresses concerns about the potential for impacts to these activities as well as on sacred sites, cultural sites, historical sites, gravesites and culturally modified trees. The letter noted that accommodation will include infringing Haisla Nation Aboriginal title as little as possible and providing compensation for unavoidable infringement.

It is prudent to assume that the Haisla Nation has a strong prima facie claim to Aboriginal rights to hunt, fish, and gather plants for food, social and ceremonial purposes adjacent to, and generally around, the proposed Project area where it passes through their territory. The Traditional Use Occupancy provides information about uses along the entire 39 kilometers of the proposed Project alignment and therefore it is not possible to differentiate if there is a stronger claim to rights in one area over another.

The Haisla Nation claim Aboriginal title to their entire traditional territory including the corridor for the proposed Project. The Traditional Use Occupational Study does not identify specific sites exclusively used by Haisla Nation within the proposed Project alignment corridor, however some sites of seasonal use (such as for hunting, trapping or fishing, some with associated cabins) are noted nearby. The information provided by the Haisla Nation identifies the wa'wais that the proposed Project will cross and describes the Haisla Nation legal system that the Haisla believe provided for these wa'wais being exclusively occupied by the Haisla Nation. There are no current Haisla Nation Indian Reserves crossed by the proposed Project corridor.

While it is apparent that the Haisla Nation people have used the area along the Project alignment, the assertion of Aboriginal title to the proposed Project corridor would be moderated by several factors. There is no evidence at this time of permanent village sites within the proposed Project alignment. There are also questions regarding whether the Haisla Nation maintained their use of the area as exclusive. That part of the proposed Project indicated to be within Haisla Nation territory is also shown to overlap with a portion of the asserted traditional use area of the Metlakatla and Lax Kw'alaams First Nations (approximately kilo post 12 to kilo post 25). Other parts of the proposed corridor may have been exclusively used by Haisla Nation people.

The EAO foresaw the potential for significant adverse impacts on Haisla Nation Aboriginal rights. Therefore the EAO made a decision at the outset of the EA process to use an approach of "deep consultation" (with respect to the *Haida* spectrum of consultation) with the Haisla Nation in order to develop and implement measures to avoid or minimize impacts to Haisla Nation Aboriginal rights to appropriate levels.

1.3.4 Consultation with the Haisla Nation

Haisla Nation Involvement with the EAO

On March 7, 2006 the EAO sought a meeting with the Haisla Nation to review the proposed Project. A first meeting took place in July 2006 and topics discussed included the EA process, relationships with the Proponent, route alignments, baseline environmental information and mapping, and potential for impacts to water and fish particularly in the already impacted upper Kitimat Valley.

The EAO met with Haisla Nation Chief and Councillors in their offices in January 2007 to discuss Haisla Nation involvement in the EA process. The EAO offered to create a government to government discussion process (based on the successful Haisla-Kitimat LNG Project model) to address Aboriginal rights issues if the Haisla Nation wished. To initiate such a discussion model, the EAO worked to ensure the Oil and Gas Commission and key federal agencies attended future meetings. Subsequent meetings took place in the Haisla Nation offices in October 2007, January 2008 and April 2008; no formal government-to-government discussion process was established.

Haisla Nation representatives attended the first Working Group meeting on October 11, 2006, and continued to attend most Working Group meetings throughout the review process, either in person or by teleconference. The EAO sponsored two evening meetings with First Nations associated with Working Group meetings during Pre-Application discussions in October 2006 and May 2007 to discuss EA process issues relating to First Nations; Haisla Nation representatives attended the October meeting.

The Haisla Nation was provided with draft copies of the section 11 order and the Terms of Reference for the Project. With the issuance of the February 28, 2007 section 11 order under the *EA Act*, the Proponent was formally directed to consult with the Haisla. The Proponent had already begun discussions with Haisla before this time.

The EAO provided capacity funding to the Haisla during the Pre-Application stage of review. Funds were also provided during the application review phase of the EA process to assist with costs associated with Haisla Nation participation in the EA review, such as travelling to EAO sponsored meetings, document review and other project related work. A preliminary draft of this consultation report was provided to the Haisla Nation on April 3, 2008 with a request for the Haisla Nation to identify the nature of the Aboriginal rights that they claim as well as other information that would assist the EAO in completing this report. The EAO then provided a revised draft of this document to the Haisla Nation on April 21, 2008 with a request for a response by May 5, 2008. The EAO considered Haisla Nation comments on drafts of this document and made amendments accordingly.

On April 18, 2008 the EAO received a letter stating that "the Haisla Nation is supportive of the Project receiving its Provincial Environmental Certificate". The Haisla Nation requested that one of the Certificate conditions be to complete watershed and creek assessments in the affected areas within Haisla Nation Territory and also noted that Haisla Nation support is subject to the Proponent fully resolving all federal issues in the federal EA process. The Proponent has committed to meeting these conditions.

Haisla Nation Involvement with the Proponent

The Proponent initially contacted the Haisla Nation in August 2005 and since that time has continued to consult with the Haisla Nation. In a June 2007 letter, PTP updated the Haisla Nation regarding the status of their application; summarized consultations completed to date and proposed a consultation process for the upcoming application review period. Meetings and correspondence continued to the end of the review period and addressed, among other things, Haisla Negotiating Principles, various technical issues, and the proposed and alternate route alignments. Additional information can be found in the Proponents report on consultations. This report was provided to the Haisla Nation on April 7, 2008 by the Proponent.

Discussions between Haisla Nation and PTP led to completion of the Traditional Use and Occupancy study along the route proposed in the Project Application; this Traditional Use Occupancy Study was then submitted by PTP to the EAO as a confidential portion of the Application.

Haisla (and others) requested digital files of the route alignment for use in their GIS systems and these were provided in October 2006.

Measures being implemented to mitigate or otherwise accommodate potential for impacts to Haisla Nation Aboriginal Rights

As noted above the EAO believes it is prudent to assume that the Haisla Nation has a strong prima facie claim to Aboriginal rights to hunt, fish, trap and gather plants for food, social and ceremonial purposes adjacent to, and generally around, the proposed Project where it passes through their territory (for the first 39 kilometres of the Project). The EAO sought input from the Haisla Nation on the nature and scope of their Aboriginal rights and how they might be impacted by the proposed Project. Throughout the review process concerns were raised by the Haisla Nation with respect to potential for effects of the Project on lands and resources that the Haisla Nation people use in exercising their Aboriginal rights.

The primary risks of impacts to Haisla peoples ability to exercise their rights include:

- precluding or inhibiting Haisla Nation access to lands and waterways where hunting, fishing, trapping or gathering activities occur;
- destroying or reducing productive capacity of areas of fish, animal or plant habitat such that there are no longer sufficient areas to exercise the rights; and,
- creating increased access to the general public to key Haisla Nation hunting, fishing and gathering areas that results in increased and damaging pressures on animals, fish and plants and their habitat.

The concerns expressed by the Haisla Nation during the review of the Project have been fully considered in the review process through Working Group discussions and through the consultations carried out by the Proponent and by provincial and federal agencies. The review process has led to multiple measures and Proponent commitments being proposed to address the specific concerns raised by the Haisla Nation and therefore the risk of impacts to Haisla Nation Aboriginal rights (see below). In consideration of these, the EAO believes that:

- Haisla Nation access to certain lands may be restricted for a limited period during project construction, however as the geographic extent of these lands within Haisla Nation territory is very small and the construction period is short, the EAO does not believe this will lead to a significant impact on the Haisla ability to exercise their rights;
- while the proposed Project as described in the Application may have posed unacceptable risks to areas of fish, animal or plant habitat, the enhanced avoidance, mitigation and accommodation measures developed during the review process have reduced the risks of these impacts, both during construction and operations, to an appropriate level. This assessment also recognizes the subsequent authorizations that will be required of the Project should an EA Certificate be granted; and,
- measures in the original Application and developed through the review process to restrict public access have reduced the risk of negative impacts from such access to an appropriate level.

The EAO recognizes there are risks of impacts in carrying out this project. For example, the Haisla Nation have emphasized the risks associated with terrain instabilities, impacts to water quality standards and fish habitat, inadvertent spills of hydrocarbons, accidents or other unforeseen circumstances, particularly in the upper Kitimat valley. While these risks exist, a considerable amount of effort has been spent on reviewing the measures proposed to mitigate and minimize those risks in the Application and to further reduce the risks by creating additional measures and commitments that must be adhered to by the Proponent. Many of these focus on additional planning before carrying out activities in the Kitimat valley and safeguarding fish and water resources during construction and over the longer term. Measures to involve the Haisla Nation in planning and monitoring work in their territory have been enhanced.

The above statements will be better understood by reviewing the following examples of key measures and commitments that respond to Haisla Nation concerns, as listed below; a more complete description can be found in the Working Group Issues Tracking Table (**Appendix D**) and the Compendium of Proponent Commitments (**Appendix E**).

1. The choice of the Upper Kitimat/Nimbus route for the pipeline route.

Proponent Response: PTP provided an office-based summary of five alternative route alignments in January 2008. A more detailed office-based assessment of the Kleanza alternative was provided in late January 2008. PTP concluded that other routes were not viable and that they would not pursue the Project using one of these alternatives; as a result they asked the EAO to continue to review the Project as proposed, with the amendment noted below.

2. PTP provided an amendment to their Application for a route re-alignment in the Hunter Creek and Hoult Creek areas to reduce risk of environmental impacts:

- terrain stability, soil erosion and the risk of damage to fish habitat, particularly in the Upper Kitimat valley that has already been impacted by other activities;
- risk of impact to wildlife habitat and wildlife;
- the need for additional more detailed studies to be carried out along the proposed route; examples include additional baseline studies, such as fisheries information, including determining habitat utilization by different life stages of various fish species in the tributaries and main stem of the Kitimat River; sitespecific construction plans; environmental protection plans, access management plans, accident malfunction, emergency preparedness and other contingency plans; and more;
- the need for sufficiently detailed mapping of the proposed route to properly assess impacts; and,
- ongoing consultation with the proponent on activities, information, plans and studies after EA Certification, including capacity funding to fully participate in future planning and development;
- Proponent Response: PTP has committed to:
 - working with the Haisla Nation and regulatory agencies for the purpose of assuring that the KSL Project does not result in negative effects on the Kitimat Watershed. Should this require additional baseline studies to be undertaken following Project certification, PTP is willing to discuss undertaking these studies;
 - undertake more detailed terrain stability investigations as part of project design, which in places could lead to engineering solutions or local route adjustments;
 - provide site-specific environmental protection plans, erosion control plans and other construction and contingency plans as a prerequisite to construction; provide rooteration plans;
 - provide restoration plans;
 - ensure qualified environmental monitors are onsite during construction;
 - working with the Department of Fisheries and Oceans others (including Haisla Nation) for the purpose of designing and implementing some early compensatory undertakings prior to construction. PTP has committed to meeting the "No Net Loss" policy of the Department of Fisheries and Oceans;
 - discuss the need for additional baseline studies where required to assure the Project does not result in negative impacts on the Kitimat watershed;
 - conduct additional fish inventory studies;
 - conduct studies to determine risks associated with acid rock drainage;
 - provide, or ask the regulatory authority to provide, the Haisla with any permitting or other referrals related to the KSL Project in the Kitimat Valley;

- archaeological studies must be carried out at important sites and information cross checked with Haisla Nation information;
- the protection of archaeologically important sites; and,
- ensure Haisla Nation obtains copies of applications for permits or referrals sent to regulatory agencies.

3. Conversion of a natural gas pipeline project to an oil or condensate pipeline in the future.

Proponent Response: the Application is solely for transmission of natural gas and an EA Certificate, if issued, will only permit transmission of natural gas. A variance to the commodity being transmitted will require a Certificate amendment which may or may not be granted and which will require further review and consultation.

4. Potential for impacts on Haisla Nation families being able to carry out traditional activities in their Wa'wais.

Proponent Response: various measures have been proposed to avoid or minimize risks of impacts to hunting, fishing, trapping, gathering of plants or other traditional activities, including measures to protect habitat for fish, animals and plants. The commitment to further Haisla Nation involvement in review of pre-construction plans and a pre-construction route walk will further assist in avoiding impacts. Haisla Nation involvement in environmental monitoring during and after construction will also reduce these risks. Commitments include restoring vegetation in the right of way with native plants and with the involvement of First Nations in planning restoration; this will minimize future impacts on carrying out traditional activities.

5. Cumulative effects.

Proponent Response: the EA review has considered cumulative effects by ensuring the baseline information collected, the Project application and the pre-construction plans to be submitted all accurately reflect existing conditions (environmental, economic, social; health and heritage); these conditions reflect the effects of existing development. The assessment of this project ensures the contribution of any residual impacts from this project to future cumulative effects are minimized. Further assessment of cumulative environmental effects of the Project will be conducted in the federal comprehensive study review.

6. Capacity funding to participate in the EA review, to reach agreements and to carry out appropriate community ratification processes.

Proponent Response: both the proponent and the Province provided capacity funding for the Haisla Nation to participate in the review process and the funding agreements recognized Haisla Nation community decision making processes.

7. Ensuring there is an ongoing government to government dialogue with the Province to speak to Aboriginal rights and title issues.

Proponent Response: the Province, via the EAO, has maintained an ongoing dialogue with Haisla Nation leadership to ensure any issues relating to Aboriginal

rights are identified and addressed. The EAO offered to create a government to government discussion process (based on the successful Haisla-Kitimat LNG Project model) to address Aboriginal rights issues if the Haisla Natoin wished, but this was not seen as necessary. The Oil and Gas Commission has been involved in many of these discussions to establish a relationship with Haisla Nation, should the proposed Project proceed to permitting stages.

1.3.5 Conclusions

In the review of the proposed Project, the EAO has considered the Haisla Nation assertion of Aboriginal rights and the information available to support the strength of that assertion within and adjacent to the proposed Project corridor. The EAO has also considered the potential for impacts to those rights from the proposed Project, based on it being implemented as designed and in accordance with all avoidance and mitigation measures and commitments made by the Proponent. The EAO and the Proponent have been engaged in consultations with the Haisla Nation from early stages of the EA of the proposed Project to jointly discuss the potential for impacts and to develop measures to mitigate or otherwise accommodate Haisla Nation Aboriginal rights: the Haisla Nation has had an opportunity to review and comment on this consultation report and to specify the nature and scope of their rights from their point of view.

The Haisla Nation has submitted a letter of support for the Project receiving a Provincial EA Certificate.

Having regard to all of the above, the EAO concludes that the process of consultation has been carried out in good faith, and that it was appropriate and reasonable in the circumstances. The EAO also concludes that the potential for effects on asserted Aboriginal rights has been mitigated or otherwise accommodated to an appropriate level such that they will not significantly impact the Haisla Nation from exercising their rights. In concluding this the EAO recognizes, that if the Project receives an EA Certificate, then additional detailed studies and programs are yet to be carried out and subsequent evaluations of risk of impacts will be undertaken, notably during the federal comprehensive study under CEAA and prior to any authorizations issued by Fisheries and Oceans Canada and the BC Oil and Gas Commission. The EAO believes the review process has reasonably balanced Aboriginal concerns of potential for impacts on asserted rights with other societal values; the EAO views this as being consistent with the Haisla Nation's letter of support for the Project receiving an EA Certificate, with the conditions specified in their letter.

1.4 Kitselas First Nation

1.4.1 Introduction

Scope of Document

This section addresses potential effects of the KSL Pipeline Looping Project on the asserted Aboriginal rights, including Aboriginal title, of the Kitselas First Nation as outlined in Section 1.1.

Information Sources

The Proponent commissioned a report entitled "Traditional Use Study – Upper Kitimat Watershed/Clore River"⁶. This document was created by the Kitselas Resource Management Team under the direction of Wilfred McKenzie, Director of Natural Resources for the Kitselas First Nation. The Traditional Use Study states that it is important to note that more research would provide more comprehensive use patterns and that without the benefit of ground truthing the study has yet to meet the full requirements of the traditional use study.

The Kitselas have also provided EAO, the CEA Agency and the Responsible Authorities with additional information on their traditional and current use of these areas through correspondence and meetings during the EA process. Specifically this includes:

- Kitselas First Nation Land and Resource Stewardship Policy,
- Kitselas analysis of the Terms of Reference and section 11 order,
- Kitselas perspectives on BC development assessment processes,
- Kitselas perspectives on major project and policy reviews,
- Cambria Gordon report on fish and wildlife baseline data and proposed mitigation measures, and,
- Gordon Butt report on Review of Terrain Stability Issues (kilo post 40 to kilo post 100).

1.4.2 Kitselas First Nation Aboriginal Rights

Setting: Kitselas First Nation

The Kitselas First Nation is organized into four hereditary clans; the Gispudwada (Killerwhale), Laxgiboo (Wolf), Laxsgi ik (Eagle) and Ganhada (Raven) clans. These are historical societal methods of organization, the contemporary application of which is very limited. In the past each clan owned and controlled resource use in the clans' territory. At present, however, the elected Kitselas First Nation Council exercises jurisdiction over the Kitselas reserve land base and also performs the inter-governmental function for the entire traditional territory, with the authority to enter into a full range of agreements with government, the private sector and non government organization's.

The main Kitselas community is located adjacent to Terrace on Queensway Drive; there is also a new subdivision, known as the Gitaus Subdivision, located approximately 20 kilometres east of Terrace. There are no Kitselas First Nation Indian Reserves located within 15 kilometres of the proposed Project corridor.

The Kitselas First Nation has a Land and Resource Stewardship Policy that took effect as of January 1, 2006. It is predicated on Kitselas Aboriginal rights and title and it offers

⁶ Traditional Use Study -Upper Kitimat Watershed/Clore River-: prepared by the Kitselas Resource Team, Kitselas First Nation, March 2007

collaborative working relationships with others in their traditional territory. It describes Kitselas First Nation community objectives and it sets out both general principles and more specific policies for land, water and resource development and use. Information from this Policy document is reflected in the following sections.

Traditional Occupation and Use of the Project Area

The proposed Project enters Kitselas territory at approximately kilo post 8 (Wedeene River valley) and leaves again at approximately kilo post 91 (confluence of the Clore and Burnie Rivers). Much of the following information is taken from the Traditional Use Study.

The Clan system, referred to in The Information Sources, is maintained as a cultural symbol by an elders group, the Kitselas Elders, which participates in community decision making through a variety of advisory bodies and maintains the cultural substance of feasts and festivities. The Kitselas have a defined traditional territory which reflects the area over which they exercised stewardship jurisdiction. It is bounded on the south by Haisla Nation territory approximately eight kilometres upstream from the mouth of the Kitimat River and on the east by Lorne Creek In addition to this traditional territory, Kitselas has traditional harvest areas on the north coast and in the lower Skeena River and Skeena estuary and in the Nass watershed. These areas fall within the jurisdictional boundaries of other First Nations but are well known as Kitselas sites.

Kitselas stewardship jurisdiction centred on the Kitselas Canyon, one of the longest continuously occupied sites in North West North America. Some remnants and residuum discovered through archaeological research at Kitselas Canyon date back 10,000 years. The Kitselas have used their territory and traditional harvest areas as an economic base, for food harvesting, material harvesting and recreation. Kitselas controlled trade on the Skeena River and collected tariffs and royalties on the transport of goods until the construction of the Grand Trunk Railway.

Historic use of the forest includes obtaining materials for construction of canoes, longhouses, totem poles, wood-crafting, basketry, cooking utensils and clothing. A wide range of forest plants and berries were also gathered, mainly for medicine and food purposes.

The Upper Kitimat River, from the Weedene River to the headwaters has long been used by Kitselas for trapping, hunting, fishing and gathering of various foods. Trappers used their traplines each year from early September until the end of February and used the area for spring beaver trapping from March to May. Game was harvested by designated harvesters and was distributed to the community.

Current Occupation and Use of the Project Area for Traditional Purposes

Today, Kitselas people continue to hunt, fish, trap and gather materials in the Project area; activities are primarily carried out by those with trapline areas however the food is often distributed to elders or others in the Kitselas community. The Traditional Use Study provides maps of where activities occur within the general Lower Kitimat, Upper Kitimat and Clore River areas.

Kitselas members fish the Upper Kitimat and its tributaries, usually from early spring into late fall. The fish are harvest as a supplement to other harvest activities (hunting and trapping) in
the Upper Kitimat area. Food fishing also occurs in the Clore River valley, for the length of the valley downstream of the proposed Project.

Kitselas members hunt ungulates in the Upper Kitimat and its tributaries. The harvested animals are distributed to Kitselas elders. Hunting for mountain goat is limited to certain areas and usually occurs between July and February. Bears are harvested in the spring months and then in September to November and harvested animals are distributed to other band members. Ungulate and bear harvesting also occur in the Lower Kitimat and parts of the Big and Little Wedeene valleys as well as in the Clore River valley portion of the proposed Project area.

Game birds are usually harvested from September to the end of November. Upland birds are usually taken along road rights of way and migratory bird harvesting occurs in the same areas frequented by water animals.

Trapping of fur bearing animals provided both a source of food and forms part of the First Nations economy. Several Kitselas members actively trap and the Kitimat River and its tributaries is the main harvest area, with four distinct trapping areas in the upper Kitimat area. There are trapline cabins in the valleys of Chist Creek, Bolton Creek, North Kitimat River and upper Kitimat River. Most of the harvest for fur bearing animals takes place within 50 metres of roads, in treed areas bordering rivers and streams.

Gathering of forest plants and berries usually runs from June to October in the Upper Kitimat River and tributary valleys, usually in lower elevations adjacent to wetted areas.

In addition to these uses, this area forms part of the informal chart area for the Kitselas forest licenses. Kitselas operates a successful land management and forest harvesting business that has harvested 400 kilometers of timber over the past 5 years.

Issues and Concerns identified by the Kitselas First Nation

Kitselas First Nation provided perspectives and principles that they use in considering proposed land uses in their territory. Kitselas affirmed that a "stewardship lens" would be applied first and second, an assessment of whether or not the proposed project would provide greater community benefit than negative impact. With this as context, the key issues and concerns identified by the Kitselas First Nation about the proposed Project include:

- the need for information on alternate routes for the Project;
- slope stability in the steeper terrain through the upper Kitimat valley, Nimbus Mountain and the Clore valley, particularly where substantial timber removal is required and where a larger road prism is required due to steep slopes;
- management of drainage water on access roads and in the pipeline trench to prevent erosion and impacts to watercourses;
- the need for additional terrain stability assessments prior to work commencing;
- protecting fish habitat by ensuring timing windows and mitigation strategies are adhered to;
- the high risk of impacts to fish and wildlife habitat values associated with the Chist and Hunter Creek crossings;
- the risk of impacts to important grizzly bear habitat (e.g. spring feeding areas, fishing areas, denning areas, movement corridors) along portions of the proposed pipeline

route in the upper Kitimat valley; candidate Wildlife Habitat Areas should be identified on project maps;

- the risk of impacts to wet areas and beaver ponds in the Kitimat valley, leading to a request to relocate the pipeline upslope of the Kitimat Forest Service Road where possible;
- insufficient information regarding ungulates, particularly critical areas for mountain goats (winter range, natal areas, travel corridors, habitat features);
- the need for site assessments and consultation with Kitselas First Nation prior to permitting to confirm appropriate work windows;
- inclusion of Kitselas First Nation in future field assessments (specifically including a "pre-construction route walk"), access management and monitoring programs;
- potential for impacts to seasonal harvesting activities during construction and post construction;
- increased access for hunters and others along the corridor; restrictions on access will be sought;
- acceptable involvement of Kitselas First Nation in the EA review process, supported by adequate capacity funding;
- acceptable involvement of Kitselas in post certification detailed design, construction monitoring and regulatory oversight;
- post-approval compliance and Proponent commitments being implemented properly;
- adequate socio-economic benefits;
- potential impacts to the marine environment due to increased tanker traffic; and,
- ensuring government and proponents understand the Kitselas Land and Resource Stewardship Policy and Kitselas views on the Development Assessment Process.

Kitselas First Nation Aboriginal Rights

Kitselas were provided with an opportunity to review an early draft of this document and to provide their views on the nature and scope of their Aboriginal rights. Their comments have been incorporated into this version.

The information provided in the Traditional Use Study and other Kitselas materials and communications indicates that historically the Kitselas people used the lands surrounding the Project area for social, economic, subsistence and cultural activities. Kitselas has consistently asserted that they exercised stewardship jurisdiction over the lands impacted by the pipeline corridor from kilo post 8 to kilo post 91. Kitselas have stressed concerns about the potential for impacts to water quality and fish habitat, and to wildlife habitat, particularly for grizzly bears, ungulates and fur bearers. In particular Kitselas have expressed concern about incremental impacts from the proposed Project on the already impacted upper Kitimat River watershed.

The Kitselas First Nation Land and Resource Stewardship Policy (June 2, 2006) states that it *"is a statement of principles and processes for land, water and resource management in the Kitselas traditional territory. It is predicated on Kitselas First Nation Aboriginal rights and title".* Kitselas informed the EAO early in the EA review that Kitselas First Nation asserts Aboriginal rights and title to their stated area of traditional use.

Kitselas is becoming increasingly more protective and assertive with respect to their traditional territory. Kitselas takes issue with the fact that government bases consultation in the legal context on territory maps created by First Nations for the purpose of Stage one of the BC Treaty Process. These maps, called Statement of Intent maps were created

pre-Delgamuukw and pre-Haida and Taku River and were not supported by any evidentiary material at the time of their acceptance by government. Kitselas claims to have consistently attempted to reconcile territorial and boundary issues with neighbouring First Nations, Metlakatla and Lax Kw'alaams in particular, without success, citing government's policy of acceptance of Statement of Intent maps as a factor preventing progress. They point to their own described traditional territory boundaries and the fact that those boundaries are not inclusive of all of Kitselas coastal traditional use areas as a strong indication that the Kitselas traditional territory boundary is the area within which the Kitselas people exercised stewardship jurisdiction to the exclusion of other First Nation jurisdiction.

It is prudent to assume that the Kitselas First Nation has a strong prima facie claim to Aboriginal rights to hunt, fish, trap and gather plants for food, social and ceremonial purposes adjacent to, and generally around, the proposed Project corridor where it passes through their territory. The Traditional Use Study provides certain information about established uses at certain points along the corridor, which may reflect a stronger claim to rights in certain areas over others, but more information would be needed to differentiate such areas.

The Kitselas claim Aboriginal title to their entire traditional territory based on the exercise of land and resource management jurisdiction over the entire area, including the corridor for the proposed Project. The Traditional Use Study does not identify specific sites exclusively used by Kitselas, on a full time year round basis within the proposed Project corridor, however some sites of seasonal use (such as for hunting, trapping or fishing, some with associated cabins) are noted nearby. There are no current Kitselas First Nation Indian Reserves nearby the proposed Project corridor.

While it is apparent that the Kitselas people have used the area along the Project alignment, the assertion of Aboriginal title to the proposed Project corridor would be moderated by several factors. There is no evidence at this time of permanent village sites within the proposed Project alignment. There are also questions regarding whether the Kitselas First Nation maintained their use of the area as exclusive. That part of the proposed Project indicated to be within Kitselas territory is also shown to overlap with a portion of the asserted traditional use area of the Metlakatla and Lax Kw'alaams First Nations (approximately kilo post 15 to kilo post 25), the Haisla Nation (approximately kilo post 15 to 40), the Carrier Sekani Tribal Council member nations (beyond kilo post 75) and the Skin Tyee Indian Band (beyond kilo post 80). Other parts of the proposed corridor may have been exclusively used by Kitselas people.

The EAO foresaw the potential for significant adverse impacts on Kitselas First Nation Aboriginal rights. Therefore the EAO made a decision at the outset of the EA process to use an approach of "deep consultation" (with respect to the *Haida* spectrum of consultation) with the Kitselas First Nation in order to develop and implement measures to avoid or minimize impacts to Kitselas First Nation Aboriginal rights to appropriate levels. The EAO believes there is potential for significant adverse impacts on Kitselas First Nation Aboriginal rights. Therefore the EAO made a decision at the outset of the EA process to use an approach of "deep consultation" (with respect to the *Haida* spectrum of consultation) with the Kitselas First Nation in order to develop and implement measures to avoid or minimize impacts to Kitselas First Nation Aboriginal rights to appropriate levels.

1.4.3 Consultation with the Kitselas First Nation

Kitselas First Nation Involvement with the EAO

On March 7, 2006 the EAO sought a meeting with the Kitselas to review the Project. A first meeting took place in July 2006 and topics discussed included the EA process, Kitselas involvement and capacity for involvement, relationships with the Proponent and with the EAO, route alignments, environmental concerns, and potential for impacts to water, fish and wildlife particularly in the upper Kitimat valley and compliance with authorizations should the Project be approved.

The EAO offered to create a government to government discussion process (based on the successful Haisla-Kitimat LNG Project model) to address Aboriginal rights issues if the Kitselas wished. To initiate such a discussion model, the EAO worked to ensure the Oil and Gas Commission and key federal agencies attended future meetings. Subsequent meetings took place in the Kitselas offices in October 2007, January 2008, and April, 2008.

A Kitselas representative attended the first Working Group meeting on October 11, 2006, and continued to attend most Working Group meetings throughout the review process. The EAO sponsored two evening meetings with First Nations associated with Working Group meetings in October 2006 and May 2007 to discuss EA process issues relating to First Nations; a Kitselas representative attended the October meeting.

The Kitselas First Nation was provided with draft copies of the section 11 order and the Terms of Reference for the Project. With the issuance of the February 28, 2007 section 11 order under the *EA Act*, the Proponent was formally directed to consult with the Kitselas. The Proponent had already begun discussions with Kitselas before this time.

The EAO provided capacity funding to the Kitselas during the Pre-Application stage of review. Funds were also provided during the Application Review phase of the EA process to assist with costs associated with Kitselas participation in the EA review, such as travelling to EAO sponsored meetings, document review and other project related work.

A preliminary draft of this consultation report was provided to Kitselas on April 1, 2008 with a request for Kitselas to identify the nature of the Aboriginal rights that they claim as well as other information that would assist the EAO in completing this report. Following receipt of Kitselas comments, the EAO then provided a revised draft of this document to Kitselas on April 21, 2008 with a request for a response by May 5, 2008. The EAO received and considered the Kitselas response and made amendments accordingly.

Kitselas has commented from the outset on what they believe are areas for improvement in the BC development assessment processes from a First Nation perspective. They particularly note the disconnect between the single agency (BCEAO) project review process and the post approval multi-agency compliance and enforcement process. Kitselas points out that First Nations are not presently connected to processes for the review of the proponent's compliance performance or the government's regulatory performance post project certification.

Kitselas reported that, notwithstanding Kitselas' systemic criticisms, Kitselas and BCEAO have enjoyed a collaborative and productive working relationship and Kitselas has complimented BCEAO staff on their willingness and diligence in working with Kitselas staff.

Kitselas First Nation Involvement with the Proponent

The Proponent initially contacted the Kitselas First Nation in August 2005 and since that time has continued to consult with the Kitselas. In a June 2007 letter, PTP updated the Kitselas First Nation regarding the status of their application; summarized consultations completed to date and proposed a consultation process for the upcoming application review period. Meetings and correspondence continued to the end of the review period and addressed, among other things, the proposed and alternate route alignments, specific stream crossings, and salmon and grizzly bear habitat impacts. Kitselas reached an agreement with PTP on measures that addressed Kitselas concerns and interests with respect to the project. The remaining outstanding issue with respect to the timing of additional wildlife studies that PTP and Kitselas have agreed to undertake was resolved on April 14, 2008. Additional information can be found in the Proponents report on consultations. This report was provided to Kitselas on April 7, 2008 by the Proponent.

Discussions between Kitselas and PTP led to completion of the Traditional Use Study along the route proposed in the Project Application; this Traditional Use Study was submitted to the EAO as a confidential part of the Project Application.

Kitselas (and others) requested digital files of the route alignment for use in their geographic information systems and these were provided in October 2006.

Kitselas reported that they have developed a good working relationship with the Proponent in general. The major issues, related to stream crossings at Chist Creek, the adequacy of fish and wildlife data in the Kitimat valley and the ongoing assessment of terrain stability, have been resolved by commitments and undertakings by the Proponent.

Kitselas has stated that, with respect to the stewardship component of their project review and assessment, all Kitselas interests and concerns, as the Project relates to their traditional territory, have been addressed.

Kitselas requested the EAO to note that it is important, in both this section and the section on "Kitselas involvement with EAO", that Kitselas continues to evaluate the Project from an "impacts and benefits" perspective. They will actively participate in the current economics benefits discussions (separate from the EA Process) with both the Proponent and the Province. Their final endorsement of the Project rests on both the stewardship component detailed in this report and the "impacts and benefits" component to be resolved through the economics benefits discussions. Measures being implemented to mitigate or otherwise accommodate potential for impacts to Kitselas First Nation Aboriginal Rights

As noted above the EAO believes it is prudent to assume that the Kitselas First Nation has a strong prima facie claim to Aboriginal rights to hunt, fish, trap and gather plants for food, social and ceremonial purposes adjacent to, and generally around, the proposed Project where it passes through their territory (approximately from kilo post 15 to kilo post 100). The EAO sought input from Kitselas on the nature and scope of their Aboriginal rights, including title, and interests and how they might be impacted by the proposed Project. Throughout the review process concerns were raised by Kitselas with respect to potential for effects of the Project on lands and resources that Kitselas use in exercising their Aboriginal rights.

The primary risks of impacts to Kitselas ability to exercise their rights include:

- precluding or inhibiting Kitselas access to lands and waterways where hunting, fishing, trapping or gathering activities occur;
- destroying or reducing productive capacity of areas of fish, animal or plant habitat such that there are no longer sufficient areas to exercise the rights; and,
- creating increased access to the general public to key Kitselas hunting, fishing and gathering areas that results in increased and damaging pressures on animals, fish and plants and their habitat.

The concerns expressed by the Kitselas First Nation during the review of the Project have been fully considered in the review process through Working Group discussions and through the consultations carried out by the Proponent and by provincial and federal agencies. The review process has led to multiple measures and Proponent commitments being proposed to address the specific concerns raised by Kitselas and therefore the risk of impacts to Kitselas Aboriginal rights (see below). In consideration of these, the EAO believes that:

- Kitselas First Nation access to certain lands may be restricted for a limited period during project construction, however as the geographic extent of these lands within Kitselas territory is very small and the construction period is short, the EAO does not believe this will lead to a significant impact on Kitselas ability to exercise their rights;
- while the proposed Project as described in the Application may have posed unacceptable risks to areas of fish, animal or plant habitat, the enhanced avoidance, mitigation and accommodation measures developed during the review process have reduced the risks of these impacts, both during construction and operations, to an appropriate level. This assessment also recognizes the subsequent authorizations that will be required of the Project should an EA Certificate be granted; and,
- measures in the original Application and developed through the review process to restrict public access have reduced the risk of negative impacts from such access to an appropriate level.

The EAO recognizes there are risks of impacts in carrying out this project. For example, Kitselas have emphasized the risks associated with terrain instabilities, impacts to water quality standards and fish habitat, impacts to wildlife habitat, particularly in the upper Kitimat valley and in the Clore drainage. While these risks exist, a considerable amount of effort has been spent on reviewing the measures proposed to mitigate and minimize those risks in the Application and to further reduce the risks by creating additional measures and commitments that must be adhered to by the Proponent. Many of these focus on additional planning before carrying out activities in the Kitimat and Clore valleys and safeguarding fish, water and wildlife resources during construction and over the longer term. Measures to involve Kitselas in planning and monitoring work in their territory have been enhanced.

The above conclusions will be better understood by reviewing the following examples of key measures and commitments that respond to Kitselas concerns, as listed below; a more complete description can be found in the Working Group Issues Tracking Table (**Appendix D**) and the Compendium of Proponent Commitments (**Appendix E**).

Kitselas also raised concerns about potential impacts on contemporary economic activities and the impacts of the open-ended sterilization of an 83 kilometre corridor in their territory. These concerns are addressed in Part 3 of the Assessment Report as stakeholder interests, rather than as Aboriginal rights.

1. The need for information on alternate routes for the Project.

Proponent Response: PTP provided an office-based summary of five alternative route alignments in January 2008. A more detailed office-based assessment of the Kleanza alternative was provided in late January 2008. PTP concluded that other routes were not viable and that they would not pursue the Project using one of these alternatives; as a result they asked the EAO to continue to review the Project as proposed, with the amendment noted below. PTP also provided an amendment to their Application for a route re-alignment in the Hunter Creek and Hoult Creek areas to reduce risk of environmental impacts.

2. - Slope stability in the steeper terrain through the upper Kitimat valley, Nimbus Mountain and the Clore valley, particularly where substantial timber removal is required and where a larger road prism is required due to steep slopes.

- Management of drainage water on access roads and in the pipeline trench to prevent erosion and impacts to watercourses.

- The need for additional terrain stability assessments prior to work commencing.

- Protecting fish habitat by ensuring timing windows and mitigation strategies are adhered to.

Proponent Response: PTP has committed to:

- undertake more detailed terrain stability investigations with direct involvement and participation of Kitselas as part of project design, which in places could lead to engineering solutions or local route adjustments;
- surface run-off will be controlled to manage erosion and avoid sedimentation. Any slide activity will be monitored and where a concern exists a technical review will determine remedial actions;
- provide site-specific environmental protection plans, erosion control plans and other construction and contingency plans as a prerequisite to construction; provide restoration plans;
- provide restoration plans;
- ensure qualified and experienced environmental monitors are onsite during construction. Consideration will be given to hiring suitably qualified Kitselas Resource Technicians to assist the Environmental Monitor for that portion of the Project within Kitselas territory

- consult with Kitselas to identify appropriate fish habitat compensation opportunities;
- discuss the need for additional baseline studies where required to assure the Project does not result in negative impacts on fish and wildlife habitat;
- conduct additional fish inventory studies as required by the Department of Fisheries and Oceans and in cooperation with Kitselas; and,
- conduct studies to determine risks associated with acid rock drainage.
- 3. The high risk of impacts to fish and wildlife habitat values associated with the Chist and Hunter Creek crossings.

Proponent Response: PTP has committed to:

- In the event that horizontal directional drilling proves to be infeasible at the Chist Creek pipeline crossing based on early investigation programs, PTP commits to consider an aerial crossing should that method be appropriate to the local community; if an aerial crossing is to be used, PTP will consult with Kitselas on an appropriate revised location, which may be upstream of the existing road bridge.
- realign the route of the pipeline in the Hunter Creek area to substantially reduce impacts to grizzly bear habitat and is committed to other protection measures during construction in order to avoid impacts to grizzly bears and their habitat.
- 4. The risk of impacts to important grizzly bear habitat (e.g. spring feeding areas, fishing areas, denning areas, movement corridors) along portions of the proposed pipeline route in the upper Kitimat valley; candidate Wildlife Habitat Areas should be identified on project maps.

- The risk of impacts to wet areas and beaver ponds in the Kitimat valley, leading to a request to relocate the pipeline upslope of the Kitimat Forest Service Road where possible.

Proponent Response: during the EA review process, PTP amended their proposed route alignment upslope of the Kitimat Forest Service Road in the Hunter Creek area and the existence of the candidate Wildlife Habitat Areas were recognized and noted. PTP has also committed to:

- conduct additional bear and goat studies as agreed to between Kitselas and PTP;
- consider grizzly bear habitat and seasonal movements in access management planning;
- involve Kitselas First Nation in any bear habitat investigations prior to construction;
- prepare a bear management plan;
- identify wildlife movement corridors during a pre-construction route walk;
- extend the grizzly bear and black bear timing windows such that no clearing or construction activities occur within 200 metres of an active den between November 1 and May 31;
- undertaking a "route walk" by a wildlife specialist (R.P. Bio) prior to clearing and construction and to engage Kitselas in the route walk; and,
- fund additional grizzly bear and mountain goat studies to be undertaken by the Kitselas First Nation and their consultants. This work will be initiated postcertification and prior to construction.

5. Insufficient information regarding ungulates, particularly critical areas for mountain goats (winter range, natal areas, travel corridors, habitat features).

Proponent Response: PTP has committed to:

- conduct additional bear and goat studies as agreed with Kitselas;
- implement mitigation and minimize effects related to working in mountain goat winter ranges;
- adopt regional measures that have been developed by MOE to mitigate risk and disturbance to mountain goats;
- no clearing or construction activities to occur within 500 metres of mountain goat winter habitat (kilo post 74 to kilo post 100) between October 15 and May 15; and,
- consider moose habitat in the Kitimat Valley in access management planning and in the restoration of right-of-way and temporary workspace.
- 6. The need for site assessments and consultation with Kitselas First Nation prior to construction to confirm appropriate work windows.
 Inclusion of Kitselas First Nation in future field assessments (specifically including a "pre-construction route walk"), access management and

monitoring programs.

- Potential for impacts to seasonal harvesting activities during construction and post construction.

- Increased access for hunters and others along the corridor; restrictions on access will be sought.

Proponent Response: PTP has committed to:

- implement an access management plan and restoration plan to reduce potential increases in human access to remote areas;
- include members of the Kitselas First Nation in access management and construction monitoring programs; and,
- engage the Kitselas First Nation in the route walk and establish a process for them to participate in construction and post-construction monitoring.
- 7. Acceptable involvement of Kitselas First Nation in the EA review process, supported by adequate capacity funding.

- Acceptable involvement of Kitselas in post certification detailed design, construction monitoring and regulatory oversight.

- Ensuring government and proponents understand the Kitselas Land and Resource Stewardship Policy and Kitselas views on the Development Assessment Process.

Proponent Response: Kitselas First Nation has been a full participant in the EA review. Both the EAO and the proponent have met with Kitselas on a regular basis. The EAO provided some capacity funding for Kitselas involvement in the review process. PTP provided capacity funding for Kitselas involvement and for conducting necessary studies. Kitselas policies and views were provided to the EAO and PTP and were discussed at meetings.

8. Post-approval compliance and Proponent commitments being implemented properly.

Proponent Response: compliance with commitments will be a condition of an EA Certificate if it is issued. Monitoring programs to oversee compliance are part of the commitments and Kitselas First Nation will be included in those monitoring activities.

9. Adequate socio-economic benefits.

Proponent Response: both PTP and the Province are negotiating socioeconomic benefits with First Nations. PTP has made commitments to local hiring and job training where practical.

10. Potential impacts to the marine environment due to increased tanker traffic.

Proponent Response: the EAO reviewed this issue with the Kitselas First Nation and discussed the federal government TERMPOL review process that is underway to review tanker traffic issues associated with the Kitimat LNG plant. Contacts at Transport Canada (lead for the TERMPOL process) were provided to Kitselas First Nation. Assessing potential impacts from tanker traffic is outside the scope of the KSL Project review.

1.4.4 Conclusions

In the review of the proposed Project, the EAO has considered Kitselas First Nation assertion of Aboriginal rights, including title, and the information available to support the strength of that assertion within and adjacent to the proposed Project corridor. The EAO has also considered the potential for impacts to those rights from the proposed Project, based on it being implemented as designed and in accordance with all avoidance and mitigation measures and commitments made by the Proponent. The EAO and the Proponent have been engaged in consultations with Kitselas First Nation from early stages of the EA of the proposed Project to jointly discuss the potential for impacts and to develop measures to avoid, mitigate or otherwise accommodate Kitselas First Nation Aboriginal rights. Kitselas has had an opportunity to review and comment on this consultation report and to specify the nature and scope of their rights from their point of view and their comments have been incorporated.

Having regard to all of the above, the EAO concludes that the process of consultation has been carried out in good faith, and that it was appropriate and reasonable in the circumstances. The EAO also concludes that the potential for effects on asserted Aboriginal rights has been avoided, mitigated or otherwise accommodated to an appropriate level such that they will not significantly impact the Kitselas from exercising their rights. In concluding this the EAO recognizes, that if the Project receives an EA Certificate, then additional detailed studies and programs are yet to be carried out and subsequent evaluations of risk of impacts will be undertaken, notably during the federal comprehensive study under CEAA and prior to any authorizations issued by Fisheries and Oceans Canada and the BC Oil and Gas Commission. The EAO believes the review process has reasonably balanced Aboriginal concerns of potential for impacts on asserted rights with other societal values.

Kitselas again asked EAO to note that it is important to reiterate, as that Kitselas continues to evaluate the Project from an "impacts and benefits" perspective as noted earlier. They will

actively participate in the current economic benefits discussions (outside of the EA Process) with both the Proponent and the Province. Their final endorsement of the Project rests on both the stewardship component detailed in this report and the "impacts and benefits" component to be resolved through the economics and benefits discussions.

1.5 Lax Kw'alaams First Nation

1.5.1 Introduction

Scope of Document

This section addresses potential effects of the KSL Pipeline Looping Project on the asserted Aboriginal rights, including Aboriginal title, of the Lax Kw'alaams First Nation as outlined in Section 1.1.

Information Sources

The Proponent commissioned a report entitled "Traditional Ecological Knowledge of the Lax Kw'alaams" that was prepared by the Lax Kw'alaams First Nation in July 2007. This report documents Lax Kw'alaams knowledge about lands and resources along the Project corridor and outlines potential impacts on cultural and resources sites in Lax Kw'alaams territory.

In April 2008 the EAO was provided with a letter from James Bryant, Allied Tribes of Lax Kw'alaams, stating that the traditional use and knowledge studies being created by Metlakatla and Lax Kw'alaams First Nations seek to complement each other and should be treated accordingly. These reports are being considered together as representing the interests of the Coast Tsimshian people.

1.5.2 Lax Kw'alaams First Nation Aboriginal Rights

Setting: Lax Kw'alaams First Nation

The proposed Project lies within the asserted traditional territory of the Coast Tsimshian Tribes. *The Literature Review of First Nations in the Environs of the KSL Pipeline Looping Project* (**Appendix I** of the Application) indicates that the Lax Kw'alaams people are also known as the Allied Tribes of Lax Kw'alaams, a coalition of nine distinct Coast Tsimshian tribes. The Traditional Ecological Knowledge of the Lax Kw'alaams confirms the Lax Kw'alaams people are associated with the Tsimshian Allied Tribes. The main Lax Kw'alaams community is located approximately 7 kilometres north of Prince Rupert on the Tsimshian Peninsula.

The Traditional Ecological Knowledge of the Lax Kw'alaams notes that while there are areas of resource use shared by all Tsimshian people, the underlying Aboriginal title lies with the House. Several of the Tsimshian House groups claim an interest in the area of Lakelse Lake (north of the proposed Project) and in the lower reaches of the Kitimat River in the Wedeene River watershed (including a portion of the proposed Project, from kilo post 12 to kilo post 25). There are no Lax Kw'alaams Indian Reserves within 10 kilometres of the proposed Project.

Traditional Occupation and Use of the Project Area

The proposed Project enters Lax Kw'alaams territory at approximately kilo post 12 (Wedeene River valley) and leaves again at approximately kilo post 25. Much of the following information is taken from the Traditional Ecological Knowledge of the Lax Kw'alaams.

A traditional seasonal round of resource activities is described in the Traditional Ecological Knowledge of the Lax Kw'alaams. It states that two tribes of the Lax Kw'alaams, the Gitandaw and the Gitlan, are associated closely with the area to the north of Kitimat, in the area of the proposed project. The Gitandaw lived in the area of the Big and Little Wedeene Rivers, gathering food and resources. There are several camps in the valleys and a fish camp is recorded at the confluence of the Little Wedeene and Kitimat Rivers. Fishing, trapping, hunting and gathering of plants are noted in particular and culturally modified trees are said to be common.

The Traditional Ecological Knowledge of the Lax Kw'alaams identifies traditional uses in the vicinity of the corridor of the proposed Project in the Big and Little Wedeene Valleys; these uses are identified in the "Issues and Concerns" section below.

Current Occupation and Use of the Project Area for Traditional Purposes

It is expected that the Lax Kw'alaams may currently use an area of the Wedeene drainage that overlaps a small portion of the proposed project corridor, however the Traditional Ecological Knowledge of the Lax Kw'alaams does not identify any specific current occupation or use of the corridor itself.

Issues and Concerns identified by the Lax Kw'alaams First Nation

The Lax Kw'alaams Traditional Ecological Knowledge of the Lax Kw'alaams notes that the primary concern for all development proposals is for the affect that proposed projects have on animal welfare and hunting activities. With this as context, the key issues and concerns identified by the Lax Kw'alaams about the proposed Project include:

- potential for adverse effects to berry picking sites; hunting for deer, mountain goat and moose; trapping for beaver, marten, mink and otter; collection of medicinal plants, cultural sites (culturally modified trees) and campsites in the Big Wedeene valley (kilo post 16.7 to 17.4) and in the Little Wedeene valley (kilo post 12.7 to 13.3);
- potential for adverse effects to trapping for beaver, marten, mink, otter, squirrel and ermine between the Big and Little Wedeene Rivers (kilo post 13.3 to 16.7);
- potential for adverse effects to salmon and to transportation by canoe where the proposed pipeline crosses the Big Wedeene River at kilo post 17;
- the need for information about compensation for inability to collect food or resources in the event of an accident that prevents collection;
- potential effects of spills into the Kitimat River;
- risks associated with tanker traffic; and,
- impacts on creeks.

Lax Kw'alaams First Nation Aboriginal Rights

The information provided in the Traditional Ecological Knowledge of the Lax Kw'alaams indicates that historically the certain Houses of the Lax Kw'alaams people used the lands around the Big and Little Wedeene Rivers where they enter the Kitimat Valley portion of the Project corridor as part of their subsistence and cultural activities.

It is prudent to assume that both the Metkakatla and Lax Kw'alaams First Nations have a strong prima facie claim to Aboriginal rights to hunt, fish, trap and gather plants for food, social and ceremonial purposes around the Lakelse Lake and River area, to the north of the proposed Project corridor as well as around the Big and Little Wedeene Rivers area, covering a small portion of the proposed Project corridor. There are no current Metlakatla or Lax Kw'alaams Indian Reserves nearby the proposed Project corridor.

The EAO foresaw the potential for significant adverse impacts on Lax Kw'alaams Aboriginal rights, albeit over a limited portion of the Project. Therefore the EAO made a decision at the outset of the EA process to use an approach of "deep consultation" (with respect to the *Haida* spectrum of consultation) with the Lax Kw'alaams First Nation in order to develop and implement measures to avoid or minimize impacts to Lax Kw'alaams First Nation Aboriginal rights to appropriate levels.

1.5.3 Consultation with the Lax Kw'alaams First Nation

Lax Kw'alaams Involvement with the EAO

On March 7, 2006 the EAO sought a meeting with the Lax Kw'alaams First Nation to review the Project. A first meeting took place in July 2006 and topics discussed included the EA process, Lax Kw'alaams involvement and capacity for involvement, relationships with the Proponent and with the EAO, environmental concerns, and potential for impacts to water, fish and wildlife should the Project be approved. Two key concerns were the potential for marine impacts related to tanker traffic and compensation for lost use of resources should an accident occur during operation of the proposed Project.

A Lax Kw'alaams representative attended Working Group meetings when they were able to. Lax Kw'alaams was provided all information regarding the project throughout the Pre-Application and Application Review periods. The EAO sponsored two evening meetings with First Nations associated with Working Group meetings during Pre-Application discussions in October 2006 and May 2007 to discuss EA process issues relating to First Nations; a Lax Kw'alaams representative attended the May meeting.

The Lax Kw'alaams First Nation was provided with draft copies of the section 11 order and the Terms of Reference for the Project. With the issuance of the February 28, 2007 section 11 order under the *EA Act*, the Proponent was formally directed to consult with the Lax Kw'alaams First Nation. The Proponent had already begun discussions with Lax Kw'alaams before this time.

The EAO met with Lax Kw'alaams representatives in January 2007 to discuss Lax Kw'alaams involvement in the EA process, including how Lax Kw'alaams Aboriginal rights can best be addressed.

The EAO provided capacity funding to the Lax Kw'alaams during the Pre-Application stage of the review. Funds were also provided during the Application Review phase of the EA process to assist with costs associated with Lax Kw'alaams participation in the EA review, such as travelling to EAO sponsored meetings, document review and other project related work.

The EAO sought to meet with Lax Kw'alaams to discuss a preliminary draft of this consultation report on April 2, 2008 but did not get a reply to this request. The EAO provided a draft of this document to Lax Kw'alaams on April 21, 2008 with a request for a response by May 5, 2008.

Lax Kw'alaams Involvement with the Proponent

The Proponent initially contacted the Lax Kw'alaams First Nation in August 2005 and since that time has continued to consult with the Lax Kw'alaams. In a June 2007 letter, PTP updated the Lax Kw'alaams First Nation regarding the status of their application, summarized consultations completed to date and proposed a consultation process for the upcoming

Application Review period. Meetings and correspondence continued to the end of the review period. In their April 2008 Report on First Nations Consultations, PTP reports that as of November 2007, Lax Kw'alaams informed them they would likely not have significant issues with the Project, however PTP has been unable to confirm this with a new Chief Councillor despite a number of attempts to do so.

Discussions between Lax Kw'alaams and PTP led to completion of the Traditional Ecological Knowledge of the Lax Kw'alaams; this Traditional Ecological Knowledge of the Lax Kw'alaams was submitted to the EAO as a confidential part of the Project Application.

Digital files of the route alignment were provided to Lax Kw'alaams in October 2006.

<u>Measures being implemented to mitigate or otherwise accommodate potential for impacts to</u> <u>Lax Kw'alaams Aboriginal Rights</u>

As noted above the EAO believes it is prudent to assume that the Lax Kw'alaams First Nation has a strong prima facie claim to Aboriginal rights to hunt, fish, trap and gather plants for food, social and ceremonial purposes adjacent to, and generally around, the proposed Project where it passes through their territory (approximately from kilo post 12 to kilo post 25). The EAO sought input from the the Lax Kw'alaams First Nation on how best to address their Aboriginal rights during the EA process. During the review process concerns were raised by the Lax Kw'alaams and Metlakatla First Nations with respect to potential for effects of the Project on lands and resources that they both used in exercising their Aboriginal rights.

The primary risks of impacts to the Lax Kw'alaams peoples ability to exercise their rights include:

- precluding or inhibiting the Lax Kw'alaams access to lands and waterways where hunting, fishing, trapping or gathering activities occur;
- destroying or reducing productive capacity of areas of fish, animal or plant habitat such that there are no longer sufficient areas to exercise the rights; and,
- creating increased access to the general public to key the Lax Kw'alaams hunting, fishing and gathering areas that results in increased and damaging pressures on animals, fish and plants and their habitat.

The concerns expressed by the the Lax Kw'alaams First Nation during the review of the Project have been fully considered in the review process through Working Group discussions and through the consultations carried out by the Proponent and by provincial and federal agencies. The review process has led to multiple measures and Proponent commitments being proposed to address the specific concerns raised by the the Lax Kw'alaams and therefore the risk of impacts to the Lax Kw'alaams Aboriginal rights (see below). In consideration of these, the EAO believes that:

- Lax Kw'alaams First Nation access to certain lands may be restricted for a limited period during project construction, however as the geographic extent of these lands within Lax Kw'alaams territory is very small and the construction period is short, the EAO does not believe this will lead to a significant impact on Lax Kw'alaams ability to exercise their rights;
- while the proposed Project as described in the Application may have posed unacceptable risks to areas of fish, animal or plant habitat, the enhanced avoidance,

mitigation and accommodation measures developed during the review process have reduced the risks of these impacts, both during construction and operations, to an appropriate level. This assessment also recognizes the subsequent authorizations that will be required of the Project should an EA Certificate be granted; and,

 measures in the original Application and developed through the review process to restrict public access have reduced the risk of negative impacts from such access to an appropriate level.

The EAO recognizes there are risks of impacts in carrying out this project. For example, Lax Kw'alaams have emphasized the risks associated with impacts to water quality standards and fish habitat, particularly in the Big and Little Wedeene valleys. While these risks exist, a considerable amount of effort has been spent on reviewing the measures proposed to mitigate and minimize those risks in the Application and to further reduce the risks by creating additional measures and commitments that must be adhered to by the Proponent. Many of these focus on additional planning before carrying out activities in the Kitimat valley, including the Wedeene confluences, and safeguarding fish and water resources during construction and over the longer term. Measures to involve the Lax Kw'alaams First Nation in planning and monitoring work in their asserted territory have been enhanced.

The above conclusions will be better understood by reviewing the following examples of key measures and commitments that respond to Lax Kw'alaams concerns, as listed below; a more complete description can be found in the Working Group Issues Tracking Table (**Appendix D**) and the Compendium of Proponent Commitments (**Appendix E**).

1. - Potential for adverse effects to berry picking sites; hunting for deer, mountain goat and moose; trapping for beaver, marten, mink and otter; collection of medicinal plants, cultural sites (culturally motified trees) and campsites in the Big Wedeene valley (kilo post 16.7 to 17.4) and in the Little Wedeene valley (kilo post 12.7 to 13.3).

- Potential for adverse effects to trapping for beaver, marten, mink, otter, squirrel and ermine between the Big and Little Wedeene Rivers (kilo post 13.3 to 16.7).

Proponent Response: the Proponent has committed to:

- undertake a "route walk" by a wildlife specialist (R.P. Bio) prior to clearing and construction;
- consider moose habitat in the Kitimat Valley in access management planning and in the restoration of right-of-way and temporary workspace;
- undertake, post-certification, additional studies where warranted on areas of high value/high risk. These studies will incorporate traditional knowledge, where applicable;
- revegetating disturbed areas with native seed mixes suited to local conditions; and,
- minimize removal of vegetation and disturbance of soil adjacent to wetlands.

2. Potential for adverse effects to salmon and to transportation by canoe where the proposed pipeline crosses the Big Wedeene River at kilo post 17.

Proponent Response: the Proponent has committed to:

- adhering to all requirements of the federal Fisheries Act, including provisions contained in the conceptual habitat compensation plan; and,
- adhering to all requirements of the federal Navigable Waters Act regarding navigability on the Big Wedeene river.
- 3. The need for information about compensation for inability to collect food or resources in the event of an accident that prevents collection.

Proponent Response: the Proponent has committed to:

 ensuring all contractors adhere to established environmental protection plans; further where an environmental inspector considers significant damage has occurred, the relevant First Nation representative will immediately be contacted to inform them of the damage and to be asked for input into mitigation measures that will be employed to appropriately deal with the damage.

4. Potential effects of spills into the Kitimat River. Impacts on creeks.

Proponent Response: in the event of an accident that ruptures a pipeline in a stream, natural gas will rise to the surface and move into the atmosphere quickly, where it will dissipate. Downstream effects would be very limited. Regarding spills of hydrocarbons from heavy equipment or other materials during construction, the proponent has committed to employ best available technology and safety measures and follow all applicable codes, in order to minimize the probability of accidents and malfunctions occurring. In addition the Proponents contingency plans will address accidental spills to ensure effects of accidents are minimized.

5. Risks associated with tanker traffic.

Proponent Response: the EAO reviewed this issue with the Lax Kw'alaams and discussed the federal government TERMPOL review process that is underway to review tanker traffic issues associated with the Kitimat LNG plant.

1.5.4 Conclusions

In the review of the proposed Project, the EAO has considered the Lax Kw'alaams First Nation assertion of Aboriginal rights and the information available to support the strength of that assertion within and adjacent to the proposed Project corridor. The EAO has also considered the potential for impacts to those rights from the proposed Project, based on it being implemented as designed and in accordance with all avoidance and mitigation measures and commitments made by the Proponent. The EAO and the Proponent have been engaged in consultations with the Lax Kw'alaams First Nation from early stages of the EA of the proposed Project to jointly discuss the potential for impacts and to develop measures to mitigate or otherwise accommodate Lax Kw'alaams First Nation Aboriginal rights. The Lax Kw'alaams First Nation has had an opportunity to review and comment on this consultation report and to specify the nature and scope of their rights from their point of view.

Having regard to all of the above, the EAO concludes that the process of consultation has been carried out in good faith, and that it was appropriate and reasonable in the circumstances. The EAO also concludes that the potential for effects on asserted Aboriginal rights has been mitigated or otherwise accommodated to an appropriate level such that they will not significantly impact the Lax Kw'alaams First Nation from exercising their rights. In concluding this the EAO recognizes, that if the Project receives an EA Certificate, then additional detailed studies and programs are yet to be carried out and subsequent evaluations of risk of impacts will be undertaken, notably during the federal comprehensive study under CEAA and prior to any authorizations issued by Fisheries and Oceans Canada and the BC Oil and Gas Commission. The EAO believes the review process has reasonably balanced Aboriginal concerns of potential for impacts on asserted rights with other societal values.

1.6 Metlakatla Indian Band

1.6.1 Introduction

Scope of Document

This section addresses potential effects of the KSL Pipeline Looping Project on the asserted Aboriginal rights, including Aboriginal title, of the Metlakatla First Nation as outlined in Section 1.1.

Information Sources

The Proponent commissioned a report entitled "Metlakatla Project"; this was also referred to as an Aboriginal Interest and Use Study and Traditional Ecological/Environmental Knowledge Proposal for the Metlakatla Study Area. The report notes that it is not intended to be a comprehensive impact assessment but it does provide a review of traditional ownership, use and occupancy patterns and heritage values associated with Coast Tsimshian areas through which the proposed Project is planned.

In April 2008 the EAO was provided with a letter from Chief Harold Leighton, Metlakatla First Nation, stating that the traditional use and knowledge studies being created by Metlakatla and Lax Kw'alaams First Nations seek to complement each other and should be treated accordingly. These reports are being considered together as representing the interests of the Coast Tsimshian people.

1.6.2 Metlakatla First Nation Aboriginal Rights

Setting: Metlakatla First Nation

The proposed Project lies within the asserted traditional territory of the Coast Tsimshian Tribes. The Aboriginal Interest and Use Study states that traditionally, the Coast Tsimshian (Metlakatla and Lax K'walaams) were divided into nine tribes whose combined traditional territories extended from coastal islands to the Lakelse Lake area (south of Terrace).

Coast Tsimshian people were also divided into village groups with several houses and within this was a clan system that extended across society. This tribal/clan/house system conveyed certain village sites and territorial ownership and responsibilities. The main Metlakatla community is located approximately 7 kilometres north of Prince Rupert on the Tsimshian Peninsula however several Tsimshian House groups claim an interest in the Lakelse Lake area and in the lower reaches of the Kitimat River in the Wedeene River watershed. There are no Metlakatla Indian Reserves within 10 kilometres of the proposed Project.

The Metlakatla Community Development Project identified a set of guiding principles for all community development initiatives, including: conserve and sustain land and marine resources; protect the environment; continue our traditional uses; sustain our culture, society, communities and economy; assert rights in planning and management; and access economic opportunities and benefits.

Traditional Occupation and Use of the Project Area

The proposed Project enters Metlakatla territory at approximately kilo post 12 (Wedeene River valley) and leaves again at approximately kilo post 25. Much of the following information is taken from the Aboriginal Interest and Use Study.

Traditionally seasonal rounds from village to winter/spring/summer/fall fishing camps dominated Coast Tsimshian life. The harvest of salmon and eulachon were supplemented by hunting, trapping, foraging and shellfish gathering. During summer and autumn months various plants were gathered for food, materials and medicines. The Aboriginal Interest and Use Study provides more detail on seasonal harvesting patterns and the resources that were harvested for the general Tsimshian territory.

The Aboriginal Interest and Use Study does not identify any specific traditional use sites within the corridor of the proposed Project area in the Wedeene drainage portion of the Kitimat Valley.

Current Occupation and Use of the Project Area for Traditional Purposes

It is expected that the Metlakatla may currently use an area of the Wedeene drainage that overlaps a small portion of the proposed project corridor, however the Aboriginal Interest and Use Study does not identify any specific current occupation or use of the corridor itself.

Issues and Concerns identified by the Metlakatla First Nation

As noted above, Metlakatla provided principles for all community development. With this as context, the key issues and concerns identified by the Metlakatla First Nation about the proposed Project include:

- adverse effects on fish habitat, health, abundance and distribution;
- impacts on vegetation and habitat loss through direct loss of forested areas;
- impacts to wildlife feeding, nesting, denning or breeding patterns or sites;
- instability and decreased quality of soils;
- alteration of surface water drainage patterns;
- introduction of non-native and invasive plant species;
- disturbance to rare plants, plant communities or First Nation tribal collection sites;
- adverse effects on heritage and archaeological resources;
- the need for First Nation cultural, heritage and archaeological impact monitoring; and,
- compensation for loss of use and/or benefit to First Nations for impacts that preclude First Nation use of a resource.

Metlakatla First Nation Aboriginal Rights

The information provided in the Aboriginal Interest and Use Study indicates that historically the Coast Tsimshian people used the lands around Lakelse Lake and River to the north of the Kitimat Valley portion of the Project corridor as part of their subsistence and cultural activities. The complementary Lax Kw'alaams report identified Coast Tsimshian activities extending further south into the lower Kitimat valley in the vicinity of the Wedeene drainages.

It is prudent to assume that both the Metkakatla and Lax Kw'alaams First Nations have a strong prima facie claim to Aboriginal rights to hunt, fish, trap and gather plants for food, social and ceremonial purposes around the Lakelse Lake and River area, to the north of the proposed Project corridor as well as around the Big and Little Wedeene Rivers area, covering a small portion of the proposed Project corridor. There are no current Metlakatla or Lax Kw'alaams Indian Reserves nearby the proposed Project corridor.

The EAO foresaw the potential for significant adverse impacts on Metlakatla Aboriginal rights, albeit over a limited portion of the Project. Therefore the EAO made a decision at the outset of the EA process to use an approach of "deep consultation" (with respect to the *Haida* spectrum of consultation) with the Metlakatla in order to develop and implement measures to avoid or minimize impacts to Metlakatla Aboriginal rights to appropriate levels.

1.6.3 Consultation with the Metlakatla First Nation

Metlakatla Involvement with the EAO

On March 7, 2006 the EAO sought a meeting with the Metlakatla First Nation to review the Project. A first meeting took place in July 2006 and topics discussed included the EA process, Metlakatla involvement and capacity for involvement, relationships with the Proponent and with the EAO, environmental concerns, and potential for impacts to water, fish and wildlife should the Project be approved. Two key concerns were the potential for marine impacts related to tanker traffic and compensation for lost use of resources should an accident occur during operation of the proposed Project.

A Metlakatla representative attended Working Group meetings when they were able to. Metlakatla was provided all information regarding the project throughout the Pre-Application and Application Review periods. The EAO sponsored two evening meetings with First Nations associated with Working Group meetings during Pre-Application discussions in October 2006 and May 2007 to discuss EA process issues relating to First Nations; a Metlakatla representative attended the May meeting.

The Metlakatla First Nation was provided with draft copies of the section 11 order and the Terms of Reference for the Project. With the issuance of the February 28, 2007 section 11 order under the *EA Act*, the Proponent was formally directed to consult with the Metlakatla. The Proponent had already begun discussions with Metlakatla before this time.

The EAO met with Metlakatla representatives in January 2007 to discuss Metlakatla involvement in the EA process, including how Metlakatla Aboriginal rights can best be addressed.

The EAO provided capacity funding to the Metlakatla during the Pre-Application stage of review. Funds were also provided during the Application Review phase of the EA process to assist with costs associated with Metlakatla participation in the EA review, such as travelling to EAO sponsored meetings, document review and other project related work.

A preliminary draft of this consultation report was provided to Metkakatla on April 2, 2008 with a request for Metlakatla to identify the nature of the Aboriginal rights that they claim as well as other information that would assist the EAO in completing this report. The EAO provided another draft of this document to Metlakatla on April 21, 2008 with a request for a response by May 5, 2008.

Metlakatla First Nation Involvement with the Proponent

The Proponent initially contacted the Metlakatla First Nation in August 2005 and since that time has continued to consult with the Metlakatla. In a June 2007 letter, PTP updated the Metlakatla First Nation regarding the status of their application, summarized consultations completed to date and proposed a consultation process for the upcoming Application Review period. Meetings and correspondence continued to the end of the review period. In their April 2008 Report on First Nations Consultations, PTP reports that Metlakatla First Nation is satisfied for now that PTP is addressing the spirit of their concerns; additional information can be found in the Proponents report on consultations. This report was provided to the Metlakatla on April 7, 2008 by the Proponent.

Discussions between Metlakatla and PTP led to completion of the Aboriginal Interest Use Study; this Aboriginal Interest and Use Study was submitted to the EAO as a confidential part of the Project Application.

Digital files of the route alignment were provided to Metlakatla in October 2006.

<u>Measures being implemented to mitigate or otherwise accommodate potential for impacts to</u> <u>Metlakatla Aboriginal Rights</u>

As noted above the EAO believes it is prudent to assume that the Metlakatla First Nation has a strong prima facie claim to Aboriginal rights to hunt, fish, trap and gather plants for food, social and ceremonial purposes adjacent to, and generally around, the proposed Project where it passes through their territory (approximately from kilo post 12 to kilo post 25). The EAO sought input from the Metlakatla First Nation on the nature and scope of their Aboriginal rights and how they might be impacted by the proposed Project. During the review process concerns were raised by the Metlakatla and the Lax Kw'alaams First Nations with respect to potential for effects of the Project on lands and resources that they both used in exercising their Aboriginal rights.

The primary risks of impacts to Metlakatla peoples ability to exercise their rights include:

- precluding or inhibiting Metlakatla access to lands and waterways where hunting, fishing, trapping or gathering activities occur;
- destroying or reducing productive capacity of areas of fish, animal or plant habitat such that there are no longer sufficient areas to exercise the rights; and,
- creating increased access to the general public to key Metlakatla hunting, fishing and gathering areas that results in increased and damaging pressures on animals, fish and plants and their habitat.

The concerns expressed by the Metlakatla First Nation during the review of the Project have been fully considered in the review process through Working Group discussions and through the consultations carried out by the Proponent and by provincial and federal agencies. The review process has led to multiple measures and Proponent commitments being proposed to address the specific concerns raised by the Metlakatla and therefore the risk of impacts to Metlakatla Aboriginal rights (see below). In consideration of these, the EAO believes that:

- Metlakatla First Nation access to certain lands may be restricted for a limited period during project construction, however as the geographic extent of these lands within Metlakatla territory is very small and the construction period is short, the EAO does not believe this will lead to a significant impact on the Metlakatla ability to exercise their rights;
- while the proposed Project as described in the Application may have posed unacceptable risks to areas of fish, animal or plant habitat, the enhanced avoidance, mitigation and accommodation measures developed during the review process have reduced the risks of these impacts, both during construction and operations, to an appropriate level. This assessment also recognizes the subsequent authorizations that will be required of the Project should an EA Certificate be granted; and,
- measures in the original Application and developed through the review process to restrict public access have reduced the risk of negative impacts from such access to an appropriate level.

The EAO recognizes there are risks of impacts in carrying out this project. For example, Metlakatla have emphasized the risks associated with impacts to water quality standards and fish habitat, particularly in the Big and Little Wedeene valleys. While these risks exist, a considerable amount of effort has been spent on reviewing the measures proposed to mitigate and minimize those risks in the Application and to further reduce the risks by creating additional measures and commitments that must be adhered to by the Proponent. Many of these focus on additional planning before carrying out activities in the Kitimat valley, including the Wedeene confluences, and safeguarding fish and water resources during construction and over the longer term. Measures to involve the Metlakatla First Nation in planning and monitoring work in their asserted territory have been enhanced.

The above conclusions will be better understood by reviewing the following examples of key measures and commitments that respond to Metlakatla concerns, as listed below; a more complete description can be found in the Working Group Issues Tracking Table (**Appendix D**) and the Compendium of Proponent Commitments (**Appendix E**).

- 1. Adverse effects on fish habitat, health, abundance and distribution.
 - Instability and decreased quality of soils.
 - Alteration of surface water drainage patterns.

Proponent Response: the Proponent has committed to:

- undertake more detailed terrain stability investigations as part of project design, which in places could lead to engineering solutions or local route adjustments;
- surface run-off will be controlled to manage erosion and avoid sedimentation. Any slide activity will be monitored and where a concern exists a technical review will determine remedial actions;
- provide site-specific environmental protection plans, erosion control plans and other construction and contingency plans as a prerequisite to construction;
- provide restoration plans;
- ensure qualified environmental monitors are onsite during construction;
- discuss the need for additional baseline studies where required to assure the Project does not result in negative impacts on watersheds; and,
- conduct additional fish inventory studies.

2. Impacts on vegetation and habitat loss through direct loss of forested areas.

Proponent Response: the Proponent has committed to:

- seed disturbed areas with native seed mixes appropriate to local conditions;
- plant previously forested temporary workspace with tree species approved by BC MOFR and forest licensees;
- minimize clearing of mature trees and narrow width of workspace clearing to extent practical to maintain forest structure;
- redistribute coarse woody debris on ground surface during final clean-up and restoration phase;
- provide site-specific environmental protection plans, erosion control plans and other construction and contingency plans as a prerequisite to construction; and,
- provide restoration plans.
- 3. Impacts to wildlife feeding, nesting, denning or breeding patterns or sites.

Proponent Response: the Proponent has committed to:

- undertake a "route walk" by a wildlife specialist (R.P. Bio) prior to clearing and construction;
- consider wildife habitat and seasonal movements in access management planning;
- prepare a bear management plan;
- identify wildlife movement corridors during a pre-construction route walk;
- extend the bear timing windows such that no clearing or construction activities occur within 200 metres of an active den between November 1 and May 31;
- implement mitigation and minimize effects related to working in mountain goat winter ranges; and,
- consider moose habitat in the Kitimat Valley in access management planning and in the restoration of right-of-way and temporary workspace.

4. Introduction of non-native and invasive plant species.

Proponent Response: the Proponent has committed to:

- implement an Invasive Plant Management Plan to minimize the introduction and spread of noxious weeds during Project construction activities;
- employ standard weed control measures, such as cleaning of equipment of seeds and vegetative debris attached to the equipment prior to arrival on the right-of-way; and,
- monitor the right-of-way during post-construction monitoring and operations for areas of new noxious weed growth. Undertake measures to control weeds at these locations.
- 5. Disturbance to rare plants, plant communities or First Nation tribal collection sites.
 - Adverse effects on heritage and archaeological resources.

- The need for First Nation cultural, heritage and archaeological impact monitoring.

Proponent Response: the Proponent has committed to:

- contain project footprint to the minimum area required to efficiently and safely build the pipeline when traversing rare plant communities;
- fence off the plant community at risk where it occurs next to the construction right-of-way to restrict pipeline construction traffic;
- survey previously undisturbed portions of the pipeline route that have suitable rare plant habitat for the presence of rare plants before grubbing;
- protection of archaeologically important sites;
- undertake, post-certification, additional studies where warranted on areas of high value/high risk. These studies will incorporate traditional knowledge, where applicable;
- contact the First Nations concerned to ensure a member of the community advises on activities in areas used for ritual purposes;
- discuss scheduling of clearing and construction activities with First Nations in order to avoid potential impacts to ritual activities; and,
- hiring inspection staff that require specific qualifications in monitoring for these resources and First Nations members who have those qualifications will be considered.

6. Compensation for loss of use and/or benefit to First Nations for impacts that preclude First Nation use of a resource.

Proponent Response: the Proponent has committed to:

 ensuring all contractors adhere to established environmental protection plans; further where an environmental inspector considers significant damage has occurred, the relevant First Nation representative will immediately be contacted to inform them of the damage and to be asked for input into mitigation measures that will be employed to appropriately deal with the damage.

7. Potential impacts to the marine environment due to increased tanker traffic.

Proponent Response: The EAO reviewed this issue with the Metlakatla and discussed the federal government TERMPOL review process that is underway to review tanker traffic issues associated with the Kitimat LNG plant.

1.6.4 Conclusions

In the review of the proposed Project, the EAO has considered the Metlakatla First Nation assertion of Aboriginal rights and the information available to support the strength of that assertion within and adjacent to the proposed Project corridor. The EAO has also considered the potential for impacts to those rights from the proposed Project, based on it being implemented as designed and in accordance with all avoidance and mitigation measures and commitments made by the Proponent. The EAO and the Proponent have been engaged in consultations with the Metlakatla First Nation from early stages of the EA of the proposed Project to jointly discuss the potential for impacts and to develop measures to avoid, mitigate or otherwise accommodate Metlakatla First Nation Aboriginal rights. The Metlakatla First Nation has had an opportunity to review and comment on this consultation report and to specify the nature and scope of their rights from their point of view.

Having regard to all of the above, the EAO concludes that the process of consultation has been carried out in good faith, and that it was appropriate and reasonable in the

circumstances. The EAO also concludes that the potential for effects on asserted Aboriginal rights has been avoided, mitigated or otherwise accommodated to an appropriate level such that they will not significantly impact the Metlakatla Indian Band from exercising their rights. In concluding this the EAO recognizes, that if the Project receives an EA Certificate, then additional detailed studies and programs are yet to be carried out and subsequent evaluations of risk of impacts will be undertaken, notably during the federal comprehensive study under CEAA and prior to any authorizations issued by Fisheries and Oceans Canada and the BC Oil and Gas Commission. The EAO believes the review process has reasonably balanced Aboriginal concerns of potential for impacts on asserted rights with other societal values.

1.7 Office of the Wet'suwet'en

1.7.1 Introduction

Scope of Document

This section addresses potential effects of the KSL Pipeline Looping Project on the asserted Aboriginal rights, including Aboriginal title, of the Wet'suwet'en Nation, represented by the Office of the Wet'suwet'en, as outlined in Section 1.1.

Information Sources

The Proponent commissioned a report entitled Wet'suwet'en Use Study for the KSL Looping Project"⁷ to document Wet'suwet'en traditional use activities of the Project area. The Wet'suwet'en Use Study was created by reviewing existing Office of the Wet'suwet'en archival data, cartographic information, existing cultural/historical databases, arranging community information sessions, conducting interviews, transcribing and arranging field trips with participants.

The Office of the Wet'suwet'en also provided EAO, the CEA Agency and the Responsible Authorities with additional information on their traditional and current use of these areas through correspondence and meetings during the EA process. The Morice Watershed Management Area, created as part of the Morice Land and Resource Management Plan, is of particular concern to the Office of the Wet'suwet'en; information on this has been obtained from the Morice Land Resource Management to establish the Water Management Area.

1.7.2 Office of the Wet'suwet'en Aboriginal Rights

Setting: Office of the Wet'suwet'en

The Office of the Wet'suwet'en is made up of five distinct clan groups, each with their own Houses and each of the 13 Houses has a hereditary Chief. The Office of the Wet'suwet'en confirmed for the EAO that it represents the Office of the Wet'suwet'en in rights and title issues and is responsible for referral processes on Wet'suwet'en territory. It was confirmed that the Moricetown and Hagwilget Bands are affiliated with the Office of the Wet'suwet'en and that they speak directly to the potential for a project to impact their communities rather than the broader territory. Based on this the EAO has communicated directly with the Office of the Wet'suwet'en and has copied the Moricetown and Hagwilget Bands on all key communications.

The five clan groups are the Gitdumden (Bear), Gilseyhyu (Big Frog), Laksilyu (Small Frog) Laksamishu (Fireweed) and Tsayu (Beaver). The clan groups are made up of matrilineal House groups.

The Project traverses the area indicated by the Office of the Wet'suwet'en to be their traditional territory from approximately kilo post 90 where the project crosses to the east side of the Coast Mountains, to approximately kilo post 262 near to Tchesinkut Lake.

⁷ Wet'suwet'en Use Study (WUS) for the KSL Looping Project' was prepared by WHAGGUS Applied Ethnography and Research Consulting Services and the Office of the Wet'suwet'en at the request of PTP as one of the First Nation traditional use studies compiled for the Project Application. Where information in this section is taken from that document, it will be referred to as the "WUS". It should be noted that the Wet'suwet'en believe insufficient funding was provided to carry out the level of research required to complete the WUS to their satisfaction.

Following the Project alignment from west to east, the project passes through House territories of the Tsayu, Gilseyhyu, Gitdumden, Laksamishu, Tsayu, Laksilyu, Gilseyhyu, and Laksilyu clan groups respectively.

The main Wet'suwet'en communities are located at Hagwilget and Moricetown, Broman Lake, Burns Lake, Skin Tyhee and Nee Tahi Bunn although Wet'suwet'en members reside in number of different communities outside Wet'suwet'en Territory. Office of the Wet'suwet'en Indian Reserves located nearest to the Project are the Felix George No. 7 (12 kilometres away) and Tsichgass No. 10 (13.5 kilometres away).

The literature review of First Nations in the environs of the Project (**Appendix I** of the Application compiled by Dr. Dorothy Kennedy) noted that a number of Bands or First Nations in the vicinity of the Project shared one or another dialect of the Witsuwit'en-Babine language. For this reason, the EAO sought clarity from the Office of the Wet'suwet'en on the relationships amongst various First Nations in the area at an early stage in the Project review. Office of the Wet'suwet'en confirmed that they represented the Moricetown Band, the Hagwilget Band and the people represented by the Hereditary Chiefs of the Office of the Wet'suwet'en and their Aboriginal interests and rights. This section of this report deals with these groups.

The interests of the Nee-Tahi-Buhn First Nation, the Skin Tyee First Nation and the Carrier-Sekani Tribal Council (which represents the Wet'suwet'en First Nation (Broman Lake Band) and the Burns Lake First Nation, among others) are addressed in separate sections. The Office of the Wet'suwet'en noted that it is important to recognise that band members from the above Nations do play a role and have seats in the baht'lats (feast hall), which is the central form of Wet'suwet'en governance which has been conducting business for thousands of years. Band election systems have been introduced as an overlapping layer of jurisdiction that have authorities within band boundaries.

Traditional Occupation and Use of the Project Area

In the westernmost part of the Wet'suwet'en territory, the Project crosses the Coast Mountains and descends to the valley of the Clore River. It then crosses the Bulkley Ranges and descends to the Burnie River crossing. From here the Project passes through the Morice Watershed Management Area which includes Gosnell Creek and the Morice River. It continues east across gently rolling topography for the remainder of Wet'suwet'en territory. Given the broad variation in ecosystems there are a wide variety of wildlife, fish, birds, trees and plants across this terrain that have historically been used by the Wet'suwet'en people.

According to the Wet'suwet'en Use Study, Wet'suwet'en people have inhabited their fishing villages and fishing sites along the Bulkley and Morice Rivers (referred to as Wedzen Kwa by the Wet'suwet'en) for countless generations. The Wet'suwet'en House groups followed continuous seasonal rounds, moving to temporary summer fishing villages in the spring and returning in the fall. Each Clan had a set of specific territories they would travel to once salmon fishing was completed. Foods were harvested along common trails during the travel periods. Summer season was spent collecting plants and other foods at both high and low elevations that were preserved for later consumption. Autumn was the time for hunting, often in higher elevations, fishing, gathering food supplies for winter and traveling back to winter territories. The Wet'suwet'en view of this critical period was not to measure what foods and resources were needed, but to just take what is needed for the coming winter.

The supplies of stored food were consumed during the winter. In late winter the Wet'suwet'en people would return to the fishing areas and would acquire Oolichan grease from their neighbours (this was obtained from the Haisla Nation for the Wet'suwet'en in the Morice Lake area). In late spring the Wet'suwet'en began hunting beaver and moving to the larger fishing lakes for concentrated fishing.

Village sites are also noted, such as a village with Long Houses that was located at the outflow of the Morice River on Morice Lake.

The above is only a summary of what the Wet'suwet'en view as their regular and exclusive use of the land and the resources, but it highlights the longstanding Wet'suwet'en dependence on fish, wildlife and plants, and their habitats, in the areas potentially impacted by the KSL Project, notably near the Morice Lake and River system and adjoining waters.

Current Occupation and Use of the Project Area for Traditional Purposes

Today, Wet'suwet'en people continue to fish, hunt, trap and gather food and medicinal plants in the Project area. These traditional practices are carried out in families and groups to teach youth about Wet'suwet'en values that incorporate health and well being amongst families. The connection to the land is considered paramount to the health and well being of the people. The Office of the Wet'suwet'en also negotiates contemporary land and resource management objectives with the Crown.

While activities may vary between Clan and House Groups, harvesting of salmon occurs simultaneously every year. The salmon harvest is fundamental to Wet'suwet'en society and is a time for social gatherings and other activities. While fishing is seen to focus on the fishing village of Moricetown, which is a long way from the proposed Project, the fact that the salmon populations use a much larger area is the primary concern. Wet'suwet'en do fish in the Upper Morice River and the confluence of the Thautil and Morice Rivers is an example of one of many places.

According to the Wet'suwet'en Use Study, the Wet'suwet'en world views revolve around concepts of "Whaggus" (a total respect for everything) and "Yintahk" (everything is connected to the land). This explains their historical and current approach to managing the use of natural resources in their traditional territories, as stewards of these lands. The Wet'suwet'en believe differing indigenous and western worldviews on the environment are the foundation for differing views on precisely how today's resource development activities impact the land and resources – and therefore on how they impact Wet'suwet'en lifestyle. For this reason, Wet'suwet'en people believe it is imperative they continue to be involved in decision making processes affecting their traditional territories. They emphasize the need for use of traditional knowledge in the EA process to illustrate observed patterns and changes in the environment, and to gauge impacts of resource development activities.

The Office of the Wet'suwet'en reported that they continue to work on a Wet'suwet'en Stewardship Plan but that it is not available in a format that will benefit this discussion. However the Wet'suwet'en Use Study included a number of Valued Ecosystem Component maps that reflect the interests and activities that may be impacted by this Project.

Issues and Concerns identified by the Office of the Wet'suwet'en

The key issues and concerns identified by the Office of the Wet'suwet'en about the proposed Project include (but are not limited to):

- the need for information on alternate routes for the Project, including technical and cost information;
- any risk of impacts to water and fish habitat in the Morice Watershed Management Area is unacceptable to Office of the Wet'suwet'en;
- water sampling to establish reference water quality standards was agreed to by the Province as part of the Morice Land Resource Management Plan; pipeline development will preclude the ability to establish true reference water quality standards;
- protection of water quality through rigorous monitoring before, during and after construction;
- differing interpretations of the nature of protected areas in the Morice Watershed Management Area;
- slope stability throughout the Wet'suwet'en territory and particularly in the Morice Watershed Management Area and in any steeper terrain; the risks of encountering unstable soils, mass movements and tectonic activity in the Coast Mountains heighten this concern;
- the need for additional terrain stability assessments prior to work commencing;
- seasonal windows proposed for construction will not avoid impacts to fish during one of their developmental stages;
- downstream effects on fish habitat from work in non-fish bearing streams;
- monitoring of activities and of the right-of-way for years after construction; Office of the Wet'suwet'en must be involved in all monitoring;
- environmental protection plans are needed to assess risks of impacts; these must include emergency response plans for dealing with unexpected situations (such as unstable soil horizons, weather or other natural events);
- the rationale used in selecting stream crossing methods; more information is needed;
- incomplete fish population data in the Application;
- Wet'suwet'en traditional use information is not sufficiently used in the Application;
- risk of contamination of fish and country foods (including from the compressor station); sampling for background data and subsequent monitoring is required, including toxicology analysis;
- contamination from use of heavy equipment; monitoring of spills of contaminants is needed;
- risks of increased erosion and contaminated runoff into fish bearing streams;
- risks of natural contamination sources being exposed, leading to acid rock drainage and metal leaching;
- risks associated with the spread of invasive noxious weeds or non-native species in the right-of-way and the potential for use of pesticides or herbicides;
- creation of new access will impact traditional activities. In particular, unauthorized access in the area from the Gosnell to Clore Rivers is a concern and mitigation measures need to be developed with the Office of the Wet'suwet'en;
- crossing method for the Gosnell, Morice and Clore Rivers is a concern; if horzontial directional drilling doesn't work, how will alternatives be implemented?;
- risks of increased wildlife mortality due to increased new access;

- risk of loss or contamination of plant communities, and fish or wildlife and their habitat; this would impact the ability to carry out traditional activities; compensation plans are needed;
- the risk of impacts to cultural trails and sites and the potential for impacting undiscovered archaeological sites. Office of the Wet'suwet'en needs proponent's archaeological data to compare with internal confidential information;
- potential impacts to culture, health and well-being; these risks are not being given sufficient standing in the Application Review;
- noise pollution during construction or near a compressor station;
- in the event of accidents, who pays compensation for damages to fisheries or to traditional uses?;
- inaccurate information in the socio-economic technical report in the Application;
- cumulative impacts of this project with other activities. Also, if this project leads to a
 pipeline corridor being established, will future pipelines use this corridor?;
- who ensures commitments made by the Proponent are implemented?;
- capacity funding to review the Application and participate in the review;
- limitations on the EA process, such as limited knowledge of assessment officers and decision makers, focus on economic results, disregard for environmental consequences and fast tracking of projects. Wet'suwet'en decision making processes need to be included;
- government delegation of consultation processes with First Nations to third parties; and,
- permitting, if an EA Certificate is issued, will be a repeat of EA information; greater detail is required during permitting.

Wet'suwet'en Nation Aboriginal Rights

The information provided in the Wet'suwet'en Use Study indicates that historically the Wet'suwet'en people used the lands surrounding the Project area as part of their seasonal round of subsistence and cultural activities. The Office of the Wet'suwet'en has stressed the importance of the Morice and Gosnell waterways and the fish and fish habitat associated with these lakes and streams to the Wet'suwet'en people's ability to carry out their Aboriginal rights. The most recent example of this emphasis is the importance the Wet'suwet'en Hereditary Chiefs attach to the Morice Watershed Management Area agreed to as part of negotiations with the Crown over completion of the Morice Land Resource Management Plan. Currently, the Wet'suwet'en are voluntarily refraining from harvesting sockeye salmon as part of their fisheries management plan.

The Wet'suwet'en Nation asserts Aboriginal rights, including title, over their entire territory and it's resources and it seeks the Crown and industry to respect, recognize and accommodate those rights, including the recognition of their traditional system of governance. The Office of the Wet'suwet'en confirmed that they represent the rights and title interests of the five clans and are responsible for referral processes on Office of the Wet'suwet'en territory.

The Office of the Wet'suwet'en review of this document provided a discussion of evidence presented during the *Delgamuukw* trial to demonstrate where Houses, Clans and families historically (i.e. pre-contact with Europeans) lived during most of the year that cover Wet'suwet'en Territory. Evidence is also discussed regarding historic culture and institutions of the Wet'suwet'en and noted that Wet'suwet'en House groups followed continuous, regular and exclusive use of the lands and resources; the Wet'suwet'en laws of trespass, which were referred to at the time of first contact, were cited as evidence of ownership of territory. It also

states that Clans had specific territories and possession and use of the territory has manifested itself through the harvesting of the diverse natural resources of the territory, both before and after sovereignty.

The EAO believes that the Office of Wet'suwet'en has a strong prima facie claim to Aboriginal rights to hunt, fish, trap and gather plants for food, social and ceremonial purposes adjacent to, and generally around, a significant length of the proposed Project right-of-way where it passes through their territory. The Wet'suwet'en Use Study provides information about uses along the entire 172 kilometres of the proposed Project alignment and therefore it is not possible to differentiate if there is a stronger claim to rights in one area over another.

The Office of the Wet'suwet'en asserts that the evidence presented in the *Delgamuukw* trial demonstrates that the Wet'suwet'en have aboriginal title over the lands potentially impacted by the Project. The Wet'swuet'en Use Study identifies a number of cultural heritage sites within 2.5 kilometres of the proposed pipeline alignment, particularly along the Morice River valley area; these are mainly noted as sites used for hunting, trapping or fishing, some with associated cabins. The Wet'suwet'en Hereditary Chiefs maintain the position that 1 kilometre on each side of a trail and a 3 kilometre radius around home places needs to be protected to ensure future generations can exercise their rights and title.

There are no current Office of the Wet'suwet'en Indian Reserves crossed by the proposed Project corridor.

The Office of the Wet'suwet'en was provided with digital information on archaeological sites gathered by the Proponent along the proposed route alignment so that this could be compared with the Office of the Wet'suwet'en's in-house confidential databases. No conflicts or issues have been identified by the Office of the Wet'suwet'en.

While it is apparent that the Wet'suwet'en people have used the area along the Project alignment, and there are likely to be areas in Wet'suwet'en territory that attract title claims, the assertion of Aboriginal title to the proposed Project corridor would be moderated by several factors. The Wet'suwet'en Use Study did not provide evidence of permanent village sites within the proposed Project alignment, however the Office of the Wet'suwet'en response to this document notes that there are homeplaces along the Morice River and Owen Creek along the proposed pipeline route. There are also questions regarding whether the Office of Wet'swuet'en maintained their use of the area as exclusive. That part of the proposed Project indicated to be within Wet'suwet'en territory is also shown to overlap extensively with the asserted traditional use area of the Skin Tyee and Nee Tahi Buhn First Nations as well as member Nations of the Carrier Sekani Tribal Council; it is recognized there are historical connections amongst these peoples however each Nation is participating separately in the review of the proposed Project. As noted earlier, the Office of the Wet'suwet'en has identified that the Browman Lake, Skin Tyee and Nee Tahi Buhn are Wet'suwet'en communitieis whose members regularly attend Bah'lats, the central governing form for the Wet'suwet'en.

The EAO foresaw the potential for significant adverse impacts on Wet'suwet'en Nation Aboriginal rights. Therefore the EAO made a decision at the outset of the EA process to use an approach of "deep consultation" (with respect to the Haida Nation spectrum of consultation) with the Office of Wet'suwet'en in order to develop and implement measures to avoid or minimize impacts to Wet'swuet'en Nation Aboriginal rights to appropriate levels.

1.7.3 Consultation with the Office of Wet'suwet'en

Office of the Wet'suwet'en Involvement with the EAO

On March 7, 2006 the EAO sought a meeting with the Office of Wet'suwet'en to review the Project, including the newly revised alignment that now passed more directly through the Morice Lake/River and Gosnell Creek watershed, and the Office of Wet'suwet'en involvement in the EA Process. The Office of Wet'suwet'en indicated they did not support a pipeline along this revised route alignment in a letter to the EAO in May 2006. Subsequent correspondence and telephone discussions between the EAO and Office of Wet'suwet'en led to a first meeting on January 10, 2007. The EAO confirmed that the EA Assessment report discussion on Aboriginal rights will be based, in part, on information provided by the Office of Wet'suwet'en.

The EAO offered to create a government to government discussion process (based on the successful Kitimat LNG Project model) to address Aboriginal rights issues if the Office of Wet'suwet'en wished. To initiate such a discussion model, the EAO worked to ensure the Oil and Gas Commission and key federal agencies attended future meetings. Subsequent meetings took place in the Office of Wet'suwet'en offices in December 2007, March 2008 and twice in April 2008. Representatives from the Integrated Land Management Branch and the MOE attended the two meetings in April 2008 to discuss the Morice Watershed Management Area and the water sampling and monitoring plan proposed in the Morice Land Resource Management Plan. The EAO also offered to meet with the Wet'suwet'en Hereditary Chiefs if and when the Office of Wet'swuet'en recommended such a meeting would be appropriate; no invitation has been extended to the EAO for a meeting.

An Office of Wet'suwet'en representative attended the first Working Group meeting on October 11, 2006, and continued to attend most Working Group meetings throughout the review process. The Office of Wet'suwet'en received all information from each Working Group meeting and all information pertaining to the Pre-Application and Application Review stages of the review process. The EAO sponsored two evening meetings with First Nations associated with Working Group meetings in October 2006 and May 2007 to discuss EA process issues relating to First Nations; an Office of Wet'suwet'en representative attended each meeting.

The Office of Wet'suwet'en was provided with draft copies of the section 11 order and the Terms of Reference for the Project. With the issuance of the February 28, 2007 section 11 order under the *EA Act*, the Proponent was formally directed to consult with the Office of Wet'swuet'en. The Proponent had already begun discussions with Office of Wet'swuet'en before this time.

The EAO offered capacity funding to the Office of Wet'swuet'en during the Pre-Application stage of review but the grant was not accepted. Funds were also offered and accepted during the Application Review phase of the EA process to assist with costs associated with the Office of Wet'suwet'en participation in the EA review, such as travelling to EAO sponsored meetings, document review and other project related work.

A preliminary draft of this consultation report was provided to the Office of Wet'suwet'en on March 3, 2008 with a request for the Office of Wet'suwet'en to identify the nature of the Aboriginal rights that they claim as well as other information that would assist the EAO in completing this report. During two subsequent meetings in April 2008 the EAO sought this additional information and the Office of the Wet'suwet'en indicated that their response was still under development. The EAO then provided a revised draft of this document to the Office

of the Wet'suwet'en on April 21, 2008 and a response was received on May 5, 2008, as requested by the EAO.

In the Working Group Issues Tracking Table (Appendix E), a large number of responses from the Office of the Wet'suwet'en are noted as "not satisfied" or express a concern reflecting dissatisfaction regarding proposed Proponent actions (see right hand column of the Table). These responses were compiled from the May 5, 2008 Office of the Wet'suwet'en submission. In all cases, these issues were discussed during the Application review period at Working Group meetings or in separate meetings with the Proponent or with the EAO and other government agencies. As discussed below, the Wet'suwet'en have taken a position that no risk of impact is acceptable in certain areas of their territory and as a result numerous issues have not been resolved to their satisfaction; please refer to the section below regarding "Measures being implemented to mitigate or otherwise accommodate potential for impacts to Wet'suwet'en Nation Aboriginal Rights " for additional discussion on these issues.

Office of the Wet'suwet'en Involvement with the Proponent

The Proponent initially contacted the Office of the Wet'suwet'en in August 2005 and since that time has continued to consult with the Office of the Wet'suwet'en. PTP sought to open discussions on an Memorandum of Understanding with Office of Wet'swuet'en in early correspondence and Office of the Wet'suwet'en expressed reluctance to enter into an Memorandum of Understanding until they better understood the implications of the project on their interests. The Proponent arranged for helicopter fly-overs of key areas for Hereditary Chiefs and staff and a field visit to the proposed crossings of the Morice and Burnie Rivers was also arranged to review the proposed crossing sites and methods.

In a June 2007 letter, PTP updated the Office of the Wet'suwet'en regarding the status of their application, summarized consultations completed to date and proposed a consultation process for the upcoming Application Review period. Meetings and correspondence continued to the end of the review period and addressed, among other things, the proposed route alignments and modifications that could be made to it to better accommodate Wet'suwet'en interests, terrain stability, various technical aspects of stream crossings and archaeological impact assessment data. Additional information can be found in the Proponents report on consultations, including the proponent's views on their discussions with the Office of Wet'swuet'en regarding the key issue of the proposed route alignment through the Wet'swuet'en traditional territory. This report was provided to the Office of the Wet'swuet'en on April 7, 2008 by the Proponent.

Discussions between Office of the Wet'suwet'en and PTP led to completion of the Wet'suwet'en Use Study in April 2007 based on the route submitted in the Project application; this Wet'suwet'en Use Study was then submitted to the EAO as a confidential portion of the Application.

The Office of the Wet'suwet'en (and others) requested digital files of the route alignment for use in their geographic information system and these were provided in October 2006. Office of the Wet'suwet'en also requested digital files of data from the Archaeological Impact Assessment so that Office of the Wet'suwet'en could conduct an assessment using their own geographic information system database and these were provided in February 2008.

<u>Measures being implemented to mitigate or otherwise accommodate potential for impacts to</u> <u>Wet'suwet'en Nation Aboriginal Rights</u>

As noted above the EAO believes it is prudent to assume that the Wet'suwet'en Nation has a strong prima facie claim to Aboriginal rights to hunt, fish, trap and gather plants for food, social and ceremonial purposes adjacent to, and generally around, a significant length of the proposed Project right-of-way where it passes through their territory (from approximately kilo post 90 to kilo post 262). The EAO sought input from the Office of the Wet'suwet'en on the nature and scope of their Aboriginal rights and how they might be impacted by the proposed Project. Throughout the review process concerns were raised by the Office of the Wet'suwet'en with respect to potential for effects of the Project on lands and resources that the Wet'suwet'en people use in exercising their Aboriginal rights. In the response to this document, the Office of the Wet'suwet'en also asserted a right to determine the use of land in decision-making, which involves the inescapable economic component and the right to exclusive use and occupation of land adjacent to the project right-of-way.

The primary risks of impacts to Wet'suwet'en people's ability to exercise their rights include:

- precluding or inhibiting Wet'suwet'en access to lands and waterways where hunting, fishing, trapping or gathering activities occur;
- destroying or reducing productive capacity of areas of fish, animal or plant habitat such that there are no longer sufficient areas to exercise the rights; and
- creating increased access to the general public to key Wet'suwet'en hunting, fishing and gathering areas that results in increased and damaging pressures on animals, fish and plants and their habitat.

The Office of the Wet'suwet'en have also identified a risk of lost cultural heritage resources that would provide for future generations to learn, teach and train Wet'suwet'en of their culture, their traditional roles and the responsibilities on the territories and governance system.

The EAO recognizes that the position of the Wet'suwet'en Hereditary Chiefs is that they do not support the development of a pipeline through the culturally important areas of the Morice Lake and Gosnell Creek area. The Office of the Wet'suwet'en has conveyed that the Chiefs cannot accept any risk of impact, particularly to salmon spawning and rearing grounds, in this area. The potential for impacts to cultural trails and archaeological sites has also been noted. The Chiefs believe an alternate route should be found for the Project.

The concerns expressed by the Office of the Wet'suwet'en during the review of the Project have been fully considered in the review process through Working Group discussions and through the consultations carried out by the Proponent and by provincial and federal agencies. The review process has led to multiple measures and Proponent commitments being proposed to address the specific concerns raised by the Office of the Wet'suwet'en and therefore the risk of impacts to Wet'suwet'en Aboriginal rights (see below). In consideration of these, the EAO believes that:

 Wet'suwet'en access to certain lands may be restricted for a limited period during project construction, however as the geographic extent of these lands within Wet'suwet'en territory is very small and the construction period is short, the EAO does not believe this will lead to a significant impact on the Wet'suwet'en ability to exercise their rights;

- while the proposed Project as described in the Application may have posed unacceptable risks to areas of fish, animal or plant habitat, the enhanced avoidance, mitigation and accommodation measures developed during the review process have reduced the risks of these impacts, both during construction and operations, to an appropriate level. This assessment also recognizes the subsequent authorizations that will be required of the Project should an EA Certificate be granted; and,
- measures in the original Application and developed through the review process to restrict public access have reduced the risk of negative impacts from such access to an appropriate level.

The EA review of the Project also recognized the potential for impacts to cultural heritage resources. A number of mitigation measures and commitments were developed through the review to directly respond to these concerns, with direct involvement of First Nations in planning and monitoring activities. The Proponent has made a commitment to work with the Office of the Wet'suwet'en to seek potential improvements to the proposed route in the Morice Valley, where the majority of Wet'suwet'en sites have been identified. Given the pre-construction planning and additional studies that will be undertaken, the involvement of the Office of the Wet'suwet'en in planning and the longer term monitoring plans, the EAO believes that risks of impacts to cultural heritage resources will not be significant.

The EAO recognizes there are risks of impacts in carrying out this project that are unacceptable to the Wet'suwet'en Hereditary Chiefs. For example, the Office of the Wet'suwet'en has emphasized that the risks of terrain instabilities, impacts to reference water quality standards, inadvertent spills of hydrocarbons, accidents or other unforeseen circumstances are unacceptably high, particularly in the Morice and Gosnell valleys. The Project Application recognizes that some minor impacts will occur, such as very minor and short-lived siltation in creeks or mortality of a small number of fish during certain stream crossings. While these risks exist, a considerable amount of effort has been spent on reviewing the measures proposed to mitigate and minimize those risks in the Application and to further reduce the risks by creating additional measures and commitments that must be adhered to by the Proponent. Many of these focus on additional planning before carrying out activities in the Morice and Gosnell valleys and safeguarding fish and water resources during construction and over the longer term. The Proponent has also indicated a willingness to evaluate a route re-alignment to avoid a large portion of the Morice valley, and seek an amendment to an EA Certificate if one is issued, if this will assist in reducing the risks perceived by the Office of the Wet'suwet'en to an acceptable or more appropriate level. Measures to involve the Office of the Wet'suwet'en in planning and monitoring work in their territory have been enhanced.

The above statements will be better understood by reviewing the following examples of key measures and commitments that respond to Wet'suwet'en concerns, as listed below; a more complete description can be found in the Working Group Issues Tracking Table (**Appendix D**) and the Proponent Compendium of Commitments (**Appendix E**).
1. The need for information on alternate routes for the Project, including technical and cost information.

Proponent Response: PTP provided an office-based summary of five alternative route alignments in January 2008. A more detailed office-based assessment of the Kleanza alternative that completely avoids the Morice Watershed Management Area was provided in late January 2008; detailed impact and cost information could not be compiled during the time available. PTP concluded that other routes were not viable and that they would not pursue the Project using one of these alternatives; as a result they asked the EAO to continue to review the Project as proposed, with the amendment noted below. PTP also offered to further research the Tommy-Thautil alternative in the future (and apply for an EA Certificate route amendment if it proves to be more acceptable to Office of Wet'swuet'en); this proposal would move the right-of-way out of the Morice valley for approximately 35 kilometres but would still require crossing the Morice River and would still be within the Gosnell valley; PTP remains open to this. In addition, PTP has committed to working with the Office of the Wet'suwet'en n on considering potential improvements to the proposed route in the Morice valley. PTP provided an amendment to their Application for a route re-alignment in the Burnie South area to reduce risk of environmental impacts and to reduce the need for new construction access roads.

2. - Any risk of impacts to water and fish habitat in the Morice Watershed Management Area is unacceptable to Office of the Wet'suwet'en prior to determining the reference condition of the water and aquatic life.
- Water sampling to establish reference water quality standards was agreed to by the Province as part of the Morice Land Resource Management Plan; pipeline development will preclude the ability to establish true reference water quality standards.

- Protection of water quality through rigorous monitoring before, during and after construction.

- Differing interpretations of the nature of protected areas in the Morice Watershed Management Area.

- Slope stability throughout the Wet'suwet'en territory and particularly in the Morice Watershed Management Area and in any steeper terrain; the risks of encountering unstable soils, mass movements and tectonic activity in the Coast Mountains heighten this concern.

- The need for additional terrain stability assessments prior to work commencing.

- Risks of increased erosion and contaminated runoff into fish bearing streams.

- Downstream effects on fish habitat from work in non-fish bearing streams.

Proponent Response: PTP has committed to:

- ensure there are no long term changes to the reference water state in the Morice Watershed Management Area resulting from the KSL Project;
- engage Office of the Wet'suwet'en in the development of a reference state water sampling program;

- undertake more detailed terrain stability investigations as part of project design, which in places could lead to engineering solutions or local route adjustments. Should areas of instability be identified they will be subject to further geotechnical investigations;
- where practical and where warranted, consider reducing the clearing width in the Morice River Management Zones;
- surface run-off will be controlled to manage erosion and avoid sedimentation;
- any slide activity will be monitored and where a concern exists a technical review will determine remedial actions;
- provide site-specific environmental protection plans, erosion control plans, restoration plans and other construction and contingency plans as a prerequisite to construction;
- ensure qualified environmental monitors are onsite during construction;
- consult with Office of the Wet'suwet'en to identify appropriate fish habitat compensation opportunities;
- discuss the need for additional baseline studies where required to assure the Project does not result in negative impacts on watersheds;
- conduct additional fish inventory studies;
- conduct studies to determine risks associated with acid rock drainage; and,
- revisit some crossing sites in the Gosnell Creek and upper Morice which PTP has identified as non fish-bearing to determine if fish may be present under normal flow conditions. See Sections 1, 3 and 7 of Appendix E in particular for additional proponent commitments.
- 3. The rationale used in selecting stream crossing methods; more information is needed.
 - Crossing method for the Gosnell, Morice and Clore Rivers is a concern; if horzonital directional drilling doesn't work, how will alternatives be implemented?

Proponent Response:

PTP has provided a explanation of how decisions will be made if a primary crossing method is not feasible; this includes consultation with affected First Nations and appropriate regulatory authorities. PTP has proposed an aerial crossing of the Clore River.

PTP commits to:

- revisit some crossing sites in the Gosnell Creek and upper Morice which PTP has identified as non fish-bearing to determine if fish may be present under normal flow conditions. In addition, PTP commits to carry out an assessment of data from other crossing sites in order to identify other streams where this form of additional assessment should be done. This additional assessment of crossing sites will be carried out prior to the detailed planning and design of these crossings and appropriate amendments made to crossing methods if warranted; and,
- an August 1 September 15 window for instream work for the crossing of the Gosnell and its tributaries. PTP commits that, should prior geotechnical investigations prove horzonital directional drilling to be infeasible for the 3 Gosnell crossings (kilo post 109.3, kilo post 109.8, kilo post 110), that it will evaluate other nearby crossing locations that may be amenable to horizontal directional drilling prior to altering the crossing method to isolated open cut.

This evaluation will be done prior to construction at these sites, but postcertification.

4. Seasonal windows proposed for construction will not avoid impacts to fish during one of their developmental stages.

Proponent Response: PTP has committed to:

- adhere to instream work windows and minimize instream work period;
- an August 1 September 15 window for instream work for the crossing of the Gosnell and its tributaries;
- undertake specific surveys of Dolly Varden or salmon spawning at kilo post 154.8 prior to construction in order to avoid impacts;
- implementation of more conservative guidelines than those outlined in the Department of Fisheries and Oceans guidelines for blasting, in situations where the un-eyed egg stage of fish are present at the crossing site. PTP will ensure that spawning is taken into account in the implementation of blasting specifications. PTP has tried to select windows of least risk for each water system and has reviewed windows with regulatory authorities in the Working Group and will be required to meet windows agreed to by appropriate regulators. See Section 3 of **Appendix E** in particular for additional proponent commitments.

5. Incomplete fish population data in the Application.

Proponent Response:

PTP's Project Application contained a report on "Fish and Fish Habitat Investigations", produced by qualified professionals. That report drew on an online information source that accesses the provincial repository of fish data information. This was supplemented by additional literature and historical records. PTP has committed to ongoing discussions with the Office of the Wet'suwet'en in regard to the fish population data; a summary of the PTP fisheries data will be provided to the Office of the Wet'suwet'en. PTP will undertake, post-certification, additional studies where warranted on areas of high value/high risk. These studies will incorporate traditional knowledge, where applicable. The Department of Fisheries and Oceans is also addressing this issue and it will be reviewed further during the federal comprehensive study process.

6. - Monitoring of activities and of the right-of-way for years after construction; Office of the Wet'suwet'en must be involved in all monitoring.

Environmental protection plans are needed to assess risks of impacts; these must include emergency response plans for dealing with unexpected situations (such as unstable soil horizons, weather or other natural events).

- Risk of contamination of fish and country foods (including from the compressor station); sampling for background data and subsequent monitoring is required, including toxicology analysis.

- Contamination from use of heavy equipment; monitoring of spills of contaminants is needed.

- Risks of natural contamination sources being exposed, leading to acid rock drainage and metal leaching.

Proponent Response: PTP has committed to:

- developing an Environmental Protection Plan prior to clearing and construction activities specifically for the KSL Project, which will incorporate the appropriate elements of PNG's existing operational procedures and manuals;
- develop a series of contingency plans prior to the initiation of ground disturbing work. Contingency Plans are specific instructions, measures, or strategies to address environmental issues, should they arise during the construction of the pipeline or Compressor Station (see Commitment 15.2 for a list of topics to be addressed in contingency plans);
- control fugitive natural gas emissions and reduce greenhouse gas emissions from the compressor station through a number of actions (See Commitments 2.8 and 2.9 for actions)
- undertake analysis of country foods (plants and fish) before and following construction;
- ensure its activities will have no effect on peoples ability to collect food following construction of the KSL Project;
- work with the Office of the Wet'suwet'en to develop appropriate monitoring programs;
- monitoring the right-of-way, including watercourse crossings, during and following construction to assess the effectiveness of sediment control measures and to make repairs as required;
- employ procedures to prevent release of hydrocarbons from construction machinery; and,
- adhere to spill prevention measures outlined in a KSL Environmental Protection Plan.
- PTP has undertaken an assessment to classify and determine the boundaries of the potential acid rock drainage/metal leaching zones along the KSL pipeline route. Where warranted, a verification program will be undertaken to help develop specific construction stage monitoring and/or mitigation plans within each zone, where there is a high acid rock drainage/metal leaching potential. PTP commits that areas of the pipeline that will cross colluvium or require rock excavations would include varying degrees of field inspections (assuming favourable access and logistics), mapping and sampling for laboratory testing of acid rock drainage and metal leaching properties.

7. Risks associated with the spread of invasive noxious weeds or non-native species in the right-of-way and the potential for use of pesticides.

Proponent Response: PTP has committed to:

- implement an Invasive Plant Management Plan to minimize the introduction and spread of noxious weeds during Project construction activities;
- employ standard weed control measures, such as cleaning of equipment of seeds and vegetative debris attached to the equipment prior to arrival on the right-of-way; and,
- monitor the right-of-way during post-construction monitoring and operations for areas of new noxious weed growth. Undertake measures to control weeds at

these locations. See additional commitments in section 4 of **Appendix E** pertaining to restoration and revegetation of disturbed ground.

- 8. Creation of new access will impact traditional activities. In particular, unauthorized access in the area from the Gosnell to Clore Rivers is a concern and mitigation measures need to be developed with the Office of the Wet'suwet'en.
 - Risks of increased wildlife mortality due to increased new access.

Proponent Response: PTP has committed to:

- prepare an Access Management Plan following certification of the Project and will request input from Office of the Wet'suwet'en in the Plan before it is finalized;
- implement an Access Management Plan to manage access to the pipeline route during and following Project construction;
- actively participate in a Wildlife and Wildlife Habitat Sub-committee for the KSL Project; and,
- address potential wildlife impacts and necessary mitigation measures in the Traffic Management Plan. See additional commitments in Section 4 of Appendix E pertaining to measures to protect wildlife.
- 9. Wet'suwet'en traditional use information is not sufficiently used in the Application.

- Risk of loss or contamination of plant communities, and fish or wildlife and their habitat; this would impact the ability to carry out traditional activities; compensation plans are needed.

- The risk of impacts to cultural trails and sites and the potential for impacting undiscovered archaeological sites. Office of the Wet'suwet'en needs proponent's archaeological data to compare with internal confidential information.

- Potential impacts to culture, health and well-being; these risks are not being given sufficient standing in the Application Review.

- In the event of accidents, who pays compensation for damages to fisheries or to traditional uses?

Proponent Response: PTP commits to:

- work with Office of the Wet'suwet'en on considering potential improvements to the proposed route in the Morice Valley;
- undertake, post-certification, additional studies where warranted on areas of high value/high risk. These studies will incorporate traditional knowledge, where applicable;
- institute ways to facilitate ongoing and timely communication between First Nation members and PTP on cultural and environmental issues during construction. PTP will continue discussions with First Nations regarding this issue;
- environmental inspection staff will ensure that all contractors adhere to the established plans and procedures (e.g. the Environmental Protection Plan) for the protection of natural resources. Where, in the view of the environmental inspection, significant damage has occurred, the relevant First Nation representative will immediately be contacted to inform them of the damage and

to be asked for input into mitigation measures that will be employed to appropriately deal with the damage;

- ensure its activities will have no effect on peoples ability to collect food following construction of the KSL Project;
- that plant and material-gathering sites identified by First Nations off the Project Footprint will be flagged off prior to construction; and,
- contact the First Nations concerned to ensure a member of the community advises on activities in areas used for ritual purposes. PTP identified that they will be required to design and implement certain compensation plans as part of existing legislation. PTP will discuss other forms of compensation with Office of the Wet'suwet'en n. During the Application Review, PTP provided digital archaeological information to Office of the Wet'suwet'en for their internal assessment of risks to Office of the Wet'suwet'en sites. PTP and the EAO have sought information from Office of the Wet'suwet'en on traditional uses, activities and sites throughout the EA review to ensure this information is used appropriately in the Application Review; this includes Office of the Wet'suwet'en review of this document.

10. Noise pollution during construction or near a compressor station.

Proponent Response: PTP commits to:

- adhere to local noise by-laws, where in existence;
- maintain equipment, and minimize unnecessary noise through the use of standard noise reduction technologies (e.g. mufflers);
- design the Compressor Station to minimize noise escapes through roof vents and other ventilation openings;
- fit the turbine intake and exhaust with special silencers as needed to reduce noise radiation below specified levels; and,
- monitor noise emissions to ensure they meet stated objectives at the Compressor Station.

11. Inaccurate information in the socio-economic technical report in the Application.

Proponent Response: PTP committed to work with Office of the Wet'suwet'en to learn what errors have affected the assessment of socio-economic impacts.

12. Cumulative impacts of this project with other activities. Also, if this project leads to a pipeline corridor being established, will future pipelines use this corridor?

Proponent Response: the EA review has considered cumulative effects by ensuring the baseline information collected, the Project application and the pre-construction plans to be submitted all accurately reflect existing conditions (environmental, economic, social; health and heritage); these conditions reflect the effects of existing development. The assessment of this project ensures the contribution of any residual impacts from this project to future cumulative effects are minimized. Any future pipeline project will be subject to its own EA with no assumption or guarantee that it would automatically use a parallel right-of-way to the KSL Project if it is approved.

13. Who ensures commitments made by the Proponent are implemented?

Proponent Response: Compliance with commitments, and quarterly reporting on delivery of commitments, will be conditions of an EA Certificate if one is issued. Monitoring programs to oversee compliance are part of the commitments and the Proponent has made commitments for the Office of Wet'swuet'en to provide input to those monitoring activities. Various regulatory authorities will be on-site during construction and they, as well as the monitors noted above, have the ability to notify both the Proponent and the EAO if Certificate conditions are not being met. Ultimately the EAO has authority to ensure the legal commitments incorporated into an EA Certificate (if one is issued for this project) are implemented.

14. Capacity funding to review the Application and participate in the review.

Proponent Response: the EAO provided capacity funding to assist the Office of the Wet'suwet'en involvement in the review process. PTP provided capacity funding for Office of Wet'swuet'en involvement and for conducting necessary studies.

15. - Limitations on the EA process, such as limited knowledge of assessment officers and decision makers, focus on economic results, disregard for environmental consequences and fast tracking of projects. Office of the Wet'suwet'en decision making processes need to be included. Government delegation of consultation processes with First Nations to third parties.

- Permitting, if an EA Certificate is issued, will be a repeat of EA information; greater detail is required during permitting.

Proponent Response: the *EA Act* requires a balanced, informed and neutral review of a project Application. The EAO has consulted with the Office of the Wet'suwet'en to inform its decision-makers and to provide opportunities for all Wet'suwet'en views to be included in this Assessment Report. The Province has delegated certain procedural aspects of consultation to the proponent, consistent with applicable law; the EAO, on behalf of the Province, has consulted directly with the Office of the Wet'suwet'en on Aboriginal rights issues. The EAO has also included representatives of the Oil and Gas Commission when consulting with the Office of Wet'swuet'en as an early consultation on permitting procedures (if an EA Certificate is issued); the need for additional detailed information at permitting is recognized by the Oil and Gas Ccommission.

1.7.4 Conclusions

In the review of the proposed Project, the EAO has considered the Office of the Wet'suwet'en assertion of Aboriginal rights, including title, and the information available to support the strength of that assertion within and adjacent to the proposed Project corridor. The EAO has also considered the potential for impacts to those rights from the proposed Project, based on it being implemented as designed and in accordance with all avoidance and mitigation measures and commitments made by the Proponent. The EAO and the Proponent have been engaged in consultations with the Office of the Wet'suwet'en from early stages of the EA

of the proposed Project to jointly discuss the potential for impacts and to develop measures to mitigate or otherwise accommodate Office of Wet'swuet'en Aboriginal rights. The Office of the Wet'suwet'en has had an opportunity to review and comment on this consultation report and to specify the nature and scope of their rights from their point of view.

Having regard to all of the above, the EAO concludes that the process of consultation has been carried out in good faith, and that it was appropriate and reasonable in the circumstances. The EAO also concludes that the potential for effects on asserted Aboriginal rights has been avoided, mitigated or otherwise accommodated to an appropriate level such that they will not significantly impact the Wet'suwet'en Nation from exercising their rights. The Wet'suwet'en have conveyed that they are not satisified that this is the case. In reaching this conclusion the EAO recognizes, that if the Project receives an EA Certificate, then additional detailed studies and programs are yet to be carried out and subsequent evaluations of risk of impacts will be undertaken, notably during the federal comprehensive study under CEAA and prior to any authorizations issued by Fisheries and Oceans Canada and the BC Oil and Gas Commission. The EAO also recognizes that the Wet'suwet'en Hereditary Chiefs position is that no level of risk is acceptable prior to determining the reference state of water quality and aquatic life in the upper Morice River; however, the EAO believes the review process has reasonably balanced Aboriginal concerns of potential for impacts on asserted rights with other societal values.

1.8 Skin Tyee First Nation

1.8.1 Introduction

Scope of Document

This section addresses potential effects of the KSL Pipeline Looping Project on the asserted Aboriginal rights, including Aboriginal title, of the Skin Tyee First Nation as outlined in Section 1.1.

Information Sources

The Proponent commissioned a report entitled "Aboriginal Use and Interest Study with the Skin Tyee Traditional Territory, PNG Pipeline Project"⁸. This report collates and provides an historical overview of the Skin Tyee people, their traditional lands and activities. To gather community input to the EA review of the Project, the EAO provided funding that enabled the Skin Tyee to hold a community meeting with provincial and federal government agencies. Agencies (EAO, CEA Agency, Oil and Gas Commission, Fisheries and Oceans Canada and Transport Canada) made presentations on various components of the review process and their responsibilities in it. Approximately 30-35 Skin Tyee members attended and asked questions and engaged in discussions with the agencies regarding the project. The Proponent had previously held a similar meeting to discuss the proposed Project from their perspective. Much of the following discussion is drawn from the Aboriginal Use and Interest Study, the meetings noted above, from information in the Project Application and from the *Literature Review of First Nations in the Environs of the KSL Pipeline Looping Project* (**Appendix I** of the Application).

1.8.2 Skin Tyee First Nation Aboriginal Rights

Setting: Skin Tyee First Nation

The proposed Project lies within the asserted traditional territory of the Skin Tyee First Nation. The Project Application indicates that the Skin Tyee historically shared linguistics with other First Nation groups across the region. The literature also notes that these Bands were affiliated in different ways through time and that in recent years the Skin Tyee separated to become an independent Band.

The Skin Tyee derive their name from a hunter who hunted around Ootsa Lake. The Skin Tyee stated that with the development of the Kemano reservoirs, they were moved from the Ootsa Lake area to the area south of Francois Lake. The Skin Tyee Indian Reserve Skins Lake No 16A is located south of Francois Lake, 12 kilometres of the proposed Project.

Traditional Occupation and Use of the Project Area

The proposed Project enters Skin Tyee territory at approximately kilo post 75 and leaves again at approximately kilo post 250. Much of the following information is taken from the Project Application.

⁸ Aboriginal Use and Interest Study with the Skin Tyee Traditional Territory, PNG Pipeline Project; Project No: 2041030, prepared by Skin Tyee First Nation, July 2007. The report notes it is not a full Aboriginal interest and use study as it is based on limited information; additional interviews with Skin Tyee people are needed and no field clarification has been completed.

A traditional seasonal round of resource activities is described in the Project Application. It highlights that hunting, fishing, trapping and gathering berries and medicines are activities carried out as families moved around the territory according to different seasons. The majority of activities took place between Ootsa Lake and the proposed location for the Project. Camping areas were located to take advantage of the resources available.

Current Occupation and Use of the Project Area for Traditional Purposes

During the community meeting, the importance of sites for gathering berries and medicines was highlighted, as were fish and wildlife habitat, traplines and some areas of cultural importance; all of the above were highlighted based on traditional and current use. A trapline and a cultural site (healing area, sweat lodge) were identified as being near or overlapping the proposed project corridor.

The Aboriginal Use and Interest Study notes that today the Skin Tyee territory has much more infrastructure for accessing hunting and gathering areas. As a result, much less camping takes place than in the past, but camping and conducting food gathering activities remains central to Skin Tyee lives during all seasons. The northern half of the territory is used most heavily. The Aboriginal Use and Interest Study notes various areas used for trapping, hunting, fishing and plant gathering in the vicinity of the pipeline route.

Issues and Concerns identified by the Skin Tyee First Nation

The key issues and concerns identified by the Skin Tyee First Nation about the proposed Project include:

- potential for impacts on the wildlife they depend on for food;
- potential for impacts to sensitive areas or areas that are susceptible to physical damage, such as sites where berries and medicines are gathered;
- potential for impacts to traplines;
- contamination of land, air or waters during construction and operation of a pipeline, including effects of a spill on wildlife and the environment;
- impacts to fish-bearing streams during construction;
- effects of construction activity and noise, especially during hunting season;
- safety of road traffic, particularly school buses, at crossings during pipeline construction;
- further liaison with the Proponent and inclusion of traditional knowledge and information about traplines from Skin Tyee elders;
- potential for impacts to cultural and archaeological sites and trails; and,
- compensation for lost use of land.

Skin Tyee First Nation Aboriginal Rights

The information provided in the application and during meetings indicates that historically the Skin Tyee people used the lands around a portion of the Project corridor as part of their subsistence and cultural activities.

It is prudent to assume that the Skin Tyee has a strong prima facie claim to Aboriginal rights to hunt, fish, trap and gather plants for food, social and ceremonial purposes on lands in their territory, a portion of which is traversed by the proposed Project corridor. A limited amount of information has been provided regarding areas of specific use by the Skin Tyee First Nation within or near the proposed Project alignment corridor. There are no current Skin Tyee Indian Reserves nearby the proposed Project corridor.

The EAO foresaw the potential for significant adverse impacts on Skin Tyee First Nation Aboriginal rights. Therefore the EAO made a decision at the outset of the EA process to use an approach of "deep consultation" (with respect to the *Haida* spectrum of consultation) with the Skin Tyee First Nation in order to develop and implement measures to avoid or minimize impacts to Skin Tyee First Nation Aboriginal rights to appropriate levels.

1.8.3 Consultation with the Skin Tyee First Nation

Skin Tyee Involvement with the EAO

On March 7, 2006 the EAO sought a meeting with the Skin Tyee to review the Project. Designated contacts for EAO to consult with Skin Tyee changed over time however all key correspondence was copied to the Band Office. A first meeting took place in June 2006 and topics discussed included the project description, information and maps that are available and capacity funding.

Skin Tyee representatives were invited to, but were not able to attended Working Group meetings. Skin Tyee was provided all information regarding the project throughout the Pre-Application and Application Review periods.

The Skin Tyee First Nation was provided with draft copies of the section 11 order and the Terms of Reference for the Project. With the issuance of the February 28, 2007 section 11 order under the *EA Act*, the Proponent was formally directed to consult with the Skin Tyee First Nation. The Proponent had already begun discussions with Skin Tyee before this time.

The EAO met with a Skin Tyee representative in December 2006 to discuss Skin Tyee involvement in the EA process, including how Skin Tyee First Nation Aboriginal rights can best be addressed. As noted earlier, an EAO-sponsored Skin Tyee community meeting occurred in February 2008.

The EAO offered capacity funding to the Skin Tyee during the Pre-Application stage of review. Funds were also provided during the application review phase of the EA process to assist with costs associated with Skin Tyee participation in the EA review; these funds supported the community meeting.

Skin Tyee Involvement with the Proponent

The Proponent initially contacted the Skin Tyee First Nation in August 2005 and since that time has continued to consult with the Skin Tyee. In a June 2007 letter, PTP updated the Skin Tyee First Nation regarding the status of their application, summarized consultations completed to date and proposed a consultation process for the upcoming Application Review period. Meetings and correspondence continued to the end of the review period including community meetings in June and October 2007. Additional information can be found in the Proponents report on consultations which notes that the Chief Councillor of the Skin Tyee

First Nation confirmed they have no outstanding issues. This report was provided to the Skin Tyee on April 7, 2008 by the Proponent.

Discussions between Skin Tyee and PTP led to completion of the Aboriginal Use and Interest Study and this report was submitted to the EAO as a confidential part of the Project Application.

Digital files of the route alignment were provided to Skin Tyee in October 2006.

<u>Measures being implemented to mitigate or otherwise accommodate potential for impacts to</u> <u>Skin Tyee Aboriginal Rights</u>

As noted above the EAO believes it is prudent to assume that the Skin Tyee First Nation has a strong prima facie claim to Aboriginal rights to hunt, fish, trap and gather plants for food, social and ceremonial purposes adjacent to, and generally around, the proposed Project where it passes through their territory (approximately from kilo post 75 to kilo post 250). The EAO sought input from the Skin Tyee First Nation on the nature and scope of their Aboriginal rights and how they might be impacted by the proposed Project at a community meeting. Concerns were raised by the Skin Tyee with respect to potential for effects of the Project on lands and resources that the Skin Tyee people use in exercising their Aboriginal rights.

The primary risks of impacts to Skin Tyee people's ability to exercise their rights include:

- precluding or inhibiting Skin Tyee access to lands and waterways where hunting, fishing, trapping or gathering activities occur;
- destroying or reducing productive capacity of areas of fish, animal or plant habitat such that there are no longer sufficient areas to exercise the rights; and,
- creating increased access to the general public to key Skin Tyee hunting, fishing and gathering areas that results in increased and damaging pressures on animals, fish and plants and their habitat.

The concerns expressed by the Skin Tyee First Nation during the review of the Project have been fully considered in the review process through Working Group discussions and through the consultations carried out by the Proponent and by provincial and federal agencies. The review process has led to multiple measures and Proponent commitments being proposed to address the specific concerns raised by the Skin Tyee and therefore the risk of impacts to Skin Tyee Aboriginal rights (see below). In consideration of these, the EAO believes that:

- Skin Tyee First Nation access to certain lands may be restricted for a limited period during project construction, however as the geographic extent of these lands within Skin Tyee territory is very small and the construction period is short, the EAO does not believe this will lead to a significant impact on the Skin Tyee ability to exercise their rights;
- while the proposed Project as described in the Application may have posed unacceptable risks to areas of fish, animal or plant habitat, the enhanced avoidance, mitigation and accommodation measures developed during the review process have reduced the risks of these impacts, both during construction and operations, to an appropriate level. This assessment also recognizes the subsequent authorizations that will be required of the Project should an EA Certificate be granted; and,

 measures in the original Application and developed through the review process to restrict public access have reduced the risk of negative impacts from such access to an appropriate level.

The EAO recognizes there are risks of impacts in carrying out this project. For example, Skin Tyee has emphasized the risks associated with impacts to soil and water quality standards and fish habitat, and to sensitive areas. While these risks exist, a considerable amount of effort has been spent on reviewing the measures proposed to mitigate and minimize those risks in the Application and to further reduce the risks by creating additional measures and commitments that must be adhered to by the Proponent. Many of these focus on additional planning before carrying out activities, and safeguarding fish and water resources and sensitive areas (such as wetlands or rare plant habitat) during construction and over the longer term. Measures to involve the Skin Tyee First Nation in planning and monitoring work in their asserted territory have been enhanced.

The above statements will be better understood by reviewing the following examples of key measures and commitments that respond to Skin Tyee concerns, as listed below; a more complete description can be found in the Working Group Issues Tracking Table (**Appendix D**) and the Compendium of Proponent Commitments (**Appendix E**).

1. - Potential for impacts on the wildlife they depend on for food.

- Potential for impacts to sensitive areas or areas that are susceptible to physical damage, such as sites where berries and medicines are gathered.

- Potential for impacts to traplines.

Proponent Response: PTP commits to:

- undertaking a "route walk" by a wildlife specialist (R.P. Bio) prior to clearing and construction;
- continue working and consulting with the Skin Tyee during the detailed design phase of the Project as well as during construction for the purpose of minimizing impacts to identified sensitive areas;
- undertake, post-certification, additional studies where warranted on areas of high value/high risk. These studies will incorporate traditional knowledge, where applicable;
- work expeditiously to maintain a tight construction spread to minimize potential barriers and hazards to wildlife;
- contain project footprint to the minimum area required to efficiently and safely build the pipeline when traversing rare plant communities;
- fence off the plant community at risk where it occurs next to the construction right-ofway to restrict pipeline construction traffic;
- flag off plant and material-gathering sites identified by First Nations off the Project Footprint prior to construction;
- consult with First Nations to identify plants for revegetation along the disturbed areas of the Project route as part of a Restoration Plan;
- provide support to the Skin Tyee Nation for the purpose of their studies related to historical and ethnographic research (particularly trapline holders) on lands affected by the KSL Project. This funding would be provided following the decision of PTP to proceed with the KSL Project;
- further detailed engagement with the Skin Tyee for the purpose of identifying areas along the pipeline route, in Skin Tyee territory, where conflicts between wildlife

harvesting and construction activities may occur, and to determine appropriate mitigation measures; and,

 notify First Nation trappers prior to initiating clearing or construction activities to provide updates on project scheduling, to resolve outstanding concerns, and to allow operators to remove traps and other equipment from the pipeline route.

Contamination of land, air or waters during construction and operation of a pipeline, including effects of a spill on wildlife and the environment. Impacts to fish-bearing streams during construction.

Proponent Response: In the event of an accident that ruptures a pipeline in a stream, natural gas will rise to the surface and move into the atmosphere quickly, where it will dissipate. Downstream effects would be very limited. Regarding spills of hydrocarbons from heavy equipment or other materials during construction, the proponent has committed to employ best available technology and safety measures and follow all applicable codes, in order to minimize the probability of accidents and malfunctions occurring. In addition the Proponents contingency plans will address accidental spills to ensure effects of accidents are minimized. All requirements of Fisheries and Oceans Canada will be adhered to in order to minimize impacts to fish-bearing streams and habitat compensation will be addressed in accordance with an approved plan.

3. - Effects of construction activity and noise, especially during hunting season.
 - Safety of road traffic, particularly school buses, at crossings during pipeline construction.

Proponent Response: PTP committed to:

- adhere to local noise by-laws, where in existence;
- maintain equipment, and minimize unnecessary noise through the use of standard noise reduction technologies (e.g. mufflers);
- design the Compressor Station to minimize noise escapes through roof vents and other ventilation openings;
- monitor noise emissions to ensure they meet stated objectives at the Compressor Station;
- use signage near populated areas and on access routes near the pipeline route, that will be affected by Project construction or increased traffic levels, to alert the public about ongoing construction activities; and,
- implement a Traffic Management Plan to ensure road users are aware of safety protocols and procedures.
- 4. Further liaison with the Proponent and inclusion of traditional knowledge and information about traplines from Skin Tyee elders.
 - Inclusion of traditional knowledge from Skin Tyee elders.
 - Potential for impacts to cultural and archaeological sites.

Proponent Response: PTP committed to:

- have a liaison person as part of their project team who will be responsible for clear and timely communication with the Skin Tyee during construction and restoration of the KSL Project in Skin Tyee traditional territory;
- provide support to the Skin Tyee Nation for the purpose of their studies related to historical and ethnographic research (particularly trapline holders) on lands affected

by the KSL Project. This funding would be provided following the decision of PTP to proceed with the KSL Project; and,

 further detailed engagement with the Skin Tyee for the purpose of identifying areas along the pipeline route, in Skin Tyee territory, where conflicts between wildlife harvesting and construction activities may occur, and to determine appropriate mitigation measures.

5. Compensation for lost use of land.

Proponent Response: PTP committed to:

- ensuring all contractors adhere to established environmental protection plans; further where an environmental inspector considers significant damage has occurred, the relevant First Nation representative will immediately be contacted to inform them of the damage and to be asked for input into mitigation measures that will be employed to appropriately deal with the damage.

1.8.4 Conclusions

In the review of the proposed Project, the EAO has considered the Skin Tyee First Nation assertion of Aboriginal rights and the information available to support the strength of that assertion within and adjacent to the proposed Project corridor. The EAO has also considered the potential for impacts to those rights from the proposed Project, based on it being implemented as designed and in accordance with all avoidance and mitigation measures and commitments made by the Proponent. The EAO and the Proponent have been engaged in consultations with the Skin Tyee First Nation from early stages of the EA of the proposed Project to jointly discuss the potential for impacts and to develop measures to avoid, mitigate or otherwise accommodate Skin Tyee First Nation Aboriginal rights. The Skin Tyee First Nation has had an opportunity to review and comment on this consultation report and to specify the nature and scope of their rights from their point of view.

Having regard to all of the above, the EAO concludes that the process of consultation has been carried out in good faith, and that it was appropriate and reasonable in the circumstances. The EAO also concludes that the potential for effects on asserted Aboriginal rights has been avoided, mitigated or otherwise accommodated to an appropriate level such that they will not significantly impact the Skin Tyee First Nation from exercising their rights. In concluding this the EAO recognizes, that if the Project receives an EA Certificate, then additional detailed studies and programs are yet to be carried out and subsequent evaluations of risk of impacts will be undertaken, notably during the federal comprehensive study under CEAA and prior to any authorizations issued by Fisheries and Oceans Canada and the BC Oil and Gas Commission. The EAO believes the review process has reasonably balanced Aboriginal concerns of potential for impacts on asserted rights with other societal values.

1.9 Nee Tahi Buhn Indian Band

1.9.1 Introduction

Scope of Document

This section addresses potential effects of the KSL Pipeline Looping Project on the asserted Aboriginal rights, including Aboriginal title, of the Nee Tahi Buhn outlined in Section 1.1.

Information Sources

The Proponent commissioned a report entitled 'Traditional Ecological Knowledge of the Nee Tahi Buhn" to document Nee Tahi Buhn knowledge about lands and resources in relation to the Project corridor; the report was prepared by the Nee Tahi Buhn First Nation. The Traditional Ecological Knowledge of the Nee Tahi Buhn also outlines the evidence for pipeline impacts on cultural and resource sites. Much of the following discussion is drawn from the Traditional Ecological Knowledge of the Nee Tahi Buhn and from the *Literature Review of First Nations in the Environs of the KSL Pipeline Looping Project* (**Appendix I** of the Application).

1.9.2 Nee Tahi Buhn First Nation Aboriginal Rights

Setting: Nee Tahi Buhn First Nation

The proposed Project lies within the asserted traditional territory of the Nee Tahi Buhn First Nation. The Nee Tahi Buhn live in the vicinity of Francois Lake or in Grassy Plains nearby and had a close association with Skin Tyee First Nation until 2000 when the two groups separated to become independent First Nations.

There are five matrilineal Nee Tahi Buhn clans; the Gilseyhu, Laksilyu, Gitdumden, Laksamashu, and Tsayu. There are three Nee Tahi Buhn Indian Reserves, all more than 10 kilometres from the proposed Project.

Traditional Occupation and Use of the Project Area

The proposed Project enters Nee Tahi Buhn territory at approximately kilo post 110 and leaves again at approximately kilo post 290.

The Traditional Ecological Knowledge of the Nee Tahi Buhn indicates that Nee Tahi Buhn people used all parts of their territory at different times of the year and at different times in their history. A traditional seasonal round of resource activities is described in the Traditional Ecological Knowledge of the Nee Tahi Buhn. It highlights that hunting, trapping and ice fishing were dominant activities in winter months, and that fishing, hunting and gathering plants for food, medicinal purposes and as a resource were common in spring, summer and fall. The descriptions of these activities provide considerable information about Nee Tahi Buhn knowledge about the animals, fish and plants and their techniques for acquiring them.

Current Occupation and Use of the Project Area for Traditional Purposes

The Traditional Ecological Knowledge of the Nee Tahi Buhn is not specific in the description of the traditional activities noted above as being different from current activities. It is assumed that the same range of hunting, fishing, trapping and gathering activities is carried out currently.

Issues and Concerns identified by the Nee Tahi Buhn First Nation

The Traditional Ecological Knowledge of the Nee Tahi Buhn indicates the primary concern of the Nee Tahi Buhn First Nation for all development proposals is the affect that proposed projects have on animal welfare and hunting activities. Nee Tahi Buhn is also concerned about the potential for impacts on their heritage and cultural resources. The Traditional Ecological Knowledge of the Nee Tahi Buhn provided a list, with maps, of Nee Tahi Buhn land use sites that straddle, are within or are located near to the project right-of-way. More specific concerns, including those land use sites directly affected by the project right-of-way, include:

- disturbances or contaminations to soil and grasslands that will impact fur bearing animals that are trapped;
- disturbances or contaminations to soil and water quantity/quality and plant species used by the Nee Tahi Buhn;
- restoration of natural vegetation;
- potential effects on fish in the Morice River, particularly a steelhead fishing site near kilo post 165;
- continued access to trails that cross the right-of-way (eg. at kilo post 165, kilo post 194, kilo post 225);
- potential effects on a trapline area from kilo post 173 to 198;
- potential effects on a moose migration area between kilo post 243 and 250;
- ogoing liaison with the community; and,
- potential impacts on archaeological or cultural sites.

Nee Tahi Buhn First Nation Aboriginal Rights

The information provided in the application and during meetings indicates that historically the Nee Tahi Buhn people used the lands around a portion of the Project corridor as part of their subsistence and cultural activities.

It is prudent to assume that the Nee Tahi Buhn has a strong prima facie claim to Aboriginal rights to hunt, fish, trap and gather plants for food, social and ceremonial purposes on lands in their territory, a portion of which is traversed by the proposed Project corridor. A limited amount of information has been provided regarding areas of specific use by the Nee Tahi Buhn First Nation within or near the proposed Project alignment corridor. There are no current Nee Tahi Buhn Indian Reserves nearby the proposed Project corridor.

The EAO believes there is some potential for significant adverse impacts on Nee Tahi Buhn First Nation Aboriginal rights. The EAO made a decision at the outset of the EA process to use an approach of that is at the "deeper end of the *Haida* spectrum of consultation" with the Nee Tahi Buhn First Nation in order to develop and implement measures to avoid or minimize impacts to their Aboriginal rights to appropriate levels.

1.9.3 Consultation with the Nee Tahi Buhn First Nation

Nee Tahi Buhn Involvement with the EAO

On March 7, 2006 the EAO sought a meeting with the Nee Tahi Buhn to review the Project. Following a number of telephone and written communications, a first meeting took place in October 2006 and topics discussed included the project description, the EA process, capacity funding and maps of Nee Tahi Buhn's asserted territory.

Nee Tahi Buhn representatives were invited to Working Group meetings but only attended a few. Nee Tahi Buhn was provided all information regarding the project throughout the Pre-Application and Application Review periods. All key correspondence was forwarded to the Band Office.

The Nee Tahi Buhn First Nation was provided with draft copies of the section 11 order and the Terms of Reference for the Project. With the issuance of the February 28, 2007 section 11 order under the *EA Act*, the Proponent was formally directed to consult with the Nee Tahi Buhn First Nation. The Proponent had already begun discussions with Nee Tahi Buhn before this time.

The EAO met with a Nee Tahi Buhn representative in December 2006 and January 2007 to discuss Nee Tahi Buhn involvement in the EA process, including how Nee Tahi Buhn First Nation Aboriginal rights can best be addressed. The EAO met with Nee Tahi Buhn representatives in April 2008 to discuss the status of the EA review, the assessment report and the First Nation consultation section in particular. During a telephone call in the April 2008 meeting, the Chief Councillor informed the EAO that the Nee Tahi Buhn supported the route proposed in the Application.

The EAO provided capacity funding to the Nee Tahi Buhn during the Pre-Application stage of review. Funds were also provided during the Application Review phase of the EA process to assist with costs associated with Nee Tahi Buhn participation in the EA review.

Nee Tahi Buhn Involvement with the Proponent

The Proponent initially contacted the Nee Tahi Buhn First Nation in August 2005 and since that time has continued to consult with the Nee Tahi Buhn. In a June 2007 letter, PTP updated the Nee Tahi Buhn First Nation regarding the status of their application; summarized consultations completed to date; and proposed a consultation process for the upcoming application review period. Meetings and correspondence continued to the end of the review period. Additional information can be found in the Proponents report on consultations. This report was provided to the Nee Tahi Buhn on April 7, 2008 by the Proponent. PTP reports that Nee Tahi Buhn assured them there were no outstanding issues at this time.

Discussions between Nee Tahi Buhn and PTP led to completion of the Traditional Ecological Knowledge of the Nee Tahi Buhn; this was submitted to the EAO as a confidential part of the Project Application.

Digital files of the route alignment were provided to Nee Tahi Buhn in October 2006.

Measures being implemented to mitigate or otherwise accommodate potential for impacts to Nee Tahi Buhn Aboriginal Rights

As noted above the EAO believes it is prudent to assume that the Nee Tahi Buhn First Nation has a strong prima facie claim to Aboriginal rights to hunt, fish, trap and gather plants for food, social and ceremonial purposes adjacent to, and generally around, the proposed Project where it passes through their territory (approximately from kilo post 110 to kilo post 290). The EAO sought input from the Nee Tahi Buhn First Nation on the nature and scope of their Aboriginal rights and how they might be impacted by the proposed Project. Throughout the review process concerns were raised by the Nee Tahi Buhn with respect to potential for effects of the Project on lands and resources that the Nee Tahi Buhn people use in exercising their Aboriginal rights.

The primary risks of impacts to Nee Tahi Buhn people's ability to exercise their rights include:

- precluding or inhibiting Nee Tahi Buhn access to lands and waterways where hunting, fishing, trapping or gathering activities occur;
- destroying or reducing productive capacity of areas of fish, animal or plant habitat such that there are no longer sufficient areas to exercise the rights; and,
- creating increased access to the general public to key Nee Tahi Buhn hunting, fishing and gathering areas that results in increased and damaging pressures on animals, fish and plants and their habitat.

The concerns expressed by the Nee Tahi Buhn First Nation during the review of the Project have been fully considered in the review process through Working Group discussions and through the consultations carried out by the Proponent and by provincial and federal agencies. The review process has led to multiple measures and Proponent commitments being proposed to address the specific concerns raised by the Nee Tahi Buhn and therefore the risk of impacts to Nee Tahi Buhn Aboriginal rights (see below). In consideration of these, the EAO believes that:

- Nee Tahi Buhn First Nation access to certain lands may be restricted for a limited period during project construction, however as the geographic extent of these lands within Nee Tahi Buhn First Nation territory is very small and the construction period is short, the EAO does not believe this will lead to a significant impact on the Nee Tahi Buhn ability to exercise their rights;
- while the proposed Project as described in the Application may have posed unacceptable risks to areas of fish, animal or plant habitat, the enhanced avoidance, mitigation and accommodation measures developed during the review process have reduced the risks of these impacts, both during construction and operations, to an appropriate level. This assessment also recognizes the subsequent authorizations that will be required of the Project should an EA Certificate be granted; and,
- measures in the original Application and developed through the review process to restrict public access have reduced the risk of negative impacts from such access to an appropriate level.

The EAO recognizes there are risks of impacts in carrying out this project. For example, Nee Tahi Buhn has emphasized the risks associated with impacts to soil and water quality standards and fish habitat, and to trails and traplines. While these risks exist, a considerable amount of effort has been spent on reviewing the measures proposed to mitigate and minimize those risks in the Application and to further reduce the risks by creating additional measures and commitments that must be adhered to by the Proponent. Many of these focus on additional planning before carrying out activities, and safeguarding fish and water resources and ensuring access to trails and traplines during construction and over the longer term. Measures to involve the Nee Tahi Buhn First Nation in planning and monitoring work in their asserted territory have been enhanced.

The above statements will be better understood by reviewing the following examples of key measures and commitments that respond to Nee Tahi Buhn concerns, as listed below; a more complete description can be found in the Working Group Issues Tracking Table (**Appendix D**) and the Proponent Compendium of Commitments (**Appendix E**).

The Executive Summary of the Traditional Ecological Knowledge of the Nee Tahi Buhn states that "while the impact of the pipeline on the Nee Tahi Buhn is minimal at this time, concerns about safety of the pipeline and destructiveness of the construction are in the minds of the Nee Tahi Buhn people."

- 1. Disturbances or contaminations to soil and grasslands that will impact fur bearing animals that are trapped.
 - Disturbances or contaminations to soil and water quantity/quality and plant species used by the Nee Tahi Buhn.
 - Restoration of natural vegetation.
 - Potential effects on a moose migration area between kilo post 243 and 250.

Proponent Response: PTP committed to:

- undertaking a "route walk" by a wildlife specialist (R.P. Bio) prior to clearing and construction;
- seek input fom the Nee Tahi Buhn during the preparation of the Environmental Protection Plan;
- ensure its activities will have no effect on peoples ability to collect food following construction of the KSL Project;
- undertake, post-certification, additional studies where warranted on areas of high value/high risk. These studies will incorporate traditional knowledge, where applicable;
- work expeditiously to maintain a tight construction spread to minimize potential barriers and hazards to wildlife;
- contain project footprint to the minimum area required to efficiently and safely build the pipeline when traversing rare plant communities;
- fence off the plant community at risk where it occurs next to the construction right-ofway to restrict pipeline construction traffic;
- flag off plant and material-gathering sites identified by First Nations off the Project Footprint prior to construction; and,
- consult with First Nations to identify plants for revegetation along the disturbed areas of the Project route as part of a Restoration Plan.

2. Potential effects on fish in the Morice River, particularly a steelhead fishing site near kilo post 165.

Proponent Response: PTP committed to:

- undertake, post-certification, additional studies where warranted on areas of high value/high risk. These studies will incorporate traditional knowledge, where applicable; and,
- consider timing the construction during the recommended period (mid-May to mid-August) to avoid the most critical fisheries-sensitive timing, in recognition of the very high fisheries values at the Morice crossing. PTP is required to meet all requirements of Fisheries and Oceans Canada and will continue to develop a habitat compensation plan as required.

3. Continued access to trails that cross the right-of-way (eg. at kilo post 165, kilo post 194, kilo post 225).

Proponent Response: PTP committed to:

- restore disturbed sites and trails to as near to their pre-construction condition as practical; and,
- ensure physical impacts to trails traditionally used by First Nations will be restored so that the trails crossing the pipeline right-of-way will be fully functional following the restoration phase of the Project.

4. Potential effects on a trapline area from kilo post 173 to 198.

Proponent Response: PTP committed to:

- notify First Nation trappers prior to initiating clearing or construction activities to provide updates on project scheduling, to resolve outstanding concerns, and to allow operators to remove traps and other equipment from the pipeline route;
- ensure that the Project work force does not disturb cabins, trapline equipment, or facilities associated with trapping outside the Project Footprint; and,
- discuss demonstrated economic loss associated with Project activities with First Nations trappers.

5. - Ongoing liaison with the community.

- Potential impacts on archaeological or cultural sites.

Proponent Response: PTP committed to:

- institute ways to facilitate ongoing and timely communication between
 First Nation members and PTP on cultural and environmental issues during construction. PTP will continue discussions with First Nations regarding this issue;
- contact the First Nations concerned to ensure a member of the community advises on activities in areas used for ritual purposes;
- work with concerned First Nations to ensure a member of the community advises on activities in areas and trails used traditionally by First Nations; and,
- ensure construction personnel will be particularly attentive to respectful treatment of the land in these areas, in consultation with affected First Nations.

1.9.4 Conclusions

In the review of the proposed Project, the EAO has considered the Nee Tahi Buhn First Nation assertion of Aboriginal rights and the information available to support the strength of that assertion within and adjacent to the proposed Project corridor. The EAO has also considered the potential for impacts to those rights from the proposed Project, based on it being implemented as designed and in accordance with all avoidance and mitigation measures and commitments made by the Proponent. The EAO and the Proponent have been engaged in consultations with the Nee Tahi Buhn First Nation from early stages of the EA of the proposed Project to jointly discuss the potential for impacts and to develop measures to mitigate or otherwise accommodate Nee Tahi Buhn First Nation Aboriginal rights. The Nee Tahi Buhn First Nation has had an opportunity to review and comment on this consultation report and to specify the nature and scope of their rights from their point of view.

Having regard to all of the above, the EAO concludes that the process of consultation has been carried out in good faith, and that it was appropriate and reasonable in the circumstances. The EAO also concludes that the potential for effects on asserted Aboriginal rights has been mitigated or otherwise accommodated to an appropriate level such that they will not significantly impact the Nee Tahi Buhn First Nation from exercising their rights. In concluding this the EAO recognizes, that if the Project receives an EA Certificate, then additional detailed studies and programs are yet to be carried out and subsequent evaluations of risk of impacts will be undertaken, notably during the federal comprehensive study under CEAA and prior to any authorizations issued by Fisheries and Oceans Canada and the BC Oil and Gas Commission. The EAO believes the review process has reasonably balanced Aboriginal concerns of potential for impacts on asserted rights with other societal values.

1.10. Carrier Sekani Tribal Council

1.10.1 Introduction

Scope of Document

This section addresses potential effects of the KSL Pipeline Looping Project on the asserted Aboriginal rights, including Aboriginal title, of member nations of the Carrier Sekani Tribal Council that may be impacted by the Project. Those First Nations include the Wet'suwet'en First Nation (Broman Lake Band), Burns Lake Indian Band, Saik'uz First Nation, Nadleh Whut'en Indian Band, Nak'azdli Indian Band and Stellat'en First Nation.

The Carrier Sekani Tribal Council is a registered non-profit society formed to bring together Carrier and Sekani First Nations in a collective effort to achieve certain objectives, including assisting member nations achieve self-reliance through delivery of support services. In January 2007, the EAO received notification that *"the Carrier Sekani Tribal Council Chiefs authorize the Carrier Sekani Tribal Council to act on their behalf with respect to the Crown consultation for the Pacific Northern Gas KSL pipeline"*. As a result, the EAO has carried out consultation with the Carrier Sekani Tribal Council as representing the above noted six Carrier Sekani Tribal Council member First Nations.

Information Sources

The Proponent commissioned a report entitled *"Carrier Sekani Tribal Council Traditional Use Study for the Pacific Northern Gas Kitimat to Summit Lake Natural Gas Pipeline"*⁹. This study provides information relating to traditional and current use information on the proposed right-of-way, as well as potential Aboriginal use of the proposed right-of-way. **Appendix I** of the Project Application, a *Literature Review of First Nations in the Environs of the KSL Pipeline Looping Project* (by Dr. Dorothy Kennedy) provides additional information relevant to the proposed right-of-way for the Project. The Carrier Sekani Tribal Council website also provides information about this project and pipeline projects in general. Much of the following information was taken from the above sources.

1.10.2 Carrier Sekani Tribal Council Member First Nations' Aboriginal Rights

Setting: Carrier Sekani Tribal Council First Nations

The proposed Project lies within the asserted traditional territory of six member First Nations of the Carrier Sekani Tribal Council. The Project Application indicates that the Carrier Sekani, and specifically the member nations, are allied with each other but each First Nation has its own distinct territory, usually corresponding to a watershed or lake system.

The Traditional Use Study indicates the territories of the Carrier Sekani cover a large area of the Interior Plateau region. Traditional areas of the Carrier people include lands that drain westward and southward into the Pacific Ocean while the Sekani territories drain eastward and north into the Arctic Ocean.

⁹ Carrier Sekani Tribal Council Traditional Use Study for the Pacific Northern Gas Kitimat to Summit Lake Natural Gas Pipeline, March 2007. Certain limitations are noted in the study relating to the need for complementary scientific studies of environmental impacts, baseline studies, socio-economic data. Also the limited time to conduct the study is noted and as a result the study is described as a general and preliminary overview of the traditional uses and interests which would be impacted by the proposed project.

The Application identifies 15 Carrier Sekani Tribal Council member nation Indian Reserves located within 15 kilometres of the proposed Project alignment; the closest are located approximately 2 kilometres away from the alignment.

Traditional Occupation and Use of the Project Area

The proposed Project enters Carrier Sekani Tribal Council member nation's territories at approximately kilo post 75 and leaves again at approximately kilo post 395.

The Traditional Use Study notes that for the Carrier Sekani people, the health and wellbeing of both the people and the land was ensured through the Keyoh and Bahlats system. Each Carrier Sekani clan has a distinct Keyoh or traditional territory that it owns and controls; boundaries are often defined by natural landmarks. The Bahlats is the central system through which Keyohs are managed.

A traditional seasonal round of resource activities is described in the Traditional Use Study. It highlights that numerous sites, trails and waterways were used for hunting, fishing, trapping and gathering berries and plants; these activities were carried out as clans or extended families moved around their territories. Different areas were used for distinct purposes throughout the year. The mobility of families is described as "systematic and purposeful, not random and haphazard."

Current Occupation and Use of the Project Area for Traditional Purposes

The Traditional Use Study states that Carrier Sekani way of life is directly tied to the land and the people rely on the health and ecological integrity of the land for their survival. The Carrier Sekani Land Use Vision (2005) cites a number of principles on land use to capture traditional teachings.

The Traditional Use Study identifies plants, animals, fish and activities that are important to the Carrier Sekani Tribal Council communities and this indicates that the traditional activities noted above continue today.

Issues and Concerns identified by the Carrier Sekani First Nations

The Traditional Use Study notes a range of activities or sites important to each of the six Carrier Sekani Tribal Council communities potentially impacted by the Project. It also identifies selected medicinal and food plants, fish, animals and other species of significance to the Carrier Sekani Tribal Council member nations. These are interpreted in a broad sense as expressing concerns about the potential for impacts to these resources, sites and uses by the Project. (Please see further explanatory notes below under Consultation regarding the lack of specific concerns in this section.)

The Application highlights Carrier Sekani Tribal Council member concerns about the potential impacts of pipeline construction on rivers and river crossings, as this may lead to damage to traditional foods or food sources.

Carrier Sekani Tribal Council member First Nation Aboriginal Rights

The Traditional Use Study includes a copy of the *"Carrier & Sekani Declaration and Claim"*, April 15, 1982, in which the Carrier and Sekani Tribes assert original ownership, occupancy and use of, and jurisdiction over their specified lands.

It is prudent to assume that the member nations of the Carrier Sekani Tribal Council each have a strong prima facie claim to Aboriginal rights to hunt, fish, trap and gather plants for food, social and ceremonial purposes on lands in their territories, a portion of which is traversed by the proposed Project corridor. A limited amount of information has been provided regarding areas of specific use by the Carrier Sekani Tribal Council member First Nations within or near the proposed Project alignment corridor. There are five current Carrier Sekani Tribal Council member Nation Indian Reserves within five kilometres of the proposed Project corridor, the closest being two kilometres away.

The EAO foresaw the potential for significant adverse impacts on Carrier Sekani Tribal Council member First Nation Aboriginal rights. Therefore the EAO made a decision at the outset of the EA process to use an approach of "deep consultation" (with respect to the *Haida* spectrum of consultation) with the Carrier Sekani Tribal Council member First Nations in order to develop and implement measures to avoid or minimize impacts to Carrier Sekani Tribal Council member First Nation Aboriginal rights to appropriate levels. This consultation was carried out with the Carrier Sekani Tribal Council on behalf of the member nations.

<u>1.10.3</u> Consultation with the Carrier Sekani Tribal Council Member First Nations Carrier Sekani Tribal Council Involvement with the EAO

On March 7, 2006 the EAO sought a meeting with the each of the six Carrier Sekani Tribal Council member nations to review the Project. During follow up telephone discussions, Carrier Sekani Tribal Council confirmed that Carrier Sekani Tribal Council would be representing the six member nations in the EA process. EAO sought written confirmation of this and received notice of this from the Carrier Sekani Tribal Council Chiefs in January 2007. While consultation occurred directly with Carrier Sekani Tribal Council representatives, each of the six member nations continued to receive key written communications from the EAO throughout the review process.

The main issues raised by the Carrier Sekani Tribal Council from the outset focused on the nature of the EA process, including the need for a government-to-government dialogue to occur along with the technical review and the need for capacity funding for Carrier Sekani Tribal Council to participate in both initiatives. An initial meeting occurred in April 2006 to discuss how this might be structured. The EAO offered to create a government-to-government discussion forum (based on the successful Haisla/Kitimat LNG Project model) to address Aboriginal rights issues and the Carrier Sekani Tribal Council provided their perspectives on the BC EA process, including the need to establish a joint decision-making model for the EA process. Subsequent meetings occurred in October 2006 and in January, February, May and June 2007. While there was much common ground on establishing a forum for jointly discussing Aboriginal rights issues outside of the technical Working Group process, other issues could not be resolved to the satisfaction of the Carrier Sekani Tribal Council. As a result the Carrier Sekani Tribal Council chose to not participate in the EAO-led technical Working Group review process for the KSL Project, preferring to work directly with the Proponent in reviewing the Project Application.

The Carrier Sekani Tribal Council and member First Nations were provided with draft copies of the section 11 order and the Terms of Reference for the Project. With the issuance of the February 28, 2007 section 11 order under the *EA Act*, the Proponent was formally directed to consult with the six Carrier Sekani Tribal Council member First Nations. The Proponent had already begun discussions with the First Nations before this time.

The EAO provided capacity funding to the Carrier Sekani Tribal Council during the Pre-Application stage of review to assist in their ability to provide comments on the draft section 11 order and Terms of Reference. Funds were also offered prior to the Application Review phase of the EA process to assist with costs associated with their participation in the EA review, however these funds were not accepted as Carrier Sekani Tribal Council chose not to participate.

The Carrier Sekani Tribal Council wanted it noted in this report that they feel they did not have any role in the EA process after the section 11 order was issued and they believe the EAO played no role in fulfilling the Crown's duty of consultation and accommodation with the Carrier Sekani Tribal Council. The EAO believes it took all reasonable measures to continue to consult with the Carrier Sekani Tribal Council throughout the review process.

As the Carrier Sekani Tribal Council did not participate in the Working Group technical review of the Project Application, the EAO was unable to obtain specific Carrier Sekani Tribal Council concerns about the Project or any additional information on the nature and scope of the Aboriginal rights asserted by the Carrier Sekani Tribal Council member nations. The EAO continued to ensure Carrier Sekani Tribal Council and the member nations received all information about the Project review that was sent to Working Group members and sought to meet with Carrier Sekani Tribal Council during the Application Review period.

Carrier Sekani Tribal Council Involvement with the Proponent

The Proponent initially contacted the Carrier Sekani Tribal Council member First Nations in August 2005 and since that time has continued to consult with the Carrier Sekani Tribal Council and the member Nations. A Carrier Sekani Tribal Council Resolution of October 28, 2005 confirmed that Carrier Sekani Tribal Council will conduct negotiations with Pacific Northern Gas Ltd. (at that time, the proponent for the KSL Pipeline Project).

In a June 2007 letter, PTP updated the Carrier Sekani Tribal Council regarding the status of their application, summarized consultations completed to date and proposed a consultation process for the upcoming application review period. The EAO has been informed by the Proponent that meetings and correspondence continued to the end of the review period, including community meetings in November 2007. Additional information can be found in the Proponents report on consultations. This report notes that the Carrier Sekani Tribal Council delivered a technical report on the Application to the Proponent in March 2008 with recommendations to safeguard Carrier Sekani Tribal Council interests. PTP's responses to these recommendations were then reviewed with Carrier Sekani Tribal Council and Carrier Sekani Tribal Council acceptance of the Proponent's response to Carrier Sekani Tribal Council acceptance of the Proponent's response to Carrier Sekani Tribal Council concerns. PTP reported that no amendments to PTP's filed EA Application will be required to accommodate the Carrier Sekani Tribal Council recommendations. This consultation report was provided to the Carrier Sekani Tribal Council on April 7, 2008 by the Proponent.

Discussions between the Carrier Sekani Tribal Council and PTP led to completion of the Traditional Use Study and this report was submitted to the EAO as a confidential part of the Project Application.

Digital files of the route alignment were provided to Carrier Sekani Tribal Council in October 2006.

Carrier Sekani Tribal Council provided comments to the EAO that statements in respect of their engagement with the Proponent, or in alternative processes, should not be included in this document. The EAO has tried to accurately summarize key statements from the Proponents report on First Nation consultations; EAO recognizes that those consultations are ongoing and that final agreements have not bee reached at this time.

<u>Measures being implemented to mitigate or otherwise accommodate potential for impacts to</u> <u>Carrier Sekani Tribal Council Member Nations' Aboriginal Rights</u>

As noted above the EAO believes it is prudent to assume that the Carrier Sekani Tribal Council member First Nations have a strong prima facie claim to Aboriginal rights to hunt, fish, trap and gather plants for food, social and ceremonial purposes adjacent to, and generally around, the proposed Project where it passes through their territory (approximately from kilo post 75 to kilo post 395). The EAO sought participation from the Carrier Sekani Tribal Council and its member First Nations in the EA Process to ensure they were able to provide information on the nature and scope of their Aboriginal rights and how they might be impacted by the proposed Project. Carrier Sekani Tribal Council chose not to participate in the EA review; however, as reported by the Proponent, the Carrier Sekani Tribal Council did work directly with the Proponent in reviewing the Project Application and made recommendations regarding the project that would safeguard Carrier Sekani interests. The EAO has sought to understand Carrier Sekani views on their Aboriginal rights as expressed through their Traditional Use Study and other information and has tried to ensure appropriate measures are in place to mitigate any impacts to an appropriate level.

The Proponent also reported that Carrier Sekani Tribal Council has accepted PTP's proposals for a framework of long-term economic benefits and is engaged with the Trade and Commerce Group that is discussing a government to government component of this framework; however, these discussions are not yet concluded.

A considerable portion of the proposed pipeline right-of-way within Carrier Sekani Tribal Council member nation's territories will abut and overlap the existing Pacific Northern Gas natural gas pipeline right-of-way, thereby reducing new and incremental impacts from the Project. Elsewhere, the proposed project will abut other types of linear developments (forestry roads for example). The amount of completely new right-of-way is limited within the approximately 325 kilometres of the Project alignment in Carrier Sekani Tribal Council member nation's territories.

Based on the above, the EAO believes that reasonable efforts have been made to mitigate impacts to Carrier Sekani Tribal Council Aboriginal rights.

The Carrier Sekani Tribal Council and the member First Nations have had an opportunity to review and comment on this consultation report. Their April 28, 2008 response notes that "the Carrier Sekani Tribal Council is engaged with the Province and the Proponent in good faith in analternative process, and we are making good progress. However, the process has

not yet fully resolved." The letter continues to state: "In the meantime, however, the Carrier Sekani Tribal Council cannot support the draft Consultation Report [this document] and would request that it be withdrawn or substantially revised. There are many statements in the Report that are inaccurate or potentially misleading". The Carrier Sekani Tribal Council notes their principled opposition to the current EAO process as a mechanism for consultation and accommodation. The EAO has amended this report to reflect these views.

The EAO asked Carrier Sekani Tribal Council to verify the Proponent's statements that no amendments are needed to the Project Application to accommodate Carrier Sekani Tribal Council interests; and that support from Carrier Sekani Tribal Council for the Project is anticipated before the end of the review period, subsequent to PTP's response to the Carrier Sekani Tribal Council recommendations. Carrier Sekani Tribal Council noted that they are unable to comment on either of these statements until the alternate process that they are engaged in with the Proponent and government has concluded.

1.10.4 Conclusions

In the review of the proposed Project, the EAO has considered the Carrier Sekani Tribal Council member First Nations' assertion of Aboriginal rights and the information available to support the strength of that assertion within and adjacent to the proposed Project corridor. The EAO has also considered the potential for impacts to those rights from the proposed Project, based on it being implemented as designed and in accordance with all mitigation measures and commitments made by the Proponent. The Proponent has been engaged in consultations with the Carrier Sekani Tribal Council and its member nations from early stages of the EA of the proposed Project to jointly discuss the potential for impacts and to develop measures to mitigate or otherwise accommodate Carrier Sekani Tribal Council member First Nation Aboriginal rights.

The EAO initiated consultations with the Carrier Sekani Tribal Council at an early stage and engaged the Carrier Sekani Tribal Council in the review of key documents during the Pre-Application stage of the EA review; following the Carrier Sekani Tribal Council decision to not participate in the Application Review stage, the EAO continued to provide the Carrier Sekani Tribal Council and its member nations all key information about the review process.

Having regard to all of the above, the EAO concludes that the process of consultation has been carried out in good faith, and that it was appropriate and reasonable in the circumstances. The EAO also concludes that reasonable efforts have been made to ensure the potential for effects on asserted Aboriginal rights has been mitigated to an appropriate level such that they will not significantly impact the Carrier Sekani Tribal Council member First Nations from exercising their rights. In concluding this the EAO recognizes, that if the Project receives an EA Certificate, then additional detailed studies and programs are yet to be carried out and subsequent evaluations of risk of impacts will be undertaken, notably during the federal comprehensive study under CEAA and prior to any authorizations issued by Fisheries and Oceans Canada and the BC Oil and Gas Commission. The EAO believes the review process has reasonably balanced Aboriginal concerns of potential for impacts on asserted rights with other societal values.

The EAO sought input from the Carrier Sekani Tribal Council on this prior to submitting the assessment report to the ministers for their decision; the Carrier Sekani Tribal Council response indicated strong disagreement with a number of statements made in this report and these concerns have been noted in the above discussion.

1.11 The Lheidli-T'enneh First Nation

1.11.1 Introduction

Scope of Document

This section addresses potential effects of the KSL Pipeline Looping Project on the asserted Aboriginal rights, including Aboriginal title, of the Lheidli T'enneh First Nation outlined in Section 1.1.

Information Sources

The Proponent commissioned a report entitled 'Traditional Ecological Knowledge of the Lheidli T'enneh" to document Lheidli T'enneh knowledge about lands and resources in relation to the Project corridor; the report was prepared by the Lheidli T'enneh First Nation. The Traditional Ecological Knowledge of the Lheidli T'enneh also outlines the evidence for pipeline impacts on cultural and resource sites. Much of the following discussion is drawn from the Traditional Ecological Knowledge of the Lheidli T'enneh and from the *Literature Review of First Nations in the Environs of the KSL Pipeline Looping Project* (Appendix I of the Application).

1.11.2 Lheidli T'enneh First Nation Aboriginal Rights

Setting: Lheidli T'enneh First Nation

The proposed Project lies within the asserted traditional territory of the Lheidli T'enneh First Nation. The Lheidli T'enneh live in the vicinity of the confluence of the Nechako and Fraser Rivers (the current location of Prince George) or in nearby areas.

The Lheidli T'enneh are born into a matrilineal clan system and through this system the land is divided into keyohs that give families access to a variety of resources to sustain themselves. Keyoh holders have the responsibility to take care of their lands and resources.

There are no Lheidli T'enneh Indian Reserves near to the proposed Project.

Traditional Occupation and Use of the Project Area

The proposed Project enters Lheidli T'enneh territory at approximately kilo post 380 and leaves again at approximately kilo post 450.

The Traditional Ecological Knowledge of the Lheidli T'enneh indicates that Lheidli T'enneh people traveled throughout their territory, using seasonal villages and camps along the lakes and rivers. The territory was separated into keyohs; each keyoh was the responsibility of an extended family. Different camps were used for different purposes and at different times of the year (hunting, fishing, etc.); some camps were communal amongst families and some were specific to family keyohs.

Current Occupation and Use of the Project Area for Traditional Purposes

The Traditional Ecological Knowledge of the Lheidli T'enneh is not specific in the description of the traditional activities noted above as being different from current activities. It is assumed that the same range of hunting, fishing, trapping and gathering activities is carried out currently.

Issues and Concerns identified by the Lheidli T'enneh First Nation

The Traditional Ecological Knowledge of the Lheidli T'enneh indicates the primary concern of the Lheidli T'enneh First Nation for all development proposals is the affect that proposed projects have on animal welfare and hunting activities. Lheidli T'enneh are also concerned about the potential for impacts on their heritage and cultural resources. The Traditional Ecological Knowledge of the Lheidli T'enneh provided a summary of recommendations and conclusions that are reflected in the points below. More specific concerns, including those land use sites directly affected by the project right-of-way, include:

- the need for a wildlife habitat inventory from Summit Lake to Clauminchil Lake to facilitate monitoring of animals and to ensure impacts are minimized;
- monitoring of wildlife use of the area;
- the need for information fish and aquatic animals in lakes and creeks that flow into the Salmon River;
- clear identification of fish bearing streams for monitoring into the future;
- monitoring of water quality and flow in the Salmon and Stuart Rivers;
- archaeology impacts, particularly to trails and areas of occupancy in the Clauminchil Lake area;
- animals, fish and plants sought for food purposes;
- emergency plans in case of a rupture in the pipeline; and,
- employment opportunities from the Project.

Lheidli T'enneh First Nation Aboriginal Rights

The information provided in the application and during meetings indicates that historically the Lheidli T'enneh people used the lands around a portion of the Project corridor as part of their subsistence and cultural activities.

It is prudent to assume that the Lheidli T'enneh has a strong prima facie claim to Aboriginal rights to hunt, fish, trap and gather plants for food, social and ceremonial purposes on their asserted territory, a portion of which is traversed by the proposed Project corridor. A limited amount of information has been provided regarding areas of specific use by the Lheidli T'enneh First Nation within or near the proposed Project alignment corridor. There are no current Lheidli T'enneh Indian Reserves nearby the proposed Project corridor.

The EAO believes there is some potential for significant adverse impacts on Lheidli T'enneh First Nation Aboriginal rights. The EAO made a decision at the outset of the EA process to use an approach of that is at the "deeper end of the *Haida* spectrum of consultation" with the Lheidli T'enneh First Nation in order to develop and implement measures to avoid or minimize impacts to their Aboriginal rights to appropriate levels.

1.11.3 Consultation with the Lheidli T'enneh First Nation

Lheidli T'enneh Involvement with the EAO

On March 7, 2006 the EAO sought a meeting with the Lheidli T'enneh to review the Project. A first meeting planned in June 2006 had to be cancelled on short notice but the EAO left updated information on the Project at the Lheidli T'enneh Band Office at that time. After ongoing communications, a first meeting took place in January 2007 and topics discussed included the project description, the EA process, capacity funding and how Lheidli T'enneh First Nation Aboriginal rights can best be addressed.

Lheidli T'enneh representatives were invited to Working Group meetings. Lheidli T'enneh was provided all information regarding the project throughout the Pre-Application and Application Review periods. All key correspondence was forwarded to the Band Office.

The Lheidli T'enneh First Nation was provided with draft copies of the section 11 order and the Terms of Reference for the Project. With the issuance of the February 28, 2007 section 11 order under the *EA Act*, the Proponent was formally directed to consult with the Lheidli T'enneh First Nation. The Proponent had already begun discussions with Lheidli T'enneh before this time.

The EAO sought additional meetings with the Lheidli-T'enneh and met again with them in March 2008 to review the status of the EA and the upcoming review of the Assessment Report, including the section on First Nation consultation.

The EAO provided capacity funding to the Lheidli T'enneh during the Pre-Application stage of review. Funds were also provided during the Application Review phase of the EA process to assist with costs associated with Lheidli T'enneh participation in the EA review.

Lheidli T'enneh Involvement with the Proponent

The Proponent initially contacted the Lheidli T'enneh First Nation in August 2005 and since that time has continued to consult with the Lheidli T'enneh. In a June 2007 letter, PTP updated the Lheidli T'enneh First Nation regarding the status of their application, summarized consultations completed to date and proposed a consultation process for the upcoming Application Review period. Meetings and correspondence continued to the end of the review period Additional information can be found in the Proponents report on consultations. This report was provided to the Lheidli T'enneh on April 7, 2008 by the Proponent. PTP reports that Lheidli T'enneh assured them there were no outstanding issues at this time.

Discussions between Lheidli T'enneh and PTP led to completion of the Traditional Ecological Knowledge of the Lheidli T'enneh; this was submitted to the EAO as a confidential part of the Project Application.

Digital files of the route alignment were provided to Lheidli T'enneh in October 2006.

<u>Measures being implemented to mitigate or otherwise accommodate potential for impacts</u> <u>Lheidli T'enneh Aboriginal Rights</u>

As noted above the EAO believes it is prudent to assume that the Lheidli T'enneh First Nation has a strong prima facie claim to Aboriginal rights to hunt, fish, trap and gather plants for food, social and ceremonial purposes adjacent to, and generally around, the proposed Project where it passes through their territory (approximately from kilo post 380 to kilo post 450). The EAO sought input from the Lheidli T'enneh First Nation on the nature and scope of their Aboriginal rights and how they might be impacted by the proposed Project. Throughout the review process concerns were raised by the Lheidli T'enneh with respect to potential for effects of the Project on lands and resources that the Lheidli T'enneh people use in exercising their Aboriginal rights.

The primary risks of impacts to Lheidli T'enneh peoples ability to exercise their rights include:

- precluding or inhibiting Lheidli T'enneh access to lands and waterways where hunting, fishing, trapping or gathering activities occur;
- destroying or reducing productive capacity of areas of fish, animal or plant habitat such that there are no longer sufficient areas to exercise the rights; and,
- creating increased access to the general public to key Lheidli T'enneh hunting, fishing and gathering areas that results in increased and damaging pressures on animals, fish and plants and their habitat.

The concerns expressed by the Lheidli T'enneh First Nation during the review of the Project have been fully considered in the review process through Working Group discussions and through the consultations carried out by the Proponent and by provincial and federal agencies. The review process has led to multiple measures and Proponent commitments being proposed to address the specific concerns raised by the Lheidli T'enneh and therefore the risk of impacts to Lheidli T'enneh Aboriginal rights (see below). In consideration of these, the EAO believes that:

- Lheidli T'enneh First Nation access to certain lands may be restricted for a limited period during project construction, however as the geogrpahic extent of these lands within Lheidli T'enneh First Nation territory is very small and the construction period is short, the EAO does not believe this will lead to a significant impact on the Lheidli T'enneh ability to exercise their rights;
- while the proposed Project as described in the Application may have posed unacceptable risks to areas of fish, animal or plant habitat, the enhanced avoidance, mitigation and accommodation measures developed during the review process have reduced the risks of these impacts, both during construction and operations, to an appropriate level. This assessment also recognizes the subsequent authorizations that will be required of the Project should an EA Certificate be granted; and,
- measures in the original Application and developed through the review process to restrict public access have reduced the risk of negative impacts from such access to an appropriate level.

The EAO recognizes there are risks of impacts in carrying out this project. For example, the Lheidli T'enneh have emphasized the risks associated with impacts to water quality standards and fish habitat, particularly at the Salmon River crossings. While these risks exist, a considerable amount of effort has been spent on reviewing the measures proposed to mitigate and minimize those risks in the Application and to further reduce the risks by creating additional measures and commitments that must be adhered to by the Proponent. Some of these focus on additional planning before carrying out activities at the Salmon River crossings and safeguarding fish and water resources during construction and over the longer term. Measures to involve the Lheidli T'enneh in planning and monitoring work in their territory have been enhanced.

The above statements will be better understood by reviewing the following examples of key measures and commitments that respond to Lheidli T'enneh concerns, as listed below; a more complete description can be found in the Working Group Issues Tracking Table (**Appendix D**) and the Compendium of Proponent Commitments (**Appendix E**).

The Executive Summary of the Traditional Ecological Knowledge of the Lheidli T'enneh states that "In sum, the study concludes that the proposed pipeline may impact Lheidli T'enneh hunting, fishing and gathering activities in limited ways in the present and undetermined ways in the future."

 The need for a wildlife habitat inventory from Summit Lake to Clauminchil Lake to facilitate monitoring of animals and to ensure impacts are minimized.
 Monitoring of wildlife use of the area.

Proponent Response: PTP has committed to:

- prepare an Access Management Plan following certification of the Project and will request input from the Lheidli T'enneh on the Plan before it is finalized;
- undertake, post-certification, additional studies where warranted on areas of high value/high risk. These studies will incorporate traditional knowledge, where applicable;
- notify First Nation trappers prior to initiating clearing or construction activities to provide updates on project scheduling, to resolve outstanding concerns, and to allow operators to remove traps and other equipment from the pipeline route;
- undertake a "route walk" by a wildlife specialist (R.P. Bio) prior to clearing and construction;
- undertake, post-certification, additional studies where warranted on areas of high value/high risk. These studies will incorporate traditional knowledge, where applicable;
- monitor wetlands for habitat quality and function during a Post-Construction Monitoring Program; and,
- monitor the effectiveness of restoration efforts during a Post-Construction Monitoring Program.
- 2. The need for information fish and aquatic animals in lakes and creeks that flow into the Salmon River.
 - Clear identification of fish bearing streams for monitoring into the future.
 - Monitoring of water quality and flow in the Salmon and Stuart Rivers.

Proponent Response: PTP has committed to:

- incorporate erosion control measures in the "Surface Water Quality and Sediment Control Plan" for use during construction, as well as into the "Post Construction Monitoring Plan" for use during operations and decommissioning;
- ensure the design for water quality monitoring will include multiple samples for larger streams and not just mid-stream and that a range of sites will be sampled;
- undertake downstream inspection and sampling to determine if construction has resulted in any long-term embeddedness of sand on those rivers where this may be an issue and to undertake corrective measures, where required. The details of this will be developed during detailed design;
- utilize horizontal directional drilling as the primary crossing method for the three Salmon River crossings if this method is proven feasible;
- committed to horizontal directional drilling as the primary crossing method for the Stuart River and will pursue proving up the viability of this method (one test hole has been drilled to-date with positive results for a successful horizontal directional drilling). This would include more detailed studies during the design phase of the project (e.g. additional vertical drilling) and potentially a relocation of the crossing if necessary. In

the event that horizontal directional drilling proves infeasible based on the early investigation programs, PTP commits to reconsider an aerial crossing if that crossing method is determined to be appropriate to the local community. This will avoid any impacts to White Sturgeon;

- implement environmental monitoring of horizontal directional drilling and other construction activities as outlined in an Environmental Protection Plan; and,
- monitoring the right-of-way, including watercourse crossings, during and following construction to assess the effectiveness of sediment control measures and to make repairs as required.
- 3. Archaeology impacts, particularly to trails and areas of occupancy in the Clauminchil Lake area.
 - Animals, fish and plants sought for food purposes.

Proponent Response: PTP has committed to:

- ensure its activities will have no effect on peoples ability to collect food following construction of the KSL Project;
- restore disturbed sites and trails to as near to their pre-construction condition as practical; and,
- ensure physical impacts to trails traditionally used by First Nations will be restored so that the trails crossing the pipeline right-of-way will be fully functional following the restoration phase of the Project.

4. Emergency plans in case of a rupture in the pipeline.

Proponent Response: In the event of an accident that ruptures a pipeline, natural gas will rise to the surface and move into the atmosphere quickly, where it will dissipate. Downstream effects, if in a stream, would be very limited. Regarding spills of hydrocarbons from heavy equipment or other materials during construction, the proponent has committed to employ best available technology and safety measures and follow all applicable codes, in order to minimize the probability of accidents and malfunctions occurring. In addition the Proponents contingency plans will address accidental spills to ensure effects of accidents are minimized.

5. Employment opportunities from the Project.

Proponent Response: PTP has committed to:

- a procurement program that actively promotes local opportunities, including Aboriginal businesses; and,
- communicate with local economic development offices, First Nations, and regional employment agencies to identify workforce needs and potential opportunities for local employment.

1.11.4 Conclusions

In the review of the proposed Project, the EAO has considered the Lheildli T'enneh First Nation assertion of Aboriginal rights and the information available to support the strength of that assertion within and adjacent to the proposed Project corridor. The EAO has also considered the potential for impacts to those rights from the proposed Project, based on it being implemented as designed and in accordance with all avoidance and mitigation measures and commitments made by the Proponent. The EAO and the Proponent have been engaged in consultations with the Lheildli T'enneh First Nation from early stages of the EA of the proposed Project to jointly discuss the potential for impacts and to develop measures to mitigate or otherwise accommodate Lheildli T'enneh First Nation Aboriginal rights. The Lheildli T'enneh First Nation has had an opportunity to review and comment on this consultation report and to specify the nature and scope of their rights from their point of view.

Having regard to all of the above, the EAO concludes that the process of consultation has been carried out in good faith, and that it was appropriate and reasonable in the circumstances. The EAO also concludes that the potential for effects on asserted Aboriginal rights has been mitigated or otherwise accommodated to an appropriate level such that they will not significantly impact the Lheidli-T'enneh First Nation from exercising their rights. In concluding this the EAO recognizes, that if the Project receives an EA Certificate, then additional detailed studies and programs are yet to be carried out and subsequent evaluations of risk of impacts will be undertaken, notably during the federal comprehensive study under CEAA and prior to any authorizations issued by Fisheries and Oceans Canada and the BC Oil and Gas Commission. The EAO believes the review process has reasonably balanced Aboriginal concerns of potential for impacts on asserted rights with other societal values.

1.12 Treaty 8 First Nations

1.12.1 Introduction

Scope of Document

This section addresses potential effects of the KSL Pipeline Looping Project on the rights granted under Treaty No. 8.

Information Sources

The Proponent worked with McLeod Lake Indian Band and the West Moberly First Nations to commission documents addressing their interests and treaty rights. The McLeod Lake Indian Band prepared a document entitled "Pacific Trail Pipeline Project Traditional Knowledge Study" that was submitted to the Proponent. The EAO received this study on a confidential basis from the Proponent as part of the Project Application. A similar study for the West Moberly First Nations was apparently completed but not approved for submission to the Proponent.

Appendix I to the Application, "*A Literature Review of First Nations in the Environs of the KSL Pipeline Looping Project*" by Dr. Dorothy Kennedy was also used as an information source specific to the Project area.

The West Moberly First Nations and McLeod Lake Indian Band have also provided EAO, the CEA Agency and the Responsible Authorities with additional information through correspondence and meetings during the EA process. The Halfway River First Nation also provided viewpoints during the Application Review period Working Group meetings.

1.12.2 Treaty 8 First Nations' Treaty Rights

Setting: Treaty 8 First Nations

Treaty No. 8 was negotiated by the federal Crown in 1899 with Cree, Beaver, Chipewyan and other Indians, in an area that encompassed northeastern British Columbia, northern Alberta, the northwest corner of Saskatchewan and part of the Northwest Territories. Seven of the original forty Treaty 8 First Nation communities are located in British Columbia (Fort Nelson First Nation; Prophet River First Nation; Doig River First Nation; Blueberry River First Nations; Halfway River First Nation; Saulteau First Nations; and West Moberly First Nations). The McLeod Lake Indian Band adhered to Treaty No. 8 in 2000 in accordance with the McLeod Lake Indian Band Treaty No. 8 Adhesion and Settlement Agreement.

Treaty No. 8 provides the signatories with the right to carry out their "usual vocations" of hunting, fishing and trapping within the treaty area, subject to the right of the Crown to "take up" lands for various purposes.

As noted in the order issued under section 11 of the *EA Act*, a portion of the proposed Project is within the area that is the subject of litigation amongst Treaty 8 First Nations, Canada and the Province (in which litigation the parties take differing positions as to the western boundary of Treaty No. 8). It is also within the "Claimed Traditional Territory" as that term is defined in the McLeod Lake Indian Band Adhesion and Settlement Agreement, however the McLeod Lake Indian Band recognizes that there may be overlapping interests with other First Nations in the Project area. Any further reference in this section to the Treaty 8 area is made in this context.
Traditional Occupation and Use of the Project Area

The proposed Project enters the Treaty 8 area at the third crossing of the Salmon River at approximately kilo post 449; the final 13 kilometres of the proposed pipeline, to the terminus at the connection to the Spectra Energy pipeline system, is within this area. This 13 kilometres portion of the right-of-way of the proposed Project is planned to abut and overlap the existing Pacific Northern Gas pipeline right-of-way.

The McLeod Lake Indian Band Traditional Knowledge Study identifies the primary traditional economic activities of the McLeod Lake Indian Band as hunting, fishing and plant gathering. A seasonal round of movements enabled best use of the areas resources and this set the locations of villages, food caches and the best hunting and fishing sites. A variety of animals were hunted and trapped, beginning in the spring and extending through the summer and fall into winter. Fish were caught in large numbers in late summer in general and plants were gathered from spring through to the early fall. The First Nations literature review (**Appendix I** to the Application) notes that the area around and north of Summit Lake contains a large number of old trails, most of which would be difficult to associate with one particular First Nation; this network of trails reflects the lifestyle described briefly above.

Some areas for these activities were identified on a map of the proposed Project and these are noted as issues and concerns below.

This brief description of traditional use of the area is generally consistent with the rights granted under Treaty No. 8 and therefore is expected to reflect the nature of traditional use of the area by other Treaty 8 members.

Current Occupation and Use of the Project Area for Traditional Purposes

The McLeod Lake Indian Band Traditional Knowledge Study notes that the traditional activities noted above remain the focus of life today in many ways. In addition, some members of West Moberly First Nations have resided near Summit Lake in more recent years and have hunted and fished in that general area.

The West Moberly First Nations together with Halfway River First Nation are presently engaged in negotiating a treaty land entitlement claim with Canada and BC and land selection will be discussed in the future as these negotiations progress. Those negotiations are occurring with knowledge of the existing Pacific Northern Gas pipeline right-of-way and the proposal for the PTP pipeline looping project to abut that right-of-way in the general Summit Lake area.

Issues and Concerns identified by Treaty 8 First Nations

The key issues and concerns identified by Treaty 8 First Nations about the proposed Project include:

- potential for impacts to wildlife, wildlife habitat, including migratory routes for animals and beaver populations near Summit Lake;
- potential for impacts to plants, including edible and medicinal plants;
- potential for impacts to hunting and berry gathering areas south and west of Summit Lake;
- potential for impacts to fish habitat and fishing, particularly at the Salmon River crossing and at Summit Lake;

- ensuring trails crossing the proposed pipeline route remain available for access;
- potential for increased noise impacts in the area;
- cumulative effects of the proposed Project on Treaty 8 rights;
- potential future conversion of the natural gas pipeline to transport liquids;
- inequitable distribution of impacts and benefits of the proposed Project;
- broad socio-economic implications of Project development;
- keeping communities informed about construction schedules, particularly if they might restrict hunting or other First Nation activities;
- capacity for involvement in the EA Process; and,
- conversion of a natural gas pipeline project to an oil pipeline in the future.

Treaty 8 Rights

The rights conveyed by Treaty No. 8 were described above as providing the signatories with the right to carry out their "usual vocations" of hunting, fishing and trapping within the treaty area, subject to the right of the Crown to "take up" lands for various purposes. With this in mind, the EAO believes there is some potential for adverse impacts on the rights conveyed by Treaty No. 8. Therefore the EAO made a decision at the outset of the EA process to use a consultative approach that is towards "deep consultation" (with respect to the *Haida* spectrum of consultation) with Treaty 8 First Nations in order to develop and implement measures to avoid or minimize impacts to their treaty rights to appropriate levels.

1.12.3 Consultation with Treaty 8 First Nations

Treaty 8 First Nations Involvement with the EAO

On March 7, 2006 the EAO sought a meeting with the McLeod Lake Indian Band and West Moberly First Nations to review the Project. A first meeting took place individually with each First Nation in June 2006 and topics discussed included the EA process, First Nation involvement and capacity for involvement, relationships with the Proponent and with the EAO, cumulative effects and West Moberly First Nations interests in land at Summit Lake. Subsequent meetings took place with McLeod Lake Indian Band and West Moberly First Nations individually in December 2007.

The Treaty 8 Tribal Association was included on the Project Working Group, at the request of West Moberly First Nations, as a service delivery organization that provides advisory services to the Association's member communities. Treaty 8 Tribal Association then received all correspondence sent to the Working Group.

Representatives from McLeod Lake Indian Band and West Moberly First Nations attended the first Working Group meeting on October 11, 2006, and attended other Working Group meetings through the review process as they were able. The EAO sponsored two evening meetings with First Nations associated with Working Group meetings in October 2006 and May 2007 to discuss EA process issues relating to First Nations; McLeod Lake Indian Band and West Moberly First Nations representatives attended the October meeting. Representatives of the West Moberly First Nations and the Halfway River First Nation attended the May meeting.

The McLeod Lake Indian Band and West Moberly First Nations were provided with draft copies of the section 11 order and the Terms of Reference for the Project. With the issuance of the February 28, 2007 section 11 order under the *EA Act*, the Proponent was formally directed to consult with the McLeod Lake Indian Band and West Moberly First Nations. The Proponent had already begun discussions with McLeod Lake Indian Band and West Moberly First Nations before this time.

The EAO offered capacity funding to the McLeod Lake Indian Band and West Moberly First Nations during the Pre-Application stage of review. Funds were also provided during the Application Review phase of the EA process, as part of a larger funding agreement with the EAO, to assist with costs associated with participation in the EA review, such as travelling to EAO sponsored meetings, document review and other project related work.

The Halfway River First Nation expressed an interest in participating in the KSL pipeline Project review process and was subsequently invited to participate on the Working Group. A section 13 order was issued on November 29, 2007 to direct the Proponent to make reasonable efforts to consult with the Halfway River First Nation. A letter from the EAO on November 30, 2007 directed the Proponent to seek to identify Halfway River First Nation's treaty rights which could be adversely affected by the proposed Project and measures to avoid, mitigate or otherwise accommodate those potential impacts. This direction recognized the Proponent would already have an understanding of potential adverse impacts on Treaty 8 rights through consultations with other Treaty 8 First Nations and focused consultations with Halfway River First Nation on any new information they might provide to further that understanding. It also directed the Proponent to provide the Halfway River First Nation with a complete copy of the Project Application. The EAO provided Halfway River First Nation with a greement with the EAO, to assist with costs associated with participation in the EA review.

A representative from Halfway River First Nation began attending Working Group meetings in May 2007 and participated as they were able in subsequent meetings. Halfway River First Nation received all correspondence sent to the Working Group following November 2007. EAO attempted to confirm with Halfway River First Nation the statements made in the Proponents report on attempts to consult with Halfway River First Nation, but did not receive a reply.

Treaty 8 First Nations Involvement with the Proponent

The Proponent initially contacted the McLeod Lake Indian Band and West Moberly First Nations in August 2005 and since that time has continued to consult with them. In a June 2007 letter, PTP updated the McLeod Lake Indian Band and West Moberly First Nations regarding the status of their application, summarized consultations completed to date and proposed a consultation process for the upcoming application review period. Meetings and correspondence continued to the end of the review period. Additional information can be found in the Proponents report on consultations. This report was provided to the McLeod Lake Indian Band, West Moberly First Nations and Halfway River First Nation on April 7, 2008 by the Proponent.

The Proponent's report on consultations notes that McLeod Lake Indian Band has no outstanding issues about the Application. The Proponent has not been able to obtain a clear statement from West Moberly First Nations on the potential for adverse impacts to their treaty rights. The Proponent provided Halfway River First Nation with a copy of the Application in December 2007 and sought additional information on how Halfway River First Nation treaty rights may be impacted by the project, in accordance with the section 13 order issued by the EAO, but was unable to obtain a response.

McLeod Lake Indian Band and West Moberly First Nations were provided with digital files of the route alignment in October 2006.

Measures being implemented to mitigate or otherwise accommodate potential for impacts to Treaty 8 First Nations' Treaty Rights

The rights conveyed by Treaty No. 8 are described above as providing the signatories with the right to carry out their "usual vocations" of hunting, fishing and trapping within the treaty area. The EAO sought input from participating Treaty 8 First Nations as to how their rights might be impacted by the proposed Project. Treaty 8 First Nations raised general concerns with respect to potential for effects of the Project on how Treaty 8 members exercise their treaty rights across their territory, including the proposed Project's contributions to cumulative effects and much broader socio-economic issues.

The primary risks of impacts to Treaty 8 members' ability to exercise their rights include:

- precluding or inhibiting Treaty 8 members access to lands and waterways where hunting, fishing or trapping activities occur;
- destroying or reducing productive capacity of areas of fish or animal habitat such that there are no longer sufficient areas to exercise the rights; and,
- creating increased access to the general public to key Treaty 8 hunting, fishing or trapping areas that results in increased and damaging pressures on animals and fish and their habitat.

The concerns expressed by Treaty 8 members during the review of the Project have been fully considered in the review process through Working Group discussions and through the consultations carried out by the Proponent and by provincial and federal agencies. The review process has led to measures and Proponent commitments being proposed to address the concerns raised by Treaty 8 and therefore the risk of impacts to their treaty rights (see below). In consideration of these, the EAO believes that:

 Treaty 8 First Nations access to certain lands may be restricted for a limited period during project construction, however the geographic extent of these lands within Treaty 8 is very small and it abuts an existing pipeline corridor that is already altered from its natural state. Additionally, the construction period for the 13 kilometres within Treaty 8 lands is very short. The EAO does not believe this will lead to a significant impact on Treaty 8 members ability to exercise their rights;

- while the proposed Project as described in the Application may have posed unacceptable risks to areas of fish, animal or plant habitat, the enhanced avoidance, mitigation and accommodation measures developed during the review process have reduced the risks of these impacts, both during construction and operations, to an appropriate level. This assessment also recognizes the subsequent authorizations that will be required of the Project should an EA Certificate be granted; and,
- measures in the original Application and developed through the review process to restrict public access have reduced the risk of negative impacts from such access to an appropriate level.

The EAO recognizes there are risks of impacts in carrying out this project. For example, the Treaty 8 First Nations have emphasized the risks associated with impacts to water quality, to fish, wildlife or vegetation habitats and to trails crossing the proposed pipeline corridor. While these risks exist, a considerable amount of effort has been spent on reviewing the measures proposed to mitigate and minimize those risks in the Application and to further reduce the risks by creating additional measures and commitments that must be adhered to by the Proponent. Many of these focus on additional planning before carrying out activities, revisions to methods used for crossing the Salmon River and safeguarding fish and water resources during construction and over the longer term. Measures to involve First Nations in planning and monitoring work have also been enhanced.

The above statements will be better understood by reviewing the following examples of key measures and commitments that respond to Treaty 8 First Nation concerns, as listed below; a more complete description can be found in the Working Group Issues Tracking Table (**Appendix D**) and the Compendium of Proponent Commitments (**Appendix E**).

- 1. Potential for impacts to wildlife, wildlife habitat, including migratory routes for animals and beaver populations near Summit Lake.
 - Potential for impacts to plants, including edible and medicinal plants.

- Potential for impacts to hunting and berry gathering areas south and west of Summit Lake.

Proponent Response: PTP commits to:

- undertake a "route walk" by a wildlife specialist (R.P. Bio) prior to clearing and construction
- undertake, post-certification, additional studies where warranted on areas of high value/high risk. These studies will incorporate traditional knowledge, where applicable;
- work expeditiously to maintain a tight construction spread to minimize potential barriers and hazards to wildlife;
- use native plant species to maintain biodiversity, reduce weed cover, and help create movement corridors;
- minimize width of clearing during operations and maintenance in areas with rare plant communities;
- undertake, post-certification, additional studies where warranted on areas of high value/high risk. These studies will incorporate traditional knowledge, where applicable;
- institute ways to facilitate ongoing and timely communication between First Nation members and PTP on cultural and environmental issues during

construction. PTP will continue discussions with First Nations regarding this issue;

- ensure its activities will have no effect on people's ability to collect food following construction of the KSL Project;
- flagging off plant and material-gathering sites identified by First Nations off the Project Footprint prior to construction; and,
- ensure that First Nations may identify plants for revegetation along the disturbed areas of the Project route as part of a Restoration Plan.
- 2. Potential for impacts to fish habitat and fishing, particularly at the Salmon River crossing and at Summit Lake.

Proponent Response: PTP commits to:

- utilize horizontal directional drilling as the primary crossing method for the three Salmon River crossings if this method is proven feasible;
- incorporate erosion control measures in the "Surface Water Quality and Sediment Control Plan" for use during construction, as well as into the "Post Construction Monitoring Plan" for use during operations and decommissioning;
- undertake downstream inspection and sampling to determine if construction has resulted in any long-term embeddedness of sand on those rivers where this may be an issue and to undertake corrective measures, where required. The details of this will be developed during detailed design;
- implement environmental monitoring of horizontal directional drilling and other construction activities as outlined in an Environmental Protection Plan; and,
- monitoring the right-of-way, including watercourse crossings, during and following construction to assess the effectiveness of sediment control measures and to make repairs as required.

3. Ensuring trails crossing the proposed pipeline route remain available for access.

Proponent Response: PTP commits to:

- restore disturbed sites and trails to as near to their pre-construction condition as practical; and,
- ensure physical impacts to trails traditionally used by First Nations will be restored so that the trails crossing the pipeline right-of-way will be fully functional following the restoration phase of the Project.

4. Potential for increased noise impacts in the area.

Proponent Response: PTP commits to:

- adhere to local noise by-laws, where in existence;

- maintain equipment, and minimize unnecessary noise through the use of standard noise reduction technologies (e.g. mufflers);
- design the Compressor Station to minimize noise escapes through roof vents and other ventilation openings; and,
- monitor noise emissions to ensure they meet stated objectives at the Compressor Station.

5. Cumulative effects of the proposed Project on Treaty 8 rights.

Proponent Response: the EA review has considered cumulative effects by ensuring the baseline information collected, the Project application and the preconstruction plans to be submitted all accurately reflect existing conditions (environmental, economic, social; health and heritage); these conditions reflect the effects of existing development. The assessment of this project ensures the contribution of any residual impacts from this project to future cumulative effects are minimized. As an example, the width of the new corridor for the KSL project will be minimized on Treaty 8 lands as it will overlap with an existing natural gas pipeline right-of-way held by Pacific Northern Gas Ltd. (one of the partners in PTP).

6. Potential future conversion of the natural gas pipeline to transport liquids.

Proponent Response: the Application is solely for transmission of natural gas and an EA Certificate, if issued, will only permit transmission of natural gas. A variance to the commodity being transmitted will require a Certificate amendment which may or may not be granted and which will require further review and consultation.

7. - Inequitable distribution of impacts and benefits of the proposed Project. - Broad socio-economic implications of Project development.

Proponent Response: the EA review has sought to minimize impacts of the Project within Treaty 8 lands. During discussions on these issues in the review process the EAO sought to focus the concerns on potential for impacts to Treaty 8 rights so that they could be better assessed and addressed as needed. Both the Proponent and the Province have been engaged in discussions with all First Nations regarding economic benefits related to the project.

8. Keeping communities informed about construction schedules, particularly if they might restrict hunting or other First Nation activities.

Proponent Response: PTP commits to:

- institute ways to facilitate ongoing and timely communication between First Nation members and PTP on cultural and environmental issues during construction. PTP will continue discussions with First Nations regarding this issue;
- notify First Nation trappers prior to initiating clearing or construction activities to provide updates on project scheduling, to resolve outstanding concerns, and to allow operators to remove traps and other equipment from the pipeline route;
- use signage to inform users of the presence of construction activity in popular harvesting areas and on access roads to harvesting areas; and,
- ensure that the scheduling of clearing and construction activities will be discussed with First Nations in order to avoid potential impacts to ritual activities.

9. Capacity for involvement in the EA Process.

Proponent Response: both the proponent and the Province provided capacity funding for the West Moberly First Nations and McLeod Lake Indian Band to participate in the review process.

10. Conversion of a natural gas pipeline project to an oil pipeline in the future.

Proponent Response: the Application is solely for transmission of natural gas and an EA Certificate, if issued, will only permit transmission of natural gas. A variance to the commodity being transmitted will require a Certificate amendment which may or may not be granted and which will require further review and consultation.

1.12.4 Conclusions

In the review of the proposed Project, the EAO has considered Treaty 8 rights within and adjacent to the proposed Project corridor. The EAO has also considered the potential for impacts to those rights from the proposed Project, based on it being implemented as designed and in accordance with all avoidance and mitigation measures and commitments made by the Proponent. The EAO and the Proponent have been engaged in consultations with Treaty 8 Nations from early stages of the EA of the proposed Project to jointly discuss the potential for impacts and to develop measures to mitigate or otherwise accommodate Treaty 8 rights. The West Moberly First Nations, McLeod Lake Indian Band and Halfway River First Nation have had an opportunity to review and comment on this consultation report and to specify the nature and scope of their rights from their point of view.

Having regard to all of the above, the EAO concludes that the process of consultation has been carried out in good faith, and that it was appropriate and reasonable in the circumstances. The EAO also concludes that the potential for effects on Treaty rights has been mitigated or otherwise accommodated to an appropriate level such that they will not significantly impact the Treaty 8 First Nations from exercising their rights. In concluding this the EAO recognizes, that if the Project receives an EA Certificate, then additional detailed studies and programs are yet to be carried out and subsequent evaluations of risk of impacts will be undertaken, notably during the federal comprehensive study under CEAA and prior to any authorizations issued by Fisheries and Oceans Canada and the BC Oil and Gas Commission. The EAO believes the review process has reasonably balanced Treaty 8 First Nations' concerns of potential for impacts on Treaty 8 rights with other societal values.

PART F Review Conclusions

1. GENERAL

The conclusions from the review of the Project pursuant to the BCEAA is based on the following documents and review process:

- the Proponent's Application for an EA Certificate;
- all review material and documents submitted by the Proponent and listed in Appendix A;
- the Compendium of Proponent Commitments, as updated and consolidated in Appendix E;
- the review process defined in the section 11 and section 13 order; and,
- the assessment collectively carried out by the Working Group of federal, provincial and local government agencies and First Nations, with input from the public (as outlined in Appendices C and D).

In the following sections, this Project review material and process are collectively referred to as "Final Documentation."

1.1 Environmental Management Plan

In the Application the Proponent proposed a number of mitigation measures that will address potential environmental impacts that could occur as a result of the construction and operation of the Project. In addition, other mitigation measures have emerged during the review period, as a result of discussions between the Proponent, the public, First Nations and government agencies. These mitigation measures are summarized and presented in the Proponent's Compendium of Commitments (**Appendix E**).

As part of the mitigation measures summarized in **Appendix E**, the Proponent will develop an Environmental Management Plan prior to the start of construction that provides a more detailed description of how various environmental impacts will be avoided, managed and mitigated.

In addition to specific mitigation commitments, the Proponent will undertake monitoring activities to identify environmental impacts that may occur and ensure that the implementation of mitigation measures are having the intended results and adequately mitigating potential impacts. Other interested parties who indicated a desire to be involved in, or be notified about, the monitoring activities will be accommodated.

Collectively, the environmental mitigation, management and monitoring activities identified in the Final Documentation are considered adequate to ensure that potential environmental impacts associated with construction, operation and decommissioning of the Project are addressed and that no significant adverse effects will occur.

2. OVERALL CONCLUSIONS

2.1 EAO Conclusions

The general conclusion of the assessment is that no significant adverse effects will occur as a result of the Project, with the effective application of proposed commitments, monitoring requirements and mitigation measures (**Appendix E**), and the implementation of Impacts and Benefits and other agreements (including follow-up environmental management and monitoring program agreements) established by the Proponent with First Nations to address First Nation interests in relation to the Project.

The EAO is satisfied that:

- the Final Documentation adequately identifies and addresses the potential adverse environmental, land use, socio-economic, public safety and health, heritage, and First Nations effects;
- public and First Nations consultation, and the distribution of information, have been adequate;
- issues identified during the review process by the public, First Nations, federal, provincial and local government agencies were adequately addressed by the Proponent during the review of the Application; and,
- practical means have been identified to prevent or reduce to an acceptable level any potential adverse effects.

ATTACHMENTS

ATTACHMENT 1

PROJECT ALTERNATIVE ROUTES

The Proponent considered a number of potential pipeline routes. For the purpose of assessing potential routes and structuring its decision-making for selecting its preferred pipeline, the Proponent established the following criteria:

- build the KSL pipeline within or adjacent to the existing PNG right-of-way wherever practical;
- where appropriate, widen the existing right-of-way rather than utilize a new right-ofway;
- take advantage of previously cleared or disturbed areas;
- diverge from the existing right-of-way where it is necessary for reasons of geotechnical, environmental, land use, worker safety, excessive construction difficulty, community and pipeline security concerns;
- abut to the rights-of-way of others (e.g. Forest Service Roads, BC Hydro) wherever practical;
- where rights-of-way can be abutted, utilize the right-of-way of others where practical as working space during construction in order to minimize clearing and environmental and land use impacts; and,
- where practical, share working space with Pembina's proposed Condensate Pipeline Project10.

In the initial Project Description submitted by the Proponent to the EAO (November 2005), the proposed pipeline route for the Project was looped adjacent to the existing PNG transmission system throughout most of its length between Kitimat and Summit Lake.

The revised Project Description submitted to the EAO (February 2006) proposed a different pipeline alignment, the route that was subsequently submitted as the Proponent's preferred pipeline route in the EA Application, and which is the primary subject of this Report.

The EA Application also considered a number of potential alignment alternatives along two sections of the pipeline route: the Kitimat Valley, and the Coast Mountain Area.

The EA Application identified three potential alternate routes through the Kitimat Valley, in addition to the selected route on the west side of Iron Mountain, referred to as the Iron Mountain West Route. The three other routes are:

- Far Eastern Route this route generally follows the existing PNG right-of-way in the vicinity of Highway 37;
- Eastern Route this route is essentially the same as the Far Eastern Route with the
 exception that, in order to avoid wetland areas and areas of construction difficulty, this
 route crosses the Kitimat River in the vicinity of Nalbeelah Creek Park and proceeds
 north on the western side of the Kitimat River; and,
- Western Route this route proceeds essentially due north from kilo post 0, generally following existing forestry roads.

¹⁰ The Pembina Condensate Pipeline Project was being reviewed in the EA Process during early stages of the KSL Project review; the review of the Pembina Project is currently on hold at the request of the Proponent.

The Proponent selected the Iron Mountain West Route as the preferred pipeline alignment for the following reasons:

- avoids confined existing right-of-way adjacent to Highway 37 on the Far Eastern Route;
- avoids unstable soils on the Far Eastern Route north of Humphrey Creek;
- avoids three crossings of the Kitimat River on the Eastern Route and two crossings of the Kitimat River on the Far Eastern Route; the Kitimat River is not crossed on the route chosen; and,
- avoids locations of potentially unstable marine clay soils and high water table areas on Far Eastern, Eastern and Western Route.

The EA Application also identified two alternate routes through the Coast Mountain area, in addition to the selected route through Mount Nimbus Pass. The two alternate routes are:

- Hirsch Creek route begins northeast of Kitimat and enters the Hirsch Creek drainage traversing the North Hirsch Creek Road in an easterly direction across the Coast mountains before descending into the Clore River Valley where it would connect with the selected Mount Nimbus Route; and,
- Highway 16 route follows Highway16 from the point where the existing PNG pipeline trends west up the Telkwa River valley just south of Smithers. This route would follow the existing PNG pipelines west from Endako, where the proposed routing for the KSL pipeline diverges from the existing PNG right-of-way.

The Hirsch Creek route was rejected because it would require bedrock grading that poses a high risk of siltation into Hirsch Creek and the Clore River, and because both the Clore and Gosnell River valleys are narrow, with meandering streams and extensive wetlands, which pose significant construction difficulties.

The Highway 16 route was rejected because at specific locations along the Bulkley and Skeena Rivers, there is potentially no room for the safe installation of a 36 inch natural gas pipeline, because disruption to traffic along Highway 16 during pipeline construction would be significant, and because this route would significantly increase overall pipeline length and make the KSL Project economically unviable.

On January 9, 2008 the Proponent provided the EAO with a document which had been requested by the Working Group comparing a number of general route alternatives through the Coast Mountains which had been considered by the Proponent. In addition to the selected route through Mount Nimbus Pass, four routes were discussed:

- Telkwa Pass route essentially follows the existing PNG pipeline through Telkwa Pass, except that it would follow Trapline Creek and Williams Creek rather than the Zymoetz (Copper) River to access the Kitimat Valley;
- Icy Pass route same as the Hirsch Creek route discussed above;
- Highway 16 route discussed above; and,
- Kemano route would follow either the existing Kemano road or power line to Kemano, and from there trend east/northeast, north of Tahtsa and Francois Lakes to join the Mount Nimbus route east of Parrott Creek.

The Telkwa Pass route was rejected because slope instability posses a risk to pipeline integrity and worker safety during construction. The Icy Pass route was rejected for essentially the same reasons as the Hirsch Creek route was rejected, discussed above. The Highway 16 route and the Kemano route were both rejected because of high construction costs and geotechnical/terrain instabilities.

On January 28, 2008 the Proponent provided the EAO with a document, requested by the Fisheries Sub Committee (West) of the Working Group assessing the feasibility of two additional route alternatives: the Kleanza-McDonnell route through the Coast Mountains; and the Thautil-Tommy Creek alignment variation of the Mount Nimbus route.

- the Kleanza-McDonnell route follows the Kitimat valley, Highway 37 and Highway 16 to Kleanza Creek, follows that creek and existing logging roads to the Upper Zymoetz (Copper) River and Red Canyon Creek where it joins the McDonnell forest service road, then trends east and south past Dennis and Aldrich Lakes adjacent to the Hudson bay Mountain Road, through the Smithers Community Forest, across the Telkwa River and Bulkley River, and connects to the existing PNG right-of-way approximately 10 kilometres northwest of Houston and,
- the Thautil-Tommy Creek alignment variation to the Mount Nimbus route same as the Mount Nimbus route, except diverges to climb out of the Gosnell valley south of Holland Lakes, trending east and north across the Thautil River and Thautil forest service roads to the Houston Tommy Creek drainage, following the Canyon and Chisholm forest service roads across the Morice River south of the Morice River Ecological Reserve, then adjacent to the Carrier and Parrot forest service roads to rejoin the Mount Nimbus route.

The Kleanza-McDonnell route was rejected for a number of reasons, including geotechnical/terrain instabilities, potential impacts to high valued fisheries and wildlife habitat, and high construction costs.

The Thautil-Tommy Creek alignment variation to the Mount Nimbus route has favourable bedrock and soil conditions, would not require significant new or upgraded access roads, and would involve minimal additional costs for the Proponent. This realignment would make unnecessary crossings of two high value Gosnell Creek side channels (at kilo post 109.3 and kilo post 109.8) as well as the main channel of Gosnell Creek, at kilo post 110). The Proponent has indicated that they are prepared to seek an amendment to an EA Certificate for the Thautil-Tommy Creek realignment should the necessary studies demonstrate that it is viable, and if it would alleviate some of the concerns expressed by the Office of the Wet'suwet'en about potential Project impacts on fisheries values in the Morice Valley and Gosnell Creek area.

APPENDICES

Appendix A

Proponent Documents and Key Correspondence (Documents are located on the EAO website)

Application for EA Certificate					
May 18, 2007	Approved Terms of Reference for Application for an EA Certificate for the Kitimat to Summit Lake Pipeline Looping Project				
October 11, 2007	Application and Supporting Baseline Studies and Appendices for an EA Certificate for the Kitimat to Summit Lake Pipeline Looping Project				
January 24, 2008	Application for an Amendment to the Environmental Assessment Certificate Application				
Project Alternatives	3				
January 9, 2008	Comparison of General Route Alternatives				
January 28, 2008	Discussion of route alternatives suggested by the Fisheries Subgroup during the January 15, 2008 meeting in Terrace				
Post-Certification E	nvironmental Management Plans				
March 26, 2008	Draft Environmental Protection Plan				
March 18, 2006	Draft Access Management Plan				
March 25, 2008	Draft Conceptual Fisheries Habitat Compensation Plan				
Consultation Report	rts				
January 8, 2008	Public Consultation and Communication Summary				
March 4, 2008	Summary of Issues Raised During October 17 to November 30, 2007 Public Comment Period and Proponent's Response				
April 7, 2008	Report on the Results of the First Nation Consultation Program				
Meeting Summaries	3				
October 24, 2007	Working Group Meeting Summary				
December 13, 2008	Working Group meeting Summary				
January 15, 2008	Fisheries Sub Committee (West) Meeting Summary				
January 30, 2008	Working Group Meeting Summary				
March 12, 2008	Working Group meeting Summary				

Other Documents and Correspondence					
March 28, 2008	Letter from Greg Weeres to EAO requesting maximum 24-day extension to Application Review period				
April 18, 2008	Letter from Greg Weeres to EAO requesting a further 10 day suspension to the Application Review period.				

Appendix B

Working Group Members List

Environmental Assessment Office

- Graeme McLaren
- Dave Eirikson

Federal Agencies

- Margaret Bakelaar Canadian Environmental Assessment Agency
- Pat Lim and Peter Delaney; Tom Pendray, Mitch Drewes, Len Seefried Fisheries and Oceans Canada
- Harp Gill, Derek Nishimura and Colin Parkinson Transport Canada;
- Phil Wong Environment Canada
- Jessica Coulson Natural Resources Canada
- Carl Alleyne Health Canada
- Heather Davis Department of Indian and Northern Affairs

Provincial Agencies

- Troy Larden, Mike Peterson, Bill Arthur, Ray Pillipow, Elizabeth Miller, Craig Stewart and Sean Sharpe Ministry of Environment
- Jim Pike and Gary Westfall Ministry of Tourism, Sport and the Arts
- Eamon O'Donoghue, Ian Smythe, Roxy Edey and Brendon Miller Integrated Land Management Bureau
- Max Nock Ministry of Energy, Mines and Petroleum Resources
- George Halliday Ministry of Forests and Range
- Dannie Carson Ministry of Community Services
- Janel Quirling Ministry of Economic Development
- Leah Sheffield Ministry of Agriculture and Lands
- Simone Rivers Agricultural land Commission
- Katie Scott Ministry of Aboriginal Relations and Reconciliation
- Iqbal Kalsi Northern Health Authority
- Bob Purdon, Delia Christianson, John Dame, Gerry Fox, Paul Jeakins, Tom Ouellette, Roger St. Jean, Chris Wagner and Andrew Spence – Oil and Gas Commission

Local Governments

- Ted Pellegrino Regional District of Kitimat-Stikine
- Crissy Isabelle and Jason Llewellyn Regional Disrict of Bulkey-Nechako
- Gord Simmons Regional District of Fraser Fort George
- Diane Hewlett District of Kitimat
- Bill Blacklock District of Houston
- Brenda Donas Village of Telkwa
- Gerald Ewald Village of Granisle
- Len Fox District of Vanderhoof
- Rob MacDougall District of Fort St. James
- Jim McBride Village of Burns Lake
- Deborah Sargent Town of Smithers
- Shawn Wells District of Houston

First Nations

- Diane Barbetti and Michael Gordon Haisla Nation
- Wilfred Mckenzie, Fred Mckenzie and Chris Knight Kitselas First Nation
- James Bryant Lax Kw'alaams Indian Band
- Barbara Petzelt and Erminio Pucci Metlakatla Indian Band
- David de Wit, Walter Joseph, Stephan Schug Office of the Wet'suwet'en
- Brian Toth and Mark Stevenson Lheidli T'enneh Indian Band
- Chief Ray Morris Nee Tahi Buhn First Nation
- Verne Solonas McLeod lake Indian Band
- Bruce Muir West Moberly First Nations
- Tina Gillanders Halfway River First Nation

Appendix C

Public Issues Tracking Table

This table documents key issues raised by members of the public during the 45-day public comment period on the EA Application between October 17 and November 30, 2007, both at open houses and in written submissions to the Proponent and/or EAO, and the Proponent's response to those issues.

A complete list of issues raised by members of the public during the 45-day public comment period on the EA, and the Proponent's response to those issues, is available on the EAO website at:

	Key Issue	Sub-Issue	Proponent Response	Action / Commitment
1.	Lack of consultation with Angling Guides in the Zymoetz wateshed	 Concern about lack of consultation with Angling Guides who are licensed to guide in the Zymoetz watershed which includes the Clore river. The Zymoetz is rated as one of the top six summer run steelhead angling rivers in British Columbia. Anglers from all over the world fish its waters. 	It is conceivable that not all licensed angling guides were contacted during the preparation of the EAC Application. PTP appreciates being made aware of the values associated with this activity in the Zymoetz watershed (specifically the pipeline crossing of the Clore River). While the current proposal is to construct an aerial pipeline crossing of the Clore River, which should have little effect on angling activity, PTP will contact the Angling Guides to discuss these plans.	New Commitment PTP will contact Angling Guides using the Zymoetz watershed to discuss the KSL Project and to solicit their views and concerns.
2.	Impacts on grizzly bears near the Kitimat River	 Impact on grizzly bears in the Kitimat River. Bear management is a high priority for Kalum LRMP. 	PTP understands this concern and recognizes the sensitive nature and values associated with grizzly bear habitat in this area of the Project.	New Commitment PTP has realigned the route of the pipeline in the Hunter Creek area to substantially reduce impacts to grizzly bear habitat and is committed to other protection measures during construction in order to avoid impacts to grizzly bears and their habitat.
3.	Access control for livestock near Ormond Creek	 Concern about increased movement of livestock in the area of the 	PTP will contact the writer and others in the community to discuss the location and timing for the construction of a cattle	New Commitment PTP commits to discuss the construction of livestock management

	Key Issue	Sub-Issue	Proponent Response	Action / Commitment
		Sutherland Service Road westerly to Ormond Creek.	control barrier, or other livestock management measures.	measures at this location and will work with the community in regard to an appropriate design, location, and timing of implementation.
4.	Access control for recreational users in the Bald Hill Road area	 Concern for increased access to the area west of Bald Hill Road to snowmobile and ATV users. 	PTP has considered access control of Bald Hill Road as well as other locations along the pipeline route. Should it be the desire of local residents, PTP will construct access control measures at this location. These measures will be outlined in the Access Management Plan.	New Commitment PTP will discuss access control measures with the writer as well as other local residents. Access control measures will be outlined in the Access Management Plan.

Appendix D

Working Group Issues Tracking Table

This table documents issues raised by members of the Working Group during the Application Review phase of the environmental assessment of the Project, and the Proponent's response to those issues.

No.	Raised By	Date	Issue Raised	Proponent Response	Proposed Action / Commitment	Reviewer Response to Proposed Action
Geop	hysical Environmen	nt				
1	Fred McKenzie, Kitselas First Nation	24-Oct-07	The entry into the Kitimat drainage from Mount Nimbus and the Clore River crossings may raise slope stability concerns.	PTP has addressed these issues raised by the Kitselas reports.	PTP has addressed these issues with the Kitselas. New Commitment PTP commits to undertake additional geotechnical and slope stability analyses (including the area of Mount Nimbus and the Clore River) for the KSL Project and to share this information with the KFN.	Satisfied
2	David de Wit and OW consultants	24-Oct-07	The OW has concerns about slope stability.	PTP acknowledges this concern.	PTP will continue to work with OW to discuss areas of concern.	Not satisfied.
3	David de Wit and OW consultants	24-Oct-07	The OW for slope stability will check sites.	PTP seeks to work with the OW to address how any sites of OW concern will be addressed.	PTP will continue to discuss these concerns with the OW.	Not satisfied.
4	Environmental Stewardship Division Omineca Region	30-Nov-07	Table 9.3.2 should also include sediment control monitoring where erosion control measures are being applied.	The reviewer is referred to Section 9.5 of the EA Application. The Post Construction Monitoring Plan, once fully developed, will address these and other concerns.	New Commitment PTP to provide draft Post- Construction Monitoring Plan to ESD Omineca for their review and comment.	Satisfied provided that the draft plan is made available for comment to all interested government and regulatory bodies.

5	Environmental Stewardship Division Omineca Region	30-Nov-07	9.5 Erosion control Where erosion control measures are in place it should be stated that monitoring of sites would continue for two years, or until such time as the site is assessed to be fully recovered.	The reviewer is referred to Section 9.5 of the EA Application. The Post Construction Monitoring Plan, once fully developed, will address these and other concerns.	New Commitment PTP to provide draft Post- Construction Monitoring Plan to ESD Omineca for their review and comment.	Satisfied provided that the draft plan is made available for comment to all interested government and regulatory bodies.
6	Environmental Stewardship Division Omineca Region	30-Nov-07	To provide consistency through the report, to all areas that speak to erosion control, add maintain, e.g. "Implement and maintain adequate erosion control on upslope areas" It is requested that all sediment laden water to be pumped be discharged onto stable vegetation located a minimum of 5 metres from any flowing watercourse or wetland. The discharge points should be monitored to ensure that mass wasting does not occur as a result of water loading on the local soils.	PTP has taken it for granted that in order to implement adequate erosion control, it is necessary to also maintain the adequate control measures. This procedure requires monitoring of the effectiveness of the control measures that have been implemented and PTP fully commits to this undertaking. The discharge of sediment-laden water will only be to stable, well- vegetated areas, a minimum of 5 m from a flowing water course, a wetland or a lake, and this activity will be monitored to ensure erosion or mass wasting does not occur.	PTP does not intend to re- write the EA Report to insert the word "maintain" in all of these circumstances. New Commitment PTP commits that all EMPs as well as the EPP will include the terminology "and maintain" when referring to erosion control measures. New Commitment Water discharge from pumping will ensure that all sediment laden water to be pumped will be discharged onto stable vegetation located a minimum of 5 metres from any flowing watercourse or wetland. The discharge points will be monitored to ensure that mass wasting does not occur as a result of water loading on the local soils. New Commitment PTP to provide draft Post-	Satisfied provided that the draft plan is made available for comment to all interested government and regulatory bodies.

					Construction Monitoring Plan to ESD Omineca for their review and comment.	
7	David de Wit, OW	30-Nov-07	Local hydrologists and geomorphologists confirm that a new corridor will raise the risks of terrain stability. The proposed geological drilling program is insufficient to safeguard against failures.	PTP acknowledges that further technical investigations will be required to support detailed design. The current drilling program is in support of the HDD assessment and not for the purposes of slope stability assessment.	Revised Commitment (Section 7.2.1) PTP commits to undertake additional terrain stability investigations and geotechnical work as part of the project design following certification.	This should happen before certification, since major route change might be required.
8	Michael Gordon, Haisla Nation	3-Dec-07	We mentioned earlier that the application report used the rationale that the pipeline corridor would follow or be built adjacent to previously disturbed habitat in order to reduce the project footprint. While in some situations this premise might make sense, we cannot agree that this is the best approach in the upper Kitimat River valley. Routing through already degraded, steeply sloped habitat and following logging roads that have not been decommissioned or upgraded only raises the risk for environmental effects, particularly for fish habitat in the Kitimat River and its tributaries. An assessment of the terrain stability, road conditions, and erosion potential in the logged areas should be completed as part of the application requirements.	Terrain stability and erosion potential has been reviewed by PTP. Please see the responses to Issues # 10 and # 297. PTP acknowledges the request that this more detailed assessment of slope stability be undertaken prior to certification. PTP concludes that while the level of geotechnical and slope stability investigations already undertaken for the EAC Application is sufficient for certification purposes, it will identify those areas where further work will be done. PTP will be undertaking additional terrain stability investigations where warranted as part of the project design following certification.	PTP commits to identify potentially unstable areas and erosion sensitive areas that will be the subject of further geotechnical and terrain analysis prior to project certification. Revised Commitment (Section 7.2.1) PTP commits to undertake additional terrain stability investigations and geotechnical work as part of the project design following certification. Should areas of instability be identified, they will be subject to further geotechnical investigations which may lead to engineering design solutions or local route adjustments.	Satisfied provided the stability and erosion sensitive areas are identified before the EA Certificate is approved.
9	Michael Gordon, Haisla Nation	3-Dec-07	The erosion potential of soils has been evaluated in the eastern areas of the proposed pipeline corridor, particularly with arricultural reserve zones in mind	The soils (pedological) work done in the eastern portion of the Project recognizes the agricultural potential of the soils	PTP commits to identify potentially unstable areas and erosion sensitive areas	Satisfied provided the stability and

			(Volume II, Baseline Studies). Given the occurrence of steep slopes, large logged off areas and issues with respect to terrain stability; we would suggest that an assessment of erosion potential for sensitive areas in the Kitimat Valley would be helpful in understanding potential risks.	in that area. The Western area of the project is represented by soils with quite low to non- existent arability. Geotechnical and terrain field assessments have been undertaken for the purpose of determining and understanding erosion prone soils along the proposed ROW. The proposed ROW for the KSL Project has been sited to avoid unstable terrain. PTP acknowledges the request that this more detailed assessment of slope stability be undertaken prior to certification. PTP concludes that while the level of geotechnical and slope stability investigations already undertaken for the EAC Application is sufficient for certification purposes, it will identify those areas where further work will be done. PTP will be undertaking additional terrain stability investigations where warranted as part of the project design following certification.	further geotechnical and terrain analysis prior to project certification. Revised Commitment (Section 7.2.1) PTP commits to undertake additional terrain stability investigations as part of the project design following certification. Should areas of instability be identified, they will be subject to further geotechnical investigations which may lead to engineering design solutions or local route adjustments.	areas are identified before the EA Certificate is approved.
10	Michael Gordon, Haisla Nation	3-Dec-07	We would also recommend that a site stability field assessment and a geotechnical risk assessment should be done on the proposed new route, with particular focus on the upper Kitimat River valley and any other areas with comparable characteristics. This work should be	For the proposed route, a geotechnical review of air photos, geological maps, reports and technical papers was conducted, followed by field review of identified locations of interest PTP engineers believe	PTP commits to identify potentially unstable areas and erosion sensitive areas that will be the subject of further geotechnical and terrain analysis prior to project certification.	Satisfied provided the stability and erosion sensitive areas are identified before the EA

			completed as a requirement of the application rather than left to be included in the subsequent permitting and authorizations. The reason for this is that there are fundamental questions about the technical feasibility, as well as the scope of potential environmental effects, that are not clarified for the proposed pipeline route in the application.	that sufficient investigations have been completed to determine that the pipeline installation along the proposed route is technically feasible using proven construction techniques. Post EA Certification, during detailed design, further geotechnical examination will be undertaken where warranted. PTP acknowledges the request that this more detailed assessment of slope stability be undertaken prior to certification. PTP concludes that while the level of geotechnical and slope stability investigations already undertaken for the EAC Application is sufficient for certification purposes, it will identify those areas where further work will be done. PTP will be undertaking additional terrain stability investigations where warranted as part of the project design following certification.	Revised Commitment (Section 7.2.1) PTP commits to undertake additional terrain stability investigations as part of the project design following certification. Should areas of instability be identified, they will be subject to further geotechnical investigations which may lead to engineering design solutions or local route adjustments. PTP will provide an outline on how PTP will ensure commitments / mitigation / follow up are carried out. Revised Commitment (Section 9.2) PTP is committed to provide a draft Environmental Protection Plan that would incorporate roles and responsibilities of an environmental inspection prior to Provincial EA certification. Existing Commitment (Section 9.2) Proponent will ensure there are qualified environmental monitors during construction.	certificate is approved.
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11	Michael Gordon, Haisla Nation	3-Dec-07	Given the difficulties and risks mentioned in the report (the AMEC Geotechnical Overview), how was this route selected to begin with?	The original pipeline was installed over 40 years ago to initially serve an industrial load at Prince Rupert. PTP does not have any information related to the original routing decisions.	PTP has no further comment.	Satisfied
12	Michael Gordon, Haisla Nation	3-Dec-07	What level of geotechnical risk assessment was done prior to creating the existing route?	Please refer to the response to Issue #11 above.	PTP has no further comment.	Satisfied
13	Kitselas First Nation	4-Dec-07	The development will require clearing of a right-of-way (ROW) which, including workspace for equipment and soil handling, will average 35 m in width (wider on steeper hillslopes). For much of the route, this will require substantial clearing of mature and immature timber. On certain steep slopes, the loss of timber cover would have similar effects as timber harvesting, namely acceleration of natural landslide rates.	PTP acknowledges that after timber harvesting, certain steep slopes will be more prone to erosion and potentially slide events. PTP will be undertaking additional terrain stability investigations where warranted as part of the project design following certification in order to identify areas possibly prone to slide activity.	PTP commits that surface run-off across disturbed areas will be controlled to manage erosion and avoid sedimentation. Any slide activity will be monitored, and where a concern exists a technical review will determine remedial actions that will be implemented. New Commitment PTP commits to undertake additional geotechnical and slope stability analyses (including the area of Mount Nimbus and the Clore River) for the KSL Project and to share this information with the KFN.	Satisfied
14	Kitselas First Nation	4-Dec-07	Of greater concern is the effect of access roads needed to install the pipe. Roads must be constructed to provide access for the sidebooms. Additional road area is required for passing lanes, as well as for soil handling and storage. On steep sidehills, this will require excavation of cutslopes and fill slopes. The overall road prism will be large then for most logging	PTP acknowledges these concerns, and agrees that the route largely avoids long stretches of steep side-hill and thereby minimizes the overall hazard. PTP appreciates the identification of a number of	Revised Commitment (Section 7.2.1) PTP commits to undertake additional terrain stability investigations where warranted as part of the project design and this work will also be applied to the new and upgraded access	Satisfied

			roads, and therefore will have larger cuts and fills. This level of excavation and soil handling could have a destabilizing effect greater than that associated with forest roads.	mitigation measures which can be appropriate in specific circumstances. Post EA Certification, during detailed design, further geotechnical examination will be undertaken where warranted, along with appropriate mitigation planning	roads that are required for the project.	
15	Kitselas First Nation	4-Dec-07	In addition to unstable cuts and fills, the impact of drainage water concentration constitutes a potential hazard. Both the access roads and the trench could intercept surface and/or subsurface water; this water could then become diverted along these features. If these are concentrated onto sensitive terrain a landslide could be triggered. This process is responsible for a majority of the logging road-related landslides on the coast of British Columbia. Mitigation of this hazard lies with proper water drainage management, including the prudent use of culverts for stream crossings as well as for ditch relief in access roads. For the trench, drainage blocks must be installed to avoid the accumulation of diverted subsurface flow, and this should be discharged in a suitable location to the surface. On steeply graded sections, such barriers will need to be relatively closely spaced. (Specific sites recommended for attention are provided in Table 1 of the KFN analysis: pages 23 - 27.)	PTP acknowledges that careful surface and sub-surface water management in the construction zone will be an important component of the construction effort.	Revised Commitment (Section 7.2.1) PTP commits to undertake additional terrain stability investigations where warranted as part of the project design and this work will greatly assist in determining where surface and subsurface flows may pose a risk to landslide activity and to the appropriate mitigation measures.	Satisfied

16	Kitselas First Nation	4-Dec-07	 Before the project gets going, additional terrain-related assessment work is required. A detailed, on-the-ground assessment of all creeks with substantial flood flows (e.g.: >6m/sec) and certainly all creeks suspected of having any history of debris flows or debris floods. The potential for erosion and sediment production should also be addressed; A detailed on-site review of all sections with hillslopes greater than 50% or greater than 30% where important resources are located less than 100 m downslope. (Specific sites recommended for this attention are provided in table 2 of the KFN analysis: page 32.) 	Post EA Certification, during detailed design, further terrain stability investigations and geotechnical examination will be undertaken where warranted.	Revised Commitment (Section 7.2.1) PTP commits to undertake additional terrain stability investigations where warranted, as part of the project design and these studies will focus on the landscapes mentioned. The B.C. Terrain Classification System will be followed for these studies.	Satisfied
17	Harp Gill, Transport Canada	6-Dec-07	The Railway Safety Group expects Pacific Trail Pipelines Limited Partnership (PTP), the proponents of the project, to work closely with CN Railway in identifying the areas of slope instability and other natural hazards and take appropriate mitigating measures to manage the risk. A Notice of Railway Work will be required for each of the crossings as per Section 3(c), 3(d) and 3(e) of " Notice of Railway Works Regulation " in compliance with Section 8(1) of the Railway Safety Act. A clarification of the requirement may be found in the Canada Gazette titled, "Regulations Amending the Notice of Railway Work Regulations", which may be found on the following website. http://canadagazette.gc.ca/partl/2004/2004 1120/html/regle9-e.html The underground crossing of the pipeline	PTP fully understands these requirements and will address them fully prior to construction.	PTP considers that this issue has been addressed.	Satisfied

			must comply with " Standards Respecting Pipeline Crossings Under Railways ". These standards were formulated pursuant to Section 19(4)(a) of the Railway Safety Act. The web link to the Standards is as follows: http://www.tc.gc.ca/railway/Rules/TC_E- 10.htm			
18	Stefan Schug, OW	13-Dec-07	There are some regional variations in slope stability in the area. PTP said that it is their intention to go through the length of the pipeline with the First Nations to discuss these issues.	PTP is aware of slope instability issues in the general area of the KSL Project but considers that the KSL Project routing minimizes exposure to unstable terrain. PTP has commenced and will continue to discuss the concern with the OW.	Revised Commitment (Section 7.2.1) PTP commits to undertake additional terrain stability investigations as part of the project design following certification. Should areas of instability be identified they will be subject to further geotechnical investigations.	All the detail of assessment should be available before a certificate is issued.
19	Stefan Schug OW	13-Dec-07	At KP 26 on the Morice Owen FSR, we have found land failures and sloughing. There is a lot of evidence that similar failures will occur at KP 35 on the Morice River FSR. The issue is that you do not know what the soils are really like and you cannot predict stability. Your geologists are taking calculated risks in our heartland and we need to walk the ground in order to gain a level of comfort.	PTP has undertaken geotechnical reviews and is satisfied that the proposed route minimizes exposure to unstable terrain. Further geotechnical examinations will be undertaken during detailed design and permitting where warranted.	Revised Commitment (Section 7.2.1) PTP commits to undertake additional terrain stability investigations where warranted as part of the project design and permitting where warranted following certification. Should areas of instability be identified they will be subject to further geotechnical investigations.	OW is satisfied on how our concern has been captured, not on the proposed action
20	Troy Larden, Ministry of Environment, Environmental Stewardship Division, Skeena Region	10-Jan-08	7.2.1 Geophysical Environment Under blasting, wildlife displacement and disturbance should also be listed as a residual effect.	Sensory disturbances to wildlife as a result of construction activities have been addressed in the Wildlife and Wildlife Habitat Section (p 7-88).	PTP has addressed this issue in the Application.	Satisfied

21	Michael Gordon, OW	19-Mar-08	The Wet'suwet'en made it clear that the original route proposed through their territories was not feasible. Additional alternative routes were recently suggested at the Working Group and reviewed by the proponent. The presentation and analysis provided for the Kleanza-McDonnell corridor option identified areas of both high risk and environmentally-sensitive habitat on an orthomosaic map format. This prompted the question of whether a similar analysis could be provided for the original proposed route as well as the Thautil- Tommy Creek route alternative.	PTP acknowledges this request.	PTP has provided a GIS- based analysis (as per the Kleanza-McDonnell package) of the proposed route as well as the Thautil- Tommy Creek route alternative.	
22	Michael Gordon, OW	19-Mar-08	The OW has repeatedly raised concerns about the risk of terrain stability throughout Wet'suwet'en territories and particularly in areas with steep slopes or where evidence of erosion due to logging practices and logging road degradation. The OW had pointed out that there was local knowledge of areas where terrain stability and the potential for slides is a concern. However, these areas were not identified in the current level of analysis for route selection. There are a wide range of potential impacts that could be due to erosion or slides as a result of pipeline construction, operation and maintenance. Previously cleared areas may be subject to greater instability due to degradation of habitat from previous clearing, substandard engineering and/or lack of maintenance.	PTP is aware of slope instability issues in the general area of the KSL Project but considers that the KSL Project minimizes exposure to unstable terrain. PTP has commenced and will continue to discuss this concern with the OW.	PTP commits to work with the OW to identify potentially unstable areas and erosion sensitive areas that will be the subject of further geotechnical and terrain analysis prior to project certification. Revised Commitment (Section 7.2.1) PTP commits to undertake additional terrain stability investigations as part of the project design following certification. Should areas of instability be identified, they will be subject to further geotechnical investigations.	It is questionable to how serious PTP has considered the local knowledge that has been provided, as the proposed alternate route is in the area of previous mass movement events.
23	Michael Gordon, OW	19-Mar-08	There has been a commitment to develop generic environmental management plans (EMPs) that do not necessarily address site-specific issues. However many	PTP acknowledges this concern. Environmental Management Plans are the rules and	New Commitment PTP will request review and input from the OW during the preparation of the EMPs.	ОК

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			locations, and particularly those more prone to instability, will require an integrated approach to implement various plans in a coordinated fashion. We have not seen any information or heard any discussion of how the various plans would be implemented and particularly how these plans would be implemented in a coordinated fashion when necessary. We would suggest that more detailed site- specific plans be developed as soon as possible using some real examples of how various plans would be coordinated and implemented. We also recommend that there should be commitments by the proponent and the permitting agency that permits should not be issued until detailed site-specific EMPs are agreed to by the OW.	procedures that PTP will require its contractors to follow in order to ensure proper measures are followed for the purpose of protecting environmental values.	The EMP's will be finalized prior to permitting. Revised Commitment (Section 7.2.1) PTP commits to undertake additional terrain stability investigations as part of the project design following certification. Should areas of instability be identified, they will be subject to further geotechnical investigations.	
Atmos	spheric Environmer	nt Historica (Complete A)				
	ues nave been lde	ntified for this v	EC.			
24	David de Wit	24-0ct-07	Water quality must be protected so	PTP has committed to a water	New Commitment	Impacts on water
	and OW consultants		monitoring before, during, and after construction is expected.	sampling program before, during, and after construction which will add to the water quality database.	PTP commits to engage OW in the development of a water sampling program.	quality are admitted in the EAC application and conflict with data collection of the Morice Water Management Area.
25	David de Wit and OW consultants	24-Oct-07	Very significant Morice River fisheries data such as historic fish population data are missing from the Application.	PTP fisheries consultant (Dr. Todd Hatfield) discussed this with the OW at the October 24th WG meeting. Todd will undertake to prepare a summary of this data.	PTP commits to further discussions with the OW in regard to this information and will provide the OW with the data summary.	We have yet to see the summary of salmon enumeration data.

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						The significance of the area regarding salmon production is not reflected in the application
26	Pat Lim, DFO	24-Oct-07	Pat Lim advised that monitoring requirements built into stream crossing authorizations may include independent third party auditors, as is currently done on other projects.	PTP understands that auditing of compensatory works related to HADD authorization may be necessary for the KSL Project. Accredited professionals will be employed by PTP to conduct monitoring and inspection functions.	New Commitment PTP will discuss and provide third party audits of Fisheries Act 35(2) authorizations as required / requested by DFO.	Satisfied. The independent third party audit is not just an audit of compensatory works, it can also be used to ensure that the conditions of the Fisheries Act 35(2) authorizations are met.
27	Fred McKenzie, Kitselas First Nation	22-Nov-07	Overall, baseline fisheries information and proposed mitigation satisfy KFN concerns with respect to fish habitat within KFN Traditional Territory, provided that the Proponent adheres to specific construction timing windows and mitigation strategies outlined in the Application and forthcoming EEP and/or EMP documents.	PTP appreciates this positive feed back and will ensure it adheres to its commitments for the KSL Project.	PTP has no further comments.	Satisfied
28	Fred McKenzie, Kitselas First Nation	22-Nov-07	The proposed Chist, Hunter Creek crossings (proposed as a horizontal directional drill) remains a concern to the KFN. Chist, Hunter Creeks is a known, high value spawning area, with a very limited reduced-risk work window due to the species composition within this system. The Chist, Hunter Creek crossings is also a well known, high value fishing site for grizzly bears. Due to the high fish and wildlife values at	PTP understands the high values associated with both Chist Creek and Hunter Creek. Currently, Chist Creek is proposed as an HDD crossing and Hunter Creek is proposed as an isolated crossing. On the basis of a previous request, PTP has modified the alignment for the pipeline in the	New Commitment PTP commits to an aerial crossing of the Chist River in the event that HDD proves infeasible during the initial investigations and an aerial crossing is acceptable to the local community. The location of an aerial crossing would likely be immediately upstream of the FSR bridge.	Satisfied

			this site, the KFN requests that the Proponent consider moving the Chist, Hunter Creek pipeline crossings upstream to the existing bridge location in order to concentrate linear infrastructure, and avoid disturbing the sensitive habitat downstream. An investigation of potential alternate (upstream) crossing location(s) and rationale for the final route selection, crossing method and detailed mitigation strategy is requested from the Proponent. As spawning timing can vary slightly from year to year and species to species, actual construction timing for this crossing should only be established in consultation with the KFN and Regulatory Agencies, and confirmed by a pre-construction site assessment to document the presence/absence of adult fish and/or redds.	vicinity of Hunter Creek for the purpose of avoiding grizzly bear habitat. PTP will discuss an alternative pipeline crossing of Chist Creek with the Kitselas. However, it is noted that the present location has been chosen to accommodate HDD geometry (HDD would not be feasible beside the bridge).		
29	Environmental Stewardship Division Omineca Region	30-Nov-07	Section 7.2.5.1 (a) Potential Effect: Combined effects on white sturgeon The potential effects on white sturgeon are implied to be restricted to operational activities associated with the use of heavy equipment and the introduction of deleterious substances in the river. There is not enough evidence to suggest sufficient evaluation of the proposed crossing location has been completed. It is recommended that the proponent collect additional information to ensure that the site selected is not used as a spawning site or for early juvenile rearing (the recovery program biologists may determine this to be a non issue at their discretion).	HDD is the preferred crossing method for the Stuart River, and geotechnical investigations are underway to assess the feasibility of this approach. This is the only waterway with white sturgeon that will be crossed by the pipeline. The Nechako population of white sturgeon has suffered from virtually complete recruitment failure. As a result there are essentially no juveniles in the Nechako or Stuart Rivers, although recently some juveniles have been released from hatchery programs. Spawning surveys have been completed over several years and only a	Revised Commitment (Section 7.2.3) PTP has committed to HDD as the primary crossing method for the Stuart River and will pursue proving up the viability of this method (one test hole has been drilled to-date with positive results for a successful HDD). This would include more detailed studies during the design phase of the project (e.g. additional vertical drilling) and potentially a relocation of the crossing if necessary.	Satisfied on the basis of the following discussion. Having reviewed the summary information for the KSL crossing of the Stuart River, I have concerns about potential disruption of essential white sturgeon (listed Schedule 1 under SARA) habitat in that reach (KSL

		single spawning location has been identified near Vanderhoof. The morphology of the Stuart River at and near the proposed crossing site is not typical of white sturgeon spawning habitat.	New Commitment PTP commits to an aerial crossing of the Stuart River in the event that HDD proves infeasible during the initial investigations and an aerial crossing is acceptable to the local community.	Atlas; Sheet 124), depending on the methods used to complete the works at that site. Adult, Nechako white sturgeon are known to use the site through investigations conducted for MOE and the Nechako White
				Sturgeon Recovery Initiative- Technical Working Group since 1996 (RL&L 1996; CSTC, 2003), ports (Norcan 2000). At this time there is limited sampling in the area up and downstream of the proposed crossing that indicates at least seasonal use of the site by white sturgeon. Historical
				anecdotal information suggests that the

Appendix D

			cito was also
			important for
			(Norcan 2000)
			(NUICAII 2000),
			cannot be
			confirmed or
			refuted due to
			ongoing
			recruitment
			failure for the
			Nechako
			population. Sites
			with the habitat
			characteristics
			favoured by white
			sturgeon (deep
			pools, sinuous
			channel) in the
			Stuart River are
			limited; based on
			limited sampling
			effort this site
			appears to be a
			holding location
			with elevated
			importance given
			that this type of
			habitat is rare in
			the Stuart River
			(CSTC 2003).
			Sampling at the
			site has been
			limited temporally
			(CSTC, 2003-
			Early Sept., RL&L
			1996-Summer)
			so it is difficult to
			establish a least
--	--	--	--------------------
			risk window for
			any works at the
			sita howovar
			ovidonco from
			ethor citor in the
			Nochoko Divor
			Suggest that
			suggest triat
			are occupied
			year and lish
			using such
			September are
			ollen lound over
			wintering at those
			sites. In addition
			to the publicly
			reported data,
			MOE has
			unpublished
			telemetry data
			that indicates
			substantial
			migration by
			white sturgeon
			during June/July
			and again in late
			summer (both
			upstream and
			downstream)
			through the
			Stuart River
			proper, therefore,
			at the very least,
			the proposed site
			should be

			considered a
			migration corridor
			during these time
			neriods in
			addition to a
			likoly over winter
			likely over willer
			hebitet hee vet te
			habitat has yet to
			be defined and
			designated for
			Nechako white
			sturgeon
			nowever, based
			on my knowledge
			of habitat use in
			the Nechako
			River, I would
			suggest that
			based this site
			could be
			considered
			essential habitat
			for Nechako
			white sturgeon
			for a substantial
			portion of the
			year and any
			works undertaken
			in the area
			should use extra
			precaution and
			diligence to
			ensure there is
			no harm to white
			sturgeon, or their
			habitat. Further
			to my previous
			response, my

			concorne lio
			directly with the
			use of any
			meinoas
			(including cut and
			cover) that either
			directly or have
			the potential to
			alter sturgeon
			habitat or
			sturgeon use of
			that area (either
			permanently or in
			the short term).
			In my opinion, the
			cut and cover
			option has
			significant
			potential to
			disrupt the
			channel structure
			in the immediate
			area and
			downstream of
			the crossing,
			including the
			characteristics
			that make it
			suitable for white
			sturgeon (ex.
			substrate
			composition,
			tlows, availability
			of food resources
			such clam beds
			etc.). Further,
			any long-term

			risks to
			ondongorod
			enuanyereu
			surgeon as the
			operation or
			maintenance of
			works at this site
			lead me conclude
			that alternatives
			including
			alternative
			crossings should
			be considered by
			the proponent.
			From perspective
			of potential risk to
			sturgeon and on
			the basic of
			current my
			knowledge of
			use, this is the
			least desirable
			location for a
			pipeline crossing
			on the Stuart
			River. I would
			suggest that if the
			proponent wishes
			to continue with
			plans to use this
			site, significant
			study of habitat
			use by sturgeon
			would be prudent
			to demonstrate
			that the proposed
			works and their
			ongoing

						operation do not compromise this site or impact sturgeon.
30	Environmental Stewardship Division Omineca Region	30-Nov-07	Section 7.2.5.1 – (d) Potential Effect: Combined effects on Dolly Varden, bull trout and coastal cutthroat trout. The effects on bull trout and Dolly Varden should be expanded to include road access into upper watersheds and spawning or staging areas. Roads have been demonstrated to be one of the greatest risks to the persistence of these species. Access and crossing locations should ensure that spawning and staging locations are known and considered as potential impacts. Morice river bull trout are of special consideration and discussions should be initiated with Skeena Ministry of Environment biologists. It is not sufficient to defer to the province to regulate when faced with increased access to the resource as a function of this project. In addition to the access and sediment issues, groundwater spawning site selection is noted as a requirement for bull trout and Dolly Varden. Spawning sites are often discrete, limited, and irreplaceable. Removal of or disruption of these sites should be dealt with by ensuring crossing sites have been properly evaluated for staging and spawning activities.	PTP acknowledges that access to sites that are presently inaccessible by road is a concern that needs to be addressed by the project. Of particular concern is new access that may increase angling pressure on bull trout, steelhead and salmon at staging and spawning areas. These effects have been considered in the assessment. The proposed route is adjacent to existing infrastructure to the extent feasible. There are thus few areas where one could legitimately say that road density increases as a result of the project. Access for anglers will continue to be easiest along existing roads in almost all areas. Where access along the right of way should be limited, measures will be included in the Access to Dolly Varden / bull trout habitat is not expected to increase significantly. All watercourse crossings will be restored to existing instream conditions to the extent feasible.	Revised Commitment (Section 7.2.5) PTP commits to work with MOE and other agencies to identify specific locations of concern and develop strategies to limit access to these areas. This will include an evaluation of potential rearing, staging and spawning sites with respect to short and long term access risks. The product of this evaluation will be provided to ESD Omineca and other interested parties for their review. Existing Commitment (Section 9.2) An Access Management Plan will be prepared during the permitting phase of the project, and will be submitted to MOE and other agencies for review.	Satisfied on the condition that efforts to avoid sensitive areas can be demonstrated prior to road construction.
31	Environmental Stewardship	30-Nov-07	Section 7.2.5.2 Operations and Maintenance	and fully intends to incorporate	Existing Commitment (Section 9.2)	Satisfied

	Division Omineca Region		The residual effect of sediment delivery to any stream prior to vegetation becoming established is a concern. It is recommended that the environmental management plan address sediment delivery monitoring to ensure no significant changes in streambed embededness.	the monitoring of sediment delivery to any stream within the Restoration Plan as well as the Post Construction Monitoring Program as outlined in the EA Application.	PTP has committed to the development of a Restoration Plan and a Post Construction Monitoring Program. Details of these plans will be developed during the permitting phase of the project, and the plans will be submitted to MOE and other agencies for review.	
32	Environmental Stewardship Division Omineca Region	30-Nov-07	Crossing activities on the Stuart River requires additional information on white sturgeon use, particularly at the crossing site, at the times when the crossing is proposed. The white sturgeon work completed in the Stuart River by the white sturgeon recovery program does not preclude the possibility of use at this site for early rearing. It is recommended that specific attention be given to the site at key spawning and incubation periods if horizontal directional drilling is not feasible.	PTP is fully cognisant of this concern and will work directly with ESD Omineca and others, to develop a plan for acquiring additional information on white sturgeon use at or near the crossing site in the event that HDD is not a feasible crossing method.	New Commitment PTP commits to an aerial crossing of the Stuart River in the event that HDD proves infeasible during the initial investigations and an aerial crossing is acceptable to the local community.	Satisfied
33	Environmental Stewardship Division Omineca Region	30-Nov-07	Crossings at streams that contain bull trout/Dolly Varden appear to be missing important site specific investigations into staging and spawning life stages. It is recommended that sites be evaluated for spawning (September) and staging (July- August) of these species, and to ensure ground water delivery is not disrupted at any know spawning locations. It is recommended that all spawning sites be avoided where possible to reduce impacts to ground water delivery and the possibility for illegal angling activities. Staging areas should be avoided to remove angling/access risks.	Note that bull trout / Dolly Varden were not found within the Omineca Region. Detailed habitat surveys were completed for all watercourse crossings. Spawning habitats are avoided where possible. We have assumed that some spawning may occur in those systems in which DV were observed, and have proposed construction timing to significantly avoid impacts.	New Commitment Prior to initiating construction, PTP will undertake surveys of specific sites with Dolly Varden to assess whether mature individuals are present and likely to spawn. Where such individuals are present and spawning within the zone of influence is possible, mitigation will be used to encourage fish to select spawning sites elsewhere in the system.	Satisfied on the condition that spawning habitat is not found to be limited.

					Should impacts within the zone of influence occur, PTP will prepare mitigation and compensation plans to address habitat and fish.	
34	Environmental Stewardship Division Omineca Region	30-Nov-07	Channel sediment pollution should follow dose duration guidelines as outlined in Newcombe 1996 (Newcombe, C.P. 1996. Channel sediment pollution: A provisional fisheries field guide for assessment of risk and impact. Habitat Protection Branch. Ministry of Environment, Lands, and Parks, Victoria, British Columbia, Canada. 59 p). Although it is mentioned in one component of the report, it would benefit by being mentioned in the executive summary. It is also suggested that fish bearing streams should have continuous suspended sediment log available for review.	Detailed monitoring will be determined as part of permitting, but typically involves measurements of suspended sediments that can be used to calculate dose-response predictions based on Newcombe's model. Monitoring data will be available for review.	Existing Commitment (Section 9.2) Construction monitoring procedures will be developed during the permitting phase of the project, and will be submitted to MOE and others for review.	Satisfied
35	Environmental Stewardship Division Omineca Region	30-Nov-07	The return of hydrostatic test water should be of a temperature and water quality similar to the flows that exist at the discharge site. All water discharged should be onto a stable velocity and pressure dissipater (i.e., cobbles or boulders) or onto stable upslope vegetation such that mass wasting does not occur.	PTP's Hydrostatic Test Plan will specify that the discharged water will be of a similar temperature and quality of the receiving waters. The discharge site will be chosen to ensure there is no resultant erosion or mass wasting that occurs as a result of the water discharge.	Existing Commitment (Section 7.2.3) The Hydrostatic Test Plan will set specifications to manage discharge water quality and temperature and address erosion and mass wastage concerns at the discharge site. This plan will be submitted to MOE and others for review.	Satisfied
36	Environmental Stewardship Division Omineca Region	30-Nov-07	With respect to the protection and maintenance of the aquatic environment there are no comments or direction applied to access management in the executive summary. There should be a statement around the control of access at streams that are deemed to be of significant fisheries value or where fish values at or near the	PTP acknowledges this oversight but recognizes that it is difficult to be comprehensive within an Executive Summary. It is, and always has been, PTP's intention to ensure that the Access Management Plan effectively deals with the control	Revised Commitment (Section 7.2.3) The Access Management Plan will address issues related to the control of access where streams are deemed to be of high fisheries values and at	Satisfied

			crossing(s) are sensitive.	of access in relation to fisheries values and sensitivities.	sensitive crossing sites. PTP will work with MOE and others to identify locations requiring access management.	
37	Environmental Stewardship Division Omineca Region	30-Nov-07	Where deemed to be relevant to fish species present, the proponent should monitor ground water quality in a similar fashion as proposed for human health and safety for water well flow and quality.	Should groundwater be considered as an important component of possible impacts to fish species resulting from the clearing and construction of the KSL Project, it will be monitored pre, during and post construction in order to ensure pipeline activities have not resulted in quality or quantity changes.	Revised Commitment (Section 7.2.3) PTP commits to monitor groundwater quality and quantity where groundwater is deemed relevant to fish species present at the crossing site. This will be addressed in the Post Construction Monitoring Plan that will be provided to ESD Omineca for their review and comment.	Satisfied provided that the draft plan is made available for comment to all interested government and regulatory bodies.
38	Environmental Stewardship Division Omineca Region	30-Nov-07	Table 6.3.3 Crossing Table Please add information regarding gradients and proximity to fish bearing streams for NCDs, it would be useful for evaluating sediment delivery potential to fish bearing streams. Without a system of reference that is tied to provincial databases, the crossing table is difficult to evaluate. The addition of waterbody ID would facilitate cross- referencing to provincial databases. There are inconsistencies with "species present" columns and comments in the rational section. It is often noted that other databases have records of fish not found during assessments". These should, at the very least, be present in the species present column with a qualifier. Note: Pipeline crossing types are different based on the species of fish present. For	Gradient data are included in the fish-bearing and non-fish- bearing atlases. NCDs by definition have no channel connection upstream or downstream to permanent stream channels, and are therefore not notably different from other upland areas. Measures to control sediment and erosion in NCDs and all terrestrial portions of the right of way will be included in the Sediment and Erosion Control Plan. Waterbody IDs can be provided, however, it should be noted that these numbers apply to the	Additional data can be supplied to MOE on request. To date, all inventory data have been submitted as part of conditions for collecting permits. Existing Commitment (Section 9.2) PTP has committed to developing a Sediment and Erosion Control Plan during the permitting phase of the project. This plan will address sedimentation issues related to all areas with exposed soils (i.e., NCDs and other areas). The plan will be submitted to MOE and others for review.	Satisfied

			example, stream ID 83, open cut with sediment control for LSU. If Rb were present, flow isolation is proposed. Windows are open, increasing risk of construction during LSU spawning events (risk?). The current approach does not address issues of maintaining ecological integrity or biodiversity objectives of the province.	entire stream length, much of which may be outside the study area. The existing information we obtained from provincial databases was not georeferenced, and is often an amalgam of data collected over a much larger area. The rationale for crossing methods and windows therefore focuses on species found during our surveys. The methods and timing proposed follow typical management priorities. For example, there are no windows indicated by DFO or MOE for LSU. Where flowing water is encountered measures will be implemented to minimize sediment release to downstream fish habitats, regardless of	Existing Commitment (Section 7.2.3.) PTP will undertake all diligent and reasonable efforts to salvage all fish from construction areas, regardless of species.	
39	Environmental Stewardship Division Omineca Region	30-Nov-07	Section 6.3.1.2 Results If stream crossing construction or activities are to occur outside of instream work windows, all appropriate agencies should be informed and an EM should be onsite to ensure that all appropriate best management practices are followed. A variance from the agreed upon work windows will also be required from the appropriate agencies.	On the basis of previous discussion and the information presented in the EA Application, PTP considers that all appropriate Agencies have been informed of the proposed instream work windows. An Environmental Inspector will be present during instream construction activities where fish are present. PTP has put forward instream work windows	PTP understands that working outside agreed to work windows will require approval from regulators.	Satisfied

				in the EA Application relative to both a primary and secondary crossing method. In this context, there should be no need for a variance. The basis for selecting work windows was discussed in detail at a fisheries meeting at MOE in Prince George in March 2007.		
40	Environmental Stewardship Division Omineca Region	30-Nov-07	Section 7.2.3.2 (c) Potential Effect: Increased angling pressure Potential effects of increased angler use are noted as being insignificant, "not expected to change". The application of methods to measure this is advised for areas that may be sensitive or of concern to each agency. Areas of concern for increased use should be determined and evaluated if that has not been done already.	PTP acknowledges this concern but still considers that increased angler use will not occur as a result of the KSL Project.	New Commitment PTP commits to work with MOE to determine areas of concern and to ensure that appropriate methods are used to monitor (measure) this possible effect and to address these effects where they occur.	Satisfied
41	Environmental Stewardship Division Omineca Region	30-Nov-07	Section 6.3.1.1 Existing Information The use of the internet based data warehouse for existing fish and wildlife information should be followed up by contact with regional MOE Fisheries and Wildlife Information Specialists. This ensures that data is current as data in the warehouse is often not up to date.	In all cases, PTP has contacted MOE specialists just for this purpose.	PTP commits to continue to work with MOE Fisheries and Wildlife Information Specialists to ensure that the most up-to-date information is acquired and used.	Satisfied conditional to a contact tracking list being available to stakeholders.
42	Environmental Stewardship Division Omineca Region	30-Nov-07	Volume II Baseline studies: The review of the water crossing summary table (Appendix A) would be facilitated by the submission of a database that allows queries and independent plotting of results. The current format does not allow for QA/QC.	The Watercourse Crossing Summary Table (Appendix A of the Fish and Fish Habitat Technical Report) was not intended and therefore not designed for enabling QA/QC functionality. If deemed necessary, a separate table, at a	Where a specific table format is required by reviewers, PTP will endeavour to make these available.	Satisfied

				later date, would need to be developed for that purpose.		
43	David de Wit, OW	30-Nov-07	There is no seasonal window which will avoid impacts on fish in one of their developmental stages.	PTP acknowledges this concern and has selected windows of least risk for these systems.	PTP will continue to discuss these concerns with the OW.	Least risk will not do justice to Wet'suwet'en's interests. Cumulative impact from this proposed project has yet to be adequately defined.
44	David de Wit, OW	30-Nov-07	There will be downstream effects from construction in non-fish bearing streams on the receiving environment.	PTP has identified mitigative measures in the Application for such circumstances.	PTP will be pleased to discuss the techniques to be used with the OW.	Mitigation is not impact avoidance and as such not acceptable.
45	David de Wit, OW	30-Nov-07	Morice Lake watershed is of unequalled importance for fish stocks and was therefore designated a special management zone which cannot be altered from its reference state. Proposed water sampling and analysis is confined to current sources of domestic and agricultural purposes. This is unacceptably constrained. All surface waters must be sampled to ensure protection of fish and country foods.	PTP acknowledges this concern and the values associated with the Morice Watershed. PTP is prepared to develop a water sampling program in consultation with the OW and the MoE	New Commitment PTP will work with OW to develop an appropriate reference state sampling program.	Not satisfied. No discussion has occurred in regards to this matter.
46	Michael Gordon, Haisla Nation	3-Dec-07	Since April 2006, the Haisla have indicated that any consideration of a pipeline corridor route that would go through the upper Kitimat valley would have to assume a fish habitat compensation plan that accounted at least to some extent for the past degradation that occurred due to logging practices. This is because the development of the pipeline corridor through already degraded habitat would only exacerbate the potential for more degradation of fish habitat. The prototype Fish Habitat	Fish habitat compensation is being designed to offset impacts associated with Project-related activities. PTP welcomes input on these plans and is willing to target existing impacted areas where this is feasible, in order to maximize benefits from compensation works.	New Commitment PTP to consult with Haisla to identify appropriate compensation opportunities.	Satisfied

			Compensation Plan provided in Appendix F did not address this.			
47	Michael Gordon, Haisla Nation	3-Dec-07	In addition, the prototype Plan (Fish Habitat Compensation Plan) did not identify pre- construction monitoring as part of the proposed activities. This is essential in order to define the scope of habitat compensation. Based on past experience, we would expect that fish and fish habitat inventories would be required for the Kitimat River and tributaries in order to develop a satisfactory compensation plan. As noted in our Fisheries comments above, we recommend that this work is done before the application phase is completed.	PTP believes that sufficient information has been collected and assessed in support of the Application review. Depending on the type of compensation activities selected some pre- construction monitoring may be required, and will be identified as part of finalizing fish habitat compensation requirements.	PTP has no further comments.	Satisfied
48	Michael Gordon, Haisla Nation	3-Dec-07	We also understand that another concern for the Haisla is that the Kitimat watershed is already damaged from past logging practices in the upper watershed and industrial development in the lower watershed. In spite of this, the river remains productive. We noted earlier that the Haisla have made significant progress in pollution reduction and pollution prevention in the lower watershed and are now planning habitat and fisheries restoration initiatives. In the upper watershed, decades of clear cut logging have been curtailed and the hope was that the upper valley would slowly begin to heal itself. The proposed development raises new concerns about environmental impacts for years to come.	PTP acknowledges the important fish habitat protection and restoration work undertaken by the Haisla and others. PTP would welcome input and participation from First Nations in designing and implementing restoration and compensation associated with this project.	PTP has no further comments.	Satisfied
49	Michael Gordon, Haisla Nation	3-Dec-07	When we went on a tour of the federal Kitimat hatchery and asked the staff why this hatchery was built, the answer was because logging in the watershed had damaged valuable salmon habitat. While the hatchery has been successful at	PTP believes that adequate information has been gathered and assessed for the purpose of the EAC Application review. PTP acknowledges the request for detailed GIS information in	PTP commits to provide a GIS-based analysis (as per the Kleanza-McDonnell package) of the Kitimat Watershed area crossed by the proposed KSL pipeline.	Satisfied as long as detailed GIS information is completed and presented prior to certification

			sustaining salmon production and selectively regenerating stocks in the watershed, the difficulty they have had and the Haisla have had is that no proper baseline fisheries data was collected prior to the extensive logging that took place. We suggest that any new development in the watershed on the magnitude of the proposed project includes an inherent responsibility for the proponent, the responsible government agencies and other parties participating in the Working Group to capture not only the biophysical complexities of the watershed but the complex interactions of the project with past and future development. Thus far, we found that the application report does not provide sufficient baseline data in the Kitimat River watershed to understand the current status of the watershed. Therefore, it does not allow for a proper assessment of any potential impacts or effects, direct or cumulative, from the project. It would be unfortunate if the past mistake of not providing proper baseline data was repeated again	the Kitimat River valley (as per Kleanza analysis).	New Commitment PTP commits to working with the Haisla and regulatory agencies for the purpose of assuring that the KSL Project does not result in negative effects on the Kitimat Watershed. Should this require additional baseline studies to be undertaken following Project certification, PTP is willing to discuss undertaking these studies.	including identification of sensitive habitat utilized by all life stages of fish species in Kitimat River (as per Kleanza- McDonnell package).
50	Michael Gordon, Haisla Nation	3-Dec-07	Unlike the other major watersheds that are impacted by the proposed pipeline corridor, there has not been any in-river field work done on the Kitimat River. This may be a result of the concerted focus on crossings rather than watersheds since the proposed pipeline route does not actually cross the Kitimat. However, the proposed corridor does cross at least 45 tributaries of the Kitimat. The actual number of tributaries that are crossed varies depending on whether you rely on the water crossing	PTP acknowledges the high fisheries values in the Kitimat watershed, and recognizes the large number of tributaries which flow into the Kitimat River downstream of the pipeline crossings. The crossing techniques proposed have been selected to control sediment at each crossing, so that the downstream receiving river is not impacted.	PTP commits to provide a GIS-based analysis (as per the Kleanza-McDonnell package) of the Kitimat Watershed area crossed by the proposed KSL pipeline.	Satisfied as long as detailed GIS information is completed and presented prior to certification including identification of sensitive habitat utilized by all life stages of fish species in Kitimat

			effects assessment (Appendix E) or the Fish and Fish Habitat Investigations (Volume II Baseline Studies). The former refers to 45 crossings while the latter shows at least 50 perennial tributaries that are crossed counting tributaries of tributaries. If you count seasonal tributaries then the number is even higher. If a spill or other event caused deleterious water quality problems or toxic conditions for fish at any of these crossings, in most tributaries it would flow directly into the main river within minutes.	Proposed spill prevention measures and emergency response measures will be applicable to all pipeline construction work. PTP believes that adequate information has been gathered and assessed for the purpose of the EAC Application review. PTP acknowledges the request for detailed GIS information in the Kitimat River valley (as per Kleanza analysis).		River (as per Kleanza- McDonnell package).
51	Michael Gordon, Haisla Nation	3-Dec-07	In watersheds like the Kitimat, classifying a tributary as S-4 or S-5 or non-fish bearing is not protective when the tributary empties directly into an S-1 river. This is particularly important when the slope of the tributary is steep and the terrain is potentially unstable. Under these conditions, it would seem prudent to require criteria consistent with S-1 crossings for all tributaries.	Stream classifications have been provided to help reviewers understand the fisheries values at each stream crossing. Downstream receiving waters have been given considerable attention in determining construction methods and mitigation techniques to minimize impacts to fish and fish habitat. PTP believes these measures will provide protection at each crossing and downstream of these locations. Construction activities are subject to the same sediment control requirements at all fish- bearing steams, regardless of size. Where a non-fish-bearing stream is crossed directly upstream of a fish-bearing stream, a sediment control	PTP has no further comments.	Satisfied

				technique has been proposed, to achieve the same sediment control requirements.		
52	Michael Gordon, Haisla Nation	3-Dec-07	The lack of information in the application report on fishes and habitat in the Kitimat River needs to be corrected. Multi-seasonal field studies that enumerate species, life stages, habitat types, habitat distribution, and utilization of species and life stages, water quality and river flow are necessary. The effects of rainfall, snowmelt and other weather conditions on water quality, flow and terrain stability are also important to understand the baseline conditions for assessing risks and the scope of potential effects.	Please see the response to Issues #50 and #51 above.	PTP has no further comments.	Satisfied as long as there is the understanding that these interactions can and will effect the level of risk and should determine whether work should proceed.
53	Michael Gordon, Haisla Nation	3-Dec-07	The issue of timing is critical. There is a general assumption that pipeline construction and crossings would occur during summer low flow periods. The Haisla have found in other rivers in their territory that temporary stranding of juvenile salmon and other species can occur during summer low flow periods. This could make these fish more susceptible to construction incidents. Conflicts with utilization by other wildlife in the watershed may mean that there is a very limited window of opportunity for construction activities without impacting both fish and wildlife. A much more detailed understanding the site specific conditions that are possible in the Kitimat watershed is needed to properly assess the environmental risks or potential effects due to pipeline development.	The proposed crossing windows for each stream have been selected as the timing of least risk to fish following site specific studies at each stream. PTP will only have authority to undertake the stream crossing within the identified window. PTP has also studied wildlife activity in the watershed, and is aware of the limited window of opportunity for construction activities at certain locations. PTP will only have approvals to undertake construction activities within the designated windows.	PTP commits to provide a GIS-based analysis (as per the Kleanza-McDonnell package) of the Kitimat Watershed area crossed by the proposed KSL pipeline. PTP understands the risks associated with the KSL Project on wildlife and fisheries resources and has, and will continue to, meet with the Haisla to more specifically identify conflict concerns.	Satisfied as long as risks are clearly analyzed and based on a comprehensive survey of habitat utilization by all life stages of fish species in the Kitimat River.
54	Michael Gordon, Haisla Nation	3-Dec-07	We recommend that comprehensive fish and fish habitat investigations be carried out in the Kitimat River before the application	Please refer to the response to Issue #50 above.	PTP commits to provide a GIS-based analysis (as per the Kleanza-McDonnell	Satisfied as long as risks are clearly analyzed

			phase is completed. Pre-construction monitoring and investigations are also necessary to properly develop any subsequent fish habitat compensation plans (see comments below). With respect to sensitive high value areas such as the Kitimat watershed, we recommend that site- specific environmental protection plans, erosion control plans and other construction contingency plans, as well as post- construction restoration plans should be developed as a pre-requisite to certification of the application.	PTP believes that sufficient information has been gathered and assessed for the purpose of the EAC Application review and for determining habitat compensation requirements.	package) of the Kitimat Watershed area crossed by the proposed KSL pipeline. Existing Commitment (Section 9.2) PTP will develop environmental protection plans, erosion control plans, and other construction contingency plans, as a prerequisite to construction. Post construction restoration plans will be developed as a prerequisite to restoration.	and based on a comprehensive survey of habitat utilization by all life stages of fish species in the Kitimat River.
55	Michael Gordon, Haisla Nation	3-Dec-07	The low hardness and alkalinity of coastal watersheds could make the Kitimat River and its tributaries more prone to Acid Rock Drainage/Metal Leaching (ARD/ML) effects. As noted in the application documents (Volume II Baseline Studies), the Hoult Creek area and the lower Kitimat River are identified as areas with ARD/ML potential. Field work is needed to determine if there is a significant potential for ARD/ML. In addition, any evaluation of risk should account for the water chemistry specific to the receiving waters, in this case the Kitimat River.	PTP recognizes this concern but notes that the potential for ARD/ML is not prominent in the areas mentioned as determined by an ARD/ML review of the proposed route. PTP has committed to additional field, and in isolated cases, laboratory analysis of bedrock, to determine if in fact there are substantiated issues regarding ARD/ML in relation to the bedrock that will be intersected by the KSL project. The low pH and lack of buffering capacity of the local soils and bedrock will be considered in this analysis.	PTP has no further comments. Existing Commitment (Section 7.2.1) PTP has committed to additional field, and in isolated cases, laboratory analysis of bedrock, to determine if in fact there are substantiated issues regarding ARD/ML in relation to the bedrock that will be intersected by the KSL project.	Satisfied
56	Kitselas First Nation	4-Dec-07	Page 2 - 17 - Request for information on river crossings – Kitselas has made a couple of requests of PNG for stream crossing methodology – without success.	The crossing methods have been identified in the EA Application, and the techniques described.	PTP has provided the river crossing information to the Kitselas and has shown them where this information is located in the Application.	Satisfied

57	Kitselas First Nation	4-Dec-07	Coast mountain KP0 – KP100 – KFN is still requesting a review of the route through Chist Creek and Hunter Creek – requires re- alignment to avoid habitat concerns.	Please see response to Issue #28.	PTP has reviewed the routing in this area with the Kitselas and has made routing adjustments in the vicinity of Hunter Creek as requested by the Kitselas. It is noted that a re-alignment of the Chist crossing would occur should HDD prove infeasible for this crossing.	Satisfied
58	Kitselas First Nation	4-Dec-07	Crossing is located at sensitive salmon spawning and grizzly bear foraging (fishing) site. Key Area of Concern: Chist Creek Crossing KP 38-39 Component of Primary Concern: Fish and Fish Habitat Proponent Requirements to Address KFN Concerns: Investigate alternate crossing options and provide rationale for final site selection. Provide site specific mitigation planning and conduct pre-construction site assessment, subject to approval by KFN. Include KFN in assessment, access management, and monitoring programs.	For this crossing, a horizontal directional drilled (HDD) crossing is proposed, to minimize disturbance to the river and riparian zone. The pipeline alignment in this area generally follows the existing forestry road. At Chist Creek, the pipeline alignment pulls away from the road, to provide the correct geometry for an HDD (a straight-line approach to the crossing is needed to feed in the pipeline). An initial vertical test hole provided indications that an HDD is feasible at this location. At least one more test hole will be needed to confirm HDD feasibility. Also refer to response to Issue #29.	New Commitment PTP commits to an aerial crossing of the Chist River in the event that HDD proves infeasible during the initial investigations and an aerial crossing is acceptable to the local community. The location of an aerial crossing would likely be immediately upstream of the FSR bridge.	Satisfied
59	Harp Gill, Transport Canada	6-Dec-07	Table 6.15-2 - This table identifies some new access roads for which the aquatic habitat has not yet been assessed. Can	Table 6.15-2 was developed to compliment Table 4.4-2 which provided an outline of the nature	New Commitment PTP commits to complete any outstanding	Satisfied; Relevant reviewing

			you please clarify why these have not yet been assessed and the type of impact expected to the aquatic habitat. It is suggested to also identify bridges associated with access roads.	of the existing roads and new roads that need to be constructed. PTP's consultants (fisheries, wildlife etc.) examined the roads to be re-activated as well as new roads for the purpose of creating Table 6.15-2 which outlines the environmental setting of these road types. Table 7.3-1 provides an environmental effects assessment of these roads which are considered a "temporary facility". Areas where biologists not able to do site visit. Will do an assessment prior to clearing and road construction	assessments for stream crossings for new and reactivated access roads prior to clearing and construction.	agencies need to ensure environmental effects are evaluated in the EA prior to issuing an approval under NWPA.
60	Harp Gill, Transport Canada	6-Dec-07	Appendix E – Watercourse Crossings Effects Assessment 3.4 – It is unclear why decommissioning at the watercourse crossings would result in negligible impacts. This comment is relevant to all sections where this statement is made and no clarification is provided.	Appendix E was developed by PTP at the request of the Federal review agencies and PTP trusts that the effort extended in its preparation proves useful for those agencies purposes. At no time was it decided to repeat or mimic all of the information provided in the main Application. Rather, Appendix E, as the title implies, is a synopsis of the effects assessment related to watercourse crossings. Should the reviewer wish to understand the rationale for the statement regarding negligible impacts, they are referred to the individual sections regarding	PTP has no further comments.	Satisfied

				"Decommissioning and Abandonment" under each VEC in Section 7.0 of the Application.		
61	Harp Gill, Transport Canada	6-Dec-07	Appendix E – Watercourse Crossings Effects Assessment 10.0 – Please include a decommissioning section here as done with the other VECs. Also, mitigation should be summarized or referenced here as with other sections.	PTP will prepare a "Decommissioning and Abandonment" section for Section 10.0 – Navigable Waters and will also provide a summary of effects and mitigation measures.	PTP to provide the new sections to the EAO and Working Group members. This information is in the Application (Section 7.2.12) and will be brought forward into Appendix E	Cumulative Effects Assessment is still undergoing review by the federal agencies.
62	Harp Gill, Transport Canada	6-Dec-07	Appendix E – Watercourse Crossings Effects Assessment 12.0 – Once residual effects are identified for the water crossings, these should then be carried forward for the Cumulative Effects Assessment.	Reference to the main body of the Application will illustrate that there are no significant residual effects associated with watercourse crossings. The Cumulative Effects Assessment (Section 8 of the Application) methodology is explained in Section 8.2.	PTP has no further comments.	Cumulative Effects Assessment is still undergoing review by the federal agencies .
63	Harp Gill, Transport Canada	6-Dec-07	Appendix E – Watercourse Crossings Effects Assessment Table 14.0-1 – This table is the first that residual effects for each of the VECs at the water crossings is brought to our attention. There should be reference to this in the text. It is also unclear whether these residual effects are specific to the water crossings.	Please refer to the response provided to Issue #60. By design, this Appendix is a summary as previously stated. Table 14.0-1 is referenced in the text on page E-61. Given that the title of this Appendix is "Watercourse Crossing Effects Assessment" it is expected that it will be understood that these residual effects are related to water crossings.	PTP has no further comments.	Still reviewing the information following Feb. 4th meeting.
64	Tom Pendray, DFO	7-Dec-07	The consultants must keep in mind that the flow levels during the main assessment period in summer/fall 2006 were extremely low (50 to 100 year lows for this area). Therefore, some assessments done in 2006 may not accurately reflect fish values in normal flow years (especially for small	PTP acknowledges that 2006 was a dry year and that low flows may have affected some assessments. This issue is most relevant to very small streams. Most sites have been visited more than once at times when	New Commitment PTP commits to revisit some crossing sites in the Gosnell Creek and upper Morice which PTP has identified as non fish-bearing to determine if fish may be	Satisfied

			streams). In addition, very high spring flows in 2007 removed many beaver dams and other fish obstructions in streams, therefore also altering fish distributions.	fish typically would be present. This measure was implemented to increase confidence in the survey results. The small number of streams not visited multiple times is noted in the assessment reports.	present under normal flow conditions. In addition, PTP commits to carry out an assessment of data from other crossing sites in order to identify other streams where this form of additional assessment should be done. This additional assessment of crossing sites will be carried out prior to the detailed planning and design of these crossings and appropriate amendments made to crossing methods if warranted.	
65	Tom Pendray, DFO	7-Dec-07	109.3 Km - Gosnell Tributary. This is an HDD site. If the HDD cannot be carried out, DFO does not agree with the Aug – December window for isolated trenching at this site. The window would have to be August 1 to September 15th to avoid impacts to Bull Trout /DV and Coho salmon spawning near or upstream from the crossing site. These three sites (see issues below) have such high fisheries value (N.B. known important Coho spawning area) that if HDD is not possible at the initially- identified crossing locations, we recommend that alternate HDD crossing sites be evaluated before altering the crossing method to the contingency method (isolated cut). We also understand that alternative routes within the Gosnell Watershed have been suggested. DFO would support alternative routing if it results in lower	As noted in the application, August and September are the preferred times within the proposed window of August through December. We believe successful mitigation can be employed to expand the window beyond the August 1 to September 15 window.	New Commitment PTP will commit to an August 1 – September 15 window for instream work. PTP commits that, should prior geotechnical investigations prove HDD to be infeasible for the 3 Gosnell crossings (KP 109.3, KP 109.8, KP 110), that it will evaluate other nearby crossing locations that may be amenable to HDD prior to altering the crossing method to isolated open cut. This evaluation will be done prior to construction at these sites, but post-certification. Please refer to Issue # 73	Satisfied

			overall risk to the fisheries resource.		regarding the need for a "decision framework" to govern decision making for this regard.	
66	Tom Pendray, DFO	7-Dec-07	109.8 Km - Gosnell Tributary. Same comment as above.	See response to Issue # 65.	See response to Issue # 65.	Satisfied
67	Tom Pendray, DFO	7-Dec-07	110 Km - Gosnell Creek. Same comment as above.	See response to Issue # 65.	See response to Issue #65.	Satisfied
68	Tom Pendray, DFO	7-Dec-07	130.6 Km - Morice River. This is also an HDD site. The contingency method is aerial crossing. One of the project documents mentions that an open cut crossing is a second contingency method for this site. For the record, DFO would object to any open cut crossing at this site regardless of timing or other mitigation measures. The company should eliminate the open cut methodology as a contingency at this site due to the extremely high fisheries values at and just downstream from the Morice Crossing site (coho and steelhead spawning sites and likely steelhead overwintering sites), and the possibility that a "frac-out" (if it occurred) could severely impact this area – DFO recommends that a mid-July to mid- August timing window be met for this HDD crossing	PTP has explicitly stated their intent to cross the Morice River using HDD, if feasible. The proposed contingency method is an aerial crossing. PTP has no intention to open cut the Morice crossing. PTP understands that DFO may recommend a timing window for the HDD crossing. DFO to confirm that the highest risk time to avoid is the winter period (approximately October to April).	New Commitment PTP recognizes the very high fisheries values in the Morice River area and commits to consider timing the construction during the recommended period (mid- May to mid-August) to avoid the most critical fisheries- sensitive timing.	Satisfied
69	Tom Pendray, DFO	7-Dec-07	154.8 Km - I am not familiar with these streams. If crossing these streams during the fall, surveys for DV or salmon spawning at or near the crossing site should be carried out to recognize and avoid potential impacts. Note that this requirement could be avoided by crossing during a July 15th – September 15th window.	PTP acknowledges the need for this kind of survey work prior to construction on some systems.	New Commitment PTP commits to undertake specific surveys for Dolly Varden or salmon spawning at this site prior to construction in order to avoid impacts.	Satisfied
70	Tom Pendray, DFO	7-Dec-07	At other crossing sites, proposed timing seems acceptable. I would have further comments regarding the crossings of the	PTP appreciates this information.	Existing Commitment (Section 7.2.3) PTP commits to undertake	Satisfied

			main Morice tributaries (e.g. Lamprey, Fenton, and Owen Creeks) if the proposed crossing timing is altered. DFO has determined that crossing these major tributaries within the recommended timing window is a requirement. See also additional specific comments on these crossing sites to follow.		the crossings of these important fisheries streams within the recommended timing window as stated. PTP understands that the window for these streams may be widened to July 15th to September 15th from the currently stated work window of July. PTP has no further comment other than if the proposed crossing timing is altered, it understands that additional regulatory review and approval would be necessary.	
71	Tom Pendray, DFO	7-Dec-07	We do not necessarily agree that compensation will only be required for those crossings where an open cut may be required as a contingency. If construction occurs outside of the proposed timing windows at other high-value sites, then impacts are likely to occur – even where isolation techniques may be used. An example would be Gosnell Creek (depending upon exact timing of the crossing). Sedimentation and isolation of flow would be expected to affect spawning fish and spawning habitat if spawning is occurring or has occurred in the immediate area of the crossing. DFO will identify crossing sites and conditions where Authorizations (and potentially, compensation) will be required.	Habitat compensation has been explicitly proposed where crossings are outside the proposed work windows as well as where an open cut may be required as a contingency.	New Commitment PTP commits to undertake further discussion with DFO regarding the identification of additional crossings sites where a Fisheries Act Authorization will be required as well as in regard to habitat compensation requirements. This will be undertaken prior to construction but post- certification. PTP to discuss compensation proposals, as needed. PTP to meet objectives of DFO's "No Net Loss" Policy.	Satisfied
72	Tom Pendray, DFO	7-Dec-07	We do not necessarily agree with the characterization of the potential impacts at open cut sites (or at sites where timing may	The impact characterization in the Application is generally in agreement with the statements	Revised Commitment (Section 7.2.5) PTP to discuss	Satisfied

			be altered as per the above comment). In most situations, it is likely that sediment introduction or obstruction of the stream channel through isolation, etc. would affect spawning fish and spawning habitat to a greater extent than juvenile rearing and juvenile overwintering. Therefore, potential habitat compensation should not necessarily focus on juvenile rearing impacts. As per Mitch Drewes' comment, it may be advantageous to identify potential habitat compensation projects which would include potential creation or improvement of spawning habitat prior to project initiation. It may be possible to identify and priorize a number of potential compensation projects in the Kitimat and the Morice watersheds (for instance) which could be undertaken if project alterations occur and compensation is required. Considering the above, DFO recommends that the proponent pre-build compensation habitat where opportunities are identified.	made in the raised issue. We have suggested that compensation focus on juvenile habitat because salmon populations in this region tend to be limited by juvenile habitat capacity and this form of compensation has a high degree of success. PTP has asked for and welcomes input on specific locations or projects that would be appropriate as part of compensation requirements.	compensation options and opportunities with DFO and others, as needed. PTP commits to implement specific compensation measures before clearing and construction in order to address this issue.	
73	Tom Pendray, DFO	7-Dec-07	Where decisions regarding the feasibility of a crossing method (or other management issue regarding the construction phase of the project) will result in a change in stream crossing technique which will lead to a HADD or increase the (potential) impact to fish or fish habitat at a crossing site, DFO will require a "decision framework" to be established and followed to govern these decisions. The most obvious situation (and possibly the only one) where this will be required concerns decisions regarding the feasibility of HDD crossings. DFO obviously retains the authority for the decision to issue an Authorization for a potential HADD.	PTP presumes the discussion question is internal to DFO and that it is inappropriate for PTP to comment.	New Commitment PTP commits to continue to work with DFO to identify crossings where the proposed contingency crossing method is not acceptable and to develop a process for how works will be authorized.	Satisfied

74	Tom Pendray, DFO	7-Dec-07	Blasting – pg 7-52. Please note that if recently-spawned sites are present near stream crossings (or other proposed blasting sites), then the presence of un- eyed eggs may make incubating eggs particularly sensitive to damage from blasting.	This concern is noted. Blasting, where necessary near stream crossings, will follow DFO guidelines.	Revised Commitment (Section 7.2.3) PTP commits to the implementation of more conservative guidelines than those outlined in the DFO guidelines for blasting, in situations where the un- eyed egg stage of fish are present at the crossing site. PTP will ensure that spawning is taken into account in the implementation of blasting specifications.	Satisfied
75	Tom Pendray, DFO	7-Dec-07	Spills - pg 7-53. {This may be stating the obvious} Please note that these due diligence measures noted in this section may reduce the risk of spills and may reduce damage if a spill occurs, but may not eliminate liability in the event that a spill does occur.	PTP takes seriously the risk of spills and will take multiple measures to reduce the likelihood of accidental spills. Please see Section 9.2.2 for a list of Contingency Plans (including an Accidental Spill Plan).	PTP to discuss concerns with agencies, as needed	Satisfied
76	Tom Pendray, DFO	7-Dec-07	Entrainment at Water Intakes – pg 7-53. Can they identify specific locations where water withdrawal will occur for the activities noted? I.e. A plan should be developed for this to avoid risk of impacts to recently emerged fish, etc. This is not a requirement at this stage, but should be developed prior to project implementation.	The need for planning in this regard is acknowledged. Prior to implementation locations for water withdrawal for hydrostatic testing will be identified and communicated to agencies. This information will be provided in the Hydrostatic Test Plan. PTP acknowledges that there may be sensitive periods for fish and that these periods will be avoided.	Revised Commitment (Section 7.2.8) PTP acknowledges that emerging juvenile fish are the main concern. PTP will provide the detailed Hydrostatic Test Plan to DFO, and others, for review prior to implementation.	Satisfied
77	Tom Pendray, DFO	7-Dec-07	Direct Physical alteration at crossing sites – pg 7-55. Can they provide some example sites (i.e. Hypothetical examples) showing typical restoration measures which would	Typicals can be provided that show general restoration measures. On larger systems engineering input will be	New Commitment PTP has provided "typicals" or example drawings in the Conceptual Habitat	Satisfied

			take place at crossing sites to restore / improve habitat? This should be provided at this stage. Specific plans will be required for each crossing site which can be referred to agencies prior to initiation of works at those sites. This will be an important process to ensure that residual effects do not occur. Moderate and high sensitivity crossings will require Authorizations under the Fisheries Act and therefore will require restoration, mitigation, and/or compensation to achieve NNL at each crossing site. A suitable plan will be required for each moderate – high sensitivity crossing site prior to permitting stage.	required, and this will be completed as part of the detailed design phase.	Compensation Plan showing typical restoration measures at crossing sites to protect and restore or improve fish habitat. PTP will prepare a Restoration Plan that includes these drawings. New Commitment PTP understands that the concepts put forward in the Conceptual Compensation Plan are generally acceptable but agrees that additional work is required to define technical details such as location and amount of compensation. PTP commits to continue to work with DFO and others for the finalization of an acceptable Habitat	
78	Tom Pendray, DFO	7-Dec-07	General comment about Access for machinery and vehicles:- It is expected that this impact may be considerable and consist of small "cumulative" impacts. While we agree that residual effects could be eliminated if all BMPs regarding stream crossings (as well as road drainage and sediment control) are strictly adhered to by all contractors, at all times, we submit that there is a significant risk that this will not occur. Pg 7-58 - we also submit that residual effects of sediment impacts from access roads are possible in the event of extreme sediment discharges	PTP acknowledges these concerns. An Access Management Plan will be prepared and submitted to agencies for review post- certification but prior to clearing and construction. It is acknowledged that the Access Management Plan must consider factors such as the requirement to close roads due to poor weather conditions. PTP will employ current BMPs on all access roads in relation to	New Commitment PTP commits to obtaining, and in some cases developing, BMPs for access roads and to propose these BMPs to the responsible agencies. Modification to the proposed BMPs will be made by PTP based on the comments received from the agency review. This commitment will be fulfilled prior to construction but post-	Satisfied
			impacts from access roads are possible in the event of extreme sediment discharges from unstable road cuts or poor drainage	employ current BMPs on all access roads in relation to drainage and sediment control to	will be fulfilled prior to construction but post- certification.	

			 and ditching, or washouts from high flow events. Therefore, we agree with the conclusion of no residual effects only if extreme diligence is taken with respect to adherence to BMPs for access roads. A detailed Access Management Plan should be produced as soon as possible and prior to initiation of the project. As well as following all BMPs (and/or OSs) for stream crossings, all access roads should also employ BMPs for drainage and sediment control to avoid impacts to streams. 	avoid impacts to streams.	PTP provided an "annotated table of contents" for the Access Management Plan to the EAO on March 18, 2008. The EAO forwarded this material to the WG, including DFO, on March 18, 2008. New Commitment PTP commits to evaluate access road water crossings, to identify HADD, and provide compensation if necessary to meet DFO's No Net Loss policy, and the requirements of the approved Habitat Compensation Plan.	
79	Tom Pendray, DFO	7-Dec-07	Pg 7-57 – Regarding Gosnell Creek crossing. As per previous comment, the crossing timing noted for this site is Aug 1 – December 31. If HDD is not feasible at this site, DFO would object to an isolated trench crossing later than September 15th due to potential impacts to Bull Trout and Coho spawning in this area.	See response to Issue # 65.	Revised Commitment (Section 7.2.3) See response to Issue # 65. PTP commits to an instream work window of August 1 to September 15.	Satisfied
80	Tom Pendray, DFO	7-Dec-07	Does this EA include the assessment of potential impacts from accidents or malfunctions? I.e. Spills, line breaks, etc.? This appears to require some comment.	The EAC Application includes explicit discussion and assessment of spills, in section 7.2.3, during the construction phase of the project. Please also refer to Section 9 of the Application.	PTP has no further comments.	Satisfied
81	Mitch Drewes, DFO	7-Dec-07	KP 1.5 – There are two channels (425, 426) but only one is fish bearing	PTP understands that site 425 (side channel) is fish-bearing (Coho) and requires an instream	New Commitment PTP commits to an instream work window of July 15 to	Satisfied

				work window.	September 15 for this channel.	
82	Mitch Drewes, DFO	7-Dec-07	KP 3.4 – MD collected Coho	PTP understands that Coho may be present and therefore an instream work window is required.	New Commitment PTP to re-sample this crossing for the presence of Coho prior to construction. If present, PTP commits to an instream work window of July 15 to September 15.	Satisfied
83	Mitch Drewes, DFO	7-Dec-07	KP 5.4 – Channel 422a dries-out periodically, work crews will access using old FSR; Inspection of road structure needed.	PTP understands that the issue relates to the possible presence of Pink Salmon downstream.	New Commitment PTP to re-sample this crossing prior to construction. If Pink Salmon are present, an instream work window will also be assigned.	Satisfied
84	Mitch Drewes, DFO	7-Dec-07	KP 6.9 Goose Creek – Non-spawning substrate at crossing location.	PTP understands that it has erroneously labelled KP 5.8 as Goose Creek. KP 6.9 is actually Goose Creek.	PTP to correct this error in Table 6.3-3 and also note other tributaries to Goose Creek.	Satisfied
85	Mitch Drewes, DFO	7-Dec-07	KP 9.2 – Coho juvenile found, W/W should be Aug 1 – Oct 1	The proposed work window is open because spawning habitat is absent or minimal at this location. Juveniles will be salvaged during construction.	PTP to discuss concerns with agencies, as needed.	Satisfied
86	Mitch Drewes, DFO	7-Dec-07	KP 9.7 Upper Goose Creek – Coho seen to spawn, heavily impacted by beavers	The proposed work window accommodates this concern.	PTP has no further comments.	Satisfied
87	Mitch Drewes, DFO	7-Dec-07	KP 10.0 – same creek at 9.7, good spawning areas	The proposed work window accommodates this concern.	PTP has no further comments.	Satisfied
88	Mitch Drewes, DFO	7-Dec-07	KP 16.7 – Ensure that spawning is not occurring, W/W (Aug1-Jan31) too wide.	The proposed work window is based on life history information reviewed by agency staff.	New Commitment PTP commits to examine this crossing for the presence of Dolly Varden prior to construction. If they are present, they will be encouraged to move through the construction	Satisfied

					area prior to spawning.	
89	Mitch Drewes, DFO	7-Dec-07	KP 17 – No previously documented fish presence.	Insufficient information is provided to respond to this comment.	Reviewer to clarify comment, if needed.	Satisfied
90	Mitch Drewes, DFO	7-Dec-07	KP 22.7/22.8 – Minimize riparian damage to conifers at 22.7; beavers may move in and take over 22.8	PTP acknowledges these concerns and will work to minimize damage to conifers at this stream crossing.	New Commitment PTP to undertake special restoration efforts in this area for the purpose of reducing deciduous growth (alder) in order to reduce the attractiveness to beaver colonization.	Satisfied
91	Mitch Drewes, DFO	7-Dec-07	KP 25.6 Bannock Creek – Old Growth Riparian, flows into Lone Wolf Creek. Lots of Pinks spawning. Possible rerouting necessary. Possible fish passage issues.	More information is needed to respond to this comment (e.g., is the reviewer stating that PK spawn in this stream at this location, or downstream in Lone Wolf Creek. PTP understands that Old Growth and road access are the issues here.	Revised Commitment (Section 7.2.3) PTP to add Pink Salmon to the list of fish species and also add the name of the creek to Table 6.3-3. Instream work window to be July 15 to August 1. New Commitment PTP to undertake instream survey in advance of construction to determine presence of Pink Salmon. New Commitment PTP will investigate the possibility of a minor shift in the ROW to avoid old growth trees.	Satisfied
92	Mitch Drewes, DFO	7-Dec-07	KP 30.1 Cecil Creek – Possible to use HDD? Cross creek with flow isolation; move W/W from July 1 to July 15. Coho seen	The proposed work window is based on life history information provided in part by agency staff. HDD has not been considered for this crossing since the flows are readily manageable and flow-isolation is a preferred	Revised Commitment (Section 7.2.3) PTP commits to an instream work window of July 15 to September 15 due to the presence of Steelhead. PTP commits to examine	Satisfied

				primary crossing method.	alternative methods or locations for a stream crossing if unsuitable soils (e.g. marine clays) are encountered at the crossing site. Revised Commitment (Section 7.2.1) In addition, PTP commits to implementing measures to block off access by recreational vehicles along the ROW across a stream where highly erodable and sediment producing soils are encountered. PTP acknowledges that this is of most concern at KP 30 (Cecil Creek) as well as the	
					stream at KP 25.6 and the drainages from KP 5.8 to KP 6.5.	
93	Mitch Drewes, DFO	7-Dec-07	KP 38.8 Chist Creek – Many species including Sockeye Reference to contingency planning. Not enough information on what point the proponent abandons the primary method	PTP understands that Chist Creek is a priority for DFO and an aerial crossing may be needed. This area is critical due to Chum spawning. Also refer to response to Issue #29.	PTP has provided a "Decision Criteria" for watercourse crossing methods and timing. New Commitment PTP will review the appropriateness of their design with DFO and MOE prior to constructing the crossing Issue of contingency planning see Issue # 73	Satisfied
94	Mitch Drewes,	7-Dec-07	KP 40.9 – runs along the ditch beside the	There is no spawning at the	New Commitment	Satisfied

Kitimat – Summit Lake Pipeline Looping Project

	DFO		road. Pipeline visible, parallel to road; W/W is open and must be defined.	crossing location but juveniles may move through the area.	PTP will install snow fencing or equivalent on the riverbed to retard possible spawning.	
95	Mitch Drewes, DFO	7-Dec-07	KP 41.5/6 – Aug15-Sept30. Window needed to allow spawning	The proposed work window is open because spawning habitat is absent or minimal at this location. Juveniles will be salvaged during construction.	PTP to discuss concerns with agencies, as needed.	Satisfied
96	Mitch Drewes, DFO	7-Dec-07	KP 41.9 – Dewatering area may cause problems; beaver presence, policy for breaching dams must be reviewed.	PTP acknowledges these concerns and will discuss beaver management issues with regulators	New Commitment PTP commits to follow the provincial guidelines for the removal of beaver dams and to confirm methods and timing with DFO and possible trapline holder.	Satisfied
97	Mitch Drewes, DFO	7-Dec-07	KP 60.5-63 – Investigate option to reroute in this section. Why is the road on the downslope side? Critical fish habitat in lower tributaries.	PTP understands that this issue relates to the proposed Hunter Creek re-route. Please see response to Issue #28.	Please see response to Issue #28.	Satisfied
98	Mitch Drewes, DFO	7-Dec-07	KP 63.4 Hunter Cr. – Reassess crossing for steelhead if the July1-15 W/W is used.	The proposed instream work window is July 1 – 31. Studies conducted indicate steelhead spawn higher up in the system.	New Commitment PTP will conduct further studies prior to construction to determine if crossing site is used by steelhead for spawning. PTP commits to altering the instream work window to July 15 to July 31 if Steelhead are present at the crossing site.	Satisfied
99	Len Seefried, DFO	7-Dec-07	Fish and Fish Habitat Investigations report: Section 2.5.3 Tchesinkut Creek: Chinook sampled at KP 278.9 - need to list CH as a species present	CH are listed as present in Table 6.3-3 of the Application	PTP has no further comments.	Satisfied
100	Len Seefried, DFO	7-Dec-07	Fish and Fish Habitat Investigations report: Section 2.5.5 Fraser Lake: Sockeye needs to be listed as	PTP acknowledges this additional information	Sockeye will be added to the "species present" list.	Satisfied

			a species present (identified in FISS database)			
101	Len Seefried, DFO	7-Dec-07	Fish and Fish Habitat Investigations report: Section 2.5.8 Salmon River: Sockeye needs to be listed as a species present (identified in FISS database)	PTP acknowledges this additional information	Sockeye will be added to the "species present" list.	Satisfied
102	Len Seefried, DFO	7-Dec-07	KP 286.1 - Unnamed Creek: confluence is d/s of Dog Creek (which has CH spawning). Amend Table 6.3-3 and Fish-Bearing Atlas to identify Unnamed Creek as CH rearing habitat (by default). Stream can dry out, but can also have spring, summer and fall rearing habitat values - a winter work window is suggested: November 01 - March 31st.	We believe the tables and documents accurately reflect fish habitat values, based on three separate surveys at this site. This portion of the pipeline is planned as winter construction, so fits with the reviewer comment regarding suggested work timing.	PTP's primary crossing method is proposed to occur in winter.	Satisfied
103	Len Seefried, DFO	7-Dec-07	KP 384.4 - Welch Creek: sampled in the dry twice (Fall '05; Summer '06); CH & RB documented in FISS; add Welch Creek (CH & RB) to Fish Bearing Atlas & Table 6.3-3. Stream can dry out, but can also have spring, summer and fall rearing habitat values - a winter work window is suggested: November 01 - March 31st.	We believe the tables and documents accurately reflect fish habitat values, based on two separate surveys at this site. Flows during spring runoff is likely, but summer and fall rearing habitat is likely not available at the crossing location. FISS data are not necessarily from the same location. This portion of the pipeline is planned as winter construction, so fits with the reviewer comment.	New Commitment PTP commits to re-sample Welch Creek when fish are most likely to be present in order to re-confirm fish- bearing status within this stream reach and to modify the in-stream work window and crossing method appropriately.	Satisfied
104	Len Seefried, DFO	7-Dec-07	KP 399.6 - Chinohchey Creek: CH documented in FISS database (rearing only); add to Table 6.3-3 (Species Present column). Stream can dry out, but can also have spring, summer and fall rearing habitat values - a winter work window is suggested: November 01 - March 31st.	We believe the tables and documents accurately reflect fish habitat values. Rainbow trout and suckers were caught during the summer '06 survey. The work window proposed protects RB and assumes CH do not spawn in this system. FISS data	PTP's primary crossing method is proposed to occur in winter.	Satisfied

				are not necessarily from the same location. This portion of the pipeline is planned as winter construction, so fits with the reviewer comment.		
105	Len Seefried, DFO	7-Dec-07	KP 430.3 - Salmon River: documented SK spawning, PK spawning, CH spawning & rearing . There are three pipeline crossing on this system. Primary pipe line crossing should be revised to HDD or Aerial to address cumulative effects. Contingency pipe line crossing should be revised to flow isolation during period of least risk to salmon (June 01 - July 31st). Revise Table 6.3-3 (Species Present, DFO Instream Work Window, Proposed Work Window).	PK tend to spawn closer to the ocean than other species of salmon and Seton River (near Lillooet) is usually considered the upstream limit of PK in the Fraser. We are aware of no information to suggest that significant CH and SK spawning occurs at the proposed crossing locations. PTP believes the available information supports the decision to use isolation methods during winter construction outside of the instream work window. Habitat compensation is proposed to offset potential impacts from work outside the least risk window. This portion of the pipeline is planned as winter construction.	PTP has provided a written rationale for the selection of the crossing method and for the proposed instream work window. In addition, the memo outlines PTP's rationale for route selection in this area. The memo was provided March 11, 2008. New Commitment PTP commits to utilize HDD as the primary crossing method for the three Salmon River crossings if this method is proven feasible.	Satisfied
106	Len Seefried, DFO	7-Dec-07	KP 440.3 - Unnamed Creek: CH sampled (rearing only - no overwintering). Amend Table 6.3-3 to reflect a winter DFO Salmon work window of: Nov 01 - March 31st; amend proposed instream work window.	Table 6.3-3 and fish atlas indicate CH presence. This portion of the pipeline is planned as winter construction, so fits with the reviewer comment. There is no spawning habitat at the crossing site and PTP will undertake fish salvage during instream construction.	PTP's primary crossing method is proposed to occur in winter.	Satisfied
107	Len Seefried,	7-Dec-07	KP 441.2 - Salmon River: documented SK	Please refer to the response to	Please refer to the response	Satisfied

	DFO		spawning, PK spawning, CH spawning & rearing . There are three pipeline crossings on this system. Primary pipe line crossing should be revised to HDD or Aerial to address cumulative effects. Contingency pipe line crossing should be revised to flow isolation during period of least risk to salmon (June 01 - July 31st). Revise Table 6.3-3 (Species Present, DFO Instream Work Window, Proposed Work Window).	Issue #105.	to Issue #105.	
108	Len Seefried, DFO	7-Dec-07	KP 449.2 - Salmon River: documented SK spawning, PK spawning, CH spawning & rearing. There are three pipeline crossings on this system. Primary pipeline crossing should be revised to HDD or Aerial to address cumulative effects. Contingency pipeline crossing should be revised to flow isolation during period of least risk to salmon (June 01 – July 31st). Revise Table 6.3-3 (Species Present, Habitat Potential (Spawn = H), DFO Instream Work Window, Proposed Work Window).	Please refer to the response to Issue # 105.	Please refer to the response to Issue #105.	Satisfied
109	Pat Lim, DFO	11-Dec-07	In Section 9.2.4 of Monitoring and Follow- up, the proponent has not included erosion control as a main section. DFO suggests including this with the Sediment Control Plan. Riparian management and water quantity plans should also be included. It is noted that development of these critical mitigative plans have not been initiated and the proponent only plans to do this at a later date. Lack of these plans does not provide the basis for conclusions on adequacy of mitigation.	PTP fully expects to monitor erosion control measures to ensure that they are implemented properly and functioning appropriately until the RoW is restored (the reviewer is referred to Section 9.2.2 of the Application where soil erosion is included). These and other plans will be developed post-certification, during the permitting phase of the project and will be submitted to agencies for their review and input. It is noted that PTP responded to this issue at the	New Commitment PTP commits to undertake additional terrain stability investigations and geotechnical work as part of the Project design following certification. Should areas of instability be identified, they will be subject to further geotechnical investigations which may lead to engineering design solutions or local route adjustments.	Satisfied

				December 13th 2007 Working Group meeting and committed to the preparation of an "Annotated Table of Contents" for the Access Management Plan.	Existing Commitment (Section 7.2.3) PTP will incorporate erosion control measures in the "Surface Water Quality and Sediment Control Plan" for use during construction, as well as into the "Post Construction Monitoring Plan" for use during operation and decommissioning.	
110	Pat Lim, DFO	11-Dec-07	The conclusion in 11.3 regarding the effects of the Project on the Aquatic Environment is not convincingly supported by the mitigation or compensation plans within the Application. It is suggested that the proponent consider a more complete description of how the conclusion of less than significant residual effect on the aquatic environment was reached. For example, the anticipation of fish mortality from instream construction activities is noted a residual effect. Is there estimation of numbers and are these numbers related to species, populations, or specific locations? How was the conclusion reached that the residual effects from fish mortalities were less than significant? This relates also to the cumulative effects analysis.	As stated in the ATOR, PTP has made determinations of significance based on information and impact definitions presented in the application. PTP believes that sufficient information is available for reviewers to reach their own conclusions based on the data and information provided. The conclusion section (11.0) is not considered the appropriate location for this level of detail. The reviewer is referred to Section 7.2.3 of the Application for these details.	Existing Commitment (Section 7.2.3) PTP will undertake best efforts to salvage all fish from isolated construction areas in fish-bearing waters, and fully expects a high success rate. Should fish mortalities occur, PTP will inform DFO. Existing Commitment (Section 9.2) PTP commits to the preparation of mitigation plans (referred to as Environmental Management Plans) prior to construction. These plans will be provided to DFO, and others, for review prior to finalization.	Satisfied
111	Pat Lim, DFO	11-Dec-07	Fisheries & Oceans Canada would like to further discuss various parts of the KSL Application with the proponent.	PTP understands that additional discussion with DFO may be required, and we welcome input on aspects of this project.	PTP to discuss concerns with DFO, as needed.	Satisfied

112	Pat Lim, DFO	11-Dec-07	The KSL conceptual compensation plan for	The plan as presented is a	PTP to discuss concerns	Satisfied
			fish habitat (Appendix F) needs further	conceptual plan, in keeping with	with DFO regarding	
			discussion with DFO on several major	DFO's requests on issues of	compensation.	
			issues. Generally DFO compensation	compensation. PTP		
			habitats should last in perpetuity. This is	understands that additional	New Commitment	
			not reflected in the conceptual plan as	discussion on these issues will	PTP has committed to	
			presented by KSL. The temporal	be required as part of any	working with DFO and	
			disturbance of pipeline construction is an	Fisheries Act authorizations.	others for the purpose of	
			issue that needs further clarification. Based	Further, PTP understands that in	designing and implementing	
			on the proposed completion times,	situations where impacts are	some early compensatory	
			disturbance to fish habitat appears longer	long-lasting, compensation	undertakings prior to	
			than the proposed compensation plan	should also last in perpetuity.	construction. PTP is	
			addresses.	PTP is acting pro-actively in	committed to meeting the	
				offering compensation for some	"No Net Loss" policy of	
				short-term impacts, and the	DFO. The early	
				compensation proposed for this	compensation measures	
				project is logical with respect to	could well result in "Net	
				the duration of impact for	Gain".	
				pipeline projects. Impacts are		
				expected to be short-lived and	PTP has committed to	
				compensation proposed will	revising the Conceptual	
				offset these impacts.	Compensation Plan based	
					on discussions with DFO.	
				Also refer to responses to Issues	The revised plan will be	
				#72 and #73.	provided to DFO by the end	
					of March.	
					New Commitment	
					PTP understands that the	
					concepts put forward in the	
					Conceptual Compensation	
					Plan are generally	
					acceptable but agrees that	
					additional work is required	
					to define technical details	
					such as location and	
					amount of compensation.	
					PTP commits to work with	
					DFO and others for the	

					finalization of an acceptable Habitat Compensation Plan.	
113	Pat Lim, DFO	11-Dec-07	Questions have been raised if the Chist River cannot be directionally drilled. Chum salmon use this location for spawning so DFO would ask for a relocation if the proposed technique cannot be used or timing coincided with spawning. Please note that DFO will not issue any authorizations if timing of construction or crossing technique results in fish mortality.	PTP understands that the Chist River has significant fish and fish habitat values, and welcomes input from regulators regarding locations and timing of stream crossings. We will work with DFO to determine compensation requirements, should HDD prove infeasible.	PTP to discuss concerns with DFO regarding crossing methods and compensation. Please refer to the response to Issue #112. New Commitment In the event that HDD proves to be infeasible at the Chist Creek pipeline crossing based on early investigation programs, PTP commits to consider an aerial crossing should that method be acceptable to the local community.	Satisfied
114	Pat Lim, DFO	11-Dec-07	One problem for DFO assessment of the compensation proposed is the lack of information on access road plans. DFO would like to have these plans presented as soon as possible. There are a lot of old logging roads in parts of the route that have not been crossed for thirty years. Reactivation would result in HADDs related to loss of riparian vegetation. Specific concerns have been raised around Lone Wolf Creek which would require an estimated three crossings.	PTP will prepare an Access Management Plan during the permitting phase of the project. This plan will be circulated for review by key agencies. During review of the plan, PTP will discuss impacts, mitigation, and compensatory works that may occur as a result of temporary access. Please refer to Sections 4.4.7, 6.15, and 7.3 of the Application.	PTP to discuss concerns with DFO regarding crossing methods and compensation for temporary access. New Commitment PTP prepared an annotated table of contents for the Access Management Plan. This was provided to DFO and others on March 18, 2008. New Commitment PTP commits to evaluate access road water crossings, to identify HADD and provide compensation if necessary to meet DFO's	Satisfied
					No Net Loss policy, and the requirements of the approved Habitat Compensation Plan.	
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115	Pat Lim, DFO	11-Dec-07	The Conceptual Compensation Plan states that: Short pulses of elevated concentrations of suspended sediment occur during installation and removal of temporary dams for isolated crossing, but these events are usually of short duration and lower magnitude than levels known to cause significant harm or mortality to juvenile and adult fish (Newcombe and Jensen 1996, Lévesque and Dubé 2007). Downstream impacts are therefore not expected, and compensation will focus on offsetting impacts from the direct disturbance within the isolated work site. This statement references Lévesque and Dubé 2007 which states that this type of construction on a single crossing may not have an impact but multiple crossings of the same river or in the same watershed may have a cumulative effect and the "capacity of the system to recover may be exceeded."	PTP has explicitly acknowledged the potential for impact associated with sediment release, although mitigation and BMPs are expected to minimize this risk. Monitoring of sediment releases during construction will allow independent assessment of impacts, through the use of Newcombe and Jensen's dose- response model. Monitoring data will be available for review.	Existing Commitment (Section 7.2.3) PTP has committed to developing a Post- Construction Monitoring Plan during the permitting phase of the project. This plan will address monitoring of suspended sediments at all watercourse crossing. The plan will be submitted to DFO and others for review. PTP will implement adaptive management measures for the purpose of sediment control. New Commitment PTP understands that the concepts put forward in the Conceptual Compensation Plan are generally acceptable but agrees that additional work is required to define technical details such as location and amount of compensation. PTP commits to work with DFO and others for the finalization of an acceptable Habitat Compensation Plan.	Satisfied

					work with DFO, TC and the CEA Agency during the Comprehensive Study Process to provide additional information regarding the manner by which the conclusions of the Cumulative Effects Assessment were reached.	
116	Pat Lim, DFO	11-Dec-07	The Conceptual Compensation Plan The document states that compensation habitats are engineered to last five years and benefits accrue of a period that is longer than the physical disturbance of construction. Longevity of the habitat compensation therefore allows the total area to be reduced to 20% or less of the total habitat disturbed. For the purpose of calculating habitat compensation requirements we use 20%. This comment is not in accordance with the DFO Policy on Habitat Compensation which makes no reference to longevity of compensation having an accruing value after a period of five years.	Please refer to the response to Issue #112.	Please refer to the response to Issue #112 and #115.	Satisfied
117	Pat Lim, DFO	11-Dec-07	The Conceptual Compensation Plan The concept applied to the type and area of habitat disturbed is dependent on the type of watercourse. The document states that: the amount of useable rearing and overwintering habitat disturbed is considerably less that the full width, and	PTP understands that additional discussion on these issues will be required as part of any Fisheries Act authorizations. The statements quoted are supported by the fisheries literature, DFO- and MOE- approved suitability indices, and if required can be demonstrated	New Commitment PTP has committed to meeting DFO's No Net Loss policy, and will discuss compensation issues with DFO, as needed. Please refer to the response to Issue #112.	Satisfied

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			likely less that half the wetted width, because rearing and overwintering habitat is typically associated with pools, stream margins or instream structures such as boulders and large woody debris. While these areas are considered to be more suitable as habitat it is by no means a rational to consider that only "half the wetted width to quantify useable rearing and overwintering habitat." The entire watercourse is potential habitat as fish may move from various suitable habitats and therefore use the whole stream, irrespective of its size.	using additional data at specific crossings. The full width of large rivers is rarely useable habitat, due to high velocities and water depths. PTP believes that compensation should focus on rearing and overwintering habitat, to have the greatest positive influence on fish production.	New Commitment PTP understands that the concepts put forward in the Conceptual Compensation Plan are generally acceptable but agrees that additional work is required to define technical details such as location and amount of compensation. PTP commits to work with DFO and others for the finalization of an acceptable Habitat Compensation Plan.	
118	Pat Lim, DFO	11-Dec-07	The compensation is not scheduled to start until one year after the installation of the pipeline and will be finished three years after the pipeline. This temporal loss is significant and could severely affect various salmonid species.	Any temporal losses would be fully compensated for and are discussed in the conceptual compensation plan. Some compensation is deferred to allow a proper accounting of compensation requirements. It is feasible for some compensation activities to begin prior to construction. Also refer to response to Issues #72, #73 ands #113.	New Commitment PTP has committed to working with DFO and others for the purpose of designing and implementing some early compensatory undertakings prior to construction. PTP is committed to meeting the "No Net Loss" policy of DFO. The early compensation measures could result in "Net Gain". New Commitment PTP understands that the concepts put forward in the Conceptual Compensation Plan are generally acceptable but agrees that additional work is required to define technical details	Satisfied

119	Pat Lim, DFO	11-Dec-07	Discussion of the cumulative effects of the	Information included in	such as location and amount of compensation. PTP commits to work with DFO and others for the finalization of an acceptable Habitat Compensation Plan. PTP provided a presentation and discussion regarding	Satisfied
			KSL Project in Section 8.1.2.3 on fish and fish habitat is inadequate. This large topic has been summarized by a listing of generalized management objectives with no details provided for the actual assessment of cumulative effects. There needs to be a more meaningful evaluation of what the definition of cumulative effects is and then an application of this to the fish and fish habitat along the route. Relationship must be made with the various stages of the Project and how these contributions make to the resources.	Section 8.1.2.3 is provided as background to the CEA. The tables provided in Section 8 quantitatively identify current conditions, the residual effect of the proposed project alone, and the combined effect of the proposed project and other likely activities. Cumulative effects risk to aquatic resources was evaluated with three watershed- scale indicators: cleared area, access density, and riparian disturbance. For example, Table 8.3-3 on page 8-28 shows that total stream crossing density in the RSA would increase from 0.385 crossings/km2 at present, to 0.400 crossings /km2 as a result of the project, and to 0.429 crossings/km2 when all likely activities are considered. The associated risk of this increase was identified based on available cumulative effects risk ratings from a BC watershed assossment procedure	and discussion regarding "Cumulative Effects" to personnel from DFO and the CEA Agency. New Commitment PTP commits to continue to work with DFO, TC and the CEA Agency during the Comprehensive Study process to provide additional information regarding the manner by which the conclusions of the Cumulative Effects Assessment were reached.	
120	Oil and Gas Commission	11-Dec-07	It is stated that water use for hydrostatic testing will not draw down water from	PTP will address these issues when it finalizes its' Hydrostatic Test Plan (the Hydrostatic Test	Revised Commitment (Section 7.2.8, 7.2.11)	Satisfied
			flows. It is not clear how baseline flows will	Plan provided in Appendix G of	draft of the final Hydrostatic	

			be measured, how the % drawdown will be monitored and, given stream morphology, if a 10% drawdown could potentially have a negative effect on organisms which might be present in the shallowest sites.	 the EA Application only outlines the general approach). The final Hydrostatic Test Plan will be provided to the OGC as part of the permitting process. Have a general outline of the Hydrostatic Test Plan and will not have the detailed information until detailed design. 10% of actual flow occurring at that time. Will do the immediate testing at the site. Will do the testing in a location and at a time when enough water is available in the system to accommodate a 10% withdrawal 	Test Plan to the OGC for review and comment prior to seeking permits for such water use. This Plan will address all of the issues raised by the OGC.	
121	Oil and Gas Commission	11-Dec-07	A number of measures are to be employed to avoid or minimize sedimentation of watercourses. In the event that stream sedimentation does occur there does not seem to be a level of, for example, Total Suspended Solids (TTS) that would trigger a temporary cessation of the activity causing the elevated TTS in a watercourse.	PTP anticipates that regulatory agencies such as DFO, MOE, and perhaps the OGC will address this issue and inform PTP as to the level of suspended solids that will require a temporary modification of instream work activity.	New Commitment PTP will retain appropriate expertise for the purpose of adopting the Newcombe dose model.	Satisfied
122	Oil and Gas Commission	11-Dec-07	An Environmental Monitor (EM) will be on site for stream crossings. Will the EM be given written authority to declare an operation must immediately cease in the event of an unexpected environmental problem that is likely to have an unacceptable level of negative impact?	The PTP Environmental Inspector (an environmental specialist hired for the project by PTP) will have the authority to require a modification to a specific work activity or to order a stop-work order in the event that he or she considers that unacceptable environmental consequences will result.	PTP has no further comments.	Satisfied

123	Oil and Gas Commission	11-Dec-07	It is acknowledged that "pipeline construction on the route will result in increased fish mortalities from instream construction activities". This is primarily a result of water temperature and turbidity making 100% fish salvage unlikely when either electrofishing and/or netting. PTP would be advised to address this with agencies legally responsible for enforcing the Fisheries Act.	PTP acknowledges this requirement and has already commenced discussions on this topic. PTP has already committed to addressing these issues with DFO. Also refer to response to Issues #111.	PTP has no further comments.	Satisfied
124	David de Wit, OW	13-Dec-07	The OW is uncomfortable with the proposed routing across the Morice River. Slope stability is a big issue in this area. The Chiefs are leery of the EAO/CEAA process. He will be bringing back the results of our conversations to the Chiefs. He believes that the significance of the watershed is not being considered, and that the process is not working. They would like to work towards co-management and shared decision making. They would like to work together to find solutions. During the LRMP process, a water management area was set up, however, from the materials provided in the Application, they cannot tell how the proponent will deal with that area. The OW is collecting baseline data in the near future and they are concerned that disturbance from the pipeline could compromise the data collection.	PTP has met and will continue to meet with the OW in regard to routing concerns in the Morice River Valley. PTP believes that positive progress has been made on this matter. Several route alternatives in portions of the Morice Valley have been brought forward by the OW and they are currently being reviewed by PTP. PTP is aware of the "Water Protection Management Area" (WPMA) set- up in the Morice LRMP. PTP has already committed to work with the OW for the purpose of ensuring hydrologic integrity and that there will be no long-term changes to the reference state in the WPMA resulting from the KSL Project. PTP believes that the construction and operation of the KSL pipeline should have no effect on the goals outlined for the WPMA in the Morice LRMP.	PTP will continue to discuss this issue with the OW.	Not satisfied. Our chiefs have never given the OW staff a mandate to pursue pipeline routing alternatives in the Morice watershed. PTP has maintained the position that all route options have been considered and the current route is the only option. An exercise was carried out to test this position. Alternative routes need to be considered despite increased

						cost. A recent proposal for an Independent Power Project, includes tunnelling for approximately 10 km through the Clore River basin, This indicates that tunnelling through the 6 km of difficult terrain through the Telkwa pass should be an alternative. It would certainly avoid putting the Wet'suwet'en interests at risk.
125	David de Wit, OW	13-Dec-07	If PTP creates an environmental issue related to fisheries, who would take PTP to court? Would it be DFO or the First Nation?	It is inappropriate for PTP to comment on this issue.	PTP has no further comments.	
126	Stefan Schug, OW	13-Dec-07	In the streams which are alluvial have you looked at HD drilling or have you selected the crossing based on costs. We need more information on mitigation for stream crossings.	Cost is one factor used in deciding on stream crossing methods. However, the mitigation of impacts to fish and fish habitat are as much if not more of a concern. Where isolation techniques can be used at stream crossings, this is usually the preferred technique. HDD has been proposed	PTP has no further comments.	Not satisfied.

				generally for the larger rivers. Information regarding mitigation techniques to be applied at stream crossings can be found in Section 7.2.3 of the Application.		
127	Stefan Schug OW	13-Dec-07	What happens if you miss the fisheries window of two months?	PTP will only have authority to undertake the stream crossing within the identified window, for either the primary or contingency crossing methods. If these windows are missed, for whatever reason, PTP would need to seek further approval from regulatory agencies.	PTP has no further comments.	Not satisfied.
128	Stefan Schug, OW	13-Dec-07	PTP mentions risks to the pipeline but what about the risks to the fish and the environment. Past building of pipelines and forest roads have not demonstrated a good record.	The EAC Application fully addresses risks to fish and the environment and puts forward mitigation measures for effectively dealing with the identified impacts.	PTP has no further comments.	Not satisfied. EAC application indicates and suggests impacts to fish and water. Agencies and ministers need to seriously consider the high values of Upper Morice River Watershed and the ability for the Wet'suwet'en to continue to exercise their rights prior to making a determination on certification.

						Alternative routing needs to be taken seriously even if costly.
129	Department of Fisheries and Oceans	13-Dec-07	We are concerned that in the application PTP says that they may wait extended periods prior to completing the compensation work. However, we may require compensation to be completed prior to other works taking place.	PTP will undertake compensation works as directed by DFO. This direction is expected to include the timing of when the works should be started and completed. The reason for suggesting that some compensation works may be delayed is to ensure that both PTP and DFO are fully aware of the nature and extent of the impacts that may require compensation. Also refer to response to Issue #72, #73 and #113	PTP has no further comments.	Satisfied
130	Diane Hewlett, District of Kitimat/Port of Kitimat	13-Dec-07	Shared concern expressed by Michael Gordon on the timing of crossings of Kitimat River and tributaries due to impact on fisheries. Characteristics of the Kitimat River include predominately shallow and narrow paths throughout, run-offs occurring throughout the year (snow and heavy rainfall) with fluctuating flows range from slow stream to fast.	PTP is aware of and understands these concerns. Just to be clear, the KSL Project does not cross the main stem of the Kitimat River. Crossings of tributaries are outlined in the EAC Application.	PTP has no further comments.	Satisfied
131	Harp Gill, Transport Canada	13-Dec-07	Information is missing for the stream crossings on the access roads. We were looking for individual pages in the atlas on access roads.	Individual pages in the Watercourse Crossing Atlases have not been prepared for access roads since most of the access utilizes existing crossing structures. Sections 4.4.7, 6.15, and 7.3 of the Application	PTP has no further comments.	Ongoing (to be discussed).

				contains information regarding		
				access roads.		
132	Troy Larden.	10-Jan-08	Appendix F:	The plan as presented is a	PTP commits to undertake	Will be satisfied
	Ministry of	10 0 0 0 0 0 0	The proponent has stated that the amount	conceptual plan, in keeping with	additional discussion with	once the
	Environment.		of disturbed habitat is not equal to the full	DFO's requests on issues of	MOE and DFO regarding	compensation
	Environmental		width of the wetted water course. I would	compensation. PTP	habitat compensation.	package has
	Stewardship		suggest that the math completed to	understands that additional		been reviewed
	Division,		estimate the amount of habitat	discussion on these issues will		and approved by
	Skeena		compensation will need to have agreement	be required as part of any		the members of
	Region		from both DFO and MOE. It is not sufficient	Fisheries Act authorizations.		the fisheries sub-
	U U		to suggest that because the compensation	The compensation proposed for		committee.
			is targeted toward overwintering and off-	this project is logical with respect		Although DFO
			channel habitats that the measurement for	to the duration and intensity of		has the final
			compensation be only on these two habitat	impact for pipeline projects.		authority when
			elements. The calculations associated with	Impacts are expected to be		issuing the
			habitat disturbance and longevity of the	short-lived and compensation		permits and
			compensation activities will require some	proposed will offset these		authorizations,
			discussion. It is not acceptable to assume	impacts.		MoE still has a
			that the disturbance to the habitat will be for			role in the
			a period of less than 1 year and that the	The methodologies used to		negotiation and
			compensation design is for 5 years initiating	calculate the amount of habitat		agreements
			a 20% factor being applied. This will need	required for compensation are		associated with
			agreement at the fisheries sub-committee	consistent with the fisheries		compensation
			level. The proponent has identified specific	literature. DFO- and MOE-		activities. The
			opportunities for compensation activities. It	approved suitability indices, and		proponent has
			is understood that the project will not be	if required can be demonstrated		committed to
			limited to these opportunities or the	using additional data at specific		undertake
			assumption that the mentioned habitat	crossings. The full width of large		additional
			impacts will be limited to these identified	rivers is rarely useable habitat,		discussions with
			areas. As construction proceeds and	due to high velocities and water		MoE and DFO,
			authorizations are amended to	depths.		these have not
			accommodate project schedules, other			taken place yet
			compensation may be required. This may	PIP believes that compensation		as we have not
			also be the case if post construction	should in many places focus on		received a
			monitoring identifies an impact not	rearing and overwintering		proposed
			anticipated by the application. Discussions	nabitat, to have the greatest		compensation
			within the Fisheries sub-committee will	positive influence on fish		package.
			establish and/or provide direction on	production, but welcomes input		

			priorities, opportunities, quantity, timing, and monitoring of compensation activities.	on the types of habitat compensation most needed in different systems.		
133	Troy Larden, Ministry of Environment, Environmental Stewardship Division, Skeena Region	10-Jan-08	8.1.2 Resource Management Plans In the Fish and Fish Habitat portion, maintenance of access to all habitats must also be included in the management objectives. Barriers to fish migration can play a significant role in fish management and ongoing maintenance and monitoring of access routes to the pipeline must be done by the proponent to ensure this cumulative effect is eliminated. In the Wildlife and Wildlife Habitat portion, it is essential that new access be eliminated and made inaccessible by any motorized vehicle to ensure that the integrity and remoteness of the areas are maintained. Access continues to be a high impact cumulative effect.	The creation of barriers to fish movements at pipeline crossings and access roads is highly unlikely, and restoration measures and monitoring will ensure that this does not occur.	New Commitment PTP commits to include maintenance of fish movements as an objective in the Environmental Management Plans. This will include both the pipeline ROW as well as structures associated with all new access construction and upgrades. Revised Commitment (Section 7.2.3) The Access Management Plan will address issues related to the control of access where streams are deemed to be of high fisheries values and at sensitive crossing sites. PTP will work with MOE and others to identify locations requiring access management.	With the proponents commitment to maintain fish access on all structures associated with the development of this project, and, although not explicitly stated, the proponents commitment to ensure there is no new motorized access developed, MoE is satisfied that this issue has been resolved.
134	Troy Larden, Ministry of Environment, Environmental Stewardship Division, Skeena Region	10-Jan-08	7.2.3 Aquatic Environment The proponent has indicated that DFO will be the agency responsible for determining compensation. MOE will also play a role in the establishment of compensation.	PTP acknowledges that MOE will be involved in reviewing compensation proposals.	MOE to provide input to PTP regarding compensation proposals.	Satisfied
135	Troy Larden, Ministry of	10-Jan-08	6.3.1 Fish and Fish Habitat It is understood that the proponent will not	PTP will ensure that efforts will be undertaken during	Existing Commitment (Section 9.2)	With the proponents

	Environment, Environmental Stewardship Division, Skeena Region		be able to meet the reduced risk timing windows for each crossing during the construction phase and access development. It is therefore requested that at all crossings regardless of timing, qualified professionals be on site to determine where impacts may result in exceeding the anticipated threshold for impact or that provided in the contingency plan. When reviewing the plan for crossing activities in the portion of the project that is within the Skeena Region MOE, MOE is satisfied that the primary and contingency crossing methods are sufficient to meet the least risk to the aquatic resources and that changes to these plans due to alterations in schedule of the construction or access development may require additional review by MOE and DFO. It is expected that MOE participation in the Fisheries subcommittee will address on site specific issues needing resolution	construction in order to assess ongoing impacts through appropriate monitoring. Where expected impacts are exceeded, or where construction methods deviate from those approved, PTP will notify agencies through an agreed upon notification system. Detailed monitoring and notification requirements will be determined during the permitting phase of the project.	PTP will employ accredited professionals (e.g., R.P.Bio.) to conduct monitoring and inspection functions at all sites being developed.	commitment to ensure that a qualified professional (environmental monitor) be on site at all areas being developed, MoE is satisfied that this issue is resolved.
136	Diane Hewlett, District of Kitimat	15-Jan-08	That Proponent meet with DFO Hatchery Manager (contact provided) and staff (alternate contact provided) to inform and coordinate any pre-construction, construction, and remedial activities in the Kitimat Valley that may cause concerns for Salmon Enhancement in the Kitimat Valley.	PTP acknowledges this concern.	New Commitment PTP commits to meet with the DFO Hatchery Manager in Kitimat in order to identify any activities that may cause concern for salmon enhancement in the Kitimat Valley and to ensure measures are implemented to mitigate the identified concern. Meetings are to occur in advance of clearing and construction and to continue throughout the construction and restoration phases.	Satisfied

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137	Diane Hewlett, District of Kitimat	15-Jan-08	That proponent meet with Kitimat Sport Fisheries Committee, local Sport Fishing Retail Outlets and Fishing Charter Guides to inform them of project routing and to learn of where key fishing locations are with view to determining if and where information or coordination might be needed with licensed anglers.	PTP understands the intent and value of this communication.	New Commitment PTP commits to meet with the Kitimat Sport Fisheries Committee as well as the local Sport Fishery Retail Outlets and Fishing Charter Guides to inform them about project routing and clearing / construction activities in order to determine appropriate means of communicating with licensed anglers.	Satisfied
138	Diane Hewlett, District of Kitimat	15-Jan-08	That proponent advertise in local papers if necessary and requested by Sport Fish Advisory Centre locations where and when fishers / kayakers may see construction activity. That the Proponent and Sport Fish Advisory Committee (if necessary) collaborate on the production of a small brochure for distribution at Kitimat Visitor Info Centre and Fish and Tackle Retailers and Guides. Brochure would outline where and when fishers might encounter construction activities.	PTP understands the intent and value of this communication.	Revised Commitment (Section 7.2.9) PTP commits to assisting in communicating with licensed anglers by means of advertising project activities in local newspapers as well as the preparation of a handout (brochure) in order to inform them of construction activities.	Satisfied
139	Michael Gordon, OW	19-Mar-08	The upper Morice River watershed is a major source for Sockeye, Chinook and Coho salmon spawning and rearing habitat. Steelhead trout, Dolly Varden and Bull Trout are other important species that utilize this area. The Morice system is a significant contributor to the Skeena River salmon production that supports both commercial and sport fisheries. More importantly, we understand that the salmon resource in the Morice has been traditionally used by the Wet'suwet'en for generations and is fundamental to sustaining their cultural and	PTP acknowledges this concern and values associated with the Morice Watershed. PTP is prepared to develop a water sampling program in consultation with the OW and the MOE. All streams will be restored to existing instream conditions to the extent feasible. Detailed habitat surveys were	New Commitment PTP will work with OW to develop a water sampling program within the Morice Water Management Area in consultation with the OW and MOE.	Not satisfied. Water quality sampling does not deal with the fisheries resources values. Salmon enumeration data for the Morice River has not been recognized

			economic well-being. Because of the importance to them of the salmon resource, they have made concerted efforts over the years to ensure the sustainability of the resource. The Wet'suwet'en have participated in fisheries management and enumeration for several years to try to ensure the sustainability of the salmon resource. There is a clear recognition that there are a number of factors off-shore and in-stream that can jeopardize the viability of the fisheries resources. However, it is clear to them that maintaining the integrity of the in- stream fish habitat throughout their territories is paramount for sustaining the fisheries resource.	completed for all watercourse crossings. Spawning habitat are avoided where possible. We have proposed construction timing to significantly avoid impacts.		despite numerous requests. The socio- economic significance of the fisheries has not been recognized in the EAC Application.
140	Michael Gordon, OW	19-Mar-08	The application details the species and streams where fish have been found within the Morice watershed. The field data for presence or absence of fish appears to have been collected during one or at most two seasons in only one year. Without more comprehensive data on multi- seasonal habitat utilization by various life stages of fish throughout the watershed, it is difficult to provide sufficient information to identify the potential risks and effects of development and adequately avoid, mitigate or compensate for them. In Wet'suwet'en territories and particularly in the Morice watershed, avoidance of any impacts is the first priority. At the last Working Group meeting, the CEA Agency announced that they would be undertaking a comprehensive study process	PTP believes that adequate information has been gathered and assessed for the purpose of the EAC Application review. All sites have been visited more than once at times when fish typically would be present. This measure was implemented to increase confidence in the survey results. PTP plans to conduct additional studies on a number of streams in the Morice Watershed prior to project construction. PTP has provided a list to the EAO, DFO, and MOE of those streams that would be resampled prior to construction.	New Commitment PTP commits to revisit some crossing sites in the Gosnell Creek and upper Morice, which PTP has identified as non fish-bearing to determine if fish may be present under normal flow conditions. In addition, PTP commits to carry out an assessment of data from other crossing sites in order to identify other streams where this form of additional assessment of crossing sites will be carried out prior to the detailed planning and design of these crossings	The question is, has PTP utilized DFO salmon stock enumeration data for the Morice? How many sampling sessions occurred to identify fish presents? Recent condition have extreme variations from very wet to very dry years, how has sampling

			for the project review. This will deleve the		and appropriate	moth odology:
			for the project review. This will delay the		anu appropriate	memouology
			Fielder at decision on the project until		amenuments made to	accounted for
			September at the earliest and most likely		crossing methods in	lnis?
			for the aming with the and of the year. This		warranted.	
			for incoming until the end of the year. This		Novy Committee and	
			delay would allow for three seasons of		New Commitment	
			Insperies field data collection, which in turn		If it is decided that the	
			would provide improved baseline		alternative is the preferred	
			Inioniation on itsi nabilat utilization. It		allemative is the KSL Droiest	
			before the BC FAO review was completed		ficharias and other studies	
			and a formal decision was made as well as		will be undertaken for this	
			and a form the federal decision process			
			used to inform the rederal decision process.		Toute allemative.	
			At minimum, a commitment should be			
			provided that this work would be completed			
			before any development activities were			
			undertaken in the area. If the alternative			
			route through Thautil-Tommy Creek is to be			
			used instead, then three seasons of fish			
			inventory and habitat utilization work should			
			be undertaken in this area prior to any other			
			work being initiated Without this additional			
			baseline data it difficult to accept that any			
			kind scientifically valid analysis of			
			environmental risks and effects would be			
			possible before the project proceeds.			
141	Michael	19-Mar-08	It is not clear how the KSL pipeline project	PTP appreciates this	New Commitment	Not satisfied.
	Gordon, OW		application can be reconciled with	information. PTP is aware of the	PTP will work with the OW	
			environmental initiatives currently underway	"Water Protection Management	to develop an appropriate	This does not
			in the Wet'suwet'en territories. One	Area" (WPMA) that is described	reference state water	address the issue
			initiative involves the establishment of a	in Provision No. 2 in the Morice	sampling program.	of obtaining
			special water management area in the	LRMP. PTP has already		adequate aquatic
			Morice watershed. This initiative was an	committed to work with the OW		life and water
			outcome of the LRMP process. The area	and the Water Stewardship		quality data to
			was designated by the provincial	Division (MOE) for the purpose		ensure the
			government for further study recognizing the	of ensuring hydrological integrity		objective on
			importance of the watershed to the	and no long-term changes to the		maintaining

142	Troy Larden,	3-Apr-08	 wet suver en people and the intereating pressure for development in the area. A water quality monitoring and assessment framework is currently being developed in order to establish water quality baseline data. The proposed timeframe for completing this work is estimated to be 3 -5 years. It was assumed that water quality would not be impacted by development until the baseline study was completed. Another initiative involves a recent proposal by the provincial government to establish Bull Trout Wildlife Habitat Areas (WHAs) in the Morice River watershed as a means to protect important fish habitat. The designated areas have been mapped and represent key spawning, staging, rearing and overwintering habitats throughout the watershed that are critical to the Bull Trout population. The Morice watershed is already considered high value spawning and rearing habitat for sockeye, chinook, and coho salmon. The proposed designation of WHAs reinforces the importance of the Morice watershed for resident freshwater salmonid species. We suggest that further effort is needed to clarify how this project can move ahead without conflicting with these other initiatives into account. To date, it does not appear that an in-depth discussion or understanding of these initiatives has been part of the review process. 	PTP acknowledges that there PTP acknowledges these concerns and values associated with the Morice Watershed. PTP is prepared to develop a water sampling program in consultation with the OW and the MOE. PTP has commenced and will continue to discuss these concerns with the OW. PTP is aware of the high fisheries values in the Morice Watershed as well as the provincial government initiative to potentially establish a Bull Trout WHA. PTP considers that the KSL Project will not conflict with this initiative.	New Commitment	reference state is met.
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	MOE		compensate for riparian habitat loss. There is the potential for complete loss of riparian habitat and disruption that cannot be re- established and the need for compensation will have to be considered by the proponent.	 will be impacts to riparian habitat as a result of pipeline construction, access construction and maintenance and operation of the pipeline right-of-way. PTP believes that while the majority of these impacts can be mitigated, there may be a need to undertake various forms of compensation to offset these impacts. 	PTP commits to actively participate in a Wildlife and Wildlife Habitat Subcommittee for the KSL Project. One task of the subcommittee would be the development of compensation works that would be funded and undertaken by PTP for the purpose of adequately addressing riparian impacts requiring compensation. New Commitment PTP understands that the concepts put forward in the Conceptual Compensation Plan are generally acceptable but agrees that additional work is required to define technical details such as location and amount of compensation.
143	Troy Larden, MOE	3-Apr-08	The in-stream work window should be considered a window of "least risk" and not necessarily one where no HADD may occur.	PTP fully acknowledges and accepts this interpretation and understanding.	New Commitment PTP confirms that the instream work window is not a time of no risk and understands that compensation for HADD may be necessary even if the crossing is undertaken during the instream work window.
144	Troy Larden, MOE	3-Apr-08	The Conceptual Compensation Plan has 0.5 as a habitat factor. This habitat factor is considered to be low considering the size of many of the streams to be crossed and the	PTP has put this plan forward on the basis of it being conceptual. Once design details for the larger crossings are available,	New Commitment PTP understands that the concepts put forward in the Conceptual Compensation

			HSI selected.	PTP recognizes that it may well be appropriate to apply different habitat factors and HSI scores for selected crossings.	Plan are generally acceptable but agrees that additional work is required to define technical details such as location and amount of compensation.
145	Troy Larden, MOE	3-Apr-08	The Conceptual Compensation Plan (CCP) only covers compensation for pipeline development itself and nothing on access roads. This is a major component of the Project that needs to be addressed.	PTP acknowledges that the CCP could have been more robust in regard to explaining how compensation would be applied to access road crossings. PTP has always intended that the compensation measures outlined for pipeline crossings would also apply to access road crossings where required.	New Commitment PTP commits evaluate road water crossings, to identify HADD, and provide compensation if necessary to meet DFO's No Net Loss policy, and the requirements of the approved Habitat Compensation Plan.
146	Troy Larden, MOE	3-Apr-08	Culvert replacement associated with necessary road upgrades should not be credited as restoration as this is the normal part of development and doing business. If an access road is upgraded to accommodate access, putting in a new culvert should not be considered compensation.	PTP fully agrees with this perspective and would not seek credit for compensation when replacing culverts for normal access development.	PTP has no further comment.
147	Ray Pillipow, MOE	3-Apr-08	Concern regarding how water quality monitoring will be done. Would like to see a range of sites and multiple sampling across a stream and not just mid-stream where flows may be highest and suspended sediments more diluted. Recommend a cross-section and range of values.	PTP acknowledges this concern and has always fully intended to apply the water quality monitoring to a range of sites and multiple samples across a stream and not just mid-stream.	New Commitment PTP commits that the design for water quality monitoring will include multiple samples for larger streams and not just mid- stream and that a range of sites will be sampled.
148	Ray Pillipow, MOE	3-Apr-08	Concern regarding mobile sediment (i.e. sand movement downstream).	PTP acknowledges this concern for river and stream systems where this may be an issue.	New Commitment PTP commits to undertake downstream inspection and sampling to determine if construction has resulted in any long-term

					em tho be un me Th de de	beddedness of sand on ose rivers where this may an issue and to dertake corrective easures, where required. e details of this will be veloped during detailed sign.	
149	Ray Pillipow, MOE	3-Apr-08	Concern that compensation options are mostly geared towards off-channel rearing habitat. Thought must be given to more than one species (e.g. steelhead) and not just targeting only one species.	PTP considers that with the range of compensation options being recommended would result in benefit to multiple species.	Ne PT wc the co the inc	w Commitment P commits to continue rk with MOE and DFO on e development of fisheries mpensation measures for e KSL Project that will lude consideration of ltiple species.	
Terres	strial Environment						
150	Verne Solonas, McLeod Lake Indian Band	24-Oct-07	Beaver populations at three sites and near Summit Lake may cause the project problems. A crew should be assigned to deal with them	PTP has discussed this with MLIB. Specific beaver management recommendations will be made during a pre-construction route wal	k.	PTP has no further comments.	Satisfied
151	Fred McKenzie, Kitselas First Nation	25-Oct-07	Valuable seasonal foraging habitats for grizzly bear and furbearers were identified at Chist creek and Hunter creek during the field trip.	PTP engineers are exploring the feasibility of moving the route upslope of the existing Kitimat FSR particularly near the Hunter Creek crossing and will discuss with Kitselas staff. The Chist Creek crossing is current planned as an HDD crossing. Also refer to response to Issues #5	:ly 8.	PTP has filed an amendment to the Application with the EAO related to following a route upslope of the Kitimat FSR in the Hunter Creek area.	Satisfied
152	Fred McKenzie, Kitselas First Nation	25-Oct-07	The pipeline route in the Hunter Creek area, crosses a Candidate Grizzly Bear Wildlife Habitat Area	Please refer to the response in Issu #151.	le	Please refer to the response in Issue #151.	Satisfied

153	Fred McKenzie, Kitselas First Nation	25-Oct-07	Wet areas and beaver ponds on the north side of the road up Kitimat valley are valued. Kitselas would prefer to see the pipeline located upslope of the existing Kitimat Forest Service Road (FSR) whenever possible.	Please refer to the response in Issue #151	Please refer to the response in Issue #151.	Satisfied
154	Gordon Saito, Vanderhoof Forest District	28-Nov-07	(Map #54) Please be aware of ungulate winter ranges VD-002 and VD-004 adjacent to the pipeline, see the following website for the Order identified as U-7-011 which relates to these areas: http://www.env.gov.bc.ca/wld/frpa/uwr/appr oved_uwr.html	PTP appreciates being made aware of this information.	PTP has no further comment.	Satisfied
155	Gordon Saito, Vanderhoof Forest District	28-Nov-07	(Map #56) Please be aware of the Nechako Corridor WHMA - file #7405897, adjacent to the south side of the pipeline - see mapview layer.	PTP appreciates being made aware of this information.	PTP has no further comment.	Satisfied
156	Gordon Saito, Vanderhoof Forest District	28-Nov-07	(Map #53) Pipeline crosses a UREP - see mapview layer.	PTP appreciates being made aware of this information.	PTP has no further comment.	Satisfied
157	Gordon Saito, Vanderhoof Forest District	28-Nov-07	(Maps #51-52) Please be aware of the partial retention VQO around Fraser Lake where the proposed line deviates from the existing pipeline.	PTP appreciates being made aware of this information.	PTP has no further comment.	Satisfied
158	Environmental Stewardship Division Omineca Region	30-Nov-07	ESD Omineca suggests that a 'Problem Wildlife Plan' is considered to complement or replace the 'Bear Management Plan'. Although bears are often the most common 'problem wildlife', other species including ravens, coyotes, wolves, and foxes are known to be problematic. ESD Omineca notes that the most effective and proactive way to prevent problem wildlife is to ensure that the work site remains clean of garbage, specifically food based.	PTP considers this a good suggestion and will ensure that species other than bears are taken into consideration in this context. The proper management of organic waste is understood to be a critical component of this plan.	Revised Commitment (Section 9.2) PTP commits that other "problem wildlife" species will be considered in the plan.	Satisfied
159	Environmental Stewardship	30-Nov-07	Although mule deer ungulate winter ranges (UWRs) are displayed on maps in the	Locations of ungulate winter ranges were included in the Wildlife	New Commitment PTP commits to add	Satisfied

	Division Omineca Region		Technical Report, they are not reflected on the Vegetation, Wildlife, and Wildlife Habitat Maps. It is requested that this discrepancy be corrected through updating of the appropriate map sheets.	Resource Maps, 1:250 000 scale (Appendix W1 of the Wildlife and Wildlife Habitat Technical Report), and were addressed in the Technical Report and the EAC Application report. PTP considers that appropriate cross-referencing of the ungulate winter ranges was completed, but all ungulate winter range polygons will be included in the Environmental Protection Plan alignment sheets.	ungulate winter range polygons in the EPP alignment sheets.	
160	Environmental Stewardship Division Omineca Region	30-Nov-07	It is suggested that the Traffic Management Plan contain a component addressing the awareness of wildlife. Prevention of wildlife and vehicle collisions should be considered when establishing vehicular speed limits.	PTP had always considered that potential impacts to wildlife would be dealt with in the Traffic Management Plan, and will ensure that this is the case.	Revised Commitment (Section 9.2) PTP commits to address potential wildlife impacts and necessary mitigation measures in the Traffic Management Plan.	Satisfied
161	Environmental Stewardship Division Omineca Region	30-Nov-07	Trumpeter swans have been confirmed to be nesting at Breadalbane Lake (the pipeline ROW passes ~500 m to the north of the lake between KP 375 and 376).	The importance of Breadalbane Lake for nesting Trumpeter Swans was noted in Section 4.3.1.1 Migratory Birds (page 51) of the Wildlife and Wildlife Habitat Technical Report.	PTP has addressed this issue in the Application.	Satisfied
162	Environmental Stewardship Division Omineca Region	30-Nov-07	Wildlife trees and large stick nests are very important wildlife habitat features that occur on the landscape. It is recommended that surveys for these features be conducted in advance of clearing and construction operations such that preventive measures can be taken to protect them. If the features are destroyed, mitigation and compensation are expected. It should be noted that this is to avoid contravention of Section 34 or the Wildlife Act.	PTP will have a wildlife biologist(s) undertake a "route walk" in advance of clearing and construction. One of the purposes of the "route walk" is to identify these types of features and to avoid them whenever practical. Should avoidance not be practical, other forms of mitigation or compensation will be considered.	Existing Commitment (Section 7.2.4) PTP commits that a "route walk" will be undertaken by a wildlife specialist (R.P. Bio) prior to clearing and construction.	Satisfied; see reference to # 182.
163	Environmental Stewardship	30-Nov-07	Table 6.4-8 Initial List of Wildlife and Wildlife Habitat VECs for the KSL Project	Bats were identified as a VEC during meetings with members of the	PTP has addressed this issue in the Application	Satisfied

	Division Omineca Region		Omineca ESD notes that the bats VEC is listed for the Skeena region, not the Omineca. This should be corrected as bats, specifically the northern long-eared Myotis, occur and are a concern within the Omineca.	working group. PTP recognizes that the exclusion of the Omineca region as a reason for selecting bats as a VEC was erroneous, and acknowledges that bats are of management concern in both the Skeena and Omineca regions. Notwithstanding this, bats were considered as a VEC in the Omineca Region.	and has no further comment.	
164	Environmental Stewardship Division Omineca Region	30-Nov-07	Section 6.4.5.6 Sandhill Crane The Sandhill crane subspecies nesting within the local study area are likely the Greater (G.c.tabida) or the Canadian (G.c. rowani) rather than the Lesser, which are documented to migrate further north and breed in the high Arctic.	PTP appreciates being provided with this additional information.	PTP has no further comment.	Satisfied
165	Environmental Stewardship Division Omineca Region	30-Nov-07	Section 7.2.4.1 (k) (i) Interior northern goshawk Although the clearing window restrictions (August to April) will protect established nests that may be encountered, interior northern goshawk start establishing territories within the region as early as February. Caution should be used and monitoring for large stick nests is suggested to commence in February.	PTP will have a wildlife biologist(s) undertake a "route walk" in advance of clearing and construction for the purpose of identifying these features and avoiding them where practical.	Existing Commitment (Section 7.2.4) PTP commits that a "route walk" will be undertaken by a wildlife specialist (R.P. Bio) prior to clearing and construction.	Satisfied; see reference to # 182.
166	John Perras, Kalum Forest District	30-Nov-07	KP 95.15 – KP 96.6 bisects lengthwise a 60.5 ha swamp (Wc014, page 123 of the Vegetation Technical Report) which contains a blue-listed plant community (RC004, Page 93 Vegetation Technical Report) Pinus albicaulis (Whitebark Pine), Cladonia spp (clad lichens) and Dicranum fuscescens (curly heron's-bill moss). It may be desirable to move the pipeline further away to minimize impacts on the swamp and the blue-listed plant community.	Through work undertaken by its consultants during the preparation of the EA Application, PTP is aware of these plant communities and their locations. PTP is currently reviewing possible options to avoid these locations and, if this is not practical, to determine means of reducing the impact of clearing and construction (e.g. reduce the width of clearing within these plant communities)	Existing Commitment (Section 7.2.4) PTP will continue to study the alternatives for avoiding or reducing impacts to these plant communities.	Satisfied

			The pipeline also bisects the same blue- listed plant community (RC005, page 93 Vegetation Technical Report) at KP 99.1 - 99.2 and the upper third (RC006, Page 93 Vegetation Technical Report) at KP 100.5 - 102.2. It may be desirable to relocate the pipeline to minimize impacts.			
167	John Perras, Kalum Forest District	30-Nov-07	PTP identifies moving the pipeline upslope from the road from KP 60.5 to KP 63 to provide a wider buffer between the North Kitimat Forest Service road and the river. This section is used heavily by grizzly bears during spawning season and screening/minimizing disturbance to the bears is important.	PTP acknowledges that based on input from several reviewers (including the Kitselas First Nation) that it would be beneficial to re-locate the pipeline in this location. Also refer to response to Issue #151.	PTP will be filing an amendment application with the EAO to relocate the pipeline in this section to place it above the road prism for most of this length.	Satisfied
168	David de Wit, OW	30-Nov-07	There is danger of spread of invasive non- native species. Pesticide use is unacceptable.	PTP is committed to an invasive species management plan as generally outlined in the Application that will address all aspects of right- of-way management including pesticide use.	Existing Commitment (Section 9.2) This and other EMPs will be prepared post EA certification.	Not satisfied. Information on the availability of seed stock has not been provided.
169	Kitselas First Nation	4-Dec-07	Environmental Work Sheets Does not make any reference to Wildlife or concerns with regard to wildlife until KP 43 – upper Kitimat. Does not mention Grizzly bear or any other animals until KP43 to KP64 to Hunter Creek Little or no reference to wildlife in the worksheets. Does not mention mountain goat winter range until KP77 to KP 84 – very little information on mountain goat range – information gathered from Kitselas FN indicate additional areas habituated by mountain goats – this also applies to other animals in this corridor i.e. ungulates and fur bearing animals.	The Environmental Worksheets capture areas where the proposed pipeline right of way crosses identified habitats.	New Commitment Candidate grizzly bear Wildlife Habitat Areas in areas crossed by the PTP pipeline will be identified on future versions of the Environmental Worksheets.	Satisfied

			KP89 Clore Canyon to KP 97 Clore River – only mention of ungulate range – only mentions medium goat access – this is the best goat range in the area – Kitimat and Clore. The Environmental worksheets offer very little information with regard to wildlife and wildlife habitat, especially winter ranges.			
170	Kitselas First Nation	4-Dec-07	Mountain goat habitat – does this report adequately cover the habitat areas as identified on maps – fig – 6.4.2a and fig – 6.4.2b?	Mountain goat habitat was identified and characterized by a local mountain goat specialist who is an accredited professional biologist (RP Bio.)	New Commitment PTP has agreed to fund additional Grizzly Bear and Mountain Goat studies to be undertaken by the KFN and their consultants. This work will be initiated post- certification and prior to construction.	Satisfied
171	Kitselas First Nation	4-Dec-07	Fig – 6.4.5.10 Grizzly bear – move into Kitimat valley salmon spawning areas by mid to late July (following salmon migration) – Grizzly frequent the area mar to December and occasionally sighted in December and January.	PTP is aware of the grizzly bear movements through the Kitimat Valley.	New Commitment PTP has agreed to fund additional Grizzly Bear and Mountain Goat studies to be undertaken by the KFN and their consultants. This work will be initiated post- certification and prior to construction.	Satisfied
172	Kitselas First Nation	4-Dec-07	Page 2-15 Potential input to Grizzly bear study – study done by pipeline is not conclusive to grizzly bear and grizzly bear habitat in Kitimat Valley – Kitselas has conducted an independent study – attached to our comments re: environmental assessment certification application	PTP has received a copy of the Kitselas comments and has conducted additional grizzly bear investigations in the Kitimat Valley (a grizzly bear den site study).	New Commitment PTP will involve Kitselas First Nation in any bear habitat investigations prior to construction.	Satisfied
173	Kitselas First Nation	4-Dec-07	Page xxxvi – infringement of provincially designated mountain goat winter range – does not mention mountain goat winter	PTP acknowledges this concern and considers that the Application does address mountain goat winter range	Existing Commitment (Section 7.2.4) PTP will implement	Satisfied

			range until KP88.4 – what about areas downstream – do mitigation measures address FN concerns?	potentially affected by the Project. Also refer to response to Issues #177.	mitigation to minimize effects related to working in mountain goat winter ranges. Please see response to Issue #177	
174	Kitselas First Nation	4-Dec-07	Moose wintering range/areas – page xxvi only covers interior area and not Kitimat Valley	PTP recognizes the presence of moose winter habitat in the Kitimat Valley. However, the project area does not cross any designated moose ungulate winter ranges in the Kitimat valley.	New Commitment Moose habitat in the Kitimat Valley will be considered in access management planning and in the restoration of ROW and temporary workspace.	Satisfied
175	Kitselas First Nation	4-Dec-07	Wildlife movement corridors – "Lakelse to Hirsch Creek – Hirsch Creek is not in the pipeline corridor" – "Upper Kitimat to Dala River – Dala River is south of Kitimat and not within the pipeline corridor."	PTP examined wildlife movement corridors in a regional sense, and therefore listed corridors outside of the pipeline corridor.	Existing Commitment (Section 7.2.4) Any additional wildlife movement corridors will be identified during a pre- construction route walk.	Satisfied
176	Kitselas First Nation	4-Dec-07	Grizzly Bear – Page xxx – no mention of Grizzly bears from KP) to KP 25 – this is also critical area for bears. Are the mitigation measures sufficient to address our concerns?	PTP recognizes grizzly bear concerns in the lower Kitimat Valley, and will mitigate these through the Bear Management Plan.	Existing Commitment (Section 9.2) PTP will prepare a Bear Management Plan, post EA certification.	Satisfied
177	Kitselas First Nation	4-Dec-07	Pipeline is in conflict with important Mountain Goat Winter Range and potential natal areas. Key Areas of Concern: Hoult Creek Nimbus Mountain Clore River KP 68-92 Component of Primary Concern: Mountain Goat Critical winter range Kidding/natal areas	PTP is aware of the sensitive nature of the mountain goat habitats in the Hoult Creek, Nimbus Mountain and Clore River areas. PTP will implement an access management plan and restoration plan to reduce potential increases in human access to remote areas.	Existing Commitment (Section 9.2) PTP will implement an access management plan and restoration plan to reduce potential increases in human access to remote areas. New Commitment PTP will include members of the Kitselas First Nation in access management and construction	Satisfied

			Travel corridors Habitat Features Proponent Requirements to Address KFN Concerns: Develop and present detailed, site specific mitigation, and access management plans, subject to approval by the KFN, in order to prevent impacts to mountain goat in KFN Traditional Territory. Avoid construction and clearing activities between KP 68 and 92 from October 15 – June 30. Include KFN in assessment, access management, and monitoring programs.		monitoring programs. New Commitment PTP has agreed to fund additional Grizzly Bear and Mountain Goat studies to be undertaken by the KFN and their consultants. This work will be initiated post- certification and prior to construction.	
178	Kitselas First Nation	4-Dec-07	Pipeline is in conflict with important grizzly bear habitat and identified candidate grizzly bear WHAs. Key Areas of Concern: Kitimat Valley KP 38-39 KP 60.5-63 Hoult Creek/Upper Clore KP 65-100 Components of Primary Concern: Critical early spring feeding and dispersal zones. critical salmon fishing areas. Potential denning areas. Seasonal and daily travel/movement corridors. Proponent Requirements to Address KFN Concerns: Identify (map) important habitats, WHA and routing conflicts.	 PTP is aware of the locations of the candidate WHAs for grizzly bears in the project area, and appreciate Kitselas confirmation of them. PTP has been revisiting the pipeline route in these areas to minimize pipeline-related impacts on the candidate WHAs. PTP will continue to engage Kitselas in routing discussions related to grizzly bear habitat concerns. The grizzly and black bear timing window within which no clearing or construction activity is to occur within 200 m of an active den is stated as November 1 to April 30 in the Application. 	Revised Commitment (Section 7.2.5) PTP will extend the grizzly bear and black bear timing window as follows: no clearing or construction activities are to occur within 200 m of an active grizzly bear or black bear den between November 1 and May 31. New Commitment PTP has agreed to fund additional Grizzly Bear and Mountain Goat studies to be undertaken by the KFN and their consultants. This work will be initiated post- certification and prior to construction.	Satisfied

			Adjust pipeline alignment to ensure security cover (500 m buffer) for identified habitats and WHA. Move the pipeline route above the Kitimat mainline near candidate WHA between KP 60.5 and 63. Develop specific construction timing restrictions, subject to approval by the KFN to avoid seasonal disturbance to grizzly bears near WHA. Avoid disturbance near den sites (KP 65- 100) in April/May. Include KFN in assessment, access management, and monitoring programs.			
179	Kitselas First Nation	4-Dec-07	A pre-construction "route walk" is proposed as a final environmental impact assessment measure. Given the history of the process, and the fact that important habitat within KFN Traditional Territory have not been clearly identified or address to the satisfaction of KFN to date, it is important that the KFN have the opportunity to participate in this process, as well as in construction and post-construction monitoring within the KFN Traditional Territory.	PTP acknowledges this concern and notes that it has already committed to engage qualified professionals (e.g., R.P.Bio.'s) in the pre-construction "route walk".	Revised Commitment (Section 7.2.4) PTP will engage the KFN in the route walk and will establish a process for them to participate in construction and post- construction monitoring.	Satisfied
180	Oil and Gas Commission	11-Dec-07	Where "setbacks" are in place to avoid sensory disturbances such as 200 meters for mountain goat winter habitat, there should be some language around modifying this practice if it is observed that the buffer is not adequate and the animals behaviour is being influenced negatively.	PTP believes that the set-backs as indicated in the Application (7.2.4) should be adequate to mitigate potential impacts. However, should greater distances be necessary to achieve this goal, this will be addressed in the contingency plans.	PTP has addressed this issue in the Application.	Satisfied
181	Troy Larden, Ministry of Environment, Environmental Stewardship	10-Jan-08	4.4.5 Construction Schedule The GANT chart shows logging and clearing to occur in the Q4 and QI of '08 and '09 respectively. The proponent should know that this may have to be expanded	PTP acknowledges this concern and notes that this issue was raised by the KFN as well (Issue #0). PTP believes it is aware of all mountain goat winter range and natal areas	New Commitment PTP to ensure detailed clearing and construction planning will account for disturbances to mountain	With the proponents commitment to adopt the regional

	Division, Skeena Region		into Q2 and Q3of '09 to avoid potential disturbance to Mountain Goat winter range and natal areas. Mitigative guidelines for forest harvesting and development activities have been developed to allow for least amount of disturbance and it is expected that a recognized professional will establish a plan to mitigate or remove the potential for disturbance to mountain goats in areas where they occupy. The chart also shows construction to take place over all quarters. The proponent should know that there will be windows of opportunity that may preclude construction in certain aspects of the project development and consideration for these must be taken in to account when developing detailed plan.	potentially impacted by the Project and has properly considered work windows to address these concerns.	goats in areas they occupy. PTP commits to adopt regional measures that have been developed by MOE to mitigate risk and disturbance to mountain goats.	measures developed to mitigate risk and disturbance to mountain goats, MoE is satisfied that this issue has been resolved.
182	Troy Larden, Ministry of Environment, Environmental Stewardship Division, Skeena Region	10-Jan-08	Missing from the application is information referencing compensation for terrestrial habitat loss or disturbance to wildlife. In the application there are many references to the residual effect on several VECs yet there is no proposals relating to how the proponent is going to compensate for the loss of habitat. The proponent identifies that restoration will be sufficient to address this however, the temporal loss between impact and restoration to original pre- disturbed state can be hundreds of years. Opportunity exists to buffer this loss. Terrestrial habitat compensation, wildlife habitat monitoring and monitoring plans to measure post development impacts will require design through a wildlife sub- committee.	PTP acknowledges this concern. However, PTP believes that through the implementation of a robust restoration plan (as discussed in the Application) impacts to terrestrial habitat loss and to wildlife resulting from Project disturbance can be fully mitigated. Notwithstanding this, PTP is open to further discussion on this matter.	PTP acknowledges this concern and the value to both the proponent and the regulatory authorities (and others) of establishing a mechanism to address possible mitigation / compensation issues related to terrestrial habitat loss and disturbance to wildlife. New Commitment PTP commits to actively participate in a Wildlife and Wildlife Habitat Sub- committee for the KSL Project. PTP views the work of this sub- committee will be to: - develop compensation	Will be satisfied provided that there is a solid commitment for implementation of activities approved by the wildlife sub-committee as a means for mitigation and compensation against terrestrial habitat loss and disturbance to wildlife during project

					and mitigative strategies	development.
					commensurate with	-
					project-related terrestrial	
					wildlife habitat losses and	
					disturbances to wildlife	
					- oversee the	
					implementation of	
					proponent (PTP) funded	
					compensatory work, and	
					- recommend adaptive	
					nanagement strategies,	
					ningling restoration work	
					is completed	
					is completed.	
					PTP foresees the work of	
					the committee will	
					continue post EA	
					certification, through the	
					detailed design phase of	
					the project and extend to	
					post-construction	
					monitoring, if an EA	
					Certificate is issued. PTP	
					suggests this committee	
					Would also address	
					nlant communities)	
183	Troy Larden	10- Jan-08	9.3.2 Restoration Units	Access control and restoration of the	Existing Commitment	Satisfied
105	Ministry of		Restoration of disturbed Alpine habitats can	high-elevation habitats crossed by	(Section 9.2)	Julishuu
	Environment		take many years. The proponent must be	the Project are a high priority in	PTP commits to the	
	Environmental		prepared to resource restoration	PTP's program for the project.	preparation of a	
	Stewardship		opportunities until the habitats are returned		Restoration Plan that	
	Division,		to stable, pre development form. Access		addresses these and	
	Skeena Region		control to these habitats must also be		other issues.	
	_		considered a high priority.			
184	Troy Larden,	10-Jan-08	9.3.3 Special Area Restoration	PTP will take this comment under	New Commitment	Satisfied

M Ei Si D SI	Ainistry of Environment, Environmental Stewardship Division, Skeena Region		When restoring special Terrestrial Wildlife Habitats, the proponent should also consider Silviculture treatments which would restore forest attributes.	advisement.	PTP will consider silviculture treatments as part of the restoration plan.	
185 Tr M Eu Si D Si	Troy Larden, Ainistry of Environment, Environmental Etewardship Division, Ekeena Region	10-Jan-08	7.2.4 Terrestrial Environment The proponent has identified a residual effect on the Coastal northern goshawk habitat. A qualified professional will be required to ascertain that there will be no disturbance to nest and fledgling sites during all phases of access and construction. The proponent has identified a residual effect on the Interior northern goshawk. A qualified professional will be required to ascertain that there will be no disturbance to nest and fledgling sites during all phases of access and construction. The proponent has identified a 200 m buffer for forest activities in proximity to occupied mountain goat winter range. The Skeena Region MOE has established measures for forest activities at a minimum of 500 m and measures for access construction and the use of helicopters in proximity to mountain goat winter range and natal areas. It is expected that these measures will be implemented for all phases of the project as a form of mitigating disturbance and unauthorized harvest impact to mountain goats. The proponent has indicated a residual effect on wildlife due to increased access in remote areas resulting in increased authorized and unauthorized hunting. It is expected that the proponent will implement and monitor a 'no-hunting' policy for workers to reduce the	A qualified professional was involved with the habitat rating for northern goshawk, and qualified professionals will be retained during construction activities to monitor disturbance to nesting or fledging sites. The Application states (page 7 - 109) that a 200 m buffer will be placed around mountain goat winter ranges during October 15 and May 15.	Revised Commitment (Section 7.2.5) PTP commits to construction phase monitoring of northern goshawk nest areas occurring within 500 m of the construction footprint. Revised Commitment (Section 7.2.4) PTP commits to no clearing or construction activities to occur within 500 m of mountain goat winter habitat (KP 74 to KP 100) between October 15 and May 15. New Commitment PTP commits to the adoption of regional measures that have been developed by MOE to mitigate risk and disturbance to mountain goats. New Commitment No firearms will be permitted on the job site, including the construction	Satisfied

			direct mortality to wildlife.		camps.	
186	Troy Larden, Ministry of Environment, Environmental Stewardship Division, Skeena Region	10-Jan-08	 6.4.5 Wildlife The proponent has stated that the LSA crosses 4 areas of habitat rated as high for coastal goshawk with no known nest sites. I was unable to find a section in the wildlife report which identified a survey to support the statement that there are no nests. Because the Coastal sub-species of goshawk is a red listed species MOE will require a qualified professional to ensure that there is no disturbance to nest and/or fledgling areas during construction or access development. The proponent also states that the LSA crosses an interior northern goshawk nest territory. A qualified professional will also be required to establish a plan to ensure there is no disturbance to the two identified nest sites. This may require adherence to a timing window or window of least risk. Mountain goats were observed during November flights and historical information in several areas along the route. It is important to note that these locations may not be relevant to ungulate winter range or natal areas and special concern should be given to the areas of occupation during late winter and early spring when these two critical life stages occur. Timing windows for access and pipeline construction will be in effect to avoid disturbance to mountain goats during these periods. Measures for forest development have been established for the Kalum TSA which will be relevant to the entire coastal area.	Call playback surveys were conducted for northern goshawks at all habitat assessment plots completed. No goshawks were detected in the four areas rated as having high suitability for coastal northern goshawk. Of the six known northern goshawk nest locations in the Kalum Forest District, none are within 2 km of the proposed pipeline route. Qualified professionals will be retained during construction activities to monitor disturbance to northern goshawk nesting or fledging sites. A 500 m buffer will be placed around mountain goat winter ranges during October 15 and May 15. Grizzly bears will continue to be given special consideration throughout the project's process. Thank you for the clarification about the study area bounds for the grizzly bear suitability model.	Revised Commitment (Section 7.2.5) PTP commits to construction phase monitoring of northern goshawk nest areas occurring within 500 m of the construction footprint. Revised Commitment (Section 7.2.4) PTP commits that a 500 m buffer around mountain goat winter ranges during October 15 and May 15 will be adopted, as per Skeena management measures.	Satisfied

			Grizzly bears will also need special consideration as there are many areas identified in the report that are ranked high and are susceptible to disturbance. Although stated in the report that the Skeena Region MOE is preparing a habitat suitability model for the region, this is not the case. A suitability model is being developed but will apply to the Morice TSA only.			
187	Michael Gordon, OW	19-Mar-08	The OW has worked closely with the ILMB in recent years to develop field mapping of resources and habitats in the Wet'suwet'en territories. In October 2007, the OW presented the proponent's consultants with maps showing this information relative to the originally proposed pipeline corridor. The maps showed areas adjacent to the proposed corridor or that were intersected by the corridor that included beaver habitat, essential moose habitat, goat escape terrain, berry and medicinal plant habitats and rare ecosystems within the Wet'suwet'en territories. The overall impression from these maps was that it would very difficult if not impossible for the proposed development to avoid impacts that affected the species and habitats shown. This information reinforced the concerns of the Wet'suwet'en Hereditary Chiefs and Elders that the proposed project would create significant incremental damage to the traditional resources and habitats that they rely upon.	PTP acknowledges these concerns. PTP has commenced and will continue to discuss these concerns with the OW. PTP believes that adequate information has been gathered and assessed for the purpose of the EAC Application review. However, it is understood that for some high value/high risk areas, additional information may be necessary. PTP will complete additional studies where warranted post-certification and prior to clearing and construction.	New Commitment PTP will undertake, post- certification, additional studies where warranted on areas of high value/high risk. These studies will incorporate traditional knowledge, where applicable. New Commitment PTP will work with the OW to develop appropriate monitoring programs.	It is questionable whether an Environmental Certificate should be granted due to inadequate information

			The potential impacts of the pipeline project would be in addition to encroachments that they have already indicated reduced or impaired these resources and their habitats. It would appear that more information and study is required beyond what is currently provided in the application. Since this information was provided to the proponent after the application was completed, we are unaware of any follow up to address the information provided in these maps. We suggest it would be important to further clarify any areas shown to be immediately adjacent to or intersected by the proposed corridor and verify whether there are direct implications for habitat or resource loss, habitat utilization by the identified species or other potential effects. Further information could have significant implications for routing, timing of construction activities, and other development planning. In addition, detailed monitoring concurrent with and following construction activities will help to verify whether habitat integrity was compromised			
Speci	es and Ecosystems	s at Risk11		I		
188	Sam Buchanan, Kitselas First Nation	24-Oct-07	Kitselas needs additional information regarding site specific mitigation measures for avoiding grizzly foraging areas and riparian areas and sockeye spawning areas near Hunter Creek.	PTP is addressing these issues directly with the Kitselas First Nation.	New Commitment PTP has agreed to fund additional Grizzly Bear and Mountain Goat studies to be undertaken by the KFN and their consultants. This work will be initiated post-	Satisfied

					certification and prior to construction.	
189	Environmental Stewardship Division Omineca Region	30-Nov-07	Without a larger data set, ESD Omineca does not consider the clearing of ~ 3ha of the red-listed spruce/ostrich fern community to be "less than significant". ESD Omineca suggests that PTP conduct additional survey work for the plant community within the vicinity of the ROW or in other appropriate habitats within the LSA. Additional data and survey information is necessary to qualify the impact on the red- listed plant association.	PTP will undertake further investigations into the red-listed spruce/ostrich fern plant community in order to more fully understand the nature and extent of this plant community.	PTP will provide this additional information to ESD Omineca.	Satisfied; see reference to #182.
190	Environmental Stewardship Division Omineca Region	30-Nov-07	Section 7.2.5.1 (h) Potential Effect: Combined effects on grizzly bear Omineca ESD suggests that prior to any clearing activity, a reconnaissance is conducted by a qualified individual (s) to determine the presence or absence of bears and dens over the winter.	PTP will have a qualified wildlife biologist undertake a "route walk" in advance of clearing and construction in key areas to determine the presence or absence of bears and dens and to determine means of avoiding these features where practical.	Existing Commitment (Section 7.2.4) A "route walk" will be undertaken by a wildlife specialist prior to clearing and construction.	Satisfied; see reference to # 182.
191	Environmental Stewardship Division Omineca Region	30-Nov-07	Section 7.2.5.1 – (I) (m) Potential Effect: Combined effects on great blue heron and sandhill crane. What is the rational for the distance difference in nest or rookery location in regards to the implementation of the Wildlife Contingency Plan?	The following sources were consulted for determining appropriate triggers for management action by the project: Fenger et al. 2006 – Wildlife and Trees in British Columbia – suggests a 300 m activity buffer around active great blue heron nests. Gebauer 2004 – IWMS Account for Sandhill Crane – suggests limiting access to breeding wetlands within 400 m during the breeding season.	PTP has no further comment.	Satisfied
192	Troy Larden, Ministry of Environment,	10-Jan-08	6.5.2 Plants and Plant Communities The proponent has identified occurrences of rare plants and plant communities within	PTP acknowledges this concern.	Existing Commitment (Section 7.2.5) Rare plant communities	Satisfied

	Environmental Stewardship Division, Skeena Region		and adjacent to the project footprint. It is expected that where these occurrences are located, the project footprint will be minimized to reduce the impact to the identified plants or communities. As an example, if an occurrence of a rare plant community occurred adjacent to the project footprint, the construction of a 'passing lane' will not be considered here or the location of a spoils pile will be moved to reduce impact.		and rare plant occurrences will be mitigated at a local site level to minimize impact. Modifications to the project footprint will be considered in order to avoid or reduce the potential impact.	
193	Troy Larden, Ministry of Environment, Environmental Stewardship Division, Skeena Region	10-Jan-08	6.5.3 Wildlife The proponent has identified areas where the project foot print and the LSA overlap with many of the identified wildlife species. It is expected that the proponent will utilize a qualified professional to establish a mitigation plan to reduce the impact to the affected species. Mitigations may include realignment, timing windows, construction type as examples.	The proponent has retained qualified professionals (Registered Professional Biologists who understand the ecology of the wildlife VEC species) during all phases of the project, including mitigation planning and future implementation.	PTP has no further comment.	Satisfied
Archa	eological and Herit	tage Resources			•	
194	Michael Gordon, Haisla Nation	3-Dec-07	The application report (Volume II, Baseline Studies) indicated that there were 9 sites in the upper Kitimat watershed and 10 sites in the lower Kitimat watershed that have been recommended for more detailed archaeological impact assessments (AIA). It is important to confirm that these assessments will be carried out. Assuming they will be done, it is also important to determine when these assessments will be carried out relative to the application review and permitting process. Consistent with past Haisla practice, we suggest that an archaeologist be on site at these locations during any construction activities regardless of the findings of the AIA.	The AIA field work and assessment was completed and included in the EAC Application. However, the AIA technical report has just recently been completed and provided to the Archaeology Branch as well as the EAO Working Group (including the Haisla Nation) as of January 10th, 2008. PTP has undertaken an AIA for the Project and the 9 areas in the upper Kitimat and 10 areas in the lower Kitimat that were identified in the AOA were examined.	Revised Commitment (Section 7.2.6) PTP commits to the protection of archaeologically important sites. Revised Commitment (Section 7.2.6) PTP commits to have an archaeologist on-site during soil disturbing activities in the identified areas.	Satisfied as long as the AIA is cross- referenced with TUS and all precautions are taken to avoid and protect impacts to archaeologica lly important artefacts.
195	Harp Gill,	6-Dec-07	7.2.6 - Mitigation measures are not clearly	PTP considers that this statement is	PTP has addressed this	Refer to

	Transport Canada		identified in this section. For example, Section 7.2.6.1 – it states that "PTP will undertake appropriate site mitigation measures for each site to ensure that the loss or alteration of these sites will not constitute a loss to the regional archaeological record". Proposed mitigation is unclear in this section	valid and important to make in the context of addressing its' responsibility for protecting archaeological resources during clearing and construction. Mitigation measures are outlined in Table 7.2- 21 of the Application.	issue in the Application.	appropriate reviewing agency.
196	Harp Gill, Transport Canada	6-Dec-07	6.6.4 - The statement indicating that the content of the TUS reports "covered a total of roughly 445 km of the total 462 km long pipeline alignment" is misleading as there are overlapping territory claims. For example, the fact that the TUS report was not completed for Skin Tyee will include a distance much greater than that 17 km (462 km – 445 km).	At the time of preparing the Archaeology and Heritage Resources section of the Application (Section 6.6), PTP was not in possession of all of the TUS reports from First Nations. However, this potential deficit was filled by relying on other available data sources (e.g. an extensive literature review). With the exception of the West Moberly First Nation, all TUS reports have been completed and considered in the Archaeological Impact Assessment (AIA) report.	PTP has no further comment.	Satisfied
197	Oil and Gas Commission	11-Dec-07	16 Archaeological and Heritage sites have been identified from AIAs. When will the AIAs be available to the OGC? Have they been provided to First Nation communities?	PTP's archaeology consultant (Terra Archaeology) is at the moment just completing the AIA report that will be filed with the Archaeology Branch in fulfillment of the Permit requirements. The report will be provided to the EAO, Working Group members and First Nations at the same time it is filed with the Archaeology Branch.	PTP to provide AIA report to the EAO, Working Group members and others when it is finalized.	Satisfied. OGC has received a copy of the AIA report. Archaeology Branch, MTSA, is responsible for reviewing heritage resources for the EAC application. OGC is responsible
						for Heritage Conservation Act concerns at the permitting stage. OGC (Vera Brandzin) will review the document for any specific archaeologica I requirements relevant to OGC permitting.
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198	Oil and Gas Commission	11-Dec-07	What is the timeline for the Arch Resources Mitigation Plan, Arch Resources Monitoring plan, and Contingency Plan for Management of Arch or Heritage Resources	PTP anticipates that plans of this type will be available to as part of the permitting process.	PTP has no further comment.	Satisfied
199	Michael Gordon, OW	19-Mar-08	The archaeological impact assessment (AIA) identifies sensitive cultural areas that require further study before any development activities are undertaken. The AIA covers the entire length of the proposed pipeline corridor. Given the scope of the work, it is important that each local area is reviewed with more attention to detail. Given the timing of the AIA work, it may be that the TUS information generated by the Wet'suwet'en and other First Nations was not available as guidance for the AIA. If this is so, then we suggest that the AIA should be cross-checked with the TUS information to ensure that important sites have not been overlooked.	 PTP's archaeology consultants (Terra Archaeology) met with and consulted all First Nations prior to and during the conduct of the Archaeological Impact Assessment (AIA). While some First Nations may not have finalized their TUS reports by the time the AIA field work was undertaken, TUS information was taken into consideration when preparing the AIA for the KSL Project. The AIA was distributed to all members of the EAO Working Group as well as all First Nations for their review and comment. PTP has been and will continue to consult with First Nations 	PTP has no further comment.	The OW has provided PTP with information on cultural heritage sites that were not identified in the field. To date consensus has not been reach on the amount of protection these sites require.

				communities to ensure that all TUS information is considered in project planning.		
First N	lations Community	y and Land Use				
200	Brent Robinson, Haisla Nation	24-Oct-07	Long-term economic benefits offered by PTP should not be confused with the economic component of accommodation which is the Crown's responsibility. There should be no mention of business arrangements in the Application	First Nations have identified long- term economic benefits as an issue. It is inappropriate for PTP to comment on the Crown's responsibility.	PTP has no further comment.	Satisfied
201	Brent Robinson, Haisla Nation	24-Oct-07	The Project is extremely important to the Kitamaat Village Council. Politically and technically PTP will follow the Haisla process. Environmental comments will be made by KVC's staff and consultants.	PTP is and has been discussing the Project with KVC for more than two years.	PTP to continue dialogue with KVC in respect of the Project.	Satisfied
202	Wilfred McKenzie, Kitselas First Nation	24-Oct-07	Kitselas has written three reports after reviewing the baseline information: Fish and Wildlife, Slope Stability and Archaeology (for which there are no present concerns). Fish, wildlife and slope stability issues are being addressed with PTP as agreed in an MOU.	PTP is addressing the issues raised by these reports.	These issues are addressed by PTP in this Issue Tracking Table.	Satisfied
203	Verne Solonas, McLeod Lake Indian Band	24-Oct-07	Community members should know when that area will not be accessible for hunting and gathering.	PTP understands this concern.	Existing Commitment (Section 7.2.9) PTP will post information so the community members know when construction activity will begin.	Satisfied
204	Bruce Muir, West Moberly First Nation	24-Oct-07	There are several inaccuracies in the profile of the West Moberly First Nations and the description of the dispute between the Province and Treaty 8 members over the boundary of Treaty 8. WMFN will be submitting new information. Will new information in the TUS replace that	Should there be inaccuracies, PTP would appreciate being made aware of them. PTP awaits the completion of the WMFN TUS. Any inaccurate information will be corrected where it is relevant to the EAC Application.	Should there be inaccurate information in the Application, PTP will correspond with the EAO for the purpose of correcting the information.	

			contained in the Application?			
205	Bruce Muir, West Moberly First Nation	24-Oct-07	A draft letter from the Halfway River First Nation to the EAO was read expressing the opinion that Halfway River should be involved in consultation. The Treaty 8 Tribal Association should also be involved.	PTP understands that the EAO has responded to this issue.	PTP has provided copies of all of the Application material to the Halfway FN and the Treaty 8 T.A.	
206	Bruce Muir, West Moberly First Nation	24-Oct-07	West Moberly seeks capacity funding from the Crown	It is inappropriate for PTP to comment on this issue.	PTP has no further comment.	
207	Bruce Muir, West Moberly First Nation	24-Oct-07	What is the EAO's methodology for assessing impacts on aboriginal rights? WMFN questions the validity of how the EAO will discharge that duty.	It is inappropriate for PTP to comment on this issue.	PTP has no further comment.	
208	David de Wit and OW consultants	24-Oct-07	The OW still questions that the current route is the best option. It goes through the heartland of Wet'suwet'en culture for 60 km along the Morice river.	PTP believes the proposed route through the Nimbus Pass is a constructible and environmentally responsible route. PTP studies have not revealed any other acceptable route through the Coast Mountains that would avoid the Morice River Valley.	New Commitment PTP will work with OW on considering potential improvements to the proposed route in the Morice River Valley.	Not satisfied. No cost analysis of routes have ever been provided despite numerous requests.
209	David de Wit and OW consultants	24-Oct-07	There are still some (already) contaminated sites to identify such as Goosly Lake. PTP should commit to a toxicology analysis of country foods (includes plants and fish).	PTP has committed to conduct this analysis before construction.	New Commitment PTP to undertake an analysis of country foods (plants and fish) before and following construction.	OK
210	Erminio Pucci, Metlakatla	8-Nov-07	Interested in working with the Working Group to establish a subgroup on cultural/heritage and traditional use that would address the need to have assurances that impacts to cultural areas are mitigated through appropriate monitoring.	PTP is supportive of the Working Group members setting up a subcommittee and would participate as requested by the participants.	Representatives of Metlakatla indicated that they would directly approach the EAO regarding this issue. PTP has no further comment.	Satisfied
211	Chief and	15-Nov-07	Lheidli T'enneh should be involved in	PTP acknowledges this request.	Revised Commitment	Satisfied

	Lhedli T'enneh First Nation consultant		Access Management Planning		(Section 9.2) PTP will prepare an Access Management Plan following certification of the Project and will request input from the Lheidli T'enneh on the Plan before it is finalized.	
212	Gordon Saito, Vanderhoof Forest District	28-Nov-07	Please coordinate First Nation consultation with the Forest District Aboriginal Liaison Officer.	PTP is required to work with the OGC in regard to First Nations consultation related to project permitting and therefore will not be coordinating this topic with the MOFR.	PTP has no further comment.	Satisfied
213	David de Wit, OW	30-Nov-07	By opening a new corridor in the previously undisturbed area northwest of Morice Lake (which serves as a wildlife reserve), unwanted access will severely impact traditional activities.	PTP acknowledges that access control is an important concern to the OW and others. PTP will prepare an Access Management Plan prior to clearing and construction.	Revised Commitment (Section 9.2) PTP will prepare an Access Management Plan following certification of the Project and will request input from the OW on the Plan before it is finalized.	Not satisfied. Past access management practices for other projects are not working successfully.
214	David de Wit, OW	30-Nov-07	Background data on contamination levels in country foods and water must be gathered	PTP has committed to conduct this analysis before construction.	Please refer to Issue #209.	OK
215	David de Wit, OW	30-Nov-07	A compensation plan for losses of plant, fish, wildlife, and traditional activities is required.	Where PTP is required to design and implement compensation plans as part of existing legislation (e.g. Federal Fisheries Act), this will be undertaken. PTP will discuss other forms of compensation with the OW.	PTP will continue discussions on this topic with representatives of the OW.	PTP received information from the Wet'suwet'en and have not yet addressed the issue.
216	David de Wit, OW	30-Nov-07	The DFO has yet to consult with the OW despite its fiduciary obligation.	It is inappropriate for PTP to comment on this issue.	PTP has no further comment.	Satisfied.
217	David de Wit, OW	30-Nov-07	PTP has not considered serious measures to avoid negative impacts on Wet'suwet'en interests because of the costs involved	PTP maintains that adverse impacts can be avoided or mitigated by the measures proposed in the EAC Application with refinements that are	PTP to continue dialogue with OW.	Not satisfied because no serious routing

				subject to continuing discussions.		alternatives are considered by PTP because of potential costs.
218	David de Wit, OW	30-Nov-07	Issues already raised have been insufficiently addressed by PTP and the EAO.	PTP continues to engage OW on these issues.	PTP will continue to work with the OW to address these issues.	No acceptable solution for the issues have been suggested.
219	David de Wit, OW	30-Nov-07	Potential impacts on culture, health, and well-being have been (erroneously) labelled as insignificant.	"Significant" is a defined term in the context of the Application. Please see Section 7.1 of the Application.	PTP has addressed this issue in the Application.	Not satisfied. No acceptable measurement s of potential, "insignificant" impacts.
220	David de Wit, OW	30-Nov-07	Funding to review the Application has been insufficient to nil.	PTP has agreed in principle to fully fund the budget prepared by the OW for the purpose of the Application review.	PTP and OW to conclude the agreement.	Satisifed.
221	Kitselas First Nation	4-Dec-07	8.0 on page e-42 – First Nation community Land Use – this section is vague – should deal with specific identified by FNs and addressed prior to the commencement of project – if approved.	This section refers to information provided by Traditional Use Studies. PTP and KFN entered a confidentiality agreement on the use (and publication) of this information. The information has been used to guide measures to avoid and mitigate effects.	PTP has addressed this issue in the Application.	Satisfied
222	Kitselas First Nation	4-Dec-07	KFN to be involved with further fish and wildlife studies that are deemed necessary.	KFN personnel have been involved in fish and wildlife studies to date.	New Commitment PTP will include KFN personnel in future fish and wildlife studies.	Satisfied
223	Kitselas First Nation	4-Dec-07	Pages h-5; h-6; h-7;h-8 and h-9 – KFN would like a community meeting to discuss opportunities.	PTP has offered and would welcome such a meeting. KFN has suggested that a meeting with elders may be arranged.	PTP is available to meet with the KFN at their convenience.	Satisfied

224	Kitselas First Nation	4-Dec-07	Review of First Nations in the Environs – don't agree with contents with regard to Kitselas – no contact with author Dr. Dorothy Kennedy.	PTP would appreciate any corrected information.	PTP to seek clarification with KFN in regard to possible incorrect information.	Satisfied
225	Kitselas First Nation	4-Dec-07	Monitoring and follow up – First nations must be included in the monitoring process, both during construction and post construction – Kitselas FN technicians are trained to monitor environmental projects.	PTP will hire Environmental Inspection staff to ensure the successful implementation of EPP measures. First Nations members as well as other qualified candidates will be considered for employment in these roles.	New Commitment PTP will engage the KFN in the monitoring process during construction and post construction either directly as qualified environmental inspection staff or through the means of a monitoring committee established between PTP and KFN.	Satisfied
226	Kitselas First Nation	4-Dec-07	Seasonal harvesting activities by First Nations – need assurance that activities will not be altered or halted during construction and post construction era.	PTP cannot give this assurance for the construction period due to safety concerns. Notice of the interruption of harvesting activities will be provided to the community in the forms they wish. After restoration, there will be no effects on traditional activities.	Existing Commitment (Section 7.2.7) PTP to provide notification to the KFN where construction activities may affect areas used for seasonal harvesting activities.	Satisfied
227	Harp Gill, Transport Canada	6-Dec-07	6.6.3 - It is noted that not all the TUS reports have been completed. Please clarify when these studies will be completed when materials relevant to the Application will be submitted.	All materials relevant to the Application have been submitted. The only outstanding TUS report is the one from the West Moberly First Nation (WMFN). However, Traditional Use Information regarding the WMFN that is relevant to the Application has been gathered from other sources and included in the Application.	PTP has no further comment.	Satisfied
228	Harp Gill, Transport Canada	6-Dec-07	6.7.3.6 - This section indicates that three FN have not yet released the TUS study conducted and therefore this information still needs to be incorporated into the Application. See comment for Section 6.6.3	The reviewer is mistaken in this assumption. PTP has been provided with all TUS reports with the exception of the West Moberly First Nation (WMFN). Information	PTP has no further comment.	Satisfied

			above.	regarding traditional use by the WMFN has been incorporated into the Application from other data sources (e.g. extensive literature review). It should be noted that for most First Nations, PTP has committed to not making their TUS reports available to others. PTP has used them in the preparation of the Application and made a copy available to the EAO for their use only in reviewing the Application. PTP does not intend to incorporate any additional information into the		
229	Oil and Gas Commission	11-Dec-07	Why is the area attributed to Metlakatla and Lax Kw'alaams different on map figures 6.7-1 & 6.7-2	Application. These two maps illustrate respectively the territorial boundaries as shown on the provincial government Statement of Intent map and the territorial boundaries as outlined by First Nations in their TUS reports. These boundaries differ in some circumstances.	PTP has no further comment.	Satisfied
230	Oil and Gas Commission	11-Dec-07	Does PTP plan to comment on the recommendations provided by some First Nation Communities?	PTP has fully commented on issues raised by First Nations (see Tables 2.4-10 to 2.4-21 inclusive) and continues to do so.	This Issue Tracking Table as well as the Application provides PTP's comments on FN recommendations.	Satisfied. OGC will consult for OGC permitting if EAC is approved. OGC is participating in the KSL Working Group to understand FN concerns, how they are

						being addressed by PTP, and incorporate the consultation that has been completed by government into OGC permitting.
						To improve efficiency of permit level consultation, it is expected that PTP, EAO, and relevant FNs will continue to address as much as possible concerns that may affect location, timing and method of clearing, access, and pipeline construction; including site specific issues.
231	Oil and Gas	11-Dec-07	TUS information from West Moberly First	The only TUS report that has not	PTP has no further	Satisfied.
	Commission		Nation, Lax Kw'alaams First Nation, and	been received is the one being	comment.	OGC will

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						method of clearing, access, and pipeline construction; including site specific issues.
232	David de Wit, OW	13-Dec-07	We have requested detailed route analysis of the alternatives and the Hereditary Chiefs consider the information provided to date by the proponent is insufficient.	PTP acknowledges this concern.	PTP is preparing a brief submission to the EAO regarding route comparison criteria and this will be provided to the WG.	Not satisfied
233	David de Wit, OW	13-Dec-07	The Hereditary Chiefs have concerns on how their traditional interests have been included. In the Morice lands we want assurances that our water issues are addressed. Specifically we don't want to see the reference state altered and want to collaborate with PTP.	PTP is aware of the "Water Protection Management Area" (WPMA) that is described in Provision No. 2 in the Morice LRMP. PTP has already committed to work with the OW and the Water Stewardship Division (MOE) for the purpose of ensuring hydrological integrity and no long-term changes to the reference state in the WPMA resulting from the KSL Project.	Revised Commitment (Section 7.2.3) PTP will ensure there are no long-term changes to the reference water state in the WPMA resulting from the KSL Project.	Not satisfied. How will the objectives of the Morice Water management area be met in conjunction with this project?
234	Stefan Schug, OW	13-Dec-07	Impacts are identified as insignificant in the Application. They are not insignificant to the OW.	Impacts are only determined to be less than significant following the application of mitigation and in some cases compensation measures. Please refer to Section 7 of the Application.	PTP has no further comment.	No measure but rather arbitrary conclusions about the impacts! From a Wet'suwet'en perspective the impacts are potentially significant!
235	Diana Barbetti	13-Dec-07	The proponent's message to us is that we	PTP has and will continue to meet	PTP will continue to speak	Satisfied

	and Haisla consultants		should trust them. We know from history, from others who have said this, that this doesn't always work out. The proponent needs to do some work around providing us with increased comfort.	with the Haisla and their consultants to fully address issues raised and to increase their confidence in PTP's decisions.	with the Haisla and their consultants.	
236	Diana Barbetti and Haisla consultants	13-Dec-07	In specific areas of high risk or high value you should consider doing additional investigative work so that there are no surprises. This work should be done now rather than later and you should be incorporating traditional knowledge.	PTP believes that adequate information has been gathered and assessed for the purpose of the EAC Application review. However, it is understood that for some high value/high risk areas, additional information may be necessary. PTP will complete additional studies where warranted post-certificate and prior to clearing and construction	New Commitment PTP will undertake, post- certification, additional studies where warranted on areas of high value/high risk. These studies will incorporate traditional knowledge, where applicable.	Satisfied; noted that there may be time this spring, summer, or fall to do this work.
237	Michael Gordon, Haisla	13-Dec-07	Any permitting or other referrals that are submitted to agencies in the Kitimat Valley should also be referred to the Haisla.	PTP acknowledges this request.	New Commitment PTP will provide or will ask the regulatory authority to provide the Haisla with any permitting or other referrals related to the KSL Project in the Kitimat Valley.	Satisfied
238	Erminio Pucci, Metlakatla	24-Jan-08	That a FN cultural, heritage and archaeological monitoring process be put in place for both the construction and operational phases of the project. This could simply be that the project proponent hire a FN facilitator/coordinator to advise FN when there is activity planned within their respective territories, and/or to ensure that the FN are well informed as to the progress of the project. (I'm not suggesting that this is the answer, only that an FN cultural, heritage and archaeological monitoring process be put in place.)	The reviewer is referred to the Application (Section 10 – List of Commitments as well as Table 2.4- 13) where PTP has committed to hiring environmental inspection staff. These individuals will require specific qualifications and First Nations members who have those qualifications will be considered.	New Commitment PTP will institute ways to facilitate ongoing and timely communication between FN members and PTP on cultural and environmental issues during construction. PTP will continue discussions with FNs regarding this issue.	Satisfied
239	Erminio Pucci,	24-Jan-08	The Application, in our view does not reflect	PTP has committed to developing a	New Commitment	Satisfied

	Metlakatla		the potential loss of use and/or benefit of a resource to FN in the event of an impact on the resource. (If there is an impact on fish in a stream, the proponent commits to replacing the fish but does not commit to compensating for the loss of use and/or benefit to the FN up until the fish reach the level of maturity of the impacted fish. I only use fish as an example we could use any other resource of importance to FN. It could be berries for that matter.	Restoration Plan (please refer to Section 9 of the Application) that will address the restoration of plant and animal habitat, as well as fisheries habitat that is temporarily disrupted during construction. In addition, a conceptual Fisheries Compensation Plan has been developed to meet the requirements of DFO and MOE. The Application acknowledges the temporal loss of some resource values but considers that the small footprint of the project and the short duration between construction and restoration will greatly diminish these concerns.	PTP commits that its environmental inspection (EI) staff will ensure that all contractors adhere to the established plans and procedures (e.g. the EPP) for the protection of natural resources. Where, in the view of the EI, significant damage has occurred, the relevant First Nation representative will immediately be contacted to inform them of the damage and to be asked for input into mitigation measures that will be employed to appropriately deal with the	
240	Michael Gordon, OW	19-Mar-08	The OW and the Wet'suwet'en Hereditary Chiefs and Elders have indicated that there are a variety of past and present activities that have impacted their traditional resources and habitats. These include logging, mining, agriculture, ranching, and non-native recreational use including hunting. Along with some of these activities has come the introduction of chemical pesticides and herbicides. Future proposals for development include mine development and other pipeline corridors. To the Wet'suwet'en, cumulative effects is about how this project can occur without adding to the environmental burden already imposed or yet to be imposed by these other activities. The application does not specifically address this.	PTP has committed to developing a Restoration Plan (Section 9 of the Application) that will address the restoration of plant and animal habitat, as well as fisheries habitat that is temporarily disrupted during construction. In addition, a conceptual Fisheries Compensation Plan has been developed to meet the requirements of DFO and MOE. The application acknowledges the temporal loss of some resource values but considers that the small footprint of the project and the short duration between construction and restoration will greatly diminish these concerns.	damage. New Commitment PTP commits that its environmental inspection (EI) staff will ensure that all contractors adhere to the established plans and procedures (e.g. the EPP) for the protection of natural resources. Where, in the view of the EI, significant damage has occurred, the relevant First Nation representative will immediately be contacted to inform them of the damage and to be asked for input into mitigation measures that	Additional impacts to a sensitive ecosystem is the question. Is there adequate information to make an informed decision? Do RA's have the information to determine additional impacts will not exceed the threshold

			Given the scope of the proposed project, we appreciate that the cumulative effects analysis in the application is based on a broad assessment. Caution should be used to avoid the tendency to let the assessment be driven by a design-based, environmental component based approach. The challenge for the assessment of this broad-based project is to account for the complex ecological interactions that can and will occur within and between local habitat types and watersheds.	PTP considers that the Cumulative Effects Assessment undertaken for the KSL Project is appropriate for this type of project and meets the requirements for the EAC review.	will be employed to appropriately deal with the damage.	the ecosystem can bear?
			analysis should take into account more site- specific information on sensitive habitats that are within the influence of the proposed project footprint.			
241	Lax Kw'alaam	Jul-07	Compensation if disturbances cause an inability to collect food.	PTP believes that its construction activities for the KSL Project will have no effect on peoples ability to collect food and therefore compensation will not be necessary.	New Commitment PTP commits to ensure its activities will have no effect on peoples ability to collect food following construction of the KSL Project.	
242	Lax Kw'alaam	Jul-07	Compensation for damage to resource gathering sites.	PTP has discussed compensation measures with provincial and federal regulatory authorities for both territorial and aquatic impacts.	PTP would expect that the regulatory authorities will communicate with the Lax Kw'alaam as well as other First Nations in regard to compensation measures. PTP has filed a Conceptual Fisheries Compensation Plan with the EAO and DFO.	
243	Lax Kw'alaam	July-07	Impacts of the tanker route and spills between Stephens Island and Dundas	PTP considers that this issue is part of the KLNG project review and not	PTP has no further comment.	

			Island. These islands are the breadbasket of coastal communities.	the KSL Project.		
244	Lax Kw'alaam	Jul-07	Emergency response training for communities on the pipeline and tanker routes in the event of a disaster.	PTP has already committed to notify and work with all agencies in the Project area dealing with pipeline emergency preparedness.	PTP has no further comment.	
245	Lax Kw'alaam	Jul-07	Concerns regarding construction damage to creeks.	PTP is keenly aware that any construction damage to creeks will require, depending on the nature of the creek, detailed consideration of specific mitigation and compensation measures. PTP has already committed to specific measures for the protection of aquatic resources.	PTP has no further comment.	
246	Skin Tyee First Nation	Jul-07	The effects of the pipeline on wildlife (hunting and fishing) including effects on traplines.	PTP believes that with the implementation of procedures outlined in the various Environmental Management Plans and the Environmental Protection Plan that the effects of constructing the KSL pipeline on wildlife will be minimal. PTP has already committed to the notification of all trapline holders, including Skin Tyee in regard to construction activity in order to avoid direct impacts.	PTP has no further comment.	
247	Skin Tyee First Nation	Jul-07	The effects of project construction on sensitive areas, particularly medicine plant and berry gathering areas.	PTP will work closely with the Skin Tyee during the detailed design phase of the Project to ensure sensitive areas are identified and appropriate mitigation measures are applied to avoid and reduce environmental effects.	New Commitment PTP commits to continue working and consulting with the Skin Tyee during the detailed design phase of the Project as well as during construction for the purpose of minimizing impacts to identified sensitive areas.	
248	Skin Tyee First Nation	Jul-07	The creation of a liaison position for the purpose of clear communication with the	PTP acknowledges the request of the Skin Tyee to be kept informed about	New Commitment PTP will have a Liaison	

			community regarding potential impacts and benefits from the Project.	the project during construction and restoration of the KSL Project on lands within their traditional territory.	Person as part of their project team who will be responsible for clear and timely communication with the Skin Tyee during construction and restoration of the KSL project in Skin Tyee traditional territory.	
249	Skin Tyee First Nation	Jul-07	Request to sponsor additional historical and ethnographic research, particularly in regard to trapline holders.	PTP acknowledges this request.	New Commitment PTP will provide support to the Skin Tyee Nation for the purpose of their studies related to historical and ethnographic research (particularly trapline holders) on lands affected by the KSL Project. This funding would be provided following the decision by PTP to proceed with the KSL Project.	
250	Skin Tyee First Nation	Jul-07	Concern regarding construction activities during key wildlife harvesting times.	PTP has already committed to ensure that construction activities do not impact key wildlife "timing" issues such as winter range and natal areas.	New Commitment PTP commits to further detailed engagement with the Skin Tyee for the purpose of identifying areas along the pipeline route, in Skin Tyee territory, where conflicts between wildlife harvesting and construction activities may occur, and to determine appropriate mitigation measures.	

Land	Land and Resource Use							
251	David de Wit and OW consultants	24-Oct-07	Need to discuss differing interpretations of the nature of protected areas in the Morice Watershed Management Area.	PTP will continue to engage on this with the OW.	PTP to continue to engage in discussions with the OW.	Has clarity been reached by all parties?		
252	Diane Hewlett, District of Kitimat	24-Oct-07	Diane requested the proponent to review Section 3.1.2, Settlement, of the Kalum LRMP. The KSL right of way will cross the Dubose Industrial Site which provides a regional benefit to future development.	It is believed that the entire Kalum LRMP has been reviewed as part of the EAC preparation.	PTP to ensure it reviews Section 3.1.2 of the Kalum LRMP.	Satisfied		
253	Phil LePage, Ministry of Forests	25-Oct-07	I have put the latest pipeline route information on my map and have determined that, with only a few very minor changes, the route follows that proposed in 2006. As such, the pipeline route is in direct conflict with two established long-term Experimental Projects (EPs) in the Kitimat Valley. I sent a shape file identifying these conflicts to the proponent back in October, 2006 and I am very concerned that no action appears to have been taken to avoid these sites. I am including another shape file for your reference that is based on the most recent pipeline route. The most serious conflict is at KP26 where the pipeline runs right through EP712 (block 3). Farther along at KP33, the pipeline is situated immediately adjacent to EP712 (block 1) and is within 55m of EP1325 (block 2) and 85m of block 3 (at KP33 and KP34, respectively). These sites may be at risk if the pipeline right-of-way is more than a few meters wide. Damage to these installations as a result of cutting trees or building road for pipeline construction is considered unacceptable to the BC Ministry of Forests. Please pass this information along to the people responsible for the pipeline planning and feel free to contact me	PTP apologises for not providing a timely response to these important concerns. PTP has reviewed the location of some of these experimental plots and currently believes it can avoid direct impact.	PTP will review this information more closely and will directly communicate with the reviewer to ensure a satisfactory resolution is achieved.	Satisfied		

			if you require any additional information.			
254	Fred McKenzie, Kitselas First Nation	25-Oct-07	From KP 61 east, access to hunters and others by quads etc must be restricted. Kitselas will also seek a "no hunting zone" designation from MOE	PTP has committed to eliminate all new access created by the KSL Project. However, PTP cannot be responsible for access that is already present.	Existing Commitment (Section 9.2) PTP to prepare an Access Management Plan, post certification, that addresses access restriction measures. New Commitment PTP commits to comply with the MOF guidelines regarding treatment of trees infected by Mountain Pine Beetle.	Satisfied
255	Gary Westfall, Recreation Sites and Trails Unit, Northern Interior Region, Ministry of Tourism, Sport and the Arts	14-Nov-07	You should add Ministry of Tourism Sport and the Arts (MTSA), as an additional agency that will monitor commitments made in section 7.2.8.1 in your document "Proposal Commitments", dealing with public recreation sites and trails that may be impacted by the pipeline construction. We would want to see KSL contractors notifying MTSA of imminent work as well as working closely with our recreation officers or contractors to ensure reclamation work done (due to any construction work) – returning site or trail to as close to previous condition as is possible.	PTP acknowledges this request and has added MTSA as a monitoring agency in the List of Commitments. PTP will ensure that MTSA is notified of restoration work that is proposed to return the impacted trails to as close to their previous condition as practical, so as to obtain their input prior to implementing the work.	MTSA added as a monitoring agency in the List of Commitments.	Satisfied
256	Gordon Saito, Vanderhoof Forest District	28-Nov-07	Please ensure that all the major licensees, woodlot tenure holders, First Nations, and range tenure holders have been referred to.	PTP can confirm that their consultants have contacted all of these organizations and individuals.	PTP has no further comment.	Satisfied
257	Gordon Saito, Vanderhoof Forest District	28-Nov-07	Every effort should be made to have harvesting activities carried out by the major licensees/NRFLs, which will help prevent timber from being isolated.	PTP has been asked to ensure that logging and clearing work maximizes, to the extent practical, the contracting and employment of local companies, individuals, and First Nations. PTP	PTP will continue to discuss a mutually satisfactory approach with the MOFR, tenure holders, and local	Satisfied

				will continue to discuss this with the MOFR and tenure holders in order to devise a satisfactory contracting strategy.	contractors.	
258	Gordon Saito, Vanderhoof Forest District	28-Nov-07	With the remaining volumes of timber, application should be made for an occupant licence to cut or similar licence to be determine through discussion - ensure contact is made to the Forest District rep prior to preparing application package.	PTP is required to apply to the Oil and Gas Commission (OGC) for all applicable permits, including a licence to cut. PTP understands that the OGC will be discussing this with the appropriate MOFR representatives.	PTP has no further comment.	Satisfied
259	Gordon Saito, Vanderhoof Forest District	28-Nov-07	Range tenure holders have been reconfirmed in our district, please ensure referrals are made to address any of their concerns. The area north of Fraser Lake appears to be of particular concern. The gas pipeline overlaps four range agreements in the Vanderhoof Forest District, PNG should contact the range agreement holders and inquire if their activities will have an impact on range use. If concerns are identified, PNG may need to provide Mitigative measures. Mitigative measures may include fencing, grass seeding etc.	PTP appreciates being made aware of this information.	Existing Commitment (Section 7.2.8) PTP will contact the Range Agreement Holders to ensure they are aware of the intended pipeline activities and to determine what mitigation measures may be necessary to deal with possible impacts.	Satisfied
260	Gordon Saito, Vanderhoof Forest District	28-Nov-07	Where there is heavy use of existing logging roads or FSR, please ensure one has a road use agreement or road permit in place.	PTP acknowledges this requirement. Road use permits will be sought through the OGC. Road use agreements will be negotiated with tenure holders.	Existing Commitment (Section 7.2.9) PTP will ensure that road use agreements or road use permits are in place before roads are used for the Project.	Satisfied
261	Gordon Saito, Vanderhoof Forest District	28-Nov-07	Please ensure that pipeline installations at logging road crossings are engineered to handle the appropriate haul loads.	PTP acknowledges this requirement.	Existing Commitment (Section 7.2.9) PTP has already entered into discussions with tenure holders in regard to	Satisfied

					this issue and will continue this dialogue during the design phase of the KSL Project.	
262	David de Wit, OW	30-Nov-07	The OW want zero impact on resources. The proponent admits that impacts will occur.	PTP has identified residual impacts in the Application and has proposed appropriate mitigation.	PTP will continue to discuss the application of proposed mitigation with the OW.	Mitigation measures are not sufficient.
263	John Perras, Kalum Forest District	30-Nov-07	I have reviewed the reports by Westland Resource Group Inc. They are very thorough. The Forestry Assessment report already identifies the issues associated with construction of the line and commits to working with West Fraser to schedule operations to avoid conflicts.	PTP appreciates this positive feedback.	PTP has no further comment.	Satisfied
264	Rod Meredith, Kalum Forest District	30-Nov-07	Near Terrace, the route location goes through the DuBose industrial site, which is a site that was identified in the Kalum LRMP. Proponent should consider how the proposed location does or does not conflict with the Kalum LRMP site designation.	Sections 6.8.1.2 and 7.2.8.1b of the EA Application addresses concerns related to the proposed DuBose Industrial site. PTP considers that there will be no significant impacts to this proposed land use resulting from the KSL Project.	PTP has no further comment.	Satisfied
265	John Gerow, Nadina Forest District	30-Nov-07	The only concern of the staff in Nadina Forest District have is around the Morice River Management Zones (Morice LRMP) that when they go through the sensitive zones that they see if they can reduce the clearing width of the R/W.	PTP acknowledges this concern.	New Commitment Where practical and where warranted, PTP will consider reducing the clearing width in those sensitive zones.	Satisfied
266	Kitselas First Nation	4-Dec-07	8.1.2.8 – Mountain Pine Beetle – no mention of burning activities – this is a requirement?	Unmerchantable timber felled during right-of-way clearing will be burnt.	New Commitment PTP commits to comply with the MOF guidelines regarding treatment of trees infected by Mountain Pine Beetle.	Satisfied
267	Harp Gill, Transport	10-Dec-07	Section 7.2.8 (q), p 7-186: Add to section that crews would assist non-powered	PTP understands this requirement.	New Commitment PTP commits to	Satisfied

	Canada		vessels to portage the work site as per NWPA requirements.		implementing measures during construction that would require crews to assist non-powered vessels to portage the work site.	
268	Oil and Gas Commission	11-Dec-07	By regulation, pipeline projects with over 2,000 m3 of coniferous volume require appraisal-based stumpage assessments. Timber appraisal should take place soon so that local mills and operators can plan for the work. PTP should commit to a timeline on this.	PTP acknowledges this may be a requirement. PTP understands the time requirement for data collection, compilation and checking as well as MoFR approval of the appraisal plan should the MoFR require appraisal-based stumpage.	New Commitment PTP will meet the requirements for timber valuation that are agreed with the appropriate permitting authority in advance of clearing.	Satisfied. No clearing will be approved until appraisals have been completed to the required standard.
269	Oil and Gas Commission	11-Dec-07	The Oil and Gas Commission is authorized to issue Master License to Cut and Cutting Permits for the harvesting of timber in this project. A separate MLTC will be required for each of the four districts. OGC requires that the proponent contact all existing forest licensees to coordinate activities and log deliveries.	PTP acknowledges and understands this role of the OGC. PTP has already contacted all forest licencees and tenure holders, as well as the MOFR Districts and will pursue this further during the Permitting Phase of the project.	PTP has no further comment.	Satisfied. Project will run more smoothly and efficiently if clearing and log delivery are coordinated with existing licensees and mills.
270	Oil and Gas Commission	11-Dec-07	The Oil and Gas Commission is not authorized to issue cutting permits on area- based tenures, so the Proponent will need to approach licensees and MFR to determine how they will handle these permits (tenure holder could apply on behalf of PTP or MFR could delete the corridor from their tenure. This must be resolved prior to commencement of activities on these tenures and PTP needs to commit to that.	PTP acknowledges and understands that the OGC is not involved in this activity. PTP has already contacted all area-based tenure holders, including woodlots. PTP has already committed to addressing area-based tenure holders prior to clearing and logging.	Existing Commitment (Section 7.2.9) PTP to continue to communicate with area- based tenure holders.	Satisfied. Cutting permits must be in place prior to approval of clearing activities.

271	Oil and Gas Commission	11-Dec-07	Additional coordination will be required to minimize impacts on existing designated areas, such as Old Growth Management Areas, Visually sensitive areas, recreation sites, etc. It would be informative if impacted areas were mapped on the alignment sheets and not just indicated as occurring over certain kilometre posts.	The reviewer is referred to Appendix J of the EA Application where it is noted that these features are located on 1:20,000 scale Environmental Work Sheets. The mitigation measures outlined, for example in Table 7.2-42 dealing with Viewsheds, provides a list of measures that could be applied to a number of areas. During detailed design, these measures will be fine- tuned in order to be specific to a particular area. PTP acknowledges that it will be necessary to provide mapping of existing designated areas such as Old Growth Management Areas and Special Management Zones for the purpose of the permitting process. This mapping should show these areas or zones as polygons on the face of the map (e.g. mosaics used for the Environmental Work Sheets)	New Commitment PTP commits to provide the OGC with a set of 1:20,000 scale maps as part of the permit application process that illustrate existing designated areas such as Old Growth Management Areas, Recreation Sites, and Special Management Zones. These areas will be shown as polygons on the face of the maps.	Satisfied.
272	Stefan Schug, OW	13-Dec-07	Requested clarification of nomenclature SBSmc2/11.	This site series does not exist in the old Prince Rupert Forest Region but it does in the old Prince George and Cariboo Forest Regions. The site series has been correctly identified by PTP as it occurs in the old Prince George Region. A notation can be found on all the Field Guides on the SBSmc2 Edatopic Grid.	PTP has no further comment.	Satisfied.
273	George Halliday, Ministry of Forests and Range	13-Dec-07	MoFR is concerned about access management. We want to involve existing licencees in pre-harvesting and are concerned about isolating timber.	PTP is committed to the preparation of an Access Management Plan and will include the MoFR and licencees in the development of the Plan. PTP will work with the licencees and the	New Commitment PTP to involve licencees and MOFR in the review of the Access Management Plan.	Satisfied

				MoFR in preparing harvesting plans, which hopefully will result in no timber being isolated.		
Comm	nunity and Regiona	al Infrastructure	and Services			
274	Diane Hewlett, District of Kitimat	24-Oct-07	Diane Hewlett advised that the Kalum LRMP needs to be referred to for information on the Kitimat River as the industrial and community water supply for Kitimat.	PTP appreciates being made aware of this information and acknowledges the economic and social importance of the Kitimat River.	PTP has no further comment.	Satisfied
275	Harp Gill, Transport Canada	6-Dec-07	Table 4.4-2 - From KP 173 to KP 179 (Parrot Lake Road) it is indicated that bridge installation will be required however this is identified as an EMAR (Existing Major Access Road). For EMAR the definition indicates that no physical changes will be made to them, however, is bridge installation not a physical change? This comments is applicable to all of the same situation in this table	When it is indicated that "bridge installation may be required on an Existing Major Access Road" it is meant to indicate that while the existing bridge may be suitable for logging and clearing equipment, it may not be capable of safely taking the loads associated with pipeline construction equipment. Further examination of the load – bearing capacity of the bridge will be undertaken in order to make this determination. Should a new temporary bridge be required, Transport Canada will be informed.	New Commitment Notify Transport Canada should a new temporary bridge be required.	It should be understood that the EA needs to be completed prior to the issuance of an NWPA approval. Should the EA not identify potential environmental effects and determination of significance for any new temporary bridge, a NWPA approval will not be issued
276	Oil and Gas	11-Dec-07	The proposed road building is not	PTP has prepared a preliminary set of	PTP commits to providing	Satisfied.
	COMMISSION		format and not mapped out at sufficient	location of access roads and access	Management Plan prior to	the detailed
			scales to determine areas of conflict or	road types. PTP intends to provide	Project certification. This	road maps at
			concern. OGC would like to see all roads	the access road maps to the OGC as	outline will contain draft	1:20,000 and
			indicated at 1:20,000 scale with a	part of the permitting process. These	1:20,000 scale maps	would like to
			breakdown of road types (existing roads,	maps will also be integral to the	showing the proposed	know when

277	Oil and Gas	11-Dec-07	overgrown roads, planned roads, road tenures, etc.). If this is not necessary for the EAC Application stage, it will definitely be required at the OGC permitting stage. The OGC is impressed with how little new road construction was being proposed; as this will surely limit the impact of the project.	Access Management Plan.	Access roads. Existing Commitment (Section 9.2) A complete Access Management Plan will be submitted to the OGC before clearing and construction.	we can expect them so we can commence engagement with tenure holders, agencies, and First Nations. OGC also requires the status of existing roads that are proposed to be used (tenure holder, condition of road: e.g. deactivated, overgrown, etc.) and confirmation that agreements with road tenure holders are in place prior to approval. OGC requests an outline of the access management plan prior to approval.
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	Commission		forest industry in the region about access coordination during construction and more detailed communication and access management plans must be developed and signed off by industrial operators prior to project commencement. Of particular concern is the disruption of harvesting operations during construction; this must be minimized. Pipeline crossings of haul routes need to be engineered to handle 100 tonne logging truck loads.	discussed these and other concerns and issues with forest tenure holders over the past two years and believes there is a good understanding of how to minimize possible disruption to forest activities as well as to ensure worker safety. This dialogue will continue during the engineering design phase of the project. Pipeline crossings of forestry roads have also been discussed with the forest companies and the MOFR and they will be designed to accommodate the intended use.	comment.	Continue dialogue and coordination of activities with existing tenure holders and operators.
278	Diane Barbetti, Haisla	13-Dec-07	What are you going to do to protect the current infrastructure in the Telkwa.	The existing PNG pipeline in the Telkwa will continue to be maintained in the same manner it has been maintained over the past 40 years. The KSL pipeline will provide security of natural gas supply in the event of an incident in the Telkwa Pass that requires a period of time for repair.	PTP has no further comment.	Satisfied
279	Diane Hewlett, District of Kitimat/Port of Kitimat	13-Dec-07	Are municipalities where the pipeline runs through the community part of the contingency plans? Are community contacts listed and plans determined for relevant communications during project implementation with Municipal Fire Departments, RCMP, General Hospital, Health and Hospital Services, Local Employment Services, and local government departments including Engineering, Planning, Development and Recreation? Suggest the KSL Construction Management team meet with the agencies listed above 6 months ahead of construction and with the Municipal Planning, Engineering and Development	PTP will undertake the preparation of these types of lists well in advance of clearing and construction. This is a normal course of event for a project like the KSL Project. In addition PTP will ensure that contact is made with key municipal and regional government departments well in advance of clearing and construction.	New Commitment For the purpose of contingency planning, PTP will advise the Kitimat Local Fire Departments / RCMPs / General Hospital and Northern Health Authority 6 months ahead of construction activity regarding construction scheduling, activity peaks and critical contacts.	Satisfied

			departments 3-6 months ahead of construction. The purpose of these meetings is to determine liaison points of contact, share project schedule information and provide community service information.			
280	Diane Hewlett, District of Kitimat/ Port of Kitimat	13-Dec-07	Suggest that the KSL Construction Manager liaison with the municipal engineering department regarding hydro- static testing schedules to ensure compatibility with municipal water/sewer infrastructure maintenance.	PTP considers this a good suggestion. This would be a normal course of event for a project like the KSL Project.	New Commitment PTP to contact the District of Kitimat engineering department in advance of construction in regard to water use for hydro-static testing within the boundaries of the District of Kitimat.	Satisfied
281	Diane Hewlett, District of Kitimat/Port of Kitimat	13-Dec-07	Suggest that the KSL Construction Manager liaison with the municipal engineering department on large scale project procurement deliveries (pipe etc.) to ensure compatibility or if necessary to determine alternate routes if in conflict with local road infrastructure works.	PTP considers this a good suggestion. This would be a normal course of event for a project like the KSL Project.	New Commitment PTP to contact the District of Kitimat engineering department in regard to large scale deliveries to check for compatibility with any local road works.	Satisfied
282	Diane Hewlett, District of Kitimat/Port of Kitimat	13-Dec-07	Suggest the KSL Construction Manager and HR Manager meet with Kitimat Employment Services 6 months ahead of construction to assess employment services available to proponent. Proponent to note that 50% of Kitimat Employment Services users are First Nation from either Kitamaat or Kitimat. If skills training direction were provided to Employment Councillors ahead of this project Counsellors can target training funding to local/regional labour opportunities. A liaison with Employment Services may assist the Proponent with hiring quotas and to maximize northern labour use.	PTP considers this a good suggestion. This would be a normal course of event for a project like the KSL Project.	New Commitment PTP to work directly with Kitimat Employment Services for the purpose of assisting in maximizing local and northern employment. Meetings have been undertaken with the municipality and additional meetings/discussions will be undertaken well in advance of clearing and construction.	Satisfied

283	Diane Hewlett, District of Kitimat	24-Oct-07	Diane Hewlett indicated the socio-economic information in the Appendix provides valuable information on project occupations that Regional Employment and Career Counselling agencies can use and that KSL is one of the first proponents in NW region to acknowledge the importance of this.	PTP appreciates this positive feedback.	PTP has no further comment.	Satisfied
284	Diane Hewlett, District of Kitimat/Port of Kitimat	13-Dec-07	Businesses want to know who and how to contact proponent to make them aware of their capabilities particularly for logging and clearing. She would like to suggest that a website be established so that they could identify proponent needs and then register their interest. Suggest communications with local Chambers of Commerce regarding Chambers hosting Procurement Registration Workshops in strategic locations across corridor.	PTP has implemented an "Employment Opportunities and Contracting Services" database which can be found on the Project Website. Individuals and companies are encouraged to register and several did during the recent open houses. PTP is more than willing to meet with and make presentations to local organizations.	New Commitment PTP will communicate with communities and Chamber of Commerce 6 to 12 months ahead of construction regarding potential service and supply opportunities and may undertake regional business registration / procurement information meetings in communities across the corridor.	Satisfied
Huma	n Health and Safe	ety		-		
No iss	ues have been ide	entified for this V	EC.			
Naviga	able Waters Cons	Iderations				
285	Harp Gill, Transport Canada	6-Dec-07	4.4.7.1 - "Deactivated and Overgrown Access Roads" and "New Access Roads" - Rebuilding of bridges and new bridges will require review by NWPD.	PTP acknowledges this requirement.	New Commitment PTP to ensure that the rebuilding of bridges and new bridges are reviewed by NWPD.	Satisfied
286	Harp Gill, Transport Canada	10-Dec-07	Section 4.4.8.1 Design flows, p 4-38: Temporary bridges clearance requirements will be set by NWPA. All temporary bridges (1-2 months) will require 1.5m over the average HW for the period installed. Bridges installed for longer periods may require a higher requirement. Bridges only in place during freeze up where the	PTP appreciates being provided with this information.	PTP has no further comment.	Satisfied

			waterway is totally frozen over will not have a height requirement under the NWPA.			
287	Harp Gill, Transport Canada	10-Dec-07	Section 7.1.2.9 Navigable Waters, p 7-12: Transport Canada has recently introduced Minor Works Guidelines that will apply to some of the pipeline crossings. This can be found at the following website: http://www.tc.gc.ca/MarineSafety/tp/Tp1459 3/menu/htm. Waterways and work plans that meet the criteria will not require a review.	Harp Gill provided a brochure outlining these guidelines at the December 13, 2007 Working Group meeting. PTP appreciates this assistance.	PTP has no further comment.	Satisfied
288	Harp Gill, Transport Canada	10-Dec-07	Appendix E: Section 10.0, p E-50: Introductory paragraph should read "currently there are 21 watercourse identified as navigable" At the time of submission certain waterways have yet to be determined and it was not yet clear which access roads would require bridging and if the waterways affected were navigable or not.	PTP acknowledges that the determination of navigability had not been completed at the time the EAC Application was filed.	PTP will continue to work with Transport Canada (NWPD) so that PTP is fully aware of which waterways are considered "navigable". Information regarding access roads is provided in Sections 4.4.7, 6.15, and 7.3.	Satisfied
289	Harp Gill, Transport Canada	10-Dec-07	Appendix E: Section 10.3, p E-51: it should be noted that a potential effect is the pipeline becoming exposed by intense scouring/movement of the waterway, and that the proponent would be required to mark the hazard and consult with TC-NWPD on the corrective measures to be taken.	PTP acknowledges this requirement should this situation develop during pipeline operation. It is expected that prudent pipeline design (location of sag bends and depth of burial) will greatly reduce the risk of this occurring.	PTP has no further comment.	Satisfied
290	Harp Gill, Transport Canada	10-Dec-07	Appendix F: Regarding the Fish Compensation Plans, it should be noted that any instream works in a navigable waterway require a review by TC-NWPD. Our preference for the types of works with the least associated risks to humans is: Opening/creating off channel rearing habitat (such as proposed for Wedeene River, p. 8)	PTP appreciates being informed of this requirement. Once Compensation Plans are more fully developed and should they impact navigable waterways, they will be sent to TC-NWPD for review.	New Commitment PTP will inform TC-NWPD of Fish Compensation Plans that may impact navigable waterways.	Satisfied
291	Harp Gill,	10-Dec-07	Appendix F: LWD and boulder clusters can	Should these types of stream	New Commitment	Satisfied

	Transport Canada		have high risks to navigation and human safety depending on design and location and must be reviewed prior to construction.	restoration techniques be considered for navigable waterways, they will be provided to TC-NWPD for review and input prior to implementation.	PTP to provide NWPD with information on restoration techniques that may interfere with navigation for their review and input prior to implementation.	
292	Harp Gill, Transport Canada	10-Dec-07	 Map Sheets and Stream Crossing Atlas: A quick review does not indicate waterway information similar to the Atlas on the access roads crossings. Was this information included? Need information to know if there is a trigger and for the NWPA approval. Note that OGC, MOE, and DFO require this information as well. As part of the EA, we will need to ensure the environmental effects for bridge crossings (including temporary) are assessed. The NWPA approval cannot be granted unless this EA addresses environmental impacts at the bridge crossings. The information provided so far on possible temporary access bridges is not enough to determine if the NWPA applies, nor can they determine any navigation impacts. The proponent should note that there is not definition of a temporary bridge in the Act other than the current guidelines for winter bridges. Therefore any bridge over navigable waters will require an approval under the NWPA. Any consideration of risk managing short term bridges would be up to the reviewing officer based on the information given. Under the current workload the proponent should expect 4-6+ months to receive an approval from the time 	PTP has not prepared a Streams Crossing Atlas format for the access road crossings. Rather, this information is contained in tabular information within the EAC Application (see response to Issue # 0 below). PTP considers that access road crossings and temporary bridges for that purpose are quite different from pipeline crossings. PTP will provide an annotated bibliography for Access Management Plan prior to certification.	New Commitment PTP commits to provide information on temporary bridges / road crossings for waterways on access roads for the NWPA approval.	Satisfied

			of application. Therefore the NWPD strongly suggests that the proponent makes good use of this coming field season to collect the necessary data and submit it as early as possible to ensure that there is not a long delay between the completion of the CEAA and the issuance of a permit to construct bridges.							
293	Harp Gill, Transport Canada	10-Dec-07	Can you please direct TC-NWPD as to where the information pertaining to the access road stream crossings is located?	Information regarding access roads can be found in Sections 4.4.7, 6.15, and 7.3 of the EAC Application.	PTP has no further comment.	Satisfied				
294	Harp Gill, Transport Canada	13-Dec-07	The navigable waters section of Transport Canada has updated their guidelines for pipeline crossings, now only 3 of the crossings need approval.	PTP appreciates begin made aware of this update.	PTP has no further comment.	Satisfied				
Aesth	Aesthetics and Viewsheds									
No iss	ues have been i	dentified for this \	/ĒC							
Cumu	lative Effects									
295	Bruce Muir, West Moberly First Nation	24-Oct-07	Were the other two potential pipelines in the general route accounted for in the cumulative effects assessment?	Yes. See Chapter 8 of the EA Application	PTP has no further comment.					
296	David de Wit and OW consultants	24-Oct-07	More information on the Proposed Lucky Ship mine and other developments is required, for the cumulative impacts assessment	PTP has only considered projects that are being undertaken or are very likely to be undertaken (e.g. ones that are approved). Hypothetical or possible future activities are not included in the CEA.	PTP has no further comment.					
297	Michael Gordon, Haisla Nation	3-Dec-07	The complex interactions of cumulative effects can be difficult to appreciate. To analyze cumulative effects properly, it is necessary to account for not only the interaction of human impacts but how these impacts interact with the range of natural environmental conditions (weather, seasons, physiography, soil characteristics, etc.). Particularly in the upper Kitimat watershed, these interactions significantly increase the	The incremental disturbance due to the KSL pipeline in this area is expected to be temporary and of low impact. For access, the pipeline will use only existing roads through the upper Kitimat valley, and for the most part the pipeline will be placed immediately adjacent to those roads,	PTP commits to provide a GIS-based analysis (as per the Kleanza- McDonnell package) of the Kitimat Watershed area crossed by the proposed KSL pipeline. Revised Commitment (Section 7.2.1)	Satisfied as long as risks are clearly analyzed and based on a comprehensiv e survey of habitat utilization by all life stages				

			risk of environmental impacts and effects. The application report acknowledged this and provided some indication of the conditions in the upper Kitimat valley. Figure 9 in the Physiography and Geological Processes Report (Volume II, Baseline Studies) is a photo showing some of the extent of clear cut logging and road building on the steep slopes of the valley that in most cases have not been stabilized or decommissioned properly. Maps 9 through 13 in the Archaeological Overview Study (Volume II, Baseline Studies) show the steepness of the topography in the same area. However, the application report did not discuss or analyze these interactions sufficiently to provide a realistic assessment of the potential for effects.	maximizing use of existing disturbed areas.	After pipeline installation through the upper Kitimat valley, in accordance with the Environmental Management Plans, surface run-off across disturbed areas will be controlled to manage erosion, and other stabilization measures applied as may be necessary.	of fish species in the Kitimat River.
298	Michael Gordon, Haisla Nation	3-Dec-07	We understand that a major concern for the Haisla is that once the corridor from the proposed project is developed it will open up access to other development and impacts to fish and wildlife in the area. The application report mentions another pipeline project that is proposed for the essentially the same corridor. However, there is not any discussion about how this would change or affect the parameters for the corridor proposed by the proponent. There is also no discussion of the possibility that once the proposed project is completed, the construction of another could begin thus compounding the environmental effects. In other words, we did not find that the application report adequately discussed of addressed the potential for cumulative effects related to subsequent construction.	The PTP application is only for the KSL pipeline project. PTP has committed to develop an Access Management Plan that would limit access along its right-of-way, based on the input from interested parties and the rugged terrain is expected to also be an effective barrier in many areas. PTP is not in a position to speak for other projects, but notes that all other pipeline initiatives in the area have not to date progressed to regulatory applications and appear to have suspended their early field work. Any future pipeline would have to find its own way through this rugged terrain. Any project proposing to	PTP has, and will continue to, meet with the Haisla to more specifically pinpoint access control concerns.	Satisfied as long as it is understood that access is controlled and restricted and that future projects (roads, pipelines, recreational sites, etc.) are not desirable adjacent to or in addition to the proposed corridor.

				follow the KSL alignment would also have to avoid disturbance to the KSL pipeline, which may become an onerous requirement through topographically constrained locations.		
299	Margaret Bakelaar, CEAA	6-Dec-07	As noted in the screening of the Application, the outline of the environmental effects of identified alternative means is somewhat light on the environmental effect. It was noted at that time that this may need additional detail. Under CEAA, the environmental effects of alternative means of carrying out the project that are technically and economically feasible are to be considered in the decision making process. In order to enable a better decision it is requested that a summary of environmental effects by alternative location be provided. As noted in the comments on the DTOR, please refer to the operational policy statement on the CEA web site for further information. http://www.ceaa.gc.ca/013/0002/addressing _e.htm	Section 3.0 of the Application provides an outline and analysis of the alternatives considered for the KSL Project. Routing for a project like the KSL is first examined on the basis of "is the route buildable?" using the test of constructability – meaning, can the route be built using available and acceptable construction techniques that will enable the implementation of proven methods that will generally mitigate environmental and social impacts. In addition, the route must offer a worksite that is safe for construction workers, provides a secure pipeline location, and is affordable. Given the location of the KSL pipeline through the Hazelton Mountains, it is the considered opinion of PTP that there is no other route than the one put forward in the EAC Application and consequently there is no rationale for examining the environmental effects of alternative routes. Where alternative route options are available, such as in the Kitimat River valley, environmental effects of alternative routes have been outlined and discussed in the Application.	PTP has no further comment.	Satisfied. Should additional information be required at the time of writing the federal EA report, the proponent will be asked to provide this.
300	Margaret Bakelaar, CEAA	6-Dec-07	Overall, the cumulative effects analysis provides a broad overview of possible adverse environmental effects that may	Clarification and supporting rationale are provided in response to specific questions from the CEA Agency	PTP will meet with the CEA Agency, DFO and TC to outline the CEA	Satisfied . May contact the proponent

			combine with effects from existing or proposed activities or projects. Many of the statements on the risk or degree of cumulative impact are not however substantiated in the text provided. Additional detail as to the rationale used in the CEA will be required in order to adequately assess possible adverse cumulative environmental effects.	below.	methods and results. This meeting is presently scheduled for February 4, 2008.	for additional clarification at the time of the writing of the federal EA report.
301	Margaret Bakelaar, CEAA	6-Dec-07	Page 8-5 – Table 8.1-1. For the Morice LRMP, are the access management strategies or goals met for the Morice River? i.e. no new roads in the floodplain and limited activities in 1,000 m of the river.	PTP will not construct new permanent roads in the Morice River floodplain. Construction of the Project will require temporary access routes, which will be fully rehabilitated after construction is complete. Disturbance in the Morice River valley has been minimized by routing the right-of-way adjacent to existing roads, through cut blocks, and away from the floodplain, wherever practical. The Project is considered to be consistent with access management goals set out in the Morice LRMP.	PTP has no further comment.	Satisfied
302	Margaret Bakelaar, CEAA	6-Dec-07	Page 8-17. Access Corridor Density. Reference was made to access corridor density calculations where existing parallel features are considered separately while proposed parallel features were considered together. Can you please explain why this was done and whether the approach may underestimate the density by using this methodology for proposed projects?	A conservative approach was adopted that typically overestimates actual access density for existing footprints (i.e., historical land uses with no explanatory information). This method was used because of uncertainties associated with readily available digital datasets. Proposed parallel features were considered to form a single, wider right-of-way where available	PTP has no further comment.	Satisfied . May contact the proponent for additional clarification at the time of the writing of the federal EA report.

				information indicates that they have been designed to do so. In contrast, existing parallel features may or may not form a single right-of-way (e.g., there may be residual vegetation between a railway paralleling a highway) so they were conservatively considered to be separate features to address this uncertainty.		
303	Margaret Bakelaar, CEAA	6-Dec-07	Page 8-48. Riparian Disturbances. Please provide or identify the location of the criteria used to determine low, moderate, and high overall risk for cumulative effects. Additional detail is required to provide the rationale for the determination of low cumulative impact on riparian areas.	Aquatic risk categories for riparian disturbance and access density were assigned risk categories based on values reported in Table 1 of the Interior Watershed Assessment Procedure (BCFS and BCE 1995). Low risk was considered to be scores <0.4; Moderate risk 0.4-0.6, and High risk >0.6. Some ratings provided in Section 8.3.4 on page 8-48 were incorrect: existing and likely future risk in the Peace drainage should be rated as high risk; likely future risk in the RSA, Lakelse, Kitimat, Fraser, and Nechako drainages should be rated as Moderate. As a result, likely future cumulative effects risk should be moderate rather than low, and the project's contribution to aquatic disturbance, fragmentation, and mortality should be rated as Moderate (not Low), magnitude. This revised cumulative effects rating remains Less than significant.	PTP has no further comment.	Satisfied . May contact the proponent for additional clarification at the time of the writing of the federal EA report.
304	Margaret Bakelaar, CEAA	6-Dec-07	Page 8-49. Areas Unavailable for Traditional Use. Please provide or identify the location of the criteria used to determine low, moderate, and high overall risk for cumulative effects. Additional detail is	Overall risk ratings were based on reviews of multi-species habitat loss effects (Salmo et al. 2003, 2004). Available literature and meta- analyses suggest that risk of adverse	PTP has no further comment.	Satisfied . May contact the proponent for additional clarification at

			required to provide the rationale for the determination of low to moderate cumulative impact on traditional uses.	effects on birds, mammals, and other wildlife species is Low when habitat loss is below 10-30%; High when habitat loss is above 60-70%, and Moderate at intermediate levels. This provides a science-based approach to evaluate the sustainability of resources used for traditional purposes.		the time of the writing of the federal EA report.
305	Margaret Bakelaar, CEAA	6-Dec-07	There is little to no reference in the CEA to residual adverse environmental effects noted in other sections of the Application other than the summary table. Pending further discussion on residual effects, additional rationale that demonstrates a connection to residual effects may be required. The use of residual effects is the current policy to ensure the incremental effects resulting from the combined influences of various actions are considered. This does not preclude other methods however as a federal EA is a self assessment it is imperative that the RAs understand and agree with the proponent interpretation of likelihood of significant adverse environmental effects that are likely to result from the Project in combination with other projects or activities that have been or will be carried out.	As noted in Section 8.2.4, the scoping approach used for this CEA was specifically designed to focus on issues where pipeline-associated cumulative effects risk is elevated or issues that have been explicitly identified as management concerns. Summary table references to residual effects provided in Section 6 were included to show how this approach allows cumulative effects risk to be evaluated with a suite of indicators. As noted in Section 8.2.4, this 'scoping' approach has been previously accepted by federal agencies without explicit reference to each residual effect.	PTP has no further comment.	Satisfied . May contact the proponent for additional clarification at the time of the writing of the federal EA report.
306	Margaret Bakelaar, CEAA	6-Dec-07	Not all residual adverse environmental effects are addressed in the cumulative effects assessment (atmospheric / environment and accidents and malfunctions). Pending further discussion, additional analysis on these residual effects may be required.	Further to comment No. 77, atmospheric emissions were not explicitly considered because minimal cumulative effects risk is associated with the small, local, temporary emissions resulting from pipeline construction operations (in	PTP has no further comment.	Satisfied

307	Harp Gill, Transport Canada	6-Dec-07	The methods used to conduct the Cumulative Effects Assessment does not clearly identify the residual effects from the proposed project and how current and foreseeable projects may result in a greater effect cumulatively	contrast to large, continuous emission point sources where cumulative effects are of concern). Effects of ongoing compressor emissions were evaluated using standard dispersion models as summarized in Section 7.2.2.2; no routine future emission sources were identified within the compressor station's zone of influence. Cumulative effects of accidents and malfunctions were not considered because these do not represent 'likely future' conditions and as such, cannot be meaningfully evaluated. The tables provided in Section 8 quantitatively identify current conditions, the residual effect of the proposed project alone, and the combined effect of the proposed project and other likely activities. For example, Table 8.3-3 on page 8-28 shows that total stream crossing density in the RSA would increase from 0.385 crossings/km2 at present, to 0.400 crossings /km2 as a result of the project, and to 0.429 crossings/km2 when all likely activities are considered. As noted in the response to No. 0 above, the associated risk of this increase was identified based on available	PTP has no further comment.	Cumulative Effects Assessment is still undergoing review .
308	Michael Gordon,	13-Dec-07	Cumulative impacts or combined interactions need greater clarification in the Application.	cumulative effects risk ratings. PTP believes that Section 8 of the EAC Application provides adequate	PTP commits to provide a GIS-based analysis (as	Satisfied as long as risks
	Haisla		There needs to be a better way to bring all the information together particularly as it	information regarding this topic for the purpose of the EAC review.	per the Kleanza- McDonnell package) of	are clearly analyzed and

Gener			relates to the upper Kitimat River.	However, PTP is willing to consider additional studies on this topic in the Kitimat Valley following project certification. PTP acknowledges the request for detailed GIS information in the Kitimat River valley (as per Kleanza analysis). PTP does not believe that such an analysis is pertinent to the EAC Application for the KSL Project.	the Kitimat Watershed area crossed by the proposed KSL pipeline. PTP to continue discussions with the Haisla in regard to this topic.	based on a comprehensiv e survey of habitat utilization by all life stages of fish species in the Kitimat River. The GIS data presented for the Kleanza- McDonnell route option should also be developed for the Kitimat River prior to certification.
309	Bruce Muir, West Moberly First Nation	24-Oct-07	Can the pipeline be converted to transport oil?	In theory, yes, but not without substantial additional costs. New EA, OGC, and BCUC approvals would be required that would necessitate FN, public and agency review and input.	PTP has no further comment.	
310	Bruce Muir, West Moberly First Nation	24-Oct-07	Section 3.1 describing the need and purpose of the Project is too limited and should describe how the north bears the impacts while the south benefits.	This concern is not discussed at length because it has no bearing on the current review of the project.	PTP has no further comment.	
311	Bruce Muir, West Moberly First Nation	24-Oct-07	WMFN are looking to the CEAA to identify the Project as a Comp. study. The CEAA, after two years, is still unable to let the proponent know whether it is a Comp study or a Screening level study.	It is inappropriate for PTP to comment on this issue.	PTP has no further comment.	
312	David de Wit and OW consultants	24-Oct-07	When will there be consultation with CEAA?	It is inappropriate for PTP to comment on this issue.	PTP has no further comment.	Not satisfied.
313	David de Wit and	24-Oct-07	The OW is aware of the potential route	PTP has introduced the potential re-	PTP expects to file an	Not satisfied.
	OW consultants		amendment at the Burnie River Crossing and requires more detail regarding this proposal.	route to the OW and the Working Group and provided a map of this new route.	amendment to the EAC Application to incorporate this route change.	Current access management controls are ineffective.
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314	David de Wit and OW consultants	24-Oct-07	Should this route be accepted, rigorous monitoring and the highest standards and conditions of operations are expected, as well as biological effects monitoring.	PTP acknowledges this concern.	New Commitment PTP will work with the OW to develop appropriate monitoring programs.	No adequate monitoring program was proposed to satisfy the Wet'suwet'en.
315	David de Wit and OW consultants	24-Oct-07	Unauthorized access on the section of the pipeline from the Gosnell to the Clore. Mitigation measures need to be developed with input from the OW.	Access control measures and site specific information will be provided by PTP in the Access Management Planto be submitted Post- Certification. The OW will be asked for their review comments prior to finalizing the plan.	New Commitment PTP will continue to work with the OW and their consultants in regard to the development of the Access Management Plan.	Not satisfied. Current access management controls are ineffective.
316	Shirley Wilson, Skin Tyee First Nation	30-Oct-07	General access by the public into the area near Parrott Lakes is not wanted.	PTP acknowledges this concern.	New Commitment PTP will seek input from the STN during preparation of the Access Management Plan.	Satisfied
317	Pius Jack, Nee Tahi Buhn First Nation	30-Oct-07	What do environmental protection plans actually say?	Environmental Protection Plans (EPP) are the rules and procedures that PTP will require its contractors to follow in order to ensure proper measures are followed for the purpose of protecting environmental values.	New Commitment PTP will seek input from the NTB during the preparation of the EPP.	Satisfied
318	Diane Barbetti, Haisla Nation	13-Nov-07	There seem to be any number of possible ways of avoiding the Telkwa without going through the Kitimat Valley. Haisla want the data that supports eliminating this as a route and any other possible routes that were similarly discarded.	PTP has provided additional information to the Haisla regarding the route selection and has submitted a brief report to the EAO Working Group regarding route comparison criteria and which will be provided to the Haisla. PTP are committed to meeting to discuss the alternatives.	PTP has no further comments.	More detailed information is needed similar to the Kleanza- McDonnell route option for all of the

						route options.
				PTP has determined that the proposed route is the only acceptable		
				route for the construction of the KSL		
				for that route		
				PTP acknowledges the request for an		
				analysis of other route options similar		
				Kleanza Route PTP does not		
				believe that such an analysis is		
				pertinent to the EAC Application for		
210	Card Cimmon -	20 Nov 07		the KSL Project.	DTD has no further	Catiofied
319	Gord Simmons, Regional District	29-INOV-07	Assessment Certificate Application material	PTP appreciates this positive	PTP has no further	Satisfied
	of Fraser-Fort		in respect to the Regional District of Fraser-		comment.	
	George		Fort George, and feel the documentation			
			has covered all aspects from our			
320	Environmontal	20 Nov 07	Throughout the application there were	DTP will provide copies of these	Now Commitmont	Satisfied
520	Stewardship	30-1100-07	numerous references to Contingency Plans,	plans to the Environmental	Once the plans are	provided that
	Division		Environmental Management Plans, and the	Stewardship Division, Omineca	prepared in draft, they will	the draft plans
	Omineca Region		Environmental Protection Plan. ESD	Region when they are completed	be provided to ESD,	are made
			Omineca requests copies of these plans for	post-certification.	Omineca Region for	available for
			described within will have a significant		finalization.	interested
			impact on the overall effectiveness of the			government
			plans to prevent, mitigate and compensate			and regulatory
201	Environmontal	20 Nov 07	I I I I I I I I I I I I I I I I I I I	The Environmental Menitor is usually	Now Commitment	DODIES. Satisfied
JZI	Stewardship	30-1100-07	the gualifications and specific iob duties	referred to as an Environmental	PTP to provide the duties	provided that
	Division		associated with the 'Environmental Monitor'	Inspector (EI) on pipeline projects.	and responsibilities of the	all interested
	Omineca Region		(EM). ESD Omineca suggests that the EM	This individual's role is to work with	EI(s) to ESD Omineca.	government
			be a Registered Professional Biologist with	other project inspection staff during	PTP to confer with ESD	and regulatory
			ne college of Applied Biology, and possessing an appropriate field (skill.set/	of the project to ensure that the	selection of the FIs	opportunity to
			furthermore, ESD would like to have the	commitments PTP has made for		comment.

			authority to approve or decline the assignment of the regional EM. ESD Omineca requests to review the job duties of the EM, as defined within the Contingency and Environmental Management Plans, as effective implementation of said plans is necessary to ensure environmental values are protected or at least mitigated or compensated for.	environmental protection are adhered to. In addition, the EI is responsible for effectively addressing environmental issues as they arise. The professional credentials and work experience of the EI will not be limited to those that would typically be represented by a person who is a registered professional biologist. Other professionals and skill sets will also be considered. PTP will have the sole authority to select the individual(s) who will be hired as EIs. However, PTP will confer with ESD Omineca prior to the final selection in order to obtain their input to the decision making. At the same time, PTP will provide a write up of the duties and responsibilities of the EI to ESD Omineca, for their review and input.		
322	Environmental Stewardship Division Omineca Region	30-Nov-07	ESD Omineca requests copies of the Post- Construction Monitoring Program to assess the criteria selected when monitoring the 'effectiveness of the mitigation measures', 'effectiveness of the restoration' or 'ensure the usability of any site-specific habitat features' etc. Clarification is needed on items including the temporal component of monitoring (i.e., for what duration, at what intervals), monitoring following extreme events, and what constitutes 'effective'.	PTP will provide a copy of the draft Post-Construction Monitoring Program to ESD Omineca for their review and input.	New Commitment Once the draft Post- Construction Monitoring Program is prepared, it will be provided to ESD Omineca for their review and comment prior to finalization.	Satisfied provided that the draft plan is made available for comment to all interested government and regulatory bodies.
323	Environmental Stewardship Division Omineca Region	30-Nov-07	It is recommended that the term 'progressive' is used when describing reclamation activities. Reclamation should occur progressively as construction operations are completed.	PTP acknowledges that specific reclamation (or restoration) activities will commence immediately following the completion of construction. While the word "progressive" is not used explicitly, PTP considers that this is	Existing Commitment (Section 9.2) The Restoration Plan will fully outline the progressive nature and timing of restoration	Satisfied

				fully implied.	activities.	
324	Environmental Stewardship Division Omineca Region	30-Nov-07	Section 9.1.4 System Operations Environmental Policy. It would be beneficial to provide clarification on site audits and inspection and maintenance processes. There should be periodic assessments of sediment delivery to streams, evaluation of riparian function, and stream crossing status, as per the requirements to mitigate for known and perceived short term and long term impacts.	The reviewer is referred to Section 9.5 of the EA Application. The Post Construction Monitoring Plan, once fully developed, will address these and other concerns.	New Commitment PTP to seek input from ESD Omineca during the preparation of the Post- Construction Monitoring Plan.	Satisfied provided that the draft plan is made available for comment to all interested government and regulatory bodies.
325	Rod Meredith, Kalum Forest District	30-Nov-07	We (MOFR) should recommend that an Access Management Plan be prepared. The plan should be done by a Sub Committee Working Group that involves all the District's along the route.	PTP has already committed to the preparation of an Access Management Plan.	PTP has no further comment.	Satisfied
326	Rod Meredith, Kalum Forest District	30-Nov-07	6 months before construction starts – a Sub Committee Working Group should be formed to identify the roles/responsibilities/contact names of field staff that have a role in monitoring field compliance with plans and legislation.	PTP does not consider that it has a role to play in the establishment of such a subcommittee.	PTP has no further comment.	Satisfied
327	David de Wit, OW	30-Nov-07	There is inaccurate information in the Socio- Economic Technical Report	PTP regrets any errors which may have arisen. Currently PTP is not aware of any specific inaccurate information.	PTP commits to learn from the OW what if any errors will affect the assessment of socio- economic impacts.	This has not been done to date. Fisheries are critical to the employment and well-being not only for the Wet'suwet'en.
328	Michael Gordon, Haisla Nation	3-Dec-07	What is going to be done to secure and/or reroute the existing pipelines through the existing route in the future and how much will that cost?	The existing PNG pipeline in the Telkwa will continue to be maintained in the same manner it has been maintained over the past 40 years. PNG has no plans to reroute the existing pipeline. The KSL pipeline will provide security of natural gas	PTP has no further comment.	This suggests that the new route will be used as an alternative to the old route. This is not

				supply in the event of an incident in the Telkwa Pass that requires a period of time to repair. The benefit of operational flexibility provided by looping the existing PNG pipeline is referenced in the Application (page iii).		identified in the Application.
329	Michael Gordon, Haisla Nation	3-Dec-07	If the existing pipelines are going to have to be secured and/or rerouted through the existing route then why can't the new pipeline be included in this? Or is the proposed new route eventually going to include the lines currently using the existing route?	Please refer to the response to issue # 329 above.	PTP has no further comment.	Satisfied
330	Michael Gordon, Haisla Nation	3-Dec-07	The Haisla's concerns about the proposed new route also prompted them to suggest other alternatives for a new pipeline route. They suggested that the new pipeline follow as closely as possible the highway right of ways to Summit Lake. They also queried about a route through Hirsch Creek. These options have not been addressed.	 PTP has considered other routes and these are outlined in Section 3.3 of the EAC Application. PTP has also submitted a brief report to the EAO Working Group regarding route comparison criteria which will be provided to the Haisla. PTP has determined that the proposed route is the only acceptable route for the construction of the KSL Project and has filed an Application for this route. PTP acknowledges the request for an analysis of other route options similar to the analysis undertaken for the Kleanza Route. PTP does not believe that such an analysis is pertinent to the EAC Application for the KSL Project. 	PTP commits to provide a GIS-based analysis (as per the Kleanza- McDonnell package) of the Kitimat Watershed area crossed by the proposed KSL pipeline.	We understand that more information will be forthcoming. More detailed information is needed similar to the Kleanza- McDonnell route option for all of the route options.
331	Michael Gordon,	3-Dec-07	We would like to suggest that it would help	PTP acknowledges this concern.	PTP commits to provide a	Satisfied but

	Haisla Nation		to clarify this matter if the proponent could provide some comparative analysis of the proposed new route versus the existing route and include the other route options such as through Hirsch Creek or following as closely as possible the highway right or ways. Aside from the obvious comparisons of costs and geotechnical considerations, we would like to see a comparison of environmental risks or trade offs with other factors. For example, the Kitimat River has high fish and wildlife values and development in this watershed is likely to create unavoidable environmental risks to its sustainability in the future. Another route might have higher costs, more conflicts with private land use or higher geotechnical risks but otherwise lower environmental risks.	 PTP has submitted a brief report to the EAO Working Group regarding route comparison criteria and which will be provided to the Haisla. PTP has determined that the proposed route is the only acceptable route for the construction of the KSL Project and has filed an Application for this route. PTP acknowledges the request for an analysis of other route options similar to the analysis undertaken for the Kleanza Route. PTP does not believe that such an analysis is pertinent to the EAC Application for the KSL Project. 	GIS-based analysis (as per the Kleanza- McDonnell package) of the Kitimat Watershed area crossed by the proposed KSL pipeline.	more detailed information is needed similar to the Kleanza- McDonnell route option for all of the route options.
332	Michael Gordon, Haisla Nation	3-Dec-07	There seemed to be some confusion in the description and discussion of the Eurocan mill site in the Contaminated Sites Inventory (Volume II, Baseline Studies). The figure associated with the mill appeared to be mislabelled. The association described between Eurocan and Methanex did not make sense. We suggest that this be reviewed by the Ministry of Environment, Environmental Protection staff in Smithers.	PTP appreciates this feedback. The baseline study report incorrectly makes a link between the Eurocan Mill Site and the Methanex Plant Site from the perspective of the contaminated sites database.	On all future references to these two sites, PTP will ensure that all references and mapping will distinguish these two sites. PTP expects that the contaminated sites information will have been reviewed by MOE staff in Smithers but will check with them to ensure this is the case.	Satisfied
333	Harp Gill, Transport Canada	6-Dec-07	7.4 - Effects Assessment - Accidents and Malfunctions The likely impacts and proposed mitigation is very minimal for this whole section. There will likely be a EMP in place to deal with potential accidents and malfunctions. How this will be relevant to potential accidents and malfunctions should be discussed here.	PTP believes that the type and level of information provided is appropriate for the intended purpose and fully meets the Approved Terms of Reference. Fuel spills are discussed and assessed in Table 7.4-1. Section 9.2.2 outlines a number of the Contingency Plans that will be	PTP has no further comment.	Please refer to CEA Agency comments.

			What about fuel spills within or close to the aquatic environment?	developed prior to clearing and construction for the purpose of managing accidents and malfunctions.		
334	Harp Gill, Transport Canada	6-Dec-07	7.5 - Effects of the Environment on the Project Would extreme freezing events have an effect on the project? Or extreme heat events?	As indicated in Section 6.2, the extreme minimum temperature recorded at Burns Lake is –46.7 °C. While values for extreme maximum temperature are not available, they are likely to be in the range of +30 °C. These range of temperatures will not affect the project per se, but may influence factors such as "forest fire hazard ratings" that will have to be taken into account during logging and clearing activities.	PTP has no further comment.	Satisfied
335	Harp Gill, Transport Canada	6-Dec-07	3.3.2.1 - Iron Mountain Route should specify whether it will follow an existing ROW. What wildlife values and/or FN concerns were evaluated in making the determination?	Information in regard to the Iron Mtn. Route following an existing ROW can be found on the Environmental Work Sheet (Appendix J of the Application). Routing decisions were made on the basis of finalizing a route that is buildable and affordable and enables the implementation of proven methods that will generally mitigate environmental and social impacts. In this area, the central concern were river crossings and the avoidance of marine clays.	PTP has no further comment.	Alternatives Assessment is still undergoing review.
336	Harp Gill, Transport Canada	6-Dec-07	3.3.3.2 - If wildlife values and/or FN concerns were included when evaluating the route options, this should be included here.	As there is no Section 3.3.3.2, it is presumed the reviewer is referring to Section 3.3.2.2. In this context, route options are very limited in this area of extreme terrain. Routes are first examined on the basis of "is the route buildable?" using the test of constructability –	PTP has no further comment.	Alternatives Assessment is still undergoing review.

				meaning can the route be built using available and acceptable construction techniques that will enable the implementation of proven methods that will generally mitigate environmental and social impacts. In this context, wildlife and other values were included in the routing analysis.		
337	Harp Gill, Transport Canada	6-Dec-07	Table 4.4-2 – Please confirm if the column titled "Comments Regarding Upgrade" has no entry, that this means that there is no upgrade proposed here.	Where no information is provided in this column, this does not mean that no upgrade may be required. Rather, the lack of information simply means that the measures required for upgrading to meet construction standards are currently unknown.	PTP has no further comment.	Satisfied
338	Margaret Bakelaar, CEAA	6-Dec-07	Under CEAA, the environmental effects of accidents and malfunctions must be considered. As noted by Transport Canada, the evaluation of environmental effects as well noting mitigation – may need to be supplemented. Proponent response above that "believes that the type and level of information provided is appropriate for the intended purpose and fully meets the Approved Terms of Reference" is not accepted. The TOR indicated that "Using the assessment methodology described in Section 7.1, this section of the Application will evaluate the potential environmental and socioeconomic effects associated with potential accidents and malfunctions of the Project:". The TOR are general in nature and the information required for a federal EA is more specific and not covered in the generalized TOR.	Section 7.4 of the Application outlines the potential environmental effects of Accidents and Malfunctions. Table 7.4.1 addresses the significance of residual effects.	PTP has no further comment.	Additional information will be required at the time of the writing of the federal EA report to ensure RAs believe that the type and level of information provided is appropriate.
339	Margaret	6-Dec-07	Effects of the Environment on the Project:	Section 7.5 of the Application	PTP has no further	Additional
				addresses the potential checks of the	commont.	

			any change to the project that may be caused by the environment is to be considered. There is no description of environmental effects and minimal reference to mitigation for Mass Wasting. Other environmental events noted also provide minimal information on environmental effects and mitigation. Impacts, especially related to watercourses, need to be evaluated by the RAs.	environment on the Project. Reference to this report section will provide the rationale for concluding that as a result of prudent engineering and geotechnical design, there will be no significant environmental effects resulting from changes to the project caused by the environment.		be required at the time of the writing of the federal EA report to ensure RAs believe that the type and level of information provided is appropriate.
340	Margaret Bakelaar, CEAA	6-Dec-07	The rationale for the determination of significance is not clearly outlined and additional explanation may be required.	A determination of impact significance has been provided where a residual effect has been identified (please see Table 7.1-1 of the Application). The methods used are consistent with the ATOR.	PTP has no further comment.	Misunderstand ing of the comment. The RAs need to understand the proponent interpretation. Simply saying magnitude is low does not give enough rationale for RAs to make a decision.
341	Ted Pellegrino, Regional District of Kitimat-Stikine	10-Dec-07	This is to advise that we have reviewed the Environmental Assessment Certificate Application (sections pertaining to our Regional District's interests). Issues as raised by our Regional District have been addressed in the application and we have no objections to the application proceeding.	PTP appreciates this positive feedback.	PTP has no further comment.	Satisfied
342	Oil and Gas Commission	11-Dec-07	The OGC recognizes that some points within the proposed pipeline may be tight locations. If the results of surveying require the pipeline to pass through tight locations, or pinch points, how will the proponent	PTP is solely concerned with the construction and operation of the proposed KSL Project and therefore cannot ensure that future pipeline projects can be accommodated in	Because PTP does not have specific information regarding other pipeline projects (e.g. pipeline diameter, number of	Satisfied. It is understood that PTP cannot incur costs to

			ensure that future pipelines are not prevented from passing through the same tight location, if possible?	these tight areas. Were another pipeline proponent to be on the same development schedule as the KSL Project and be willing to invest the time and resources necessary to ensure their pipeline could be built through the same tight location, PTP would be willing to consider working with them to achieve these results. PTP cannot incur costs for the purpose of assisting those other projects.	pipelines to consider, methods of construction, routing) it therefore cannot comment on the location of possible "pinch points".	accommodate other pipelines on different development schedules. However it is often the most efficient land- use to group utilities in the same corridor if possible. It would be useful if the proponent could identify pinch points where possible so this issue can be considered by EAO in their review of the application.
343	Margaret Bakelaar, CEAA	13-Dec-07	CEAA will specifically review the assessment of alternatives, effects of the environment on the project and cumulative effects. Currently, those sections specific to CEAA are deficient. We would like PTP to provide more information on how they came to their conclusions.	PTP requires more detailed information in regard to the nature of the deficiencies which have been identified before an informed response can be provided.	PTP to contact CEAA to discuss this further. A meeting regarding the CEA is currently scheduled for February 4, 2008 with the CEA Agency, DFO and TC.	CEA meeting was very useful. A meeting or call to the Agency to discuss other CEAA specific requirements would assist in understanding of PTP rationale.

344	Stefan Schug, OW	13-Dec-07	PTP should consider routes other than the one proposed because the current route selection will require significant mitigation. PTP should consider a tunnel through the Telkwa Pass.	PTP has considered other routes and these are outlined in Section 3.3 of the EAC Application. The Telkwa Pass route has been considered by PTP to be unacceptable for the KSL Project.	PTP is preparing a brief submission to the EAO regarding route comparison criteria and this will be provided to the WG.	Tunneling is proposed by other project proponents for longer distances and should solve the issues encountered in unstable areas like the Telkwa Pass! Beside cost no good rational was give for not considering this option.
345	Michael Gordon, Haisla	13-Dec-07	In some respects the AMEC Report raised more issues. What would be helpful would be multiple comparison of different routes- some kind of summary of trade-offs. As it currently stands we don't have sufficient information to provide to our community.	 PTP acknowledges this concern. PTP has determined that the proposed route is the only acceptable route for the construction of the KSL Project and has filed an Application for this route. PTP acknowledges the request for an analysis of other route options similar to the analysis undertaken for the Kleanza Route. PTP does not believe that such an analysis is pertinent to the EAC Application for the KSL Project. 	PTP commits to provide a GIS-based analysis (as per the Kleanza- McDonnell package) of the Kitimat Watershed area crossed by the proposed KSL pipeline.	Satisfied but more detailed information is needed similar to the Kleanza- McDonnell route option for all of the route options.
346	David de Wit, OW	13-Dec-07	Is there any type of bonding required to ensure environmental protection?	PTP is not aware of bonding (i.e.: financial) for this purpose.	PTP has no further comment.	The Wet'suwet'en are unsatisfied with the safeguarding of their

						interests and concerns.
347	Diane Barbetti, Haisla Nation	13-Dec-07	We request that the proponent discuss the plans Environmental Management Plans and Environmental Protection Plan with us as part of the application review to make sure they do not need the information prior to the certificate being issued.	PTP currently has a meeting arranged with the Haisla on January 16, 2008 to discuss these and other matters.	PTP to continue meeting with the Haisla to address concerns.	Satisfied
348	Troy Larden, Ministry of Environment, Environmental Stewardship Division, Skeena Region	10-Jan-08	 9.4 Environmental Inspection During Construction It will be a requirement to have an Environmental Inspector (environmental Monitor) at all sites where development is taking place. This person will have the authority to direct work activities so as to remove or reduce the environmental impact of the pipeline development. 	PTP acknowledges this understanding.	Existing Commitment (Section 9.2) PTP will have a qualified Environmental Inspector available at all locations where development is taking place.	Satisfied
349	Troy Larden, Ministry of Environment, Environmental Stewardship Division, Skeena Region	10-Jan-08	9.5 Post Construction Monitoring Post construction monitoring should also include function and effectiveness of the compensation activities completed.	PTP acknowledges this need.	Existing Commitment (Section 9.2) PTP will be developing a Post-Construction Monitoring Plan that will address the functioning and effectiveness of compensation measures undertaken.	Satisfied
350	Troy Larden, Ministry of Environment, Environmental Stewardship Division, Skeena Region	10-Jan-08	7.1.2 Methods – Valued Components 7.1.2.2 -I had a hard time understanding if the construction phase of the project was included here. The project identified burning as a way to deal with the materials accumulated by the clearing of the ROW. If burning is to take place, it must be done within the guidelines of the Open Burning Smoke Control Regulations (OBSCR).	PTP acknowledges this requirement.	New Commitment PTP will ensure that any burning is undertaken within the guidelines of the OBSCR.	Satisfied
351	Michael Gordon, OW	19-Mar-08	Enbridge has recently announced that the proposed Gateway project to export oil from Alberta through a pipeline and marine	In theory, a natural gas pipeline can be converted to transport liquids, but not without substantial additional	PTP has no further comment.	

	terminal in Kitimat is being reactivated. Encana has been importing petroleum condensate into an expanded storage facility at the Methanex site in Kitimat and shipping it to Alberta via rail. However, Encana would prefer to employ pipeline transport if possible.	costs. In addition, new EA, OGC and BCUC approvals would be required that would necessitate First Nation, public and agency review and input. The KSL Project would be authorized only to transport natural gas.	
	The proposed KSL pipeline project will use a 36 inch pipe. This is large enough to accommodate transport of either oil or condensate. When the proponent was questioned recently about the feasibility to convert this pipeline from gas to oil, the answer was affirmative.		
	Given the uncertainties of business development, we can envision a scenario where the KSL pipeline corridor project application is approved. However, perhaps the KLNG project will not succeed in procuring sources of gas supply, competitive shipping contracts, or sufficient investment to proceed. Or perhaps it does result in an operating regasification plant and the transport of gas for a decade or two but then pricing is no longer favourable for operations to continue. In either case, this leaves an approved 36 inch pipeline corridor without anything to transport.		
	Clearly from almost anyone's point of view, transport of oil or condensate in lieu of gas carries with it a very different set of environmental implications. However, it is not clear whether conversion of this pipeline corridor for transport of oil or condensate would require a new assessment or simply		

some permit amendments to accommodate operational modifications. An explicit commitment from the Crown is needed to fully clarify what might occur is needed before a decision is rendered on this application.		
A more fundamental question is whether approval of a pipeline corridor for gas transport makes it more likely that an adjacent pipeline corridor for oil or condensate will be approved. In light of the Enbridge and Encana interests, this should be addressed fully. Another clear commitment from the Crown is needed to provide clarification on this before a decision on the current application.		

NOTE: where the First Nations "Review Response to Proposed Action" (right hand column) records a response of "unsatisfied" or a comment expressing dissatisfaction, please review the First Nations Consultation Report (Part F) for further information about discussions relating to that issue.

Appendix E

Compendium of Proponent Commitments

This table documents commitments made by the Proponent in the EA Application and during the Application Review phase of the environmental assessment of the Project to mititigate potential adverse effects of the Project.

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²	
1. Geophy:	sical Environment			
1.1	Clearing and Construction	PTP commits that all sediment-laden water to be pumped will be discharged onto stable vegetation located a minimum of 5 m from any flowing watercourse or wetland. The discharge points will be monitored to ensure that mass wasting does not occur as a result of water loading on the local soils.	MOE, DFO	
1.2	Detailed Design, Permitting	PTP commits to undertake additional terrain stability investigations and geotechnical work as part of the project design following certification. Should areas of instability be identified, they will be subject to further geotechnical investigations, which may lead to engineering design solutions or local route adjustments.	MOE, DFO, OGC, HFN, KFN, OW	
1.3	Clearing and Construction	PTP will ensure that blasting is controlled and undertaken and supervised by licensed professional blasters and engineers in accordance with good industry practice.	OGC	
1.4	Clearing and Construction	PTP will ensure that any construction activities adjacent to an existing road, rail line, or powerline will be engineered/conducted in a manner that minimises the likelihood that construction fill, cut/fill slopes, and surface water could impact the road, rail line, or watercourse.	OGC	
1.5	Clearing and Construction	As a pipeline trench infilled with coarse/disturbed backfill tends to attract natural groundwater flows, PTP will ensure pipeline design along ROW slopes will include designs to re-direct surface water away from the ROW, re-direct groundwater in the trench to the surface and to the margins of the ROW and into existing drainage courses.	OGC	
1.6	Clearing and Construction	PTP will ensure that surface water and groundwater control in the form of ditches, cross ditches, re-contouring, re-vegetation, drains, and berms on the access roads and along the ROW will be incorporated in the pipeline design as determined by a qualified and experienced geoscientist or engineer.	OGC, MOE	
1.7	Clearing and Construction	PTP commits to minimise ground excavation and travel along or adjacent to soil slopes immediately after or during seasons of intense precipitation such as October and November prior to freeze up, in the spring during spring thaw and during August thunderstorm season.	OGC, MOE	
¹² Agencies legislated r	¹² Agencies and organizations listed here are those considered to have an interest in potentially reviewing PTP's responsibility related to the commitment, or have an legislated mandate to monitor the commitment, or both. Listing an Agency or Organization in this column is not meant to imply direct responsibility for an action.			

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
1.8	Clearing and Construction	Normal pipeline operations will include regular inspection of slope and areas susceptible to erosion to ensure that erosion and sedimentation is minimised.	OGC, MOE
1.9	Post Construction Monitoring	PTP commits that performance of the pipeline ROW and access roads will be monitored and repaired for a period after construction to ensure sedimentation and erosion is minimised.	OGC, MOE
1.10	Clearing and Construction	PTP commits that caution will be exercised during construction if glaciomarine clay is encountered at surface or beneath other soil units. Any cut banks within this clay will be very sensitive and susceptible to failure especially if the pore pressures within the soil are not dissipated. Machine vibration or high spoil piles adjacent to excavated or natural faces of glaciomarine clay can also reduce the stability of this soil.	OGC, MOE
1.11	Clearing and Construction	PTP commits that for cuts greater than 10 m in height, or where fine-grained soils are anticipated, soil cut slope design and support provisions will be designed and then refined by a qualified registered professional during construction in advance of the road/right-of-way heading. PTP also acknowledges applicable WorkSafe BC regulations, including the requirement that excavations more than 6 m deep must be in accordance with the written instruction of a professional engineer.	OGC, MOE
1.12	Clearing and Construction, Restoration, Post Construction Monitoring	PTP will ensure that post slide mitigation will be designed to maximize slope stability, minimise further erosion and downstream impacts such as sedimentation of watercourses	OGC, MOE
1.13	Detailed Design	PTP will ensure that during the design phase, the extents of debris flow fans/cones (deposition zones) will be delineated by a qualified geological engineer or geoscientist and the new pipeline, at a minimum, should be buried an additional metre below the nominal design depth in order to protect it from scour from future debris flow events. If possible, the pipeline should be located as far as possible from the apex of the debris flow fan to avoid areas most susceptible to vertical scour and on the immediate upslope side of any access roads or natural benches to encourage debris flows and floods to deposit debris on top of the pipeline. In addition to deeper burial, the use of rock shield around the pipeline should also be considered to protect against boulder impact.	OGC, MOE
1.14	Detailed Design	PTP has undertaken an assessment to classify and determine the boundaries of the potential ARD/ML zones along the KSL pipeline route. Where warranted, a verification program will be undertaken to help develop specific construction stage monitoring and/or mitigation plans within each zone, where there is a high ARD/ML potential.	OGC, MEMPR
1.15	Detailed Design	PTP commits that areas of the pipeline that will cross colluvium or require rock excavations would include varying degrees of field inspections (assuming favourable access and logistics), mapping and sampling for laboratory testing of acid rock drainage and metal leaching properties. Sampling frequency and testing requirements will be more onerous for the high zones and less onerous for those areas considered to have moderate potential for ARD/ML	OGC, MEMPR

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
1.16	Clearing and Construction	PTP commits to salvage the total thickness of topsoil to a maximum depth as indicated on the Environmental Work Sheets. The EI will provide interpretation based on the Soils Assessment Report.	OGC, ALC
1.17	Clearing and Construction	PTP commits to salvage duff and upper root zone material to a maximum of 15 cm to 20 cm using the Environmental Work Sheets as a guide.	OGC, ALC
1.18	Clearing and Construction	PTP commits to salvage, store, and subsequently replace separately the topsoil or root zone material from subsoil wherever grading occurs.	OGC, ALC
1.19	Clearing and Construction	PTP commits to store spoil material over the existing PNG pipeline only under conditions where the spoil can be completely returned during final clean-up.	OGC, ALC
1.20	Clearing and Construction	PTP commits to not salvage topsoil or root zone material under extreme windy or rainy conditions.	OGC, ALC
1.21	Clearing and Construction	PTP commits to apply water, snow, or tackifier to the salvaged topsoil or root zone material as directed by the EA in order to prevent erosion.	OGC, ALC
1.22	Post Construction Monitoring	PTP commits to monitor the effectiveness of the erosion control measures and implement remedial work where warranted.	OGC, ALC
1.23	Clearing and Construction	PTP commits to schedule clearing and construction of wet areas during the winter when the soils are frozen.	OGC, ALC
1.24	Clearing and Construction	PTP commits to minimize construction traffic in poorly drained soil areas.	OGC, ALC
1.25	Clearing and Construction	PTP commits to consider using swamp or rig mats over long distances of wet soils.	OGC, ALC
1.26	Clearing and Construction	PTP commits to decompact subsoil before placement of topsoil where warranted.	OGC, ALC
1.27	Clearing and Construction	PTP commits to decompact working side where warranted prior to restoration	OGC, ALC
1.28	Clearing and Construction	Prior to topsoil or root zone material replacement, PTP commits to pick stones from the right-of- way that could result in the reduction of soil capability.	OGC, ALC
1.29	Clearing and Construction	PTP commits to dispose of stones at appropriate locations.	OGC, ALC
1.30	Post Construction Monitoring	PTP commits to monitor the right-of-way for the presence of stones at the surface on agricultural lands and remediate where warranted.	OGC, ALC
1.31	Clearing and Construction	PTP commits to light compaction of subsoil in non-frozen conditions. Alternative methods of compaction may be used if approved by PTP's engineer.	OGC, ALC
1.32	Clearing and Construction	PTP commits to leave a slight crown (roach) over the trench to compensate for settlement. In frozen conditions, employ a larger crown.	OGC, ALC
1.33	Post Construction Monitoring	PTP commits to monitor the trench for subsidence following restoration and undertake remedial measures where warranted.	OGC, ALC
1.34	Detailed Design, Clearing and Construction	For the purpose of mitigating impacts to palaeontological resources, PTP commits to: undertake the examination of specified gravel pits prior to construction to allow determination of palaeontological resource value and to develop appropriate mitigation. Monitor trenching activities where warranted. Where discoveries are made, engage the resource specialist to assist in determining the appropriate sampling procedures, if warranted.	OGC

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²			
2. Atmosph	2. Atmospheric Environment					
2.1	Clearing and Construction	PTP commits to use multi-passenger vehicles to transport crew to site to the extent practical to limit the amount of traffic and accompanying emissions.	OGC			
2.2	Clearing and Construction	PTP commits to minimize the amount of greenhouse gas emissions associated with clearing of vegetation by following existing linear disturbances where feasible.	OGC			
2.3	Clearing and Construction	PTP commits to consider fuel economy when purchasing, upgrading, and maintaining the vehicle fleet.	OGC			
2.4	Clearing and Construction	PTP commits to use well-maintained equipment to minimize emissions.	OGC			
2.5	Clearing and Construction	PTP commits to maximize equipment use when running and minimize unnecessary idling of equipment.	OGC			
2.6	Clearing and Construction	 For the purpose of controlling dust resulting from construction traffic, PTP commits to: Apply water to exposed soil piles if wind erosion occurs. Apply water to the Project Footprint during dry conditions at intersections, and near residences and other sensitive areas. Control vehicle speeds to reduce traffic-induced dust dispersion and resuspension from the operation of heavy vehicles. Post speed limit signs in sensitive areas. Ensure trucks hauling sand, dirt, or other loose materials are covered. Adhere to an Air Quality and Dust Control Plan. 	OGC			
2.7	Clearing and Construction	For the purpose of controlling smoke during open burning, PTP commits to: Conduct burning in compliance with local government bylaws, the BC Open Burning Smoke Control Regulation, and the Forest Fire Prevention and Suppression regulation. Prior to burning, explore options to reduce, reuse, or recycle as much material as possible.	OGC, MOFR			
2.8	Operations and Post- Construction Monitoring	 For the purpose of controlling fugitive natural gas emissions, PTP commits to: Use low-bleed pneumatic controllers to minimize fugitive emissions. Pressure test the pipeline with air or water before commissioning to ensure system integrity during normal operation and minimise or eliminate greenhouse gas emissions as a result of pipeline leakage. Use dry gas seals at the Compressor Station to prevent high-pressure gas in the compressor from leaking past the casing along the shaft to the atmosphere. Use advanced control systems to assist in providing integrity checks so that device failures will not trigger a blowdown. Reduce unit blowdown volumes in the station design by minimising the actual trapped volume. 	OGC			

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
2.9	Operations and Post- Construction Monitoring	For the purpose of reducing greenhouse gas emissions from the compressor station, PTP commits to: Use dry-low NOx emission systems designed to optimize fuel performance. Maintain compressor at peak efficiency to ensure fuel efficient combustion and to minimize exhaust emissions.	OGC
3. Aquatic	Environment		
3.1	Detailed Design	PTP commits to develop a water sampling program with the OW for the area of the Morice watershed crossed by the Project.	OW, MOE
3.2	Detailed Design, Permitting, Clearing and Construction	PTP commits to work with MOE and other agencies to identify specific locations of new access concern and develop strategies to limit access to areas of concern. This will include an evaluation of potential rearing, staging and spawning sites with respect to short and long term access risks. The product of this evaluation will be provided to interested parties for their review.	MOE, DFO
3.3	Detailed Design, Permitting	Prior to initiating construction, PTP will undertake surveys of specific sites with Dolly Varden to assess whether mature individuals are present and likely to spawn. Where such individuals are present and spawning within the zone of influence is possible, mitigation will be used to encourage fish to select spawning sites elsewhere in the system. Should impacts within the zone of influence occur, PTP will prepare mitigation and compensation plans to address habitat and fish.	MOE, DFO
3.4	Detailed Design	In the event that HDD proves to be infeasible at the Stuart River pipeline crossing, based on the early investigation programs PTP commits to consider an aerial crossing should that method be acceptable to the local community.	MOE, DFO, CSTC
3.5	Detailed Design	PTP commits to providing a draft of the Hydrostatic Test Plan to the OGC and other interested parties for review and comment prior to seeking permits for such water use.	OGC, MOE, DFO
3.6	Detailed Design	PTP commits to complete any outstanding assessments for stream crossings for new and reactivated access roads prior to clearing and construction.	DFO, MOE
3.7	Detailed Design, Permitting	PTP commits to obtaining, and in some cases developing, BMPs for access roads and to propose these BMPs to the responsible agencies. Modification to the proposed BMPs will be made by PTP based on the comments received from the agency review. This commitment will be fulfilled prior to construction but post-certification	MOE, DFO, OGC
3.8	Operations, Post-Construction Monitoring	PTP commits to work with MOE to determine areas where angling pressure may be of a concern and to ensure that appropriate methods are used to monitor (measure) this possible effect and to address these effects where they occur.	MOE
3.9	Detailed Design, Restoration	PTP to consult with Haisla to identify appropriate compensation opportunities.	HFN
3.10	Detailed Design	PTP commits to undertake further discussion with DFO regarding the identification of additional crossing sites where a Fisheries Act Authorization will be required as well as in regard to habitat compensation requirements.	DFO

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
3.11	Detailed Design, Permitting	PTP has committed to working with DFO and others for the purpose of designing and implementing some early compensatory undertakings prior to construction. PTP has committed to meeting the "No Net Loss" policy of DFO.	DFO, MOE, HFN, KFN, OW
3.12	Detailed Design, Permitting	PTP commits to working with the Haisla and regulatory agencies for the purpose of assuring that the KSL Project does not result in negative effects on the Kitimat Watershed. Should this require additional baseline studies to be undertaken following Project certification, PTP is willing to discuss undertaking these studies.	HFN, KFN, DFO, MOE
3.13	Detailed Design, Permitting	In the event that HDD proves to be infeasible at the Chist Creek pipeline crossing, based on early investigation programs PTP commits to consider an aerial crossing should that method be acceptable to the local community; if an aerial crossing is to be used, PTP will consult with Kitselas on an appropriate revised location, which may be upstream of the existing road bridge.	KFN, HFN, DFO, MOE, OGC
3.14	Detailed Design, Permitting	PTP commits to revisit some crossing sites in the Gosnell Creek and upper Morice which PTP has identified as non fish-bearing to determine if fish may be present under normal flow conditions. In addition, PTP commits to carry out an assessment of data from other crossing sites in order to identify other streams where this form of additional assessment should be done. This additional assessment of crossing sites will be carried out prior to the detailed planning and design of these crossings and appropriate amendments made to crossing methods if warranted.	DFO, MOE, OW
3.15	Detailed Design	PTP will commit to an August 1 – September 15 window for instream work for the crossing of the Gosnell and its tributaries. PTP commits that, should prior geotechnical investigations prove HDD to be infeasible for the 3 Gosnell crossings (KP 109.3, KP 109.8, KP 110), that it will evaluate other nearby crossing locations that may be amenable to HDD prior to altering the crossing method to isolated open cut. This evaluation will be done prior to construction at these sites, but post-certification.	DFO, MOE, OW
3.16	Detailed Design	PTP commits to undertake specific surveys of Dolly Varden or salmon spawning at KP 154.8 prior to construction in order to avoid impacts.	DFO, MOE
3.17	Detailed Design	PTP commits to an instream work window of July 15 to September 15 for the channel at KP 1.5	DFO, MOE
3.18	Detailed Design	PTP to re-sample the crossing at KP 3.4 for the presence of Coho prior to construction. If present, PTP commits to an instream work window of July 15 to September 15.	DFO, MOE
3.19	Detailed Design	PTP to re-sample the crossing at KP 5.4 prior to construction. If Pink Salmon are present, an instream work window will also be assigned.	DFO, MOE
3.20	Detailed Design	PTP commits to examine the crossing at KP 16.7 for the presence of Dolly Varden prior to construction. If they are present, they will be encouraged to move through the construction area prior to spawning.	DFO, MOE
3.21	Detailed Design	PTP to undertake special restoration efforts in the area between KP 22.7 and KP 22.8 for the purpose of reducing deciduous growth (alder) in order to reduce the attractiveness to beaver colonization.	DFO, MOE

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
3.22	Detailed Design	PTP to undertake instream survey in advance of construction to determine presence of Pink Salmon at KP 25.6 (Bannock Creek).	DFO, MOE
3.23	Detailed Design	PTP will investigate the possibility of a minor shift in the ROW to avoid old growth trees at KP 25.6 (Bannock Creek).	DFO, MOE
3.24	Detailed Design, Permitting, Clearing and Construction	PTP commits to an instream work window of July 15 to September 15 for the Cecil Creek crossing due to the presence of Steelhead. PTP commits to examine alternative methods or locations for a stream crossing if unsuitable soils (e.g. marine clays) are encountered at the crossing site.	DFO, MOE
3.25	Detailed Design, Permitting, Clearing and Construction	PTP will install snow fencing or equivalent on the riverbed to retard possible spawning at KP 40.9.	DFO, MOE
3.26	Detailed Design, Permitting, Clearing and Construction	PTP commits to follow the provincial guidelines for the removal of beaver dams and to confirm methods and timing with DFO and possible trapline holder at KP 41.9.	DFO, MOE
3.27	Detailed Design, Permitting	PTP will conduct further studies at KP 63.4 (Hunter Creek) prior to construction to determine if crossing site is used by steelhead for spawning. PTP commits to altering the instream work window to July 15 to July 31 if Steelhead are present at the crossing site.	DFO, MOE
3.28	Clearing and Construction	PTP commits to include maintenance of fish movements as an objective in the Environmental Management Plans. This will include both the pipeline ROW as well as structures associated with all new access construction and upgrades.	MOE, DFO
3.29	Detailed Design, Clearing and Construction, Restoration	PTP commits to meet with the DFO Hatchery Manager in Kitimat in order to identify any activities that may cause concern for salmon enhancement in the Kitimat Valley and to ensure measures are implemented to mitigate the identified concern. Meetings are to occur in advance of clearing and construction and to continue throughout the construction and restoration phases.	DFO, DOK
3.30	Detailed Design, Clearing and Construction, Restoration	PTP commits to meet with the Kitimat Sport Fisheries Committee as well as the local Sport Fishery Retail Outlets and Fishing Charter Guides to inform them about project routing and clearing / construction activities in order to determine appropriate means of communicating with licensed anglers.	DOK
3.31	Detailed Design, Clearing and Construction, Restoration	PTP commits to assisting in communicating with licensed anglers by means of advertising project activities in local newspapers as well as the preparation of a handout (brochure) in order to inform them of construction activities.	DOK
3.32	Detailed Design	If it is decided that the Thautil-Tommy Creek route alternative is the preferred routing for the KSL Project, fisheries and other studies will be undertaken for this route alternative.	OW, DFO, MOE
3.33	Detailed Design	PTP will contact Angling Guides using the Zymoetz watershed to discuss the KSL Project and to solicit their views and concerns.	MOE
3.34	Detailed Design	The Access Management Plan will address issues related to the control of access where streams are deemed to be of high fisheries values and at sensitive crossing sites. PTP will work with MOE and others to identify locations requiring access management.	MOE
3.35	Clearing and Construction	PTP will retain appropriate expertise for the purpose of adopting the Newcombe dose model.	MOE, DFO

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
3.36	Clearing and Construction	PTP commits to monitor groundwater quality and quantity where groundwater is deemed relevant to fish species present at the crossing site. This will be addressed in the Post Construction Monitoring Plan that will be provided to ESD Omineca for their review and comment.	MOE
3.37	Clearing and Construction, Restoration	PTP commits to implementing measures to block off access by recreational vehicles along the ROW across a stream where highly erodable and sediment producing soils are encountered. PTP acknowledges that this is of most concern at KP 30 (Cecil Creek) as well as the stream at KP 25.6 and the drainages from KP 5.8 to KP 6.5.	MOE, DFO
3.38	Detailed Design	PTP to add Pink Salmon to the list of fish species for the crossing at KP 25.6 and also add the name of the creek to Table 6.3-3. Instream work window to be July 15 to August 1.	MOE, DFO
3.39	Detailed Design, Clearing and Construction	PTP commits to the implementation of more conservative guidelines than those outlined in the DFO guidelines for blasting, in situations where the un-eyed egg stage of fish are present at the crossing site. PTP will ensure that spawning is taken into account in the implementation of blasting specifications.	MOE, DFO
3.40	Clearing and Construction	PTP commits to use isolation techniques on pipeline watercourse crossings as indicated in the Application.	OGC, MOE, DFO
3.41	Clearing and Construction	PTP commits to adhere to instream work windows and minimize instream work period.	OGC, MOE, DFO
3.42	Clearing and Construction	PTP commits to salvage fish from instream construction areas prior to dewatering, trenching, and other construction activities.	OGC, MOE, DFO
3.43	Clearing and Construction	PTP commits to use qualified environmental monitors during all instream construction activities, and follow emergency procedures for all incidents as will be presented in the forthcoming EPP.	OGC, MOE, DFO
3.44	Clearing and Construction	PTP commits to implement adequate erosion control on upslope areas and non-fish-bearing watercourses, to prevent release of harmful concentrations of suspended sediment to fish-bearing waters.	OGC, MOE, DFO
3.45	Clearing and Construction	PTP commits to follow DFO requirements when blasting in the vicinity of watercourses.	OGC, MOE, DFO
3.46	Clearing and Construction	PTP commits that pump intakes, in compliance with DFO requirements, will not disturb streambeds and should be screened with a maximum mesh size of 2.54 mm and approach velocity of 0.038 m/sec.	OGC, MOE, DFO
3.47	Clearing and Construction	PTP commits that water for hydrostatic testing will be removed from streams at no more than 10% of existing flows.	OGC, MOE, DFO
3.48	Clearing and Construction	PTP commits to select vehicle and pipeline crossing methods that reduce direct and indirect effects on productive fish habitat.	OGC, MOE, DFO
3.49	Clearing and Construction	PTP commits to implement adequate erosion control on upslope areas and non-fish-bearing watercourses, to prevent release of harmful concentrations of suspended sediment to fish-bearing waters.	OGC, MOE, DFO
3.50	Clearing and Construction	PTP commits that welding, coating, weighting, and where applicable, testing, of the pipe will be completed prior to commencement of instream trenching.	OGC, MOE, DFO

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
3.51	Clearing and Construction	PTP commits that crossings will commence only after ensuring that sufficient equipment and supplies are available to complete the crossing in an efficient and timely manner.	OGC, MOE, DFO
3.52	Clearing and Construction	PTP commits to isolate instream construction areas where surface flow is present (on both fish- bearing and non-fish-bearing watercourses) and implement measures to reduce downstream sediment input, as discussed in the EPP, including: salvage streambed surface material for return to top layer of streambed during backfilling. salvaged surface material should be placed above the high water mark in a manner that does not block drainage or runoff, excavated instream materials should be contained using appropriate techniques (e.g. berms, silt fences or straw bale filters), to ensure that sediment-laden water and spoil do not re-enter the waterbody, water from flumes, pump-arounds, diversions, or other methods should be released to downstream areas using dissipation structures, to avoid causing erosion or sediment release. sediment-laden trench water should be pumped onto stable surfaces in a manner that does not cause erosion of soils or release of suspended sediments to watercourses, hard ditch plugs at least 3 m wide should be left in place until the crossing has been initiated.	OGC, MOE, DFO
3.53	Clearing and Construction	PTP commits that Horizontal Directional Drilling is proposed to cross fish streams that cannot be isolated.	OGC, MOE, DFO
3.54	Clearing and Construction	PTP commits to restore streambed and banks, based on pre-construction habitat surveys. Restore rearing potential with adequate stream depth and instream structures. Restore spawning areas with gravel placement. Maintain or restore natural drainage and channel configurations.	OGC, MOE, DFO
3.55	Clearing and Construction	PTP commits to where feasible, salvage, and return aquatic vegetation and organic debris removed from the construction area following trench backfilling.	OGC, MOE, DFO
3.56	Clearing and Construction	PTP commits to contour and stabilize banks and approach slopes and install temporary berms, silt fences, or cross ditches in locations where run-off may flow into a watercourse.	OGC, MOE, DFO
3.57	Clearing and Construction	PTP commits to seed exposed soils with native seed mix prior to spring freshet wherever possible.	OGC, MOE, DFO
3.58	Clearing and Construction	PTP commits to implement mitigation measures at all watercourse crossings, as presented in the EPP, including: minimize clearing and ground disturbance within 10 m of the high water mark of all waterbodies, maintain or restore natural drainage and channel configurations, contour and stabilize banks and approach slopes and install temporary berms, silt fences, or cross ditches in any location where run-off from the right-of-way may flow into a watercourse, implement erosion control measures throughout all phases of the Project, commence clean-up and restoration immediately following backfill operations, and monitor approach slopes and banks regularly, especially after heavy rainfalls and spring snowmelt for two years after construction. Monitoring should be continued at specific locations if chronic erosion occurs, or if riparian vegetation recovery is delayed	OGC, MOE, DFO

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
3.59	Clearing and Construction	In addition to other mitigation measures, PTP commits to additional mitigation measures for fish- bearing watercourses. These include: postpone clearing of slopes and banks until immediately prior to construction and leave a temporary uncleared buffer zone of 10 m width as measured from the high water mark, where earlier clearing is necessary, leave the vegetative ground mat and root structure intact, maintain low vegetation or vegetative ground mat within the 10 m buffer of watercourses to the extent practical by walking, storing, and constructing over the undisturbed areas, pump isolated trench water onto stable surfaces in a manner that does not cause erosion of soils and sedimentation of watercourses, use appropriate restoration techniques (e.g. brush bundles, willow staking, seed with native seed mix, etc.) to enhance recovery of disturbed riparian areas and reduce erosion risk, to the extent feasible, use horizontal directional drilling to minimize impact to high value riparian areas.	OGC, MOE, DFO
3.60	Clearing and Construction	PTP commits to maintain adequate water flows downstream of instream construction sites.	OGC, MOE, DFO
3.61	Clearing and Construction	PTP commits to restore pipeline crossing sites to ensure adequate depth and velocities.	OGC, MOE, DFO
3.62	Clearing and Construction	PTP commits to maintain connectivity at all vehicle crossings of fish-bearing watercourses through appropriate construction and installation techniques.	OGC, MOE, DFO
3.63	Clearing and Construction	PTP commits to return test water for discharge to its source watershed to prevent inter-basin transfer of aquatic organisms.	OGC, MOE, DFO
3.64	Clearing and Construction	PTP commits to adhere to regulatory approvals process for any future emergency instream works	OGC
3.65	Permitting	PTP will discuss and provide third party audits of Fisheries Act 35(2) authorizations as required / requested by DFO.	DFO
3.66	Detailed Design, Permitting	PTP recognizes the very high fisheries values at the Morice crossing and commits to consider timing the construction during the recommended period (mid-May to mid-August) to avoid the most critical fisheries-sensitive timing.	DFO, OGC, MOE
3.67	Detailed Design	PTP has provided "typicals" or example drawings in the Conceptual Habitat Compensation Plan showing typical restoration measures at crossing sites to protect and restore or improve fish habitat. PTP will prepare a Restoration Plan that includes these drawings.	DFO
3.68	Detailed Design	PTP commits to undertake additional terrain stability investigations and geotechnical work as part of the Project design following certification. Should areas of instability be identified, they will be subject to further geotechnical investigations which may lead to engineering design solutions or local route adjustments.	DFO, OGC
3.69	Detailed Design, Permitting	PTP will incorporate erosion control measures in the "Surface Water Quality and Sediment Control Plan" for use during construction, as well as into the "Post Construction Monitoring Plan" for use during operations and decommissioning.	DFO, OGC

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
3.70	Detailed Design, Permitting	PTP commits to evaluate access road water crossings, to identify HADD and provide compensation if necessary to meet DFO's No Net Loss policy, and the requirements of the approved Habitat Compensation Plan.	DFO, MOE
3.71	Detailed Design, Permitting, Restoration, Post-Construction Monitoring	PTP commits to actively participate in a Wildlife and Wildlife Habitat Subcommittee for the KSL Project. One task of the subcommittee would be the development of compensation works that would be funded and undertaken by PTP for the purpose of adequately addressing riparian impacts requiring compensation.	OGC, MOE
3.72	Detailed Design, Permitting, Clearing and Construction	PTP commits that the design for water quality monitoring will include multiple samples for larger streams and not just mid-stream and that a range of sites will be sampled.	OGC, MOE
3.73	Detailed Design, Clearing and Construction, Restoration, Post-Construction Monitoring	PTP commits to undertake downstream inspection and sampling to determine if construction has resulted in any long-term embeddedness of sand on those rivers where this may be an issue and to undertake corrective measures, where required. The details of this will be developed during detailed design.	OGC, MOE
3.74	Detailed Design, Permitting	PTP commits to continue work with MOE and DFO on the development of fisheries compensation measures for the KSL Project that will include consideration of multiple species.	DFO, MOE
3.75	Detailed Design, Permitting	PTP confirms that the instream work window is not a time of no risk and understands that compensation for HADD may be necessary even if the crossing is undertaken during the instream work window.	DFO, MOE
3.76	Detailed Design	PTP commits to continue to work with DFO to identify crossings where the proposed contingency crossing method is not acceptable and to develop a process for how works will be authorized.	DFO
3.77	Detailed Design, Permitting	PTP understands that the concepts put forward in the Conceptual Compensation Plan are generally acceptable but agrees that additional work is required to define technical details such as location and amount of compensation. PTP commits to continue to work with DFO and others for the finalization of an acceptable Habitat Compensation Plan.	DFO, MOE
3.78	Detailed Design	PTP commits to re-sample Welch Creek when fish are most likely to be present in order to re- confirm fish-bearing status within this stream reach and to modify the in-stream work window and crossing method appropriately.	DFO, MOE
3.79	Detailed Design, Permitting, Clearing and Construction	PTP commits to utilize HDD as the primary crossing method for the three Salmon River crossings if this method is proven feasible.	DFO, MOE
3.80	Detailed Design	PTP commits to continue to work with DFO, TC and the CEA Agency during the Comprehensive Study Process to provide additional information regarding the manner by which the conclusions of the Cumulative Effects Assessment were reached.	DFO, TC, CEA Agency
Terrestrial	Environment		-
4.1	Detailed Design, Clearing and Construction	PTP commits that a "route walk" will be undertaken by a wildlife specialist (R.P. Bio) prior to clearing and construction.	MOE
4.2	Detailed Design, Clearing and Construction	PTP will include members of the Kitselas First Nation in access management and construction monitoring programs within their traditional territory.	KFN

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
4.3	Detailed Design	Grizzly bear habitat and seasonal movements will be considered in access management planning.	KFN, MOE
4.4	Detailed Design	PTP will involve the Kitselas First Nation in any bear habitat investigations in their traditional territory prior to construction.	KFN
4.5	Detailed Design	Moose habitat in the Kitimat Valley will be considered in access management planning and in the restoration of ROW and temporary workspace.	MOE, KFN, HFN
4.6	Clearing and Construction	PTP will extend the grizzly bear and black bear timing window as follows: no clearing or construction activities are to occur within 200 m of an active grizzly bear or black bear den between November 1 and May 31.	MOE, KFN
4.7	Detailed Design, Clearing and Construction, Restoration, Post-Construction Monitoring	PTP will engage the KFN in the route walk and will establish a process for them to participate in construction and post-construction monitoring in their traditional territory.	KFN
4.8	Detailed Design, Clearing and Construction, Restoration, Post-Construction Monitoring	 PTP commits to actively participate in a Wildlife and Wildlife Habitat Sub-committee for the KSL Project. PTP views the work of this sub-committee will be to: develop compensation and mitigative strategies commensurate with project-related terrestrial wildlife habitat losses and disturbances to wildlife oversee the implementation of proponent (PTP) funded compensatory work, and recommend adaptive management strategies, as required, once pipeline restoration work is completed. PTP foresees the work of the committee will continue post EA certification, through the detailed design phase of the project and extend to post-construction monitoring, if an EA Certificate is issued. PTP suggests this committee would also address terrestrial vegetation issues as well (e.g. at-risk plant communities). 	MOE
4.9	Detailed Design, Clearing and Construction	PTP to ensure detailed clearing and construction planning will account for disturbances to mountain goats in areas they occupy. PTP commits to adopt regional measures that have been developed by MOE to mitigate risk and disturbance to mountain goats.	MOE
4.10	Clearing and Construction	PTP commits to construction phase monitoring of northern goshawk nest areas occurring within 500 m of the construction footprint.	MOE
4.11	Detailed Design, Clearing and Construction	PTP commits to the adoption of regional measures that have been developed by MOE to mitigate risk and disturbance to mountain goats.	MOE
4.12	Clearing and Construction	No firearms will be permitted on the job site, including the construction camps unless required for safety reasons.	MOE
4.13	Clearing and Construction	PTP commits to no clearing or construction activities to occur within 500 m of mountain goat winter habitat (KP 74 to KP 100) between October 15 and May 15.	MOE
4.14	Restoration	PTP will consider silviculture treatments as part of the restoration plan.	MOE
4.15	Detailed Design, Permitting	Once the Environmental Management Plans are prepared in draft, they will be provided to MOE for comments prior to their finalization.	MOE

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
4.16	Detailed Design, Permitting	PTP to provide the duties and responsibilities of the EI(s) to ESD Omineca. PTP to confer with ESD Omineca prior to the final selection of the EIs.	MOE
4.17	Detailed Design	Once the draft Post-Construction Monitoring Program is prepared, it will be provided to MOE for their review and comment prior to finalization.	MOE
4.18	Clearing and Construction	PTP will ensure that any burning is undertaken within the guidelines of the OBSCR.	MOE, MOFR
4.19	Detailed Design	PTP commits that candidate grizzly bear Wildlife Habitat Areas in areas crossed by the PTP pipeline will be identified on future versions of the Environmental Work Sheets.	MOE, KFN
4.20	Detailed Design	PTP has agreed to fund additional grizzly bear and mountain goat studies to be undertaken by the KFN and their consultants. This work will be initiated post-certification and prior to construction.	KFN
4.21	Detailed Design	PTP will undertake, post-certification, additional studies where warranted on areas of high value / high risk. These studies will incorporate traditional knowledge, where applicable.	OW, MOE, HFN, KFN
4.22	Detailed Design	PTP will work with the OW to develop appropriate monitoring programs.	OW
4.23	Detailed Design	PTP commits to address potential wildlife impacts and necessary mitigation measures in the Traffic Management Plan.	MOE
4.24	Detailed Design	PTP commits that other "problem wildlife" species will be considered in the Bear Management Plan.	MOE
4.25	Detailed Design	PTP will realign the route of the pipeline in the Hunter Creek area to substantially reduce impacts to grizzly bear habitat and is committed to other protection measures during construction in order to avoid impacts to grizzly bears and their habitat.	KFN, MOE
4.26	Detailed Design, Clearing and Construction	PTP commits to schedule construction in wetlands during frozen ground conditions, to the extent practicable.	OGC, MOE
4.27	Detailed Design, Clearing and Construction	PTP commits to use low ground pressure equipment or install temporary work pads for heavy vehicle/equipment crossing through wetland in unfrozen ground conditions.	OGC, MOE
4.28	Detailed Design, Clearing and Construction	PTP commits to remove temporary work pads immediately after construction activity at that location is completed.	OGC, MOE
4.29	Detailed Design, Clearing and Construction	PTP commits to install berms, cross ditches and silt fences at the base of approach slopes to wetlands and between the wetland and the disturbed area.	OGC, MOE
4.30	Detailed Design, Clearing and Construction	PTP commits to conduct grading adjacent to wetlands away from the wetland to the extent practical to reduce the risk of sediment and other material entering the wetland.	OGC, MOE
4.31	Detailed Design, Clearing and Construction	PTP commits to store excavated material in a manner that does not interfere with natural drainage patterns.	OGC, MOE
4.32	Detailed Design, Clearing and Construction	PTP commits to recontour pre-construction profile in wetlands during final clean-up.	OGC, MOE
4.33	Operations	PTP commits to schedule post-construction pipeline maintenance activities in wetland areas during winter to the extent feasible.	OGC, MOE

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
4.34	Detailed Design, Clearing and Construction	PTP commits to narrow down the area of disturbance and protect the wetland by using fencing, clearly mark the wetland boundaries using flagging and limit traffic in the restricted area, where feasible.	OGC, MOE
4.35	Detailed Design, Clearing and Construction	PTP commits to where feasible, minimize the width of grubbing through wet areas during construction to facilitate the re-establishment of shrub communities.	OGC, MOE
4.36	Detailed Design, Clearing and Construction	PTP commits to, if practical, leave an undisturbed organic mat as a buffer zone to limit sediment entering wetlands.	OGC, MOE
4.37	Detailed Design, Clearing and Construction	PTP commits to install trench breakers, where warranted, at the edge of wetlands to prevent the pipe trench from acting as a drain.	OGC, MOE
4.38	Detailed Design, Clearing and Construction	PTP commits to adhere to spill prevention measures outlined in a KSL Environmental Protection Plan.	OGC, MOE
4.39	Post Construction Monitoring	PTP commits to monitor wetlands for hydrologic function during a Post-Construction Monitoring Program (i.e. first and second years following construction).	OGC, MOE
4.40	Restoration	PTP commits to seed disturbed areas of the Project Footprint with the appropriate native seed mix.	OGC, MOE
4.41	Restoration	PTP commits to develop native seed mixtures to suit local site conditions.	OGC, MOE
4.42	Restoration	PTP commits to revegetate disturbances on moderate and steep slopes with an appropriate seed mix and approved cover crop to minimize erosion potential and rapidly establish a vegetative cover.	OGC, MOE
4.43	Restoration	PTP commits to plant previously forested temporary workspace with tree species approved by BC MOFR and forest licensees.	OGC, MOE
4.44	Post Construction Monitoring	PTP commits to monitor the effectiveness of revegetation efforts during the Post-Construction Monitoring Program of the right-of-way. Inspect moderate and steep slopes during regular aerial patrols. Undertake remedial work where warranted.	OGC, MOE
4.45	Operations	PTP commits to revegetate any post-construction maintenance disturbances using appropriate native seed mixes.	OGC, MOE
4.46	Detailed Design, Clearing and Construction	PTP commits to minimize the removal of vegetation and the disturbance of soil adjacent to wetlands.	OGC, MOE
4.47	Detailed Design, Clearing and Construction	PTP commits to cut, hydroaxe, or walkdown shrubs and small (<1.5 m) deciduous trees at ground level to preserve roots of woody wetland plants.	OGC, MOE
4.48	Detailed Design, Clearing and Construction	PTP commits that where shrubs were present prior to construction, they will use willow staking along the wetland edge.	OGC, MOE
4.49	Detailed Design, Clearing and Construction	PTP commits to recontour the disturbed area and re-establish drainage patterns to promote natural regeneration of wetland plant species.	OGC, MOE
4.50	Post Construction Monitoring	PTP commits to monitor wetlands for habitat quality and function during a Post-Construction Monitoring Program.	OGC, MOE
4.51	Restoration	PTP commits to plant Douglas-fir tree seedlings in temporary workspace at appropriate sites.	OGC, MOE

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
4.52	Post-Construction Monitoring	PTP commits to monitor the effectiveness of restoration efforts during a Post-Construction Monitoring Program.	OGC, MOE
4.53	Clearing and Construction, Restoration	PTP commits to encourage natural regeneration of aspen on temporary workspace, where appropriate.	OGC, MOE
4.54	Clearing and Construction	PTP commits that where grading is not necessary, trees will be cut at ground level and not grub. Minimize grubbing of temporary workspace area to allow for coppicing and to keep root systems intact to the extent practical.	OGC, MOE
4.55	Restoration	PTP commits to plant riparian shrubs and trees as outlined in a Restoration Plan.	OGC, MOE
4.56	Clearing and Construction	PTP commits to minimize clearing of mature trees and narrow width of workspace clearing to extent practical to maintain forest structure.	OGC, MOE
4.57	Restoration	PTP commits to redistribute coarse woody debris on ground surface during final clean-up and restoration phase.	OGC, MOE
4.58	Clearing and Construction	PTP commits to recontour slopes to stable conditions.	OGC, MOFR
4.59	Restoration	PTP commits to Hydroseed, where applicable, using suitable native plant species.	OGC, MOFR
4.60	Restoration	PTP commits to plant coniferous seedlings in clusters to create microsites to promote natural regeneration of subalpine and alpine species.	OGC, MOFR
4.61	Clearing and Construction	PTP commits to adopt Standard Operating Procedures for storage, hauling and milling of MPB Infested Wood as specified by BC MOFR Forest Districts.	OGC, MOFR
4.62	Clearing and Construction	PTP commits to remove and process spruce trees harvested from the pipeline route before spruce beetle flight period (May to July), to reduce risk of infestation of adjacent spruce stands.	OGC, MOFR
4.63	Clearing and Construction	PTP commits to remove and burn stumps of pathogen susceptible harvested trees from Project Footprint.	OGC, MOFR
4.64	Clearing and Construction	PTP commits to implement an Invasive Plant Management Plan to minimize the introduction and spread of noxious weeds during Project construction activities.	OGC, MOFR, MAL
4.65	Clearing and Construction	PTP commits to employ standard weed control measures, such as cleaning of equipment of seeds and vegetative debris attached to the equipment prior to arrival on the right-of-way.	OGC, MOFR, MAL
4.66	Clearing and Construction	PTP commits to pre-treat heavily weed infested areas along the route by chemical, hand or mechanical means prior to construction where directed by the appropriate authority.	OGC, MOFR, MAL
4.67	Clearing and Construction	PTP commits to minimize weed spread by cleaning equipment in contact with topsoil prior to moving from an area of high weed infestation.	OGC, MOFR, MAL
4.68	Restoration	PTP commits to restore native vegetation as quickly as practical following ground disturbing activities.	OGC, MOFR, MAL
4.69	Post Construction Monitoring, Operations	PTP commits to monitor the right-of-way during post-construction monitoring and operations for areas of new noxious weed growth. Undertake measures to control weeds at these locations.	OGC, MOFR, MAL
4.70	Detailed Design, Clearing and Construction	PTP will where appropriate, salvage cut deciduous tree debris for redistribution on alignment post- construction as coarse woody debris.	OGC, MOE

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
4.71	Detailed Design, Clearing and Construction	PTP will Inform the pipeline construction workforce regarding wildlife and habitat protection measures prior to initiation of work by means of compulsory pre-job orientations.	OGC, MOE
4.72	Detailed Design, Clearing and Construction	PTP will conduct a pre-construction survey (route walk) in select locations to record any site- specific wildlife habitat features (e.g. wildlife trees, stick nests etc).	OGC, MOE
4.73	Detailed Design, Clearing and Construction	PTP commits to no clearing activities are to occur within the migratory bird nesting period (April 1 and July 31 from KP 0 to KP 130; May 1 and July 31 from KP 130 to KP 462.2) unless the area has been pre-logged, pre-brushed or pre-mowed.	OGC, MOE
4.74	Detailed Design, Clearing and Construction	PTP commits to minimize clearing in mature and old forest habitats.	OGC, MOE
4.75	Detailed Design, Clearing and Construction	PTP commits to narrow down the clearing footprint to the extent practical in order to reduce impact to the interior northern goshawk nesting territory at KP 217.	OGC, MOE
4.76	Detailed Design, Clearing and Construction	PTP commits to at swamps with appropriate wood duck habitat, record any wildlife trees to be cleared, and install wildlife trees and put up nest boxes during the restoration phase, if feasible.	OGC, MOE
4.77	Detailed Design, Clearing and Construction	PTP commits to implement a Wildlife Incident Contingency Plan in the event that a sandhill crane nest is discovered within 400 m of the Project Footprint during construction.	OGC, MOE
4.78	Detailed Design, Clearing and Construction	PTP commits to minimize the clearing of vegetation adjacent to roads to the extent feasible.	OGC, MOE
4.79	Detailed Design, Clearing and Construction	PTP commits to restore disturbed areas with natural shrub species to enhance bear security and feeding habitat.	OGC, MOE
4.80	Detailed Design, Clearing and Construction	PTP commits to minimize removal of shrubs within 30 m of coastal tailed frog streams.	OGC, MOE
4.81	Detailed Design, Clearing and Construction	PTP commits to grubbing of the pipeline trench will be minimized within 10 m of stream banks to protect the existing amphibian habitat, to the greatest extent practicable.	OGC, MOE
4.82	Detailed Design, Clearing and Construction	PTP commits to removal of wildlife trees on the Project Footprint will be avoided. If wildlife tree(s) cannot be retained, they will be replaced whenever practical.	OGC, MOE
4.83	Detailed Design, Clearing and Construction	PTP commits to avoid site-specific habitat features, whenever practical.	OGC, MOE
4.84	Post Construction Monitoring	PTP commits to post-construction monitoring of any site-specific habitat feature installations.	OGC, MOE
4.85	Detailed Design, Clearing and Construction	PTP commits to work expeditiously to maintain a tight construction spread to minimize potential barriers and hazards to wildlife	OGC, MOE
4.86	Detailed Design, Clearing and Construction	PTP commits to leave gaps in set-up and welded pipe, spoil piles, and trench to allow wildlife to cross the right-of-way. Locate gaps at obvious game trails. Coincide breaks in pipe with gaps in topsoil or root zone material, spoil, snow (if present) and rollback (if present) windrows.	OGC, MOE
4.87	Detailed Design, Clearing and Construction	PTP commits to install or maintain trench plugs across open trench to allow the cross-ditch movement of wildlife to and from the seasonal ranges along designated wildlife movement corridors and to special habitat features.	OGC, MOE

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
4.88	Detailed Design, Clearing and Construction	PTP commits to salvage and redistribute coarse woody debris in suitable habitat types for use by small mammals and other wildlife species, as appropriate and practicable.	OGC, MOE
4.89	Restoration	PTP commits to use native plant species to maintain biodiversity, reduce weed cover, and help create wildlife movement corridors.	OGC, MOE
4.90	Clearing and Construction	PTP commits to report any incidents or collisions with wildlife to the Environmental Inspector who will notify local wildlife authorities and the police as appropriate.	OGC, MOE
4.91	Clearing and Construction	PTP commits to remove trapped animals from the pipeline trench at the start of each day before conducting construction activities that may have the potential to harm an animal in the trench.	OGC, MOE
4.92	Clearing and Construction	PTP commits to capture and move coastal tailed frogs prior to stream crossing activities.	OGC, MOE
4.93	Clearing and Construction	PTP commits to implement a Wildlife Incident Contingency Plan in the event of a wildlife mortality.	OGC, MOE
4.94	Clearing and Construction	PTP commits to travel to and from the worksite during daylight hours, whenever practical.	OGC, MOE
4.95	Clearing and Construction	PTP commits to adhere to posted speed limits.	OGC, MOE
4.96	Post Construction Monitoring	PTP commits to monitor the effectiveness of access management measures	OGC, MOE
4.97	Clearing and Construction	PTP commits to collect garbage daily in bear-proof containers and dispose in approved locations.	OGC, MOE
4.98	Clearing and Construction	PTP commits that no clearing or construction activities are to occur within 200 m of an active grizzly or black bear den between November 1 and April 30.	OGC, MOE
4.99	Detailed Design, Clearing and Construction	PTP commits that all vegetation clearing will be done using methods that will reduce impacts to adjacent vegetation.	OGC, MOFR
4.100	Operations and Post- Construction Monitoring	PTP commits that all scheduled, routine maintenance activities in seasonally important wildlife habitats will be conducted using the same mitigation measures and timing windows as during pipeline construction.	OGC, MOE
5. Species	and Ecosystems at Risk		
5.1	Detailed Design, Clearing and Construction	PTP has committed to HDD as the primary crossing method for the Stuart River and will pursue proving up the viability of this method (one test hole has been drilled to-date with positive results for a successful HDD). This would include more detailed studies during the design phase of the project (e.g. additional vertical drilling) and potentially a relocation of the crossing if necessary. In the event that HDD proves infeasible based on the early investigation programs, PTP commits to reconsider an aerial crossing if that crossing method is determined to be acceptable to the local community. This will avoid any impacts to White Sturgeon.	DFO, MOE
5.2	Clearing and Construction	PTP commits to use of specialized crossing techniques, such as flow isolation methods or horizontal directional drilling.	OGC, MOE, DFO
5.3	Clearing and Construction	PTP commits to adherence to least risk windows for instream construction.	OGC, MOE, DFO
5.4	Clearing and Construction	PTP commits to employ procedures to prevent release of hydrocarbons from construction machinery.	OGC, MOE, DFO
5.5	Clearing and Construction	PTP commits to control of erosion and sediment inputs from instream and upslope construction activities.	OGC, MOE, DFO

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
5.6	Clearing and Construction	PTP commits that all intakes will be screened according to DFO guidelines and water releases will use appropriate dissipation devices to minimize scour and erosion.	OGC, MOE, DFO
5.7	Clearing and Construction	PTP commits to implement management practices and emergency procedures outlined in an Environmental Protection Plan.	OGC, MOE, DFO
5.8	Clearing and Construction	PTP commits to adhere to an Environment Protection Plan to prevent release of hydrocarbons from construction machinery and to control erosion and sediment inputs from instream and upslope construction activities.	OGC, MOE, DFO
5.9	Clearing and Construction	PTP commits to cross fish bearing tributaries to the Nechako using flow isolation techniques, where flowing water is encountered.	OGC, MOE, DFO
5.10	Clearing and Construction	PTP commits to ensure that water used for pipe testing meets provincial water quality guidelines for protection of aquatic resources prior to release back to watercourses (except where diverted water already exceeds these guidelines).	OGC, MOE, DFO
5.11	Clearing and Construction	PTP commits to screen all intakes according to DFO guidelines.	OGC, MOE, DFO
5.12	Clearing and Construction	PTP commits that water releases will use appropriate dissipation devices to minimize scour and erosion.	OGC, MOE, DFO
5.13	Clearing and Construction	PTP commits to implement environmental monitoring of HDD and other construction activities as outlined in an Environmental Protection Plan.	OGC, MOE, DFO
5.14	Clearing and Construction	PTP commits to cross fish-bearing streams within the range of interior Fraser Coho using flow isolation techniques, where flowing water is encountered.	OGC, MOE, DFO
5.15	Clearing and Construction	PTP commits that within the range of interior Fraser Coho, water used for pipe testing will meet provincial water quality guidelines for protection of aquatic resources prior to release back to watercourses (except where diverted water already exceeds these guidelines).	OGC, MOE, DFO
5.16	Clearing and Construction	PTP commits to use dissipation devices during water releases to minimize scour and erosion.	OGC, MOE, DFO
5.17	Clearing and Construction	PTP commits to cross all small- to medium-size fish-bearing streams in the lower Kitimat Valley using flow isolation techniques, where flowing water is encountered.	OGC, MOE, DFO
5.18	Clearing and Construction	PTP commits to cross all small- to medium-size fish-bearing streams within the range of Dolly Varden, bull trout, and coastal cutthroat trout using flow isolation techniques, where flowing water is encountered.	OGC, MOE, DFO
5.19	Clearing and Construction	PTP commits that within the range of the Dolly Varden, bull trout, and coastal cutthroat trout water used for pipe testing will meet provincial water quality guidelines for protection of aquatic resources prior to release back to watercourses (except where diverted water already exceeds these guidelines).	OGC, MOE, DFO
5.20	Detailed Design, Permitting, Clearing and Construction	PTP commits to contain project footprint to the minimum area required to efficiently and safely build the pipeline when traversing rare plant communities.	OGC, MOE
5.21	Detailed Design, Permitting, Clearing and Construction	PTP commits to fence off the plant community at risk where it occurs next to the construction ROW to restrict pipeline construction traffic.	OGC, MOE

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
5.22	Detailed Design, Permitting, Clearing and Construction	PTP commits to retain mature and old components of plant communities whenever practical.	OGC, MOE
5.23	Detailed Design, Permitting, Clearing and Construction	PTP commits to survey previously undisturbed portions of the pipeline route that have suitable rare plant habitat for the presence of rare plants before grubbing.	OGC, MOE
5.24	Restoration	PTP commits to use native plant species to maintain biodiversity and reduce weed cover in woodland caribou summer feeding areas.	OGC, MOE
5.25	Detailed Design, Clearing and Construction	PTP commits to contain clearing in mature and old forest habitats to the extent practical.	OGC, MOFR
5.26	Restoration	PTP commits to restore disturbed ROW areas with natural shrub species to enhance bear security and feeding habitat.	OGC, MOE
5.27	Restoration	PTP commits to use native plant species to maintain biodiversity, reduce weed cover, and help create movement corridors.	OGC, MOE
5.28	Clearing and Construction	PTP commits to minimize the potential for displacement of bears during construction by managing human movement to and from job sites to the extent feasible.	OGC, MOE
5.29	Clearing and Construction	PTP commits to implement bear awareness and safety training in the environmental orientation program for workers.	
5.30	Detailed Design, Permitting	PTP commits to develop a Bear Management Plan.	OGC, MOE
5.31	Clearing and Construction	PTP commits to use of bear detection and deterrent systems to minimize human-bear conflicts, wherever appropriate.	OGC, MOE
5.32	Clearing and Construction	PTP commits to implement a Wildlife Incident Contingency Plan in the event of a grizzly bear mortality.	OGC, MOE
5.33	Detailed Design	PTP commits to reduce clearing in mature and old riparian, mature and old floodplain, and mature and adjacent old coniferous forests, whenever practical, in order to mitigate effects on fisher.	OGC, MOE
5.34	Clearing and Construction	PTP commits that no general logging and clearing activities to occur within the migratory bird nesting period other than minor areas adjacent to a previously cleared area that has been pre- surveyed and following consultation with CWS.	OGC, MOE
5.35	Clearing and Construction	PTP commits to implement a Wildlife Incident Contingency Plan in the event that a great blue heron rookery is discovered within 300 m of the Project Footprint during construction.	OGC, MOE
5.36	Clearing and Construction	PTP commits to implement a Wildlife Incident Contingency Plan in the event that a sandhill crane nest is discovered within 400 m of the Project Footprint during construction.	OGC, MOE
5.37	Clearing and Construction	PTP commits to minimize removal of shrubs within 30 m of Coastal Tailed Frog streams.	OGC, MOE
5.38	Clearing and Construction	PTP commits that grubbing of the pipeline work area will be minimized within 10 m of stream banks to protect the existing amphibian habitat, to the greatest extent practicable.	OGC, MOE
5.39	Clearing and Construction	PTP commits to capture and move coastal tailed frog tadpoles, metamorphs, and adults prior to stream crossing activities, to extent practical.	OGC, MOE
5.40	Clearing and Construction	PTP commits to restore stream crossings to stabilize streambanks.	OGC, MOE

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
5.41	Clearing and Construction	PTP commits to provide instream cover.	OGC, MOE
5.42	Clearing and Construction, Restoration	PTP commits to manage public access to the right-of-way	OGC, MOE
5.43	Clearing and Construction	PTP commits to minimize width of clearing during operations and maintenance in areas with rare plant communities.	OGC, MOE
5.44	Clearing and Construction	PTP commits that all vegetation clearing will generally be done using mechanical means.	OGC, MOE
5.45	Operations and Post- Construction Monitoring	PTP commits that all scheduled, routine maintenance of the pipeline in important grizzly bear habitats will be conducted using the same mitigation measures and timing windows as during pipeline construction.	OGC
5.46	Operations and Post Construction Monitoring	PTP commits that the same environmental protection and mitigation measures used during Project construction will be applied in the unlikely event that in-stream maintenance of the pipeline will be required.	OGC
6. Archaeo	logical and Heritage Resources		
6.1	Clearing and Construction	PTP commits to the protection of archaeologically important sites.	MTSA
6.2	Clearing and Construction	PTP commits to have an archaeologist on-site during soil disturbing activities in the archaeological potential areas identified in the Kitimat Valley.	MTSA, HFN
6.3	Clearing and Construction	PTP commits to avoid impact of archaeological and heritage sites, where feasible.	OGC, MTSA
6.4	Clearing and Construction	PTP commits that if avoidance is not practical, a mitigation strategy will be developed and implemented. This strategy will be designed to adequately mitigate the effects of the Project by reasonably compensating for the removal, loss, disruption, modification, or alteration of archaeological and heritage resources as a result of the Project. It is anticipated that information gained through implementation of a mitigation strategy, including but not limited to, systematic data recovery through controlled excavation and/or surface collection, and stem round sampling, as appropriate, will be valuable to the archaeological record and to understanding the prehistory of the study area.	OGC, MTSA
6.5	Clearing and Construction	PTP commits to employ an Archaeological Resources Monitoring Plan for the purpose of implementing the mitigation measures.	OGC, MTSA
6.6	Clearing and Construction	PTP commits to implement a contingency plan for the management of archaeological or heritage resources discovered during construction.	OGC, MTSA
7. First Nat	ions Community and Land Use		
7.1	Detailed Design	PTP will work with OW on considering potential improvements to the proposed route in the Morice Valley.	OW
7.2	Detailed Design	PTP will prepare an Access Management Plan following certification of the Project and will request input from the Lheidli T'enneh on the Plan before it is finalized.	LTFN
7.3	Detailed Design	PTP will prepare an Access Management Plan following certification of the Project and will request input from the OW on the Plan before it is finalized.	OW
7.4	Detailed Design	PTP will include KFN personnel in future fish and wildlife studies in their traditional territory.	KFN

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
7.5	Detailed Design, Clearing and Construction, Restoration, Post Construction Monitoring	PTP will ensue that there are no long-term changes to the reference water state in the Morice WPMA resulting from the KSL Project.	OW, MOE
7.6	Detailed Design	PTP will undertake, post-certification, additional studies where warranted on areas of high value / high risk. These studies will incorporate traditional knowledge, where applicable.	MOE, HFN, KFN, OW
7.7	Permitting	PTP will provide or will ask the regulatory authority to provide the Haisla with any permitting or other referrals related to the KSL Project in the Kitimat Valley.	HFN
7.8	Detailed Design	PTP will seek input from the STN during preparation of the Access Management Plan.	STN
7.9	Detailed Design	PTP will seek input from the NTB during the preparation of the EPP.	NTB
7.10	Clearing and Construction, Restoration, Post Construction Monitoring	PTP will engage the KFN in their traditional territory in the monitoring process during construction and post construction either directly as qualified environmental inspection staff or through the means of a monitoring committee established between PTP and KFN. PTP will ensure qualified and experienced environmental monitors are onsite during construction. Consideration will be given to hiring suitably qualified Kitselas Resource Technicians to assist the Environmental Monitor for that portion of the Project within Kitselas territory.	KFN
7.11	Clearing and Construction	PTP will institute ways to facilitate ongoing and timely communication between FN members and PTP on cultural and environmental issues during construction. PTP will continue discussions with FNs regarding this issue.	All FN organizations
7.12	Clearing and Construction	PTP commits that its environmental inspection (EI) staff will ensure that all contractors adhere to the established plans and procedures (e.g. the EPP) for the protection of natural resources. Where, in the view of the EI, significant damage has occurred, the relevant First Nation representative will immediately be contacted to inform them of the damage and to be asked for input into mitigation measures that will be employed to appropriately deal with the damage.	All FN organizations
7.13	Restoration, Post Construction Monitoring	PTP commits to ensure its activities will have no effect on peoples ability to collect food following construction of the KSL Project.	All FN organizations
7.14	Detailed Design, Clearing and Construction	PTP commits to continue working and consulting with the Skin Tyee during the detailed design phase of the Project as well as during construction for the purpose of minimizing impacts to identified sensitive areas.	STN
7.15	Clearing and Construction, Restoration	PTP will have a liaison person as part of their project team who will be responsible for clear and timely communication with the Skin Tyee during construction and restoration of the KSL Project in Skin Tyee traditional territory.	STN
7.16	Detailed Design	PTP will provide support to the Skin Tyee Nation for the purpose of their studies related to historical and ethnographic research (particularly trapline holders) on lands affected by the KSL Project. This funding would be provided following the decision of PTP to proceed with the KSL Project.	STN

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
7.17	Detailed Design, Clearing and Construction	PTP commits to further detailed engagement with the Skin Tyee for the purpose of identifying areas along the pipeline route, in Skin Tyee territory, where conflicts between wildlife harvesting and construction activities may occur, and to determine appropriate mitigation measures.	STN
7.18	Detailed Design	PTP commits to implement discussions with First Nations regarding their completed Land Use Plans in the RSA	OGC
7.19	Detailed Design, Permitting	PTP commits to undertake discussions with First Nation forest licensees to discuss planning issues. Negotiate agreements where applicable.	OGC
7.20	Detailed Design, Permitting	PTP commits to provide First Nation forest licensees with information and protocols regarding timeframes for approval of pipeline crossings, weight restrictions, standard operating procedures, and blasting restrictions.	OGC
7.21	Clearing and Construction	PTP commits to notify First Nation trappers prior to initiating clearing or construction activities to provide updates on project scheduling, to resolve outstanding concerns, and to allow operators to remove traps and other equipment from the pipeline route.	OGC
7.22	Clearing and Construction	PTP commits to ensure that the Project work force does not disturb cabins, trapline equipment, or facilities associated with trapping outside the Project Footprint.	OGC
7.23	Clearing and Construction	PTP commits to implement an Access Management Plan to manage access to the pipeline route during and following Project construction.	OGC
7.24	Restoration	PTP commits to ensure appropriate revegetation occurs through the implementation of a Restoration Plan.	OGC
7.25	Restoration, Post Construction Monitoring	PTP commits to discuss demonstrated economic loss associated with Project activities with First Nations trappers.	OGC
7.26	Clearing and Construction	PTP commits to use signage to inform users of the presence of construction activity in popular harvesting areas and on access roads to harvesting areas.	OGC
7.27	Restoration	PTP commits to restore disturbed sites and trails to as near to their pre-construction condition as practical.	OGC
7.28	Clearing and Construction	PTP commits that plant and material-gathering sites identified by First Nations off the Project Footprint will be flagged off prior to construction.	OGC
7.29	Restoration	PTP commits that First Nations may identify plants for revegetation along the disturbed areas of the Project route as part of a Restoration Plan.	OGC
7.30	Post Construction Monitoring	PTP commits that PTP will undertake a Post-Construction monitoring program of the right-of-way.	OGC
7.31	Clearing and Construction	PTP commits to follow an Invasive Plant Management Plan to minimize the introduction and spread of noxious weeds during Project construction activity.	OGC
7.32	Detailed Design, Permitting	PTP commits to select vehicle and pipeline crossing methods that reduce direct and indirect effects on productive fish habitat.	OGC
7.33	Clearing and Construction	PTP commits to adhere to instream work windows and minimize instream work period.	OGC
Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
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7.34	Restoration	PTP commits to implement adequate erosion control on upslope areas and non-fish-bearing watercourses, to prevent release of harmful concentrations of suspended sediment to fish-bearing waters.	OGC
7.35	Clearing and Construction	PTP commits to minimize clearing and ground disturbance within 10 m of the high water mark of all waterbodies, to the degree practical.	OGC
7.36	Clearing and Construction	PTP commits that welding, coating, weighting, and where applicable, testing, of the pipe will be completed prior to commencement of instream trenching.	OGC
7.37	Clearing and Construction	PTP commits that crossings will commence only after ensuring that sufficient equipment and supplies are available to complete the crossing in an efficient and timely manner.	OGC
7.38	Clearing and Construction	 PTP commits to isolate instream construction areas where surface flow is present (on fish-bearing watercourses) and implement measures to reduce downstream sediment input, including: salvage streambed surface material for return to top layer of streambed during backfilling. salvaged surface material should be placed above the high water mark in a manner that does not block drainage or runoff, excavated instream materials should be contained using appropriate techniques (e.g. berms, silt fences or straw bale filters), to ensure that sediment-laden water and spoil do not re-enter the waterbody, water from flumes, pump-arounds, diversions, or other methods should be released to downstream areas using dissipation structures, to avoid causing erosion or sediment release. sediment-laden trench water should be pumped onto stable surfaces in a manner that does not cause erosion of soils or release of suspended sediments to watercourses, hard ditch plugs at least 3 m wide should be left in place until the crossing has been initiated. 	OGC
7.39	Clearing and Construction	PTP commits to use qualified environmental monitors during stream crossing construction activities.	OGC
7.40	Restoration	PTP commits to restore streambed and banks to the extent practical, based on pre-construction habitat surveys. Restore rearing potential with adequate stream depth and instream structures. Restore spawning areas with gravel placement. Maintain or restore natural drainage and channel configurations.	OGC
7.41	Clearing and Construction	PTP commits to where feasible, salvage, and return aquatic vegetation and organic debris removed from the construction area following trench backfilling.	OGC
7.42	Clearing and Construction	PTP commits to contour and stabilize banks and approach slopes and install temporary berms, silt fences, or cross ditches in locations where run-off from the right-of-way may flow into a watercourse.	OGC
7.43	Clearing and Construction	PTP commits to contact the First Nations concerned to ensure a member of the community advises on activities in areas used for ritual purposes.	OGC
7.44	Clearing and Construction	PTP commits that the scheduling of clearing and construction activities will be discussed with First Nations in order to avoid potential impacts to ritual activities.	OGC

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
7.45	Clearing and Construction	PTP commits that construction personnel will be particularly attentive to respectful treatment of the land in these areas, in consultation with affected First Nations.	OGC
7.46	Clearing and Construction	PTP commits to work with concerned First Nations to ensure a member of the community advises on activities in areas and trails used traditionally by First Nations.	OGC
7.47	Clearing and Construction	PTP commits that the scheduling of clearing and construction activities where the pipeline crosses trails traditionally used by First Nations will be discussed with First Nations in order to avoid potential impacts to the seasonal use of the trails.	OGC
7.48	Restoration	PTP commits that physical impacts to trails traditionally used by First Nations will be restored so that the trails crossing the pipeline ROW will be fully functional following the restoration phase of the Project.	OGC
7.49	Clearing and Construction	PTP commits to minimize the width of the area affected by vegetation maintenance along the right- of-way.	OGC
7.50	Clearing and Construction	PTP commits that all vegetation clearing will be done in a manner that reduces impacts to adjacent vegetation.	OGC
7.51	Clearing and Construction	PTP commits to employ standard weed control measures, such as cleaning of equipment of seeds and vegetative debris prior to arrival on the right-of-way.	OGC
7.52	Clearing and Construction	PTP commits to minimize weed spread by cleaning equipment prior to moving from an area of high weed infestation.	OGC
7.53	Detailed Design, Permitting, Restoration, Post Construction Monitoring	PTP commits to undertake an analysis of country foods (plants and fish) before and following construction.	OGC, OW, MOE
7.54	Detailed Design	PTP understands that Kitimat LNG has agreed to contribute funding to a Watershed Assessment on behalf of the Haisla Nation for the study and assessment of certain affected watershed areas. Based on this understanding, PTP commits to provide the Haisla Nation with data and technical information gathered by PTP for the purpose of the KSL Project that will assist in the completion of the watershed and creek assessments which will include stock assessments, habitat assessments and the identification of mitigation measures.	HN
8. Land an	d Resource Use	<u></u>	F
8.1	Clearing and Construction	Where practical and where warranted, PTP will consider reducing the clearing width in the Morice River Management Zones.	MOFR
8.2	Clearing and Construction	PTP commits to implementing measures during construction that would require crews to assist non-powered vessels to portage the work site.	TC
8.3	Permitting	PTP will meet the requirements for timber valuation that are agreed with the appropriate permitting authority in advance of clearing.	MOFR, OGC
8.4	Detailed Design, Permitting	PTP to involve licencees and MOFR in the review of the Access Management Plan.	MOFR
8.5	Permitting, Clearing and Construction	PTP commits to comply with the MOE guidelines regarding treatment of trees infected by Mountain Pine Beetle.	MOFR, OGC

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
8.6	Detailed Design, Clearing and Construction, Restoration	PTP commits to discuss the construction of livestock management measures for livestock near Ormond Creek and will work with the community in regard to an appropriate design, location, and timing of implementation.	Public
8.7	Detailed Design, Restoration	PTP will discuss access control measures with recreational users in the Bald Hill Road area as well as other local residents.	Public
8.8	Restoration	PTP commits to implement a Restoration Plan to restore disturbed areas.	OGC, MTSA
8.9	Restoration	PTP commits to deactivate and restore temporary access routes and sites required to construct the Project once Project construction is complete.	OGC, MTSA
8.10	Clearing and Construction	PTP commits to implement an Access Management Plan, including access control measures where needed (e.g. signage, road closures, snowmobile restrictions etc.) to minimize unauthorized motorized access. At strategic access points, install berms or equivalent, and plant vegetation to help prevent motorized access.	OGC, MTSA
8.11	Post Construction Monitoring	PTP commits to maintain access to established recreation features, through the clearing, construction, and restoration period, where feasible.	OGC, MTSA
8.12	Post Construction Monitoring	PTP commits to provide financial resources to monitor unauthorized motorized use in identified land management zones and to assess the efficacy of access control strategies post-construction.	OGC, MTSA
8.13	Restoration	PTP commits to use visual management strategies to minimize long-term disruption of important viewscapes.	OGC, MTSA
8.14	Clearing and Construction	PTP commits to minimize new road construction in the Morice River 100-year floodplain.	OGC, MTSA
8.15	Detailed Design	PTP commits to undertake discussions with landowners and municipal planners responsible for the Terrace Rural OCP and District of Kitimat OCP during detailed Project design to identify ways to minimize potential disruption of future industrial development.	OGC
8.16	Detailed Design	PTP commits to further discuss development plans with the District of Kitimat, and ensure road development that crosses the pipeline ROW can be accommodated at some point in the future at an agreed upon location.	OGC
8.17	Detailed Design	PTP commits to work with ILMB to identify appropriate mitigation measures for altering OGMAs.	OGC, ILMB
8.18	Detailed Design, Permitting	PTP commits to undertake discussions with forest licensees to discuss planning issues.	OGC, MOFR
8.19	Detailed Design, Permitting	PTP commits to discuss the issuance of one Master Licence to Cut for the pipeline route with BC MOFR and the OGC to minimize planning costs for licensees.	OGC, MOFR
8.20	Detailed Design, Permitting	PTP commits to provide forest licensees with information and protocols regarding timeframes for approval of pipeline crossings, weight restrictions, standard operating procedures, and blasting restrictions.	OGC, MOFR
8.21	Detailed Design, Permitting	PTP commits to discuss mitigation measures with forest licensees for economic losses related to construction of the Project.	OGC, MOFR
8.22	Detailed Design, Permitting	PTP commits to work with BC MOFR and tenure holders to ensure appropriate recovery and processing of salvageable wood from the Project ROW.	OGC, MOFR
8.23	Detailed Design, Permitting	PTP commits to communicate with BC MOFR to discuss hauling restrictions for beetle-killed wood.	OGC, MOFR

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
8.24	Detailed Design, Permitting, Clearing and Construction	PTP commits to work with BC MOFR and tenure holders to ensure appropriate recovery and processing of salvageable wood from the workspace.	OGC, MOFR
8.25	Detailed Design, Permitting, Clearing and Construction	PTP commits to locate storage areas, construction camps, and temporary facilities in disturbed areas or other areas acceptable to the BC MOFR to minimize forest impacts, particularly on non-pine timber supply.	OGC, MOFR
8.26	Restoration	PTP commits to ensure temporary sites are replanted with appropriate tree species to restore the productive forest, as directed by BC MOFR. Communicate with BC MOFR to discuss hauling restrictions for beetle-killed wood. Discuss mitigation measures with forest tenure holders for demonstrated economic losses.	OGC, MOFR
8.27	Detailed Design, Permitting, Clearing and Construction	PTP commits to implement a Traffic Management Plan to maintain safe and efficient traffic movement for forestry operations, especially in areas with heavily used roads.	OGC, MOFR
8.28	Detailed Design, Permitting, Clearing and Construction	PTP commits to implement an Access Management Plan to reduce areas of potential conflict between forestry operation and pipeline construction, and to minimize future pipeline crossing issues.	OGC, MOFR
8.29	Detailed Design, Permitting, Clearing and Construction	PTP commits to develop a Communication Plan with BC MOFR District offices, BC MOFR Regional Protection Office in Prince George, and Forest Licensees to share Project schedules, maps, and other Project information. Key elements of the plan should include notification of all forest tenure holders prior to commencement of land clearing and construction activities.	OGC, MOFR
8.30	Detailed Design, Permitting, Clearing and Construction	PTP commits to negotiate Road Use Agreements (RUAs) with permit holders for roads potentially affected by the Project. Discuss Project schedules, timeframes necessary for access, expected traffic volumes and timing, road maintenance, road upgrades planned by PTP and licensees, road safety issues and signage, radio frequencies and protocols, and load, weight, and blasting restrictions, where applicable.	OGC, MOFR
8.31	Clearing and Construction	PTP commits to leave FSRs and other roads used for construction in a condition equal to, or better than, the pre-construction state, if desired by forest licensees and the BC MOFR.	OGC, MOFR
8.32	Clearing and Construction	PTP commits to place traffic signage on major highways and main FSRs to notify resource users of construction activities, the presence of heavy equipment, radio frequencies, and main access points to the Project.	OGC, MOFR
8.33	Detailed Design, Permitting	PTP commits to, where necessary, reroute the Project to avoid existing forest research plots.	OGC, MOFR
8.34	Detailed Design, Permitting, Clearing and Construction	PTP commits to implement a Forest Fire Prevention Plan that specifies how the requirements of the Wildfire Act will be met, including measures for slash handling and burning procedures. Conduct a Fire Risk Assessment near settled areas.	OGC, MOFR
8.35	Detailed Design, Permitting, Clearing and Construction	PTP commits to ensure slash burning and construction crews have fire-fighting equipment on site that is capable of controlling fire that may result from Project activities. Ensure that Project construction personnel participate in fire training.	OGC, MOFR

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
8.36	Detailed Design, Permitting, Clearing and Construction	PTP commits to coordinate ongoing communication with the Regional Protection Office in Prince George, and the Regional Fire Centres, especially during the primary fire seasons from April 15 to October 15.	OGC, MOFR
8.37	Detailed Design, Permitting	PTP commits to consult with the private landowners to determine and resolve any concerns associated with clearing, construction, and restoration activities. Provide landowners with Project scheduling and other relevant information prior to Project clearing, construction, and operation.	OGC
8.38	Clearing and Construction	PTP commits to minimize noise near residences.	OGC
8.39	Clearing and Construction	PTP commits to implement an Access Management Plan to minimize disruption to landowners during the Project clearing, construction, and restoration periods.	OGC
8.40	Detailed Design, Permitting	PTP commits to negotiate agreements with landowners for demonstrable economic losses caused by construction of the Project.	OGC
8.41	Detailed Design, Permitting	PTP commits to avoid construction of the Project in aggregate pits, where feasible.	OGC
8.42	Detailed Design, Permitting	PTP commits to discuss mitigation with aggregate pit operators for economic losses related to construction of the Project.	OGC
8.43	Detailed Design, Permitting	PTP commits to engage aggregate operator at KP 2.5 in further discussions to explore concerns with Project routing.	OGC
8.44	Detailed Design, Permitting	PTP commits to notify mineral claim holders prior to commencement of land clearing and construction activities. Provide Project routing and scheduling information, as required.	OGC
8.45	Detailed Design, Permitting	PTP commits to undertake discussions to identify access needs for mineral claim holders and develop agreements where required.	OGC
8.46	Detailed Design, Permitting	PTP commits to return existing access routes used by the Project to their former condition or better once construction and restoration are complete.	OGC
8.47	Detailed Design, Permitting	PTP commits to notify representatives from Huckleberry and Endako Mines prior to installing the pipeline under the access roads to the mines.	OGC
8.48	Detailed Design, Permitting	PTP commits to notify agricultural crop producers near the pipeline route prior to commencement of land clearing and construction. Provide Project routing and scheduling information, as required, and identify specific access needs through the construction phase.	OGC, ALC
8.49	Restoration	PTP commits to restore soil productivity in agricultural areas crossed by the pipeline route.	OGC, ALC
8.50	Clearing and Construction	PTP commits to repair damage to agricultural irrigation and drainage infrastructure. Close gates and ensure animals do not stray into planted fields.	OGC, ALC
8.51	Clearing and Construction	PTP commits to implement the Soil Erosion Contingency Plan.	OGC, ALC
8.52	Clearing and Construction	PTP commits to follow a Soil Erosion and Invasive Plant Management Plan to minimize the introduction and spread of noxious weeds during Project construction activity.	OGC, ALC
8.53	Clearing and Construction	PTP commits to comply with the Agricultural Land Commission requirements regarding soil handling and reclamation during construction in the agricultural land reserve.	OGC, ALC
8.54	Detailed Design, Permitting	PTP commits to negotiate agreements with landowners or leaseholders for demonstrable economic losses related to construction of the Project.	OGC, ALC

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
8.55	Detailed Design, Permitting	PTP commits to notify ranchers with property or tenures crossed by the pipeline route prior to commencement of land clearing and construction. Provide work schedules and other relevant information.	OGC, MOFR
8.56	Clearing and Construction	PTP commits that where disruption of cattle water sources occurs, PTP will provide alternative water sources.	OGC, MOFR
8.57	Restoration	PTP commits to install, repair, or reinforce existing fencing and gating where necessary to protect livestock safety and minimize livestock mobility during the construction period. Ensure construction workers close all gates during Project construction. Install new fences where natural barriers to livestock movement are removed.	OGC, MOFR
8.58	Clearing and Construction	PTP commits to implement an Access Management Plan to manage potential impacts on range tenure holders.	OGC, MOFR
8.59	Detailed Design, Permitting	PTP commits to discuss mitigation with ranchers for economic losses related to construction of the Project.	OGC, MOFR
8.60	Detailed Design, Permitting	PTP commits to notify commercial recreation operators, tourism operators, trappers, and guided hunting and fishing operators prior to initiating clearing or construction activities to provide updates on project scheduling, and to allow operators to remove traps and other equipment from the pipeline route.	OGC, MOE, MTSA
8.61	Clearing and Construction	PTP commits to ensure that the Project work force does not disturb cabins, trapline equipment, or facilities associated with trapping, guide outfitting, or tourism operations along the pipeline route.	OGC, MOE, MTSA
8.62	Clearing and Construction	PTP commits to implement an Access Management Plan to minimize access disruptions to commercial operations.	OGC, MOE, MTSA
8.63	Clearing and Construction	PTP commits to use visual management strategies, such as vegetation replanting, to minimize long-term disruption of important viewscapes.	OGC, MOE, MTSA
8.64	Clearing and Construction	PTP commits to implement an Construction Waste Management Plan to minimize risk to wildlife and potential aesthetic effects from litter.	OGC, MOE, MTSA
8.65	Restoration	PTP commits to implement a Restoration Plan to help minimize long-term Project effects on fish, wildlife, and nature-based commercial operations.	OGC, MOE, MTSA
8.66	Detailed Design, Permitting	PTP commits to discuss mitigation with commercial recreation operators, tourism operators, trappers, and guided hunting and fishing operators for demonstrated economic loss associated with Project activities.	OGC, MOE, MTSA
8.67	Clearing and Construction	PTP commits to provide construction schedules and other relevant information on anticipated trail closures to hiking, snowmobile, cross-country ski, mountaineering, and other outdoor clubs, and provide similar information to visitor centres to reach the general public and visitors.	OGC, MTSA
8.68	Clearing and Construction	PTP commits to use signage to inform users of the presence of construction activity, and potential noise disturbance on access roads, near recreation features, and on waterbodies used by recreationists.	OGC, MTSA
8.69	Restoration	PTP commits to restore disturbed sites and trails to their pre-construction condition.	OGC, MTSA

Number	Project Phase	Pacific Trail Pinelines L.P. (PTP) Commitment	Responsible Agency
			or Group ¹²
8.70	Clearing and Construction	PTP commits to use river-crossing techniques that minimize effects on recreational user	OGC, MTSA
8.71	Clearing and Construction	PTP commits to follow the Navigable Waters Approval conditions on identified waterbodies.	OGC, MTSA
8.72	Restoration	PTP commits to use visual management strategies, such as vegetation replanting, to minimize long-term disruption of important viewscapes.	OGC, MTSA
8.73	Clearing and Construction	PTP will use signage to inform users of the unnamed lake, 525 m from the Compressor Station site, of construction activities.	OGC, MTSA
8.74	Clearing and Construction	PTP commits to use signage and public announcement to inform users of the presence of construction activity in popular hunting areas and on access roads to hunting areas.	OGC, MOE
8.75	Clearing and Construction	PTP commits to implement an Access Management Plan to minimize unintended motorized access.	OGC, MOE
8.76	Clearing and Construction	PTP commits to implement a Construction Waste Management Plan to ensure appropriate and efficient waste management.	OGC, MOE
8.77	Clearing and Construction	PTP commits to identify the location of registered and unregistered points of diversion within 200 m downslope and 100 m upslope of clearing, construction, and restoration activities.	OGC, MOE
8.78	Clearing and Construction	PTP commits to monitor pH, turbidity, total dissolved and suspended solids, and true colour before, during, and after construction. If blasting in the area, monitor nitrates.	OGC, MOE
8.79	Clearing and Construction	PTP commits to implement and adhere to a Hazardous Waste Management and Spill Plan and Emergency Response Plan.	OGC, MOE
8.80	Clearing and Construction	PTP commits to implement and adhere to a Surface Water Quality and Sediment Control Plan.	OGC, MOE
8.81	Clearing and Construction	PTP commits to provide potable water to residents if water supply is degraded.	OGC, MOE
8.82	Detailed Design	PTP commits to identify the location of registered and unregistered water wells within 200 m downslope and 100 m upslope of clearing, construction, and restoration activities.	OGC, MOE, MOH
8.83	Clearing and Construction	PTP commits to monitor pH, turbidity, total dissolved solids, total suspended solids, and true colour before, during, and after construction.	OGC, MOE, MOH
8.84	Clearing and Construction	PTP commits to monitor nitrate levels in water wells within 200 m of blasting sites before and after the blasting occurs.	OGC, MOE, MOH
8.85	Clearing and Construction	PTP commits to install cross ditches, trench breakers, and/or subdrains where substantial subsurface seepage is encountered at depth on sloping terrain.	OGC, MOE, MOH
8.86	Clearing and Construction	PTP commits to provide potable water to residents if well water supply is degraded.	OGC, MOE, MOH
8.87	Detailed Design, Permitting, Clearing and Construction	PTP commits to, at the Eurocan Mill Site and electrical sub-station complex: Determine boundaries of contaminated sites and avoid, where feasible. If contamination is encountered during Project construction, ensure a qualified environmental consultant conducts a Detailed Site Investigation before construction continues. Dispose of contaminated material disturbed by Project activities in accordance with BC Contaminated Sites Regulation.	OGC, MOE

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Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
8.88	Detailed Design, Permitting, Clearing and Construction	At unregistered contaminated Sites of Concern, PTP commits to: If contamination is encountered, ensure a qualified environmental consultant conducts a Detailed Site Investigation before construction continues. Dispose of contaminated material disturbed by Project activities in accordance with BC Contaminated Sites Regulation	OGC, MOE
8.89	Clearing and Construction	PTP commits to in the Burnie-Shea and Herd Dome areas, install physical and vegetation barriers on the pipeline route to limit unauthorized motorized access.	OGC, ILMB, MOE
8.90	Operations, Post-Construction Monitoring	PTP commits to monitor unauthorized motorized use in the proposed Burnie Shea protected area and Herd Dome ASMZ and assess the efficacy of access control strategies during the post- construction monitoring phase.	OGC, ILMB, MOE
8.91	Permitting	PTP commits to provide the OGC with a set of 1:20,000 scale maps as part of the permit application process that illustrate existing designated areas such as Old Growth Management Areas, Recreation Sites, and Special Management Zones. These areas will be shown as polygons on the face of the maps.	OGC
9. Commu	nity and Regional Infrastructure ar	nd Services	
9.1	Detailed Design, Clearing and Construction	PTP commits to notify Transport Canada should a new temporary bridge be required.	TC
9.2	Detailed Design, Clearing and Construction	For the purpose of contingency planning, PTP will advise the Kitimat Local Fire Departments / RCMPs / General Hospital and Northern Health Authority 6 months ahead of construction activity regarding construction scheduling, activity peaks and critical contacts.	DOK and others
9.3	Detailed Design, Clearing and Construction	PTP to contact the District of Kitimat engineering department in advance of construction in regard to water use for hydrostatic testing within the boundaries of the District of Kitimat.	DOK
9.4	Permitting, Clearing and Construction	PTP to contact the District of Kitimat engineering department in regard to large scale deliveries to check for compatibility with any local road works.	DOK
9.5	Detailed Design, Clearing and Construction	PTP to work directly with Kitimat Employment Services for the purpose of assisting in maximizing local and northern employment. Meetings have been undertaken with the municipality and additional meetings / discussions will be undertaken well in advance of clearing and construction.	DOK
9.6	Clearing and Construction	PTP commits to adhere to all Worksafe BC safety standards for worksites during the clearing, construction, and restoration phases of the Project.	OGC
9.7	Clearing and Construction	PTP commits to ensure that PTP medical response staff are on duty during Project construction. This will include full-time ambulance and First Aid personnel at Project work sites.	OGC
9.8	Clearing and Construction	PTP commits to implement an Emergency Response Plan (ERP) for Project-related emergencies.	OGC
9.9	Detailed Design, Permitting	PTP commits to communicate with RCMP and fire departments, and with local emergency personnel, to examine issues such as staffing requirements, and appropriate access routes for evacuation.	OGC
9.10	Detailed Design, Permitting	PTP commits to provide key Project contact telephone numbers, construction schedules, and Project maps with access routes, to Local and Regional Provincial Emergency Program (PEP) Authorities, RCMP detachments, fire departments, and other emergency coordinators.	OGC

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
9.11	Detailed Design, Permitting	PTP commits to identify local and regional helicopter and small aircraft companies in the LSA with the capacity to serve in a rapid response emergency situation.	OGC
9.12	Detailed Design, Permitting, Clearing and Construction	PTP commits to communicate with hotel associations, community chambers of commerce, business owners, recreation facility operators, and other relevant groups to communicate Project schedules and support requirements	OGC
9.13	Clearing and Construction	PTP commits to implement a Construction Waste Management Plan to ensure appropriate and efficient waste management.	OGC, Regional Districts
9.14	Clearing and Construction	PTP commits to transport waste in accordance with provincial and federal regulatory requirements and local guidelines. Comply with other existing legislation, regulations, policies, permits, codes, and orders in effect with respect to waste management.	OGC, Regional Districts
9.15	Detailed Design, Permitting, Clearing and Construction	PTP commits to provide construction work camps.	OGC
9.16	Clearing and Construction	PTP commits to truck in potable water needs to the work camp.	OGC, Regional Districts
9.17	Clearing and Construction	PTP commits that toilets will be contained and waste will be trucked off site to a location that is acceptable to authorities having jurisdiction on these matters.	OGC, Regional Districts
9.18	Clearing and Construction	PTP commits that other wastes, including kitchen waste and garbage will be transferred to appropriate facilities off-site.	OGC, Regional Districts
9.19	Clearing and Construction	PTP commits that a Waste Management Plan will be followed to minimize potential concerns at campsites.	OGC, Regional Districts
9.20	Clearing and Construction	PTP commits to ensure power generation via diesel generators at work camps meet applicable provincial standards.	OGC, Regional Districts
9.21	Detailed Design, Permitting	PTP commits to review plans with abutting transmission line and pipeline operators and utility service providers prior to construction.	OGC, Regional Districts, Municipalities
9.22	Detailed Design, Permitting	PTP commits to work with planners in Kitimat, and other communities, as needed, to identify underground infrastructure such as water and sewer lines.	OGC, Regional Districts, Municipalities
9.23	Detailed Design, Permitting	PTP commits to identify existing infrastructure through discussions with regional district staff and local residents and by other means prior to construction, where required.	OGC, Regional Districts, Municipalities
9.24	Clearing and Construction	PTP commits to locate and expose all known locations of underground facilities in accordance with prescribed, safe methods.	OGC, Regional Districts, Municipalities
9.25	Clearing and Construction	PTP commits to use flagging and signage at overhead line crossings to alert equipment operators of hazards.	OGC, Regional Districts, Municipalities

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
9.26	Permitting, Clearing and Construction	PTP commits to obtain site-specific crossing agreements with CN Rail.	OGC
9.27	Permitting, Clearing and Construction	PTP commits to provide CN Rail with key Project contacts.	OGC
9.28	Permitting, Clearing and Construction	PTP commits to avoid disruption of rail service as a result of Project construction.	OGC
9.29	Clearing and Construction	PTP commits to implement a Traffic Management Plan for highways and paved roads to manage vehicular movements during clearing, construction, and restoration phases of the Project.	OGC
9.30	Clearing and Construction	PTP commits to implement an Access Management Plan to address access requirements for industrial activity.	OGC
9.31	Clearing and Construction	PTP commits to, prior to clearing and construction, place notices in local media, announcing Project location and construction activities.	OGC
9.32	Clearing and Construction	PTP commits to place traffic signs on highways to notify the public of long load turn-off locations and construction zones.	OGC, MOH
9.33	Clearing and Construction	PTP commits to provide notification to local MOH staff and road contractors of expected schedule for arrival of labour, materials, equipment, and pipe delivery.	OGC, MOH
9.34	Clearing and Construction	PTP commits to communicate with local traffic and law enforcement authorities to address outstanding traffic safety concerns.	OGC, MOH
9.35	Detailed Design, Permitting	PTP commits to transport Project supplies and materials during construction on CN Rail to the extent feasible, to reduce the number of heavy vehicles on major access routes in the LSA.	OGC
9.36	Clearing and Construction	PTP commits to transport workers in multi-passenger vehicles to reduce traffic volume, where feasible.	OGC
9.37	Clearing and Construction	PTP commits that Project-related traffic on highways and other access roads will observe all applicable traffic and road use and safety regulations.	OGC
9.38	Detailed Design, Permitting, Clearing and Construction	PTP commits to review plans with the transmission line operators and industrial operators who may need to access the area.	OGC, Regional Districts
10. Employ	ment and Economy		
10.1	Detailed Design	PTP will communicate with communities and Chamber of Commerce 6 to 12 months ahead of construction regarding potential service and supply opportunities and may undertake regional business registration / procurement information meetings in communities across the corridor.	Local government
10.2	Detailed Design	PTP is committed to a procurement program that actively promotes local opportunities, including Aboriginal businesses.	OGC
10.3	Detailed Design	PTP commits to communicate with local economic development offices, First Nations, and regional employment agencies to identify workforce needs and potential opportunities for local employment.	OGC, Regional Districts, Municipalities

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
10.4	Detailed Design	PTP commits to continue to encourage local economic benefits throughout the life of the Project.	OGC, Regional Districts, Municipalities
10.5	Operations and Post- Construction Monitoring	PTP commits to pay appropriate taxes to municipal and provincial government bodies.	OGC
11. Human	Health and Safety		
11.1	Clearing and Construction	PTP commits to adhere to an Air Quality and Dust Control Plan.	OGC
11.2	Clearing and Construction	PTP commits to maintain equipment frequently to minimize emissions.	OGC
11.3	Clearing and Construction	PTP commits to use multi-passenger vehicles to transport crew to site to the extent practical to limit the amount of traffic and accompanying emissions.	OGC
11.4	Clearing and Construction	PTP commits to apply water to exposed soil piles, near residences, and in sensitive areas to reduce dust.	OGC
11.5	Clearing and Construction	PTP commits to reduce vehicle speeds to decrease traffic-induced dust dispersion and resuspension from the operation of heavy vehicles.	OGC
11.6	Clearing and Construction	PTP commits to, where practical, and where necessary, ensure trucks hauling sand, dirt, or other loose materials are covered.	OGC
11.7	Clearing and Construction	PTP commits to provide notification of construction activities in areas near residences. Allow time for local residents to leave the area who may have sensitivities to poor air quality.	OGC
11.8	Clearing and Construction	PTP commits to conduct burning in compliance with local government bylaws, the BC Open Burning Smoke Control Regulation, and the Forest Fire Prevention and Suppression regulation.	OGC
11.9	Detailed Design, Permitting	PTP commits to identify the location of registered and unregistered points of water diversion within 200 m downslope and 100 m upslope of clearing, construction, and restoration activities.	OGC, MOHealth
11.10	Clearing and Construction	PTP commits to monitor pH, turbidity, total dissolved solids, total suspended solids, and true colour of user's water before, during, and after construction. If blasting in the area, also monitor nitrates.	OGC, MOHealth
11.11	Clearing and Construction	PTP commits to implement and adhere to a Hazardous Waste Management and Spill Plan and Emergency Response Plan.	OGC, MOHealth
11.12	Clearing and Construction	PTP commits to implement and adhere to a Surface Water Quality and Sediment Control Plan	OGC, MOHealth
11.13	Clearing and Construction	PTP commits to select appropriate waterbody crossing techniques to minimize the risk of sedimentation.	OGC, MOHealth
11.14	Clearing and Construction	PTP commits to provide potable water to residents if surface water supply is degraded.	OGC, MOHealth
11.15	Clearing and Construction	PTP commits to, where required, compensate affected water users.	OGC, MOHealth
11.16	Detailed Design, Permitting	PTP commits to identify the location of registered and unregistered water wells within 200 m downslope and 100 m upslope of clearing, construction, and restoration activities.	OGC, MOHealth
11.17	Clearing and Construction	PTP commits to monitor pH, turbidity, total dissolved solids, total suspended solids, and true colour of user's water before, during, and after construction.	OGC, MOHealth

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
11.18	Clearing and Construction	PTP commits to monitor nitrate levels in water wells within 200 m of blasting sites before and after the blasting occurs.	OGC, MOHealth
11.19	Clearing and Construction	PTP commits to install cross ditches, trench breakers, and/or subdrains where substantial subsurface seepage is encountered at depth on sloping terrain.	OGC, MOHealth
11.20	Clearing and Construction	PTP commits to adhere to a Hazardous Waste Management and Spill Plan and Emergency Response Plan.	OGC, MOHealth
11.21	Clearing and Construction	PTP commits to adhere to a Surface Water Quality and Sediment Control Plan.	OGC, MOHealth
11.22	Clearing and Construction	PTP commits to provide potable water to residents if well water supply is degraded.	OGC, MOHealth
11.23	Clearing and Construction	PTP commits to, where required, compensate affected well owners.	OGC, MOHealth
11.24	Clearing and Construction	PTP commits to notify residents of Project scheduling prior to clearing, construction, or restoration, in relation to potential noise disruption.	OGC
11.25	Clearing and Construction	PTP commits to generally confine work to between 7am and 7pm near to occupied seasonal and permanent residences (e.g. KP 287 to KP 291.8), unless otherwise approved by the appropriate authority.	OGC
11.26	Clearing and Construction	PTP commits to adhere to local noise by-laws, where in existence.	OGC
11.27	Clearing and Construction	PTP commits to maintain equipment, and minimize unnecessary noise through the use of standard noise reduction technologies (e.g. mufflers)	OGC
11.28	Clearing and Construction	PTP commits to implement an Access Management Plan to coordinate access to the pipeline route. Ensure ongoing communication between PTP staff, contractors, forestry operations, government representatives, and other resource users during the clearing, construction, and restoration phases.	OGC
11.29	Clearing and Construction	PTP commits to implement a Traffic Management Plan to ensure road users are aware of safety protocols and procedures.	OGC
11.30	Clearing and Construction	PTP commits to provide construction notification to local media.	OGC
11.31	Clearing and Construction	PTP commits to use signage near populated areas and on access routes near the pipeline route, that will be affected by Project construction or increased traffic levels, to alert the public about ongoing construction activities.	OGC
11.32	Clearing and Construction	PTP commits to install fencing around the perimeter of excavations in public areas, if required to meet provincial and local safety standards.	OGC
11.33	Detailed Design, Permitting	PTP commits to design the Compressor Station to minimize noise escapes through roof vents and other ventilation openings.	OGC
11.34	Clearing and Construction	PTP commits to fit the turbine intake and exhaust with special silencers as needed to reduce noise radiation below specified levels.	OGC
11.35	Clearing and Construction	PTP commits to bury compressor piping below grade or use acoustic insulation as needed to minimize noise emissions.	OGC
11.36	Post Construction Monitoring	PTP commits to monitor noise emissions to ensure they meet stated objectives at the Compressor Station.	OGC

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²			
11.37	Detailed Design	PTP commits to minimize light pollution and use motion sensors and screening at the Compressor Station.	OGC			
12. Navigable Waters Considerations						
12.1	Detailed Design, Permitting	PTP to ensure that the rebuilding of bridges and new bridges are reviewed by NWPD.	TC			
12.2	Detailed Design, Permitting, Restoration	PTP will inform TC-NWPD of Fish Compensation Plans that may impact navigable waterways.	TC			
12.3	Detailed Design, Restoration	PTP to provide TC-NWPD with information on restoration techniques that may interfere with navigation for their review and input prior to implementation.	TC			
12.4	Detailed Design	PTP commits to provide information on temporary bridges / road crossings for waterways on access roads for the TC-NWPD approval.	TC			
12.5	Detailed Design, Permitting	PTP commits to notify commercial guided fishing operations prior to initiating construction activities to provide updates on construction scheduling.	TC			
12.6	Clearing and Construction	PTP commits to provide construction schedules and other relevant information to outdoor clubs and similar organizations and Visitor Centres in order to reach the general public and visitors.	TC			
12.7	Clearing and Construction	PTP commits to use signage to inform river users of the presence of construction activities.	TC			
12.8	Clearing and Construction	PTP commits to, where deemed necessary, provide information on where portages can be used to get around temporary construction activity.	TC			
13. Aesthe	tics and Viewsheds					
13.1	Restoration	PTP commits to mitigating the visual impact of the Project by planting screens of trees and shrubs or vegetated berms at trail crossings and between footprint and trail.	OGC			
13.2	Restoration	PTP will incorporate screening vegetation into restoration plans to reduce the visibility of large river crossings.	OGC			
13.3	Restoration	PTP commits that all new access roads and shoo-flys will be completely deactivated following pipeline construction.	OGC			
13.4	Restoration	PTP commits that invasive vegetation will be controlled along new access routes.	OGC			
13.5	Restoration	PTP commits to use seed mixtures and planting to be used to restore new access routes will be developed in consultation with resource management agency staff (MOE, and MOFR).	OGC			
13.6	Operations and Post- Construction Monitoring	PTP commits that lighting will be operated to minimize night-time visibility of the compressor facility.	OGC			
13.7	Operations and Post- Construction Monitoring	PTP commits to use minimal lighting and fully shielded lights at the Compressor Station to reduce night-time light effects. Focus lights toward target areas. Motion sensors will be used to avoid unnecessary light pollution.	OGC			
14. Cumulative Effects						
14.1	Restoration, Post Construction Monitoring	After pipeline installation through the upper Kitimat Valley, in accordance with the Environmental Management Plans, surface run-off across disturbed areas will be controlled to manage erosion, and other stabilization measures applied as may be necessary.	CEA Agency			

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²			
15. Monitoring and Follow-up						
15.1	Detailed Design	An Environmental Protection Plan (EPP) will be developed by PTP prior to clearing and construction activities specifically for the KSL Project, which will incorporate the appropriate elements of PNG's existing operational procedures and manuals.	All agencies			
15.2	Detailed Design	A series of contingency plans will be prepared prior to the initiation of ground disturbing work. Contingency Plans are specific instructions, measures, or strategies to address environmental issues, should they arise during the construction of the pipeline or Compressor Station. Topics addressed in these Plans include: wet soils, soil erosion or siltation, flooding or seasonally excessive stream flow, accidental spills, forest fire, accidental release of drilling mud during horizontal directional drilling, wildlife incidents, discovery of plant species or wildlife species of concern during construction, and discovery of archaeological or heritage resources during construction.	All agencies			
15.3	Clearing and Construction	PTP will hire a minimum of one full-time lead Environmental Inspector (EI) for each pipeline spread. Environmental specialists and additional supporting EIs will assist the lead EI.	All agencies			
15.4	Post Construction Monitoring	All Post Construction Monitoring Programs will be conducted by appropriately trained professionals (e.g. soils specialists, restoration ecologists, erosion control specialists, wildlife biologists).	All agencies			
15.5	Clearing and Construction, Operation	PTP will continue to work with federal agencies to address compliance, monitoring, and follow-up to determine the accuracy of predicted effects and the efficacy of mitigation.	Federal agencies			
15.6	Clearing and Construction, Post Construction Monitoring	The ROW, including watercourse crossings, will be monitored during and following construction to assess the effectiveness of sediment control measures and to make repairs as required.	DFO, MOE, MOFR, OGC			
16. Effects	of the Environment on the Project					
16.1	Operation	Areas of potential terrain instability will be monitored by PTP during operations and remedial action will be promptly undertaken where warranted.	OGC			
16.2	Clearing and Construction	Weather conditions and forecasts for the watershed will be monitored by PTP prior to commencing instream work and activities will be suspended if unseasonably high stream flow rates present an increased risk to effectively completing the intended crossing installation technique.	OGC, DFO			
16.3	Clearing and Construction, Operations and Post- Construction Monitoring	Areas of potential terrain instability will be monitored during operations and remedial action will be promptly undertaken where warranted.	OGC			
16.4	Clearing and Construction Operations and Post- Construction Monitoring	Weather conditions and forecasts for the watershed will be monitored prior to commencing instream work and activities will be suspended if unseasonably high stream flow rates present an increased risk to effectively completing the intended crossing installation technique.	OGC, MOE			
17. Accider	nts and Malfunctions					
17.1	Permitting, Clearing and Construction	PTP will employ the best available technology and safety measures and follow all applicable codes, in order to minimize the probability of accidents and malfunctions occurring.	OGC			
17.2	Clearing and Construction	PTP commits that crews will have the necessary training and equipment to quickly contain a fire outbreak.	OGC			

Number	Project Phase	Pacific Trail Pipelines L.P. (PTP) Commitment	Responsible Agency or Group ¹²
17.3	Clearing and Construction	PTP commits that project personnel will be in continual contact with the provincial Fire Centres for the purpose of monitoring fire hazard conditions and for fire reporting.	OGC
17.4	Clearing and Construction	PTP will employ appropriate safety measures including controlled blasting procedures.	OGC
17.5	Clearing and Construction	PTP will ensure the general public will be excluded from the construction area.	OGC
17.6	Clearing and Construction	PTP will implement strict traffic safety measures, including but not limited to: direct contact with other forestry road users, two-way radios for control where necessary, traffic-control personnel where necessary and the adoption of speed limits in order to reduce the likelihood of transportation accidents.	OGC
17.7	Detailed Design	PTP commits to design the HDD profile to ensure the pipeline is sufficiently below the watercourse to minimize any potential for mud loss entering a watercourse.	OGC
17.8	Clearing and Construction	PTP will implement and adhere to the Traffic Management Plan that will be developed prior to clearing and construction to ensure road users are aware of safety protocols and procedures.	OGC
18. Genera	al		
18.1	All phases	PTP will design, construct, operate and decommission the Project as described in the Application Report and modified and updated in the supplementary information and in accordance with any subsequent leases, permits and authorizations required by federal and provincial permitting agencies.	All agencies
18.2	All phases	PTP will provide environmental awareness training for all personnel, employees, and contractors.	All agencies
18.3	Detailed Design	PTP will ensure that all engineering design work is undertaken in accordance with all applicable codes and standards, and is supervised and approved by a Professional Engineer registered in the Province of British Columbia.	All agencies
18.4	Detailed Design	PTP will develop Environmental Management Plans (EMPs) for the construction and operation phases of the Project, and will outline key environmental protection measures to be employed during these project phases. PTP will provide draft EMPs to Regulatory Agencies and First Nations for review and comment prior to their completion.	All agencies, First Nations

Abbreviations:

ALC – Agricultural Land Commission

CEA Agency – Canadian Environmental Assessment Agency

CSTC – Carrier Sekani Tribal Council

DFO – Department of Fisheries and Oceans

DOK – District of Kitimat

HDD – Horizontal Directional Drilling

HFN – Haisla Nation

ILMB – Integrated Land Management Bureau

KFN – Kitselas First Nation

KP – Kilo Post

MAL – Ministry of Agriculture and Lands

MEMPR – Ministry of Energy, Mines, and Petroleum Resources

MOE – Ministry of Environment

MOFR - Ministry of Forests and Range

MOH – Ministry of Highways

MOH – Ministry of Health

MTSA – Ministry of Tourism, Sport, and the Arts

NTB – Nee Tahi Buhn

NWPD – Navigable Water Protection Division

OGC – Oil and Gas Commission

OW – Office of the Wet'suwet'en

ROW – Right-of-way

STN – Skin Tyee Nation

TC – Transport Canada