PIONEER NATURAL RESOURCES CANADA INC.

SOUTH CHINCHAGA TIE-IN INSTALLATION

NEB APPLICATION

ENVIRONMENTAL AND SOCIO-ECONOMIC ASSESSMENT AND MITIGATION PLAN (EIA) FOR THE PROPOSED SOUTH CHINCHAGA TIE-IN INSTALLATION

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LIST OF ABBREVIATIONS

AB	-Alberta
ACD	-Alberta Community Development
AENV	-Alberta Environment
ASRD	-Alberta Sustainable Resource Development
ATV	-all terrain vehicle
B.C.	-British Columbia
BCRC	-Boreal Caribou Research Committee
BWBS	-Boreal White and Black Spruce zone
CAPP	-Canadian Association of Petroleum Producers
CEA	-Cumulative Effects Assessment
CEAA	-Canadian Environmental Assessment Act
	-Cumulative Effects Assessment: Ladvfern-Chinchaga Area
CEE	-Cumulative Environmental Effects
Chauvco	-Chauvoo Resources Ltd
CLI	-Canada Land Inventory
	Committee on the Status of Endangered Wildlife in Canada
COSEVIC	Coribou Protoction Plon
	-Calibou Flotection Flat
CSA Dana Tha'	-Canadian Standards Association
Dene-ma	-Denertment of Fisheries and Oscano
DFU	-Department of Fishenes and Oceans
Diversilieu	-Diversitied Environmental Services
Doig	-Doig River First Nation
EES	-Ernst Environmental Services
EFR	
EIA	
EPN	-Early Public Notification
EPP	-Environmental Protection Plan
ERP	-Emergency Response Plan
FEARO	-Federal Environmental Assessment and Review Office
FMA	-Feduirchuck, McCullough & Associates
FPC	-Forest Practices Code
ha	-hectare
Heritage North	-Heritage North Consulting Ltd.
IPL	-Interprovincial Pipelines Ltd.
km	-kilometre or kilometer
kPa	-kilopascal
Landsong	-Landsong Heritage Consulting Ltd.
LRMP	-Land and Resource Management Planning
m	-metre or meter
MELP	-British Columbia Ministry of Environment, Lands and Parks
MEM	-British Columbia Ministry of Energy and Mines
mm	-millimetre or millimeter
MOF	-British Columbia Ministry of Forests
MSBTC	-British Columbia Ministry of Small Business, Tourism and Culture
Murphy	-Murphy Oil Company Ltd.
WALP	-British Columbia Ministry of Water, Air and Land Protection
NEB	-National Energy Board
NTS	-National Topographic System

Pers. comm.	-Personal communication
PIL	-Pipeline Installation Lease
PLA	-Pipeline Agreement
PNRC	-Pioneer Natural Resources Canada Inc.
RCMP	-Royal Canadian Mounted Police
ROW	-Right-of-way
RTA	-Registered Trapping Area
TFA	-Temporary Field Authorization
Tidal	-Tidal Resources Ltd.
TDG	-Transportation of Dangerous Goods
tss	-Total suspended solids
VEC	-Valued Ecosystem Component
WHMIS	-Workplace Hazardous Materials Information System

PROJECT AREA BOUNDARY and PROJECT DEFINITIONS

Immediate vicinity/area of the project is defined, for the purposes of this application, as within the 0.04 acres of land surveyed for the project construction site.

General vicinity/area of the project is defined, for the purposes of this application, as within 10 km of the project.

Spatial boundary of the project is defined as 1000 m diameter perimeter around the meter station.

The boundary of the environmental assessment of this project is defined as 1000 m diameter perimeter around the meter station.

The temporal boundary of the project = 1996 -the life of the meter station tie-in.

The Chinchaga Area, for the purposes of this project, is defined as PNRC's area of development within the Chinchaga

Meter Station means the Tie-In Installation and building

ENVIRONMENTAL SUMMARY

The Environmental and Socio-Economic Assessment and Mitigation Plan ("EIA") for the proposed Pioneer Natural Resource Canada Inc. ("PNRC") South Chinchaga Tie-In Installation is filed herein, with early public notification ("EPN"), environmental, land and socio-economic issues addressed in Sections 1 through 11. The information provided herein is more extensive than required for the project applied for. It is provided as it is available from review of past and ongoing Chinchaga projects and wildlife work.

The proposed project is in an area with an extensive oil and gas infrastructure and will be constructed entirely on an existing right-of-way on Crown land within a Caribou Protected Area. The general opinion during meetings and conversations with various government agency representatives and independent consultants is that construction of the proposed meter station will result in very few negative social, economic, cultural, archaeological, heritage, health, environmental, agricultural or ecological concerns. Negative physical, biological and socioeconomic effects, if any, will be minimal and of short duration because:

- of the very small scope of the project;
- the total land affected will be very small, only 0.016 ha (0.04 ac);
- existing access routes will be used with no new access being required;
- the project will be constructed on previously cleared land with no new clearing required; and
- an Environmental Protection Plan (EPP, Appendix 5) and a Caribou Protection Plan (CPP, Appendix 6) have been prepared and will be enforced by PNRC's Chief Inspector and the project's environmental inspector to protect resources and mitigate negative effects.

The proposed meter station tie-in will result in minimal adverse biophysical and socio-economic effects. The issues, as outlined in various sections of this EIA, were identified through:

- numerous consultations with various stakeholders as described in Section 4 and Appendix 2;
- numerous on-site field assessments prior to and after construction of the existing right-ofway by professionals with extensive experience in oil and gas projects in the Chinchaga area and elsewhere in the western provinces;
- environmental inspections during construction of three of the existing four NEB pipeline projects within the existing right-of-way by professionals with experience inspecting NEB projects in Alberta, British Columbia and Saskatchewan.

- annual wildlife observations in the Chinchaga area (which includes the site of the proposed project), since 1997, by an independent environmental consultant, during the active construction months from approximately mid-November/December to mid March.
- continuing review of existing and new studies;
- preparation and continued review of other NEB project applications within the area of the project and elsewhere; and
- continuing review of NEB screening reports of approved projects within the area of the project and elsewhere.

PNRC has considered cumulative effects. A cumulative effects assessment ("CEA") for the project has been prepared and is included in Section 6. PNRC will mitigate effects and protect environmental resources as outlined in the EPP and CPP (Appendices 5 and 6 respectively). During the field assessments, research and consultations for the preparation of this EIA, a summary of potential impacts, mitigative measures and residual impacts was developed and is presented in Table 1.1.

	TABLE 1.1: SOUTH CHINCHAGA METER STATION ISSUES SUMMARY						
	POTENTIAL IMPACTS: METER STATION		MITIGATION	RESIDUAL IMPACTS			
Wi	ldlife			Insignificant			
•	dens, nest sites and feeding areas of wildlife will not impacted	•	Aerial reconnaissance; field assessments and survey occurred pre-application; inspection and environmental monitoring will occur during construction; PNRC will adhere to consultants, and inspectors' or monitors' recommendations.				
•	sensory disturbance	•	Complete construction on schedule and remove equipment/personnel; follow EPP and CPP.				
•	habitat alienation, native habitat will not be disturbed, revegetated existing right-of-way to be used for the site will negatively impacted	•	Reseeding during final clean-up.				
•	habitat loss, alteration and fragmentation will not occur, site is on an existing right-of-way where alteration has already occurred with no new access routes required	•	Mitigation not required.				
•	blockage of daily or seasonal movements not expected to occur due to the small scope of the project and size of the site.	•	Mitigation not required.				
•	disruption of hunting activities will not occur	•	Mitigation not required.				
•	direct wildlife mortalities	•	on-site environmental inspection during construction; use of worker awareness programs; informal education regarding destruction, harassment and harm of local wildlife; enforcement of strict traffic regulations on existing winter access; enforce strict regulations prohibiting the destruction or harm of wildlife				
Fis	heries			Insignificant			
•	fish and fish habitat will not be impacted for construction; existing winter crossing will be used for access.	•	Mitigation not required for construction, mitigation for access use included in the EPP.				
•	disruption of stream flows not be required for the project	•	Mitigation not required.				
•	increase in sediment loading not expected as in-stream work not required	•	Mitigation not required.				
•	containment of watercourses from fuel spills	•	servicing and fueling of equipment within 100 m of streams, lakes, and wetland areas not permitted.				
•	disruption of angling activity not expected	•	Mitigation not required.				
•	waste or spills impacting fish	•	manage waste disposal; spill contingency planning; EPP.				

TABLE 1.1: SOUTH CHINCHAGA METER STATION ISSUES SUMMARY

TABLE 1.1: SOUTH CHINCHAGA METER STATION ISSUES SUMMARY				
POTENTIAL IMPACTS: METER STATION	MITIGATION	RESIDUAL IMPACTS		
Hydrology		Insignificant		
• localized disturbance to stream channel flows will not occur	• Mitigation not required.			
• localized disturbances of muskegs/wet depressional areas will not occur	• Mitigation not required.			
• localized disturbance to stream channel bed and banks will not occur	• Mitigation not required.			
Vegetation		Insignificant		
• special status species will not be impacted	• Mitigation not required.			
• introduction of noxious weed species within existing reclaimed right-of-way	• cleaning of equipment; initiate quick revegetation program following clean-up; use of Canada Certified No. 1 Seed; and the EPP			
Soils		Insignificant.		
• erosion, unlikely due to level area of site	• winter construction will mitigate impacts			
permafrost not present in area proposed	Mitigation not required.			
 berry/medicinal plant harvesting will not be impacted trapping 	 pre-application consultations conclude project is far removed from plant harvesting by traditional land users; use of existing rights-of-way will minimize vegetation impacts pre-application and construction consultation; notification prior to construction (refer please to Appendix 1); compensation if project interferes with trapline during construction; furbearer study/observations, including remote camera technology 	Insignificant, consultations with traditional land users will be ongoing		
Historic Resources		Insignificant		
• disruption of historic resources not expected as there are no known resource sites within the meter station location	• avoidance/protection of known sites; salvage of artifacts if any exposed during construction; monitoring and protection if any sites are uncovered during construction			
• disruption of known sites is not expected	• pre-application consultation with consultants, appropriate ministries and First Nations			

	POTENTIAL IMPACTS		MITIGATION	RESIDUAL IMPACTS
Wildlife		1		Insignificant
•	dens, nest sites and feeding areas of wildlife may be impacted	•	Aerial reconnaissance; field assessments occurred pre- application; pre-construction survey will occur with avoidance if any sites are found	
•	sensory disturbance and habitat alienation	•	Complete construction on schedule and prior to March 15; remove equipment/personnel; EPP, CPP	
•	habitat loss, alteration and fragmentation	•	minimize removal of wildlife habitat particularly in floodplain or wetland areas; EPP, CPP	
•	disruption of hunting activities	•	install adequate signage warning public of activities	
•	direct wildlife mortalities	•	use of worker awareness programs; informal education regarding crew destruction, harassment and harm of local wildlife; enforcement of strict traffic regulations on related winter access; enforce strict regulations prohibiting the destruction or harm of wildlife; EPP, CPP	
Vegetation		1		Insignificant, vegetation
•	special status species impacts	•	pre-construction assessment to avoid old growth forests; CPP	loss limited to small construction footprint
•	introduction of noxious weed species	•	cleaning of equipment to prevent spreading of noxious weeds; initiate quick revegetation program following clean-up and reclamation; and use of Canada Certified No. 1 Seed; EPP, CPP	
Fisheries		-		Insignificant
•	containment of watercourses from fuel spills	•	servicing and fueling of equipment within 100 m of streams, lakes, and wetland areas not permitted	
•	waste or spills impacting fish	•	manage waste disposal; spill contingency planning	
No	ise	•	Existing facilities used in an existing field	Insignificant
Em	ISSIONS	•	Standard emissions equipment in place meeting or exceeding regulatory requirements	Insignificant
Tra •	ditional land use reduced berry/medicinal plant harvesting	•	traditional land use monitors hired to assess project areas and consultations to avoid any sensitive areas	Insignificant with small construction footprint, but consultations with traditional land users ongoing
•	trapping	•	pre-construction consultation; notification prior to construction; compensation if developments interfere with trapping	

TABLE 1.1: SOUTH CHINCHAGA METER STATION ASSOCIATED DEVELOPMENT

LAND RIGHTS REQUIREMENTS AND ACQUISITION

The meter station will be constructed on Crown Land in Alberta. Traditional land use occurs in the area of the Tie-in Installation. The Doig River First Nations ("the Doig"), Dene Tha' First Nations (the "Dene Tha") and Treaty 8 were notified by the EPN and directly by follow up calls (refer to the EPN Follow up Table included in Appendix 2). There were no concerns expressed. Mr. Lee Morin is the registered trapper in the area of the project and has provided PNRC with a letter of non-objection (included in Appendix 1).

PNRC has served Section 87 notices on all owners of lands as defined in Part V of the Act (refer to Appendix 2 for a copy of the Section 87 notice and distribution list indicating the parties served).

PNRC will obtain a Pipeline Installation Lease ("PIL") approval from Alberta Sustainable Resource Development ("ASRD"). In the unlikely event that additional workspace is required, PNRC will contact AENV to discuss the changes.

PRESENT ZONING

The lands in the area required for the project are held by the Crown in right of Alberta.

EARLY PUBLIC NOTIFICATION

4.1 <u>THE CONSULTATION PROCESS</u>

The two closest urban centers to the proposed project are Fort St John (100 km to the southwest in British Columbia) and Manning (150 km to the southeast in Alberta). The sole registered trapper, Mr. Lee Morin, has provided PNRC with a letter of non-objection to the project (Appendix 1). There are no guides or outfitters and no residents in the immediate project area.

The planning process for the PNRC Meter Station included inviting participation from interested stakeholders who may be or will be impacted by the project. PNRC practice is to provide notification, exchange information and conduct two-way communication with relevant stakeholders prior to commencement of construction and throughout the life of the project. The information exchanges with stakeholders provided opportunities to:

- identify stakeholder concerns;
- help identify and mitigate concerns, if any, prior to construction;
- provide the general public, the Doig and Dene Tha' with information regarding possible economic opportunities through employment and business operations; and
- create a better two-way understanding of the area and of PNRC's proposed project.

The public consultation program included identification of stakeholders and two-way communications with:

- the registered trapper (Refer also to Appendix 1);
- appropriate provincial and federal government agencies;
- the Doig and Dene Tha' First Nations;
- Treaty 8; and
- the general public.

Notification activities included:

- advertisements in two different regional newspapers (Refer to Section 4.3.4 for details);
- distribution of Early Public Notification ("EPN") letters with an accompanying project schematic and follow up calls;
- Project presentation and consultation meeting with the Doig; and
- Section 87 notices the distribution list is included in Appendix 2.

The following section details the public consultation program, responses to identified issues and the ongoing consultation process.

4.2 <u>IDENTIFICATION OF STAKEHOLDERS</u>

PNRC and EES have identified stakeholders in the project area through title searches, research, meetings and consultations with numerous agencies and groups including, but not limited to, the following:

- Alberta Energy and Utilities Board (AEUB);
- British Columbia Oil and Gas Commission (OGC);
- British Columbia Ministry of Water, Land and Air Protection;
- Alberta Environment (AENV);
- British Columbia Ministry of Forests (MOF);
- Department of Fisheries and Oceans (Canada, DFO);
- British Columbia Ministry of Small Business, Tourism and Culture (MSBTC);
- Alberta Community Development (ACD);
- Diversified Environmental Services (Diversified);
- Heritage North Consulting Services (Heritage North);
- Landsong Heritage Consulting Ltd (Landsong);
- Doig River First Nations (the Doig, also called the Dane Zaa);
- Dene Tha' First Nations (the Dene Tha', previously called the Assumption Band);
- Treaty 8; and
- Various contractors with experience working in the area, such as surveyors, pilots, construction contractors, inspectors and supervisors.

4.3 NOTIFICATION AND TWO-WAY COMMUNICATION ACTIVITIES

4.3.1 Regional, Provincial And Federal Governments

Numerous consultations between various government agencies and PNRC have occurred throughout the planning stages of the proposed project. These consultations occurred in August 2002 until submission of this Application, and will continue throughout the Application process and construction of the project.

Information provided to the various government agencies included:

- Project contact names, addresses and numbers;
- Project area maps depicting site location for the meter station;
- Brief project and site information description; and
- Project scheduling.

Appendix 2 contains an example of the EPN sent out, the list of where the EPNs were sent and a table summarizing the follow-up consultations regarding the EPNs. Meetings between PNRC, consultants and regulatory agencies will continue post-Application and during construction and operation as required.

Appendix 2 contains a copy of the EPN sent out, the EPN distribution list, and a table summarizing the follow-up consultations. Meetings between PNRC, project consultants and regulatory agencies will continue throughout the life of the project as required: post-application, during the construction phase and operation.

4.3.2 Local Businesses

There have been no concerns or issues raised by local businesses that might have employment and economic opportunity issues with the proposed project. PNRC is not aware of any outstanding concerns.

4.3.3 <u>Trappers, Guides and Outfitters</u>

There is one inactive, registered trapline in the project area. There are no guides or outfitters in the vicinity of the proposed project (Jeff Poeckens, Pers. comm.). PNRC is not aware of any outstanding concerns. Refer also to Sections 5 and 6. Trapping issues are not anticipated because the trapper has provided PNRC with a letter of non-objection (included in Appendix 1).

4.3.4 Information Exchange with the General Public

The proposed project was advertised in the following newspapers:

- The Alaska Highway Daily News, Fort St. John, British Columbia
- The Manning Banner Post, Manning, Alberta

Text of the advertisements are included in Appendix 2.

To the date of filing there have been no responses to the newspaper advertisements. PNRC is not aware of any outstanding concerns.

4.3.5 General Public Open House

PNRC determined that an open house was not required for this project due to:

- the very small size of the project;
- the construction occurring entirely within an existing right-of-way;
- the remote location of the project; and
- the lack of response and/or interest to the EPN and advertisements.

4.4 <u>ISSUES</u>

The EPN process identified no issues during the follow up phone calls with stakeholders.

4.5 ONGOING CONSULTATION AND ISSUES RESOLUTION ACTIVITIES

Issues raised during PNRC's consultation processes have been suitably addressed. PNRC will continue to consult with government agencies, landowners and other stakeholders as required.

PNRC is committed to ensuring that all issues associated with the proposed project are documented and the necessary follow-up takes place. PNRC will address all issues in an attempt to satisfy all stakeholders in the project.

4.6 FIRST NATIONS CONSULTATION, ISSUES AND RESPONSES

The Doig and Dene Tha' claim traditional land use rights in project area. PNRC sent EPN letters and project schematics to the Doig, Dene Tha' and Treaty 8. Numerous consultations in 2002 have occurred between PNRC and the Doig in regards to this project as listed:

• between Mr. Les Hogan, Coordinator, Land & Aboriginal Affairs for PNRC and Mr. Wayne Rothlisberger, Land Officer for the Doig on July 16, 30, August 7, 26, 28, 29, September 3 & 5; and

• Between Mr. Les Hogan and Ms. Dolly Apsassin, Land Manager with the Doig on July 23.

Concerns raised were with respect to employment opportunities. Refer also please to the follow up table in Appendix 2 and Section 9.7.

PNRC had a number of phone conversations with the Dene Tha' and it was acknowledged that Doig were the traditional land users in the immediate area of the project. It was agreed that if any band members raised any concerns in the future in this regard, the Dene Tha' would notify PNRC. PNRC is committed to working with First Nations to minimize infringement of traditional land use rights. PNRC will consult with the appropriate First Nations to resolve project related issues if they arise as the project progresses.

SECTION 5.0

ENVIRONMENTAL EFFECTS ASSESSMENT

5.1 **INTRODUCTION**

PNRC is applying to the National Energy Board Act (the "Act"), R.S.C., 1985, c. N-7, for approval to construct and operate a tie-in installation to be located on the existing National Energy Board ("NEB") regulated East Chinchaga Pipeline right-of-way. The proposed tie-in installation will connect PNRC's existing Chinchaga East NEB pipeline to a proposed new gathering pipeline system and meter building. The tie-in installation is described in detail in the Applications and Engineering Matters Section ("Engineering Section").

The proposed meter station (comprised of the tie-in installation and meter station housing) will be constructed entirely within Alberta at LSD 11-26-96-13 W6M, approximately 0.5 km east of the British Columbia border on 0.016 ha (0.04 ac) of land on the existing NEB regulated right-of-way prepared for the 1998/99 East Chinchaga Pipeline. The meter station site will not require any additional clearing or temporary workspace. Photos of the site are included in Appendix 3; a project location map and survey are included in Appendix A.

Construction is proposed to begin in December 2002, requires a three week work window, with clean up completed no later than mid-March, 2003.

The Environmental and Socio-Economic Impact Assessment ("EIA"), includes the Cumulative Effects Assessment ("CEA"), and encompasses Sections 5 through 11. The EIA deals primarily with the existing right-of-way area of 0.016 ha of land required for the tie-in, and a buffer of 1000 m diameter perimeter around the proposed meter station. The meter station (*i.e.* the tie-in installation and meter building), with the 1000 m buffer zone, is the subject of the EIA and CEA.

The Canadian Environmental Assessment Act ("CEAA") and the National Energy Board Act ("The Act") regulate this meter station. The NEB is the Responsible Authority. The proposed project is of insufficient size (i.e., < 75 Kms of new right-of-way) to require a Comprehensive Study (Part IV, Section 14 of the Comprehensive Study List Regulations of CEAA).

5.2 <u>BACKGROUND</u>

The existing right-of-way to be used for the installation of the meter station, as well as three other rights-of-way adjacent to it, received approval and environmental screening by the NEB and had EIAs conducted with mitigation plans prepared for each project.

The various NEB screening reports are summarized herein as follows:

TABLE 5.1: Chinchaga NEB Screening Reports							
Screening Date	Title/Applicant	NEB File	NEB Order #				
February 21, 1996	Tidal Resources Ltd. (purchased by Chauvco, now PNRC). Referred herein as Tidal	3400-T081-1	XG-T81-9-96				
February 26, 1998	1997 West Hamburg Pipelines Chauvco Resources Ltd. (now PNRC) Referred herein as Chauvco	3400-C365-I	XG-C365-6-98				
December 7, 1998	1998/99 East Chinchaga Pipeline Pioneer Natural Resources Canada Inc. Referred herein as PNRC	3400-P177-I	XG-P177-41-99				
February 22, 2001	Chinchaga Sales Gas Pipeline Loop Murphy Oil Company Ltd. Referred herein as Murphy	GH-1-2001	XG-M085-02-2001				

Copies of the recent NEB screening reports for the above listed projects are not included herein due to the moderate and simple scope of this project and as the meter station site will be entirely constructed within an existing right-of-way. The past project applications, screening reports and post construction assessments (refer to Table 5.2) were reviewed by EES prior to the preparation of this project's EIA and include, in part, the historic basis of past projects reviewed for the CEA included in Section 6.

EES completed a number of post construction environmental reports for the four existing rights-of-way and related projects in the project area from 1997 to 2002, inclusive, and are listed as follows:

TABLE 5.2: POST CONSTRUCTION REPORTS						
COMPANY	PROJECT NAME	YEAR ASSESSED				
Tidal/PNRC	West Hamburg Pipeline	1997 (final)				
Chauvco/PNRC	1997 Chinchaga Pipelines	1998, 1999, 2000 (final)				
PNRC	East Chinchaga Pipeline	2000, 2001 (final)				
Murphy	Chinchaga Sales Gas	2001, 2002 (Current year's				
	Pipeline Loop	inspection completed				
		August 21 with report in				
		progress)				

A copy of the 2001 East Chinchaga Pipeline Post-Construction Environmental Report is included in Appendix 4. These aforementioned post construction reports have also been reviewed in the preparation of the project's EIA, CEA, Environmental Protection Plan ("EPP") and Caribou Protection Plan ("CPP").

5.3 SCOPE AND PURPOSE OF STUDY DOCUMENT

This effects assessment is concerned with the 0.016 ha (0.04 ac) of land in Alberta required for the meter station tie-in, including a 1000 buffer zone around the meter station. Other past projects and/or related activities within the 1000 m buffer zone include a power line which was constructed in the winter of 1998 and runs from Hamburg to c-32-H, an abandoned well (6-26) which was drilled in the same winter,

existing winter access routes, and various seismic programs. An alignment sheet for this project has not been prepared due to the fact that the entire proposed meter station site will be within an existing NEB approved right-of-way which has been previously cleared with no new clearing required.

The proposed project's planning history; route selection; issues and concerns raised by regulatory agencies and First Nations; biophysical resources and impacts; cumulative environmental effects (CEEs); environmental monitoring, inspection and mitigation plans are discussed herein.

5.3.1 TECHNICAL SUMMARY

Meter Station:

The meter station will be constructed using standard practices. These will include surveying, site preparation, transport and installation of the meter skid, welding, Xray inspection, trenching, tie-in, pressure testing, clean-up, and restoration. The test medium will be a water-methanol mixture and tested in accordance with the CSA Z662-99 Standard and Provincial Requirements.

Table 5.3: Technical Summary of the Proposed Meter Station

Right-of-Way Disposition					
newly cleared right-of-way	0.0 ha				
widening of existing right-of-way	0.0 kms				
Product to be metered	sweet natural gas				
	0				
Total hectares newly cleared	0.0				
Right-of-Way Configuration	Use of existing = 0.016 ha (0.04 ac)				
Province the site will be located in	Alberta				
Extra Workspace	None required				
Construction Start, weather permitting	December, 2002				
Construction Duration, weather permitting	2-3 weeks				
Construction/clean up completion	March 15, 2003				

Technical and construction details may be found in the engineering materials submitted.

Construction Accommodation:

Existing camps will be utilized to house workers. PNRC does not anticipate the requirement of additional construction camps to be installed for this project. In the event

that any camps are required, PNRC's contractors will obtain the necessary regulatory permits for the camps and find appropriate locations.

5.4 **PROJECT AREA DESCRIPTION**

The proposed meter station will be located within the Lower Boreal Cordilleran Ecoregion (Rolling Morainal Upland Ecodistrict) of Alberta (Strong, 1992) within NTS map sheet 84-E-5. This zone is part of the belt of boreal forest that occurs across northern Canada. Alberta Environmental Protection, 1994, describes the subregion as Wetland, Mixedwood with typical vegetation as aspen and black spruce forests and wetlands; the dominant climate as Boreal. MacKinnon et al. (1992) describe this zone as having long and cold winters, the ground remaining frozen for a large part of the year with a short growing season. The severe climate results in forests of poor productivity and past fires have caused successional forests of trembling aspen and pine. The forest cover within the 1000 m diameter perimeter of the project consists largely of subclimax, second-growth aspen, with smaller areas of subclimax, second-growth lodgepole pine.

In the immediate area of the proposed project the biophysical and land use resources are minimal with no agricultural, forestry, mining, or guiding activities occurring there. Recreational activities are minimal with limited hunting and fishing in the general area. The Doig First Nations ("the Doig") and Dene-Tha First Nation ("the Dene-Tha") have traditional land use rights in the area of the proposed project. Traditional land uses include hunting, fishing and trapping. Wildlife habitat support population densities that are low to high with potential for high species diversity. Wildlife activity in the general vicinity includes caribou, moose, black and grizzly bear, lynx, weasel, fisher, marten, wolverine, red squirrel and beaver. Mr. Lee Morin is the registered trapper in the immediate area of the project and has provided PNRC a letter of non-objection to the project (Appendix 1).

The existing NEB regulated pipeline corridor in British Columbia and Alberta was assessed in 1997 for historic resource potential by Heritage North Consulting Ltd. ("Heritage North") with a number of sites recorded. Feduirchuk, McCullough & Associates ("FMA"), in 1996, and Landsong Heritage Consulting Ltd.("Landsong") in 2000 and 2002 have assessed portions of the right-of-way as well, with no other sites recorded. At the area required for the meter station, no historic sites have been observed (FMA, Heritage North, Landsong). As the area required for the project has been previously cleared PNRC expects no archaeological or historic resources to be impacted. Landsong also conducted an aerial and on ground overview August 21, 2002, with EES and reported the meter station area to be one of low resource potential. Landsong has advised PNRC that there are no concerns for the meter station.

PNRC has conducted numerous aerial and/or on the ground reconnaissance of the existing rights of way with members of the Doig over past various years (1997-2001) and one aerial reconnaissance with both Doig and Dene Tha' members on August 3, 1998. The Doig expressed that hunting rights not be infringed upon; the Dene Tha' acknowledged that it is the Doig who use land in the immediate area of the project. PNRC does not expect any infringement to hunting or any other traditional land use rights to be caused by the proposed project.

Access to the proposed project is via helicopter and existing seasonal, winter access routes. There are no all season roads to the meter station. No new winter access or all season roads will be required for the construction and/or operation of the meter station.

The proposed project is in an area with an extensive, existing oil and gas infrastructure. As explained throughout the EPN (Section 4) and the EIA, the general opinion during numerous meetings and conversations with various government agency representatives and independent consultants, including but not limited to:

- Mr. Bill Johnson, Mr. Jeff Poeckens, Mr. Kim Morton, Mr. Glen Gache, AENV;
- Heritage North.;
- FMA;
- Landsong.;
- Diversified Environmental Services;
- DFO;
- Indian and Northern Affairs Canada;
- Historic Sites and Services, Alberta Community Development; and
- Treaty 8,

was that construction of the proposed project will result in very few negative social, economic, cultural, archaeological, heritage, health, traditional land use, trapping, environmental, or ecological concerns. Negative physical, biological and socio-economic effects, if any, will be minimal. An EPP (Appendix 5) has been prepared to protect resources and mitigate negative effects. The proposed meter station is within a caribou protected area. PNRC has prepared a CPP for each year of previous activity in the Alberta area of Chinchaga and will prepare one again for this upcoming season. PNRC has not yet finalized the well locations for this upcoming winter, and as such, a copy of the CPP for last year's activities is included in Appendix 6 as a sample.

Concerns have been expressed in the past to the Board by the area's registered trapper, Mr. Lee Morin, regarding development in the general Chinchaga area (refer to the Chinchaga Sales Gas Pipeline Loop Hearing. GH-1-2001. February 2001). PNRC has followed past EPP's and CPP's and has conducted furbearer observations to mitigate effects. Mr. Morin has provided PNRC with a letter of non-objection in regards to the proposed project (Appendix 1).

Numerous contacts with regulatory agencies have been made by PNRC. A list of the agencies contacted is included (Appendix 2). The project was advertised in *The Alaska Highway Daily News* (Fort St John, BC) and *The Manning Banner Post* (Manning, AB) in August, 2002. A copy of the text used for the advertisements and the Early Public Notification is included in Appendix 2. PNRC decided an open house was not required for the proposed project due to the small scope of the project, the distance from commercial centres and the limited interest expressed by the public in response to the project advertisements. Information on the EPN and First Nations Consultations by PNRC is discussed and detailed in Section 4 and Appendix 2. PNRC has Safety and Environmental Corporate Policy Statements (Appendix E) and will conduct all work in a manner that attempts to minimize the effects of the project.

Table 1.1 (Section 1) summarizes issues, potential impacts, mitigation measures and residual impacts related to the Chinchaga South Tie-In Installation Project. Refer to Appendix 5 for a more detailed listing of mitigative measures in the EPP to be utilized for this project.

5.5 <u>DETERMINING STUDY REQUIREMENTS</u>

The following are previous/current works conducted in the vicinity of the project and which have been reviewed by EES to assist in determining study requirements:

Arbuckle, Reg. 1984. Alberta Fish and Wildlife Division, Energy and Natural Resources. Summary Report on the 1983 - 84 Caribou Monitoring Program Near Chinchaga River, Alberta. By Reg Arbuckle, Wildlife Biologist, Peace River. September 1984. Verbal permission obtained to quote from Reg Arbuckle to Jessica Ernst, July 21, 1995 at 10:00 am from 229-9214 to 532-7960.

Backmeyer, R. J. 1990. Ring Border Ungulate Inventory. B.C. Ministry of Environment report. January 1990.

Beau Canada Exploration Ltd. Chinchaga Sales Gas Pipeline Loop. October 30, 2001. NEB Pipeline Permit Application.

Chauvco Resources Ltd., Chinchaga 1997 West Hamburg Pipelines. National Energy Board Pipeline Permit Application. October 1997.

Diversified Environmental Services. Tidal Resources Inc., West Hamburg Pipeline Fisheries Habitat Assessment. National Energy Board Energy Permit Application. January 1996

Diversified Environmental Services. Chauvco Resources Ltd., Chinchaga Gas Development Fisheries Habitat Assessment for the National Energy Board Energy Permit Application. September, 1997.

Diversified Environmental Services. Chauvco Resources Ltd., Diversified Environmental Services Vegetation Plot Study at c-32-H/94-H-8 and b-69-H/94-H-8, July and September, 1997.

Environmental Assessment for the Proposed Kahntah River Pipeline Project. Prepared for Novagas Clearinghouse Limited (NCL). Prepared by Axys Environmental Consulting Ltd. and Geo-Engineering (MST) Ltd. September 1994.

Ernst Environmental Services. Chauvco Resources Ltd., Environmental Impact Assessment of Constructing Gathering System Pipelines in Existing and Previously Cleared Rights-of-Way to the Existing Facilities at c-32-H/94-H-8. 1997.

Ernst Environmental Services. Chauvco Resources Ltd., Environmental Impact Assessment and Site Selection for Facility Development at Existing Facilities at c-32-H/94-H-8 and b-69-H/94-H-8. 1997.

Ernst Environmental Services. Wildlife Studies. 1998. Prepared for Pioneer Natural Resources Canada Inc. Observations of Furbearers Associated with Oil and Gas Development in the Chinchaga Area of British Columbia and Alberta.

Ernst Environmental Services. Wildlife Studies. 1999. Prepared for Pioneer Natural Resources Canada Inc. Observations of Furbearers Associated with Oil and Gas Development in the Chinchaga Area of British Columbia and Alberta.

Ernst Environmental Services. Wildlife Studies. 2000. Prepared for Pioneer Natural Resources Canada Inc. Observations of Furbearers Associated with Oil and Gas Development in the Chinchaga Area of British Columbia and Alberta.

Ernst Environmental Services. Wildlife Studies. 2001. Prepared for Pioneer Natural Resources Canada Inc. Observations of Furbearers Associated with Oil and Gas Development in the Chinchaga Area of British Columbia and Alberta.

Ernst Environmental Services. Wildlife Studies. 2002. Prepared for Pioneer Natural Resources Canada Inc. Report and data analysis in progress.

Fedirchuk McCullough & Associates Ltd. Heritage Research Consultants. Post Construction Historical Resources Impact Assessment for Tidal Resources Inc. West Hamburg Gas Pipeline Project. Permit # 1996-007.

Fedirchuk McCullough & Associates Ltd. Heritage Research Consultants. Post Construction Archaeological Impact Assessment for Tidal Resources Inc. West Hamburg Gas Pipeline Project Expanded Well Site c-32-H/94-H-8. Permit # 1996-047.

Guide to the Environmental Assessment Process. June, 1995. Crown Publications, Victoria. Province of British Columbia.

Heritage North Consulting Ltd. Chauvco Resources Ltd., Chinchaga Gas Facility Archaeological Impact Assessment. 1997. Heritage Inspection Permit 1997 - 182. Cv

Landsong Heritage Consulting Ltd. Report in Progress. Field Assessment conducted August 21, 2002.

National Energy Board. Environmental Screening Report: Tidal Resources Ltd. West Hamburg Pipeline. February 21, 1996.

National Energy Board. Environmental Screening Report: Chauvco Resources Ltd. 1997 West Hamburg Pipelines. 26 February 1998.

National Energy Board. Environmental Screening Report: Pioneer Natural Resources Canada Inc. 1998/99 East Chinchaga Pipeline. 7 December 1998.

National Energy Board. CEAA Screening Report. Chinchaga Sales Gas Pipeline Loop. Murphy Oil Company Ltd. GH-1-2001. 22 February 2001.

National Energy Board. Hearing Transcripts. Murphy Oil Company Ltd. Chinchaga Sales Gas Pipeline Loop Hearing. GH-1-2001. February 2001.

National Energy Board. Reasons for Decision. In the matter of Murphy Oil Company Ltd. Chinchaga Sales Gas Pipeline Loop. GH-1-2001. March 2001.

Pioneer Natural Resources Canada Inc., The Calgary Zoo and Ernst Environmental Services. Caribou (*Rangifer tarandus*) Stress Hormone Research Proposal. January, 2002.

Pioneer Natural Resources Canada Inc. 1998/99 East Chinchaga Pipeline. National Energy Board Pipeline Permit Application. August 1998.

Pioneer Natural Resources Canada Inc. 1998/99 East Chinchaga Pipeline. NEB Order XG-P177-41-99. NEB File 3400-P177-1 Pre-construction Information and Updated Cumulative Effects Assessment. December 7, 1999.

Pioneer Natural Resources Canada Inc. 1998/99 East Chinchaga Pipeline. Request for Ammending Order. New National Energy Board Pipeline Tie-in. 2000.

Recommended Fort St. John Land and Resource Management Plan. A component of British Columbia's Land Use Strategy. April, 1997.

TERA Environmental Consultants. June 2002. Cumulative Effects Assessment: Ladyfern-Chinchaga Area. Prepared for: Murphy Oil Company Ltd., Canadian Natural Resources Limited and Encana Corporation, all of Calgary, Alberta.

Tidal Resources Inc. West Hamburg Pipeline. National Energy Board Pipeline Permit Application. January 1996.

5.5.1 ADDRESSING KNOWLEDGE GAPS

A fisheries habitat assessment and a Historical Resources Impact Assessments (HRIAs) have been conducted for past projects, in the general project area, as deemed appropriate to address knowledge or information gaps.

Existing data on the effects of oil and gas development on the ecological components of the boreal forest is at present extremely limited. While disturbance to the landscape (habitat) can be routinely quantified (TERA, 2002), this knowledge alone is not adequate to conduct CEAs without the necessary data on how these quantified disturbances translate to VEC's and indicators (Drouin and LeBlanc, 1994). This data has been entirely lacking for many species in the boreal forest in both Alberta and British Columbia, especially for the sensitive furbearers, until PNRC and EES initiated, organized and conducted the Chinchaga furbearer studies (Backmeyer, Davidson, WALP; Buckler, Wagner, OGC; Poeckens, Johnson, Gache, Williams, AENV; McKenna, Alberta Sustainable Resource Development, pers comms.).

Since the conception of the PNRC Chinchaga furbearer studies in 1997, the work has annually included contributions to the knowledge base available on woodland caribou, wolves, and a host of other species present in the Chinchaga development field. In early 2000, the work was expanded to include new and state of the art, limited invasion,

conservation research technologies. The studies are of a non-reductionist (essential for CEA completion), descriptive and quantitative science nature, and were conducted during the winter seasons (November/December - mid/late March) at Chinchaga.

Methods utilized to date include:

- reviewing existing studies and literature (1994-2002);
- initiating and conducting annual descriptive and quantitative science-based wildlife studies specifically on the local Chinchaga ecosystem including but not limited to:
 - quantitative caribou, wolf and wolverine stress hormone (glucocorticoid) research (2000-2002);
 - qualitative and quantitative snow tracking (1997-2002);
 - descriptive science based wildlife observations (1997-2002); and
 - utilizing remote camera monitoring of wolverine, fisher, marten and other wildlife for qualitative and quantitative baseline wildlife data collection (2000-2002).
- having meetings and making telephone contacts with regulatory agencies and other authorities (1996-2002); and
- consulting with Elders of First Nations (1996-2002).

The contributions these annual initiatives have provided include, but are not limited to, the following:

- an annual compendium of relevant findings from these and other studies;
- an evaluation of impacting factors, industry-related and non;
- an inventory of species present, (annually or not), in the field;
- information on distribution of a wide-range of species (mammalian and avian) at the stand and landscape levels;
- habitat suitability knowledge for a wide range of species based on the above;
- relative abundance of species;
- the establishment of previously neglected indicator species for the boreal forest (eg: otter, cougar);
- responses of an array of species to specific disturbance types including, but not limited to:
 - linear corridors (compacted and non);
 - proliferation of anthropogenic edge;
 - traffic on access routes;
 - water-extraction activities; and
 - expansion of field into formerly remote areas;
- the initiation of a pioneering mark-recapture study on forest mustelids (marten; fisher; wolverine) utilizing remote camera technology (an alternative to intrusive methods, *i.e.* radio-telemetry, ear tagging);
- the first-time demonstration that the above type of study is feasible for forest mustelids utilizing the said technology; and
- the pioneering establishment of baseline data on stress hormone levels in two species for which these parameters were previously unknown, (and potentially unknowable) woodland caribou and grey wolf data which will be valuable in

providing unambiguous answers to, among other questions, level of habituation to oil and gas development.

Most of the information required to assess the cumulative environmental effects of projects is usually obtained through such above detailed environmental monitoring programs (Drouin and LeBlanc, 1994). Prior to PNRC's annual commitment to addressing knowledge gaps as related to CEA, very little effort was being made to address any of the above in the boreal forest by other proponents, whether industrial, governmental, institutional or academic other than ongoing reductionist attempts involving woodland caribou.

Further discussion involving the above listed works will be found throughout this application. The data available are sufficient and reliable enough to determine current, baseline characteristics and conditions. The existing and new research assisted in both the preparation of the EIA, the CEA and for purposes of improving the quality of the EPP (Appendix 5) and CPP (Appendix 6).

Future assessments and wildlife observations are planned during the 2002/2003 construction season. These include field observations by construction personnel and the environmental inspector during construction of the proposed project. Due to the extremely limited land requirements for the meter station and the minimal expected environmental impacts resulting from the project, PNRC proposes that annual post construction environmental assessments are not required for the meter station per se, but they will be included in the assessments for the loop post construction reports. PNRC personnel will still monitor the success of seeding. The meter station is not in an area prone to slumping and/or erosion. There are no slumps within the project area.

5.6 ROUTE SELECTION CRITERIA AND PROCESS

Location Map (Appendix A) shows the location proposed for the proposed project (the survey is attached in the same appendix). Having regard to economics and line pressure considerations, the preferred location of the tie-in and meter station is the applied for site. This site will result in an overall reduction in environmental impacts by:

- reducing overall provincial gathering system length;
- enabling existing access routes to be used, with no new access nor permanent roads required;
- maximizing the use of existing facilities, access and infrastructure;
- accommodating the tie-in of new and existing wells;
- minimizing safety issues during construction;
- minimizing disturbance time in the area;
- providing the least construction/operational difficulties; and
- avoiding
 - infringement to traditional land use;
 - fish habitat, the nearest being approximately half a km to the west;
 - any sensitive wildlife areas *i.e.* there are no moose licks in the area of the project;
 - areas with high environmental sensitivity;
 - areas with unstable terrain/uncertain terrain stability;
 - culturally and/or spiritually significant areas;

- historic and/or archaeological sites; and
- protected areas:

The proposed project is not in any CORE (Committee on Resources and Environment) or Northeast B.C. Protected Area Strategy Study areas in British Columbia, nor will it be constructed on lands that were considered for Special Places 2000 in Alberta. The project is 20 linear km from the nearest boundary of the Chinchaga Wildland Park.

The project is within the Chinchaga Caribou Protected Area, which falls under the North West Caribou Protection Plan. PNRC has prepared and followed numerous Chinchaga CPP's in the past. Last year's plan is included in Appendix 6.

Impacts to caribou habitat will be minimized by:

- Using existing access;
- following the CPP (Appendix 6);
- constructing the meter station without new clearing; and
- constructing the meter station within an existing right-of-way.

Impacts to caribou themselves will be minimized by:

- following the EPP (Appendix 5) and CPP (Appendix 6);
- no new clearing required resulting in less disturbance and shorter duration of activities;
- avoiding aerial surveillance of and/or counts of caribou;
- limiting helicopter use for field travel as much as possible; and
- early construction completion;

5.6.1 Project-Related Land Withdrawal:

The land required for the meter station totals 0.016 ha (0.04 ac) within an existing rightof-way. PNRC is in the process of obtaining a Pipeline Installation Lease ("PIL") from AENV. PNRC has served Section 87 notices on the Crown and interested parties (Refer to Appendix 2).

PNRC anticipates that extra workspace will not be required. If additional workspace is required, PNRC will apply for it from AENV via the Temporary Field Authorization (TFA) process on an as-needed basis.

5.6.2 <u>Access Development</u>

During construction of the project, existing winter access routes and corridors will be used by workers. Winter access will be opened in November or December 2002, depending on the weather. Once the project is complete, routine maintenance will be conducted by helicopter in the summer if required, and on the ground using existing access corridors in the winter.

5.7 <u>RESOURCE DESCRIPTION AND IMPACT ANALYSIS</u>

The meter station site will avoid unnecessary environmental effects. These effects include any effect or change to physical and cultural heritage; on any structure, site or thing with historical, paleontological, architectural and archaeological significance or potential; health and socio-economic conditions; the current use of the land or resources for traditional use by First Nations persons or other persons in the area of the proposed project.

When focusing on the biophysical parameters (biophysical setting, project-related impacts, proposed protection planning measures *i.e.* the EPP and CPP) of the project site and its buffer zone, impacts to wildlife and fisheries resources and habitat will be minimal.

5.7.1 Geology And Soils

Bedrock Geology

No bedrock exposures were observed during construction of past projects in the immediate right-of-way where the meter station is to be constructed. It is anticipated that blasting of bedrock will not be required for this project.

Surficial Geology

The area of interest is located within the Alberta Plateau physiographic subdivision of the Interior Plains. Imperfectly to poorly drained, level to depressional, organic terrain and moderately well drained low relief ground moraine (till) predominate. Colluvium occurs on occasional gentle to moderate slopes, and with alluvial floodplain and terrace deposits, along the river valleys. Slopes of less than 5 degrees are characteristic, with greater relief and steeper slopes close to some of the waterways.

The surficial geology of the project area is not well known. It is assumed deposits of glacial and postglacial origin will be encountered. Till is the dominant deposit of glacial origin, with some shallow glaciolacustrine plain silts and clays.

Since deglaciation, the terrain has been modified by erosional and depositional processes, resulting in development of postglacial alluvial, colluvial, and recent lacustrine and organic landforms. Terrain depressions are infilled with organic-rich silts/clays and peat, forming recent lake basins and organic bogs, fens and veneers.

Soil patterns are expected to be representative of the Lower Boreal Cordilleran Ecoregion of Alberta (Strong, 1992). Soil Capability Maps for Agriculture (Canada Land Inventory) show the general area soils to be 70% Class 7 Soils with no capability for arable culture or permanent pasture and 30% Class 5 Soils which have very severe limitations. These soils are limited by adverse climate; and excess water that may be due to poor drainage, a high water table, seepage or runoff from surrounding areas. No soil survey was conducted for this project due to the limitations listed above.

5.7.1.1 Soils: Potential Impacts and Mitigation

Topsoil Mixing

Topsoil salvage is not undertaken in forested lands where forest soils lack a clear topsoil horizon, but "Duff" material (*i.e.* broken branches, leaf litter, sod/root layer *etc.*) will be bladed off prior to construction. The "Duff" material is redistributed over the right-of-way during clean-up.

Soil Instability

No surface failures or terrain instability have been observed in the area of the proposed project.

PNRC will conduct project construction to prevent any instability. Project construction will be conducted during winter months when the ground is frozen to support equipment. Work will be conducted to maintain surface and surface drainage patterns, so that ponding is not encouraged or seepage flow impeded. Surface runoff, erosion and ground water seepage will be controlled using accepted techniques and practices.

Soil Erosion

The meter station will be constructed on a site in a low-relief area where erosion risk is low.

Re-vegetation will be implemented as detailed in the EPP following final clean-up to prevent any possible soil erosion potential. Fertilizer will not be used as re-vegetation has been extremely successful without it for the past projects within the various rights-of-way (as per the various post construction environmental reports to the Board for the Tidal, Chauvco, PNRC, and Murphy lines, years 1997 to 2002 inclusive).

Further details on re-vegetation are presented in the EPP in Appendix 5, Clean-up and Reclamation. PNRC will take action to correct any erosion problems if they occur.

Backfill Loss in Organic Soils

PNRC does not anticipate backfill loss and thus will not need to use stub berm construction.

Permafrost

The project area lies within the southern fringe of the discontinuous permafrost zone. Permafrost has not been encountered during construction of past projects in the existing right-of-way or in the immediate area of the proposed project and as such, PNRC does not anticipate encountering any for this project.

Terrain Disturbance in Wet Areas

The project is scheduled for winter construction on frozen ground. The proposed site is not in a wet area. In the event of a mild winter and if frost penetration is inadequate to support heavy equipment travel, surface stabilizing techniques will be used to drive the frost in.

PNRC will snow clear and frost pack along the right-of-way early in the season to drive frost into the ground. If corduroy is required, non-merchantable slash and poplar will be

used wherever possible. If merchantable timber is required on a site-specific basis, PNRC will approach Lands and Forest Services in Alberta for approval.

5.7.2 Hydrology

The project is located within the Chinchaga River watershed of northwestern Alberta. Tributaries of the Chinchaga River, a sub-drainage system of the Hay River watershed, drain the right-of-way area.

The proposed project will not encounter any watercourses, except for the use of an existing winter crossing the unnamed tributary to Lennard Creek (herein referred to as Burnt Cabin Creek, as so named by Mr. Morin) for access to and from the site. Please refer to the EPP for mitigation of access use for the project (Appendix 5).

5.7.2.1 Hydrology: Potential Project-Related Impacts and Mitigation:

There will be no waterway crossings, excluding the aforementioned existing access crossing, required for the South Meter Station.

5.7.3 Vegetation

New clearing is not required for the proposed project. Forest esources will not be impacted and salvage will not be required.

The vegetation from past seeding in the existing right-of-way will be negatively affected by construction of the meter station; however, the amount of vegetation impacted will be extremely limited due to the small amount of land required. Reseeding will mitigate effects. Past post construction environmental assessments conducted by EES for the four pipelines constructed within the existing rights-of-way have all reported extremely quick and successful re-vegetation (refer to Appendix 4 for the most recent PNRC post construction assessment for this right-of-way and Table 5.2). Use of an existing corridor will minimize negative effects to native vegetation.

5.7.3.1 Vegetation: Potential Project-Related Impacts and Mitigation:

Winter Browse/Feed:

Extensive stands of willow, the preferred winter browse of moose, and areas of lichen producing bog, the preferred winter browsing sites of caribou, will not be encountered for construction of the meter station. The proposed meter station will therefore have no impacts on winter browse and feed for moose/caribou.

Clearing:

There will be no clearing required for the meter station.

Special Status Plant Communities:

The proposed site for the meter station will not impact special status plant communities as no new clearing will occur and the location for the proposed site has been recently disturbed for NEB approved projects. Also, within the project area, fire has played a
major role in successional development with special status plant communities thus not expected. Most of the proposed project area is in species diverse, fire-controlled seral communities. Rare or endangered species are generally found in old growth forests (John Bedell, MOF; Peter Davidson, Ministry of Water, Air and Land Protection (WALP); Pers. comms.).

Weed Problems:

Construction activities produce disturbed ground surfaces which weeds generally thrive on and can result in the invasion of undesirable species. To control the spread and development of weeds, construction equipment will be cleaned of mud and remnant vegetation prior to entering the project area. A re-vegetation program will be initiated during clean-up, to ensure that desirable species are established with a competitive edge over undesirable species. All seed mixes used for re-vegetation purposes will be Certified No. 1 seed, with Certificates of Analysis for all grass and legume seed mixes used to be available for viewing prior to seeding. Further details on the re-vegetation program may be found in the EPP (Appendix 5).

5.7.4 Wildlife Resources

Meidinger and Pojar (1991) describe the habitat that is typical of the project area as one of the most common habitats in the Boreal White and Black Spruce Biogeoclimatic Zone (BWBS) as follows:

"Bogs and fens, intermixed with forest, make up one of the most common habitats in the BWBS. Often referred to as "muskeg," these peatlands are particularly extensive in the northeastern corner of the province. Moose, Caribou and Black Bear are the most common large mammals of muskeg habitats. Wood bison historically inhabited much of this extensive muskeg and are still occasionally observed in the Fort Nelson area. The Great Gray Owl and Ruffed Grouse are characteristic year-round residents, while migratory species such as the Solitary Sandpiper, Lesser Yellowlegs, Palm Warbler, Tennessee Warbler, Swamp Sparrow, and Blackpoll Warbler select these areas for breeding during summer."

The proposed project may result in direct disturbance due to noise and/or injury or mortality related incidents. Section 5.7.4.1 discusses related mitigation.

The proposed project will not result in impacts to wildlife habitat as no new lands will be cleared for the project. The EPP in Appendix 5 discusses mitigation for disturbances caused by the project to the previously cleared existing right-of-way.

It is anticipated that the meter station will result in minimal negative or positive effects to abundance and diversity of wildlife in the area due to the following reasons:

- the extremely moderate scope of the proposed project (as detailed throughout this document);
- the short duration of project related activities;

- the proposed winter scheduling of the proposed project will avoid sensitive seasons for wildlife and many of the animals themselves (e.g. certain species will be hibernating and others will be completely out of the area);
- the project is a development of an existing field;
- the area is currently accessed by numerous, existing winter access routes;
- numerous associated facilities, including completed wells, projects, NEB regulated projects, processing facilities, and winter access routes currently exist;
- the product to be metered is a sweet natural product resulting in no associated H_2S or SO_2 emissions;
- the meter station is considerable distance from any areas protected or deemed environmentally sensitive in Alberta and British Columbia; the project is within the NW caribou area, but not within sensitive habitat for caribou.
- the moderate to poor habitat capabilities for wildlife of the area at and immediately around the proposed project;
- some wildlife species (black and grizzly bear, deer, moose, bison, caribou, fisher, wolverine, fox, lynx, great-grey owl) have been observed and documented utilizing the clearings, and/or facilities and rights-of-way; Northern Goshawk have been documented as preferring to nest close to clearings and corridors, including manmade clearing such as seismic lines (Beebe, 1992); and
- PNRC will adhere to recommendations by environmental consultants and on-site supervising staff (*i.e.* Chief Inspector, Environmental Inspector).

The project will result in cumulative effects. A review of cumulative effects is detailed in Section 6. PNRC will mitigate and protect wildlife resources and habitat as detailed in the EPP in Appendix 5 and CPP in Appendix 6.

Ungulates

Canada Land Inventory rates most of the lands in the area as having moderately severe to severe limitations to the production of moose with subclasses for moose habitat documented as having poor landforms for ungulate production, adverse topography, excessive water inundation, excessive soil moisture and lacking in fertility. Observations by EES in the Chinchaga area over the past five winter seasons suggest that this is erroneous information with respect to the Chinchaga watershed, where moose densities appear high (refer also below).

Based on recent information from AENV and WALP, along with five winters of field observations by EES, the project area supports high densities of moose with only occasional visitations by caribou. Moose were often observed throughout the past five winters, adjacent to various construction activities; this non-displacement suggests moose were undisturbed by these activities. Various ungulate studies have been conducted in the general area of the proposed project (Arbuckle 1984, Backmeyer 1990, Hornbeck and Moyles, 1995).

The project area is in sensitive woodland caribou range (Bill Johnson, Glen Gache, Kim Morton, AEP, Pers. comm with PNRC & EES) although habitat recognized as being optimum for caribou on the basis of preferred browse is limited in the general area of the meter station. Woodland caribou were listed in 1995, by COSEWIC, as vulnerable in Canada and are listed currently as threatened (2002). They are Blue listed in Alberta (Alberta Forestry, Lands and Wildlife, Red listed in 1991; AEP Blue listed in 1996) and British Columbia (WALP, 2002). Refer also to Table 5.4.

Due to the limited scope of the project and the fact that no new clearing is required, along with the limited caribou potential in the immediate area, it is expected that the proposed project will result in minimal impacts to caribou and no impacts to their habitat. PNRC will prepare the 2002/2003 CPP based on the past season's CPP (Appendix 6), which was updated by EES for PNRC in order to incorporate the new caribou operating guidelines (Boreal Caribou Research Committee, October, 2001), to ensure that all activities are conducted to create the least possible disturbances to caribou. Each season's CPP is usually approved by AENV in mid October to mid November.

Waterfowl, Raptors, Song and Upland Game Birds

The BWBS biogeoclimatic zone, contains > 70% of British Columbia's total number of bird species (Stevens, 1993). Avifauna of management concern in the area may include waterfowl, raptors and songbirds.

Because of the limited occurrence of permanent wetlands in the general area of the project, *Canada Land Inventory* rates the area of the project as having severe limitations to waterfowl production (Class 6) to almost no waterfowl produced (Class 7). Limited evidence of any waterfowl or other avarian resources (i.e. raptor nests, trumpeter swans, heron colonies, isolated aspen stands for songbird breeding sites) was encountered in the project area during numerous past aerial and ground reconnaissance overviews.

The project area is within breeding range of a number of raptor species, including northern harrier, boreal owl, great grey owl, hawk owl, great horned owl, merlin and northern goshawk; however, it is unlikely that the meter station construction activity will result in negative effects to these species given, in part, that no clearing is required. Great grey and hawk owls have been observed by EES over five winter seasons to habituate well to oil and gas disturbances, often utilizing the enhanced line-of-sight on linear corridors, including ones with heavy traffic, for hunting. Despite this, no traffic mortalities in these species over the past five years of Chinchaga winter activities have been documented by EES. The project area is within breeding range of bald eagles and osprey, but it is not anticipated that these species will be negatively affected by the meter station tie-in as large lakes and rivers are absent in the immediate area of the project and the tie-in will be constructed during the winter construction period. Clearings (especially corridors), man-made or otherwise, are cited as being important to northern goshawks for nest-site selection (Beebe, 1992).

Isolated aspen stands are found in the project area, but not in the immediate vicinity of where the project will be constructed. The project will have no impact to songbirds because they will not be in the area during the project's construction period. The project will have no impacts to songbird habitat as songbirds prefer isolated aspen stands for breeding sites (Bryan Gates, MELP, Pers. comm.) and no new clearing is required.

Migratory birds are of concern in British Columbia because they have a limited distribution in northeastern BC, their distribution is not well known, and little information is available. Impacts to upland game birds in the area, which include ruffed grouse, spruce grouse and sharp-tailed grouse will be minimal.

Large Carnivores

Both black and grizzly bear are known to be scattered at estimated low densities throughout the project area (Diversified, WALP and AENV, Pers. Comm., and from aerial reconnaissance in the project area over the past five years). Black bear and wolves are common visitors to the general area (EES field observations during pre and post-construction environmental assessments, 1997-2002). Grizzly bear have been noted to use rights-of-way during the summer to feed on planted forage, including those in the immediate area of the proposed project (various field staff and pilots Pers. comm., 1996 – 2002). Winter construction will mitigate disturbance, as the bears will be in hibernation.

Individual and packs of up to 12 wolves were observed by EES throughout the Chinchaga area during the past five winters of field observations (1997-2002). Evidence of wolf activity was also noted by EES using snow tracking and observations of kills over the same period. The frequent presence of wolves further suggests a healthy moose population in the area, as moose are wolves' preferred prey at Chinchaga (Doig Elders, various Pers. Comm.; EES, 1997-2002).

Impacts to wolves are expected to be mitigated by PNRC's strict enforcement of the EPP and monitoring by the environmental inspector.

Furbearers

Furbearers are an important natural resource and figure prominently in traditional landuse in northern communities. In the project area, there are registered trap lines. Information on trappers is presented in Sections 2, 4 and under Land Use and Related Impacts in Section 5.7.7.

Of the upland furbearers of significant market value in comparison to marten and fisher, lynx were confirmed by EES to be abundant in the general and immediate project area (EES, 1997 to 2002 - snow tracking results, habitat suitability and sightings; sightings by various other personnel; Murphy Hearing [GH-1-2001] statement by Mr. Morin). Over the past five winters' observations, lynx have demonstrated habituation to construction activities (snow tracking and direct observations, EES 1997 - 2002). Marten, fisher and wolverine were confirmed by EES (1997 - 2002) to be present in the general area on an annual basis (snow tracking EES 1997 – 2002; remote camera data, EES 2000 – 2002). Of these, marten and fisher have been documented occasionally in the immediate area of the proposed project (EES, snow tracking data 1997 – 2002; reports by personnel). Habitat is close to optimal for lynx; for fisher and marten it is sub-optimal. Habitat for aquatic furbearers (beaver, otter, mink, muskrat) is limited in the immediate area of the project. Lynx, marten, squirrel, weasel and beaver are the most commonly trapped species in the general area based on various consultations with First Nations, Ministry of Water, Land and Air Protection (WLAP) and AENV, the trapper's compensation boards and from a statement by Mr. Morin at the Murphy hearing [GH-1-2001]. Of the aforementioned furbearers, otter are the only species, to date, to clearly and repeatedly

exhibit displacement to activities (EES, 1997 - 2002, snow tracking results in relation to clear span bridges and water extraction).

No new clearing is required for the project and construction activities are expected to be minimal and of short term duration. As such, little effect on furbearers, either positive or negative, is to be expected. Furbearers, in general, are highly mobile, with widespread populations, large home ranges and have, in the area of the proposed project, an enormous alternative habitat base.

Special Status Species

A number of threatened species or species of concern which have federal status as "species at risk" (COSEWIC, 2002) occur or potentially occur in the area. These species are defined as species of special concern because of being particularly sensitive to human activities or natural events. Table 5.4 lists some of these species with a brief description of their habitat requirements.

Table 5.4: "SPECIES AT RISK"							
Known to Occur or Potentially Occur in the Area of the Proposed Tie-In Installation from COSEWIC, 2002; AENV, 2002; WALP, 2002.							
SPECIES	COSEWIC LISTING	BRITISH	ALBERTA	HABITAT			
	CHANGE)	STATUS	SIATUS				
MAMMALS							
Woodland caribou	Threatened (May, 2002)	Blue	Blue	Mature mixed coniferous forest, muskeg			
Grizzly bear	Special Concern (May, 2002)	Blue	Blue	Mixwood and mixed coniferous shrublands			
Wolverine	Special Concern (April, 1989)	Blue	Blue	Climax & dense canopy conifer forest			
BIRDS							
Trumpeter swan	Not at Risk	Blue	Blue	Small to medium, shallow isolated emergent lakes with vegetation			
Great Gray Owl	Not at Risk	Yellow	Yellow	Nests in mature aspen or poplar near muskeg areas. Occupies variety of forested and muskeg terrain for remainder of year.			
	D	efinitions by COS	SEWIC:				
SPECIAL CONCERN: (formerly "vulnerable") species are of special concern because of characteristics that make them particularly sensitive to human activities or natural events.							
THREATENED: species are likely to become endangered if limiting factors are not reversed. ENDANGERED: species face imminent extinction or extirpation.							
EXTIRPATED: species no longer exist in the wild in Canada, but they occur elsewhere. EXTINCT: species no longer exist anywhere.							
Red Listing Definitions: British Columbia – candidates for legal designation as endangered or threatened							
Alberta – species have been or will be considered for designation as endangered species							

5.7.4.1 Wildlife Resources: Potential Impacts and Mitigation

Construction and Noise-Related Impacts:

A winter construction schedule is planned for the project and will avoid construction activities during the sensitive reproductive period (*i.e.* May and June) for most wildlife species common to the area. Sensory disturbance related to the proposed project will be brief and minimal. Mesocarnivores and other furbearers may avoid pipeline and other construction activities, but these animals may not significantly shift their territorial distributions in response to these activities (Morgantini 1984; Eccles and Duncan 1987; EES 1997-2002). Larger, more mobile species such as moose and caribou may demonstrate displacement, generally less than 1 km in wooded or hilly terrain, away from the immediate vicinity of an active spread (Horejsi 1979). EES observed in the Chinchaga area that caribou (sometimes), and moose (often), browse and feed in the immediate area of construction activities, as well as on rights-of-way during construction (winter field observations, 1997-2002). Evidence is limited to suggest that displacement persists or results in significant decreases in local animal numbers (Bangs and Bailey 1982; David Moyles, AENV, Pers. comm., EES, 1997-2002).

During field work involving tracking and wildlife observations from December to March, (1997 to 2002), EES observed caribou, moose, snowshoe hare, lynx, fisher, marten and wolves to remain active in the immediate vicinity of, and during the entire winter construction phase of the various PNRC Chinchaga facilities and pipelines, suggesting that displacement due to even comparatively extensive construction and noise-related impacts may be minimal and/or localized, when surrounding habitat remains adequate.

EES also observed caribou feeding on the existing right-of-way during construction of the Murphy Loop line in March, 2001. Scat samples were collected from this caribou group 24-48 hours later for stress hormone analysis (refer to Appendix 7 for an overview of PNRC's scatology work at Chinchaga that was initiated in 2000).

In 2001, AENV and the Boreal Caribou Research Committee developed a new "Management Plan for Industrial Activity in Caribou Ranges in Northwestern Alberta", wherein the mid-March deadline for activities was removed and new protective measures for habitat put in place. PNRC recognizes the mid March deadline as an important mitigative tool for protection of caribou and as such, PNRC will continue to cease activities in the Chinchaga area by that date. Commencing in 2001, PNRC also incorporated the habitat protection requirements of the new management plan (refer to the CPP in Appendix 6).

There will be no new clearing required for this project, resulting in no impacts to caribou habitat. Considering the above factors, wildlife impacts related to disturbance are anticipated to be short-term, localized and minimal. There are no residents in the immediate vicinity of the project.

Interference with Wildlife Movement:

The proposed project will cover a very small area within an existing right-of-way; therefore, it is doubtful that the meter station will impede or interfere with wildlife movement because of the very small area involved. Animals can easily move around the meter station site.

Habitat Alteration:

The project will not require any new habitat alteration. The existing right-of-way area required for the project will be re-seeded during final clean up to restore the existing grass-dominated community. No known important, localized habitats are expected to be affected by the project; no beaver dams will be encountered or dismantled to facilitate construction.

Following reclamation, the project area will continue to provide preferred spring and summer foraging areas for some species. Black bears and grizzlies will benefit from the grass-dominated communities. These animals are heavily dependent on graminoids and early developing herbs as a spring dietary item (Norstrom 1974; Cole 1975). During onsite tours for various projects in Northeastern British Columbia, EES observed numerous black bear foraging along pipeline rights-of-way and on newly seeded well sites. Moose also, will continue to benefit, as this species makes heavy winter use of the planted forage on pipeline rights-of-way throughout the field. It may be predicted that the enhanced forage for moose may have certain broad-based positive effects to the ecosystem, as moose are a very important foundation species at Chinchaga due to traditional land uses of hunting and as prey for wolves, and thus also for scavengers (*i.e.* wolverine).

Access Management:

Access development has the potential for increasing hunting pressures on local wildlife populations and is thus a concern of some First Nations people. PNRC understands the importance of managing access to minimize impacts to traditional land use resources.

Plowed rights-of-way developed during construction may also improve hunting efficiency of major predators, especially wolves, adding additional mortality risk to prey populations (James, 1999, Dzus, 2001). PNRC's gathering system development is reviewed annually in person with AENV, prior to submitting each new season's CPP for approval, to determine the best possible mitigation for predator-prey imbalances (Refer to Appendix 6 for mitigation details used last year). PNRC met with Mr. Jeff Poeckens with AENV on August 21, 2002 to review this upcoming season's Alberta development at Chinchaga in regards to approving mitigation proposed. The meeting resulted in verbal approval for PNRC's 2002/2003 development plans and mitigation in Alberta. Written approval is expected once the 2002/2003 CPP is finalized and submitted to AENV.

No new all-weather or seasonal winter roads are to be developed for the construction of the project. PNRC will manage access into the area to control unauthorized travel by implementing the following measures:

- Implementing the CPP (Appendix 6);
- access management by use of a manned caribou gate;
- access sharing and communication regarding access management between users in the area;
- on-site supervision and environmental inspection;
- restricting winter road use to night use only if temperatures during the day warrant restriction; and
- monitoring post-construction access management.

Project-Related Animal Mortalities:

Road kills by workers traveling to and from the project are possible. Kills at the construction site are unlikely due to the slow-speed at which vehicles travel in the area developed for construction. Speed limits on the winter roads and rules of conduct limiting the possession and use of guns, recreational vehicles and alcohol or drugs by workers while on site will help mitigate impacts associated with opportunistic kills by construction personnel.

Canids (i.e. wolves, coyotes, foxes) may be attracted to the proposed project area if food is handled improperly. To avoid the attraction and possible destruction of "nuisance animals", all lunches and food wastes will be securely stored in vehicles while on the right-of-way, and rules prohibiting the feeding of wildlife will also be strictly enforced at all project facilities (i.e. camps, right-of-way). Strict spring clean-up, as described in the EPP, will eliminate problems with bears and Canids.

Dogs not involved in work related roles (*i.e.* scat sniffer dogs) will not be allowed on-site to prevent disturbance to wildlife.

Nuisance, wounded or dead animals will be reported by the Chief or Environmental Inspector as soon as possible to WALP's conservation officer in Fort St John (250-787-3270) or to the 24-hour Conservation Office service (250-787-3402). In Alberta, if an emergency arises during non-office hours, "Report a Poacher" (1-800-642-3800) will be called.

5.7.5 <u>Fisheries Resources</u>

The proposed project will not discharge any effluent into any waterbodies, nor will any watercourses be negatively affected by construction of the project

The project will not affect rare and endangered fish species and habitats. The project will not result in changes in abundance and diversity of fish because the project will not:

- disrupt food chains;
- create loss or alteration of habitat;
- create barrier effects;
- directly disturb, injure or cause death to fish;
- result in increased fishing;
- release deleterious substances;
- introduce exotics, parasites and/or diseases;
- change hydrology, temperature or nutrient regimes; or
- displace habitat enhancement opportunities.

5.7.5.1 Fisheries Resources - Potential Impacts And Mitigation

Loss of Habitat Quality

The project will not require construction work in or around streams and thus, fisheries habitat changes or degradation will not occur.

To prevent the accidental introduction of fuel and other toxic materials into watercourses, fueling and servicing of vehicles and equipment will not be permitted within 100 m of crossing sites.

Existing winter access routes will be used to get to and from the project. An ice bridge, which will not require in-stream work, is used seasonally to cross Burnt Cabin Creek. Refer to the EPP (Appendix 5) for mitigation regarding access and ice bridges. No beaver dam dismantling is required for the project.

5.7.6 Historic Resources: Potential Impacts and Mitigation

The project site avoids the known, but insignificant archaeological site, HIQx-5 discovered in 1997 by Heritage North in Alberta just east of Burnt Cabin Creek. This site, which is within the existing NEB regulated pipeline rights-of-way will remain fenced, and protected through a policy dictating avoidance regardless of significance. If a previously unidentified archaeological or heritage site is encountered during construction, work will be stopped until it is examined by a qualified archaeologist and consultations occur with the appropriate representative from the First Nations. Work in that area will only proceed once Historic Sites and Archives Branch of ACD in Alberta grant permission.

A post-construction archaeological assessment will be conducted if requested by ACD. Due to the fact that only a very small area is required and that the project is located within a previously assessed and disturbed right-of-way, it is not anticipated that a post construction assessment will be required.

5.7.7 Land Use And Related Impacts

The proposed project will not negatively impact other land use in the project area.

<u>Energy</u>

Many existing oil and gas tenures exist in the Chinchaga Resource Management Zone and a substantial natural gas infrastructure is in place; the LRMP recommends oil and gas development as an excellent land use in the project area in British Columbia. Potentials for new energy discoveries is high.

Timber Resources

Forest production is limited by excessive moisture and limited rooting depths. There are no forest operations, or forest access roads in the immediate area of the proposed project. There will be no clearing for the project and thus, no salvage opportunities.

The project will be constructed within an existing right-of-way in an area lacking in merchantable timber; it is in an area that has been previously cleared by man, and prior to that by fire.

Agricultural Resources

There are no agricultural uses in the area of the proposed project due to poor soil capabilities. There are no reserves or grazing tenures or operations in the area and forage availability for livestock is limited.

Trapping

Fur harvest in the BWBS zone is among the highest in British Columbia (Meidinger and Pojar, 1991), as well as Alberta, although in the area of the proposed project, trapping does not appear to be ongoing, nor has it for a number of years. The proposed project is on crown land and the registered trapper for the area is:

(RTA #2301) Lee Morin Box 187 Wembley, Alberta T0H 3S0

In the past five winter seasons, it did not appear as if trapping was active in the area of the proposed project. Regardless of activity, the registered trapper in the area has been notified of the proposed project by EXPRESSPOST, telephone conversations and Section 87 notice. In the event of active trapping, gaps in piled snow will be left as requested by the registered trapper. The trapper will be asked to flag trap lines and traps, if trapping, near the proposed project to prevent disruption and for safety purposes. PNRC consults with and will hold meetings with the trapper as required. The area trapper provided PNRC with a letter of non-objection in regards to this project. It is included in Appendix 1).

Recreation and Visual Resources

Meidinger and Pojar (1991) list hunting and fishing as the main recreational activities in the BWBS. The British Columbia Fort St. John LRMP list hunting, snowmobiling and fishing, with a small portion of a guide outfitting area existing west of Black Creek, as focuses for outdoor recreation in the Chinchaga Resource Management Zone.

There is no guide outfitting near the proposed project area and there is little outdoor recreation potential, except limited hunting, snowmobiling and fishing, as the area is remote and mobility is difficult in most of the terrain. Environmental sensitivities and interpretive values are considered insignificant in the general project area. There have been no recreational use studies in the area of the project. There are no commercial backcountry recreation activities, no provincial or regional parks and no reserves in the immediate area of the proposed project. The project is within a caribou protected area and PNRC will follow the CPP (Appendix 6), the EPP (Appendix 5) and recommendations from AENV to mitigate possible impacts to caribou.

There are no potential view points and thus no visual analysis was conducted. Visual resources are minimal due to restricted lines of sight. The proposed project will not impact visual resources.

Tourism capability and development opportunities are not an issue in the area of the proposed project.

<u>Access</u>

In British Columbia, the Fontas Road provides all weather access into the Chinchaga Resource Management Zone. In Alberta, the Shell Hamburg Road provides all weather access into the area. There is extensive, existing winter access that has been in use for years throughout the project area in British Columbia and Alberta due to oil and gas activity. The proposed project will be accessed using existing access routes.

Wildlife and Biodiversity

In general, the Chinchaga Resource Management Zone has relatively low biodiversity, but, large river riparian ecosystems within the zone have moderate to high biological diversity. Moose, caribou, grizzly and black bear and all the major boreal furbearers are found in the Chinchaga Resource Management Zone, along with a large variety of bird species ranging from owls to waterfowl and songbirds. Trumpeter swan nesting habitat is found along some of the major rivers and the zone is an important flyway for migratory waterfowl. For details on wildlife in the area see Section 5.3.4.

Culture and Heritage

The Fort St. John LRMP does not list any known culture and/or heritage sites in the zone, but a number of archaeological sites, determined by ACD to have limited significance, were located in Alberta on the existing NEB regulated pipeline in 1997. The Doig and Dene Tha' have expressed to PNRC that there are no sensitive cultural or heritage sites in the vicinity of the proposed project.

Communities

The closest community to the proposed project, in British Columbia, is Paddy. The closest community to the project in Alberta is Shell Hamburg. These are work camps.

<u>Minerals</u>

There is potential for industrial minerals, including sand and gravel in the Chinchaga Resource Management Zone.

5.7.8 <u>Summary of the Resource Description and Impact Analysis</u>

In summary of the resource description and impact analysis of the proposed project with the implementation of the proposed mitigative measures outlined in the various previous sections and the EPP (Section 5), the project is not likely to cause significant adverse environmental effects. This conclusion is based on, but, not limited to, the following:

- Review of literature (refer to Section 11);
- Review of existing documents, studies and assessments completed for the general project area (Refer to Sections 5.5 and 11);
- 10 years professional experience working in the Chinchaga oil and gas development area;
- 14 years professional experience working in various oil and gas development areas of Canada's Boreal forest;
- 27 years professional experience working in oil and gas development areas in the western provinces;

- five years research specifically concerned with establishing CEA pertinent baseline data conducted on furbearers and other wildlife in the area encompassing the project;
- consultations with numerous environmental consultants, trappers, members of First Nations and regulatory agency personnel over numerous years;
- comparison of the south meter station tie-in project to other oil and gas projects that have received recent approval federally and provincially; and
- review of CEA's conducted on projects within the existing/adjacent rights-ofway and concluded for/on other larger and similar oil and gas projects.

6.0 <u>CUMULATIVE EFFECTS ASSESSMENT</u>

Subsection 16 (1) (a) of the Canadian Environmental Assessment Act (CEAA) requires consideration of cumulative environmental effects (CEE) and the significance of such effects.

Guidelines for addressing CEE within the context of CEAA have been prepared by the Federal Environmental Assessment Review Office (FEARO 1994) and the Cumulative Effects Assessment: Practitioners Guide (Canadian Environmental Assessment Agency, 1997). The McLeod Institute has reviewed a number of recent CEAs for various industry projects and made recommendations for practitioners (MacLeod Institute, 1998). The Alberta Society of Professional Biologists has also made recommendations for practitioners (Kennedy, 1994). The guidelines and various recommendations have been adopted, with modification, for the purposes of this project's CEA.

This approach involves the following steps, each of which have been addressed in separate sections as listed:

Section 14.1	Scoping;
Section 14.2	Analysis;
Section 14.3	Mitigating;
Section 14.4	Determining significance;
Section 14.5	Follow-up.

6.1 <u>Scoping</u>

Scoping refers to the identification of Valued Ecosystem Components (VECs) to be considered in the assessment, and the selection of temporal and spatial boundaries for assessment purposes.

Valued Ecosystem Components (VECs)

VECs, and associated "indicators" or measures, are frequently identified in an environmental assessment to provide focus, rather than dealing with a broad range of parameters.

VEC's are defined herein as species that for a variety of reasons, ecological and/or sociopolitical are important components of the environment in question; the species selected may be rare and of concern or not. An indicator is "a character of the environment" that when measured, quantifies the magnitude of stress, habitat characteristics, degree of exposure to the stressor, or degree of ecological response to the exposure."

Indicators selected may or may not be the same as the VEC's selected, and may be animate or inanimate, common to rare. For the meter station tie-in project, the VEC's have been selected as caribou, moose and lynx. These are also considered the indicators for the proposed project. The rationale for this selection is summarized below in Table 6.1. Information on caribou has been gathered by EES in the Chinchaga area since 1997 to begin to address and analyze cumulative effects affecting this species in a useful way (EES, snow tracking 1997 – 2002; stress hormone analysis 2000 - 2002).

TABLE 6.1: SOUTH CHINCHAGA METER STATION VEC SELECTION						
<u>VEC</u> Selected*	Listed (Refer to Table 5.4)	Rationale for picking the VEC				
Caribou	Yes	The project is in a caribou protected area; culturally it is an important species in Alberta and it is federally listed as threatened				
Moose	No	Traditional land use value (hunting)				
Lynx	No	Trapping value in BC and AB and as this species is the most abundant of the forest carnivores in the project area (EES, 1997 to 2002 - snow tracking results, habitat suitability and sightings; sightings by various other personnel, Murphy hearing, Mr. Morin)				

*Grizzly bear, although listed, were not selected as there are no known active grizzly bear dens in the immediate area of the project, nor near the access routes to get to and from it, and because the project will be constructed during winter when grizzlies are dormant.

*Wolverine, although listed, were not selected as there have been no observations of this species in the immediate area of the project in the past five winters (EES, 1997-2002), and as habitat in the immediate project area appears sub-optimal for this species.

Spatial Boundary

The spatial boundary for this CEA is set as the same boundary for the EIA, which is 1000 m in diameter around the meter station. Any development of the existing Chinchaga field will add to cumulative effects, but, the cumulative impacts for the proposed project are expected to be less by expanding a field with existing facilities rather than by developing a new area. Using an existing right-of-way which has been previously cleared instead of clearing and disturbing a new location will mitigate the cumulative impacts resulting from the project.

Temporal Boundary

Past and future temporal boundaries were selected for scoping the meter station CEA. The past temporal boundary is selected at 1996 because this was the year the first NEB right-of-way was initially created. The future temporal boundary is selected as the life-time of the tie-in. This time frame is selected in the event that incremental effects from future and past associated and possibly cumulative projects are having effects on VEC's that are not foreseen at this time in this CEA (Kennedy, 1994).

6.2 <u>Analysis</u>

The objective of the analysis is to determine:

- the "status of the receiving environment" (FEARO 1994) (i.e., how have past projects and activities affected or stressed the VECs);
- future activities that may affect the VEC;
- the nature of the effects from the proposed project; and
- the relationship between project-related effects and existing or future effects from other activities.

Status of the Receiving Environment

One may assume that wildlife communities including and beyond the selected VEC's in the Chinchaga area are experiencing CEE from the variety of land use practices that occur there as listed:

- Trapping, past regulated and unregulated although there is currently no active trapping in the project area in either British Columbia or Alberta, it is possible that some Chinchaga furbearer populations are still recovering from past trapping activities, [i.e. lynx Mr. Morin expressed the capability of trapping 150-200 lynx in one season at Chinchaga (Murphy Loop Hearing, 2001); and wolverine Mr. Gerry Attachie (Pers. Comm., past chief Doig River First Nations) expressed that in active trapping seasons as many wolverine as possible used to be trapped annually by First Nations in attempts to mitigate ferocious wolverine competition to trap lines]. It is not expected that the project will incrementally increase trapping efforts in the Chinchaga area.
- Hunting, past and current regulated and unregulated licensed hunting of caribou is no longer permitted in Alberta, however, it is thought that in the three decades up to 1950, kill by hunting of caribou in Canada by humans ranged from 100,000 to 200,000 a year, which is more than the animal's natural increase (Canadian Wildlife Service, 1999). One must assume that caribou populations in Alberta are still recovering from such hunting kills and thus likely also are the Chinchaga caribou. The Chinchaga caribou regularly cross the provincial border into British Columbia where hunting of caribou is still permitted. Further, traditional land use hunting of caribou is still ongoing in both provinces. It is not expected that the project will incrementally increase hunting in the Chinchaga area.
- Oil and gas exploration and development at this time, the primary land use in the area is oil and gas exploration and development. Past activities include:
 - seismic programs;
 - past NEB approved pipeline construction projects;
 - a power line;
 - project related impact assessments and tours, both on the ground and aerial;
 - well development and associated gathering system development;
 - seasonal access development; and
 - reclamation and project clean up.

The meter station is required due to past activities and will not result in increased well development and associated tie-ins, thus causing limited increased effects. Any effects will be mitigated by use of the EPP, CPP, final clean up after construction and reclamation after decommissioning.

- Forestry contributing to localized losses of habitat, both on a permanent (e.g., permanent facilities) and temporary (e.g., clearcuts) basis. The meter station will not increase the likelihood of forestry activity in the project area as it will not improve the economics for the harvesting of the non-merchantable timber that is present in the project area.
- Mineral extraction there is moderate sand and gravel extraction in the Chinchaga area. The meter station will require some sand and gravel, but, the amount will be a very small increase to existing amounts currently extracted.
- Recreation and Tourism at this time, the Chinchaga area is not of interest to the recreation and tourism industries, excepting minimal snowmobiling in winter, and minimal fishing and hunting. The project will not likely increase recreation or tourism in the area.
- Agriculture at this time, there are no agricultural activities in the Chinchaga area. The meter station will not increase the likelihood of agriculture occurring in the area.

At this time, there are no other known land uses in the project area. The degree to which the land use activities have collectively impacted wildlife habitat is difficult to determine. This is why CEA theorists emphasize the need for substantial tolerance for uncertainty in CEA application (Duinker, 1994). One may assume that oil and gas-related impacts contribute cumulatively in the long-term. The meter station will not result in negative effects to habitat once reseeding is established. Reseeding is itself the restoration of very localized conditions already altered during previously approved projects. The minimal negative effects arising from the meter station to wildlife in the area of the proposed project, may in part be mitigated by the EPP and CPP and will be short term in duration.

Over the past five winter seasons in the general project area in British Columbia and Alberta, PNRC has annually developed on average the following:

- 22 wells;
- 25 ha for new gathering system; and
- 0 ha new winter/seasonal access PNRC uses existing access routes;

The above listed incremental disturbances result in an average total of approximately 57 hectares of land affected annually. The cumulative effects arising from additional well and related gathering system development will negatively or positively effect habitat depending on the species and location of the development and may adversely effect wildlife species directly by sensory disturbance, mortality by vehicles and/or harassment by personnel. These effects will also in part be mitigated by the EPP and CPP, with the duration of effects lasting longer than those from effects arising from the meter station.

Cumulative effects to resident fish populations within the study area are uncertain. There has, however, been a recent history of directional drilling practices which have likely resulted in mitigation of potential effects to watercourses (EES, 1994 – 2002, numerous inspections of various crossings in Alberta and British Columbia and communications regarding successes of directional drill techniques on other projects with other agencies, engineers and consultants). Oil and gas-related fisheries impacts tend to be short-term in nature and largely related to sediment introductions into watercourses from in-stream activities, erosion from approach slopes and/or watercourse banks and poor reclamation on rights-of-way (EES field experience, 1994 - 2002; EES Pers. comms with various DFO and provincial fisheries agencies). It is possible, but, not expected, that the proposed project may cause incremental, localized, negative impacts to fish habitat and fish populations due to the use of an existing access crossing of Burnt Cabin Creek. Possible cumulative impacts due to associated project activities will be mitigated using the construction and protection methods as outlined in the EPP to prevent sediment introduction in watercourses and by sharing winter access routes and associated waterway crossings with other users.

Future Effects

Timber harvesting, gathering system expansion by PNRC, unregulated hunting and trapping, development by other producers and growth of the Hamburg and Paddy work communities represent the most significant future threats to the VECs in question. The degree to which these effects occur are not easily predicted because future effects are difficult to accurately foresee and it is at present not known how these effects will affect VEC's and their habitat due to scarcity or complete lack of baseline data. Indeed, CEAs must be completed with a certain degree of uncertainty (Duinker, 1994). PNRC has been engaged in the gathering of baseline wildlife data (*e.g.* snow tracking, remote camera photography, stress hormone analysis) in relation to oil and gas activities over the past five seasons to help fill knowledge gaps and better facilitate the assessment of cumulative effects.

Downstream/Upstream Proposed Projects Effects

The meter station will not result in downstream or upstream effects. No additional alterations of land are required either up or downstream of the new facility.

Future Plans for PNRC

Future plans for PNRC in the Chinchaga area include:

- reclaiming decommissioned sites;
- drilling new wells each winter season;
- gathering system development (*i.e.* tying in new wells if successful);
- maintaining existing facilities and access routes; and
- exploration and possible purchase of new lands for future well development depending on annual well results.

PNRC is proposing to construct an NEB regulated pipeline loop from the South Meter Station to c-32-H/94-H-8 this upcoming winter. It is expected that the loop will stimulate additional wells with associated tie-in activity in the area and will constitute additional

impacts. PNRC cannot control other producers or industries, but, if additional activity occurs with proper consideration of cumulative effects and focuses on implementing mitigative and protective measures (*i.e.* sharing seismic data, EPP's and CPP's), future effects will be lessened.

The currently proposed meter station and related winter access routes are the focus of this cumulative assessment.

Future Plans by Other Producers

It is highly likely that a number of other producers will have similar future plans in the Chinchaga area as those listed above on page 44. Some of these future plans by other producers may fall within the spatial boundaries of this CEA. It is not expected that the meter station will increase future plans by other producers.

Additional Gathering Pipelines and Facilities

The meter station will not stimulate additional gathering pipelines and associated facilities being developed.

Additional Gathering Facilities: Potential Impacts to VECs

The meter station may result in potential cumulative impacts to VEC's due to increased gathering system development required to tie-in existing wells. Impacts to caribou and their habitat are expected to be negative, with mitigation in part by the EPP and CPP. PNRC's CPP evolves annually to incorporate new understanding of research results (*i.e.* gathering system development is reviewed annually with AENV prior to submitting annual CPP's for approval to determine the best possible mitigation for predator-prey imbalances).

Effects on moose and moose habitat from cumulative impacts due to gathering system development are expected to be positive as moose have shown to prefer browsing on newly re-vegetated rights-of-way and as long as project EPP's are strictly enforced to prevent harassment to moose and their young (EES personnel field observations in numerous gas and oil development areas in Alberta, Saskatchewan and British Columbia, 1982 – 2002; EES observations at Chinchaga, 1997 - 2002). The project may therefore provide enhanced forage opportunities for moose without removing a significant amount of essential native forage.

Effects on lynx from cumulative impacts due to gathering system development are not anticipated as lynx populations at Chinchaga exhibit apparently high levels of habituation to activities (EES, snow tracking and sightings, 1997 - 2002 and sightings from other personnel at Chinchaga) and an apparent incredible ability to adapt to and rebound from high annual mortality due to trapping which has occurred in recent history on the trapline encompassing the project area (e.g. 150 - 200 lynx trapped at Chinchaga in one season, Mr. Morin, Murphy Hearing, GH-1-2001).

Relationship Between Project-related Incremental Effects and Those from Other Activities

This minor proposed project will likely have incremental effects typified as short-term, and of a sensory disturbance nature. Physical effects will be limited to a site which has already been altered from its natural state by past approved projects. The rights-of-way for pipelines and access to wells will be reclaimed to a stable grass/legume mix which will maximize recolonization to native vegetation in time. New wells will likely increase incremental effects on terrestrial VECs, although the nature of such impacts is not known at present.

Effects on water quality from the development of upstream wells represent negligible additive effects to other impacts such as seismic, timber harvesting and access road development. Adverse habitat modifications at waterway crossings, if any, for associated well tie-ins will be avoided by using directional drilling techniques and specified restoration techniques to comply with the "No Net Loss" policy of DFO. Related impacts from associated wells, if any, will be assimilated by the aquatic system in less than one year. They will not represent long-term additive effects to the VECs.

Effects from Project-related Incremental Effects in Relation to Possible Changes in the Natural System

Possible changes in the natural system that may or may not result in increased stress on VEC's due to project-related incremental effects include, but are not limited to:

- Flooding;
- Fire;
- Heavy snow fall; and
- Disease.

It is not anticipated that the proposed project will result in increased incremental adverse effects if changes in the natural system occur because of the very small scope of the project.

Winter Access Routes

Cumulative impacts due to access to the South Meter Station will be negligible because permanent, all-season road development is not proposed for the applied for project and existing rights-of-way and established winter access routes will be used for access to the project itself.

Environmental Protection

PNRC will meet with appropriate government agencies, if required, to discuss gathering system development, related impacts and the agency's requirements for mitigation. Fluid handling and storage containment will not be required for upstream wells.

Atmospheric Emission Sources

The piping for the meter station is a closed system with no releases or emissions of gas to the environment. In the event of a catastrophic rupture, the ESDV valve will close to prevent the pipeline from venting to the environment. Vehicle use contributes to emissions, however the traffic volume for the project will be low and as such, so will the related vehicle emissions.

NO_x and CO_2 Emissions

The meter station will have no impact with regards to NO_x and CO_2 emissions, as there will be no combustion processes involved.

Water Quality and Discharge

The meter station will not negatively effect water quality. It is anticipated there will be no impacts and no discharge to the environment.

Noise

The nearest dwelling to the project is an apparently abandoned trapper's cabin in Alberta at the northwest corner of the abandoned Bassnet Airstrip north of the existing NEB pipelines. It has been observed that over the past five years, the cabin and neighbouring trails have not been used.

The nearest occupied dwellings to the existing facility is the Shell Hamburg camp approximately 16 km straight east from the proposed project. While noise mitigation for area residents is not a concern, PNRC will remain mindful of the safety of the operations personnel and good engineering practice. Incremental noise impacts to area wildlife due to the meter station are anticipated to be negligible.

Contingency Measures for Responding to Emergencies

PNRC is presently updating the Emergency Response Plan (ERP) for the Chinchaga field area (as well as updating to include the new Expected Elements just issued by the Board.

The existing Pipeline Operating and Maintenance Manual will be updated to include all work completed as part of this NEB project.

A separate ERP will be completed for the area and work that is to be completed for the NEB pipeline project. This ERP will contain the information required for long term operation of the project as well as the work that is to be conducted during the 2002/2003 construction period.

PNRC will have appropriate medical personnel and equipment (*i.e.* ambulance and attendant) on location for the duration of the construction. All requirements of the Worker's Compensation Boards, Occupation Health and Safety Regulations and other identified regulations will be adhered to. All appropriate and necessary measures will be taken in the cases of extreme or severe medical emergencies (*eg.* helicopter transportation to hospital, etc.). In addition to these measures, PNRC will attempt to hire personnel with basic first aid training. PNRC's field staff are certified in basic first aid training and are trained in the use of the Corporate Safety Program.

Waste Management

PNRC will ensure that wastes generated through the construction and operation of its facilities are treated or disposed of in an appropriate manner. Wastes will be managed in compliance with the Energy and Utilities Board (EUB) Guide 58 "Oilfield Waste Management Requirements for the Upstream Petroleum Industry" (Alberta), and the Waste Management Act and accompanying regulations "The Oil and Gas Waste Regulation" (British Columbia).

A corporate waste management manual is in place for PNRC. This manual also has a field specific section for the Chinchaga operations. Field staff are scheduled for re-training to ensure that all staff are up to date with BC Waste Management regulations. Due to the remote access of the Chinchaga facility, a one company waste service is recommended. This company will provide waste storage containers for stored waste at the Chinchaga plant and will transport the waste by the winter access road where possible. The waste generated from drilling, completions and winter camps will be stored and contained in bins that are provided for the specific waste, such as waste oil drums, construction garbage and chemicals.

PNRC's waste management program includes an inventory of the waste generated at the plant site, a section of drilling and completion waste management, waste handling and disposal.

Project Abandonment and Restoration

The reclamation of the meter station will be implemented according to Alberta Environment – Reclamation Criteria for Wellsites and Associated Facilities. All equipment and contaminated materials will be removed. Excavations will be drained and filled. Unused machinery and materials will be removed. The subsoil will be worked to rectify any compaction. The land will then be re-vegetated with native mixes as agreed to in consultation with AENV. For further details refer to the EPP (Appendix 5).

6.3 Mitigation of Incremental Impacts Associated with Cumulative Effects

Proposed mitigative measures to minimize incremental impacts due to the project include:

- those discussed within this CEA (Section 6);
- those discussed in further detail in the EIA (Section 5, 7-10);
- the EPP (Appendix 5);
- the CPP (Appendix 6);
- the project itself as listed in Section 5.6 (Page 23); and
- PNRC"s sharing of existing Chinchaga area seismic data with other proponents, particularly in Alberta.

The meter station itself will help mitigate CEE's by allowing for a more rapid depletion of the field resulting in the reclamation of lease sites, gathering system disturbances and access routes to occur sooner, thereby reducing overall field effects.

6.4 <u>Significance of Project-Related Effects</u>

There is little ability of the proposed project or other projects involving surface disturbance in native habitats to meet a "No Net Loss" objective; however, in the short to medium term, impacts to VECs anticipated from the project development, after mitigation, are predicted to be minimal, localized, and of short term.

The existing federal policy of "No Net Loss" of productive capacity considers most projects acceptable if their incremental impacts on fish resources and aquatic habitats do not result in a reduction of productive capacity. This can be achieved through avoidance, special crossing methods and mitigation procedures to minimize impacts during activities, or through post-activity compensation, where aquatic habitat is restored to or enhanced above pre-impact productivity levels.

Taking into account the implementation of the proposed mitigative measures outlined previously and the CPP and EPP, the project is not likely to cause significant adverse environmental effects.

This conclusion is based on:

- Review of current cumulative effects literature (including those with recommended methods of conducting CEAs) in Canada;
- 10 years professional experience working in the Chinchaga oil and gas development area;
- 14 years professional experience working in various oil and gas development areas of Canada's Boreal forest;
- 27 years professional experience working in oil and gas development areas in the western provinces;
- five years research specifically concerned with establishing CEA pertinent baseline data conducted on furbearers and other wildlife in the area encompassing the project;
- consultations with numerous environmental consultants, trappers, members of First Nations and regulatory agency personnel over numerous years;
- review of other larger and similar projects' mitigation successes and/or shortcomings;
- comparison of the south meter station tie-in project to other oil and gas projects that have received approval federally and provincially;
- review of CEA's conducted on and concluded for/on other larger oil and gas projects;
- comparison of CEA's conducted on and concluded for projects of far greater magnitude (*i.e.* coal projects); and
- comparison of some projects of far greater magnitude that do not require EIA's, CEA's at any level, or any assessment whatsoever (*i.e.* agricultural clear cuts [currently, ongoing plowing of threatened grasslands *i.e.* the northern fescue prairies]; livestock grazing within immediate shorelines and sensitive riparian zones of lakes and rivers; agricultural permanent alteration of wetlands).

6.5 <u>Follow-up</u>

To assist in the development of a better understanding of CEE within the study area, PNRC will adhere to environmental consultants' and regulatory agency (DFO, AENV, ACD, *ec*) recommendations; inspect project associated rights-of-way, well sites and other clearings, if any, following construction to ensure reclamation and future recolonization of native shrubs and trees. Monitoring, inspection and consultation will include, but not be limited to, evaluating the extent and composition of ground cover, slope stability and surface erosion and weed control.

PNRC will follow up and consult with consultants and government agencies regarding cumulative effects and new methods with which to mitigate these effects.

7.0 ENVIRONMENTAL INSPECTION AND MONITORING

PNRC will provide environmental assurance during construction through on-site inspection and monitoring by supervision personnel and the project environmental inspector. Inspection personnel familiar with the specific environmental issues of the project will be responsible for ensuring compliance, measurement and monitoring. The environmental inspector will have a minimum of five years related experience.

An archaeologist will be brought in if personnel uncover sites that may require further assessments. A traditional land use monitor will be contracted if construction uncovers traditional land use sites that require further assessment. It is not expected that either archaeological or traditional sites will be uncovered, as the project is on a site already disturbed (excavated) a number of times by previously approved projects and is of very small scope.

PNRC's implementation of the EPP and CPP, the environmental inspector and use of the protective measures outlined in this document will mitigate environmental impacts resulting from the project, thereby minimizing adverse environmental effects.

8.0 POST CONSTRUCTION PROCEDURES

Operation and maintenance work on existing facilities is subjected to similar PNRC practices and procedures as new construction. PNRC's operations group will ensure that topsoil conservation, fish and wildlife habitat protection, vegetation management and other project-specific environmental issues can be addressed throughout the operational life of the meter station.

An important part of the environmental planning process for operation and maintenance of an existing pipeline includes maintaining contact with regulatory agencies and obtaining necessary approvals. PNRC will contact the appropriate regulatory authorities if further modification of the meter station is required.

8.1 Operations

- The permanent easement will be reclaimed with the appropriate Certified Canada #1 seed mix as outlined in the EPP (Appendix 5), once construction is complete.
- The right-of-way will be marked clearly at public roads, navigable water crossings and any other areas as required.
- The project will be checked on a regular basis, by helicopter in summer and temporary vehicular access in winter. If there is an emergency (*i.e.* pipe rupture, explosion, erosion) the project will be accessed the same way. If problems occur, remedial work will be undertaken.
- Regular maintenance and inspection of the meter station will occur.
- Repairs will be made as soon as possible.
- Pipeline facilities will be marked and identified pursuant to regulations. Meetings between consultants, PNRC and regulatory agencies will occur as required.
- The pipeline right-of-way will be designated with signs, which will be routinely maintained and portions of it will be fenced if required by government agencies or for safety purposes.

8.2 On-Going Contingency Planning in Case of Malfunctions or Accidents

In the guidelines for filing requirements of the Board (February 1995) and Section 16 (1) of CEAA, the effects of malfunctions or accidents that may occur in connection with the project must be considered. The predominant damaging malfunction that may occur with the South Meter Station is a rupture of an operating pipeline riser, piping component or gasket. The Emergency Response Plan (ERP) developed by PNRC will deal with the various malfunctions or accidents that may occur to keep them to a manageable level. PNRC has safety and environmental mission statements that are included in the Engineering Appendix E.

The ERP was developed to involve local fire, police and disaster services departments in emergency procedures. The ERP will include the following information:

- classification of events that require an emergency response;
- pre-emergency planning;
- general safety precautions;
- general emergency procedures and emergency shut-down procedures;
- communication and coordination procedures between PNRC, authorities and public officials;
- petroleum leak response guidelines; and
- other emergencies and technical data.

PNRC will fulfill incident reporting requirements listed in the NEB Onshore Pipeline Regulations (June 1994) in the unlikely event of an incident occurring.

With PNRC's post-construction procedures, on-going contingency planning for malfunctions or accidents, proposed protective measures documented herein, and the EPP, it is unlikely that the project will result in significant adverse environmental effects.

8.3 Effects of the Environment on the Project

Effects of the environment on the Meter Station Tie-in are expected to be negligible.

Earth Movement

The area of the project is a level, very stable plain. Negligible movement of the earth occurs. Soil instability is not anticipated.

Fire

Forest fire is a regular occurrence in the Boreal forest, but it will not affect the buried portions of the meter station. In the event that a fire were to occur near above ground facilities, fire breaks would protect the facilities. PNRC is prepared for emergency events such as fire as addressed by the ERP.

Flooding

Flooding of the creeks in the area will not adversely affect the project, as it is a considerable distance from the creeks.

Erosion

Erosion is not expected to occur in the area of the meter station. Erosion is further discussed in Section 5 and the EPP in Appendix 6.

Storms, Lightning and Wind

Storms, lightning and/or wind will not affect the buried portions of the meter station. Above ground facilities are constructed with considerations for extreme weather.

Permafrost

The past four NEB regulated projects constructed within the existing right-of-way did not uncover any permafrost and thus it is highly unlikely that any will be uncovered during construction of the proposed meter station.

8.4 <u>Emergency Contacts</u>

Emergency phone numbers and contacts are available within Alberta that support environmental and natural resource emergencies and to provide current advisories and warnings (from http://www3.gov.ab.ca/env/info/infocentre/emergency.cfm)

ENVIRONMENTAL HOTLINE:

To report an environmental emergency or file a complaint, call 1-800-222-6514. If using a cellular phone, on Telus Mobility system only, dial #7378.

FLOOD AND ICE JAM EMERGENCY:

To obtain current advisories and warnings due to ice jams or high stream flow conditions, link to Alberta Environment Water Advisories and Warnings web site at: <u>http://www3.gov.ab.ca/env/water/Advisories/</u>

To contact your local Disaster Services representative regarding a high water emergency due to ice jams or high stream flow conditions, link to the Disaster Services web site at http://www3.gov.ab.ca/ma/ds/

FOREST FIRE LINE:

To report a forest fire or smoke, call toll-free 310-0000 and key in 427-3473. If using a cellular phone, on Telus Mobility system only, dial #3473.

REPORT A POACHER:

To report a poacher, call 1-800-642-3800. If using a cellular phone, on Telus Mobility system only, dial #3800.

8.5 Environmental Effects of a Rupture of the Operating Pipeline

A rupture of the operating pipeline tie-in or riser during sweet natural gas transport would release methane gas. Ambient air quality would be affected for a short time. Area workers and wildlife could be affected if in close proximity to the rupture.

PNRC has designed an automated emergency shutdown system located at the meter station which will shut in the upstream gathering pipeline and reduce the amount of gas released.

In an extreme case, death could occur as a result of a pipeline rupture. This is expected to be highly unlikely due to the remoteness of the area, and because the pipeline portions of the meter station will be tested prior to operation. Testing of the piping will minimize the likelihood of a rupture. If the pipe is going to rupture, it will likely do so during testing. PNRC will ensure that all safety requirements are met during testing.

Methane is flammable and could ignite in the event of an operating pipeline or piping rupture. Fire could cause damage to forested areas. PNRC has emergency procedures in place in the event of a fire.

8.6 Weed Control

PNRC will proceed with weed control (i.e. tilling, mowing, spraying or hand-pulling where possible) if weeds threaten to hinder seeded re-vegetation. PNRC will follow regulatory recommendations regarding the method of control used. The EPP provides details on re-vegetation use for weed control.

8.7 Decommissioning

Decommissioning of the meter station and associated facilities will be decided at the time of project retirement. All regulatory approvals will be obtained. Salvage efforts will be conducted using standard construction methods and environmental protection methods recommended at the time of decommissioning. The eventual application to abandon the operation of the tie-in and meter station would be made in accordance with the requirements of Part VII, Section 50 of the Guidelines and any other additional regulatory provisions.

SECTION 9

SOCIO-ECONOMIC EFFECTS ASSESSMENT

There is no known permanent human habitation within the project area. Once project construction has been completed, the workers will be removed from the area. The operation of the meter station will not require an additional work force. PNRC personnel will conduct periodic inspections of the meter station.

There will be no new government facilities or programs required as a result of the project. The local communities of Apache Hamburg, Doig, Fort St. John and Manning may gain minimal economic benefits from the ongoing purchase of supplies and services during construction. The addition of this new meter station will contribute to PNRC's presence in Northeast British Columbia and Northern Alberta.

There will be minimal impact on public transportation networks or public utilities as a result of constructing and/or operating the meter station. There will be minimal increased impacts due to increased access into the area for regular maintenance and inspection of the meter station and during the construction period.

There will be First Aid personnel and services at the project site during construction. After construction, there will be no detrimental health effects caused by the meter station, nor will on-site First Aid services be required.

The meter station, as applied for under this application, will have minimal, but positive economic incremental impacts. The region's current economy is based primarily on the resource sectors of oil and gas, forestry, mining and construction.

The communities of Fort St. John, BC, Apache Hamburg, and the area surrounding Hamburg, Alberta, provide primary support for the area. These centres and smaller communities in the area provide much of the maintenance and operations labour and equipment required for the project.

The contractors and services that are needed during construction are available domestically. Selection of contractors, service companies and tradesmen will be based on competitive pricing, past experience, qualifications, and ability to maintain schedules. PNRC will, consistent with corporate policy, provide fair opportunity and fair wages for persons within the four employment equity target groups (women, visible minorities, the physically challenged and aboriginal people).

PNRC is committed to a policy of obtaining goods and services on a fair and competitive basis. Where possible and available, local vendors will be solicited for competitive bid(s). Competitive bids for construction materials will be solicited, if available, from vendors in Fort St. John, BC and Apache Hamburg, Manning, Peace River, and Grand Prairie, Alberta.

PNRC will assist First Nations with bidding practices in areas in which they have experience in. Local persons (*i.e.* Waberski/Darrow Survey Group and Landsong personnel) have been actively employed in preparation of survey, permit application and field studies for the proposed development.

9.1 <u>POTENTIAL ECONOMIC COMPONENTS</u>

The proposed project will result in extremely minimal, but positive, incremental impacts to the economic profile of conditions in the communities and regions in the area of the proposed project.

The proposed project will result in minimal positive incremental impacts to local employment and skills training opportunities, including opportunities for women, visible minorities and the physically challenged. The project will not result in indirect/induced employment at the regional and provincial levels, nor will it change incomes at the regional and provincial levels.

The project will not affect transportation requirements, infrastructure development costs, or public infrastructure improvements.

The estimated capital cost for construction and installation of the meter station project is \$42,000.00. Local area contractors have been notified of the overall proposed development through newspaper advertisements.

9.2 POTENTIAL SOCIAL COMPONENTS

The project will not affect existing conditions of local communities, nor will the overall related facilities. Available local services (e.g., social assistance and policing caseload, school enrollments, hospital admissions, etc.) will not receive project-induced demands on them. The project will not create direct, permanent jobs in local communities, nor will it affect the supply of accommodation.

The project or related facilities will not create gender issues, either on-the-job or off-the-job. Worker in-migration is not expected as a result of the overall development.

The overall development may result in minor, short term economic gains to local communities. The proposed project will not result in impacts to the following social components:

- social and demographic profile
 - age/sex
 - education
 - income;
- population impacts;
- labour market and employment/unemployment characteristics;
- housing and accommodation supply
 - affordability
 - emergency
 - diversity;
- land use and water use
 - parks and recreation
 - suitability for children/elderly/disabled
 - access;
- transportation and traffic
 - vehicular

- pedestrian
- cycle
- barrier effects of traffic
- wheelchair access
- road system;
- communication;
- community service delivery
 - health
 - education
 - policing/justice
 - fire protection;
- local government costs (the project will result in government revenues);
- social support services
 - financial support
 - services to persons with mental handicaps
 - family and children's services
 - counseling services
 - emergency services;
- community stability, cohesion and indicators of well being
 - demographic history/multigenerational
 - economic base
 - community diversity
 - access to community decision making;
- on-the-job or off-the-job gender impact issues.

9.3 <u>REGIONAL SOCIO-ECONOMIC CHARACTERISTICS</u>

The closest Alberta community to the existing facilities and proposed project is Manning, approximately 150 km to the southeast. In British Columbia, the closest community to the project is Fort St. John, approximately 100 km to the southwest. The economy in the surrounding areas of the communities of Fort St. John and Manning rely primarily on the oil and gas industry, forestry, mining and construction. Minimal agriculture and tourism are additional activities in the areas of these communities.

9.4 POTENTIAL IMPACTS AND MITIGATION APPROACHES

The potential impacts as a result of the overall project will be minimal, but positive. Impacts of the proposed project (including overall related facilities) as related to the following study area characteristics are listed:

Population - it is not anticipated that populations in the study area communities will be affected.

Income levels - it is not anticipated that the project will affect income levels. *Employment* - the project may have short-term increases in employment in local communities.

Local government infrastructure - there will be no new government facilities or programs required as a result of the project.

Health and Safety - there will be no long-term detrimental health effects caused by the proposed project. Ambulances, as required, will be on-site during construction only, to mitigate detrimental short-term health effects, if any.

Quality of Life - the quality of life of residents in the study area communities will not be adversely affected by the proposed project.

Traditional Land Use₋ - the proposed project will not result in infringement to traditional land use by First Nations in the immediate area of the project or elsewhere.

PNRC will implement the following measures to minimize adverse impacts, if any, to the study area communities by:

- utilizing existing permanent road access and communicating with local RCMP as required;
- locating the project in an area of existing facility development;
- maintaining an adequate consultation program post-application and continuous information distribution and gathering;
- hiring local persons where possible.

The possible socio-economic issues that may result from the Meter station are as follows:

Socio-Economic Issue	Will the issue be affected?		
	During	Afterwards	
	Construction		
Regional government and	No	No	
domestic services (roads,			
water, sewage)			
Health Services	No	No	
Police Services	No	No	
Effects on Quality of life for	No	No	
study			
Effects on Traditional Land	No	No	
Use by First Nations			
Effects on population	No	No	
growth			
Effects on local and/or			
regional income and	No	No	
economic growth			
Effects on public safety	No	No	

PNRC will not be seeking government financial assistance to complete the proposed project, nor will the project impact public infrastructure or create public liabilities.

The Project will not influence the following:

- gender issues;
- local employment and skills training opportunities, including opportunities for women, visible minorities and the physically challenged;
- indirect/induced employment at the regional and provincial levels;

- indirect/induced income at the regional and provincial levels;
- transportation requirements and infrastructure development costs;
- local/provincial/federal government revenues and costs (e.g. in respect of public infrastructure);
- regional and provincial economic development opportunities (e.g. industrial benefits and other improvements);
- new investment;
- labour market conditions (*e.g.* unemployment, labour supply available to meet project needs); or
- the economic profile of conditions in the study area communities and/or regions.

9.5 ASSESSING HEALTH EFFECTS

It is anticipated that the Meter station will not create adverse health effects in the project area or in any communities in the study area. Ambulance service will be on-site during construction of the project and related facilities as required. Once construction is complete ambulance services will not be required on-site.

The public will not be exposed to contaminants, directly or indirectly, as a result of the proposed project, nor will public health be put at risk from existing or proposed related facilities. PNRC will ensure related on-site and off-site facilities will not create adverse health or environmental effects due to:

- waste discharges, water use and camp facilities and operations;
- waste effluent and emissions, waste treatment and disposal; or
- Occupational health and safety issues.

The proposed project and resulting activities will not cause detrimental effects resulting in:

- gender issues attributable to health effects;
- increased demands on health services in the area;
- decreasing any community stability, cohesion and indicators of well being; or
- changed health risks associated with potential changes in socio-economic status.

9.6 <u>POTENTIAL HEALTH COMPONENTS</u>

In the study area communities, under normal operating conditions, the Meter station will not adversely affect:

- supply of health facilities and services in relation to demand;
- community water supply and community watersheds;
- waste treatment and discharge volume and quality;
- ambient air and water quality;
- public health;
- worker health and safety conditions (ambulance service will be on-site during construction);
- noise impacts (short term impacts will occur during construction at the meter station location only, not in any communities);
- community health and stability indicators; or
- aboriginal community health concerns.

In the event of an operating pipeline rupture, health in the study area may be affected. Rupture of the operating pipeline is discussed in Sections 8.1, 8.2, 8.5 and 8.6.

9.7 ASSESSING FIRST NATIONS, CULTURAL AND HERITAGE EFFECTS

PNRC has and will endeavor to maintain an up front, positive working relationship with First Nations peoples. PNRC supports protecting the environment and its contents for traditional food gathering and economic return for First Nations communities. The proposed project can operate with no infringements to traditional land uses by First Nations in the immediate area of the project or anywhere else on traditional lands.

No historic or heritage structures, landscape features, cultural or traditional sites have been found in the immediate vicinity of the proposed project area, nor have First Nations expressed the need to protect any sites.

PNRC will work with First Nations to protect resources in the project area. If any traditional land use information is obtained during consultations for this project, it will be kept confidential between representatives of PNRC and the appropriate First Nations if so requested.

Archaeological Sites

Heritage North and FMA conducted post-construction assessments for portions of the existing right-of-way. No sites were found within the immediate area of the project. The sites that were found, outside of the project area, on the existing rights-of-way, have been fenced and will continue to be protected by avoidance as they have been during past construction projects within that right-of-way. The First Nations have not expressed concerns for any site protection.

Traditional Use Sites

First Nations agree that, at this time, the Doig traditionally use the project area and that there are no known aboriginal ceremonial, sacred or spiritual sites in the vicinity of the proposed project. The traditional land use activities of berry picking and medicinal food gathering do not occur in the area of the project due to its inaccessibility.

Trapping has occurred in the area in the past. Hunting does occur in the general area. Operations of the proposed project will result in no infringement of these two traditional land uses. PNRC will continue information distribution and gathering with First Nations and appropriate ministries throughout the life of the project to help protect traditional land use in the general area of the project and related activities.

Traditional Land Use Infringement

It is anticipated that operations of the project will not result in infringements to traditional land uses by First Nations in the area of the proposed project or anywhere else. Hunting is the main traditional land use that occurs in the area of the proposed project.

Determination of Infringement

Infringement to traditional land use could occur if a proposed project causes undue hardship on the holder of an aboriginal right; denies the holders of the right their preferred means of exercising that right, limits the aboriginal right unreasonably.

First Nations peoples may continue to engage in fishing; hunting; trapping; berry picking; medicinal food gathering; ceremonial, sacred and spiritual activities without being adversely affected by operations of the proposed project.

SECTION 10

CONCLUSIONS FOR THE ENVIRONMENTAL AND SOCIO-ECONOMIC EFFECTS ASSESSMENTS

The proposed meter station will result in minimal, adverse, biophysical and socioeconomic effects. The issues, as outlined in various sections of this Environmental and Socio-Economic Assessment and Mitigation Plans, have been identified through:

- early public notification and consultations with stakeholders;
- on-site project field assessments;
- review of existing and ongoing studies;
- ongoing literature review;
- review of other applications in the immediate existing right-of-way and elsewhere; and
- review of past construction projects and post-construction environmental reports for the existing and adjacent rights-of-way where the meter station is to constructed.

PNRC has considered cumulative effects and prepared a cumulative effects assessment (Section 6). PNRC will mitigate effects and protect environmental resources as outlined in the EPP (Appendix 5) and CPP (Appendix 6).

During the field assessments, research and consultations for the preparation of this Environmental and Socio-Economic Assessment and Mitigation Plan a summary of potential impacts, mitigation measures and residual impacts was developed and is presented in Table 1.1 in Section 1. This table best summarizes the conclusions of this volume.
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PERSONAL COMM	UNCATIONS
	Contact Number
Attachie, Mr. Gerry	(250) 827-3776
Backmeyer, Mr. Rod	(250) 787-3287
Beddelle, Mr. John	Relocated
Buckler, Ms. Penny	(250) 261-5707
Davidson, Mr. Peter	(250) 489-8535
Gache, Mr. Glenn	(780) 836-2881
Gates, Mr. Bryan	Retired
Hunt, Ms. Kathleen	(206) 685-3268
Johnson, Mr. Bill	(780) 624-6405
McKenna, Mr. David	(780) 415-8145
Morton, Mr. Kim	(780) 926-2238
Moyles, Mr. David	(780) 624-6405
Poeckens, Mr. Jeff	(780) 836-2881
Wagner, Mr. Chris	(250) 261-5722
Williams, Mr. Don	(780) 836-2881

Addresses of those persons not retired are available upon request.

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BOX 847 FAIRVIEW, ALBERTA **T0H 1L0** PHONE: (780) 835-2682 FAX: (780) 835-2140

August 14, 2002

Mr. Lee Morin PO Box 187 Wembley, AB T0H 3S0

Dear Sir:

RE: Information and Notification Letter Pioneer Natural Resources Canada Inc. Chinchaga South Meter Station (NW 26-96-13 W6M) And Pipeline Loop NW 26-96-13 W6M to c-32-H/94-H-8 RNLS File No.: 20574

Further to the Early Public Notification for the above project, dated August, 2002, Pioneer Natural Resources Canada Inc. (Pioneer Canada) plans to construct the proposed meter station and pipeline loop as indicated. The National Energy Board Section 58 Early Public Notification, previously sent to you, is attached for your convenience.

The proposed project would be designed, built and operated in accordance with the National Energy Board (NEB) regulations.

If you have any questions or concerns regarding this project, please contact Les Hogan at Pioneer Natural Resources Canada Inc. at phone (403) 231-3202, or fax (403) 231-3274.

I/We understand the project as described and I/We have no objections to the NEB issuing a licence for this project.

Name: LEE MORIN

Signature

Address Box 187

Telephone No: (180) 766-2410

WEMBLEY, AB TOH 350 Date: AUGUST 15,2002 ALTHOUGH I HAVE NO SPECIFIC OBJECTIONS TO THIS PROJECT, I DO HAVE OBJECTIONS TO INDUSTRY IN GENERAL FOR PROJECTS WHICH HAVE HAPPENED IN THE PAST AND WHICH MAY HAPPEN IN THE FUTURE.

PIONEER NATURAL RESOURCES CANADA INC.

South Chinchaga Meter Station and Pipeline Loop National Energy Board Section 58 Applications Early Public Notification - August 2002

Pioneer Natural Resources Canada Inc. (PNRC) is applying to the National Energy Board (NEB) for approvals to construct a meter station and a pipeline loop. The applications will be made pursuant to section 58 of the NEB Act. Both facilities will be constructed wholly on existing right-of-way and require no new access, right-of-way or temporary workspace. No new clearing will occur for either the meter station or the pipeline loop.

South Meter Station

The meter station will be situated on the existing right-of-way for the PNRC East Chinchaga Pipeline, constructed in 2000 pursuant to NEB Order XG-P177-41-99. The purpose of the meter station is to tie-in production from new PNRC wells in the area to the existing NEB pipeline. The meter station will consist of a gas meter building, emergency shutdown valve, pipeline riser and underground tie-in. The proposed site will be 0.016 ha (0.04 ac) in size, located in Alberta at LSD 11-26-96-13 W6M, approximately 0.5 km east of the British Columbia border. There are no environmentally sensitive areas, waterways or archaeological sites in the immediate vicinity of the proposed site.

Pipeline Loop

PNRC also proposes to construct a pipeline loop from the above meter station in Alberta to the existing PNRC plant site at c-32-H/94-H-8 PNRC in British Columbia. The loop is needed to provide additional pipeline capacity to transport Alberta gas from the area to the PNRC plant in British Columbia. The proposed pipeline is approximately 22 km (1.4 miles) long and 219.1 mm (8.6 in) outside diameter. The loop will be constructed within an existing right-of-way, in-between the PNRC West Hamburg Pipeline (NEB Order XG-T81-30-96) and the Murphy Oil Company Ltd. Chinchaga Sales Gas Pipeline Loop (NEB Order XG-M085-08-2001).

The loop will be constructed north of Archaeological site (HiQx- 5, Permit Number 97-136) reported in 1998 by Heritage North Consulting Ltd. The site is outside the area of construction, but will be protected by fencing to ensure avoidance. The loop will cross the unnamed tributary to Lennard Creek using the directional drilling technique to mitigate effects. Numerous past crossings of this creek have all been successful and quick.

Land Use and Environment

Both projects fall under Doig First Nations Traditional Lands, with hunting being the main land use in the area. The Dene Tha' also use and travel through the area on occasion. At present there is no trapping in the immediate area either in Alberta or British Columbia.

Due to muskeg, only winter construction may be undertaken. Meter station installation and pipeline loop construction are proposed for December 2002, subject to regulatory

approval. Clean-up and reseeding with an approved native seed mix will be completed prior to break up, 2003. Clean-up and revegetation for previous PNRC projects in the area have been extremely successful. PNRC anticipates that any effects to the environment will be minimal, short-term, and localized.

Emergency Response

PNRC has an Emergency Response Plan in place for its Chinchaga area operations, which will be updated for the addition of the meter station and pipeline loop.

Contacts

Interested parties having any questions regarding this project may contact:

Pioneer Natural Resources Canada Inc. 2900, 255 - 5th Ave. SW Calgary, Alberta T2P 3G6

Name	Department	Telephone	Fax
Jeff Wallace	Project Manager - Operations	403.231.3113	403.237.8939
Les Hogan	Coordinator - Land & Aboriginal Affairs	403.231.3202	403.231.3274

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(Refer to the next page)



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PIONEER NATURAL RESOURCES CANADA INC.

South Chinchaga Meter Station and Pipeline Loop National Energy Board Section 58 Applications Early Public Notification - August 2002

Pioneer Natural Resources Canada Inc. (PNRC) is applying to the National Energy Board (NEB) for approvals to construct a meter station and a 2.2 km long pipeline loop. The applications will be made pursuant to section 58 of the NEB Act. Both facilities will be constructed wholly on existing right-of-way and require no new access, right-of-way or temporary workspace. No new clearing will occur for either the meter station or the pipeline loop. Due to muskeg, only winter construction may be undertaken. Construction is proposed to begin in December, 2002, subject to regulatory approval.

South Meter Station

The meter station will be situated on the existing right-of-way for the PNRC East Chinchaga Pipeline, constructed in 2000 pursuant to NEB Order XG-P177-41-99. The proposed site will be 0.016 ha (0.04 ac) in size, located in Alberta at LSD 11-26-96-13 W6M, approximately 0.5 km east of the British Columbia border. There are no environmentally sensitive areas, waterways or archaeological sites in the immediate vicinity of the proposed meter station site.

Pipeline Loop

PNRC also proposes to construct a 219.1 mm (8.6 in) outside diameter, 2.2 km long pipeline loop from the above meter station in Alberta to the existing PNRC plant site at c-32-H/94-H-8 in British Columbia. The loop will be constructed within an existing right-of-way, in-between the PNRC West Hamburg Pipeline (NEB Order XG-T81-30-96) and the Murphy Oil Company Ltd. Chinchaga Sales Gas Pipeline Loop (NEB Order XG-M085-08-2001).

Contacts

Interested parties having any questions regarding this project may contact:

Pioneer Natural Resources Canada Inc. 2900, 255 - 5th Ave. SW Calgary, Alberta T2P 3G6

Name	Department	Telephone	Fax
Jeff Wallace	Project Manager - Operations	403.231.3113	403.237.8939
Les Hogan	Coordinator - Land & Aboriginal Affairs	403.231.3202	403.231.3274

PIONEER NATURAL RESOURCES CANADA INC. PROPOSED CHINCHAGA SOUTH METER STATION AND PIPELINE LOOP

EARLY PUBLIC NOTIFICATION LIST August 2002

The Early Public Notification (following this list) was sent to the following parties by EXPRESSPOST in early August, 2002, with follow up phone calls and faxes as designated in the attached table.

Newspapers:

Banner post Phone: (780) 836-3588 Fax: (780) 836-2820

Alaska Highway News Phone: (250) 785-5631 Fax: (250) 785-3522

CANADIAN COAST GUARD

Navigable Waters Protection Division

Canadian Coast Guard (Western Region) Suite 350, 555 West Hastings Street Vancouver, British Columbia V6B 5G3 Attention: Mr. Bob Gowe, Acting Superintendent Phone: (604) 775-8867 Fax: (604) 775-8828

White Mud Business Park
4253 97 St.,
Edmonton, Alberta
T6E 5Y7
Attention: Mr. Steve Drummond, Navigable Waters Protection Officer
Phone: (780) 495-3701
Fax: (780) 495-8607

201 North Front Street, Suite 703
Sarnia, Ontario
N7T 8B1
Attention: Mr. Rick McLean, Navigable Waters Protection Officer
Phone: (519) 383-1862
Fax: (519) 383-1989

FISHERIES AND OCEANS CANADA

Airport Corporate Centre 800, 1601 Airport Road N.E., Calgary, Alberta T2E 6Z8 Attention: Ms. Dorothy Majuski Phone: (403) 292-5169

Freshwater Institute

501 University Crescent
Winnipeg, Manitoba
R3T 2N6
Attention: Ms. Nadine Stiller, Habitat Assessment Biologist
Phone: (204) 984-2244
Fax: (204) 984-3636

During the EPN this position changed to four new positions with recommendations to also send the EPN to: Attention: Mr. Kurt McCallister Phone: (204) 984-1493 Fax: (204) 984-3636

CANADIAN ENVIRONMENTAL ASSESSMENT AGENCY

Canadian Environmental Assessment Agency

100 Revillon Bldg
10237 - 104 Street N.W.,
Edmonton, Alberta
T5J 1B1
Attention: Mr. Lanny Coulson, Director (Alberta Region)
Phone: (780) 422-7704
Fax: (780) 422-6202

#263, 123 Main Street
Winnipeg, Manitoba
R3C 4W2
Attention: Mr. Dan McNaughton, Regional Director
Phone: (204) 984-2457
Fax: (204) 983-7174
E-mail dan.mcnaughton@ceaa.gc.ca

320 Sinclair Centre
757 West Hastings Street
Vancouver, British Columbia
V6C 1A1
Attention: Mr. Paul Scott, Regional Director
Phone: (604) 666-6989
Fax: (604) 666-6990
Reception: (604) 666-2431

ENVIRONMENT CANADA

Environmental Protection Branch

200, 4999 98 Avenue,
Edmonton, Alberta
T6B 2X3
Attention: Ms. Margaret Fairbairn, Manager, Alberta Division
Phone: (780) 951-8860
Fax: (780) 495-4099

Pioneer Natural Resources Canada Inc. South Chinchaga Meter Station and Pipeline Loop 200, 4999 98 Avenue, Edmonton, Alberta T6B 2X3 Attention: Mr. Dale Kirkland Phone: (780) 951-8729 Fax: (780) 495-4099 Email: <u>dale.kirkland@ec.gc.ca</u>

224 West Esplanade
North Vancouver, British Columbia
V7M 3H7
Attention: Mr. Adrian Duncan, P. Eng, Coordinator, Referral and Liason
Phone: (604) 666-0670
Fax: (604) 666-7463

INDIAN AND NORTHERN AFFAIRS CANADA

Strategic Planning and Policy

Suite 630, Canada Place 9700 Jasper Avenue Edmonton, Alberta T5J 4G2 Attention: Mr. Keith MacDonald Phone: (780) 495-7048 Fax: (780) 495-2767

INDIAN AFFAIRS & NORTHERN DEVELOPMENT

Suite 600, 1138 Melville Street,
Vancouver, British Columbia
V6E 4S3
Attention: Mr. John Lexus, Acting Senior Environmental Specialist for Ms. Ada Tuck, Manager,
Environmental Protection & Natural Resources
Phone: (604) 666-0596
Fax: (604) 666-2670

Suite 600, 1138 Melville Street, Vancouver, British Columbia V6E 4S3 Attention: Ms. Lisa Webster, Environmental Specialist Phone: (604) 666-5299 Fax: (604) 666-6474

NATURAL RESOURCES CANADA

Office of Environmental Affairs Natural Resources Canada 3rd Floor, 580 Booth Street Ottawa, Ontario K1A 0E4 Attention: Mr. Iannik Lamirande, Environmental Assessment Officer Phone: (613) 996-0055 Fax: (613) 995-5719 E-mail: iannik.lamirande@nrcan.gc.ca

Socio-Economics, Policy and Liason 5320-122 Street Edmonton, Alberta Canada T6H 3S5 Attention: Mr. Derek Johnson Phone: (780) 435-7306 Fax: (780) 435-7359 E-mail: dejohnso@nrcan.gc.ca

HEALTH CANADA

730, 9700 Jasper Avenue
Edmonton, Alberta T5J 4G2
Attention: Ms. Brenda Woo, Environmental Health Officer
Phone: (780) 495-4988
Fax: (780) 495-2743

ALBERTA COMMUNITY DEVELOPMENT

Historical Sites and Services

8820 - 112 Street
Edmonton, Alberta
T6G 2P8
Attention: Mr. George Chalut, Resource Management Planner
Phone: (780) 431-2329
Fax: (780) 427-3956

ALBERTA ENERGY AND UTILITIES BOARD

640 - 5th Avenue S.W.
Calgary, Alberta
T2P 3G4
Attention: Ms. Phyllis Derbyshire, Applications Group
Phone: (403) 297-8305
Fax: (403) 297-4117
E-mail: pllis.derbyshire@eub.gov.ab.ca

ALBERTA ENVIRONMENT

Fish and Wildlife Division

Energy and Natur	al Resources	
Main Floor, Sout	h Tower	
Petroleum Plaza		
9945 - 108 Street		
Edmonton, Alber	ta	
T5K 2G6		
Attention:	Mr. Brent Markam, Acting Director of Wildlife Management	(780) 427-9503
	Fax:	(780) 422-9557
	Mr. Ken Ambrock, Assistant Deputy Minister	(780) 427-6749
	(do not send in future)	
	Fax:	(780) 422-9557
	Mr. Ken Crutchfield, Resources Conservation & Planning	(780) 427-6750
	Fax:	(780) 422-9559

Fish and Wildlife Division

Provincial Building, 9621 96 Avenue, Bag 900-26 Peace River, Alberta T8S 1T4 Attention: Mr. Bill Johnson, Habitat Biologist (780) 624-6405 Mr. Jim Rosin, Fisheries Biologist (780) 624-6405 Mr. David Moyles, Habitat Biologist (780) 624-6405 (send in future to Mr. Ron Milson instead) Fax: (780) 624-6455

Natural Resources Services Office

Box 28 High Level, Alberta TOH 1Z0 Attention: Mr. Kim Morton, Biologist, Fish and Wildlife Phone: (780) 926-2238 Fax: (780) 926-3950

Land and Forest Services

McKenzie	Forest Area	
Manning I	District	
Box 749		
Manning,	Alberta	
T0H 2M0		
Attention:	Mr. Glen Gache, District Manager	(780)-836-2881
	Mr. Jeff Poeckens, Forest Officer	(780) 836-2881
	Fax:	(780) 836-3666
	Fax:	(780) 836-3666

Land and Forest Services

Provincial Building, First Floor Bag 900-4 Peace River, Alberta T8S 1T4 Attention: Mr. Ralph Woods, Land Use Officer Phone: (780) 624-6221 Fax: (780) 624-7124

LAND RECLAMATION DIVISION

Environmental Protection

203, 2938 - 11 Street N.E.
Calgary, Alberta
T2E 7L7
Attention: Mr. Don McCabe, Pipeline Approvals Co-ordinator
Send to Mr. Doug Stanton instead
Phone: (403) 297-5671
Fax: (403) 297-5944
E-mail: don.mccabe@gov.ab.ca

Alberta Department of Energy

300, 801 – 6 Avenue S.W. Calgary, Alberta T2P 3W2 Attention: Ms. C. J. C. Page, Counsel Phone: (403) 297-5574 Fax: (403) 297-5499 E-mail: jill.page@gov.ab.ca

BRITISH COLUMBIA OIL & GAS COMMISSION

Compliance and Enforcement Branch 200, 10003 – 110 Avenue Fort St. John, British Columbia V1J 6M7 Attention: Mr. Gord Hockridge, Pipeline Inspector (Do not send in future) Phone: (250) 262-6648 Fax: (250) 261-5787 Reception: (250) 261-5700

Compliance and Enforcement Branch 200, 10003 – 110 Avenue Fort St. John, British Columbia V1J 6M7 Attention: Mr. Ben Mitchell-Banks, Director of Compliance and Enforcement Phone: (250) 261-5767 Fax: (250) 261-5765

200, 10003 – 110 Avenue Fort St. John, British Columbia V1J 6M7 Attention: Ms. Vera Brandzin, Heritage Conservation Officer Phone: (250) 261-5721 Fax: (250) 261-5728

British Columbia Land Assets Corporation

400, 10003 – 110 Avenue
Fort St. John, British Columbia
V1J 6M7
Attention: Mr. Layne Lybbert, Land Use Specialist
Phone: (250) 787-3423
Fax: (250) 787-3219

BRITISH COLUMBIA MINISTRY OF WATER, LAND, AND AIR PROTECTION

Environmental Protection

Third Floor, 1011 Fourth Avenue Prince George, British Columbia V2L 3H9 Attention: Mr. Del Reinheimer, Environmental Management Phone: (250) 565-6444 Fax: (250) 565-6629 Emergency Spill Response: 1-800-663-3456

Pioneer Natural Resources Canada Inc. South Chinchaga Meter Station and Pipeline Loop

BRITISH COLUMBIA MINISTRY OF FORESTS

Forest Service

8808 - 72nd Street
Fort St. John, British Columbia
V1J 6M2
Attention: Mr. Harry Offizer, Fire Management, Planner/Oil and Gas
Phone: (250) 787-5660
Fax: (250) 787-5610

BRITISH COLUMBIA MINISTRY OF SMALL BUSINESS, TOURISM AND CULTURE

Planning and Assessment Archaeology Branch

PO Box 9816 STN PROV GOVT Victoria, British Columbia V8V 9W3 Attention: Ms. Justine Batten, Director, Archaeology Branch Phone: (250) 356-1382 Fax: (250) 387-4420

Planning and Assessment Archaeology Branch

PO Box 9816 STN PROV GOVT Victoria, British Columbia V8V 9W3 Attention: Ms. Doris Lundy, Project Officer, Archaeology Branch Phone: (250) 356-1039 Fax: (250) 387-4420

Refer also to the Attached one page fax received, June 13, 2002, listing additional Archaeological Personnel

FIRST NATIONS

Treaty 8

10233 – 100 Avenue Fort St John, BC V1J 1Y8 Attention: Ms. Judy Maas, Administrator (For General Posting) Phone: (250)-785-0612 Fax: (250)-785-2021

Doig River First Nations (Also Dane Zaa) Box 56

Rose Prairie, B.C. V0X 2H0 Chief: Chief Gary Oker, Chief, Doig River First Nations (For General Posting) Phone: (250) 827-3776 Fax: (250) 827-3778

Dene-Tha First Nations

Box 120 Assumption, Alberta T0H 0S0 Attention: Chief Steve Didzena, Chief Dene Tha First Nations (For General Posting) Phone: (780) 321-3862 Fax: (780) 321-3886

Mr. Les Hogan, with PNRC, held telephone conversations with the Doig and Dene Tha' to discuss the project. Meetings were also held at the Doig with PNRC regarding the project in August, 2002.

TRAPPER

Trapper early public notification mailed EXPRESSPOST August 2, 2002 by Pioneer Natural Resources Canada Inc. The area trapper provided PNRC with a letter of non-objection (Appendix 1).

REGIONAL PROVINCIAL AND CIVIC REPRESENTATIVES

MLA Peace River

P.O. Box 6299
Peace River, AB
T8S 1S2
Attention: Mr. Gary Friedel
Phone: (780) 624-5400
Fax: (780) 624-5464

MLA Peace River North

10104 – 100 St. Fort St. John, BC V1J 3Y7 Phone: **(250) 263-0101** Fax: (250) 787-3277 Attention: Mr. Richard Newfeld

INDUSTRY NOTIFICATION

ATCO Electric

100035 105 Street Edmonton, AB T5J 2V6 Attention: Land and Properties Phone: (780) 420-5406 Fax: (780) 420-5410

Canadian Association of Petroleum Producers

2100, 350 – 7th Ave. S.W. Calgary, AB T2P 3N9 Attention: Mr. Ian Scott Phone: (403) 267-1132 Fax: (403) 261-4622

Murphy Oil Company Ltd.

2100, 555 – 4th Avenue S.W., Calgary, Alberta T2P 3E7 Attention: Mr. Norm Ganes. Phone: 403-294-8090 Fax: 403-294-8854

Apache Canada Ltd.

1000, 700 - 9 Avenue SW Calgary, Alberta T2P 3V4 Attention: Mr. David Calvert Phone: 403-303-1826 Fax: 403-261-1348

EMM Energy Corporation

700, 839 - 5 Avenue SW Calgary, Alberta T2P 3C8 Attention: Land Manager Phone: (403)-221-8380 Fax: (403)-264-1365

El Paso Oil & Gas Canada, Inc. (purchased EMM lands)

700, 150 - 6th Avenue SW Calgary, Alberta T2P 3Y7 Attention: Mr. Trevor Williams Phone: (403) 538-7557 Fax: (403) 538-7031

Company or Department	Person Contacted	Contacted by	Date (2002)	EPN Received	Comments	Action
Canadian Coast	Mr. Bob Gowe	EES	June 21		Office/personnel confirmation	
Guard,		EES	Aug 6		EPN sent by EXPRESSPOST	
Navigable Waters		EES	Aug 9	Yes	No concerns reported	
Protection Division						
Canadian Coast	Mr. Steve	EES	June 21		Office/personnel confirmation	
Guard,	Drummond	EES	Aug 6		EPN sent by EXPRESSPOST	
Navigable Waters		EES	Aug 9	Yes	No concerns reported	
Protection Division						
Canadian Coast	Mr. Rick McLean	EES	June 21		Office/personnel confirmation	
Guard,		EES	Aug 6		EPN sent by EXPRESSPOST	
Navigable Waters		EES	Aug 9			
Protection Division		EES	Aug 13	Yes	No concerns reported	
Fisheries and Oceans	Ms. Nadine Stiller	EES	June 21		Office/personnel confirmation	
Canada		EES	Aug 6		EPN sent by EXPRESSPOST	
Fresh Water Institute		EES	Aug 9			
	Since confirmation	EES	Aug 13			
	of June 21, position					
	is no longer. Four					
	new departments					
	created. Sent to:					
						Distribution list
	Mr. Kurt	EES	Aug 15	Yes	No concerns reported	changed.
	McCallister					

Page 1 of 7

Company or Department	Person Contacted	Contacted by	Date	EPN Received	Comments	Action
Fisheries and Oceans Canada	Ms. Dorothy Maiuski	EES EES	June 21 Aug 6		Office/personnel confirmation EPN sent by EXPRESSPOST	
Habitat and	2	EES	Aug 9	Yes	No concerns reported	
Enhancement			1			
DIVISIOII						
Canadian	Mr. Lanny Coolson	EES	June 21		Office/personnel confirmation	
Environmental		EES	Aug 6		EPN sent by EXPRESSPOST	
Assessment Agency		EES	Aug 9		Did not receive EPN	EPN resent by
		EES	Aug 15	Yes	No concerns reported	Fax
Canadian	Mr. Don	EES	June 21		Office/personnel confirmation	
Environmental	McNaughton	EES	Aug 6		EPN sent by EXPRESSPOST	
Assessment Agency		EES	Aug 9	Yes	No concerns reported	
Canadian	Mr. Paul Scott	EES	June 21		Office/personnel confirmation	
Environmental		EES	Aug 6		EPN sent by EXPRESSPOST	
Assessment Agency		EES	Aug 9	Yes	No concerns reported	
Environment Canada	Ms. Margaret	EES	June 21		Office/personnel confirmation	
Environmental	Fairbairn	EES	Aug 6		EPN sent by EXPRESSPOST	
Protection Branch		EES	Aug 9	Yes	No concerns reported	
Environment Canada	Mr. Dale Kirkland	EES	June 21		Office/personnel confirmation	
Environmental		EES	Aug 6		EPN sent by EXPRESSPOST	
Protection Branch		EES	Aug 9	Yes	No concerns reported	
Environment Canada	Mr. Adrian Duncan	EES	June 21		Office/personnel confirmation	
		EES	Aug 6			
		EES	Aug 9	Yes	No concerns reported	
Indian and Northern Affairs Canada	Mr. Keith MacDonald	EES EES	June 21 Aug 6		Office/personnel confirmation EPN sent by EXPRESSPOST	
Strategic Planning		EES	Aug 9	Yes	No concerns reported	
and Policy						

NEB Application

Page 2 of 7

Company or	Person Contacted	Contacted	Date	EPN	Comments	Action
Department		by	(2002)	Received		
Indian Affairs and	Mr. John Lexus	EES	June 21		Office/personnel confirmation	
Northern	temporarily for	EES	Aug 6		EPN sent by EXPRESSPOST	
Development	Ms. Ada Tuck	EES	Aug 9		Did not receive EPN	Resent by Fax
)	Yes	No concerns reported	
Indian Affairs and	Ms. Lisa Webster	EES	June 21		Office/personnel confirmation	
Northern		EES	Aug 6		EPN sent by EXPRESSPOST	
Development		EES	Aug 9	Yes	No concerns reported	
Natural Resources	Mr. Iannik	EES	June 21		Office/personnel confirmation	
Canada Office of	Lamirande	EES	Aug 6		EPN sent by EXPRESSPOST	
Environmental		EES	Aug 9	Yes	No concerns reported	
AllallS					ح	
Natural Resources	Mr. Derek Johnson	EES	June 24		Office/personnel confirmation	
Canada		EES	Aug 6		EPN sent by EXPRESSPOST	
Socio-economics		EES	Aug 9	Yes	No concerns reported	
Policy and Liason						
Health Canada	Ms. Brenda Woo	EES	June 21		Office/personnel confirmation	
		EES	Aug 6		EPN sent by EXPRESSPOST	
		EES	Aug 9	Yes	No concerns reported	
Alberta Community	Mr. George Chalut	EES	June 13		Office/personnel confirmation	
Development		EES	Aug 6		EPN sent by EXPRESSPOST	
Historical Sites and		EES	Aug 9	Yes	No concerns reported	
Alberta Energy and	Ms. Phyllis	EES	June 13		Office/personnel confirmation	
Utilities Board	Derbyshire	EES	Aug 6		EPN sent by EXPRESSPOST	
		EES	Aug 9	Yes	No concerns reported	
Alberta Environment	Mr. Ken Ambrock	EES	June 13		Office/personnel confirmation	
		EES	Aug 6		EPN sent by EXPRESSPOST	
				Yes	No concerns reported, except to state	Removed from
					he does not want EPN's in future	Distribution list

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Company or Department	Person Contacted	Contacted by	Date (2002)	EPN Received	Comments	Action
Alberta Environment	Mr. Ken Crutchfield	EES EES EES	June 13 Aug 6 Aug 9	Yes	Office/personnel confirmation EPN sent by EXPRESSPOST No concerns reported, except to state he does not want EPN's in future	Removed from distribution list
Alberta Environment	Mr. Brent Markam	EES EES EES	June 13 Aug 6 Aug 9	Yes	Office/personnel confirmation EPN sent by EXPRESSPOST No concerns reported	
Alberta Environment	Mr. Bill Johnson	EES EES EES	June 13 Aug 6 Aug 9	Yes	Office/personnel confirmation EPNs sent by EXPRESSPOST No concerns reported	
Alberta Environment	Mr. Jim Rosin	EES EES EES	June 13 Aug 6 Aug 9	Yes	Office/personnel confirmation EPNs sent by EXPRESSPOST No concerns reported	
Alberta Environment	Mr. David Moyles Changed to Mr. Ron Milson	EES EES EES	June 13 Aug 6 Aug 9	Yes	Office/personnel confirmation EPNs sent by EXPRESSPOST No concerns reported, except that Moyles stated that Milson is the preferred recipient of future EPNs	Changed on distribution list
Alberta Environment	Mr. Kim Morton	EES EES EES EES	June 13 June 21 Aug 6 Aug 9	Yes	Office/personnel confirmation EPN sent by EXPRESSPOST No Concerns reported	

NEB Application

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Action																									
Comments		Office/personnel confirmation EPN sent by EXPRESSPOST	No concerns reported	Office/personnel confirmation	EPN sent by EXPRESSPOST	No concerns reported	Meeting to discuss Alberta winter development for the upcoming season	Office/personnel confirmation	EPN sent by EXPRESSPOST	No concerns reported	Office/personnel confirmation	EPN sent by EXPRESSPOST	No concerns reported		Office/personnel confirmation EPN sent by EXPRESSPOST	Was away, discussed with Hildebrand:	No up or downstream concerns, thus	no concerns	Office/personnel confirmation	EPN sent by EXPRESSPOST	Doe not look at EPN's		Office/personnel confirmation	EPN sent by EXPRESSPOST	No concerns reported
EPN Received			Yes		,	Yes				Yes			Yes			Yes					Yes				Yes
Date (2002)		June 13 Aug 6	Aug 9	June 13	Aug 6	Aug 9	Aug 21	June 13	Aug 6	Aug 9	June 13	Aug 6	Aug 9		June 13 Aug 6				June 13	Aug 6	Aug 9		June 13	Aug 6	Aug 9
Contacted hv	•	EES EES	EES	EES	EES	EES	PNRC	EES	EES	EES	EES	EES	EES		EES EES				EES	EES	EES		EES	EES	EES
Person Contacted		Mr. Glen Gache		Mr. Jeff Poeckens				Mr. Ralph Woods			Mr. Don McCabe		Changed to Mr.	D'ULE DIAILIUII	Ms. C.J.C Page				Mr. Gord	Hockridge			Mr. Ben Mitchell-	Banks	
Company or Department		Alberta Environment, Land and Forest	Services	Alberta Environment,	Land and Forest	Services		Alberta Environment,	Land and Forest	Services	Land Reclamation	Division,	Environmental Drotection		Land Reclamation Division, Alberta	Dept of Energy			British Columbia	Ministry of Energy	and Mines	Engineering and Onerations	British Columbia Oil	and Gas Commission	

Page 5 of 7

Company or Department	Person Contacted	Contacted by	Date (2002)	EPN Received	Comments	Action
h Columbia Oil ias Commission	Ms. Vera Brandzin	EES EES	June 13 Aug 6 Aug 9		Office/personnel confirmation EPN sent by EXPRESSPOST	
			Aug 13	Yes	Requested copy EPN faxed to Ms. Shelley Calder @ 250-261-5717 No concerns reported	Faxed additional EPN as requested
h Columbia Oil Jas Commission	Mr. Layne Lybbert	EES EES	June 13 Aug 6		Office/personnel confirmation EPN sent by EXPRESSPOST	
)	Yes	No concerns, will contact us if any further issues	
h Columbia try of Water,	Mr. Del Reinheimer	EES EES	June 13 Aug 6		Office/personnel confirmation EPN sent by EXPRESSPOST	
and Air ction				No yes	Did not receive fax No concerns reported	Resent Fax
h Columbia try of Forests	Mr. Henry Offizer	EES EES	June 13 Aug 6		Office/personnel confirmation EPN sent by EXPRESSPOST	
t Service		EES	Aug 9	Yes	No concerns reported, except to report that this office is closing April 1, 2003 with Mr. Paul Gevatkoff, Operations Manager, MOF, taking over.	Changed on distribution list
h Columbia try of Small	Mr. Justin Batten	EES EES	June 13 Aug 6		Office/personnel confirmation EPN sent by EXPRESSPOST	
less, Tourism Julture		EES	Aug 9	Yes	No concerns reported	
h Columbia try of Small	Ms. Doris Lundy	EES EES	June 13 Aug 6		Office/personnel confirmation EPN sent by EXPRESSPOST	
ess, Tourism ulture		EES	Aug 9	Yes	No concerns reported	

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NEB Application

Company or	Person Contacted	Contacted	Date	EPN	Comments	Action
Department		by	(2002)	Received		
Treaty 8	Ms. Judy Maas	EES EES	June 13 Aug 6		Office/personnel confirmation EPN sent by EXPRESSPOST	
		EES	Aug 9	Yes	No concerns reported	
Doig River Indian	Chief Gary Oker,	EES	June 13		Office/personnel confirmation	
Band	See also Section 4	EES	Aug 6		EPN sent by EXPRESSPOST	
		EES	Aug 9	Yes	No concerns reported.	
Dene-Tha First	Chief Steve	EES	June 13		Office/personnel confirmation	
Nation	Didzena, See also	EES	Aug 6		EPN sent by EXPRESSPOST	
	Section 4	EES	Aug 9	Yes	No concerns reported	
ATCO	Attn: Land &	EES	June 13		Office/personnel confirmation	
	Properties	EES	Aug 6		EPN sent by EXPRESSPOST	
		EES	Aug 9	Yes	No concerns reported	
CAPP	Ian Scott	EES	June 13		Office/personnel confirmation	
		EES	Aug 6	Yes	EPN sent by EXPRESSPOST	
		EES	Aug 9		No concerns reported	
MLA Peace River	Mr. Gary Friedel	EES	June 13		Office/personnel confirmation	
		EES	Aug 6	Yes	EPN sent by EXPRESSPOST	
		EES	Aug 9		No concerns reported	
MLA Peace River	Richard Newfeld	EES	June 13		Number no longer in service, advised	
North		EES	Aug 6		this position is no longer. New	
		EES	Aug 9	Yes	Office/personnel confirmation	
					attempted through various contacts.	
					EPN sent by Fax	
					No concerns reported	
Industry Notifications	various	EES	June 13		Office/personnel confirmation	
		EES	Aug 6		EPNs sent by EXPRESSPOST and	
		EES	Aug 9	Yes	Fax	
					No concerns reported	

NEB Application

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NATURAL RESOURCES CANADA INC.

Leslie G. Hogan Telephone (403) 231-3202 Fax (403) 231-3247

September 5, 2002

Doig River First Nation Box 56 Rose Prairie, British Columbia V0X 2H0

Attention: Mr. Gary Oker, Chief Doig River First Nation

Re: Section 87(1) Notice <u>Twp. 96, Rge. 13 W6M: NW/26</u>

Please find enclosed for your review, a Section 87(1) Notice pursuant to the National Energy Board Act.

Please acknowledge acceptance by signing and returning one (1) copy of this Notice to the undersigned. If you have any questions regarding this Notice, please do not hesitate to call me at (403) 231-3202 or Fax 231-3247.

Yours truly,

PIONEER NATURAL RESOURCES CANADA INC.

Leslie G. Hogan / Coordinator, Land and Aboriginal Affairs

LGH/lj Enclosure

PIONEER NATURAL RESOURCES CANADA INC.

NOTICE PURSUANT TO SECTION 87(1) OF THE NATIONAL ENERGY BOARD ACT

TO: THE CROWN IN RIGHT OF ALBERTA

being the registered owner (the "Owner") of the land described as follows (herein call the "Land"):

The northwest quarter of section twenty-six, township ninety-six, range thirteen, west of the sixth meridian (NW-26-96-13-W6M).

AND TO: ATCO ELECTRIC LTD., MURPHY OIL COMPANY LTD., LEE MORIN, DOIG RIVER FIRST NATION, DENE THA FIRST NATION

being other persons, as far as can be ascertained, interested in the Land:

PIONEER NATURAL RESOURCES CANADA INC. (hereinafter referred to as the "Company") hereby gives notice of the following:

1. Description of Land Required for Pipeline

To accommodate the construction and installation of the proposed facilities, namely a meter station tie-in installation ("Tie-In Installation") on the Land, the Company requires a pipeline installation lease ("PIL"). The approximate location of the required PIL is shown on the attached Plan of Survey (Schedule "A").

2. Details of Compensation Offered

In consideration of granting the aforesaid PIL to the Company, the Company shall offer to pay to the Owner a lump sum of \$410.50, as well as ongoing annual payments thereafter in the sum of \$360.00, until such time as the Tie-in Installation is decommissioned and lease site is reclaimed.

The amount of such annual payments are reviewable every five years.

All monies noted in this Notice are in Canadian dollars.

If any person interested in the areas affected by the PIL, other than the Owner identified above, claims to have a right to receive such compensation or a portion thereof, such person should immediately notify the Company in writing of their claim describing its particulars.
v

3. Detailed Statement of Value of Land Required

After having considered the current use of the Land, any probable uses of the Land in light of current zoning laws, economic and other considerations (highest and best use), recent sales of similar Land in the vicinity of the Land, and other relevant factors, the Company has determined that the value of the portion of the Land which comprises the PIL is \$200.00 per hectare.

4. <u>Description of Procedure for Approval of Detailed Route of Pipeline</u>

Sections 34 through 40, inclusive, of the *National Energy Board Act* (the "Act") establish a procedure for approval of the detailed route of a pipeline. The definition of pipeline under this Act includes the proposed Tie-In Installation. Please note, as stated below the Company is seeking an order under section 58 of the Act exempting the proposed Tie-In Installation from the detailed route procedure.

Those sections provide that after a pipeline company has submitted to the National Energy Board (the "Board") a plan showing the proposed route of a pipeline, the company must serve on owners of Land and publish notices which describe the proposed detailed route of the pipeline and the location of the office of the Board. Within thirty (30) days of service or last publication of such a notice, an owner of Land or person who anticipates that his land may be adversely affected by the proposed detailed route may oppose the detailed route by filing with the Board a written statement setting forth the nature of his interest in the land and the grounds for his opposition.

Where a written statement of opposition has been filed within the time limited therefore, the Board must, subject to certain exceptions, forthwith order that a public hearing be conducted within the area in which the Land to which the written statement relates are situated with respect to any grounds of opposition set forth in such statement. At such hearing each person who properly filed a written statement will be allowed to make representations and the Board may allow any other interested person to make such representations as the Board deems proper.

Following such hearing the Board may either approve or refuse to approve the plan showing the proposed route of the pipeline as filed by the pipeline company and in granting any approval the Board may impose such terms and conditions as it considers proper. The Board may not give its approval to a plan unless it has taken into account all written statements properly filed with it and all representations made to it at a public hearing in order to determine the best possible detailed route of the pipeline and the most appropriate methods and timing of constructing the pipeline. If the Board held a public hearing it must provide a copy of its decision and the reasons therefor to the Minister (being the member of the Federal Cabinet designated to act as the Minster for the purposes of the Act) and to each person who made representations to the Board at the public hearing.

In certain circumstances the procedure outlined above will not be applicable. Section 58 and subsection 45(3) of the Act empower the Board to exempt a pipeline company from

certain of the provisions of the Act, including those provisions requiring the filing with the Board of a plan showing the proposed route of a pipeline. Exemption from this requirement would result in the above-described procedure for approval of the detailed route of a pipeline no longer being applicable. The circumstances in which such exemptions are available generally involve repairs and replacements of and additions to existing pipelines. The Company in the present case is seeking an order under section 58 of the Act exempting the proposed Tie-In Installation from the detailed route procedure.

Reference is made to the sections of the Act referred to above for the complete text of the provisions relating to the procedure for determination and approval of a pipeline route and the provisions which result in exemption from such procedures, and the foregoing description is subject to the express provisions thereof.

5. <u>Description of Procedure Available for Negotiation and Arbitration of</u> <u>Compensation Payable</u>

Sections 88 through 103, inclusive, of the Act establish a procedure for negotiation and arbitration in the event that an owner of Land and a pipeline company are unable to agree on any matter respecting the amount of compensation payable under the Act for the acquisition of Land or for damages suffered as a result of the operations of the pipeline company or on any issue related to such compensation.

Those sections provide, in effect, that if a pipeline company and an owner of Land have not agreed on any such issue either of them may serve notice of negotiation on the other of them and on the Minister requesting that the matter be negotiated. Following service of such notice the Minister must appoint a negotiator who must meet with the parties and, without prejudice to any subsequent proceedings, proceed to negotiate a settlement of the matter. Within sixty days after commencing the negotiation proceedings, the negotiator must report to the Minister his success or failure and submit a copy of his report to both parties.

If either an owner of Land or the pipeline company wishes to dispense with the negotiation proceedings or if the negotiation proceedings have not resulted in settlement of any compensation matter, either the pipeline company or the owner of Land may serve notice of arbitration on the other of them and on the Minister requesting that the matter be determined by arbitration. Forthwith thereafter the Minister must, subject to certain exceptions, refer the matter to an Arbitration Committee consisting of not less than three members appointed by the Minister, none of whom will be a member, officer or employee of the Board. The Arbitration Committee must then fix a suitable time and place for a hearing in order to determine all compensation matters referred to in the notice and serve notice of the hearing on the parties. Following such hearing the Arbitration Committee will determine all compensation matters referred to it and in doing so must consider a number of factors as set out in section 97 of the Act.

Reference is made to the sections of the Act referred to above for the complete text of the provisions relating to negotiation and arbitration of compensation matters and the foregoing description is subject to the express provisions thereof.

This Notice is not an offer and does not obligate either the Owner or the Company to enter into an Agreement.

If you have any questions, please contact Mr. Leslie G. Hogan of Pioneer Natural Resources Canada Inc., 2900, 255 5th Avenue S.W., Calgary, Alberta, T2P 3G6. Leslie Hogan may be reached directly at telephone: (403) 231-3202 or fax: (403) 231-3247.

PIONEER NATURAL RESOURCES CANADA INC.

Leslie G. Hogan

Coordinator, Land and Aboriginal Affairs

SEPTEMBER 5,2002 Date:

Receipt of the above section 87(1) notice is hereby acknowledged by:

(signature)

(print name)

Company Name:

Date:



PIONEER

NATURAL RESOURCES CANADA INC.

Leslie G. Hogan Telephone (403) 231-3202 (403) 231-3247 Fax

September 5, 2002

Alberta Sustainable Resource Development Land and Forest Service Petroleum Plaza - South Tower 3rd Floor, 9915 – 108th Street Edmonton, Alberta T5K 2C97

fleat vid courier Skept. 6/02 1 M

Attention: Rose Radomsky

Section 87(1) Notice Re: Twp. 96, Rge. 13 W6M: NW/26

Please find enclosed for your review, a Section 87(1) Notice pursuant to the National Energy Board Act.

Please acknowledge acceptance by signing and returning one (1) copy of this Notice to the undersigned. If you have any questions regarding this Notice, please do not hesitate to call me at (403) 231-3202 or Fax 231-3247.

Yours truly,

PIONEER NATURAL RESOURCES CANADA INC.

Leslie G. Hogan

Coordinator, Land and Aporiginal Affairs

LGH/lj Enclosures



PIONEER

NATURAL RESOURCES CANADA INC.

Leslie G. Hogan Telephone (403) 231-3202 Fax (403) 231-3247

September 5, 2002

Dene Tha Box 120 Assumption, Alberta T0H 0S0

Attention: Mr. Steve Didzena, Chief Dene Tha First Nation

Sent Express Post Sept 6/02

Re: Section 87(1) Notice <u>Twp. 96, Rge. 13 W6M: NW/26</u>

Please find enclosed for your review, a Section 87(1) Notice pursuant to the National Energy Board Act.

Please acknowledge acceptance by signing and returning one (1) copy of this Notice to the undersigned. If you have any questions regarding this Notice, please do not hesitate to call me at (403) 231-3202 or Fax 231-3247.

Yours truly,

PIONEER NATURAL RESOURCES CANADA INC.

Leslie G. Hogan

Coordinator, Land and Aboriginal Affairs

LGH/lj Enclosure

> Leslie G. Hogan Telephone (403) 231-3202 Fax (403) 231-3247

September 5, 2002



PIONEER

NATURAL RESOURCES CANADA INC.

Leslie G. Hogan Telephone (403) 231-3202 Fax (403) 231-3247

September 5, 2002

Doig River First Nation Box 56 Rose Prairie, British Columbia V0X 2H0

Attention: Mr. Gary Oker, Chief Doig River First Nation

Sent Sept 6/02 Engress Post

Re: Section 87(1) Notice <u>Twp. 96, Rge. 13 W6M: NW/26</u>

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Yours truly,

PIONEER NATURAL RESOURCES CANADA INC.

Leslie G. Hogan,

Coordinator, Land and Aboriginal Affairs

LGH/lj Enclosure



PIONEER NATURAL RESOURCES CANADA INC.

Leslie G. Hogan Telephone (403) 231-3202 Fax (403) 231-3247

September 5, 2002

Murphy Oil Company Ltd. 2100, 255 – 4th Avenue S.W. Calgary, Alberta T2P 3E7

Attention: Mr. Norman Ganes

Courier Sept 6/22

Re: Section 87(1) Notice Twp. 96, Rge. 13 W6M: NW/26

Please find enclosed for your review, a Section 87(1) Notice pursuant to the National Energy Board Act.

Please acknowledge acceptance by signing and returning one (1) copy of this Notice to the undersigned. If you have any questions regarding this Notice, please do not hesitate to call me at (403) 231-3202 or Fax 231-3247.

Yours truly,

PIONEER NATURAL RESOURCES CANADA INC.

Leslie G. Hogan Coordinator, Land and Aboriginal Affairs

LGH/lj Enclosure

Till



PIONEER NATURAL RESOURCES CANADA INC. Leslie G. Hogan Telephone (403) 231-3202 (403) 231-3247 Fax

September 5, 2002

Sient vin Courice Hept. 5/02

ATCO Electric Ltd. 12th Floor ATCO Centre 10035 – 105 Street Edmonton, Alberta T5J 2V6

Attention: Lands and Properties

Section 87(1) Notice Re: Twp. 96, Rge. 13 W6M: NW/26

Please find enclosed for your review, a Section 87(1) Notice pursuant to the National Energy Board Act.

Please acknowledge acceptance by signing and returning one (1) copy of this Notice to the undersigned. If you have any questions regarding this Notice, please do not hesitate to call me at (403) 231-3202 or Fax 231-3247.

Yours truly,

PIONEER NATURAL RESOURCES CANADA INC.

Leslie G. Hogan

Coordinator, Land and Aboriginal Affairs

LGH/lj
Enclosure



PIONEER NATURAL RESOURCES CANADA INC.

Mr. Lee Morin Box 187 Wembley, Alberta T0H 3S0

sent Agritolor Engron Post

Re: Section 87(1) Notice <u>Twp. 96, Rge. 13 W6M: NW/26</u>

Please find enclosed for your review, a Section 87(1) Notice pursuant to the National Energy Board Act.

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Yours truly,

PIONEER NATURAL RESOURCES CANADA INC.

Leslie G. Hogan / // Coordinator, Land and Aboriginal Affairs

LGH/lj Enclosure





Pioneer Natural Resources Canada Inc.,

1998/99 East Chinchaga Pipeline NEB Order No. XG-P17741-99

Final Post-Construction Environmental Report Prepared for The National Energy Board

OCTOBER, 2001

by Ernst Environmental Services Box 753 Rosebud, Alberta T0J 2T0 Phone: (403) 677-2074 Fax: (403) 677-2229

1.0 Introduction

Pioneer Natural Resources Canada Inc. ("**PNRC**") constructed certain facilities in the winter of 2000 in the Chinchaga area of British Columbia pursuant to National Energy Board ("**NEB**") Order No. XG-P177-41-99. Pursuant to Condition No. 10 of that Order, PNRC hereby submits the second post-construction environmental report to the Board. No unresolved issues remain regarding the facilities constructed.

2.0 Construction Schedule

The pipeline was constructed during the winter season, 2000.

2.1 <u>Cancellation of Lateral Tie-ins</u>

The testing results for 10-2-97-13-W6M and 11-35-96-13-W6M resulted in the cancellation of the lateral tie-ins from the pipeline to these two well sites.

2.2 Post-Construction Environmental Field Assessment

The post-construction field assessment for the pipeline right-of-way was conducted by Ernst Environmental Services ("**EES**") and Catherine Watson, Environmental Specialist with the NEB, on August 14, 2001, approximately 1.5 years post-construction. The field assessment was conducted by helicopter as summer conditions do not permit vehicular travel along the right-of-way.

Winter wildlife observations conducted by EES for PNRC on the pipeline right-of-way and in surrounding areas have occurred during the past four winter construction seasons. These observations have been submitted to the Board with this report under separate cover.

3.0 Surficial Geology and Soils

Excessive build up of organic material, surface failures and terrain instability were not observed during post-construction field assessment. The pipeline was re-roached during the winter of 2000/2001 as some settling had occurred (as was reported in last year's post-construction assessment report). No new settling was observed during this year's assessment. PNRC will monitor future settling, if any, and re-roach if necessary.

Soil erosion problems were not observed in the low-relief, wetland areas of the alignment nor at the unnamed tributary to the Lennard Creek. Slope erosion control at the unnamed tributary to the Lennard Creek continues to be successful. Erosion problems were not observed along the tributary, nor on other areas of the right-of-way.

Unusual or uneven settlement of the pipeline was not observed. Pioneer Natural Resources Canada Inc. NEB Order No. XG-P17741-99 1998/99 East Chinchaga Pipeline Final Post-Construction Report Prepared October, 2001

4.0 Vegetation

Vegetation was negatively impacted by the construction of the pipeline due to widening of the right-ofway, but PNRC was successful in restricting the extent of negative vegetation impacts. PNRC's successful revegetation converted the forested and shrubland areas into grass communities which has enhanced reclamation efforts, erosion control, and habitat/foraging opportunities for some wildlife species.

4.1 Weed Problems

Weed problems were not observed in the 2001 post-construction field assessment. PNRC's revegetation program was initiated to ensure that desirable species were quickly established to prevent problems with development of weed species along the right-of-way.

5.0 Wildlife

Efforts by PNRC during the winters of 1997/98 through 2000/01, inclusive, to monitor wildlife in the project area have positively determined that the Chinchaga caribou herd prefer habitat types not bisected by the project right-of-way. This recent information conforms with data compiled on the herd in previous years by Alberta Environment and British Columbia Ministry of Environment, Land and Parks personnel.

During post-construction field assessments and as a result of the four years wildlife observations conducted by EES, PNRC's pipeline construction was not observed as having negative impacts on wildlife habitat. Wildlife in the area has exhibited no notable avoidance behaviour in relation to the pipeline right-of-way. This suggests that the construction of the pipelines has been of minimal negative impact to wildlife in the project area.

Monitoring efforts have indicated that enhanced forage conditions along the right-of-way resulting from seeding to grass communities has been taken advantage of by grizzly bear and moose.

6.0 Historic Resources

Heritage North Consulting Ltd. ("Heritage North") conducted pre-construction archaeological and historical resources impact assessments in the project area in 1997. One archaeological sites was observed by Heritage North along the pipeline right-of-way. During construction of the pipeline, PNRC fenced and protected this site by avoidance as was preferred by Alberta Community Development ("ACD"). David Link with ACD (project tour, July 21, 1998), expressed to PNRC that a post-construction assessment of the archaeological site found along the pipeline right-of-way is not required for the following reasons:

Pioneer Natural Resources Canada Inc. NEB Order No. XG-P17741-99 1998/99 East Chinchaga Pipeline Final Post-Construction Report Prepared October, 2001

- the extensive pre-construction assessments conducted by Heritage North on behalf of PNRC;
- the insignificance of the sites found;
- PNRC's excellent protection and avoidance of the sites.

7.0 First Nations Considerations and Consultations

PNRC continues excellent consultations with First Nations in the area. Consultations will continue through the life of the project. First Nations concerns have been in relation to training and employment opportunities, economics and protection of traditional land use rights. No post-construction concerns regarding the pipelines have been raised by First Nations.

PNRC is committed to providing First Nations members with ongoing and future consultations.

8.0 Assessments of Cumulative Impacts

In order to better understand impacts of cumulative environmental effects, PNRC continues to monitor the pipeline right-of-way to observe ground cover development, slope stability, surface erosion and wildlife use. PNRC continues to minimize cumulative effects and impacts of associated and non-associated project related development in the Chinchaga area (*ie* well site construction, facility upgrades) by the initiating the following measures:

- mitigative efforts during construction (*ie* directional drilling of watercourses and utilization of existing rights-of-way);
- wildlife resource and habitat protection during and post-construction (*ie* implementing and managing the use of Caribou Protection Plans, environmental inspection and audits, wildlife studies);
- gathering of baseline data to better understand and mitigate cumulative effects and impacts;
- reclamation efforts post-construction (*ie* erosion and access control).

9.0 Ongoing and Future Monitoring

PNRC will continue to assess monitoring strategies used in past years and those implemented by PNRC during future developments and maintenance of the pipeline and right-of-way. This is the final post construction report required by the NEB for this project (NEB Order Number: XG-P17741-99). PNRC will provide the NEB with an updated environmental post-construction report if future developments or changes to the pipeline occur.

APPENDIX 5 THE SOUTH CHINCHAGA METER STATION ENVIRONMENTAL PROTECTION PLAN

The following Environmental Protection Plan (EPP) describes measures to be implemented during the construction of the meter station to minimize impacts identified in this report. In the development of this EPP, it was assumed that construction would commence in early winter depending on the weather, with construction to occur from mid-December to mid-March, 2003. Should this schedule change, the EPP will be revised as required. This EPP was developed to ensure maximum protection of the environment

1.0 <u>General Measures:</u>

- All necessary provincial and federal licenses and approvals will be obtained prior to construction. Inconsistencies between conditions of different permits will be resolved prior to construction.
- Meetings will be held on site or in regional government offices with representatives from PNRC's construction, engineering and environmental departments, and interested government regulatory personnel to review project concerns, if any.
- All appropriate provincial reclamation/surveillance officers will be kept informed of project developments by PNRC.
- Owners of Registered Trapping Areas affected by the tie in installation will be notified by PNRC of the construction schedule at least two weeks prior to construction. If possible, arrangements will be made to have the trap line owners clearly flag or remove their traps and snares in the vicinity of any access routes and the project site. Trappers will be consulted as required while the project progresses.
- All construction activities will be restricted to the designated access routes and construction site. All safety and road closure regulations will be adhered to by construction traffic.
- All construction debris (e.g. welding rods, oil cans) and other garbage will be continuously collected and disposed of at an approved facility.
- PNRC will notify and consult with the required regulatory agencies if project timing changes need to be implemented due to weather or otherwise.
- If the protective measures in this environmental protection plan are not in PNRC's construction contract documents, they will form an addendum to the contract documents.

2.0 <u>Wildlife/Fisheries Protection Measures</u>

Feeding or harassment of wildlife will be prohibited. Construction personnel will not be permitted to have firearms or pets, nor use all-terrain vehicles, outside of work, on the construction site, access routes or at project related facilities.

Caribou Protection Measures in Alberta:

• PNRC will complete construction as early as possible to minimize impacts to caribou;

The Environmental Protection Plan (EPP)

- PNRC has prepared and workers will follow the CPP (Appendix ??);
- PNRC will manage access as follows to mitigate impacts, if any, to caribou and habitat.

Access Management:

- The proposed project will be constructed using an existing, previously cleared right-of-way. PNRC will use existing corridors for access routes.
- PNRC will communicate between users in the area to share access.
- PNRC will have on-site inspection and supervision during construction activities of the meter station.
- If any new access is required, PNRC will use existing corridors where possible.
- PNRC will ensure surface stabilization materials are used that can be removed and cleaned up.
- PNRC will inspect for and manage non-project related traffic in the project area.
- PNRC will restrict winter road use to night use only if temperatures during the day warrant restriction.
- PNRC will use snow berms and/or roll back once construction is complete to create short term access management on the existing right-of-way. PNRC will remove all snowfill/ice and temporary bridges, and access ramps installed for the existing winter access routes required for the project. PNRC will evaluate various methods (*e.g.* use of slash rollback) of long term access management to discourage access development for snowmobile/ATV or other recreational vehicles, while at the same time, permitting open access where required for the area trapper.
- PNRC will re-vegetate using appropriate native species and allow natural re-growth to improve management of access.

3.0 <u>Contingency Planning for Accidents or Malfunctions</u>

Historic Resources:

If an unidentified archaeological or heritage site is encountered during construction, work will be stopped until it is examined by a qualified archaeologist and consultations to advise of the site occurs with the appropriate representative from the First Nations. Work in that area will only proceed once Historic Sites and Archives Branch of ACD grants permission.

Noxious Weeds:

Equipment will be cleaned of mud and vegetative debris prior to entering the right-of-way to minimize entry of noxious weeds.

Hazardous Material Handling and Spill Response:

PNRC will meet or exceed all regulatory requirements in the storage and handling of all hazardous materials and in the prevention, containment and clean up of fuel and toxic material spills.

- All hazardous material stored on the project site will be labeled according to WHMIS (Workplace Hazardous Materials Information System) and TDG (Transportation of Dangerous Goods) regulations.
- All on-site fuel storage tanks, if required for construction, larger than 200 litres will be located in an impermeable secondary containment area with a holding capacity equal to 125% of the largest tank within the berm.
- The servicing and fueling of equipment will not be permitted within 100 m of streams, lakes and wetland areas and limited to water crossing activities.
- All service vehicles utilized for fueling must be equipped with automatic shut-off valves and be monitored by the operator.
- All equipment servicing activities with the potential for accidental spills (e.g. oil changes, hydraulic repair) will be conducted over an impervious tarp to contain spills and outside the high water mark of all watercourses, lakes and wetland areas.
- Used oil, filter and grease cartridges, lubrication containers, and other products of equipment maintenance will be collected and disposed of at the nearest industrial waste facility.
- To be prepared in the event of a fuel spill, all fuel and service vehicles will carry a minimum of 10 kg of commercial sorbent material for ground spills and floating sorbent pads and booms for spill clean-up on open water.
- PNRC and its contractors will have a spill response plan and will present it to the environmental inspector. This plan will include information on individuals responsible for spill control and clean-up, materials/equipment available on-site for spill control and clean-up, and general procedures to be employed for spill containment, clean-up and disposal.
- All fuel spills will be immediately reported by either the Chief or Environmental Inspector to PNRC, British Columbia Ministry of Water, Land and Air Protection (BC MWLAP) and to AENV authorities.
- PNRC and its contractors will follow and work with AENV and BC MWLAP recommendations.

4.0 <u>Right-Of-Way Preparation</u>

Clearing:

There will be no clearing required for the meter station tie-in site.

Grading:

There will be no grading required for the meter station tie-in site.

5.0 Access Requirements

No new access will be developed for the Meter Station Tie-in.

Vehicle Crossings/Ice Bridges:

Consultations with appropriate regulatory agencies will occur prior to construction.

- Temporary bridge spans will be installed on flowing and larger, non-flowing watercourses. Snow/ice bridges will be constructed at other crossings.
- At no time will soil or debris be deposited below the high water mark of any water body. The work area will be kept clear of mud and debris. Special attention during break-up will be taken by contractors.
- Ice bridges will be located so as to minimize approach grades. Stream banks will not be cut to improve access.
- Approaches of clean compacted snow and ice will be constructed to a sufficient thickness to adequately protect the stream on river banks, including the vegetative cover on the banks. Snowfill/ice bridges will be constructed from water drawn from the watercourse and/or "clean snow" from surrounding areas.
- If equipment or trucks fall through the ice, measures will be taken to contain the escape and release of any deleterious substances into the water body or onto the ice. The local regional fisheries biologists will be informed immediately.
- Ice bridges will be removed in time to prevent a blockage during the spring run-off.
- If weather conditions will not support the construction of snow or ice bridges (e.g. warm temperatures, low snow accumulations), then other temporary crossing structures approved by provincial authorities (e.g. bridge spans, log bundles) will be employed.

Clearing Requirements for Access:

No clearing for access will be required.

Grading Requirements for Access:

No grading for access will be required.

6.0 <u>Site Preparation</u>

General Measures:

- Active trappers' trails and access routes, if any, intersected by the right-of-way will remain unobstructed throughout construction.
- If dewatering is required, water will be pumped onto stable, well vegetated areas at least 50 m from the nearest watercourse. The mouth of the pump hose will be supported and directed at rocks, sandbags or other appropriate materials to reduce outflow velocities and erosion potential.
- Construction debris and other garbage will not be deposited on site.

7.0 <u>Testing</u>

- If water is required for any portion of the testing, it will only be drawn from approved waterbodies and disposed of appropriately at approved rates, as in permits obtained for the project.
- If any testing water is discharged on land, the water will be dissipated over a vegetated area or other stable surface material to minimize soil erosion.
- All methanol/water mixtures, if any, used will be rented and returned after the test is complete.
- Where pumping equipment used for testing is situated adjacent to watercourses (i.e. within 30 m), the equipment will be placed on a bermed polyethylene sheeting capable of containing any fluid leaks.
- If any pumping equipment is used, intake pipes will be equipped with a screen covering with a mesh size not exceeding 2.54 mm (0.10 inch), in compliance with DFO's Freshwater Intake End-of-Pipe Fish Screen Guideline (1995).
- Debris collected during pig runs will be removed to an approved industrial waste disposal site.

8.0 <u>Clean-Up And Reclamation</u>

- PNRC will follow environmental protection and reclamation guidelines.
- Clean-up will occur immediately following construction operations. Surface material stripped from the right-of-way will be redistributed evenly over all stripped areas.
- Slash rollback stockpiled, if any, will be redistributed.
- A re-vegetation program will be undertaken following machine clean-up. The purpose will be to control potential wind and water erosion and encourage rapid re-vegetation for weed species competition.

Re-vegetation and seed mix and application rates will be determined as the project progresses. Seed availability will determine final seed mix. Seed mixes will be reviewed with AENV and ordered in sufficient time for spreading post-construction. Seed will be Certified Canada #1 seed with certificates available for viewing. An approved Canada #1 seed mix used successfully in the past is as follows:

Alfalfa	5%
Wild Vetch	10%
Alsike Clover	10%
Climax Timothy	30%
White Dutch Clover	5%
Sheep's Fescue	10% (non-creeping)
Rough Hair Grass	15%
Fowl Blue Grass	15%

Application rates:

30 kg/ha broadcast from Quad during clean-up or 40 kg/ha broadcast from helicopter.

Specific seeding methods and equipment will be determined by construction timing and weather conditions. Fertilizer will not be required. Past re-vegetation without fertilizer has been extremely successful on this existing right-of-way.

Seeding success will be checked throughout post-construction and reseeding will occur as deemed necessary. Weed control measures will be taken, if required.

Special Measures at Stream Crossings:

Ice bridges will be scraped clean of slash, spoil or other materials that may have been introduced onto the surface during construction to prevent ice jams and possible flooding. All temporary bridges and associated materials will be removed.

Banks will be restored with local material or gravel, stabilized, armored and re-vegetated as soon as possible once construction activities are complete.

8.0 <u>Camp Operation</u>

There will be no separate work camp required for this project.

Ernst Environmental Services

Box 753 Rosebud, AB T0J 2T0 Phone: (403) 677-2074 Fax: (403) 677-2229

Revised: November 7, 2001

Alberta Environment Land & Forest Services Mackenzie District Manning Office Main Avenue, 3rd Street West Box 749 Manning, AB T0H 2M0

Sent by Fax to 1-780-836-3666

Attention: Jeff Peockens

CPP#: 12-CPP-01\02NWB2C

Re:

Pioneer Natural Resources Canada Inc. Revised: Chinchaga Caribou Protection Plan for Proposed Well and Pipeline Development planned for winter construction 2001/2002.

Dear Jeff,

Please find enclosed two copies of the 2001/2002 Caribou Protection Plan (North West Caribou Range) for Pioneer's winter development at Chinchaga. Thank you for letting us know that the 2001/2001 well program and proposed tie-in map from Dale Guidi arrived in good order.

Please call if you require further assistance or information.

Sincerely,

Jessica Ernst

Enclosure: as stated cc Dale Guidi, Pioneer Natural Resources Canada Inc.

PIONEER NATURAL RESOURCES CANADA INC.

CARIBOU PROTECTION PLAN 2001/2002 (North West Caribou Plan)

Pioneer Natural Resources Canada Inc. (Pioneer) intends to drill approximately eight wells within the Chinchaga Caribou Protected Area. Proposed locations are as follows:

LOCATION	PIPELINE SIZE	STATUS	PROPOSED LINE OF SIGHT MITIGATION
TWP 96			
5-17-96-12W6M	6"	NEW DRILL	Visual broken by bends in the line
14-18-96-12W6M	6"	NEW DRILL	Visual broken by bends in the line
16-23-96-13W6M	6"	NEW DRILL	Use of existing line; Minimum duff disturbance
15-24-96-13W6M	6"	NEW DRILL	Use of existing line; Minimum duff disturbance
4-20-96-13W6M	6"	NEW DRILL	Line less than 1 mile in length
11-22-96-12W6M	6"	NEW DRILL	Use of existing line; Minimum duff disturbance
TWP 97			
*15-24-97-13W6M	4"	NEW DRILL	Visual broken by bends in the line
4-7-97-12 W6M	4"	NEW DRILL	Visual broken by bends in the line

* this location has been revised from 10-24-97-13-W6M; the map has the correct location.

Successful wells will be tied-in after completion. Pioneer's proposed mitigation for limiting line of sight, as per the 'Strategic Plan and Industrial Guidelines for Boreal Caribou Ranges in Northern Alberta", ratified for implementation by the Boreal Caribou Committee, September, 2001 (referred to herein as the "New Operating Guidelines"), is outlined in the table above. Further mitigative details proposed by Pioneer for Chinchaga activities are included herein.

Pioneer is committed to the preservation of boreal wildlife, not only Woodland Caribou, and has initiated environmental stewardship beyond regulatory requirements and recommendations of the Boreal Caribou Committee. Pioneer's environmental stewardship includes, but, is not limited to the following:

- Pioneer has retained an environmental monitor, each winter season, since 1997, in order to:
 - □ monitor and randomly inspect shared Chinchaga area access use;
 - □ assess ongoing cumulative effects;
 - observe and monitor the Chinchaga caribou and other wildlife in relation to access use and activities;
- Pioneer has hired an environmental firm to conduct four seasons of wildlife snow tracking, photo documentation and field observations from December through March in the Chinchaga oil and gas development area in order to holistically maximize potential mitigative measures to be recommended for industry use to benefit boreal wildlife, not just specifically caribou. The work included literature review, consultations with wildlife specialists and boreal forest agencies, report preparation, printing and distribution. A copy of the most recent report (EES, 2001) is attached. Pioneer is proposing to continue this work for a fifth season;
- Pioneer has annually shared the environmental information gathered each season with more than 30 specialists;
- Pioneer initiated collecting caribou scat for stress hormone analysis in order to help develop improved future mitigative techniques for protecting caribou at Chinchaga and elsewhere. The initial stress hormone analysis work completed by the Wasser Laboratory, University of Washington (U.S.A.), on samples collected last winter at Chinchaga, has shown that glucocorticoids in caribou scat can be accurately measured. This technique provides a non-invasive method to gather useful information without stressing, handling nor harming any caribou in the process (refer to the EES report attached for details). Pioneer proposes to continue and develop this work in the upcoming season.

Pioneer will abide by the New Operating Guidelines and additionally implement the following:

- Pioneer will commit to access closure as soon as possible after testing and tie-in work is complete;
- Pioneer commits to ensuring short spur access to wells;
- Pioneer commits to adhering to the New Operating Guidelines by implementing limitations to lines of sight at a rate of one per mile by one or more of the following mitigative measures:
 - □ leaving buffer zones when boring across water bodies and/or roads or other facilities;
 - □ minimizing duff disturbances on access and pipeline routes;
 - using topography as best possible to maximize breaks in lines of sight naturally;
 - □ creating dog legs;
 - □ using existing lines;

- □ using natural bends and/or jogs for pipelines and/or access routes;
- □ planting appropriate vegetation if additional mitigative work is deemed necessary;
- Pioneer commits to minimizing ground disturbances and reducing footprint where possible at Chinchaga during all construction activities by:
 - □ padding of leases kept to a minimum, for heli-pad and well head purposes only (normally 10m by 10m);
 - □ limiting use of sumps where ever possible, thereby reducing additional clearing;
 - □ minimizing duff disturbances on access and for pipeline construction;
 - □ minimizing well site sizes;
 - □ utilizing one central camp year after year, minimizing traffic, access and reducing the need for additional clearing (and possibly increasing wildlife habituation opportunities and thereby reducing stressors);
 - □ sharing access with other proponents and randomly policing access use;
- Pioneer commits to completing activities as soon as possible for wells and pipelines and related access with maintaining an early-in/early-out construction policy. Pioneer commits to completing wells, pipelines and related activities within a year to reduce effects upon boreal wildlife;
- Pioneer commits to locating clearing and related activities to lowland areas in order to
 protect rare, sensitive sites (i.e. upland and old growth forest areas) used by numerous
 Chinchaga wildlife species (notably wolverine, fisher, marten, moose, grizzly bear,
 various bird species, etc.).

The following restrictions will be placed on all activities in the Caribou Range:

- No firearms will be permitted except where required for operator safety;
- No pets will be permitted;
- The use of All Terrain Vehicles will be restricted to work related activity. No recreational use of these vehicles will be permitted;
- Sighting sheets to record wildlife sightings will be made available to Pioneer personnel and contractors;
- Random road and area use will be monitored;
- Wildlife, including the caribou herd, will be monitored from December 1, 2001 to mid March, 2002;
- Pioneer personnel and contractors receive safety and environmental awareness training. The importance of this CPP and protection of Chinchaga wildlife will be clearly communicated to workers;
- Wells tied-in will be remotely operated.

Construction Scheduling/Restrictions:

Pioneer intends to commence well-site construction as soon as frozen ground conditions are in effect. Drilling will commence on or about December 10, 2001 with expected completion by the end of February, 2002. Pioneer intends to commence pipeline

construction in mid January, 2002 with initial reclamation completed by March 15, 2002. Pioneer commits to completing activities, including related access use as early as possible to reduce effects to wildlife.

Access Development:

Pioneer will be utilizing only frozen, unimproved access roads and the existing all weather access road during the drilling and pipeline construction phase of operations. Access will be restricted by a manned gate at 1-7-96-12-W6M. Traffic using the road will be documented. Road use will be summarized with sign-in sheets and data collected forwarded to Forestry.

Pioneer will implement access closures as soon as possible after tie-ins are complete, excepting limited use of the access required for the wildlife observations work, including further caribou scat collections and remote camera station maintenance and surveillance.

Contact Personnel:

Contact Personnel for the above listed operations are as follows:

Mr. Dale Guidi Pioneer Natural Resources Canada Inc. 2900, 255- 5 Avenue S.W., Calgary, Alberta T2P 3G6	Office: Fax: Cell:	(403) 231-3202 (403) 231-3276 (403) 861-2147
Ms. Norma Marchuk Pioneer Natural Resources Canada Inc. 2900, 255- 5 Avenue S.W., Calgary, Alberta T2P 3G6	Office: Fax:	(403) 231-3236 (403) 231-3276
Ms. Jessica Ernst Ernst Environmental Services Box 753 Rosebud, Alberta T0J 2T0	Office: Fax: Cell:	(403) 677-2074 (403) 677-2229 (403) 820-3529
Mr. Jonathan Wright Chinchaga Wildlife Specialist Box 648 East Coulee, Alberta T0J 1B0	Cell: Office:	(403) 820-2755 (403) 822-2383
Mr. Jeff Poeckens Alberta Environment P.O. Box 749 Manning, Alberta T0H 2M0	Office: Fax:	(780) 836-2881 (780) 836-3666

APPENDIX 7:	PIONEER NATURAL RESOURCES CANADA INC.	HINCHAGA SCAT COLLECTION and GLUCOCORTICOID ANALYSIS
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WOODLAND CARIBOU SCAT COLLECTIONS INITIATED IN 2000 TIMBER (GREY) WOLF SCAT COLLECTIONS INITIATED IN 2002

Scatology Overview:

In early 2000, EES determined that the apparent woodland caribou habituation to activities at Chinchaga, observed by EES since 1997, warranted originated the idea to collect caribou, wolf and wolverine scat at Chinchaga for the purposes of collecting base line data on stress levels for these further study. EES selects fieldwork study techniques that result in as limited invasion as possible to listed species (i.e. caribou and wolverine). After scatology literature review and discussions with scatology and glucocorticoid analysis experts (Hunt and Wasser, Pers. comm), EES species as related to industrial development. EES believes this data will prove invaluable in further understanding CEEs in development areas and elsewhere. At the time EES initiated the collections, it was unknown whether scat analysis techniques were possible for these species (Hunt, Pers. comm.), yet PNRC agreed to proceed with the work. In the summer of 2001, The Wasser Lab, University of Washington ("the Wasser Lab") validated the caribou samples collected (December 2000 to March, 2001).

remains unknown whether validation for this species will be successful. Scat samples are collected in the field and stored frozen until the end of The next winter activity season at Chinchaga, EES continued collections of caribou scat and initiated timber wolf scat collections. In the summer of 2002, the Wasser Lab validated the timber wolf scat samples. To date, EES has not yet had the opportunity to collect wolverine scat and it each collection season. They are then couriered to the Wasser Lab for analysis.

this work is new, the results so far are already valuable in showing that caribou stress hormone levels are similar for scat samples collected distal Stress hormone work in caribou is new and has not been conducted elsewhere (Kathleen Hunt, Wasser Lab. Pers. comm.). To date, comparative data for other areas and circumstances remains unavailable, as well as what elevated or normal stress hormone levels are for caribou. Although and proximal to activities, and over two different construction seasons. Stress hormone work has been conducted on red wolves, but, not on timber wolf (Hunt, Pers. comm). The timber wolf samples collected last year were initiated to determine whether predators, and not just prey, are experiencing stress due to developmental activities. The scat collections last season are interesting in that EES was able to snow track, and collect scat from, an injured wolf that had been shot in the field.

	Proximal: 44.25 ng/g	2000/2001 Mean			
Upland site – borrow-pit along heavily used winter access	Proximal	57°25'; 119° 59'	10/01/01	g/gu cc	Н
on Fontas Rd.; upland site				0	
CNRL lease a-25-E; 94-H-8 at km 43	Proximal	57° 21'; 120° 25'	10/10/91	49 ng/g	G
Alongside Shell (Apache) higrade	Proximal	57°19'; 119° 49'	11/12/00	44 ng/g	F
likely same group as above					
270 metres from PNRC camp after traversing field;	Proximal	57°22'; 120° 10'	02/03/01	46 ng/g	Е
çç 55	Proximal	57°21'; 119° 51'	01/03/01	34 ng/g	D
çç 55	Proximal	57°21'; 119° 51'	01/03/01	49 ng/g	С
66 33	Proximal	57°21'; 119° 51'	01/03/01	44 ng/g	В
disturbed on latter by numerous crews; 8 in group	F I U A IIII d I	10 -411; 17-70	10/00/10	g/gn cc	Y
	Disturbance ^{***}		Collection	Level ^{**}	
Description of Collection Site	Distal/Proximal to	Location of Sample	Date of	Glucocorticoid	Sample #

* ng/g = nanograms of immunoreactive fecal glucocorticoid metabolites per gram of dried sifted feces (validation and analysis prepared by the Wasser Lab, University of Washington, U.S.A.)

**Distal defined as: collected at least 1000 metres from ongoing activities (heavily used road; pipelining; drilling; seismic activity; etc.) Proximal defined as: collected immediately adjacent ongoing activities. Note: Samples A through D include those collected from the group of caribou that had crossed and fed on the existing Hamburg right-of-way during Murphy Loop right-of-way preparation and within a hundred metres of the set up of the rig for the directional drill for the crossing of the Lennard Creek.

APPENDIX 7: PIONEER NATURAL RESOURCES CANADA INC.	HINCHAGA WOODLAND CARIBOU SCAT COLLECTION AND GLUCOCORTICOID LEVELS, 2001/2002
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Sample #	Glucocorticoid Level*	Date of Collection	Location of Samule	Distal/Proximal to Disturbance**	Description of Collection Site
A	62 ng/g	15/12/01	57° 18'; 120° 00'	Proximal	Borrow pit/drilling camp (unused) site along winter access
В	35 ng/g	16/12/01	57° 21'; 119° 51'	Distal	Adj. Hamburg NEB line before seasons' activities commenced
С	35 ng/g	19/12/01	57° 20'; 120° 01'	Proximal	Proximal to: winter access/higrade/c-32 plantsite
D	32 ng/g	11/01/02	57° 21'; 119° 50'	Distal	Vicinity of Lee Morin's Bassnet Airstrip cabin
Е	48 ng/g	13/01/02	57° 18'; 120° 05'	Proximal	Black spruce fen south of Chin. River
Ч	31 ng/g	14/01/02	57° 16'; 120° 03'	Proximal	Along busy main Ladyfern access (linking PNRC Higrade)
Ċ	24 ng/g	16/01/02	57° 21'; 119° 49'	Distal	On Hamburg-c-32 NEB line prior to seasons' activities
Н	31 ng/g	16/01/02	57° 23'; 119° 55'	Distal	2 caribou traveling together
Ι	36 ng/g	10/02/02	56° 52'; 120° 32'	Proximal	3 caribou cratering adjacent busy all-season road at Pee Jay
ŗ	48 ng/g	10/02/02	56° 52'; 120° 32'	Proximal	3 caribou cratering adjacent busy all-season road at Pee Jay
r I	Mean levels 2000/2001	Proximal: 4	14.25 ng/g		
	Mean levels 2001/2002	Proximal: 4 Distal: 30.5 דאלמו הימוא י	13.3 ng/g ng/g Maari 32 7		

* ng/g = nanograms of immunoreactive fecal glucocorticoid metabolites per gram of dried sifted feces (validation and analysis prepared by the Wasser Lab, University of Washington, U.S.A.)

** Distal defined as: collected at least 1000 metres from ongoing activities (heavily used road; pipelining; drilling; seismic activity; etc.) Proximal defined as: collected immediately adjacent ongoing activities.

Appendix 7: Chinchaga Caribou and Wolf Scat Collections and Stress Hormone (Glucocorticoid) Analysis, 2000 - 2002 ŝ

Sample #	Glucocorticoid	Date of	Location of Sample	Description
_	Level*	Collection		
A1	g/gn 787	03/02/02	57° 24'; 120° 08'	On winter access adjacent kill
A2	1283 ng/g	03/02/02	57° 21'; 120° 08'	On winter access adjacent kill
B1	329 ng/g	07/03/02	57° 22'; 120° 07'	Bullet-wounded wolf; Snow tracking to determine injuries & collect scat
B2	149 ng/g	07/03/02	57° 22'; 120° 07'	Bullet-wounded wolf; Snow tracking to determine injuries & collect scat
B3	120 ng/g	08/03/02	57° 22'; 120° 07'	Bullet-wounded wolf; Snow tracking to determine injuries & collect scat
C1	23 ng/g	08/03/02	b-61-g	From kill site
Me	an 2001/2002			448.5 ng/g

CHINCHAGA WOLF SCAT COLLECTION AND GLUCOCORTICOID LEVELS, 2001/2002 **APPENDIX 7: PIONEER NATURAL RESOURCES CANADA INC.**

* ng/g = nanograms of immunoreactive fecal glucocorticoid metabolites per gram of dried sifted feces (validation and analysis prepared by the Wasser Lab, University of Washington, U.S.A.)