



WOLVERINE COAL PROJECT

ASSESSMENT REPORT

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

**Prepared by
Environmental Assessment Office**

December 13, 2004

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Abbreviations and Acronyms

The following abbreviations and acronyms are used in this Assessment Report:

Act	B.C. <i>Environmental Assessment Act</i> (S.B.C. 2002, c. 43)
Addendum Report	Addendum Report (submitted July 6, 2004) to the Additional Information Report
AIR	Additional Information Report (dated May 11, 2004)
Amended Information Requirements	Approved Amendment to Additional Requirements as Requirements identified in the Wolverine Coal Project – Final Project Specifications, dated March 19, 2004
Application	Application for an environmental assessment certificate
CCR	Coarse Coal Rejects
CEAA	<i>Canadian Environmental Assessment Act</i>
CEA Agency	Canadian Environmental Assessment Agency
Certificate	Environmental Assessment Certificate
DFO	Fisheries and Oceans Canada
EA	Environmental Assessment
EAO	Environmental Assessment Office
EPD	Environmental Protection Division of MWLAP
ePIC	Electronic Project Information Centre
Former Act	<i>Environmental Assessment Act</i> , R.S.B.C. 1996, c. 119
FSR	Forest Service Road
GHG	Greenhouse Gases
IER	Institute of Environmental Research
KLCN	Kelly Lake Cree Nation
KLFN	Kelly Lake First Nation
KLMSS	Kelly Lake Métis Settlement Society
km	kilometre(s)
LWBC	Land and Water British Columbia Inc.
m	metre(s)
MEM	Ministry of Energy and Mines
ML/ARD	Metal Leaching and Acid Rock Drainage
MLIB	McLeod Lake Indian Band
MoF	Ministry of Forests
MSRM	Ministry of Sustainable Resource Management
MWLAP	Ministry of Water, Land and Air Protection
NO ₂	Nitrogen Dioxide
Original Application	Application for a Project Approval Certificate (dated January 10, 2002)
PNG	Petroleum and Natural Gas
PM _{2.5}	Particulate matter less than 2.5µ in diameter
PM ₁₀	Particulate matter less than 10µ in diameter
Project	Wolverine Coal Project
Proponent	Western Canadian Coal Corp.
Project Report Specifications	Wolverine Coal Project – Report Specifications (issued May 20, 2002)

Revised Project Description

SFNs

SO₂

TSS

VEC

VOC

WCC

WMFNs

Wolverine Coal Project Revised Project Description (dated
October 10, 2003)

Saulteau First Nations

Sulphur Dioxide

Total Suspended Solids

Valued Ecosystem Component

Volatile Organic Compounds

Western Canadian Coal Corp.

West Moberly First Nations

Executive Summary

Background

On January 10, 2002, Western Canadian Coal Corp. (WCC or the Proponent) submitted an application to the Environmental Assessment Office (EAO) for a project approval certificate for the Wolverine Coal Project (the Project) under the *Environmental Assessment Act*, R.S.B.C. 1996, c. 119 (the Former Act). Following review by provincial and federal agencies, the public, Treaty 8 First Nations potentially affected by the Project and the Kelly Lake communities, EAO issued on May 20, 2002 project report specifications which identified further information requirements.

An assessment of the Project under the Former Act was in progress when the new *Environmental Assessment Act*, S.B.C. 2002, c. 43 (the Act) came into effect on December 30, 2002. A Transition Order issued under the Act stipulated that the original application and supplemental information be accepted as an application for an environmental assessment certificate under the Act. The order required that the further information described in the project report specifications to identify and assess the potential effects of the Wolverine Coal Project be provided in order to proceed with the assessment of the Project under the Act.

On October 10, 2003, WCC submitted a revised project description to the Environmental Assessment Office (EAO) which proposed changes to the mine plan. Following review by provincial and federal agencies, the public, Treaty 8 First Nations potentially affected by the Project and the Kelly Lake communities, EAO issued amendments to information requirements to reflect changes in the mine plan.

In response to the information requirements in the project report specifications and the approved amendments, WCC submitted an Additional Information Report for screening on April 1, 2004 which was accepted for review on April 30, 2004. Following report distribution, the review period (up to 180 days), commenced on May 21, 2004. The 75 day public comment period was initiated on May 27, ending August 9, 2004. On July 6, 2004, the Addendum Report was submitted as required in the section 11 order. The Addendum Report included information on metal leaching and acid rock drainage / metal leaching, selenium, traditional land use and archaeology in support of their application for a certificate under the Act. Subsequent information submitted by WCC to assess or mitigate the potential effects of the Project is also considered as part of the application for an environmental assessment certificate and is considered in the following assessment report.

On October 15, 2004, the review period was suspended on request of the Proponent in order to provide additional information to complete the review. On receipt of this information, the review was resumed on November 12, 2004.

The Project was not subject to federal review under the *Canadian Environmental Assessment Act*.

Description of the Project

The Project is an open pit coal mine approximately 25 km west of Tumbler Ridge, British Columbia. It is comprised of the Perry Creek pit and the EB pit, coal processing, storage and load-out facilities; maintenance facilities; tailings pond and waste dumps; a coal dryer; an explosives magazine; modifications to the Perry Creek road and the Wolverine Forest Service Road; a power line and a construction camp. The Project footprint is 1368 hectares.

The Project is located primarily on Crown Land, with exception of a small portion of private land associated with the adjacent Terry Ranch.

The Project Application is based on annual production of 1.6 million tonnes of metallurgical coal for sale primarily to the export market over a 11 year mine life. Production would begin at the Perry Creek Open pit in the fall of 2005, with production at the EB pit deferred until approximately 2012.

Capital costs for the planned life of the revised Project is estimated at \$116 million. Total construction phase employment will peak at approximately 200 people. It is anticipated that direct employment on site during project operation will begin at 190 and rise to 220 by year three of operation.

Western Canadian Coal Corp. is a public company with shares traded on the Canadian Venture Exchange. The company was incorporated in 1997 and the head office is located in Vancouver.

Application Review Process

The Application was made available for review and comment by government agencies, Treaty 8 First Nations potentially affected by the Project, the Kelly Lake communities and the public. The Proponent responded to all comments and made revisions to its proposed mitigation measures, monitoring programs and other commitments to address the concerns. These revisions were reviewed by an interagency committee comprised of relevant government agencies, Treaty 8 First Nations and communities at Kelly Lake, and conclusions reached on whether practical means had been proposed to prevent or reduce to an acceptable level any potential significant effects of the Project.

Public Feedback

EAO established a 75 day public comment period on the Application commencing May 27, 2004. EAO received 13 submissions from the public and stakeholders, as well as noting comments during open houses and public presentations hosted by the Proponent in Chetwynd and Tumbler Ridge on June 2 and 3, 2004, respectively. While comments were supportive of economic development some issues were raised regarding local hiring and contracting policies, as well as the potential for conflicting land uses, including forestry, petroleum and natural gas activities, ranching, trapping, guide outfitting and recreation.

The Proponent addressed potential land use conflicts through access understanding, and an agreement to purchase a portion of the Terry Ranch and to lease the remainder of the property and to enter into a "no residency" agreement to avoid the potential effects of diminished air quality on human health. Negotiations are on-going between WCC and the guide outfitter and trapper.

First Nation and Communities at Kelly Lake Feedback

Three Treaty 8 First Nations, the McLeod Lake Indian Band, Saulteau First Nations and West Moberly First Nations, as well as three organizations from Kelly Lake, the Kelly Lake Métis Settlement Society, Kelly Lake Cree Nation and Kelly Lake First Nation were extensively involved in the project review. The Lheidli T'enneh First Nation was provided with information regarding the Project but declined to participate since it is outside their area of traditional use.

In addition to general concerns raised by all groups regarding protection of wildlife, water and air quality, fish and traditional use of the land, the independent consultant acting on their behalf emphasized the need to address cumulative effects on a regional basis, need for membership in an environmental advisory committee and the finalization of cooperative agreements.

The Proponent has addressed these issues through mitigation proposals regarding environmental values, redesign of a waste dump to avoid an alpine lake of traditional value, development of a site specific wildlife management plan, and creation of an environmental advisory committee. To address cumulative effects associated with the Project, WCC has agreed to participate in caribou regional management planning, and a government led access management strategy.

A cooperative agreement has been signed by the West Moberly First Nations, with negotiations on-going with the remaining interested parties.

Agency Feedback

The key technical issues identified during the review of the Project were potential impacts on air (coal dust) and water quality (acid mine drainage and metal leaching, specifically selenium), wildlife (in particular caribou and Grizzly Bear), cumulative effects, stability of the tailings impoundment and human health effects. Socio-economic effects were primarily in the form of potential land use conflicts and discussed in the above in the section on Public Feedback. No potential heritage effects of the Project were identified.

Based on information subsequently provided by the Proponent in responding to review comments, including proposed mitigation and commitments, EAO consider these issues to be adequately resolved.

Conclusions

EAO is satisfied that:

- The Application adequately identified and assessed the potential significant adverse environmental, economic, social, heritage and health effects of the Project;
- Public consultation and distribution of information about the Project are adequate;
- EAO is satisfied that legal duties owed to First Nations have been met, that consultations carried out in relation to the Project were adequate and that issues within the scope of the environmental assessment have been adequately addressed and accommodated, and
- Practical means have been identified to prevent or reduce to an acceptable level any potential significant adverse effects of the Project.

PART A GENERAL REVIEW BACKGROUND

1 Certification Process

1.1 Provincial EA Process

1.1.1 Background

On January 10, 2002, Western Canadian Coal Corp. (WCC or the Proponent) submitted an application (referred to in this report as the Original Application) to the Environmental Assessment Office (EAO) for a Project Approval Certificate for the Wolverine Coal Project (the Project) under the *Environmental Assessment Act*, R.S.B.C. 1996, c. 119 (the Former Act). Following review by provincial and federal agencies, the public and Treaty 8 First Nations potentially affected by the Project and the Kelly Lake communities, EAO issued on May 20, 2002 the *Wolverine Coal Project - Report Specifications* (the Project Report Specifications) which identified further information requirements.

An assessment of the Project under the Former Act was in progress when the new *Environmental Assessment Act*, S.B.C. 2002, c. 43 (the Act) came into effect on December 30, 2002. A Transition Order issued under the Act stipulated that the Original Application and supplemental information provided by the Proponent under the Former Act would be accepted as an application for an environmental assessment certificate (the Certificate) under the Act. The order required that additional information described in the Project Report Specifications to identify and assess the potential effects of the Wolverine Coal Project be provided in order to proceed with the assessment of the Project under the Act.

On October 10, 2003, WCC submitted the *Wolverine Coal Project Revised Project Description* (the Revised Project Description) to EAO which proposed changes to the mine plan. Following review by provincial and federal agencies, the public and Treaty 8 First Nations potentially affected by the Project and the Kelly Lake communities, EAO issued the *Approved Amendments to Additional Information Requirements* (Amended Information Requirements) as identified in the *Wolverine Coal Project – Final Project Report Specifications*, dated March 19, 2004 (the Amendments to Information Requirements).

In response to the information requirements in the Project Report Specifications and the approved amendments, WCC submitted an Additional Information Report (AIR) for screening on April 1, 2004 which was accepted for review on April 30, 2004. Following report distribution, the 180 days review period commenced on May 21, 2004. The 75 day public comment period was initiated on May 27, ending August 9, 2004. On July 6, 2004, the Addendum Report (AR) was submitted as required in the section 11 order. The latter included information on Metal Leaching and Acid Rock Drainage / Metal Leaching, Selenium, Traditional Land Use Sites and Archaeology in support of their application for a Certificate under the Act. Subsequent information submitted by WCC to assess or mitigate the potential effects of the Project is also considered as part of the application for a Certificate and is considered in the Assessment Report.

On October 15, 2004, the review period was suspended on request of the Proponent in order to provide additional information to complete the review. On receipt of this information, the 180 day review was resumed on November 12, 2004.

1.1.2 Basis for Provincial Review under the Environmental Assessment Act

WCC's proposal to construct, operate, dismantle and abandon the Project constitutes a reviewable project pursuant to Part 3 of the *Reviewable Project Regulations* (B.C. Reg. 370/02), because the coal mine is a new facility with a production capacity greater than 250 000 tonnes/year of clean and/or raw coal. Section 8 of the *Environmental Assessment Act* S.B.C. 2002, c.43 states that an environmental assessment certificate is required before a reviewable project can proceed.

1.2 Federal Process

The Project does not require any federal authorizations, and the *Canadian Environmental Assessment Act* (CEAA) was not triggered. However, the Canadian Environmental Assessment Agency (CEA Agency) was given the opportunity to participate in the provincial environmental assessment. In addition, the following federal agencies participated in the development of the Project Report Specifications: Fisheries and Oceans Canada (DFO), Natural Resources Canada (NRCAN), and Environment Canada (EC).

At the time of the issuance of the Project Report Specifications, the federal agencies had not made a determination as to whether CEAA would be triggered. Part D of the Project Report Specifications included an outline of federal reporting requirements under CEAA that would have to be satisfied if CEAA were triggered. At that time, only the issuance of an authorization under the *Federal Fisheries Act* could potentially trigger CEAA.

A letter from Debra Hughes, DFO to Norm Ringstad, EAO December 6, 2002, confirmed that studies completed by the Proponent demonstrated that the original project would not result in harmful alteration, disruption or destruction of fish habitat. This conclusion resulted in the deletion of all additional information required in Section D of the Project Report Specifications.

However, subsequent changes to the mine plan, as identified in the Revised Project Description included an increase in the area of disturbance and the potential for alteration, disruption or destruction of fish habitat, and an explosives base factory site. These changes were identified as potentially requiring an authorization under the federal *Fisheries Act* and a license under the federal *Explosives Act*.

On March 12, 2004, an e-mail from Herb Klassen, DFO, to Bob Hart, confirmed that the Revised Project Description should result in no additional likelihood for a harmful alteration, disruption or destruction of fish habitat. DFO also noted that WCC's Revised Project Description would not involve additional stream crossings requiring authorizations under the federal *Navigable Waters Protection Act*.

A letter from Jean-Philippe Croteau, NRCAN on April 23, 2004 to Chris Barlow, CEAA indicated that since the explosives factory license would be issued to a third party and that the Project for NRCAN consists of the explosives factory, it would not result in a CEAA review of the proposed mine but only of the explosives factory. This review would take place following issuance of the Certificate.

1.3 Purpose and Structure of this Report

The purpose of this report is to:

- summarize the review of WCC's application for a Certificate as presented in the Additional Information Report, Addendum Report and supporting documentation, and discuss the issues raised during the environmental assessment of the Project;
- report on whether the Application has adequately identified and assessed the potential significant adverse environmental, economic, social, heritage and health effects of the Project, including issues regarding potential effects on Treaty 8 rights and interests, and the interests of the Kelly Lake communities;
- report on whether practical means have been identified to prevent or reduce to an acceptable level any potentially significant adverse effects; and
- report on the adequacy of the distribution of information and consultation by the Proponent during the review of the Application.

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

All issues raised during the review of the Application addressed in the body of this report are listed in appendices B, C, D and E. The issue raised is identified, along with the agency (Appendix D), the First Nation, the Kelly Lake community (Appendix C), the members of the public or stakeholder (Appendix B) that raised the issue. WCC's response or reference to the appropriate section in the Additional Information Report or Addendum Report where the issue is addressed, and whether the issue had been addressed to the satisfaction of EAO is indicated, as well as the responsible government agency.

Issues to be addressed and information required by agencies at the permitting stage following a certification decision are recorded in (Appendix E).

Appendix F of this report contains a summary of the Proponent's commitments, as discussed in the Additional Information Report and Addendum Report, as well as those presented in response to issues raised in the course of the Project review.

1.4 Permitting Stage

Following issuance of a certificate, the Proponent must obtain statutory approvals which are required to construct, operate, abandon or otherwise undertake all or part of a reviewable project. These approvals cannot be issued prior to the issuance of a certificate. Appendix G identifies the major statutory authorizations required by WCC.

2 *Project Description and Scope of Review*

2.1 Project Description

The proposed Project involves the production and export of metallurgical coal from the Perry Creek and Mt. Spieker coal deposits located in the Wolverine Valley approximately 25 km west of Tumbler Ridge, BC between the Bullmoose and Quintette coal mines on the Wolverine Forest Service Road (FSR) (Fig. 1). The Project comprises two open pit mines (the Perry Creek and EB deposits), a mine plantsite, and a coal load out facility on the former BC Rail line in the Wolverine Valley. The Project footprint is 1368 hectares (Fig. 2).

The Application is based on an annual production of 1.6 million tonnes of metallurgical coal for sale primarily to the export market, over a mine life of 11 years. Production would begin at the Perry Creek pit in the fall of 2005, with production at the EB pit scheduled for approximately 2012.

Power would be brought to the minesite by a new powerline that will closely follow existing BC Hydro powerline and Ministry of Forests (MoF) road rights-of-way from BC Hydro's Tumbler Ridge Substation.

Minesite access is from Highway 29 via the existing Wolverine Forest Service Road and the Perry Creek Road (non-status road). The BC Rail Tumbler Ridge Branch Line passes immediately adjacent to the plantsite, and will be used to transport coal to Ridley Island for shipping to export markets.

Capital cost for the planned life of the revised Project is estimated at \$116 million. Total employment during construction will peak at approximately 200 people. It is anticipated that direct employment on site during project operation will begin at 190 and rise to 220 by year three of operation.

2.2 The Proponent

WCC is a publicly traded company with shares traded on the Canadian Venture Exchange. The company was incorporated in 1997 and the head office is located in Vancouver.

The company's principal business is the acquisition, exploration and development of coal properties. WCC is planning to develop a number of other coal properties in the North East Coal Block, including the Burnt River, Hermann, Sukunka, Belcourt and West Belcourt properties. Several of these proposed developments are expected to trigger an environmental assessment review under the Act. WCC has recently received a *Mines Act* permit for the Dillon coal project, a small coal development on the Burnt River property.

2.3 Site Selection and Project Rationale

Sections 1.4 and 2 and Appendix A-3 of the Additional Information Report describe the site selection study and project rationale used by the Proponent to select the proposed coal pits and associated mine plantsite and coal load-out facilities.

The study included:

- An evaluation of the global demand and market price for metallurgical coal and coal markets in China and India;
- Consideration of the capacity of the existing rail transportation system and Ridley Terminals Inc. in Prince Rupert to handle coal shipments; and
- Review of geological and resource data and physical testing of samples.

WCC noted that recent industrialization in China and India, together with a worldwide improvement in the steel industry, has resulted in the strengthening of metallurgical coal prices and demand in 2003-04. This supply problem is also exacerbated by the finite capacity of existing coal ports, railways and ocean freighters.

Since 2002, China has reversed its status as a metallurgical coal exporter to become a significant coal importer. In Europe, increased demand for coal is expected, as domestic supply is reduced or phased out. Brazil is South America's largest importer of metallurgical coal and imports are expected to grow by 3.5% per year.

2.4 Project Components and Scope of Assessment

The assessment of the Project under the Act included the following on-site and off-site components, and activities:

- the Perry Creek Pit and the EB Pit;
- plant site, coal and processing storage, and load-out facilities, and maintenance facilities;
- tailings pond and waste dumps;
- coal dryer;
- a base factory for bulk explosives, an explosives magazine;
- modifications to the Perry Creek road and the Wolverine Forest Service Road;
- power line; and
- construction camp.

To meet the requirements of the Act, the project assessment considered environmental, economic, social, heritage and health effects, taking into account practical means of preventing or reducing to an acceptable level any potential significant adverse effects of the Project. Specifically, the assessment considered potential effects on water quality, including metal leaching and acid rock drainage, air quality, wildlife and fisheries, freshwater and terrestrial ecosystems, vegetation including medicinal plants, social, economic, cultural and heritage values. Issues regarding potential effects on Treaty 8 First Nations rights and interests, and on the interests of the Kelly Lake communities were also considered.

2.5 Land Use Context

The proposed mine is within the area covered by the Dawson Creek Land and Resource Management Plan area and falls within the Foothills Resource Management Zone. The Project is consistent with the objectives of the plan.

Potential conflicts with other land base users such as the oil and gas and forestry industries, guide outfitting, trapping and ranching were identified by WCC and EAO during stakeholder consultation. These issues are discussed in section 5.2 of this report.

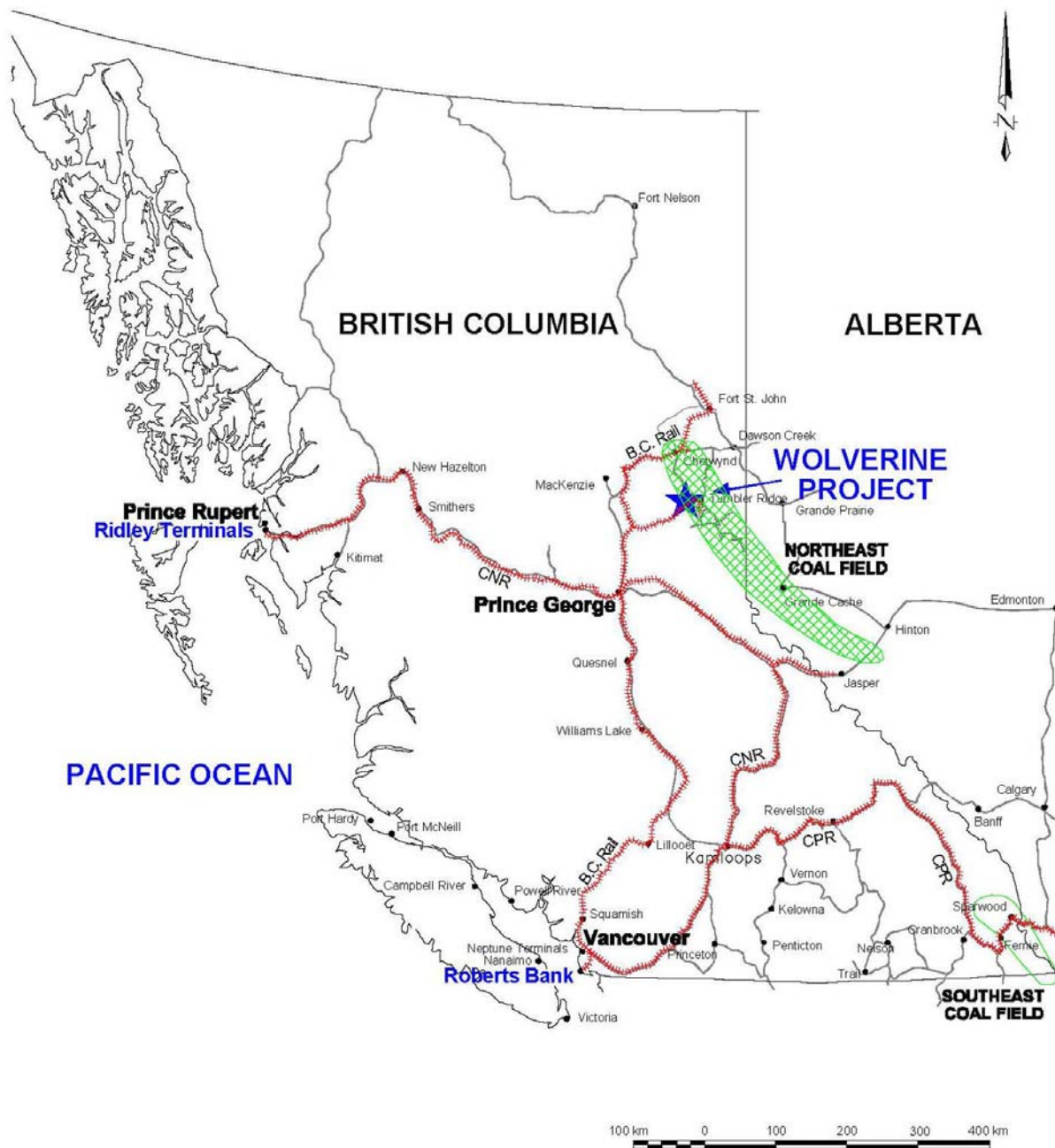


Figure 1: Wolverine Coal Project Location Map

3 Information Distribution and Consultation

3.1 Access To Review Documentation

EAO maintains an electronic Project Information Centre (e-PIC) for the purpose of facilitating public access to information relating to environmental assessment reviews under the Act. Project information and documents related to environmental assessment reviews under the Act are available on the e-PIC website at <http://www.eao.gov.bc.ca>.

To facilitate access to information on the proposed Wolverine Coal Project, EAO established a Project specific web page. Documents which were filed on-line in the course of the review included:

- WCC's Original Application for a project approval certificate;
- The Revised Project Description;
- The Additional Information Report and Addendum Report, plus supporting documentation;
- EAO generated documents/correspondence, including the Section 11 Order which set out the scope of the review and the methods and procedures for the assessment, Project Report Specifications and the Amended Information Requirements;
- Final meeting notes from working groups established by EAO to review the Application;
- Comments from First Nations, Kelly Lake communities, stakeholders, the public and agencies on the Proponent's Application; and
- WCC's response to comments from First Nations, Kelly Lake communities, stakeholders, the public and agencies on the project application.

For the purposes of assessing the effects of the Project, relevant documentation and correspondence received from the Proponent after the submission of the Additional Information Report and Addendum Report are also considered. A list of the documents which comprise the Project Application, including commitments made by the Proponent is contained in Appendix A of this report.

In late May and early June 2004, the Proponent provided paper copies of the Wolverine Coal Additional Information Report to the public libraries in Tumbler Ridge and Chetwynd, the offices of the District of Tumbler Ridge and the District of Chetwynd, the executors of the John Terry Ranch, the guide outfitter, the BC Guide Outfitters Association and the registered trapper. In mid-July the Addendum Report was distributed.

3.2 Public Consultations

3.2.1 Measures Undertaken by the Proponent

As part of the environmental assessment process, proponents are required to engage in a public information distribution and consultation process. This is aimed at ensuring that all levels of government, First Nations, and other stakeholders including the general public, have the opportunity to review and have input into the project review.

WCC undertook an extensive public information and consultation program.

The geographic focus of the public information and consultation program was the southern Peace River region, with an emphasis on the communities of Tumbler Ridge and Chetwynd.

Consultations Prior to the Additional Information Report Submission

Section 14 of the Additional Information Report outlines the public and stakeholder consultation program undertaken by WCC prior to the distribution of the AIR.

Community and stakeholder consultations for this phase of the environmental assessment process commenced in October 2001 and ended immediately prior to May 21, 2004 with the printing of the Additional Information Report.

Open House Meetings and Public Presentations

In October 2001, WCC held an open house and public meeting in Tumbler Ridge, prior to submission of the Original Application. Estimated attendance at the meeting was 150 people. In conjunction with that meeting, WCC also met with key stakeholders, including the registered trapper, guide outfitter and a private landowner and grazing lease holder (Executors of the John Terry estate) potentially affected by the Project.

Open houses and public meetings were also held in Tumbler Ridge and Chetwynd on January 14 and 15, 2002, following submission of the Original Application on January 10, 2002. Estimated attendance at these meetings was 160 and 45 people, respectively.

The open houses and public meetings that WCC held in Tumbler Ridge and Chetwynd in 2001, 2002 and 2004, described above, are summarized in Tables 14.1-1 to 14.1-5 of the Additional Information Report.

Open houses and public meetings were held Tumbler Ridge and Chetwynd on February 24 and 25, 2004, following submission of the revised project description. Estimated attendance at these meetings was 325 and 75 people, respectively. Information regarding revisions to the Project was circulated to stakeholders in October 2003.

Advertising

The open houses and public meetings that WCC held in Tumbler Ridge and Chetwynd in 2001, 2002 and 2004, described above, were advertised in local newspapers in both communities and on local radio and television broadcasts.

Consultations with Stakeholders

From October 2001 to prior to the submission of the Additional Information Report, WCC met with the private landowner and grazing lease holder, registered trapper and guide outfitter, as well as representatives of the holder of a lapsed two-year Commercial Recreation permit in the area of EB pit and representatives of the Tumbler Ridge Snow Mobile Association who use the Perry Creek/EB pit area.

WCC also met on several occasions with Canadian Forest Products Ltd. and held discussions with Talisman Energy Canada Inc., Shell Canada Ltd. and Koch Petroleum Canada Ltd. to develop agreements related to overlapping tenures.

Consultations During the Review of the Additional Information Report

Open Houses and Public Presentations

Following commencement of the review of the Additional Information Report on May 21, 2004, WCC held open houses and public meetings in Tumbler Ridge and Chetwynd on June 2 and 3, 2004. Estimated attendance at these meetings was 150 and 5 people, respectively.

Most questions directed to WCC focussed on the mine development schedule, the coal market, contracting and hiring practices, and potential impact of mining on tourism.

Advertisement

The June 2 and 3, 2004 open houses and public meetings, described above, were advertised in local newspapers in Tumbler Ridge and Chetwynd on May 14 and 19, 2004, respectively.

Consultation with Stakeholders

Concerns and issues raised by the Chetwynd Environmental Society, the local guide outfitter and the Nordic Mountain Skiing Society regarding potential wildlife impacts, geotechnical issues and continuing public access were raised at the two meetings. These are discussed in section 3.2.3.

During review of the Additional Information Report and Addendum Report, WCC contacted stakeholders including, petroleum and natural gas (PNG) lease holders, Canadian Forest Products Ltd., the Terry Ranch estate, the guide outfitter and the Guide Outfitters Association of BC and the registered trapper to discuss their concerns. PNG lease holders and Canadian Forest Products Ltd. were requested to indicate if they had an objection to the mine development. The guide outfitter and the Guide Outfitter Association of BC were requested to submit a formal claim for compensation. The registered trapper also indicated that he will be seeking compensation. A principles of agreement was negotiated with the John Terry Estate in August 2004, providing for transfer of a portion of land for mine use and a non-residency agreement during mine operation.

In a submission dated October 1, 2004 and entitled, *Wolverine Coal Project-Update on Public and Agency Consultation to September 21, 2004*, WCC provided an in depth discussion of their public and stakeholder consultation program to EAO. This report noted views, issues and concerns raised by the public with respect to the Project and how they are to be addressed.

3.2.2 Measures Undertaken by EAO

Prior to the Additional Information Report Submission

In January 2002, EAO deposited copies of the Wolverine Coal Project Application for a project approval certificate (Original Application) at the Tumbler Ridge Public Library and Chetwynd Public Library for public review.

EAO posted copies of all Wolverine Coal Project documentation, including the Original Application, draft and final Project Report Specifications, Revised Project Description, the section 11 order and the approved amendments to Additional Information Requirements on EAO website at www.eao.gov.bc.ca for public review.

EAO public consultations activities began in January 2001 with an invitation to the public to comment on the Original Application between January 10, 2001 and Feb 25, 2001.

In April 2002, EAO posted a public invitation to comment on the Wolverine Coal Project Draft Project Report Specifications between April 15, 2002 and April 30, 2002.

In 2002, EAO established a project review committee to review the Original Application. Representatives of the District of Tumbler Ridge and Peace River Regional District participated in Project Committee meetings chaired by EAO between January 17, 2002 and March 5, 2002.

EAO attended the Proponent's January 14 and 15, 2002 and February 24 and 25, 2004 Open Houses and Public Meetings in Tumbler Ridge and Chetwynd regarding the Original Application and the Revised Project Description, respectively.

On March 19, 2004, EAO issued a section 11 order which set out the scope of the review and the methods and procedures for the assessment, and established a public comment period of 75 days. The public comment period commenced May 21, 2004 and ended August 9, 2004.

Following review of WCC's public notification and consultation program described in the screening version of the Additional Information Report, EAO in a letter dated, April 30, 2004, advised the Proponent that their completed and proposed program was adequate.

During the Additional Information Report Review

Following submission of the Additional Information Report, EAO established the project working group to review the report and to assist in issue resolution. On June 8, 2004, EAO chaired a meeting of the working group in Tumbler Ridge. Representatives of the District of Tumbler Ridge and Peace River Regional District were invited to sit on the working group but were unable to attend.

EAO attended the June 2 and 3, 2004 open houses and public meetings in Chetwynd and Tumbler Ridge to make a presentation regarding the province's environmental assessment process and to answer questions and record concerns.

On October 15, 2004, EAO informed WCC that the written submission on the results of the Proponent's public consultation activities entitled, *Wolverine Coal Project-Update on Public and Agency Consultation to September 21, 2004*, was acceptable, satisfying EAO's reporting requirements.

3.2.3 Public and Stakeholder Comments

At the open houses and public meetings in Tumbler Ridge and Chetwynd on June 2 and 3, 2004, most comments from the public indicated support for the Project. Questions were raised about WCC's local hiring and contracting policies for the project. At the Chetwynd open house, a representative of the Chetwynd Environmental Society raised questions about the potential impacts of the Project on wildlife.

Representatives of the family owning private land and holding grazing leases potentially impacted by the Project (Executors of the John Terry Estate) inquired about their ability to occupy their property and /or maintain livestock on it during mining operations.

In correspondence with EAO, the licensed guide outfitter expressed concern about impact of blasting on the alpine meadows and wildlife, as well as the feasibility of the proposed tailings ponds and potential damage to the environment and wildlife. Dale Drown, General Manager of the Guide Outfitters Association of BC also wrote on the guide outfitter's behalf to express concerns about negative impacts of the mine on the tenure through disruption of wildlife populations, ground and noise disturbance and increased vehicular traffic.

The Wolverine Nordic Mountain Society, based in Tumbler Ridge wrote EAO to express concern regarding continued public access up the Perry Creek Road and along the roads to Mt. Spieker and Mt. Reesor for recreational purposes.

Koch Petroleum Canada Ltd., holder of a gas drilling licence which overlaps WCC's coal licence, wrote EAO to express interest in negotiating an agreement with WCC that would allow coal bed methane activities on their tenure concurrent with WCC's mining operations.

3.3 Consultation with Treaty 8 First Nations and Kelly Lake Communities

Section 7 of the Additional Information Report notes that the Project area is within the area of interest to some First Nations signatories to Treaty 8, as well as the Kelly Lake communities.

The following First Nation communities have been identified for consultation purposes relating to the Project:

- Saulteau First Nations
- West Moberly First Nations
- McLeod Lake Indian Band

The Saulteau First Nations and West Moberly First Nations have been party to Treaty 8 since 1899. McLeod Lake Indian Band was not originally a signatory to Treaty 8, but negotiated agreement with BC and Canada in 2000 to adhere to the treaty.

In addition, the following organizations representing communities in Kelly Lake were identified:

- Kelly Lake First Nation
- Kelly Lake Cree Nation
- Kelly Lake Métis Settlement Society
(the Kelly Lake communities)

Kelly Lake is not recognized as an Indian Band under the Indian Act. The Kelly Lake First Nation, Kelly Lake Cree Nation and Kelly Lake Métis Settlement Society claim to represent some or all of the residents of Kelly Lake. The Kelly Lake First Nation advise that they intend to file a land claim on behalf of their members. The Kelly Lake Cree Nation have filed for annexation to Treaty 8. The Kelly Lake Métis Settlement Society maintain that their members are a Métis community with constitutionally protected rights.

The Lheidli T'enneh First Nation was provided with information regarding the Project, but has declined to participate in the review of the Project, as the Project is outside the Lheidli T'enneh First Nation's area of asserted traditional use.

A Traditional Land Use Assessment was conducted during November 2001 and June 2002, based on the Project area as identified at the time. Representatives of the West Moberly First Nations and McLeod Indian Band, as well as representatives of Kelly Lake communities, participated in the study conducted by Landsong Heritage Consultants (Landsong). Sauteau First Nations declined to participate. The July 6, 2004 Addendum Report included additional work on the Traditional Land Use Assessment to take into account the revised Project area. The Addendum Report included assessments of claimed medicinal plant sites, sacred sites and ceremonial sites.

In response to concerns raised by First Nations and Kelly Lake communities about potential impacts of the Project on asserted traditionally-used plants, WCC conducted a traditional plant survey of the Project area. The survey results were reported to EAO October 25, 2004 and forwarded to First Nations and Kelly Lake communities, as well as the independent consultants retained on their behalf.

3.3.1 Measures Undertaken by the Proponent

Consultations Prior to the Additional Information Report Submission

Prior to the submission of the Additional Information Report, WCC held over 100 meetings and discussions with potentially affected First Nations and Kelly Lake communities to provide information, and discuss their concerns and interests. Total communications, including written communications and emails, were over 200. A list of meetings held and topics discussed is contained in Appendix Q of the Additional Information Report.

WCC met with all First Nations and Kelly Lake communities in 2001, prior to submission of the Original Application.

After submission of the Original Application in January 2002, WCC again met with all First Nations and Kelly Lake communities to present information on the Project, discuss requirements for archaeological and traditional use studies, and begin discussions related to letter of intent / cooperation agreements.

In late 2003, active consultations and discussion of cooperation agreements with potentially affected First Nations and Kelly Lake communities recommenced. All potentially affected First Nations and representatives of the Kelly Lake communities were contacted over the last few months, provided with information on the Project, and asked to identify concerns, if any, related to the Project. According to WCC, in general all groups indicated that they will be supportive of the Project, provided environmental issues and claimed traditional use rights are fully addressed, and opportunities are made available for them to share in project benefits.

In February 2004, representatives of the three potentially affected First Nations and Kelly Lake communities were invited to participate in a helicopter site reconnaissance carried out in relation to archaeological studies of the Project area. The trip was attended by representatives of the West Moberly First Nations, McLeod Lake Indian Band, Kelly Lake First Nation and Kelly Lake Cree Nation. Sauteau First Nations declined to participate.

Consultations During Additional Information Report Review

WCC's direct consultations with First Nations and Kelly Lake communities during the Additional Information Report and Addendum Report review have focused on providing capacity to participate in the Project review, working toward written cooperation agreements and providing access to economic benefits from the Project. Technical issues were discussed at EAO-chaired project working groups.

In addition, WCC provided funding for a coordinator in each First Nation and Kelly Lake community to liaise with the independent consultants and their community on all issues including technical issues.

WCC also provided funding to support the participation of a representative from each First Nation and Kelly Lake community at working group meetings in order to discuss technical issues and build technical capacity in the communities of issues related to mining and the environment.

Cooperation Agreements

Pre-Application discussions related to letter of intent / cooperation agreements continued during the Additional Information Report and Addendum Report review. These discussions involved the West Moberly First Nations, Sauteau First Nations, McLeod Lake Indian Band and Kelly Lake Métis Settlement Society. The Kelly Lake First Nation and Kelly Lake Cree Nation have not pursued a cooperation agreement with WCC and have focused mainly on economic opportunities.

WCC indicated that these agreements are to address matters such as:

- Communication protocols concerning project-related activities;
- Mechanisms to facilitate First Nations and Kelly Lake communities' employment and contracting opportunities related to the project;
- Contracting procedures and standards, including procedures to ensure First Nations and Kelly Lake communities participation and benefits; and
- Agreements concerning WCC's support for training and apprentices opportunities.

A cooperation agreement with West Moberly First Nations was finalized in October 2004. Sauteau First Nations were expected to hold a community meeting to review a draft cooperation agreement in early November 2004. McLeod Lake Indian Band and the Kelly Lake Métis Settlement Society (KLMSS) are reviewing draft agreements provided by WCC. The Kelly Lake Métis Settlement Society has recently responded to the draft agreement and further discussions between the parties are expected over the coming weeks.

Economic Initiatives

WCC has also undertaken a number of separate but related initiatives with First Nations and Kelly Lake communities, including:

- Providing them with information on the types of jobs and contracts to be available in the Project and opportunities to meet key WCC Project personnel;
- Initiating a mentoring program for First Nations and Kelly Lake community youth;
- Inviting representatives of the First Nations and Kelly Lake communities to attend a meeting with WCC's financial supporters;
- Including the First Nations and Kelly Lake communities on pre-qualification lists for the tendering process for the Dillon mine; and

- Providing contacts to First Nations and Kelly Lake communities for the Dillon mine and encouraging contractors to hire members of the First Nations and Kelly Lake communities.

Site Visits

WCC also arranged a site tour of the Project for representatives of provincial government agencies, First Nations and Kelly Lake communities on June 8, 2004. This site tour took place in conjunction with the first meeting of the Wolverine Coal project working group, established and chaired by EAO to review the Additional Information Report and Addendum Report.

3.3.2 Consultations Undertaken by EAO

Consultations Prior to the Additional Information Report Submission

Since January 2002, EAO has notified the Saulteau First Nations, West Moberly First Nations, McLeod Lake Indian Band and representatives of the Kelly Lake communities regarding the proposed Wolverine Coal Project. EAO forwarded copies of the Original Application, the draft Project Report Specifications, the Revised Project Description, the draft Amendments to Information Requirements, the draft section 11 order and other relevant documents, and invited comments. EAO invited representatives from First Nations and communities at Kelly Lake to participate on the former Project Committee and solicited their comments and concerns regarding potential effects of the Project on their treaty rights and interests.

In February 2004, EAO met with representatives of the Saulteau First Nations, West Moberly First Nations, McLeod Lake Indian Band, Kelly Lake First Nation, Kelly Lake Cree and Kelly Lake Métis Settlement Society to provide an overview of EAO process and an update on the status of the Project, including the Revised Project Description, and solicited their comments and concerns regarding potential impacts of the Project on Treaty 8 First Nations rights and other interests, and on the interests of the Kelly Lake communities. Specifically, the consultation requirements set out in the draft section 11 order, the proposed Amendments to the Information Requirements, and opportunities to participate in project working groups and review of the draft Assessment Report were discussed.

Consultations Following the Additional Information Report Submission

During the review of the Additional Information Report and Addendum Report, EAO invited the three First Nations and three organizations representing Kelly Lake communities to participate on the project working group and the two working group sub-committees focusing on wildlife and water quality established by EAO to provide advice on the Project. These invitations were accepted by all the First Nations and representatives of the Kelly Lake communities.

In addition EAO and the Proponent jointly retained a team of independent consultants led by the Institute of Environmental Research (IER), to report to the three First Nations and the Kelly Lake communities, to assess the Additional Information Report, the Addendum Report and supporting information and documentation and provide them with independent advice and expertise during the review of the Project. The independent consultants included experts in the fields of metal leaching and acid rock drainage and wildlife. EAO developed and administered the independent consultant's contract.

The Treaty 8 First Nations and the Kelly Lake organizations were invited to review the credentials of the two consulting teams bidding on the contract. The McLeod Lake Band, the Saulteau First Nations, the West Moberly First Nations and the Kelly Lake Métis Settlement Society supported the selection of the team led by IER. The Kelly Lake Cree Nation and the Kelly Lake First Nation did not express a preference.

The three First Nations and representatives of the Kelly Lake communities, and the independent consultant working on their behalf, played an active role in the review of the Project as working group members. They provided comments on the Additional Information Report and Addendum Report, Application and supporting information provided by the Proponent to address issues identified in the review, and participated in meetings set up to discuss their issues with EAO and the Proponent. Final Project working group meeting summary notes have been posted on EAO's website.

3.3.3 Treaty 8 First Nations and Kelly Lake Communities Comments

Potential issues related to Treaty 8 First Nations rights and interests, and interests expressed by the Kelly Lake communities have been identified during ongoing discussion with EAO and with the Proponent. These potential issues were identified through traditional land use studies, through discussions with representatives of First Nations and the Kelly Lake communities participation on Project working groups, in reports prepared by the independent consultant (IER / Peter Homenuck) and by the West Moberly First Nations and Saulteau First Nations Project review representative (Matthew General).

These issues are discussed in section 5.5 and Appendix C of this report.

PART B REVIEW OF THE APPLICATION

4 *Consideration of Potential Project Effects*

4.1 Impact Assessment Methodology

WCC's Project assessment consisted of identifying and predicting the nature, extent and significance of effects of each Project component on environmental, economic, social, heritage, human health values and on Treaty 8 First Nations rights and interests, and the interests identified by the communities at Kelly Lake during the construction, operation and closure/post-closure phases of the Project. In addition, the Proponent proposed practical means of preventing or reducing (mitigating) to an acceptable level, potential significant adverse effects of the Project.

For each component or activity related to the Project, benefits and impacts were identified and the potential significance of the Project effects assessed in the Additional Information Report, (Section 12) and Addendum Report (Section 3) in the context of the existing environmental, economic, social, health, cultural and heritage setting, and impacts on First Nations and the interests of the Kelly Lake communities, as determined through baseline studies (Additional Information Report, Sections 4, 5, 6 and 7, and AR, Appendices 1 - 4).

Section 4 of the Additional Information Report outlines the environmental setting of the proposed Project. The potential environmental effects and proposed mitigation strategies were addressed in Section 10 and in the Addendum Report.

Section 10.3 of the Additional Information Report outlines the Environmental Management System (EMS). Section 10.9 describes the monitoring and contingency plans for the Project with regard to Metal Leaching/Acid Rock Drainage (ML/ARD), soils and vegetation, wildlife, air quality, surface water, groundwater, aquatic resources and engineered structures.

Section 10.8 of the Additional Information Report outlines the proposed reclamation and decommissioning plan, designed to reclaim the land to a specified land use and protect the land and water courses, and section 11 discusses the key health and safety issues for mine employees.

Project residual and cumulative impacts are discussed in Section 12 of the Additional Information Report.

4.2 Issues and Resolution

A number of issues were raised during the review of the Additional Information Report and the Addendum Report by First Nations and the Kelly Lake communities, agencies and the public. As noted earlier in section 1 of this report, only issues requiring additional information or a response from the Proponent or EAO are addressed in this report. However, all issues are identified in the issue tracking documents in Appendices B, C, D and E of this report.

5 Overview of Potentially Significant Project Effects

The objective of WCC's Application is to adequately identify and assess the potential significant adverse environmental, economic, social, heritage and health effects of the Project, including issues regarding potential effects on Treaty 8 First Nations rights and interests, and the interests identified by the Kelly Lake communities, and propose practical means to prevent or reduce to an acceptable level any potential significant adverse effects of the Project. The review of WCC's Application identified issues involving potential significant adverse environmental, health and socio-economic effects, as well as issues related to potential effects on Treaty 8 First Nation rights and interests, and the interests of the Kelly Lake communities.

Environmental issues raised during the review included: air quality, water quality and aquatic life, wildlife and wildlife habitat, geotechnical concerns (stability of tailings impoundment) and cumulative effects. Socio-economic (land use) issues involved a local rancher, guide outfitter, trapper recreational users and industrial users of the land base. Concerns related to Treaty 8 First Nation rights and interests, and interests identified by the Kelly Lake communities, included the environmental concerns listed above, as well as asserted traditional use of the land. Since cumulative effects may include changes to the environment that would adversely effect health, socio-economic conditions, physical and cultural heritage, and current use of land and resources for traditional purposes. The potential for Project cumulative effects is discussed at the end of this section.

No issues related to archaeological or heritage resources requiring additional information or new commitments from WCC were identified during the review. A review of archaeology and heritage resources potentially impacted by the project is contained in Section 6 of the Additional Information Report and Appendix 4 of the Addendum Report. Archaeological Impact Assessments for the Project were conducted in November 2001, June 2002 and February and July 2004. These studies concluded that there are no archaeological sites within, or directly adjacent to, the proposed development area.

5.1 Environmental Issues

5.1.1 Air Quality

General

The primary air emissions of concern from the proposed Wolverine Coal Project are particulate matter emissions due to mining operations. There will also be emissions of sulphur dioxide (SO₂), nitrogen dioxide (NO₂), volatile organic compounds (VOC) and greenhouse gases (GHGs) from the coal dryer and mobile equipment. The Terry Ranch was identified as the only site sensitive to project-related changes in air quality within a 10 kilometres radius of the Project (Section 4.6.2 of the Additional Information Report*).

A general description of background air quality conditions, potential Project-related effects on air quality, and issues related to Project effects on air quality is provided in Section 4.6.2 of the Additional Information Report. Section 12.7 provides the detailed impact assessment and interpretation of results. Provisions for air quality protection during the construction

* Unless otherwise stated, all section references refer to the Additional Information Report

phase are provided in the Construction Management Plan (Section 3.11.2.3). An Air Quality Management Plan focusing on the operations phase is detailed in Section 3.15. Residual and cumulative air quality effects remaining after mitigation measures are identified in Sections 12.7 and 13.4.5. The commitments to finalization and implementation of an ambient air quality monitoring program are detailed in Section 10.9.3.2.

The effects of changes in air quality are also mentioned in several other sections including wildlife (Section 10.6.2.2); the Terry Ranch (Section 10.7.8); human health (Section 11.2); and effects of dust and air emissions on stream water quality and sediments (Section 12.8.7)

Background

Project related air emissions were modeled to determine the effect on ambient air quality within 10 km of Project facilities, with a focus on the Terry Ranch as the potentially sensitive receptor. Effects were characterized in the context of relevant ambient air quality objectives, including a Canada-wide standard for particulate matter and BC ambient air quality objectives for total suspended particulate, particulate matter with diameter less than 10 microns (PM₁₀), SO₂ and NO₂ (Section 4.6.2). The main source of air emissions from the Project will be fugitive dust emissions from mining operations which are of primary interest due to potential effects on human health. Coal dryer emissions are considered as a less significant source.

During construction, fugitive dust emissions are expected from blasting, crushing, batch plant, road haul, light road traffic, and heavy equipment operation (Section 3.11.2.3). Additional sources during operation will include movement of overburden material and coal, exposure of erodible surfaces, plantsite processes such as screening and conveying (Section 3.15.2) are discussed in Section 3.15.

The screening level air quality modeling results for worst case conditions indicate that the predicted particulate concentrations at the Terry Ranch as a result of fugitive dust from the Project have the potential to be of concern for human health for short periods of time. These conditions are more likely to occur at the beginning of mining operations when activities at the Perry Creek Pit and South Dump are the closest to the Terry Ranch. Particulate emissions and total suspended particulates concentrations are expected to be lower at all other periods during the mine life.

A dryer for the processed coal will be located at the plantsite and will emit particulate matter, as well as products of combustion such as NO₂, SO₂, VOC and GHGs (Section 3.15.2). Emissions of SO₂ and NO_x from the coal dryer are not expected to be of concern as they result in concentrations that are a small fraction of ambient air quality objectives (Section 12.7.1.2.8).

Issues Raised

Ministry of Water, Land and Air Protection (MWLAP) had a number of comments related to modeling assumptions, interpretation of modeling results and clarification of mitigation measures. These were all resolved to MWLAP's satisfaction and are summarized in Appendices D and E of this report. MWLAP also requested the following additional information relative to potential impacts to the Terry Ranch:

- An updated run of the coal dryer emissions model using latest design information for the coal dryer, and operational data on stack emissions and furnace bypass emissions from the Bullmoose dryer;

- The updated model run should include a receptor site at the Terry Ranch property line (southwest corner of the property) (in addition to the site in the vicinity of outbuildings that was previously modeled);
- A sensitivity analysis of the effect of fugitive dust emissions, from blasting at various locations in the south pit, on Terry Ranch; and
- A continuous ambient air quality monitoring plan consistent with MWLAP requirements and the agreement between WCC and the owners of Terry Ranch.

Stakeholders and First Nations and Kelly Lake communities raised concerns regarding the effects of coal dust on plants, livestock and wildlife. Residents of Terry Ranch also expressed concern about the effect of air emissions and fugitive dust on their health.

Potential effects of coal dust on vegetation, wildlife and livestock were further considered by WCC and the Wildlife Working Group. It was concluded that there was no information available to indicate the potential for deleterious impacts on wildlife, vegetation or horses and cattle. Details regarding this issue are provided in the agency, and First Nations and Kelly Lake Communities issues tracing summaries and Proponent Commitments (Appendices C, D and E, respectively.).

MWLAP expressed concern regarding potential air quality impacts on human health at the Terry Ranch and requested clarification of the “no residency” agreement with the owner’s of the Terry Ranch. MWLAP indicated that the ranch could potentially be occupied for short periods of time provided that those periods not exceed 3 consecutive days provided that PM_{2.5} levels, measured as a rolling 24-hours average do not exceed 30 µg/m³ at anytime during occupancy. In addition, the Proponent must monitor PM_{2.5} on a continuous basis at the Terry Ranch house site commencing at the start of construction. The monitoring would have to be operated according to MWLAP procedures, including audit requirements and that real-time access to data must be provided to MWLAP.

Proponent’s Response

- WCC provided information addressing MWLAP’s requirements for a certificate decision and agreed to include additional information in the technical assessment report for air emissions permitting; and
- WCC is concluding a non-residency lease/sale agreement with the owners of the Terry Ranch. The agreement acknowledges the possibility that air quality conditions at the ranch may not always meet regulatory standards for the protection of human health. For this reason, the agreement provides for non-residency at the ranch during mining. In exchange for lease payments to the owners of ranch, the owners commit that there will be no residents at the ranch during mine operations.

Conclusion

Based on discussions with MWLAP, EAO is satisfied that the proposed mitigation measures and related commitments will prevent or reduce to acceptable levels any potential significant adverse effects of changes to air quality on the environment and human health.

5.1.2 Water Quality

General

A detailed description of background water quality conditions in the vicinity of the Project, including those for the Wolverine River, Perry Creek and smaller tributaries, and ground water quality is presented in Section 4.7.2 and 4.8 of the Additional Information Report,

respectively. Baseline conditions with respect to aquatic resources (fish and fish habitat, sediments, periphyton, and benthic invertebrates) are described in Section 4.9. Additional baseline information required for permitting will be provided in the summer of 2005.

Information on geochemical characterization and the potential for Metal Leaching and Acid Rock Drainage (ML/ARD) is presented in sections 4.2 and 10.9.1 and in Appendix 1 of the Addendum Report. The Project's acid generation and metal leaching potential is discussed in section 12.3 of the Additional Information Report.

In order to assess the potential impacts resulting from mine-site discharges to aquatic resources, a mass balance approach was used to predict the residual impacts to water quality for varying flow conditions and for the various phases of mine development (e.g., construction, operations and closure) (Section 12.8). Within this assessment, all potential mining-related inputs were considered, including nitrogen compounds (nitrate, ammonia, nitrite), selenium, sulphate, phosphorus, metals, dust and emissions (including coal dust), process chemicals, and total suspended solids.

Based on the impact assessment and analysis of baseline conditions, the primary water quality issues of concern identified by WCC relate to selenium, sulphate and nitrogen compounds. Specifically, water quality impact predictions indicate that increases in nitrate, sulphate and selenium in receiving water courses can be expected from mining operations. Selenium and sulphate are leached from waste materials (e.g., waste rock), while nitrogen compounds arise from the use of nitrogen-based explosives.

The significance of the residual effects associated with selenium, sulphate and nitrogen compounds was assessed with respect to defined Valued Ecosystem Components (VEC) using a risk-based approach (Sections 12.8.2, 12.8.3 and 12.8.4). VECs assessed in this process included water quality, aquatic algae and invertebrates, fish and, fish habitat, waterfowl, and sediments.

Taking into account contingency/mitigation measures, the results of the impact assessment reported by WCC indicate that only selenium has potential to negatively effect VECs (Section 12.8.3), and that the potential for such effects is low. WCC has indicated that such conclusions are strongly supported from assessment of the water quality impacts associated with the now closed Quintette Mine, which generated wastes similar to those that would be produced from the Project. Selenium is also the only parameter which could potentially contribute to cumulative effects within the region (Section 13.4.6.3).

Background Information

During the review of the Additional Information Report and the Addendum Report agencies identified a number of issues requiring clarification or additional information. Those areas included ML/ARD, selenium, total suspended solids (TSS), and nutrient management.

ML/ARD

ML/ARD is caused when sulphide minerals are weathered by exposure to air and water. ML/ARD is a concern at many metal mines and some coal mines, where there are high concentrations of sulphide minerals and metals. Mining greatly increases the amount of rock surface exposed to the weathering processes resulting in ML/ARD. Many metals become highly soluble under acidic conditions although significant metal leaching can also happen in neutral or alkaline drainage conditions.

Dissolved metals such as copper, zinc, cadmium and selenium can be toxic to fish and animals and can adversely affect ecosystem health. Metals can also be absorbed and accumulate in plant and animal tissue. A management plan for ML/ARD is summarized in Section 10.5.2. with operational plans discussed in Section 3.7.

Selenium

The major concern related to selenium is the potential for bio-accumulation through the food chain, which can be potentially hazardous to fish and birds if concentrations reach high levels. High selenium tissue levels can result in juvenile abnormalities and/or embryo death (Section 12.8.3). The wildlife species most at risk from selenium include fish, waterfowl and other birds such as the American Dipper which feed on fish and/or aquatic invertebrates (Section 10.6.2.3). The most significant exposure pathway for organisms is through diet, and therefore the potential for bioaccumulation and toxicity will depend on the food chain pathway. Site-specific differences in selenium toxicity can be significant, relating to the forms of selenium present, conditions of the aquatic environment (flow rates, water depth, substrate, etc.) and the types of biological communities present.

Selenium accumulation is of less concern in flowing water systems (creeks, streams and rivers) than in stagnant water systems (wetlands, backwaters, and oxbows) (Section 10.5.3 – Selenium Management Plan). Accordingly, the wetland zones between the Perry Creek pit and the Wolverine River, and wetland zones along the main stem of the Wolverine River, represent potentially-sensitive habitats to selenium inputs.

The results of the impact assessment suggest that selenium has a low potential to negatively effect VECs (Section 12.8.3). This conclusion takes into account mitigation and contingency measures which will be implemented as part of Project water/waste management plans (Sections 10.5.2 and 10.5.3). Management strategies for mine wastes (e.g., waste rock) and associated monitoring are described in detail in the Additional Information Report. In general, management strategies include waste segregation (separation and management of potentially problematic wastes), storage considerations (footprint, progressive reclamation, covers, etc.), avoidance of problematic geologic units and water management to minimize leaching and maximize dilution. As outlined in the Selenium Management Plan (Section 10.5.3), contingency plans will entail monitoring of specific aquatic resources in Perry Creek and wetland areas, including water, sediments, fish, aquatic algae and aquatic invertebrates. Within this contingency framework, a sequence of threshold values for water and aquatic biota is proposed for waterfowl habitat between the Project site and the Wolverine River. Contingency measures include seepage collection and diversions of water with elevated selenium levels to less sensitive areas.

Total Suspended Solids (TSS)

Erosion, coal and soil handling associated with coal mine construction, operation and closure has the potential to increase turbidity of surface water in the vicinity of the Project due to erosion of fine textured material. TSS may negatively effect fish habitat and fish.

Management of TSS for the Project is described in Sections 3.8.2, 3.11.9 and 10.5.4.

Nutrients

Leaching of residual blasting reagents during coal mining is a recognized source of nitrogen compounds in seepage and runoff from mine waste associated with coal development (e.g., waste rock piles). The nitrogen parameters of interest include ammonia, nitrate and nitrite. Ammonia and nitrate are constituents of the explosives, while nitrite is an intermediate

product which forms after blasting. Concentrations of these parameters in mine-site drainages depend on a number of factors, including the amount and type of explosive used and the way rain and snow melt interact with waste materials (e.g., flow paths). In excessive concentrations, nitrogen compounds have the potential to negatively affect aquatic life through enhanced algal growth, as well as through direct effects to aquatic organisms.

Water quality impact predictions suggest that levels of nitrate will not increase to levels which may harm aquatic life (Section 12.8.2). However, there is a likelihood that levels may increase to values which exceed drinking water guidelines in Perry Creek. If levels of nitrate approach drinking water guidelines, the contingency will be to post signs along the Perry Creek road which indicate the unsuitability of Perry Creek water for drinking. The levels of nitrogen compounds in Perry Creek will increase slowly over time as the footprint of waste rock increases, and therefore monitoring will provide an effective early warning system for the potential for drinking water non-compliance.

Increases in algal growth may be caused by phosphate if it is the limiting factor in the aquatic system. Sources of phosphate include sewage and waste water.

Issues Raised

ML/ARD

The Water Quality and ML/ARD Working Group concluded that sufficient information regarding management of ML/ARD had been presented for a certificate level decision. Issues and additional information required by MEM and MWLAP for permitting, as well as Proponent commitments are identified in Appendices E and F, respectively.

Selenium

Reviewers in general, raised concerns regarding the potential for selenium release and bioaccumulation in fish and, to some extent wildlife. While the Wildlife Working Group is satisfied that impacts to wildlife through ingestion of selenium enriched vegetation is unlikely (Appendix C, D and E), concerns remained regarding fish and waterfowl. Specifically, MWLAP noted that tissue levels of mountain white fish and to a lesser extent, slimy sculpin in the Wolverine River exceed both provincial and United States Environmental Protection Agency. Juvenile bull trout were found to contain selenium at concentrations below the guidelines. There is a lack of understanding as to whether these whole-body values are regionally normal and stable or elevated and perhaps increasing as a result of past coal mining activities at the Quintette mine. At this time, MWLAP is focussing on monitoring to assess if selenium levels are regional normal or if they are induced and will continue to rise, recognizing that an actual assessment of the effects of selenium on the biological community may eventually be necessary. WCC has agreed to a suitable baseline monitoring program.

To address this uncertainty, MWLAP will require elaboration of the selenium management plan during permitting in order to minimize available selenium in the aquatic system, and will provide for monitoring of fish tissue levels.

Nutrients

MWLAP expressed concern that increased nitrogen and phosphorous inputs into the aquatic system due to blasting and sewage and waste water disposal, respectively, may cause increased algal growth in Perry Creek and the Wolverine River.

Total Suspended Solids

Based on past experience involving large scale surface disturbance, MWLAP and MEM have emphasised the need to minimize surface erosion, to divert clean water around the disturbed areas, to establish an effective run-off and settlement control system. In addition, environmental supervision will be required throughout the mine life, especially during the construction period when the most surface disturbance over the shortest time period occurs.

Sulphate

While sulphate is not particularly toxic, it has been shown to have detrimental effects on aquatic biota at high concentrations. Sulphate is anticipated to be released from the mine site in association with oxidation within the waste dumps, with loadings increasing during the operational period as the volume and footprints of the waste dumps increase. Sulphate is a potential concern in Perry Creek. Under conditions of mean annual flow, sulphate is expected to exceed the chronic guideline (100 mg/L) in Perry Creek at input concentrations of 1300 mg/L. Predicted in stream concentrations may peak at 450 mg/L.

Proponent's Response

In response to the issues raised, WCC provided the following general commitments. These Proponent responses and commitments are described in more detail in the issue tracking documents (Appendix D and E) and in Appendix F which summarizes WCC's commitments.

- Finalize construction management plans acceptable to MWLAP and MEM;
- Require WCC's environmental superintendent and other staff to report environmental incidents directly and immediately to the Provincial Emergency Program, MEM and MWLAP, Regional Environmental Division (EPD);
- Give WCC's environmental superintendent authority to stop mine construction activities in the event of risks causing or likely to cause unacceptable impacts to the receiving environment;
- Develop a mine waste management plan acceptable to MEM and MWLAP;
- Develop a liquid effluent management plan acceptable to MWLAP prior to construction;
- Develop a hydrocarbon handling and disposal plan acceptable to MWLAP;
- Develop a water management plan to minimize nutrient impacts and eliminate or minimize the use of phosphate;
- Develop a ML/ARD management plan acceptable to MEM and MWLAP minimizing the potential for metal release, especially selenium, during all phases of mine life;
- Have sediment control and run-off collection structures in place and operational prior to significant surface disturbance;
- Use flocculants not acutely toxic to rainbow trout;
- Develop a sediment control plan for Perry Creek Road realignment;
- Develop construction and operational phase water quality objectives acceptable to MWLAP;
- Manage diversion channels to control TSS concentrations to levels acceptable to the Environmental Protection Director, MWLAP;
- Operate sediment ponds so that discharges will meet a level of 50mg/L during operation unless otherwise agreed by the Regional Environmental Protection Manager, MWLAP;
- Manage minesite water in order to minimize effluent discharge to receiving environment to the extent practical and cost effective. This would include maximizing plant site recycling and water balancing between tailings and sediment ponds; using

ponded water for site dust control; intercepting and reducing seepage water; minimizing the use of well water in these processes, and promoting discharge to ground in order to reduce concern with the discharge to TSS; diverting clean water around the minesite and minimizing erosion along the diversion channels;

- Conduct site specific biological effects testing if monitoring indicates that sulphate concentrations in Perry Creek are approaching the 100mg/L water quality guideline.
- To enhance information on fish habitat utilization of oxbow/tributaries in the Wolverine flood plain that are considered as vectors for site effluent;
- Provide completed mapping of wet/dry oxbows/wetlands located in the Wolverine floodplain adjacent to the mine site and to identify proposed uses of each (baseline monitoring, sediment polish etc); and
- Develop a selenium management plan acceptable to MWLAP and MEM.

Requirements for additional studies and ongoing monitoring, if any, will be defined at permitting. Details of water quality management plans and confirmation of compliance points for water quality objectives will be finalized in effluent permits for the water and tailings management systems. Results of the selenium leaching predictive studies and associated waste management plans will be provided in the mine and reclamation permit application. The selenium management plan will be updated and refined with MWLAP on the basis of new baseline information and documented in the technical assessment report for the effluent permit for construction and operation. The plan will include contingency measures to deal with elevated selenium levels as earlier outlined and accepted by MWLAP.

Technical memoranda will be submitted as part of the technical assessment report in support of permit Applications under the *Environmental Management Act*, which provide the necessary level of detail to address permitting issues relating to water quality and aquatic resources.

Conclusions

Based on discussions with MWLAP and MEM, EAO is satisfied that the proposed mitigation measures and related commitments will prevent or reduce to an acceptable level any potential significant adverse effects of the Project on aquatic resources.

5.1.3 Wildlife

General

The Project area includes habitat for a wide range of wildlife species, including vulnerable species such as grizzly bear and caribou, as well as a host of other wildlife species among them birds, furbearers, moose, elk, black bear, small mammals, amphibians, and reptiles. Background information on wildlife within the Project area is provided in Additional Information Report (Section 4.5). An impact assessment has been prepared to address the impacts of the Project on wildlife, based on the quality and quantity of habitat available for focal wildlife species (Additional Information Report Sections 10.6.2, 12.6 and 13.4.4). Mitigation plans have been prepared to minimize the effects of the Project on local wildlife (Section 10.6.3) and wildlife monitoring has been proposed to detect potential negative impacts upon local wildlife populations (Section 10.9.2). Contingency measures have been identified to address unexpected mortalities related to the mine access roads (Section 10.9.6.5).

Project potential residual impacts on wildlife are discussed in Section 12.6.

Background Information

Ten focal wildlife taxa were chosen, with MWLAP's agreement, to serve as indicator species: grizzly bear, caribou [both northern and mountain ecotype], mountain goat, moose, marten, fisher, wolverine, Northern Goshawk and Black-Throated Green Warbler. Grizzly bear, caribou (northern ecotype), wolverine, and Black-Throated Green Warbler are blue-listed (vulnerable species). Caribou (mountain ecotype) and fisher are red-listed (threatened or endangered).

Terrestrial ecosystem mapping (TEM) and predictive ecosystem mapping (PEM) were used to assess wildlife habitat in the project area. Wildlife habitat ratings were run on the ecosystem mapping to produce themed habitat maps for each species. Habitat capability pre- and post-mining, taking reclamation planning into account, was summarized for disturbed areas within the footprint. Potential impacts on wildlife include habitat loss, alienation and fragmentation, road kills, disturbance, dust, mortality due to response to problem wildlife incidents, and increased mortality due to increased human presence in the area. The Project footprint consists of mostly moderate to low quality habitat for most of the species of concern. Some high capability habitat is present for marten, and some moderately-high capability habitat is present for moose, wolverine, fisher, grizzly bear and northern and mountain caribou. Much of the area has been recently logged and is currently in young forest that is less valuable to wildlife. There is also potential for increased selenium levels in mine drainage water, which has a low potential to affect localized waterfowl breeding habitat near the mine between the railroad tracks and the Wolverine River.

Both general mitigation strategies and species-specific mitigation plans have been prepared for the Project (Section 10.6.3). Reclamation of disturbed habitat, reforestation, prohibition of hunting or trapping within the mine property, and strict site housekeeping practices are the major methods of mitigating effects on wildlife. A response plan to use when bears enter the property was also outlined. The Project will not result in significant changes in habitat suitability for mountain goat, moose, marten, fisher, Northern Goshawk, Black-throated Green Warbler and northern caribou. The potential for residual and cumulative effects on grizzly bear and mountain caribou, from feeding habitat loss, habitat alienation and disturbance due to increased human access, was identified.

A wildlife working group was set up to identify and resolve outstanding wildlife issues. This group included representatives of the three Treaty 8 First Nations, communities at Kelly Lake, and the third party independent consulting team acting on behalf of First Nations and the communities at Kelly Lake; MWLAP, MoF and WCC and their consultants. The wildlife working group met on July 9, 23 and August 26, 2004, and continued to resolve issues as information requested from WCC became available. The MoF representative is leading the development of the province's Caribou Recovery Planning initiative.

Issues Raised

Wildlife and wildlife habitat issues regarding the Project focused on the potential effects on three species: caribou, grizzly bear and moose. These include the potential effects of coal dust on wildlife and vegetation, increased access related impacts such as hunting, mine roads as barriers to migration, disturbance to wildlife during construction and operation, increased predation at mine closure, effect on caribou, and water quality (selenium) effects on wildlife and waterfowl. Concerns were also raised about cumulative effects of the Project in conjunction with other development activities in the area on wildlife and wildlife habitat,

again focusing on these three species. These concerns were identified for further discussion by the First Nations, the communities at Kelly Lake, agencies and the public.

The key wildlife issues are discussed below; all other wildlife issues and resolutions are included in the issues tracking documents for the public, First Nations and communities at Kelly Lake, and agencies (Appendices B, C and D, respectively). Those wildlife issues regarding air and water quality such as potential effects of coal dust and selenium are dealt with in the relevant sections of the assessment report.

Caribou

Of the two ecotypes of woodland caribou, the northern ecotype feed primarily on the ground lichen found in the vicinity of the proposed mine. The Quintette herd of about 160 to 200 animals is one of four recognized herds in the general area of the proposed mine. About 50 caribou are on Quintette Mountain; the rest are concentrated in the Wolverine and Bullmoose areas. Caribou prefer windswept winter habitat such as the alpine ridges associated with Mt. Spieker (EB pit location). In the summer they use more of the subalpine forest. The area between the proposed Wolverine mine and the Bullmoose mine is important to caribou.

The Quintette population appears to have been stable for some time (about 50 animals since 1984), though there have been some changes in their movements. Some of the caribou in the vicinity of Bull Moose and Quintette mines have used undisturbed alpine within 1 km of the mine. There is little information on the extent of habitat loss over the regional area or its importance to caribou.

The Perry Creek pit is probably peripheral, of poor habitat, and not important in the larger picture to caribou. While the EB pit is not particularly good habitat, it lies between two important habitat areas and thus may be important for migration. While this herd has been monitored by telemetry for the last 4 years and will continue to be monitored for an additional two years at this time, there is insufficient information to determine the nature of the use of the EB pit area.

Issues

The main issues regarding potential affects of the Project on caribou are: uncertainty around the impact of the EB pit on caribou migration routes of the Quintette herd; and uncertainty regarding the threshold values for cumulative habitat disturbance within the caribou range resulting in a population decline.

Grizzly Bears

While it is recognized that the mine development will result in direct habitat loss, the main issues for grizzly bears are the loss of the habitat effectiveness and increased risk of mortality due to increased human activity in the area, particularly the displacement of bears from habitat adjacent to the mine, increased hunting mortality and potential for human/bear conflict.

Moose

The main concerns regarding potential impacts to moose are increased access and hunting pressure, and disturbance during construction and operation activity.

Proponent's Response

In response to concerns regarding the EB pit development and cumulative effects, WCC made the following commitments:

- WCC will support ongoing radiotelemetry studies to confirm the migratory route of caribou moving between low-elevation habitat and higher-elevation habitat on Mt. Spieker, and if needed will develop effective mitigation through adaptive management planning acceptable to MWLAP as part of WCC's wildlife management plan. As the EB area is not scheduled for development for a number of years, there is ample time to build a database to support final assessment, as well as mitigation (adaptive management) planning, if needed;
- While WCC views itself as a relatively small player in the industrial use of the local area, it will be active in and support financially any regional planning exercises leading to a caribou management strategy;
- WCC will implement road traffic policies to protect wildlife within the Project area; however WCC has no authority to regulate other traffic (industrial and public) in the vicinity of the mine site or beyond. While the Project will not increase the road density within the area, WCC is willing to participate in a government-led access management plan for the region; and
- WCC has committed to development of a Project specific wildlife management plan with a focus on caribou and grizzly bear. The Grizzly Bear component would include the development and implementation of a Bear Aware program, strict firearms control, a protocol with MWLAP regarding the response to problem bears, and food waste handling.

Conclusions

Based on discussions with MWLAP and the wildlife working group, EAO is satisfied that the proposed mitigation measures and related commitments will prevent or reduce to acceptable level any potential significant adverse effects of the Project on wildlife resources.

5.1.3 Geotechnical

General

Development of the Project involves construction of a number of structures on valley slopes and existing surficial deposits along with excavation of the open pit itself. These structures include the coarse coal reject (CCR) dump, tailings embankment, south dump, east dump, north dump, and sediment control structures.

As part of the development planning process for the Project, WCC has gathered data and conducted and submitted geotechnical assessment studies to confirm the suitability of foundation and bedrock conditions for these critical structures. Appendix A of the Additional Information Report presented Norwest Corporation's assessment for the geotechnical stability of the tailings embankment, CCR dump and the three waste rock dumps. These assessments were subsequent to initial geotechnical evaluations reported. All the structures are designed to conform with minimum factor of safety criteria according to published guidelines, including *Investigation and Design of Mine Dumps*, *Interim Guidelines*, BC MEM, *Dam Safety Guidelines*, Canadian Dam Association, and *BC Dam Safety Regulations*.

Geotechnical assessments have considered both operational and long term stability of these structures.

The design for the Perry Creek pit is based on geotechnical design criteria prepared by Piteau Associates. Appendix O of the Additional Information Report present their report on the pit slopes.

Background Information

With the exception of the tailings impoundment, no geotechnical issues required additional information for a certificate level recommendation. Additional information requirements for the permitting stage are summarized in Appendix E and WCC's commitments in Appendix F.

The tailings embankment is designed as a 12 m high compacted fill (CCR) founded on valley floodplains. Foundation materials of concern for stability are shallow clays and deep lacustrine clays. Stability analysis for the structure focused on potential failure within the shallow clay and the deep lacustrine clay zone.

The Additional Information Report geotechnical evaluation identified the need for additional field work to validate the characteristics of the deep lacustrine clay and subsequent stability analysis.

Issue Raised

Geotechnical investigations, involving drill holes and test pits, have revealed weak foundation soil materials that may be susceptible to liquefaction. The tailings impoundment is classified as a high failure consequence.

Proponent's Response

- WCC provided the required information to satisfy MEM's geotechnical specialist, consistent with the needs of certificate level recommendation. Additional information will be provided at permitting (Appendix E).

Conclusion

Based on discussions with MEM, EAO is satisfied that the proposed design and management programs for the structures is sufficient to reduce to an acceptable level any potentially significant adverse effects to the environment, and human health and safety.

5.2 Socio-Economic

General

Socio-economic information on Tumbler Ridge and Chetwynd, the communities potentially most affected by the Project, is contained in Section 5 of the Additional Information Report. Section 5.5 outlines potential Project economic benefits to the regional economy and to Tumbler Ridge in particular. Sections 5.6 and 5.7 discuss the availability of local workforce and workforce accommodation for the Project.

The land use setting and existing land use and tenure information on lands within and/or in proximity to the Wolverine Project area is outlined in section 4.10.

Background Information

The Project is located within the Foothills Resource Management Zone (RMZ) identified in the Dawson Creek Land and Resource Management Plan.

There are a number of existing land uses within and/or in proximity to the Project area, including forestry, petroleum and natural gas exploration and development, guide-outfitting,

trapping, ranching and recreation. Recreational activities within the Foothills Resource Management Zone include hiking, camping, wildlife viewing, fishing, hunting, berry picking and horseback riding.

There are two main roads providing access to the Wolverine Project area: the Wolverine FSR, owned by MoF; and the non-status Perry Creek Road. Canadian Forest Products Ltd. has been designated by MoF as the primary user of the Wolverine FSR; WCC and other users of the Wolverine FSR have road use agreements with Canadian Forest Products Ltd.. The Perry Creek Road is maintained as needed by road users, currently Talisman Energy Canada Inc. Canadian Forest Products Ltd. also constructs and maintains other roads in the vicinity of the Project as needed in support of its timber harvest plans.

Tumbler Ridge Branch Line runs the length of the Wolverine Valley. The line is double tracked in the area of the plantsite and includes a wye structure for turning trains in the tailings pond area. BCR's right-of-way for the line overlaps the proposed FSR realignment, tailings pond and plantsite structures.

Issues Raised

During the review, issues were raised by the public and stakeholders regarding local hiring and contracting policies, as well as the potential for conflicting land uses, including forestry, petroleum and natural gas activities, ranching, trapping, guide outfitting and commercial recreation tenure.

Potential Land Use Conflicts

The following tenures are potentially adversely impacted by the Wolverine Project:

- *Forestry*: The Project Area falls within Canadian Forest Products Ltd.'s Tree Farm Licence (TFL) 48. The Project will occupy 970 ha of the total TFL area of 643,500 ha (approximately 0.15%). Canadian Forest Products Ltd. is currently harvesting timber on cut blocks in the Wolverine Valley, and plans to continue work in this area during the mine construction phase. During the operational life of the Perry Creek pit, Canadian Forest Products Ltd.'s harvest operations will move to other parts of the TFL.
- *Petroleum and Natural Gas (PNG)*: A total of 41 PNG leases held by 12 registered leaseholders overlap WCC's Mt. Spieker and Perry Creek coal licenses. Three of these registered leaseholders are active in the area: Talisman Energy Canada Inc., Koch Petroleum Canada Ltd. and Shell Canada Ltd.. Talisman Energy Canada Inc. has extensive PNG interests in the EB it area, including wells and two pipelines. Koch Petroleum Canada Ltd. has coal bed methane (CBM) leases and a test well that overlap the Perry Creek pit and plantsite. Shell Canada Ltd. has a PNG lease in the Perry Creek pit area and had applied to drill a deep sour gas exploration well on this lease at the time of the Additional Information Report.
- *Terry Ranch and Grazing License (Executors of Estate of John Terry)*: There is a private land holding of approximately 139 ha near the plantsite. The ranch has a grazing tenure of approximately 2676 ha. The ranch is currently seasonally occupied, although livestock are maintained at the ranch year round. The coal haul road, Wolverine FSR realignment and south dump will overlap private land on the ranch, and the coal haul road and south dump will overlap the grazing lease. The Perry Creek pit, South Dump and Wolverine FSR will be less than one km from residential buildings at the ranch. The tailings pond will be 1.1 km and the plant site approximately 2.5 km from these residential buildings.

- *Registered Trapper:* The Wolverine Valley and Perry Creek are within a registered trap line. The trap line is used annually to harvest marten, wolverine, wolf, beaver mink and fisher, with most activity occurring during the trapping season (October 15 to May 31) and some preparatory work occurring in the off season. The location of the traplines varies from year to year, with trapping in some years in the area of the Perry Creek pit. The trapper utilizes existing access roads.
- *Guide Outfitter:* The Wolverine Valley, including the proposed Wolverine Project area, is subject to a Guide Outfitter License. The license allows other land uses, including mining, within the lease area. The Guide Outfitter lives and operates from a base camp tenured as a License of Occupation on the Wolverine FSR approximately 10 km from the plantsite. The current focus of his business is guided hunting of big game, although he plans to offer backcountry eco-tourism trips in future. He holds a permit from MWLAP to hunt grizzly bear as part of his guided hunting operation. The Guide Outfitter has been building the business up in recent years, and has made improvements including cabins and trails in the licences area. He proposes to operate the business full time and pass it down in his family.
- *Commercial Recreation Tenure:* A two-year Commercial Recreation Temporary Use Permit which authorized guided recreation activities in the vicinity of Mt. Spieker and the EB pit area expired in February 2004.

Proponent's Responses

Local Hiring and Contracting

- WCC has committed to local hiring for mine construction and operations (Appendix B).

Land Use Conflicts

- *Forestry:* Canadian Forest Products Ltd. has written a letter to WCC indicating that it has no objections to the Project. A Road Use Agreement is in place for shared use and maintenance of the Wolverine FSR;
- *Petroleum and Natural Gas:* Talisman Energy Canada Inc. signed an agreement with WCC prior to submission of the Additional Information Report indicating that it has no objections to the Project and providing for cooperation between the companies during mine operation,
- Koch Petroleum Canada Ltd. has indicated that it has no specific development plans for their leases in the project area. They hope the two companies could cooperate to allow development of both resources in the area. WCC has written Koch Petroleum Canada Ltd. indicating that it would cooperate with Koch Petroleum Canada Ltd. to the extent practical, given ongoing mining operations.
- Shell Canada Ltd. has submitted a statement to WCC indicating that it has no objections to the Project.
- *Terry Ranch:* Executors of the Estate of John Terry and WCC concluded a Principles of Agreement in August 2004 that includes a sale / lease arrangement that will transfer ownership of a portion of the ranch property to WCC, and provide for lease of the remainder of the property to WCC. The Principles of Agreement also provide for non-residency at the ranch. WCC anticipates that the final agreement will be ratified by December 15, 2004.
- *Registered Trapper:* The Registered Trapper has indicated that he does not object to the Project proceeding, but expects to be compensated by WCC for impacts on his trapping operation. Discussions between the trapper and WCC regarding potential

impacts on his trap line and the level of compensation are ongoing with an agreement anticipated by December 30, 2004.

- *Guide Outfitter:* On November 12, 2004, WCC responded to a formal claim for compensation for the effect of the Project on the licensed guide outfitters territory and refined this offer on November 23, 2004. WCC anticipates a response by December 15, 2004 from the Guide Outfitters Associates of BC which is negotiating with the Proponent on behalf of the licensed guide outfitter.
- *Recreation and Tourism:* The Wolverine Nordic and Mountain Society wrote to EAO outlining its interest in ensuring that public access is maintained during mine development and operation along existing roads to Mt. Spieker and Mt. Reesor and on the Perry Creek road. WCC has committed to keeping the Perry Creek Road and the Wolverine FSR, the only main roads in the area, open for public and industrial access during mining operations. WCC has also indicated that it intends to manage the Project to protect the environmental values that attract tourists to the Tumbler Ridge area.
- *Road Use / Traffic Management / Public Access:* WCC has signed a Road Use Agreement with Canadian Forest Products Ltd. for the Wolverine FSR, and has committed to maintain safe and continuous access for public and industrial users on the Wolverine FSR and Perry Creek road. The Project includes realignments of the Wolverine FSR and the Perry Creek Road in the Perry Creek mine site area in order to avoid conflicts with mine traffic. Road designs have incorporated criteria specified by MoF, Canadian Forest Products Ltd., BC Hydro and BC Rail to ensure road safety during operations. WCC contends that this satisfies concerns raised by Canadian Forest Products Ltd., Talisman Energy Canada Inc., Shell Canada Ltd., the Wolverine Nordic and Mountain Society and the Tumbler Ridge Snowmobile Club.

Conclusions

EAO is satisfied that the proposed mitigation measures and related commitments will prevent or reduce to acceptable level any potential significant adverse effects of the Project on socio-economic values.

5.3 Health Effects

Background Information

Potential effects of the Project on human health are discussed elsewhere in this Assessment Report: Water Quality issues in Section 5.1.2 of the Additional Information Report, effects of dust on human health and livestock at the Terry Ranch in section 5.2, and concerns about the effects on wildlife in section 5.1.3. Mine site health and safety was discussed in section 11 of the Additional Information Report.

Issues Raised

Health effects associated with the Project's potential impact on water quality and air quality, and fish and wildlife were raised during the review.

These concerns are addressed in the air quality, water quality and wildlife sections of the Assessment Report.

Conclusions

EAO is satisfied that the proposed mitigation measures and related commitments will prevent or reduce to acceptable level any potential significant adverse effects of the Project on human health.

5.4 Cumulative Effects

General

Cumulative effects result from significant adverse environmental effects of a project when combined with those of other past, existing and imminent projects and activities. Cumulative effects include changes to the environment that would adversely effect health, socio-economic and environmental values, physical and cultural heritage, and current use of land and resources for traditional purposes.

The only activities that are considered in a cumulative effects assessment are those where proposed mitigation measures and related commitments cannot fully address the potential significant adverse effects of the project. The remaining residual effects are be considered in light of the effects generated by other past, existing and imminent projects.

Background Information

The cumulative effects assessment is provided in Section 12 and 13 of the Additional Information Report and is discussed in the component sections of this report.

Issue Raised

The Project review identified the potential for residual environmental effects for water quality and wildlife, specifically the potential for increased selenium levels in the aquatic environment and residual impacts on caribou, grizzly bear and moose.

Proponent Response

While stressing that the proposed Project and any potential environmental effects after consideration of proposed mitigation are limited due to the relatively small size of the Project and lack of new access WCC has committed to:

- Develop an acceptable selenium management plan including contingency measures;
- Support ongoing radiotelemetry studies to confirm the migratory route of caribou in the vicinity of EB pit and if needed, develop of an adaptive management plan;
- Involvement and financial contribution to a caribou regional management strategy and involvement in a government led regional access management plan, if such a plan is initiated; and
- Development of an acceptable wildlife management plan for the Project to minimize wildlife mortality loss.

Conclusions

Based on discussions with MWLAP, EAO is satisfied that the proposed mitigation measures and related commitments for this Project will prevent or reduce to acceptable level the potential significant adverse effects of the Project on the environment and is satisfied that the Project's limited contribution to cumulative effects and management of cumulative effects in the region is acceptable within the larger setting of industrial activity in the northeast of the province.

5.5 Issues Regarding Treaty 8 First Nations Rights and/or Interests and the Interests Identified by the Kelly Lake Communities

Background Information

Potential issues related to Treaty 8 First Nations rights and interests, and the interests of the Kelly Lake communities have been identified during ongoing discussion with EAO and Proponent, through traditional land use studies, through First Nations' and Kelly Lake communities' representatives participation on Project working groups, and in reports prepared by the independent consultant and by the West Moberly First Nations and Sauteau First Nations Project review representative.

Section 7 of the Additional Information Report outlines the issues identified by the three Treaty 8 First Nations and Kelly Lake communities, traditional use studies and a proposed framework for benefit agreements.

The issues raised in the course of consultations by the Proponent are outlined in Section 7.3.3 and summarized in Table 7.3.1 of the Additional Information Report. Among the issues raised were concerns about effects of the Project on water quality, fisheries and wildlife, in particular caribou, moose and grizzly bear.

Section 7.4 outlines the framework for proposed cooperation and benefit arrangements which includes: communication protocols, WCC's objectives concerning involvement of First Nations and Kelly Lake communities businesses and personnel; contracting procedures and standards and agreements concerning training and apprenticing opportunities.

A traditional land use assessment was conducted in November 2001 and June 2002, based on the Project area as defined in the Original Application. Members of the West Moberly First Nations, McLeod Lake Indian Band, Kelly Lake First Nation and Kelly Lake Cree Nation participated in the study. Sauteau First Nations declined to participate. The full report of this study is contained in Appendix N of the Additional Information Report. Results of the study are summarized in Section 7.3.2.

Based on revisions to the mine plan and Project area as set out Revised Project Description and Additional Information Report, a supplementary traditional land use assessment was conducted. The results of this study are summarized in section 3 of the Addendum Report. The full study is contained in Appendix 3 of the Addendum Report.

Issues Raised

Potential issues related to treaty rights and Kelly Lake communities raised during the Project review period are assessed below:

The independent consultant advised the Wildlife Working Group (in a memorandum dated July 21, 2004) that First Nations and Kelly Lake communities have concerns about the cumulative effects of the Project, including ancillary components such as roads, in combination with other activities occurring in the general area, on wildlife and on asserted aboriginal rights and culture, lifestyle and tradition.

The interim report of the independent consultant submitted to EAO and WCC (dated August 9, 2004) identified a number of issues and concerns associated with the Project, based on discussions with representatives of the three First Nations and three organizations

representing communities in Kelly Lake. The issues identified by the independent consultant are as follows:

- Concern for the need to protect treaty rights and asserted aboriginal interests;
- Effects on wildlife that are relied upon as a major food source (moose and elk);
- Effects on water quality, fish and waterfowl which have food source and cultural significance;
- Disruption to the environment and implications for trapping;
- Effects of traffic and coal dust on vegetation, animals and people; and
- Cumulative effects of the mine in conjunction with other development activities in the area on wildlife and the natural environment.

On August 10, 2004 Matthew General wrote to EAO on behalf of the West Moberly First Nations and Saulteau First Nations to provide additional comments on the Project. His comments focused on: procedural and consultation issues; concerns about the effects of the Project, including increased access and road densities and cumulative effects; and on treaty and asserted aboriginal rights to utilize wildlife species of cultural significance, specifically moose, bear (grizzly and black) and caribou.

The draft final report of the independent consultant was received by EAO and forwarded to WCC on November 9, 2004.

The final report received by EAO on December 10, 2004 identified a number of concerns associated with the Project, as follows:

- The impact of the Project on treaty and asserted aboriginal rights and the need for benefits to offset impacts;
- The cumulative effects of the Project, in conjunction with development activities in the area, on wildlife and the natural environment. The communities acknowledge that WCC is only one player in the area and resolution of this issue is far beyond the responsibility of WCC;
- ML/ARD and selenium associated with the effects of the Project on water quality, fish and wildlife;
- Impacts of the Project on wildlife, in particular caribou, moose and grizzly bear;
- Impacts of the Project on cultural and archaeological sites and on medicinal plants; and
- Guaranteed jobs and/or contracts as a result of the effects of the Project on asserted traditional lands and asserted aboriginal rights.

The final report of the independent consultant made the following specific recommendations:

- The successful completion of cooperation agreements with all six Aboriginal communities should be a requirement for certificate approval;
- Many issues and concerns related to construction and operations can be addressed at the permitting stage. WCC should involve representatives of the Aboriginal communities in the planning and design of various processes e.g. monitoring plans and protocols; traffic management plans; wildlife management plan etc;
- During operations WCC should have a liaison or advisory committee with aboriginal community representation to deal with ongoing operational issues and to ensure continuous, ongoing communication between WCC and the Aboriginal communities; and
- The BC government must undertake a full and thorough cumulative effects analysis (CEA) that examines the impacts of the hundreds of natural resource developments occurring in the area. WCC, along with all the other resource development companies in the area, and the Aboriginal communities must be involved. The Aboriginal communities

should be engaged by the BC government in developing an appropriate terms of reference and in the oversight of the cumulative effects analysis.

The Final Report of the Independent Consultant and Matthew General's August 10, 2004 letter are posted on EAO's website.

A complete list of issues raised by First Nations and Kelly Lake communities is contained in Appendix C of this report.

Proponent's Responses

The Proponent's response to issues raised by First Nations and Kelly Lake communities includes the following:

- WCC has developed comprehensive mitigation measures, management plans, and commitments related to potential effects of the project on aquatic resources, including fish and wildlife and cumulative effects, as outlined in sections 5.1 and 5.4.
- WCC provided results of a Traditional Use Plant Survey, dated November 2, 2004, for the Wildlife Working Group. The survey found many traditionally-used plants, but no rare plants in the EB and Perry Creek areas. The Aboriginal representatives participating in the field work did not identify any traditionally used plants unique to the mine area;
- WCC redesigned the waste dump and water management system in the EB pit area to avoid direct impacts to the alpine pond;
- Cooperation agreements addressing a range of issues including participation in the Project and economic benefits are being negotiated. An agreement has been finalized with West Moberly First Nations, and progress is being made on understandings with the McLeod Lake First Nations and Sauteau First Nations. Discussions are on-going with representatives of the communities in Kelly Lake;
- WCC is committed to establishing a fund for educational assistance, to collaborating in the development of training programs accessible to Aboriginal groups, and to providing job and contract opportunities to all Aboriginal groups;
- WCC has committed to establishing a public and First Nations environmental advisory committee; and
- While WCC does not support the recommendation that co-operation agreements be a requirement of certificate approval to make best efforts to conclude mutually acceptable agreements with other interested First Nations and Aboriginal communities. Providing opportunities for First Nations and Aboriginal communities to participate in the economic benefits of the Project through contracting, jobs and/or other community benefits.

The Proponent's response to issues raised by First Nations and Kelly Lake communities is contained in Appendix C of this Report. Issues regarding air and water quality, aquatic wildlife, cumulative effects and human health are addressed in section 5.1 to 5.4 of this report.

Conclusions

EAO considers the independent consultant's recommendations that the provincial government undertake a comprehensive analysis of cumulative effects in the north east of the province to be outside the scope of the Project assessment. The Proponent's commitments to address cumulative effects as outlined in section 5.4 of this report are considered by EAO to adequately address cumulative effects for the purpose of the Project assessment.

6 Compliance, Environmental Supervision and Monitoring

Section 10 of the Additional Information Report outlines WCC's environmental management system, including environmental supervision (Section 10.3) and environmental management plans. Sections 10.4 to 10.8 provide information on key environmental management plans including: water management and erosion control; reducing impacts to water quality; and aquatic resources; wildlife mitigation and management; reclamation; and risk management (Section 10.2). In addition, construction management is discussed in 3.11, mine waste management in Section 3.7, solid waste management (Section 3.13), air quality management (Section 3.15), chemical and storage handling (Section 3.12) and emergency preparedness and response in Appendix P of the Additional Information Report.

Proposed additional baseline studies as of May 2004, monitoring and contingency plans are described in section 10.9. Additional studies committed to in the Additional Information Report have been completed or are in progress, and will be submitted in conjunction with permitting.

Proposed monitoring is summarized in Table 10.9-1 of the Additional Information Report. During the review of the Additional Information Report and Addendum Report, WCC committed to additional monitoring of environmental parameters which will be identified in the technical assessment report in support of permits under the *Environmental Management Act*. Requirements for reporting on geotechnical, ML/ARD, and health and safety will be addressed in the *Mines Act* authorizations. The selenium management plan will be updated and refined with agencies during the permitting phase, as will details of the construction phase, environmental supervision plan.

Commitments regarding mitigation measures, environmental supervision, monitoring and agreements with First Nations, communities at Kelly Lake and the guide outfitter and trapper are located in Appendix F of the assessment report. WCC will report to EAO regarding commitment compliance two weeks prior to start of significant surface disturbance during construction, two weeks prior to commencement of full scale commercial operation, and one year after the start of full scale commercial operation. The same reporting requirements apply to EB pit which will be developed after Perry Creek pit.

7 Statutory Approvals

If an environmental assessment certificate is issued for the Project, WCC will require additional authorizations for construction, operation and closure of the Project. These are listed in Appendix G of this report.

PART C REVIEW CONCLUSIONS

Based on the:

- Information contained in the Proponent's Application;
- Public and First Nations consultation;
- Government agency, First Nation, communities at Kelly Lake and public comments on the Project, and the Proponent's responses to these comments; and
- Commitments and mitigation measures summarized in Appendix F to be undertaken by the Proponent during the construction, operation and decommissioning of the Project.

EAO is satisfied that:

- The Application adequately identified and assessed the potential significant adverse environmental, economic, social, heritage and health effects of the Project;
- Public consultation and distribution of information about the Project are adequate;
- EAO is satisfied that legal duties owed to First Nations have been met, that consultations carried out in relation to the Project were adequate and that issues within the scope of the environmental assessment have been adequately addressed and accommodated; and
- Practical means have been identified to prevent or reduce to an acceptable level any potential significant adverse effects of the Project.

APPENDICES

<i>APPENDIX A</i>	Key Project Review Documentation
<i>APPENDIX B</i>	Public Issues Tracking Summary – Review of the Additional Information Report and Addendum Report
<i>APPENDIX C</i>	First Nations and Kelly Lake Communities Issues Tracking Summary
<i>APPENDIX D</i>	Agency Certificate Issues Tracking Summary - Review of the Additional Information Report and Addendum Report
<i>APPENDIX E</i>	Agency Permit Issue Tracking Summary - Review of the Additional Information Report and Addendum Report
<i>APPENDIX F</i>	Summary of Western Canadian Coal Corp.’s Commitments
<i>APPENDIX G</i>	Statutory Approvals Potentially Required for Wolverine Coal Project