

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

1	<b>Pierre Johnstone Ecosystem Biologist, MOE, Peace Region</b>	One of the key functions of the EA process is to identify impacts and design mitigation to minimize or eliminate the effects on the identified values. The application must specify what actions the proponent will undertake to reduce or eliminate these identified impacts. If there is no opportunity for mitigation, then compensation must be proposed. If there are any residual impacts after mitigation or compensation is applied, then the application must describe the risks and the potential consequences to the values caused by the residual impact.	<p>WCCC: Comments noted.</p> <p>With respect to compensation; on projects in general, compensation may be an option for significant unmitigable effects. For this project, compensation is considered to be unwarranted because of the relative small effects on features (e.g., wetlands, ecological communities of concern), and the fact that they were rated as not significant.</p> <p><b>Resolution:</b> It is agreed that compensation can sometimes be an option.</p>	We expect a stronger commitment to explore and implement compensation options when there are permanent project effects.	<p>Response Satisfactory</p> <p>Issue Addressed</p>
2		In general it was difficult to clearly ascertain the scope of value assessment, predicted project effects, proposed mitigation/compensation, and residual effects to specific values (e.g. rare plants). The reader must constantly flip from one section to another, changing CDs and comparing tables and paragraphs from different sections to put together a linear progression; some topics (e.g. wildlife incidents) are discussed in several separate sections. Granted, organizing any work of this magnitude is a difficult task, but it could have been more clearly laid out, thus avoiding the task of navigating through the document to find out if fish and wildlife values have been addressed, and to examine the specific commitments for mitigation of	<p>Comments noted. Considerable effort was put into organizing the document in a manner that would be conducive to efficient reviews, and document organization was presented in the Application Terms of Reference, which were approved by the Working Group. Other reviewers have responded favorably to the document organization. It is extremely difficult to satisfy all reviewers. We can consider constructive suggestions in finalizing comments for our next EA.</p> <p>AXYS: The wildlife section was</p>		<p>Response satisfactory</p> <p>Issue Addressed</p>

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

		impacts.	organized by key issue (separate VEC subsections are then organized under each key issue section)  <b>Resolution:</b> WCCC will consider any specific constructive suggestions in finalizing TOC for our next EA.		
<b>3</b>		Language often does not commit to important elements. For example, phrases such as “reclamation ...will consider ...wildlife habitat”, or “...at the discretion of the Environmental Superintendent”, or “...maintaining vegetation buffers to the extent practical” (sec. 4.11.7), or “will consider the need to...” (sec 4.11.8). Such language is vague, and does not provide the Ministry of Environment with assurances that mitigation measures will actually be carried out to address impacts. We have learned that unless specific activities or processes are in place in the environmental assessment certificate, there will be no enforceable requirements that will reduce or eliminate impacts, which creates a significant risk to values under our ministry’s mandate, including values important to other tenure holders, First Nations and the public.	Will modify text to strengthen various commitments.  <b>Resolution:</b> Western Canadian Coal will review relevant EA document sections and will re-word sentences from the document to create definitive statements that clarify the commitments, and can be included in the commitments list (e.g. to explain decision processes proposed, specifics of mitigation, or threshold values or criteria).  The following identified where text has been re-worded (from the original text, highlighted in yellow).  4.11.3 General Restrictions for Wildlife Protection  <ul style="list-style-type: none"> <li>Employees and contractors will avoid to the extent practical,</li> </ul>		Response satisfactory  Issue Addressed

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			<p>disruption of wildlife nests, eggs, dens, burrows and the like (i.e. except as a result of clearing and mining activities in approved development areas).</p> <p><i>Re wording</i> – Employees and contractors will avoid disruption of bird nests and eggs during the breeding bird window. Dens will also be avoided, except where clearing and mining activities cannot be adjusted (e.g., mine site).</p> <p>Section 4.11.6 Wildlife and Vehicles</p> <ul style="list-style-type: none"> <li>Conform to road snow clearing requirements at the discretion of the Environmental Superintendent</li> </ul> <p><i>Re wording: WCCC will limit snow bank height at known wildlife crossing points determined by the Environmental Superintendent to a level that allows for ungulates and other large mammals to cross the road safely.</i></p> <p>4.11.7 Wildlife Habitat Use</p>	<p>Good – how will known wildlife crossings be identified?</p>	
--	--	--	---	--	--

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			<ul style="list-style-type: none"> <li>Based on final design for the loadout, clearing plans will be reviewed with the objective of maintaining vegetation buffers to the extent practical adjacent to facilities and access roads.....</li> </ul> <p><i>Rewording: Based on final design for the loadout, clearing plans will be reviewed with the objective of maintaining maximum vegetation buffers adjacent to facilities and access roads in and around the proposed Falling Creek Flats Loadout, except where safety (visibility) concerns are an issue. Buffers are intended to facilitate bird movements between adjacent forested areas and the forested area within the rail loop.</i></p> <p><i>From EA Application, Section 8: In Fish bearing watersheds, the potential for increased erosion and sediment introduction resulting for Clearing work will be minimized by establishing Riparian Vegetation Management Areas (RVMA) extending 15 m back from the top</i></p>		
--	--	--	--	--	--

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			<p><i>of the streambank. No machine access into the RVMA will be permitted and vegetation within the RMVA will be hand-slashed to minimum requirements necessary. Mature trees requiring removal from within the RVMA will be hand-felled away from the channel and removed by machines positioned outside the RVMA boundary. Shrub and tree species less than 2 m in height will be retained within the RVMZ. Vegetation removal, pole placement, and maintenance operations conducted within an additional 15 m of the streambank will be completed with minimum ground disturbance (no grubbing or grading) to preserve root zone integrity and riparian zone soil stability</i></p> <ul style="list-style-type: none"> <li>• Wildlife Crossing points will be provided, if needed, at intervals along Falling Creek Connector Route ditches at the discretion of the Environmental Superintendent, with the provision that ditch function is not compromised</li> </ul>	Should include	
--	--	--	---	----------------	--

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			<p><i>Wildlife crossing points (i.e., shallow slopes on ditches) will be provided, at intervals along Falling Creek Connector Route ditches at sites determined by the Environmental Superintendent, with the proviso that ditch function is not compromised</i></p> <p>4.11.8 Wildlife Health</p> <ul style="list-style-type: none"> <li>Construct all ditches and engineered embankments/dams/settling ponds per engineering requirements, or as approved by the Environmental Superintendent, the Mine Manager, or designate(s). Detailed engineering design of these structures will consider the need to prevent hazards to, or entrapment of wildlife, particularly ungulates.</li> </ul> <p><i>Detailed engineering of these structures will provide allowance for escape routes</i></p>	<p>methods to prevent wildlife use of sediment and tailings pond, e.g. enclosure methods. How will waterfowl be affected by such ponds?</p>	
--	--	--	---	---	--

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			<i>(i.e. shallow slope on banks) for wildlife, particularly ungulates. Knight Piesold confirms that slopes will be designed at a ratio of 2.5 horizontal: 1 vertical. This shallow slope is expected to allow wildlife (e.g., ungulates) to exit, should they enter the sediment ponds.</i>		
4		<p>The following comments relate to key content considerations for the application.</p> <p><b>1. Contents Specified in Terms of Reference</b></p> <p>The application has to include information that meets the content specifications as set out in the approved Terms of Reference. The Ministry of Environment has provided a summary of desired objectives for fish and fish habitat. We expect at a minimum to see the following:</p> <ul style="list-style-type: none"> <li>- measures taken to identify species of fish and fish habitats within or adjacent to the area of the development;</li> <li>- means to identify the risk that developments or activities will result in impacts to fish and fish habitat that are contrary to the achievement of the desired conditions;</li> <li>- measures to protect fish and fish habitat consistent with federal policy;</li> <li>- measures to maintain safe fish passage;</li> </ul>	<p>WCCC has generally addressed the issues that were listed in the TOR in significant detail, as follows:</p> <ul style="list-style-type: none"> <li>- <i>measures taken to identify species of fish and fish habitats within or adjacent to the area of the development,</i></li> </ul> <p>Application Section 8.2.1.6 &amp; 8.2.1.6.1 identifies the fish species that are present and were sampled during the field surveys conducted in support of the project, including work in the Sukunka River; and in Blind Creek. Work conducted to identify fish presence along the powerline ROWs is defined in 8.5.1.1.1 and Falling Creek Connector Route ROW is defined in</p>	Can this be rolled up into a fish protection plan?	Response Satisfactory  Issue Addressed

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

		<ul style="list-style-type: none"> <li>- measures to maintain the hydrologic integrity of watersheds; and,</li> <li>- measures to minimize impacts of increased access on fish populations, such as, increased angling exploitation rates.</li> </ul> <p>These objectives were communicated during the Terms of Reference review. The current application does not appear to include information that would adequately address all of these objectives; in fact the application specifically states that no Fisheries Protection Plan is provided (sec. 4.11.1).</p>	<p>8.3.1.1.1 and 8.3.1.1.2</p> <ul style="list-style-type: none"> <li>- <i>means to identify the risk that developments or activities will result in impacts to fish and fish habitat that are contrary to the achievement of the desired conditions;</i></li> </ul> <p>Section 8.2.2.3.3 identifies and assesses the effects the project will have on fish and fish habitat. It was recognized that the potential effects of the Brule Mine on fish and fish habitat could include the direct loss of occupied fish habitat, degradation of downstream water quality (including increased suspended sediments and other parameters), and shifts in annual discharge patterns resulting in changes to the seasonal use capability of downstream fish habitat. The formal risk assessment process that was used for this project is fully described in Section 5, Section 5.1.3. In fact, the priority issue that was identified as an environmental risk, and requiring follow up work, was the potential for</p>	<p>If there will be no “direct loss of fish habitat” this line should be removed, as it leads the reviewer to conclude there is potential direct loss of occupied fish habitat.</p>	
--	--	--	---	---	--

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			<p>impacts to fish and fish habitat in lower Blind Creek. The risk assessment and mitigations proposed are discussed in section 8.2.2. Based on this identified risk, additional field studies were conducted to assess the risks to Lower Blind Creek (see Section 8.2.1.6.1), and detailed hydrologic/groundwater modeling was done to predict flow changes (see Section 7)</p> <p>- <i>measures to protect fish and fish habitat consistent with federal policy;</i></p> <p>WCCC has succeeded in designing this project in a manner that does not result in physically altering fish habitat in any of the local waterways located adjacent to Brule. Measures taken to protect fish and fish habitat in the vicinity of project components include the total avoidance of fish bearing water with the exception of the existing clear-span bridge crossing of Mink Creek and the existing power line ROW crossings of</p>	<p>There will be changes of downstream water quality and changes in discharge levels, so this statement is inaccurate.</p>	
--	--	--	--	--	--

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			<p>Martin Creek and unnamed tributary to Sukunka River, and the new crossing of the Pine River. Mitigative measures associated with work in the vicinity of these crossings include the avoidance of disturbance to the streambed and streambanks.</p> <p>Measures to protect fish habitat are outlined in the management plans, as follows:                      Sediment Prevention and Erosion Control Plan Section 4.3, subsection 4.3.3.3.2                      Selenium Management Plan Section 4.6                      Clearing Plans, including Protection of Riparian areas along the powerline Section 4.2.12                      Fuel and Chemical and materials management plans Section 4.8 &amp; 4.9</p> <p>Proposed measures for watercourse protection during road construction are included in the description of how the Falling Creek Connector road will be constructed.</p>		
--	--	--	---	--	--

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			<ul style="list-style-type: none"> <li>- <i>measures to maintain safe fish passage;</i></li> </ul> <p>During the upgrade of the structural upgrading of the existing clear span bridge that crosses Mink Creek, no disturbance to the streambed or stream banks is proposed and no impact on fish or fish habitat is expected. All other work in and about a stream, such as culver replacements will be conducted in a manner that takes into account best management practices.</p> <ul style="list-style-type: none"> <li>- <i>measures to maintain the hydrologic integrity of watersheds;</i></li> </ul> <p>The key measures were:</p> <ul style="list-style-type: none"> <li>- to restrict mining in Mink Creek and to avoid mine runoff discharge to Mink Creek. (see Project Alternatives assessment, Section 3.1.4)</li> <li>- to set-back the Falling Creek Flats loadout from Falling and Beaudette Creeks and to establish</li> </ul>		
--	--	--	---	--	--

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			<p>flood protection berms (see section 4.4.5.2.4)</p> <ul style="list-style-type: none"> <li>- to restrict the Southeast Dump toe to avoid encroachment on Tributary 3 of Blind Creek.</li> </ul> <p>In addition, standard good practice was applied in the design of the powerline and Falling Creek Haul Route.</p> <ul style="list-style-type: none"> <li>- measures to minimize impacts of increased access on fish populations, such as, increased angling exploitation rates.</li> <li>- no new public access to fish-bearing reaches is proposed; current BC angling regulations prohibit the retention of rainbow trout during the period when adults are present in Blind Creek (prior to July 1) and the retention of bull trout at any time.</li> </ul> <p><b>Resolution:</b> A concurrence table may be a useful tool for future EIAs to demonstrate that reporting requirements are met.</p>		
5		<p><b>2. Assessment Methods</b> <b>2.1 Wildlife</b></p>	<p><b>AXYS:</b> a conventional approach to the selection of focal species was used. Note that VECS are intended to make</p>	<p>We have previously expressed to</p>	<p>Response satisfactory</p>

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

		Focal species selection for wildlife assessments fell short of our expectations (sec. 10.3.2.2). The “process and rationale for the selection of... focal species” is not found in Appendix E-5, as indicated; the appendix tables the listed species, and which were selected as Valued Ecosystem Components but does not provide the supporting rationale. For example, provincially blue-listed wildlife such as the Northern Long-eared Myotis, the Canada Warbler, and the American Bittern, and red-listed species including the Lark Sparrow, Cape May Warbler, the Bay Breasted Warbler, and the Connecticut Warbler, were not apparently included, but occur in the area. Furthermore, surveys done by the proponent confirm the presence of listed species in the project area that were not formally assessed (Appendix E-5). Some additional concerns with the wildlife assessments include the following:	sense in the context of a focused analysis of the potential environmental effects of a proposed development.  <b>Resolution:</b> All listed wildlife species were included in the approach for selecting VECs .To demonstrate that listed species have been addressed in the EIA, additional columns have been added to Appendix E-5 identifying how habitat requirements/associations for listed species have been addressed within the selected VECs (see D4.3 in Brule Post-Application Agency Consultation Report).	WCCC that all listed species should be VECs	Issue Addressed
6		Have wildlife corridors and habitat connectivity been assessed on a regional basis, with other developments in mind? If so, how was this done, and what are the results (i.e. where are the corridors), and how have impacts been mitigated?	AXYS: no explicit analysis for corridors was conducted but some general text was provided (i.e., general use of valley bottoms or riparian areas as movement corridors). Connectivity was addressed by the core security habitat analysis (CSH). See related responses to Points 32 and 54.  During field programs, 212 ground inspection form (GIF) plots were completed at representative habitat	Where are the (existing, potential, likely) travel corridors?  How about on the ground surveys for use by Caribou?	Response satisfactory  Issue Addressed

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<i>B.C. Ministry of Environment Pierre Johnstone</i>					

			<p>types for all project components. As part of this field exercise, wildlife habitat features are noted, including game trails or apparent wildlife corridors. While all areas had various wildlife sign, no wildlife movement corridors were observed.</p> <p><b>Resolution:</b> Habitat connectivity issue has generally been captured with the core security analysis. Riparian areas are also recognized as important potential movement corridors for various wildlife species (e.g., ungulates, furbearers, carnivores). For example, Falling Creek likely facilitates movement of wildlife in the area. The proposed connector road generally runs parallel to this drainage. Observations of caribou sign on either side of the connector road suggests that caribou may cross this road. Most of the connector road is approximately 500m from Falling Creek at the lower elevations, although it does approach closer at the upper reaches (e.g., where the road crosses Falling Creek). As such, it is expected that wildlife movement along Falling Creek will not be significantly altered by the project.</p>	Being done elsewhere by WCC?	
--	--	--	--	------------------------------	--

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<i>B.C. Ministry of Environment Pierre Johnstone</i>					

			<p>Wildlife movements perpendicular to the Falling Creek drainage, which would also cross the connector road, may be affected by traffic. Mitigation measures such as speed restrictions and providing breaks in snow banks along road sides will minimize effects on wildlife movement.</p> <p>Lower elevational riparian areas, such as those found around the proposed Falling Creek loadout, are also likely important movement corridors for wildlife. Specifically, the mature forest around the loadout supports breeding songbirds that may be affected. Due to the ability to fly, most bird species are not subjected to effects along movement corridors. However, effects of habitat fragmentation may influence songbird movements during breeding periods when they establish territories. To minimize these potential effects, habitat disturbance at the loadout will be minimized by retaining trees within the rail loop. Furthermore, access to the loadout will avoid riparian areas (e.g., tributary to the Pine River) by paralleling existing linear features.</p>		
--	--	--	---	--	--

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

7		<p><b>2.2 Vegetation</b> The application adequately describes the potential plants and plant communities of conservation concern (e.g. section 10.1.3.4 and Tables E-3, E-4). Unfortunately, apparently very little effort was applied in searching for occurrences, particularly of listed plants: one day of survey in the fall (Sept.13 '04) is not adequate sampling for rare plants. Additional concerns with respect to vegetation assessment methods include:</p> <ul style="list-style-type: none"> <li>- The use of helicopters to assess some wetlands. How many wetlands were assessed aerially (E-1.4)?</li> </ul>	<p><i>Keystone:</i> multiple wetland complexes that could have been affected by the project (according to project plans at the time the fieldwork was done [June 2005]) were overflowed and photographed (it is not possible to provide a discrete 'number' of individual wetlands). The aerial survey was a general one, targeted at easily visible wildlife habitat features such as large stick nests etc. and to generally characterize the wetland type. Wetlands were overflowed in the Hasler, Mink Creek Road, Falling Creek Road, mine site, and powerline areas.</p> <p>To assess potential effects on rare plants, two approaches were taken: Firstly, a reconnaissance-level rare plant survey was conducted at the mine site in 2004 using a systematic meander transect technique to document the occurrence of rare plants (see Appendix E-1.1 for details). No rare plants were recorded. Secondly, wetlands and ecological communities of conservation concern were selected as vegetation VECs for the assessment. Both of these VECs have a high</p>	Still does not address rare plant survey issue.	
---	--	--	---	---	--

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			potential for rare plant occurrence. These VECs were mapped in the areas disturbed by the project footprint, as well as in the regional study area. Ground and aerial surveys were also conducted to validate the mapping exercises. To mitigate potential effects on these VECs, footprints areas were limited in size, existing roads were used, and rights-of-way were paralleled. Where effects cannot be mitigated (e.g., <1ha loss of wetlands in the mine footprint), the effects on vegetation resources were predicted to be not significant, due to the small areal loss and regional availability.		
8		Generally, confidence in the assessments is low, and all wetland assessments had low confidence (table 10.1.6-1); but rare plant species potentially occur in small wetlands in the project area (sec. 10.1.3.4).	AXYS: As noted above, rare plants potentially occur in wetlands. This was one of the reasons wetlands were selected as a VEC (see Section 10.1.3.3). The low confidence rating was because the assessment used mapping products (e.g., 1:20,000 scale) that likely underestimated actual wetland area (this limitation is stated in text; Section 10.1.3.3). However, aerial and ground-based (where possible) field programs for 24 wetlands were	Low confidence fuels concern that wetland assessment was limited. WCCC committed to conducting additional surveys (Commitment	Response satisfactory  Issue Addressed

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			also used to supplement the understanding of wetland features in the study area (see details of field program in Appendix E-1.4 Wetland Assessment)	11C)	
9		- According to the assessment, loss of a wetland with no planned mitigation has a low magnitude of effect where low is described as “effect occurs that might not be detectable, but is within the range of natural variability and does not compromise ecological values” (table 10.1.2-2, sec. 10.1.6, table 10.1.6-1).		The quote is an example of a CEA problem, where there is a potential to permanently lose listed rare plants, yet the analysis bumps this out as “might not be detectable, ... does not compromise ecological values”	
10		- Six of 12 potential project effects are considered irreversible, yet the text description is “most are considered to be reversible...”	AXYS: full text is: “Residual Project Effects for the vegetation focal features are low in magnitude, local in geographic extent, continuous, and		Response satisfactory  Issue

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			most are considered to be reversible, <i>at least to some extent.</i> " (italics mine, Section 10.1.6). Note that an effect was considered to be irreversible if there was any area, no matter how small, that was permanently lost. For example, the project effect on wetlands was characterized as irreversible (Table 10.1.6-1) although < 1.0 ha was identified as permanently lost – so, for wetlands it is reasonable to state that the project effect is reversible to some extent. (See 8)		Addressed
11		<p><b>2.3 Cumulative Effects and Residual Project Effects</b></p> <p>With respect to cumulative effects and project effects assessments, we are concerned that the interpretation of the values is subjective, and brings into question the validity of proponent assumptions and methods. It was difficult to assess this concern because the elements were scattered through the application Assessment (sec.6.0, 10.1.2.6, 10.1.2.7, 10.1.2.9, 10.1.7, 10.1.8, 10.3.2.7, 10.3.7). The nature of cumulative effects is that they appear insignificant at first. There are over 20 mine sites and associated structures in the coal belt: incremental effects quickly become significant, particularly for wide ranging animals. For example, Grizzly Bears are not considered to be</p>	AXYS: a transparent process (e.g., using various effects criteria) and recognized approach to conducting cumulative effects assessments (including a defined approach to defining significance/non-significance) was presented in the EIA. This approach follows those accepted by the Canadian Environmental Assessment Agency (CEAA), specifically the Cumulative Effects Assessment Practitioners Guide, developed by CEAA. While some interpretation is qualitative, several quantitative tools were used for both project effects and cumulative effects assessment – i.e.,		Response satisfactory  Issue Addressed

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

		<p>incrementally affected by this project (sec. 10.3.6.4). Information presented earlier in the application (i.e. sec. 10.3.3.2.1) indicates Grizzly Bears use the area in spring, summer and fall, and that levels of access are already at or near the habitat effectiveness threshold. Similarly, Caribou have been documented in the RSA year round, contrary to section 10.3.6.1; Caribou are susceptible to incremental impacts of development, yet proponent methods conclude no incremental project effects or regional cumulative effects. These findings are not properly explained and do not seem to be reasonable given local knowledge of habitat use.</p>	<p>habitat suitability mapping, CSA, linear density analysis.</p> <p>Project effects of mortality risk on grizzly bears were identified as potentially contributing to cumulative effects. As such, core security habitat analyses and road density analyses were conducted in the larger RSA in order to assess potential contributions of the project to existing effects.</p> <p>AXYS: as noted for Point 2, the wildlife section was organized by key issue.</p> <p>AXYS: Project effects may be incremental but they were determined to be not significant.</p> <p>AXYS: according to the information compiled for this assessment, caribou are unlikely to be in the RSA year-round. This information is presented in the baseline section for caribou, and includes information from the caribou research project.</p>		
<b>12</b>		<p>Caribou were specifically identified by Mr. David Emory (trapper) as resident in the area, and will require more baseline information to characterize</p>	<p><b>Resolution:</b> information provided by Mr. Embree on caribou locations has been mapped in relation to project</p>	<p>Observations are within 1 km of areas</p>	<p>Response satisfactory</p>

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

		<p>impacts, and design mitigation strategies.</p> <p>There has been extensive work done on cumulative impact assessment, and certainly there are thresholds and methods in place that can be applied to the current project (e.g. documents at <a href="http://srmwww.gov.bc.ca/rmd/lrmp/mk/projects.htm">http://srmwww.gov.bc.ca/rmd/lrmp/mk/projects.htm</a>).</p>	<p>components and the RSA (see D4.1 in Brule Post-Application Agency Consultation Report). Observations are outside areas directly affected by the project (i.e., at least 1 km from the nearest road feature). Mr. Embree's suspected caribou movement would cross the Falling Creek Road (see D4.1 in Brule Post-Application Agency Consultation Report)</p> <p>AXYS: the same tools and approaches described in the Cumulative Effects Assessment Management Framework report was used in this assessment.</p> <p>AXYS: these reports include recommended thresholds (e.g., for linear density, core secure habitat). At present, recommendations from these reports have not been formally accepted or implemented in the region. However, these and other more broadly accepted thresholds for other regions were used in the assessment. None of the threshold values in the regional study discussed (e.g., 0.6km/km<sup>2</sup> for road density), if applied, would change conclusions in the Brule EA.</p>	<p>directly affected by the project, well within range of use. Should look on the ground for use.</p> <p>“Recommend ed thresholds” developed by qualified professionals are examples of best available science, and may be appropriate. MoE notes that some of these thresholds have been applied.</p>	Issue Addressed
--	--	--	--	--	-----------------

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

13		<p>Other cumulative effects related concerns include:</p> <ul style="list-style-type: none"> <li>- Have other proponents been contacted with respect to coordinating resource development, value assessment, mitigation, and monitoring, with a view to minimizing impacts?</li> </ul>	<p>WCCC has not been involved in coordinated resource development planning exercises (with the exception of early participation in the LRMP development, and the caribou research program). WCCC has had extensive contact with other proponents related to sharing roads and right-of-ways and resolving resource use conflicts, and with respect to shared use of the Falling Creek Flats loadout.</p>		<p>Response satisfactory</p> <p>Issue Addressed</p>
14		<p><b>3. Description of Values</b></p> <p>There is no confirmation of the presence or absence of spawning bull trout in the lower reach of Blind Creek, and more information is required to properly characterise impacts. Typically, the Ministry of Environment does not permit fish collections during bull trout spawning periods due to the sensitivity of mature adults to sampling mortalities. Additional sampling (e.g. targeted fry collection in the spring) is required to identify critical habitat and more accurately estimate project effects.</p>	<p><i>Diversified Environmental</i> – As described in Section 8.2.1.6.1., sampling of Blind Creek in 2005/06 indicates that use by bull trout is restricted to seasonal rearing and limited over-wintering of 3 and 4-year-old juveniles that disperse from the two identified spawning zones for the lower Sukunka migratory population, i.e., upper Burnt River and North Burnt River. As stated in Section 8.2.1.6.1, reproduction potential for fall-spawning species in Blind Creek is severely restricted by lack of access during the pre-spawning and post-spawning movement period due to sub-surface</p>		<p>Response satisfactory</p> <p>Issue Addressed</p>

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<i>B.C. Ministry of Environment Pierre Johnstone</i>					

			<p>discharge resulting in dewatered channel.</p> <p>As explained in Section 8.2.1.6.1, the presence or absence of young-of-the-year and yearling bull trout in electro-fishing samples between mid-July and mid-September is a reliable indicator of bull trout spawning activity in a given reach or stream. No YOY or yearling bull trout were captured or observed during extensive sampling between mid-July and mid-September 2005 and 2006, indicating the absence of bull trout spawning activity in lower Blind Creek. This is consistent with the absence of surface flow during the bull trout spawning period and the seasonal use by 3-year-old juveniles dispersing from the Burnt and North Burnt spawning zones. The suggestion by MOE that sampling for bull trout fry in the spring is required to confirm the absence of bull trout spawning activity is inconsistent with the current understanding of bull trout in the Peace Region; in the event that bull trout fry were present, they would be unlikely to be detected until early summer at which time they become mobile and fully</p>		
--	--	--	--	--	--

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			emerged from stream bed substrates. As indicated in Section 8.2.1.6.1, faster growing rainbow trout fry were not fully emerged from substrate at the time of the July 20 2006 sampling event.		
15		<p><b>4. Project Impacts</b></p> <p>Blind Creek contains bull trout, which are blue listed. With projected 9% decrease in winter flow rates, the proponent correctly identifies the possibility of over-winter mortalities of resident juvenile rainbow and bull trout. The reduced flows could also impact over-winter incubation of bull trout eggs. The proponent does not acknowledge this, stating: “effects of mine development on overall sport-fish production in Blind Creek are expected to be neutral to slightly positive”. These findings are not properly explained and appear to be unreasonable under the circumstances.</p>	<p><i>Diversified Environmental</i> – Due to the absence of winter sampling capability but the apparent presence of limited over-wintering potential, the presence of juvenile rainbow trout and low densities of post-yearling juvenile bull trout in Reach 2 of Blind Creek is assumed but not confirmed. The calculated reduction of mean late winter base flow at BC01 as described in Section 4.4 is 1.0 litres/second (9%). As discussed in Section 8.2.2.3.3, the effective decrease in baseflow to over-wintering habitat downstream of BC01 is projected to be less than 1.0 litre/second due to significant groundwater release directly into Reach 2 as identified by the 2005 spot discharge measurements (Table 4.4.4-8). As outlined in Section 8.2.2.3.3, given the low relative density of juvenile bull trout, the dominance of underlying bedrock substrates and the typical response of juvenile bull trout to natural</p>		<p>Response satisfactory</p> <p>Issue Addressed</p>

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			<p>low winter flow conditions, incremental over-wintering mortality above baseline conditions is unlikely but also not measurable. Concerns about low flow impacts on incubating bull trout eggs, identified by MOE, are not applicable for reasons discussed in above response to item #14.</p> <p>The projected increase in base flow from July through September, as a result of mine development, and the associated delay in late summer dewatering can be expected to provide benefits to bull trout by providing extended fall emigration opportunity similar to that described for juvenile rainbow trout. Benefits to bull trout, however, are less dramatic and much less measurable due to much lower densities.</p>		
16		<p>One of the most important issues is the construction of the Falling Creek loadout. The proponent does not justify construction of the Falling Creek loadout from an environmental perspective. Zero to very little environmental assessment was provided comparing any of the 14 options, and the information that was provided was erroneous (“mostly low quality wildlife habitat” for the Falling</p>	<p>AXYS: the options analysis was a multi-disciplinary (e.g., air, noise, socio-economics) assessment conducted to identify a preferred location that would have acceptable constructability and economics with low environmental and community effects. During the initial screening, the Falling Creek location</p>	<p>Concerned that the 14 loadout options did not fully consider environmental impacts.</p>	<p>Response satisfactory  Issue Addressed</p>

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

		Creek option, which is planned for riparian old forest). What specific wildlife assessment work was done to support this assertion? Options are available that should have lower impact wildlife habitat (e.g. Willow Flats and Hasler sites).	was rated as have relatively low quality wildlife habitat, largely due to existing disturbances in the area (e.g., rail line, road, and existing loadout). Subsequent to the screening level options analysis, the Falling Creek option was subject to more detailed work related to wildlife values (e.g., bird surveys, wildlife habitat modeling). Data from the habitat modeling also indicated low quality habitat for most species, mostly related to existing disturbances.		
17		Other key issues include the following: May not be appropriate to base the assessment of residual cumulative effects on old forest on Landscape Unit targets of 1999. Things have changed, particularly for pine stands (sec. 10.1.8).	AXYS: use of the Biodiversity Emphasis Options (now the Old Growth Order) was recommended by MSRM. It is our understanding that associated target values for the different Landscape Units have remained the same since 1999. It is noted that forestry management approaches may have changed, due the issue of areas affected by pine beetle kills.		Response satisfactory  Issue Addressed
18		<b>5. Mitigation and Compensation</b> There are a number of comments with respect to the Wildlife Protection Plan (sec. 4.11), including the following: - It's an offence to possess, take, injure, molest or destroy a bird or its egg, the nest	AXYS: comments noted.		Response satisfactory  Issue Addressed

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

		of an eagle, peregrine falcon, gyrfalcon, osprey, heron or burrowing owl, or the nest of a bird not referred to above when the nest is occupied by a bird or its egg (sec. 34 Provincial <i>Wildlife Act</i> ), even “as a result of clearing and mining activities in approved development areas” (sec. 4.11.3).			
19		- What will be the specific actions “directed at minimizing wildlife concerns related to attractants” referred to in section 4.11.4.1? Are these limited to the ones described in this section?	AXYS: specifics will be presented in the detailed Wildlife Protection Plan (WPP) prepared Post-certificate and submitted to MOE for review (as was the case for the Wolverine Coal Project). WCCC provided PJ with copy of Wolverine WPP (see D4.4 in Brule Post-Application Agency Consultation Report).	With respect to a WPP, would expect a level of referral/sign off, but we prefer having details addressed in the certificate process.	Response satisfactory  Issue to be Addressed at Permitting.
20		- Will carcasses be removed from the project site and along access roads by WCC?	AXYS: yes, see Section 4.11.6		
21		- What “appropriate actions in response to a problem wildlife issue” are proposed, or contemplated?	AXYS: see Point 19 response	With respect to a WPP, would expect a level of referral/sign off, but we prefer having	Response satisfactory  Issue Addressed

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

				details addressed in the certificate process.	
22		- In section 4.11.5.2, there is reference to section 1.2.2 having requirements for preventing problem wildlife; these were not found in that section.	AXYS: may be a section number problem? Otherwise see Point 19 comments.	With respect to a WPP, would expect a level of referral/sign off, but we prefer having details addressed in the certificate process.	Response satisfactory  Permitting Issue.
23		- In section 4.11.6, under what conditions would project-related traffic be approved for non-designated roads and trails?	AXYS: for example, if an ATV was required to reach a water sampling site that was not accessible from the main road network.		Response satisfactory  Issue Addressed
24		- The “measures to develop post-mine wildlife habitat” in section 4.12 appear vague and unclear, or missing (i.e. where is Figure 4.12.2-1); would like to see the “greater detail” in this EA application.	<i>C.E. Jones and Associates</i> : the figure 4.12.2-1 Conceptual Final Reclamation Plan was misnamed 4.12.1-1. This is a key figure for presenting wildlife capability at Post-mine. Two sections of text are missing from section 4.12.2.4.2 End Land Use and Capability Objectives (see D4.5 in Brule Post-Application Agency Consultation Report). With figure 4.12.1-1 in hand		Response satisfactory  Issue Addressed

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			and the missing sections of text should answer most of the questions regarding wildlife capability/suitability (Points 61, 62, 63 & 65).  <b>Resolution:</b> Some of the concerns presented in this issue are answered by the appended table (see D4.5 in Brule Post-Application Agency Consultation Report), and others have been noted and will be addressed in the Reclamation permit application.		
25		- In sec. 4.11.8, would prefer wording such as “detailed engineering design of these structures will prevent hazards to, or entrapment of, wildlife, particularly ungulates”, rather than the vague use of “consider”. It is reasonable to expect exclusion methods would be applied to keep wildlife out of sediment ponds.	<i>Knight Piesold:</i> Specifically, slopes will be designed at a ratio of 2.5 horizontal: 1 vertical. This shallow slope is expected to allow wildlife (e.g., ungulates) to exit, should they enter the sediment ponds.		Response satisfactory  Issue Addressed
26		- Sec. 4.11.9.1 refers incorrectly to sec. 10.2.9 for monitoring (actually sec. 10.3.9), for “recommendations for potential wildlife monitoring/adaptive management programs”, whereas sec. 10.3.9 merely refers to collecting incidental observations of mortalities, problem wildlife, Grizzly Bears, and Caribou (see further comments	AXYS: section reference correction noted. See Points 27 and 30-31 for related responses.		Response satisfactory

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

		below).			
27		- How often will wildlife information be reviewed to adjust operations (sec. 4.11.9.2)?	AXYS: reporting could be done annually. This would be addressed in the detailed Post-certificate WPP (see Point 19 response).	Point is to specify a reporting period/adaptive mgt process to be implemented, not to give a vague reference (“as needed”).	Response satisfactory  Permitting Issue.
28		- Any observations (as opposed to “repeated”) of a sow and cub should “prompt a safety warning to staff”.	AXYS: agreed, text to be revised in the Wildlife Protection Plan		Response satisfactory  Permitting Issue.
29		- Wildlife observations should be regularly entered into provincial databases (e.g. the Conservation Data Center, Wildlife Species Inventory), particularly for listed species, and regionally significant species, or other plants and wildlife of concern.	AXYS: WCCC will maintain a wildlife log (see Section 4.11.9.2) – these observations will be submitted to the appropriate provincial databases. PJ provided additional contact information on Wildlife Species Inventory database (e.g., point of contact, accessibility).  Note the intent of the wildlife log is not to collect scientifically rigorous data; therefore, much of the information	Not to provide observations on request, but to record observations regularly through the appropriate forms/methods.	

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			collected in the wildlife log is unlikely to be appropriate for certain databases (e.g., CDC). However, observations of large and/or well-known species (e.g., bears) will be of interest to MOE, and will be provided annually with reporting, as noted in #27.		
<b>30</b>		Currently, the monitoring section (10.3.9) only refers to collecting incidental observations of mortalities, problem wildlife, Grizzly Bears, and Caribou; this falls short of our expectations with respect to short- and long-term monitoring of project effects on identified values. At a minimum, Provincially and federally listed species and species of concern that are identified within the regional study area should be regularly assessed through the life of the project; regionally significant species are also important. Short-term monitoring would be very useful in adjusting existing or developing adequate mitigation measures.	<p>AXYS: a detailed monitoring plan is typically only necessary if there are 1) significant project effects, 2) uncertainties regarding mitigation measures, or 3) uncertainties related to accuracy of predictions. For wildlife, no significant effects were identified, conventional mitigation measures are recommended, and the confidence in the predictions was rated as medium to high for all wildlife VECs. As such, detailed monitoring programs are unwarranted. However, wildlife occurrences and incidences at project locations will be tracked in the wildlife log.</p> <p>Note that CEJ has proposed vegetation monitoring related to reclamation and this is relevant to wildlife habitat.</p>	There are uncertainties regarding the proposed mitigation measures (they are largely general, and assumed to be adequate for the suite of species) and there are uncertainties related to the predictions (the confidence levels and impact significance are assigned,	Response satisfactory  Permitting Issue.

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			<p><i>C.E. Jones &amp; Associates:</i> the purpose of reclamation monitoring is to measure success of revegetation practices, measure plant nutrient status and metal uptake.</p> <p><b>Resolution:</b> WCCC will conduct vegetation and bird surveys (Commitment 116, 118)</p>	not measured). To be conservative, monitoring for potential effects is thus appropriate.	
31		- Have other proponents been contacted with respect to coordinating long-term monitoring of major focal species?	WCCC is involved with caribou research in the region (see Point 42 response). WCCC has not attempted to co-ordinate others, but will participate in government co-ordinated efforts in our project areas.		Response satisfactory
32		<p>Many concerns with respect to the mitigation of impacts to wildlife arise from other sections of the application, including the following:</p> <p>Will there be a commitment to restore habitat connectivity as a specific component of the reclamation plan, rather than “mine-related reclamation efforts may restore some degree of habitat connectivity”?</p>	<p>AXYS: deactivation, removal, and reclamation of road segments created by WCCC will restore connectivity to baseline conditions. Also see additional information provided in D4.5 in the Brule Post-Application Agency Consultation Report.</p> <p>WCCC: Can address in greater detail in the reclamation permit.</p>		Response satisfactory

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					
33		- Has the proponent conducted inventory/searches for dens, nests, and hibernacula? Will this occur for final layout and construction? (sec. 10.3.2.1.3)	AXYS: surveys have not been conducted systemically to date, and are not proposed at this time.  WCCC will have an on-site environmental monitor during construction activities.	Unresolved	
34		- Will survey reports entered into provincial databases (e.g. Conservation Data Centre, Wildlife Species Inventory)?	WCCC to ask Keystone to submit any listed species records to CDC. PJ provided additional information on Wildlife Species Inventory database (e.g., point of contact, accessibility).  <b>Resolution:</b> Western Canadian Coal will provide information to Volker Michelfelder (Resource Information Specialist-Wildlife, Prince George, 250-614-9920) and utilize the web based monitoring forms provided by the B.C. Ministry of Environment.	Not just listed species to CDC, but periodic entry of wildlife observations/survey results into appropriate database. Volker Mikelfelder (sp.?) in Prince George can provide further information...	Response satisfactory  Issue Addressed
35		- What will be the change in traffic on the Bull Moose Haul Road as a result of this project?	During the initial stage of mining when the Bullmoose loadout is still in use, there will be no increase in production traffic because the mining rate will be		Response satisfactory  Permitting

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			the same for Brule as is currently occurring at the Dillon Mine. During this initial stage, Dillon processing facilities and equipment will be used for the Brule Mine.		Issue.
36		- Proponent should review Red and Blue lists, there have been some changes (e.g. Philadelphia Vireo is now Yellow-listed).	AXYS: lists were current at time of writing as noted in references citations. Updates: vireo is the only wildlife change. Also, two plants were down-listed.		Response satisfactory  Permitting Issue.
37		- Where is sec. 10.3.2.8.2? There is a reference to wildlife habitat ratings to be found there in sec. 10.3.2.9.1...	AXYS: the correct reference should be to section 10.3.2.2		Response satisfactory
38		- Should not have to go to another permit application for information (“assumptions and adjustments used in developing the ratings are detailed in the Dillon <i>Mines Act</i> Permit Application”, sec. 10.3.2.9.1).	AXYS: an overview of the approach is provided in Section 10.3.2.9.1, and additional information sources are referenced (e.g., RIC 1999, WCCC 2004 [Dillon]).  <b>Resolution:</b> WCCC provided a hard copy of the relevant section of the WCCC 2004 Dillon Application to PJ (see also D4.2 in Brule Post-Application Agency Consultation Report).		Response satisfactory
39		- Why was Grizzly Bear summer and fall feeding not included in the core security	AXYS: The core security habitat analysis does not explicitly consider		Response satisfactory

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

		habitat analysis (sec. 10.3.2.9.3)?	habitat quality, and is used primarily to assess patch size and fragmentation effects. To ensure all possible habitat is included in the analysis, the most critical of the three active seasons was chosen (as per input from T. Hamilton) and all habitat units rated 1-5 (i.e., no nil quality habitat) were included. This allowed a maximum amount of potential grizzly bear habitat to be included in the analysis. From this area, linear features and other disturbances (plus buffers) were removed, resulting in the remaining habitat patches.		
40		- Was core security habitat analysis done for other wide-ranging wildlife, such as Wolverine, Fisher, or Caribou? If not, why not?	AXYS: Core security habitat (CSH) analyses were not conducted for other species, as the grizzly bear CSH analysis was considered representative for other species that function at a landscape level (Section 10.3.2.9.3). The CSH analysis incorporated considerations of the most sensitive species (i.e., grizzly bear). As such, this was a highly conservative approach, which likely over-estimated potential effects.		Response satisfactory
41		- Proponent indicates that spatial data for future developments were not available for	AXYS: PJ to expand on this.		Response satisfactory

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

		analysis. How can we facilitate availability of this important component?			
42		- How will information from further Caribou studies be incorporated into management and mitigation (sec. 10.3.3.1)?	<p>AXYS: telemetry work on the Moberly herd is wrapping up – final report likely later this year.</p> <p><b>Resolution:</b> as part of WCC's participation in caribou research in the region three animals have been collared recently – two in the EB area, and one in the Brazion area. Information from the Brazion area animals, if relevant, will be used as part of the Brule mine mitigation planning.</p>		Response satisfactory
43		- Where are figures 10.3.3-2 to 10.3.3-34?	Addressed by SVZ in Mar 20 email to PJ		
44		- The section on mitigation is very short and does not provide sufficiently specific details (sec. 10.3.4) to allow an assessment of the potential feasibility and efficacy of proposed mitigation measures.	<p>AXYS: much of the mitigation is non-species specific and incorporated into the project design (e.g., retention of forest inside rail loop, minimizing mine footprint, deactivation of road segments, sharing RoWs). The Reclamation Plan is also a major tool for mitigation of effects that is not species-specific per se. Other mitigations are listed in Section 4.11, and will be elaborated on in detailed</p>	With respect to a WPP, would expect a level of referral/sign off, but we prefer having details addressed in the certificate process.	Response satisfactory  Permitting Issue.

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			Post-certificate WPP (see response to Point 19). The WPP includes a number of species- or group-specific mitigation measures (e.g., problem wildlife prevention). Finally, an on-site environmental monitor will facilitate application of mitigation measures during construction activities (see D4.4 in Brule Post-Application Agency Consultation Report).		
45		- Effects on Caribou habitat suitability are predicted to be relatively large (sec. 10.3.5.1.1) but no specific mitigation/compensation is proposed. Why?	AXYS: Section 10.3.5.1.1 states that: “The effects of Phases 1 and 2 (i.e., effects on habitat suitability) are relatively large (based on percent changes), although only on small areas (44.9 ha in spring, 63.8 ha in summer/fall, 12.4 ha in early winter, 50.3 ha in late winter) (Figure 10.3.5-1, Appendix E-8.1). <b>When present, the area of moderately high suitability habitat decreases by 100% and the area of moderate suitability habitat decreases by 64.9% to 100% depending on the season</b> (Figure 10.3.5-1, Appendix E-8.1). The majority of this effect is related to sensory disturbance from mine-related activities so there will likely be some recovery of habitat suitability during the	Rodger? I put the bold in the text to show the part that triggers the comment...	Response satisfactory

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			<p>Decommissioning/Reclamation phase.” Thus, the effect may appear large as a percentage but the actual area (ha) affected is relatively small, and much of the effect is indirect (i.e., as a result of sensory disturbance). Also see response to Point 44 regarding species-specific mitigation.</p> <p>Loss of small patches of moderate quality habitat is not expected to be a limiting factor for caribou in the region. Caribou have large home ranges (108-278km<sup>2</sup>), and the loss of small patches in a mosaic of nil or low quality habitat are not expected to have detectable population level effects. Because of the relatively poor habitat quality, caribou are not expected to occur in the region of the Brule mine, where the lower relief topography does not provide high quality habitat for caribou (D. Seip, pers. comm.).</p> <p>Specifically, most late winter feeding habitat for caribou within the mine footprint was rated as nil quality habitat, with a few small patches of very low quality habitat (Figure 10.3.2-2). Similarly, all late winter feeding habitat for caribou within the loadout footprint</p>		
--	--	--	--	--	--

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			was rated as nil quality habitat (Figure 10.3.2-5) and only a small patch of very low quality habitat is directly affected by the powerline (Figure 10.3.2.3).		
46		- Section 10.3.5 notes project effects on a number of species, but no species specific mitigation or compensation measures are proposed/planned. This is contrary to the purpose of an environmental assessment.	AXYS: see response to Point 44 regarding species-specific mitigation.		Response satisfactory
47		- Will there be a wildlife tree assessment within project footprint? Many species that potentially occur in the area will use wildlife trees, such as Fisher, Marten, N.Long-eared Myotis, Northern Goshawk...	WCCC: a wildlife/danger tree assessment will be conducted in areas of high potential occurrence (i.e., in older structural stages along the proposed powerline and periphery of the mine site & load out).  AXYS: the wildlife habitat rating approach includes recognition of such features, particularly as they relate to structural stage – that is, habitats rated high for goshawk nesting suitability are likely to have nest trees.		Response satisfactory  Permitting Issue.
48		- What mitigation measures are planned for the stick nests found in the study area?	AXYS: in general, adherence to clearing windows will address this. If a stick nest for a species protected under the BC Wildlife Act is located, MOE will be consulted.		Response satisfactory  Permitting Issue.

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

49		- Will least risk timing windows be applied for focal species?	AXYS: yes, see Section 4.11.7		Response satisfactory  Permitting Issue.
50		- Loadout area is in high quality riparian bottomland habitat, what specific mitigation measures will be implemented to minimize impacts in this area?	AXYS: the main mitigation measures are related to design (i.e., retention of forested area within the rail loop), dust control, and implementation of the Reclamation Plan. Note that habitat suitability in the loadout area is already compromised by sensory disturbance from existing features (e.g., highway, pipeline RoW).  A WCCC environmental inspector or consultant will be on-site during establishment of clearing boundaries to refine the clearing boundary and identify any wildlife habitat features for protection, detailed site construction plans permitting (e.g., wildlife trees, shrub patch retention)		

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

51		<ul style="list-style-type: none"> <li>- What are the projected traffic volume changes on haul routes, with and without the Dillon mine, and what are the estimated mortalities (sec. 10.3.5.2)?</li> </ul>	<p>WCCC: The only point when WCCC will have increased traffic on the road will be in the final year of haul to Bullmoose (that is when plant site construction will be occurring at the same time as the Dillon Coal Haul). Construction traffic levels will probably not be high, as most of the construction will be spread out through several years i.e. SP2 will be constructed prior to the plant site.</p> <p><b>AXYS:</b> estimated mortalities resulting from traffic requires baseline levels of information. Can MOE provide relevant baseline data? (Note Wildlife Accident Reporting System (WARS) reports do not provide site specific information that could be used in such an estimate).</p>		
52		<ul style="list-style-type: none"> <li>- Is gating or some other form of access restriction being considered other than at the mine site entrance (sec. 10.3.5.2)?</li> </ul>	<p>WCCC: There will be a security gate at the entrance to the Brule Mine, preventing public access to the mine site. WCCC understands that access along roads held under Special Use Permit cannot be restricted, but will contact MOF to discuss further. Opportunities to work with Canfor in controlling access along forestry roads will be explored.</p>		Response satisfactory

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

53		<p>- “Efforts will be made to avoid or limit disturbance at riparian and wetland areas” (sec. 10.3.5.3). What efforts, when, and where? Not all wetlands have even been identified.</p>	<p>AXYS: the main mitigation measures are related to design (i.e., setbacks from riparian zones at the loadout, minimization of mine footprint, shared RoWs). In addition, the water management plan has direct application to the mitigation of effects in these areas.</p> <p>WCCC will also have an on-site environmental monitor during construction activities.</p> <p>AXYS: Twenty-four wetland sites were visited by Keystone on the ground in the vicinity of the project areas - eleven in the vicinity of the mine, seven in the Falling Creek road area, four in the loadout area and two along the powerline (Appendix E-1.4, also Keystone 2005 [progress report]. Also see Point 7 response.</p> <p>WCCC: The status of the final layout of the project related roads and powerline is described below by All North.</p> <p>For the Falling Creek Connector road, the new sections have been located with a centerline, surveyed and</p>	<p>OK, so say this instead of the “efforts will be made...”</p>	<p>Response satisfactory</p>
----	--	---	--	---	------------------------------

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<i>B.C. Ministry of Environment Pierre Johnstone</i>					

			<p>designed. For the upgrade sections the road has been surveyed and designed. There is no way to establish a centerline. The Right of Ways have not been established for any of the roads.</p> <p>For the powerline the alignments were reviewed on the ground through the use of GPS, but no formal survey or establishment of cutting boundaries was completed to date. This would generally be completed just prior to construction. The powerlines were designed from the available spatial data and a review in the field by All North for fatal flaws.</p> <p>Wetlands, or wetter areas, are typically avoided for construction reasons. For example, larger areas would have been avoided at the initial location phase. Also, most of the Falling Creek Connector Route alignment joining the existing sections of roads is across the height of land which generally negates the presence of wetlands.</p> <p>Wetland features along the Falling Creek Connector Route and powerline were avoided to the extent possible</p>		
--	--	--	--	--	--

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			during the initial location phase. As the terrain is steep, there is little opportunity for wetlands along the alignments. The greatest potential would be adjacent to the larger streams/ rivers, of which there are very few.		
54		- Travel corridors have been identified within the RSA (sec. 10.3.3.1), and there are likely movement corridors that have not been identified (e.g. along Falling Creek). It is a stretch to claim that new road segments will not affect daily or seasonal movement patterns (sec. 10.3.5.3.1 and 10.3.5.3.2).	AXYS: It is not unreasonable to claim that ungulates and other landscape-level species such as grizzly bears will cross roads. It is acknowledged that Falling Creek and other major drainages (e.g., Sukunka River, Burnt River) likely act as a movement corridor for wildlife (see response to point 6). However, the haul route is more likely to be a mortality risk rather than a disruption to movement patterns. In this regard, various mitigation measures are presented for reducing mortality risk related to vehicle traffic. For wildlife movements, the Project is not expected to further affect wildlife using the Falling Creek drainage as a movement corridor. This is largely because of the existing Falling Creek road system that runs parallel to Falling Creek at approximately 500 m from the drainage. This distance, as well as the steeper	MoE comment revised to the following: <b>Travel corridors have been identified within the RSA (sec. 10.3.3.1), and there are likely movement corridors that have not been identified (e.g. along Falling Creek).</b>	

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			terrain along the creek bottom, should limit sensory disturbance that may affect wildlife moving along Falling Creek.		
55		Furthermore, there is no evidence that operations and planning have been modified in any way to minimize the impact to plants and plant communities of conservation concern.	WCCC and AXYS: At approximately 700 ha, the development footprint for the Brule Mine is relatively small. The development footprint was kept as small as possible (e.g. through pit backfilling) as a general best practice to minimize environmental effects, including potential impacts to plants and plant communities. The development footprint is confined by Blind Creek and a major tributary immediately north of the waterfalls at sampling site BC-01. Short of expanding the mine footprint across Blind Creek, options to protect plants and plant communities of conservation concern within the mine footprint are extremely limited. Similarly, linear developments were planned such that new construction (and therefore development footprints) would be kept to a minimum. As a general best practice, use of existing road infrastructure was maximized to the extent possible for the Falling Creek Connector Haul Road, given economic	MoE comment revised to the following: <b>There are listed plant species that likely occur in the area; ground surveys should be conducted to identify any occurrences , and there should be specific mitigation/ compensation planning for any identified occurrences .</b>	Response satisfactory  Permitting Issue.

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			<p>constraints. Proposed powerline routes follow existing RoWs as much as possible, again as a best practice to minimize impacts. For the mine power supply line in particular, impacts to plants and plant communities were examined (using a mapping exercise) for the routing. It was determined, given the extent of plant communities of conservation concern on either side of the mine power supply line between the Kwoen Substation and Highway 29 that similar impacts would occur even with realignment and overall impacts would likely be greater due to the creation of separate RoWs. In addition, forested area within the rail loop has been left intact (although this is not an ecological community of conservation concern).</p> <p>The approach to mapping habitat was designed to permit modifications to the project design. A 2-km wide corridor (centered on the proposed linear feature rights-of-way) was established for mapping purposes. This wide corridor facilitated adjustment of the linear features to avoid areas of concern (e.g., wetlands, ecological communities of conservation concern)</p>	<p>TEM mapping exercise is likely sufficient for identifying listed plant communities, but is not sufficient for identifying listed plant occurrences.</p> <p><b>Resolution:</b> WCC commits to do surveys (Commitment 116).</p>	
--	--	--	---	--	--

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			while still permitting quantitative habitat modeling to occur.		
56		Additional concerns/issues include: In section 10.1.4, mitigation strategies include: avoidance of ecological communities on conservation concern when practical”; have any of the disturbance elements been modified to protect such areas? What or who will determine what is “practical”?	AXYS: This mitigation strategy was applied in the design stage—by minimizing the area disturbed (see Point 55) WCCC has reduced the potential for effects on ecological communities of conservation concern (ECCC). Note: only 18.7 ha of ECCC will be directly affected (i.e., cleared) as a result of the load out and mine site developments (Section 10.1.5.1). See also response to #53. In the Application, the loss of 18.7 ha of ECCC was identified as potentially contributing to cumulative effects (see Section 10.1.6). As such, a cumulative effects assessment at the regional spatial scale was conducted. Given the relative availability of various ECCC in the region, the incremental contribution of project effects to cumulative effects was considered to be not significant (see Section 10.1.7).	Unresolved; 18.7 ha of ECCC can be incrementally significant.	
57		- Is there any compensation planned for the permanent loss of ecological communities of conservation concern that is anticipated (sec. 10.1.5.1)?	WCCC: no compensation planned for ECCC effects. See point #1 and above.  AXYS: Area of ECCC permanently lost	Unresolved;	Response satisfactory

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			due to remnant pit walls is 9.0 ha (Section 10.1.5.1). In addition, the conservative assessment presented by WCCC suggests that reclaimed ECCC units are unlikely to completely return to pre-disturbance conditions (and are thus permanently altered) – this area is 9.7 ha (Section 10.1.5.1). Note that ECCC units are often listed because of vulnerabilities to logging.		
58		- Is there any compensation planned for the permanent loss of wetland (sec. 10.1.5.3)?	<p>WCCC: no compensation is planned for wetland effects. See point #1 and #7. Some wetlands may be recreated on the mine site at closure; final objectives with respect to ponds/wetlands will be determined as part of final closure planning, and will be dependent largely on water quality in these areas.</p> <p>AXYS: the wetland area identified as permanently lost is very small (&lt; 1.0 ha). Given the regional availability, the small incremental loss of wetlands attributed to the Brule project was considered not significant.</p> <p>C.E. Jones &amp; Associates: Sediment ponds and other collection structures are scheduled to be breached at</p>	Unresolved;  When does MoE see final objectives (my emphasis) for ponds/wetlands, and do we have sign off?	Response satisfactory

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			closure to establish natural drainages and for geotechnical stability. As mentioned in section 10.1.5.3 there is less than 1 ha of wetland permanently lost – no compensation was planned. All disruptions to wetlands near powerline and roads are in buffer zones and to be left for natural recovery.		
59		- What is a “minor disruption” of a wetland (sec. 10.1.5.3)?	AXYS: comment is in reference to identified (mapped) wetlands along new road segments, and power line RoW. A ‘minor disruption’ would include indirect effects (e.g., edge effects) and effects that do not result in substantial alteration of drainage patterns/moisture regime or removal of riparian vegetation.	OK good definition, should be included in text so it doesn’t become an issue later.	
60		- If “disruption” of wetlands (sec. 10.1.5.3) is expected along the power line and new road segments, these (wetlands) should well documented and assessed, as there is potential that species of conservation concern (plant and animal) occur in these sites (sec. 10.1.3.4).	AXYS: wetlands along the power line RoW and new road segments were mapped as part of the assessment. Also see Point 53 response re: ground surveys. WCCC has committed to do surveys (Commitment 116)	Still, no acceptable listed plant surveys...	Response satisfactory  Permitting Issue.
61		Reclamation mentions capability, but not with respect to wildlife habitat. Reclamation measures	C.E. Jones & Associates: Figures 4.12.1-1 and 4.12.2-2 show predicted	2 issues: 1- we are not	Response satisfactory

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

		<p>should be designed considering requirements to re-establish wildlife habitat suitability in impacted areas. Plans vaguely refer to enhancing wildlife habitat value, but there are no specifics as to what habitat is to be delivered, for what species.</p>	<p>post-closure ecosystems and corresponding wildlife habitat capability. For discussion on selection of focal wildlife species see section 10.3.2.2. Additional information on reclamation vegetation species use by wildlife and on potential reclamation activities to re-create wildlife habitat features or attributes is included in D4.5 in Brule Post-Application Agency Consultation Report, under points 61 and 65, respectively.</p> <p>It is important in this discussion to distinguish between wildlife habitat “capability” and “suitability”. “Capability” conventionally refers to the ability of a habitat to provide life requisites for a particular species <i>under the optimal natural (seral) conditions for this species</i>, irrespective of the habitat’s current condition. “Suitability” is the ability of a habitat to provide life requisites for a particular species <i>under current conditions</i>. Capability is thus a representation of site potential conditions irrespective of current forest stand age or structural stage, while suitability is a representation of actual current conditions, based on current</p>	<p>provided with a good description of what will be the wildlife capability objective 2- should propose measures to improve suitability, such as those described and appended; those recently provided are good examples, and we encourage any additional specifics possible to be included.</p>	<p>Permitting Issue.</p>
--	--	---	--	--	--------------------------

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			<p>age or structural stage.</p> <p>For the Brule Environmental Assessment, post-closure wildlife habitat <i>capability</i> was presented, for two reasons:</p> <ol style="list-style-type: none"> <li>1. this measure reflects inherent site potential, return of which is the goal of reclamation; and</li> <li>2. use of capability as a measure acknowledges the fact that reclaimed habitats will begin as juvenile forests stands that will mature with time after closure, and that while the suitability of these stands as wildlife habitat will change with changing stand age/structural stage, there is no ability to control or manage these changes and their resulting suitability.</li> </ol> <p>The stated reclamation goal for the Brule project is to foster return of (primarily) forested ecosystems that will be capable of supporting a number of post-closure land uses, including but not limited to use by wildlife, commercial forest harvest, etc. The use of capability as a measure of wildlife</p>	<p>In the table appended, Possible to include other listed species, e.g. warblers/birds, N.L-eared Myotis, Fisher?</p>	
--	--	--	--	--	--

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			habitat is consistent with this ecosystem-based goal. Use of suitability would require adoption of specific target land users (in this case wildlife species), requirements of these users, and management actions to meet these requirements. While reclamation will incorporate some actions to aid in re-creation of wildlife habitat, it is not intended to address specific habitat suitability.	Yes, this is what I mean, and can lead to compensation options!	
62		Other concerns with the reclamation planning outlined in the application include the following: Lots of references to capability, but in what sense? Wildlife habitat suitability should be explicitly referred to, including which species.	C.E. Jones & Associates: according to the reclamation plan guidelines from MEMPR they request capability objectives be established. For wildlife habitat suitability and capability mapping for focal wildlife species see Section 10.3.2.9.1.  Please see discussion above (point 61) for clarification between concepts of		Response satisfactory

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			suitability and capability.		
63		- Figure 4.12.2-1 (wildlife habitat ratings) was not found.	Addressed by SVZ in Mar 20 email to PJ  <i>C.E. Jones &amp; Associates</i> : was misnamed 4.12.1-1		Response satisfactory
64		- Revegetation along haul routes should be with local native plants that do not attract browsing wildlife; all seed mixes used should be local native species and weed free.	<i>WCCC</i> : Comments noted. Proposed seed mixes will be presented as part of the detailed reclamation plan provided in the <i>Mines Act</i> Permit Application. Although the use of local native species may appear to be a desirable objective, locally collected native species are unlikely to be effective for use in site erosion control due to such factors as low annual germination rates (a natural adaptation). “Native’ plant species that have been genetically manipulated for commercial seed production may be no more desirable than ‘introduced’ plant species. Seed availability is also a consideration. Both of these factors are major determinants in seed mix selection by other industrial operators in the area (e.g. forestry), who use introduced agronomic plant species as major components of their seed mixtures. <i>WCCC</i> is required by DFO	When does MoE look at the reclamation plan, and do we have sign off? Would be better to have these details in the certification process... (“ <i>WCCC</i> will nonetheless carefully examine what species are included in seed mixtures in an effort to maximize	Response satisfactory  Permitting Issue.

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			<p>and MOE to prevent unacceptable sediment discharges to watercourses, and the use of quick growing agronomic vegetation is an important part of the methods available to achieve this. WCCC will nonetheless carefully examine what species are included in seed mixtures in an effort to maximize native species content and – where use of introduced agronomic species is unavoidable – limit their use to species that can be expected to provide adequate cover while allowing for succession to native species. In terms of attractants, it is similarly difficult to limit plant species selection to those species that would be considered unpalatable, while still achieving other important reclamation objectives. Species such as clovers, that remain attractive to wildlife over a longer season, will be avoided. WCCC would welcome specific suggestions from MOE as to which vegetation species would achieve the stated objectives while meeting erosion control needs. In terms of weed considerations, WCCC will purchase top quality seed mixes with high purity.</p>	<p>native species content and – where use of introduced agronomic species is unavoidable – limit their use to species that can be expected to provide adequate cover while allowing for succession to native species.”)</p> <p>Are physical erosion control methods proposed (e.g. mats)?</p>	
--	--	--	---	---	--

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			<p><i>C.E. Jones &amp; Associates:</i> All erosion control planning is included in section 4.3, including during reclamation, and of structures associated with reclamation (i.e. Soil stockpiles, windrows). Erosion control measures are also mentioned throughout the text of section 4.12 when detailing reclamation for each mine feature and/or phase of construction (usually resloping and seeding with grass/legume mix; hydraulically applied mulch-tackifier-seed mixture on steeply sloping sites).</p> <p>Issues of weed control are dealt with in detail in section 4.12.6 Weed Establishment, Prevention and Control Program. No specific seed mixes are given, as the specific mix will likely be chosen on a site specific basis and vary depending on site conditions.</p> <p>It is important to consider the reclamation and land use objectives. If WCCC is restricted to using native seed only (i.e., ban on agronomics), MoE needs to realize that it will not be possible to adequately stabilize soils susceptible to erosion; either due to the</p>		
--	--	--	---	--	--

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			<p>nature of the soils or the placement (e.g., steep slopes or adjacent to drainage ditches). It should be noted that the land use objectives (forestry, wildlife habitat) will be met using 100% native tree species and 100% native shrub species.</p> <p>Native grass seed will be considered when the situation is appropriate (such as high elevation reclamation) and the seed species are available. For example, when using native species they should be used as 100% native species in small patches on select areas versus mixing in with agronomic species.</p>		
65		<ul style="list-style-type: none"> <li>- What habitat needs were taken into account for reclamation? I've only seen references to planting.</li> </ul>	C.E. Jones & Associates: see D4.5 in Brule Post-Application Agency Consultation Report – this provides a list of reclamation activities intended to meet wildlife habitat objectives.	Good list, any more like this would be positive...	Response satisfactory  Permitting Issue.
66		<ul style="list-style-type: none"> <li>- Should not store topsoil on a creek bed (from B. Lane comments).</li> </ul>	WCCC: See reply to Bob Lane comments.		Response satisfactory
67		<ul style="list-style-type: none"> <li>- Has any form of bioengineering been considered for stabilizing slopes?</li> </ul>	C.E. Jones & Associates: Mine planning at the Brule Mine has incorporated waste dump resloping,		Response satisfactory

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

			such that slopes for final reclamation will not exceed 2H: 1V. Such slopes are considered geotechnically stable at this site, and conducive to equipment use in soil application and reclamation. In terms of soil erosion on dump slopes and elsewhere – yes – bio-engineering will be among the methods considered and available for erosion control and revegetation purposes. A number of bio-engineering techniques considered appropriate for use at the Brule Mine are described in Appendix C, including use of brush layers and live stakes.		Permitting Issue.
68		Why is there 0.9 ha of Dillon Pit that is exempt from reclamation (sec. 4.12.2.7)?	<i>C.E. Jones &amp; Associates</i> : pit rock walls are exempt from reclamation as per Section 10.7.14 of the Health, Safety and Reclamation Code for Mines In British Columbia.		Response satisfactory  Permitting Issue.
69		<b>6. Summary</b> In summary, the application does not adequately characterize the environmental values that will be affected by the project. Additional, specific assessments are likely required in order to properly support determination of the impacts this project will have on environmental values. Mitigation measures are relatively sparse, no compensation is proposed, in fact one cannot readily determine if compensation	AXYS: the assessments for wildlife and vegetation were VEC-specific and followed a conventional effects assessment approach, which included a solid baseline characterization of the environmental values that could potentially be affected by the Project. As noted above, a transparent process (e.g., using various effects criteria) and	Some gaps in field component, notably listed plant species surveys, travel corridors and caribou use surveys,	Response satisfactory

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					

		<p>may be required due to lack of information on the extent to which proposed mitigation will address impacts. Further elaboration and specific commitments for mitigation and compensation is necessary.</p> <p>Finally, the most important potential for detrimental impacts is that of cumulative effects on wide ranging listed species through loss of habitat, loss of habitat connectivity, and increased access. These risks must be addressed in context with other activities in the region by coordinating resource development with other users.</p>	<p>recognized approach to conducting cumulative effects assessments was presented in the EIA. This approach follows those accepted by the Canadian Environmental Assessment Agency (CEAA), specifically the Cumulative Effects Assessment Practitioners Guide, developed by CEAA.</p> <p>AXYS: as noted in several comments above, mitigation is addressed in various ways (design, WPP, reclamation).</p> <p>AXYS: the assessment included an evaluation of cumulative effects using standard tools (CSH, linear density) for the RSA.</p> <p>AXYS: In conclusion, inventory level data (e.g., baseline field surveys for various wildlife species) are useful in providing information on occurrence conditions for wildlife and vegetation resources. However, for purposes of an EIA, quantifiable predictive tools are more useful for assessing potential effects of a project. For the Brule Mine Project, recognized modeling tools (e.g., BC Wildlife Habitat Rating</p>	<p>Northern Long-eared myotis surveys, Fisher?</p> <p>Need both baseline field surveys and predictive tools.</p>	
--	--	--	---	--	--

**APPENDIX C2.4 – MOE ISSUES TRACKING – FISH AND WILDLIFE (PIERRE JOHNSTONE)**

Brule Mine Project - Application Review Stage					
Issues Tracking Document – Government Agencies – MOE, Pierre Johnstone					
Category (water quality; effluent and air)					
# ID	Submitted by	Issues Raised	Proponent Response	MoE Comments Mar 31/06	Review Status
<b>B.C. Ministry of Environment Pierre Johnstone</b>					
			system, core security habitat analyses, road density analyses) were used. WCCC is prepared to participate in regional initiatives for cumulative effects management assuming all industries are involved, and that government coordinates the initiative.		