Application Information Requirements / Environmental Impact Statement Guidelines

> For Compliance Coal Corporation dba Comox Joint Venture

Application for an Environmental Assessment Certificate and Environmental Impact Statement for Development of the Comprehensive Study Report to Satisfy Requirements of the Canadian Environmental Assessment Act





PREFACE TO THE APPLICATION INFORMATION REQUIREMENTS / ENVIRONMENTAL IMPACT STATEMENT GUIDELINES

Compliance Coal Corporation dba the Comox Joint Venture (proponent) is proposing the development of the Raven Underground Coal Project (proposed Raven Project) near Buckley Bay on eastern Vancouver Island. The proposed Raven Project would be located within the Comox Valley Regional District (CVRD) approximately 20 kilometres (km) south of the City of Courtenay and approximately 80 km north of Port Alberni. The proposed Raven Project would mine approximately 30.1 million tonnes (Mt) of coal and rock (raw coal) from an underground mine over a 16-year period. The current mine plan calls for the development of the following components: portal and underground mine; coal processing plant; run-of-mine (ROM) coal, processed coal and clean coal stockpiles; topsoil and till stockpiles; engineered combined coarse and fine rejects stack dump; water management sediment pond; offices; maintenance building; power supply and distribution system (including a transmission line running from the main high voltage transmission line situated up to 5 km east of the proposed Raven Project site); and transport of coal via truck from the mine site to Port Alberni. At the Port Alberni Port Facility, the proposed Raven Project would construct and use transfer and storage facilities and use present berths. The total proposed Raven Project mine site surface footprint is expected to be approximately 200 hectares (ha); the total proposed surface footprint of coal storage and coal loading facilities at the Port Facility is expected to be approximately 2 ha.

The proposed Raven Project has entered into a cooperative Environmental Assessment (EA) process with both the British Columbia (BC) provincial government and the Canadian federal government. The cooperative process is intended to minimize duplication wherever possible, and must be completed prior to obtaining further permits and beginning construction of the proposed Raven Project.

The BC EA process is coordinated by the BC Environmental Assessment Office (BC EAO). A Project Description was submitted by the proponent to BC EAO in August 2009. On 12 August 2009, the BC EAO issued an Order under section 10(I)(c) of the BC *Environmental Assessment Act (BCEAA)* (Government of BC 2002b) stating that the proposed Raven Project requires an EA Certificate. Pursuant to Part 3 of the *Reviewable Projects Regulation* (Government of BC 2002c), review is required because the proposed Raven Project is a new mine facility that, during operation, would have a production capacity of greater than 250,000 tonnes per year (t/y) of clean and raw coal (combined). On 5 March 2010, the BC EAO issued an Order under section 11 of the *BCEAA* describing the scope, procedures, and methods for the provincial review of the proposed Raven Project. On 23 December 2010, BC EAO amended the section 11 Order to add the Tseshaht First Nation and the Hupacasath First Nation to the list of First Nations to be consulted. On 30 September 2011, BC EAO issued an Order under section 13 amending the section 11 Order to include the proposed facility upgrades at the existing port of Port Alberni and the operation of vessels associated with the proposed Raven Project while moored at the port of Port Alberni. Federal review under the *Canadian Environmental Assessment Act (CEA Act)* (Government of Canada 1992), as part of the coordinated EA, is managed by the Canadian Environmental Assessment Agency (Agency). An EA under section 5 of the *CEA Act* is required for the proposed Raven Project because: Fisheries and Oceans Canada (DFO) may issue authorizations for works or undertakings associated with the proposed Raven Project; and the Port Alberni Port Authority (PAPA) may make federal lands available for the construction, delivery, transfer, storage, and loading infrastructure required to meet the shipping needs of the proposed Raven Project. The proposed Raven Project is subject to a comprehensive study pursuant to section 16(d) of the *Comprehensive Study List Regulations* (Government of Canada 1994a) of the *CEA Act* because the proposed coal production capacity would be 3000 tonnes per day (t/d) or more.

The purpose of the Application Information Requirements / Environmental Impact Statement Guidelines (AIR / EIS Guidelines) document is to identify the information that is needed to complete the provincial and federal EA processes, and to ensure that this information is included in the Application for an EA Certificate, made under section 16 of the *BCEAA* / Environmental Impact Statement (Application / EIS).

In developing the AIR / EIS Guidelines, the proponent engaged with local, provincial and federal government representatives, Aboriginal groups, and the public regarding issues and concerns related to the proposed Raven Project. After completion of the necessary baseline and EA work, the proponent may submit an Application / EIS to the BC EAO and the Agency for screening to ensure compliance with the AIR / EIS Guidelines. Upon receiving an Application / EIS from the proponent, BC EAO will initiate a 30-day screening process to ensure it contains all the information outlined in the application information requirements. The adequacy of the proponent's plans for engaging with First Nations and for public consultation is also assessed at this time.

If any deficiencies in the Application / EIS are identified, the proponent must address them and then revise and resubmit the Application / EIS. In those situations when there are small errors of omission, these changes can often be completed within the 30-day period, while in other cases the proponent may have to collect additional information and resubmit the Application / EIS for evaluation.

Once the Application / EIS is accepted for review, the BC EAO will initiate the provincial180day Application / EIS review phase. The Application / EIS will be made available to the Aboriginal groups listed on the BC EAO's section 11 Order, the First Nations of the Maanulth Treaty Society, Métis Nation BC, government agencies, local governments, and the public. In the early stages of the Application / EIS review, the BC EAO will establish a 50day public comment period on the Application / EIS, as set out in the section 11 Order. Following the public comment period, the proponent will track and address the issues raised during the Application / EIS review. At the end of the review, the BC EAO will submit an assessment report, and recommendations to the provincial Minister of the Environment and the responsible Minister(s) for a provincial decision on the issuance of the EA Certificate. A legally binding Table of Commitments would be included in the EA Certificate, if issued, as a method of addressing issues raised.

The federal government will coordinate its review of the Application / EIS with the provincial process. Following the cooperative assessment of the Application / EIS, the Agency will prepare a Comprehensive Study Report. The Comprehensive Study Report will be submitted to the federal Minister of the Environment and will be made available for public comment prior to the federal Minister of the Environment's decision under section 23 of the *CEA Act.* The federal Minister of the Environment may request additional information or require that public concerns be further addressed before issuing the federal EA decision statement. The federal EA decision statement sets out the Minister's conclusion as to whether the proposed Raven Project is likely to cause significant adverse environmental effects, taking into account the implementation of any mitigation measures and follow-up programs that the Minister considers appropriate. Once the federal EA decision statement is issued, the proposed Raven Project will be referred back to the relevant federal Responsible Authorities (RAs) (e.g., DFO, PAPA) for appropriate action, which may include issuing authorizations, or provision of federal land in order for the proposed Raven Project to proceed.

TABLE OF CONTENTS

The Table of Contents presented below provides an initial outline of the components of the AIR / EIS Guidelines and the Application / EIS, including sections, subsections, and lists of: references; appendices; figures; and tables.

TABLE OF CONTENTS

PREI	FACE TO IMPA	D THE APPLICATION INFORMATION REQUIREMENTS / ENVIRONMENTA CT STATEMENT GUIDELINES	۱L I
TABI		ONTENTS	IV
TABI		ONCORDANCE	VI
PREI	FACE TO	O THE APPLICATION	VII
ABB	REVIATI	IONS, ACRONYMS AND DEFINITIONS	VIII
EXEC		SUMMARY	XIV
PAR	T A – IN	TRODUCTION AND BACKGROUND	1
1	PURF	POSE OF THE APPLICATION / EIS	1
2	PROF	POSED PROJECT OVERVIEW	2
	2.1	Proponent Description	2
	2.2	Proposed Project Description	
		2.2.1 Need for and Purpose of the Proposed Project	5
		2.2.2 Proposed Project Location and Mapping	5
		2.2.3 Background and Rationale	9
		2.2.4 Geology and Coal Resources	9
		2.2.5 Geochemical Characterisation	9
		2.2.6 Mine Plan	
		2.2.7 Access and Power	
		2.2.8 On-Site Facilities	
		2.2.9 Off-Site Facilities	
		2.2.10 Construction Phase Activities	
		2.2.11 Operations Phase Activities	
		2.2.12 Decommissioning Activities	
		2.2.13 Scheduling	
		2.2.14 Environmental Management System	
		2.2.15 Human Resources Procedures and Procurement Policy	
	2.3	Provincial Scope of Proposed Project	
	2.4	Federal Scope of Assessment of the Proposed Project	
	2.5	Alternative Means of Undertaking the Proposed Project	
	2.6	Proposed Project Land Use	
	2.7	Proposed Project Benefits	
	2.8	Applicable Permits	
3	ASSE		
	3.1	Provincial EA Process	
	3.2	Federal Review	
	0.0	3.2.1 Cooperative Review Process	
	3.3	Aboriginal Groups Information Distribution and Consultation	
		3.3.1 Pre-Application / EIS Consultation	
		3.3.2 Consultation Planned During Application / EIS Review	

	3.4	Public a	and Agency Information Distribution and Consultation	34
		3.4.1	Pre-Application / EIS Consultation	34
		3.4.2	Consultation Planned During Application / EIS Review	35
PARTI	B – ASS	ESSME	NT OF POTENTIAL EFFECTS, MITIGATION, AND SIGNIFICANCE OF	~~
	RESID	JAL EFI	FECIS	36
4	VSSES	SMENT		36
-	4 1	Valued	Component Sconing and Rationale	30
	7.1	4 1 1	Spatial Boundaries	40
		4.1.1	Temporal Boundaries	<u>41</u>
		413	Traditional Cultural Ecological or Community Knowledge	.
	42	Selecte	d Valued Component	 .
	7.2	<i>A</i> 2 1	Introduction	 11
		4.2.1	1211 Pelevant Legislation and Legal Framework	4 1 //1
			4.2.1.2 Information Source and Methods	
		122	Potailed Paseline Description	4 1 12
		4.2.2	Detailed Daseline Description	<u>۲</u> ۲ ۱۷
		4.2.5	4.2.3.1 Identification and Analysis of Potential Project Effects	4 2 //2
			4.2.3.1 Identification Moscures and Potential Posidual Effects	4 2
			4.2.3.2 Milligation Measures and Folential Residual Effects	43
		121	4.2.3.3 Significance of Folential Residual Effects	43
		4.2.4	4.2.4.1 Patianalization for Carrying Forward Project Polated Posidual	43
			4.2.4.1 Rationalization for Carrying Forward Froject Related Residual	11
			4.2.4.2 Mitigation Massures and Datantial Desidual Cumulative Effects	44
			4.2.4.2 Nilligation Measures and Folential Residual Cumulative Effects	40
		125	4.2.4.5 Significance Dating of Detential Desidual Project Effects or	40
		4.2.5	Potential Residual Cumulative Effects	46
			4251 Quantitative Versus Qualitative Assessment	48
			4252 Evaluation of Effects Using Established Thresholds	49
			4253 Evaluation of Effects without Using Established Thresholds	49
		426	Monitoring / Follow-Up	50
		427	Conclusion	50
		4.2.8	Limitations	
	4.3	Summa	arv of Assessment of Potential Effects	
		••••••		
5	ASSES	SMENT	OF POTENTIAL ENVIRONMENTAL EFFECTS	52
	5.1	Enviror	mental Background	53
	5.2	Atmosp	heric Environment	53
		5.2.1	Valued Component Scoping and Rationale	. 53
			5.2.1.1 Air Quality Spatial Boundaries	56
			5.2.1.2 Air Quality Temporal Boundaries	. 59
			5.2.1.3 Climate Change Spatial Boundaries	59
			5.2.1.4 Climate Change Temporal Boundaries	. 59
			5.2.1.5 Noise Spatial Boundaries	59
			5.2.1.6 Noise Temporal Boundaries	. 62
			5.2.1.7 Vibration Spatial Boundaries	62
			5.2.1.8 Vibration Temporal Boundaries	62
		5.2.2	Air Quality	62
			5.2.2.1 Detailed Air Quality Baseline	62

		5.2.2.2	Potential Effects of the Proposed Project and Proposed Mitigation	63
	5.2.3	Climate	Change	. 66
		5.2.3.1	Detailed Climate Change Baseline	. 66
		5.2.3.2	Potential Effects of the Proposed Project and Proposed	
			Mitigation	. 67
	5.2.4	Noise		. 67
		5.2.4.1	Detailed Noise Baseline	. 67
		5.2.4.2	Potential Effects of the Proposed Project and Proposed	
			Mitigation	. 68
	5.2.5	Vibratio	n	. 69
		5.2.5.1	Detailed Vibration Change Baseline	. 69
		5.2.5.2	Potential Effects of the Proposed Project and Proposed	
	•		Mitigation	69
5.3	Ground	lwater		70
	5.3.1	Valued	Component Scoping and Rationale	70
		5.3.1.1	Hydrogeology Spatial Boundaries	72
		5.3.1.2	Hydrogeology Temporal Boundaries	72
		5.3.1.3	Groundwater Quality Spatial Boundaries	72
	E 2 2	5.3.1.4	Groundwater Quality Temporal Boundaries	. 12
	5.3.Z	F 2 2 4	Detailed Lludrage lag / Deceline	
		5.3.Z.I	Detailed Hydrogeology Baseline	. 74
		0.3.Z.Z	Mitigation	75
	522	Ground	water Quality	. 75
	5.5.5	5331	Detailed Groundwater Quality Baseline	. 70
		5332	Potential Effects of the Proposed Project and Proposed	. 70
		0.0.0.2	Mitigation	78
54	Hydrold	oav Surf	ace Water Quality and Sediment Quality	80
0.1	541	Valued	Component Scoping and Rationale	80
	•••••	5.4.1.1	Water Balance Spatial Boundaries	
		5.4.1.2	Water Balance Temporal Boundaries	. 82
		5.4.1.3	Surface Water Quality and Sediment Quality Spatial Boundaries.	. 82
		5.4.1.4	Surface Water Quality and Sediment Quality Temporal	
			Boundaries	. 82
	5.4.2	Surface	e Hydrology	. 84
		5.4.2.1	Detailed Surface Hydrology Baseline	. 84
		5.4.2.2	Water Balance	. 85
		5.4.2.3	Potential Effects of the Proposed Project and Proposed	
			Mitigation	. 85
	5.4.3	Surface	e Water and Sediment Quality	. 87
		5.4.3.1	Detailed Surface Water and Sediment Quality Baseline	. 87
		5.4.3.2	Potential Effects of the Proposed Project and Proposed	
			Mitigation	. 90
5.5	Freshw	ater Fish	neries and Aquatic Resources	. 92
	5.5.1	Valued	Component Scoping and Rationale	. 92
		5.5.1.1	Freshwater Fisheries and Aquatic Resources Spatial	
			Boundaries	. 92
		5.5.1.2	Freshwater Fisheries and Aquatic Resources Temporal	
			Boundaries	. 96
	5.5.2	Freshw	ater Fisheries and Aquatic Resources	. 96

		5.5.2.1 Detailed Freshwater Fisheries and Aquatic Baseline5.5.2.2 Potential Effects of the Proposed Project and Proposed Mitigation	9 10
56	Marine	Environment	10
0.0	5.6.1	Valued Component Scoping and Rationale	10
	0.0.1	5 6 1 1 Marine Spatial Boundaries	10
		5.6.1.2 Marine Temporal Boundaries	10
	562	Detailed Marine Raseline	10
	0.0.2	5.6.2.1 Potential Effects of the Proposed Project and Proposed	
57	Torroct	rial Environment	۱۱ 11
5.7	571	Valued Components and Scoping Dationale	11 11
	5.7.1	5.7.1.1 Torrain Saila and Sufficial Coology Spatial Poundarias	۱۱ 12
		5.7.1.1 Terrain, Soils and Sufficial Coology Spatial Boundaries	۲۲ 12
		5.7.1.2 Terrain, Solis and Sumicial Geology Temporal Boundaries	اکا
		5.7.1.3 Vegetation and Plant Communities Spatial Boundaries	120
	57 0	5.7.1.4 Vegetation and Plant Communities Temporal Boundaries	12
	5.7.2		12
		5.7.2.1 Detailed Terrain, Soils and Surficial Geology Baseline	12
		5.7.2.2 Potential Effects of the Proposed Project and Proposed	
		Mitigation	12
	5.7.3	Vegetation and Plant Communities	124
		5.7.3.1 Detailed Vegetation and Plant Communities Baseline	12
		5.7.3.2 Potential Effects of the Proposed Project and Proposed	
		Mitigation	120
5.8	Wildlife	and their Habitat	12
	5.8.1	Valued Components Scoping and Rationale	12
		5.8.1.1 Wildlife and Wildlife Habitat Spatial Boundaries	130
	5.8.2	Wildlife and Wildlife Habitat	130
		5.8.2.1 Detailed Wildlife and Wildlife Habitat Baseline	130
		5.8.2.2 Potential Effects of the Proposed Project and Proposed	
		Mitigation	13:
5.9	Environ	nmental Health	134
	5.9.1	Valued Components Scoping and Rationale	134
	5.9.2	Environmental Health	13
5.10	Summa	ary of Assessment of Potential Environmental Effects	13
ASSE	SSMENT	OF POTENTIAL ECONOMIC EFFECTS	13
6.1	Econon	nic Background	139
6.2	Econor	nic Health	13
	6.2.1	Valued Economic Component Scoping and Rationale	13
		6.2.1.1 Economic Health Spatial Boundaries	14
		6.2.1.2 Economic Health Temporal Boundaries	14
	6.2.2	Economic Health	14
		6.2.2.1 Detailed Economic Health Baseline	14
		6.2.2.2 Potential Effects of the Proposed Project and Proposed	4.4
63	Summe	IVIIIIgation	14 ۱۸
0.5	Summe	ary of Assessment of Potential Economic Effects	14
ASSE	SSMENT	OF POTENTIAL SOCIAL EFFECTS	14
7.1	Social I	Background	14
7.2	Social (Conditions	149

6

7

		7.2.1	Valued Component Scoping and Rationale	149
			7.2.1.1 Social Conditions Spatial Boundaries	154
			7.2.1.2 Social Conditions Temporal Boundaries	154
			7.2.1.3 Transportation Spatial Boundaries	154
			7.2.1.4 Transportation Temporal Boundaries	154
			7.2.1.5 Non-Traditional Land Use Spatial Boundaries	154
			7.2.1.6 Non-Traditional Land Use Temporal Boundaries	155
			7.2.1.7 Visual and Aesthetic Resources Spatial Boundaries	157
			7.2.1.8 Visual and Aesthetic Resources Temporal Boundaries	157
		7.2.2	Social Conditions	158
			7.2.2.1 Detailed Social Conditions Baseline	158
			7.2.2.2 Potential Effects of the Proposed Project and Proposed	
			Mitigation	160
		7.2.3	Transportation	161
			7.2.3.1 Detailed Transportation Baseline	161
			7.2.3.2 Potential Effects of the Proposed Project and Proposed Mitigation	162
		724	Non-Traditional Land Use	163
		1.2.7	7.2.4.1 Detailed Non-Traditional Land Use Baseline	
			7.2.4.2 Potential Effects of the Proposed Project and Proposed	
			Mitigation	164
		725	Visual and Aesthetic Resources	165
		1.2.0	7.2.5.1 Detailed Visual and Aesthetic Resources Baseline	165
			7.2.5.2 Potential Effects of the Proposed Project and Proposed	
	7.0	0	Mitigation	
8	ASSE	SSMEN	T OF POTENTIAL HERITAGE EFFECTS	169
	8.1	Heritag	ge Background	169
	8.2	Herita	ge Resources	169
		8.2.1	Valued Component Scoping and Rationale	169
			8.2.1.1 Heritage Resources Spatial Boundaries	171
			8.2.1.2 Heritage Resources Temporal Boundaries	171
		8.2.2	Heritage Resources	171
			8.2.2.1 Detailed Heritage Resources Baseline	171
			8.2.2.2 Potential Effects of the Proposed Project and Proposed Mitigation	172
	8.3	Summ	ary of Assessment of Potential Heritage Effects	175
9	ASSE	SSMEN	T OF POTENTIAL HEALTH EFFECTS	176
	9.1	Health	Background	176
	9.2	Humai	n Health	176
		9.2.1	Valued Component Scoping and Rationale	176
			9.2.1.1 Public Health Spatial Boundaries	178
			9.2.1.2 Public Health Temporal Boundaries	178
		9.2.2	Public Health	178
			9.2.2.1 Detailed Public Health Baseline	178
			9.2.2.2 Potential Effects of the Proposed Project and Proposed	
			Mitigation	179
		9.2.3	Healthy Living	180
			9.2.3.1 Detailed Healthy Living Baseline	180

		9.2.3.2 Potential Effects of the Proposed Project and Proposed	100
		Milligation	180
	0.2	9.2.4 WOIKEI Salely and Realth Health Effects	101
	9.3	Summary of Assessment of Potential Realth Enects	101
10		ARY OF PROPOSED ENVIRONMENTAL AND OPERATIONAL MANAGEME	NT 182
	10.1	Environmental Management System	182
	10.2	Environmental Management Plans	182
11	COMP	LIANCE REPORTING	188
	 .		
PART	С – МАА	A-NULTH FIRST NATIONS INTERESTS	189
12	MAA-N FIRST	IULTH FIRST NATIONS BACKGROUND INFORMATION AND MAA-NULTH NATIONS SETTING	189
13	MAA-N	IULTH FIRST NATIONS RIGHTS	201
14	MAA-N	IULTH FIRST NATIONS INTERESTS	202
15	MAA-N	IULTH FIRST NATIONS CONSULTATION	204
16	SUMM	ΛΟΥ	205
10	16 1	Summary of Potential Effects on Maa-nulth First Nations	205
PARTI	D – ABC	DRIGINAL INFORMATION REQUIREMENTS	206
17	ABORI	GINAL BACKGROUND INFORMATION	207
18	ABOR	IGINAL RIGHTS	209
19	OTHER	R ABORIGINAL INTERESTS	210
20	ABOR	GINAL CONSULTATION	211
21	SUMM	ARY	
	21.1	Summary of Potential Effects on Aboriginal Groups	214
PART I	E – FED	ERAL INFORMATION REQUIREMENTS OF THE APPLICATION / EIS	215
22	REQUI	REMENTS FOR FEDERAL ENVIRONMENTAL ASSESSMENT	216
	22.1	Environmental Effects	216
	22.2	Environmental Changes	216
	22.3	Need for and Purpose of the Proposed Project	216
	22.0		
	22.4	Spatial and Temporal Boundaries	216
	22.3 22.4 22.5	Spatial and Temporal Boundaries Effects on Navigable Waters	216 217
	22.4 22.5 22.6	Spatial and Temporal Boundaries Effects on Navigable Waters Natural Hazards	216 217 217
	22.4 22.5 22.6 22.7	Spatial and Temporal Boundaries Effects on Navigable Waters Natural Hazards Species at Risk	216 217 217 217 218
	22.3 22.4 22.5 22.6 22.7 22.8	Spatial and Temporal Boundaries Effects on Navigable Waters Natural Hazards Species at Risk Effects of the Environment on the Project	216 217 217 217 218 219

	22.10	Mitigation Measures	220
	22.11	Residual Environmental Effects	220
	22.12	Significance Assessment / Analysis	220
	22.13	Cumulative Environmental Effects	220
	22.14	Maa-nulth First Nations Engagement and Consultation	221
	22.15	Aboriginal Engagement and Consultation	221
	22.16	Comments from the Public	221
	22.17	Need for other Information as Required by a Responsible Authority Pursuant to	
		the CEA Act	222
	22.18	Alternative Means of Carrying Out the Proposed Project	222
	22.19	Alternatives to the Project	222
	22.20	Capacity of Renewable Resources	222
	22.21	Economic and Social Benefits of the Project	223
	22.22	Benefits to Canadians	223
	22.23	Follow-Up Program	223
PART	F – CON	ICLUSIONS	225
23	SUMM	ARY OF RESIDUAL EFFECTS	225
	23.1	Summary of Potential Residual Effects of the Proposed Raven Project	225
24	SUMM	ARY OF COMMITMENTS	228
	24.1	Summary of Commitments to Minimise Potential Effects	228
25	CONC	LUSION	231
26	REFEF	RENCES	232
27	APPEN	NDICES	239

LIST OF TABLES

Table 2.2-1:	Preliminary Project Schedule	
Table 2.4-1:	Federal Scope of Factors	25
Table 4.3-1:	Summary of Potential Residual Environmental Effects Analysis	50
Table 4.3-2:	Summary of Potential Residual Cumulative Environmental Effects Analysis	51
Table 5.2-1:	Atmospheric Environment Valued Components	54
Table 5.3-1:	Groundwater Valued Components	71
Table 5.3-2:	Groundwater Assay Parameter List	
Table 5.4-1:	Surface Hydrology and Water Quality Valued Components	81
Table 5.4-2:	Monthly Sampling Parameter List	88
Table 5.4-3:	Weekly Sampling Parameter List	89
Table 5.4-4:	Sediment Parameter List	89
Table 5.5-1:	Freshwater Fisheries and Aquatic Resources Valued Components	94
Table 5.6-1:	Marine Environment Valued Components	103
Table 5.7-1:	Terrestrial Environment Valued Components	117
Table 5.7-2:	Soil Elemental Parameter List	123
Table 5.8-1:	Wildlife and their Habitat Valued Components	128
Table 5.9-1:	Environmental Health Valued Components	135
Table 5.10-1:	Summary of Potential Environmental Effects Analysis	138

Table 6.2-1:	Economic Health Valued Components	140
Table 6.3-1:	Summary of Potential Economic Effects Analysis	148
Table 7.2-1:	Social Conditions Valued Components	150
Table 7.3-1:	Summary of Potential Social Effects Analysis	168
Table 8.2-1:	Heritage Resources Valued Components	170
Table 8.3-1:	Summary of Potential Heritage Effects Analysis	175
Table 9.2-1:	Human Health Valued Components	177
Table 9.3-1:	Summary of Potential Health Effects Analysis	181
Table 16.1-1	Summary of Potential Effects on Maa-nulth First Nations Activities and	
	Accommodation Measures	205
Table 21.1-1	Summary of Potential Effects on Aboriginal Activities and Accommodation	
	Measures	214
Table 23.1-1:	Summary of Residual Effects	226
Table 23.1-2:	Summary of Residual Cumulative Effects	227
Table 24.1-1:	Summary of the Proponent's Commitments	229
	• •	

LIST OF FIGURES

Figure 2.2-1:	Proposed Raven Project Location	7
Figure 2.2-2:	Proposed Raven Project Land Tenure	8
Figure 2.2-3:	Conceptual Infrastructure	12
Figure 2.2-4:	Overview and Setting, Surface Facilities	15
Figure 4-1:	Environmental Assessment Process	36
Figure 4-2:	Framework for Assessment Potential Effects from the Proposed Raven Project	37
Figure 5.2-1:	Air Quality Spatial Boundaries – Mine Site	57
Figure 5.2-2:	Air Quality and Noise Spatial Boundaries – Port Facilities	58
Figure 5.2-3:	Noise Spatial Boundaries – Mine Site	60
Figure 5.2-4:	Noise Spatial Boundaries – Port Alberni	61
Figure 5.3-1:	Hydrogeology and Groundwater Quality Spatial Boundary	73
Figure 5.4-1:	Aquatic Spatial Boundaries	83
Figure 5.6-1	Marine Spatial Boundaries, Baynes Sound, BC	110
Figure 5.6-2:	Marine Spatial Boundaries, Port Alberni, Alberni Inlet-Trevor Channel, BC	111
Figure 5.7-1:	Terrestrial Spatial Boundaries	121
Figure 6.2-1:	Economic and Social Spatial Boundaries	144
Figure 7.2-1:	Non-Traditional Land Use Spatial Boundaries	156
Figure 8.2-1:	Archaeology and Heritage Resources Spatial Boundaries	173
Figure 12-1:	Maa-nulth First Nations Map	190
Figure 12-2:	Maa-nulth First Nation Domestic Fishing Area Barkley Sound	191
Figure 12-3:	Maa-nulth First Nation Designated Shellfish Aquaculture Sites of Hyu-ay-aht	
-	First Nations	192
Figure 12-4:	Maa-nulth First Nation Designated Shellfish Aquaculture Sites of Toquaht	
	Nations	193
Figure 12-5:	Maa-nulth First Nation Designated Shellfish Aquaculture Sites of Uchucklesaht	
	Tribe	194
Figure 12-6:	Maa-nulth First Nation Designated Shellfish Aquaculture Sites of Ucluelet First	
	Nation	195
Figure 12-7:	Maa-nulth First Nation Inter-tidal Bivalve Harvest Area Toquart Bay	196
Figure 12-8:	Maa-nulth First Nation Inter-tidal Bivalve Harvest Area Effingham Inlet	197
Figure 12-9:	Maa-nulth First Nation Inter-tidal Bivalve Harvest Area Tzatus Island and Sarita	
	River	198

Figure 12-10:	Maa-nulth First Nation Wildlife Harvest Area Barkley Sound	199
Figure 12-11:	Maa-nulth First Nation Migratory Birds Harvest Area Barkley Sound	
Figure 17-1:	First Nations Asserted Territories	

TABLE OF CONCORDANCE

The proponent commits to providing a Table of Concordance (using the format below) in the Application / EIS. The Table of Concordance will present all requirements for content and methodological approaches in the approved AIR / EIS Guidelines that are to be addressed by the Application / EIS, including volume, section and page references.

				Section Of
Section Of AIR /		Descriptive	Volume Of	Application / EIS
EIS Guidelines	Title	Summary	Application / EIS	Volume

PREFACE TO THE APPLICATION

The proponent commits to provide the following in the Application / EIS:

- Statement that the proposed Raven Project is subject to review under the *BCEAA* and description of the trigger for the review under *BCEAA*;
- Statement that the proposed Raven Project is subject to a comprehensive study assessment under the *CEA Act* and why;
- Information on any other EA approval processes that the proposed Raven Project is undergoing (if applicable), especially if they interact or overlap with the *CEA Act*;
- Statement that the Application / EIS has been developed pursuant to the AIR / EIS Guidelines approved by the BC EAO with input from the Agency, and that it complies with relevant instructions provided in the section 11 Order;
- Statement that the Application / EIS has been developed pursuant to federal information requirements as communicated by the Agency and federal RA; and
- Information identifying the agencies, First Nations, Aboriginal groups and other parties involved in the development of the Application / EIS.

ABBREVIATIONS, ACRONYMS AND DEFINITIONS

The proponent commits to provide a list of all abbreviations, acronyms and terms used, and their definitions, in the Application / EIS. The list provided below refers to terms and abbreviations used in this AIR / EIS Guidelines document.

Abbreviation	Definition
ABA	acid-base accounting
ACRD	Alberni-Clayoquot Regional District
AEE	Agra Earth & Environmental
Agency (the)	Canadian Environmental Assessment Agency
AGL	Associated Geosciences Ltd.
AIA	Archaeological Impact Assessment
AIR / EIS Guidelines	Application Information Requirements / Environmental Impact Statement Guidelines
AIR Template	Application Information Requirements Template with Respect to an Application for an Environmental Assessment Certificate pursuant to the <i>Environmental Assessment Act</i> , S.B.C. 2002, c. 43
AMEC	AMEC Environment & Infrastructure
ANSI	American National Standard Institute
Application / EIS	Application for an Environmental Assessment Certificate, made under section 16 of the British Columbia <i>Environmental Assessment Act /</i> Environmental Impact Statement
AOA	Archaeological Overview Assessment
AOGCM	Atmosphere-Ocean General Circulation Model
baseline information	a description of existing environmental, economic and social conditions at and surrounding an action
BC	British Columbia
BC CSR	BC Contaminated Sites Regulation
BC CDC	BC Conservation Data Centre
BCEAA	BC Environmental Assessment Act
BC EAO	BC Environmental Assessment Office
BC <i>EMA</i>	BC Environmental Management Act
BCGS	BC Geographic System
BC ILMB	BC Integrated Land Management Bureau
BC MELP	BC Ministry of Environment, Lands and Parks
BC MEM	BC Ministry of Energy and Mines
BC MEMPR	BC Ministry of Energy, Mines and Petroleum Resources
BC MFLNRO	BC Ministry of Forests, Lands and Natural Resource Operations
BC MOA	BC Ministry of Agriculture

Abbreviation	Definition
BC MOE	BC Ministry of Environment
BC MOF	BC Ministry of Forests
BC MOHS	BC Ministry of Health Services
BC MJTI	BC Ministry of Jobs, Tourism and Innovation
BC MOTI	BC Ministry of Transportation and Infrastructure
BC MRESD	BC Ministry of Regional Economic and Skills Development
BC MTTI	BC Ministry of Tourism, Trade and Investment
BC MWLAP	BC Ministry of Water, Land and Air Protection
BCWQG	BC Water Quality Guidelines
BGC	biogeoclimatic
BMP	Best Management Practice
CABIN	Canadian Aquatic Biomonitoring Network
CAC	criteria air contaminant
CaCO ₃	calcium carbonate
CAPMoN	Canadian Air and Precipitation Monitoring Network
CCC	Compliance Coal Corporation
CCME	Canadian Council of Ministers of the Environment
CEA	cumulative effects assessment
CEA Act	Canadian Environmental Assessment Act
CEC	Compliance Energy Corporation
CEE	cumulative environmental effects
CEO	Chief Executive Officer
CEPA	Canadian Environmental Protection Act, 1999
CEQG	Canadian Environmental Quality Guidelines
CESA	Cumulative Effects Study Area
CFIA	Canadian Food Inspection Agency
CH ₄ /CO ₂	methane / carbon dioxide
CJV	Comox Joint Venture
cm	Centimetre
cm ²	centimetres squared
CMT	culturally modified tree
COPC	Chemical of Potential Concern
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CPP	coal preparation plant

Abbreviation	Definition
cumulative effects assessment	an assessment of the incremental effects of an action on the environment when the effects are combined with those from other past, existing and future actions
cumulative environmental effects	effects that are considered in a cumulative effects assessment
CVRD	Comox Valley Regional District
CWS	Canadian Wildlife Service
dBA	decibel A-scale
DFO	Fisheries and Oceans Canada
DIN	German Institute for Standardization (Deutsces Institut für Normung)
DIS	Draft International Standard
e-Pic	electronic Project Information Centre
E & N	Esquimalt and Nanaimo
EA	Environmental Assessment
EC	Environment Canada
e.g.	exempli gratia (Latin for "for example")
EMS	Environmental Management System
EMP	Environmental Management Plan
ERCB	Energy Resource Conservation Board
etc.	et cetera (Latin for "and the rest of such things")
FHAP	Fish Habitat Assessment Procedure
GDP	gross domestic product
GHCN	Global Historical Climatology Network
GHG	greenhouse gas
GIS	geographic information system
gob	the waste left in old mine workings
GUDI	groundwater under the direct influence
ha	hectare
HADD	harmful alterations, disruption, or destruction
HC	Health Canada
HCA	Heritage Conservation Act
Hillsborough	Hillsborough Resources Limited
HSA	hydrogeology study area
HST	Harmonized Sales Tax
Hwy	Highway
i.e.	<i>id est</i> (Latin for "that is")
ICC	I-Comox Coal Inc.

Abbreviation	Definition
IFC	International Finance Corporation
ISO	International Organization for Standardization
km	kilometre
kV	kilovolt
LGI	LG International Investments (Canada) Ltd.
LHA	Local Health Area
Lidar	Light Detection and Ranging
LSA	Local Study Area
m	metre
met coal	metallurgical coking coal
ML/ARD	metal leaching and acid rock drainage
μm	micrometre
mm	millimetre
MPMO	Government of Canada's Major Projects Management Office
MRP	Major Resource Project
Mt	million tonnes
N ₂ O	nitrous oxide
NAPS	National Air Pollution Surveillance
NBCC	National Building Code of Canada
n.d.	no date
NGO	Non-Government Organization
NNL	No-Net-Loss
NO _X	nitrogen oxides
NP	neutralization potential
NRCan	Natural Resources Canada
NRD	Nanaimo Regional District
NTLU	non-traditional land use
NTS	National Topographic System
NWPA	Navigable Waters Protection Act
O ₃	Ozone
ORCRC	O.R. Cullingham Resource Consultant Ltd.
PAH	polycyclic aromatic hydrocarbon
PAPA	Port Alberni Port Authority
PC	Parks Canada
PGNAA	Prompt Gamma Neutron Activation Analyses
PLUP	Provincial Land Use Plan

Abbreviation	Definition
PM	particulate matter
PM _{2.5}	particulate matter no greater than 2.5 micrometres in aerodynamic diameter
PM ₁₀	particulate matter greater than 10 micrometres in aerodynamic diameter
proponent (the)	Compliance Coal Corporation dba the Comox Joint Venture
proposed Raven Project (the)	proposed Raven Underground Coal Project
PSL	permissible sound level
PY	person years: a single person employed full-time for one year
QA / QC	Quality Assurance / Quality Control
Q2	second quarter
RA	Responsible Authority
Raw coal	coal and rock
RCMP	Royal Canadian Mounted Police
RDEA	Regional District Electoral Area
RISC	Resources Inventory Standards Committee
ROM	run-of-mine
ROW	Right-of-Way
RSA	Regional Study Area
S	sulphur
SARA	Species at Risk Act
SC	Statistics Canada
SEI	Sensitive Ecosystem Inventory
SOP	Standard Operating Procedure
SO _x	sulphur oxides
SPMD	semipermeable monitoring device
t/d	tonnes per day
t/h	tonnes per hour
t/y	tonnes per year
тс	Transport Canada
TDS	total dissolved solids
TEM	Terrestrial Ecosystem Mapping
ТК	traditional knowledge
TLU	traditional land use
тос	total organic carbon
TSS	total suspended solids

Abbreviation	Definition
TSP	total suspended particulates (dust)
TU	traditional use
TUS	traditional use study
UBC	University of British Columbia
US	United States
UTM	Universal Transverse Mercator
Valued Component	The environmental element of an ecosystem that is identified as having scientific, heritage, social, economic, historical, archaeological or aesthetic importance
VC	Valued Component
VIHA	Vancouver Island Health Authority
VOC	Volatile Organic Compound
vpd	vehicles per day
VWP	vibrating wire piezometers
WMU	Wildlife Management Unit
YQQ	Comox Airport
7Q10	10-year seven-day low flow
O°	degrees Celsius
%	percent

EXECUTIVE SUMMARY

The proponent commits to provide the following in the Application / EIS:

- Description of the proposed Raven Project;
- Summary of the consultations undertaken;
- Summary of the issues and potential proposed Raven Project effects identified;
- Summary of the recommended mitigation measures;
- Summary of the potential residual effects and cumulative effects;
- Summary of the follow-up programs proposed (if applicable); and
- The proponent's conclusions from the EA.

PART A – INTRODUCTION AND BACKGROUND

1

PURPOSE OF THE APPLICATION / EIS

A discussion of the purpose of the Application for an Environmental Assessment Certificate, made under section 16 of the British Columbia *Environmental Assessment Act /* Environmental Impact Statement (Application / EIS) will be provided. This section will indicate that the Application / EIS meets the requirements of both the provincial and federal Environmental Assessment (EA) processes. The section will summarise why the proposed Raven Underground Coal Project (proposed Raven Project) requires an EA Certificate, and, as applicable, formal authorisation under section 35(2) of the *Fisheries Act* (Government of Canada 1985b), and the granting of federal lands from the Port Alberni Port Authority (PAPA).

2 PROPOSED PROJECT OVERVIEW

2.1 <u>Proponent Description</u>

This section of the Application / EIS will provide information (history, description, and contact information) on Compliance Coal Corporation dba the Comox Joint Venture (proponent). It will also include a background description and contact information for members of the proposed Raven Project Management Team.

The Raven property is owned by the Comox Joint Venture (CJV), which consists of three companies: Compliance Coal Corporation (CCC) (60 percent (%); I-Comox Coal Inc. (ICC), a subsidiary of Itochu Corporation (20%); and LG International Investments (Canada) Ltd. (LGI) (20%). The three companies have formed the CJV for the purpose of exploring and developing their coal and mineral interests on Vancouver Island. Under the CJV arrangement, CCC will be responsible for managing and operating the proposed Raven Project, and ICC and LGI will be responsible for the global marketing for the products produced from the Raven property on an exclusive basis. CCC is a 100% subsidiary of Compliance Energy Corporation (CEC).

CEC is a publicly listed Canadian company based in Vancouver, British Columbia (BC) with interests in mining. CEC shares trade on the TSX Venture Exchange under the symbol CEC. The company was incorporated under the *Company Act* of the Province of BC on 6 July 2000 as 610230 BC Ltd. and changed its name to Beanstalk Capital Corporation on 27 July 2000. On 19 December 2000 the company was listed on the Canadian Venture Exchange as a "Capital Pool Company". On 7 May 2002 the company announced that it had entered into an agreement to acquire all of the issued and outstanding shares of CCC, a private company based in Vancouver, BC that had the right to develop the coal resources in the Tulameen Coal Basin located near Princeton, BC. On 30 August 2002 the company completed the acquisition of CCC and as part of the acquisition, changed its name to CEC.

CEC's contact information is as follows:

Address: Suite 550, 800 West Pender, Vancouver, BC V6C 2V6

Telephone: 604-689-0489

Facsimile: 604-681-5910

E-mail: john@complianceenergy.com (John A. Tapics, President & Chief Executive Officer (CEO))

Internet: http://www.complianceenergy.com.

John A. Tapics, CEC's President and CEO will be the principal contact person for purposes of the EA.

The Application / EIS will identify the qualifications and expertise of the professional(s) preparing each section of the Application / EIS or technical study.

2.2 <u>Proposed Project Description</u>

This section will describe the location and components of the proposed Raven Project in sufficient detail to support the prediction and assessment of potential effects related to the proposed Raven Project. Each Project phase and their associated activities and components will be described in the Application / EIS with sufficient detail to allow the proponent to predict potential adverse effects and address concerns of interested parties. The section will provide a timeline for each Project phase and a discussion of each Project component including relevant on-site and off-site facilities. The Environmental Management System (EMS) will be described in a separate section of the Application / EIS, including risk management approaches applied and considered for each component of the proposed Raven Project.

The Application / EIS will describe the provincial and federal triggers for the EA. Pursuant to Part 3 of the *Reviewable Projects Regulation* (Government of BC 2002c), an EA Certificate is required because the proposed Raven Project would be a new mine facility that, during operation, would have a production capacity of greater than 250,000 tonnes per year (t/y) of clean and raw coal (combined). Pursuant to section 5 of the *Canadian Environmental Assessment Act* (*CEA Act*) (Government of Canada 1992), a federal EA is required for the proposed Raven Project because: Fisheries and Oceans Canada (DFO) may issue authorizations for works or undertakings associated with the proposed Raven Project; and the PAPA may make federal lands available to allow the proposed Raven Project to proceed. The proposed Raven Project is subject to a comprehensive study pursuant to section 16(d) of the *Comprehensive Study List Regulations* (Government of Canada 1994a) of the *CEA Act* because the proposed coal production capacity would be 3000 tonnes per day (t/d) or more. The proposed Raven Project has been designated a Major Resource Project (MRP) tracked by the Government of Canada's Major Projects Management Office (MPMO) (www.mpmo-bggp.gc.ca).

The following comprise components of the Raven Project as currently proposed:

- 16 year mine life with an average of 0.83 million tonnes (Mt) of clean coal per year and a range of 0.7 to 1.1 Mt per year;
- Underground mine workings;
- Process Plant and ancillary facilities;
- Raw and product coal stockpiles (metallurgical and middlings);
- A reject pile consisting of coarse and fine rejects;
- Sediment ponds;
- Topsoil and till storage;
- Administration building (first aid and other administrative offices);
- Maintenance building (equipment repairs and storage);

- Power supply and distribution facilities;
- Service facilities (water treatment plant, compressed air, and fire-fighting facilities);
- Sewage treatment facilities (septic fields) and possible on-site landfill;
- Hazardous material storage facilities;
- Existing power access;
- Upgrades to existing roads;
- Transportation of coal along existing roads; and
- Upgrades to the Port Alberni Port Facility.

Two coal seams (Seams 1 and 3) would be accessed from a coal outcrop on the west side of the deposit, eliminating or minimizing the need for cross stone drifts and minimizing the number of ventilation raises required. Several roadways would be driven from the surface directly into Seam 1. A small bench may be excavated to create a clean seam exposure for roadways to be driven from or cut and cover trenches dug to create access through unconsolidated surface material. At a minimum, four roadways would provide a travel way for personnel, materials, conveyor, and ventilation. The roadways would be the height of the seam and 5 to 6 metres (m) wide. Depending on the initial gradient of the travel way for personnel and materials, the floor of the roadway may be concreted. Access to Seam 3 would be from short cross measure stone drifts driven underground from Seam 1 to Seam 3. Run-of-mine (ROM) coal would be processed above ground on the Raven property, in a coal preparation plant (CPP).

The proposed CPP would be capable of processing a nominal 2.2 Mt per year of feed operating 6,000 hours per year with maximum annual capacity in the range of 2.5 Mt per year. Coal processing capacity would be 363 tonnes per hour (t/h). Product metallurgical coal from the plant would be transported by conveyor to a clean coal radial stockpile. Coal from the radial stockpiles would be moved by front-end loader to a feed hopper and conveyed to one of two 50,000 tonne stockpiles depending on coal quality. The product stockpile arrangement allows coal of varying quality to be blended to prepare both metallurgical and middling products for shipment. Plant reject would be conveyed overland to a Reject Disposal Area where the reject would be discharged by a radial stacker and would be spread and compacted by a bulldozer.

The total disturbed surface area is estimated at approximately 200 hectares (ha). Mine life is estimated to be 16 years. The entire disturbed area would be reclaimed. Land use and productivity objectives would be consistent with the pre-mining levels determined by baseline observations and studies. Particular consideration would be given to the restoration of habitat for ungulates and plants of ethno-botanical importance to Aboriginal groups. Reforestation programs would be compatible with the silviculture programs being conducted as part of the regional timber harvesting activities. The preliminary reclamation goal would be to re-establish the site for recreational and wildlife values.

2.2.1 Need for and Purpose of the Proposed Project

This section of the Application / EIS will describe the need for and purpose of the proposed Raven Project. The "need for" the project is defined as the problem or opportunity that the proposed Raven Project is intending to solve or satisfy. The "purpose of" the project is defined as what is to be achieved by carrying out the proposed Raven Project. The "need for" and "purpose of" the project will be established from the perspective of the proponent.

2.2.2 Proposed Project Location and Mapping

The Application / EIS will identify the proposed Raven Project location along with the latitude and longitude of the site. Mapping at appropriate scales indicating site layout and the regional setting of the proposed Raven Project components and activities will be included in the Application / EIS. The mapping will identify proximities to natural features and designated environmentally sensitive areas. The distance to nearby communities and their locations on a regional map will also be provided. Site plans, photographs, and sketches along with features and activities will be incorporated into the maps. Mineral claims held by the proponent will be identified. Tenure, ownership and management details for all lands within the proposed above ground footprint will be identified. The Application / EIS will also include a discussion of facility location considerations with respect to natural hazards and environmental concerns (e.g., fish and wildlife habitat, visual and aesthetic resources, etc.). Project location and mapping information that would be provided for the mine site component of the proposed Raven Project will also be included for the Port Alberni Port Authority upgrade and coal facility work.

The Raven property is approximately 3100 ha (9 kilometres (km) by 3.5 km) and is located on eastern Vancouver Island, within the Comox Valley Regional District (CVRD) (Figure 2.2-1). Baynes Sound, which separates Denman Island from Vancouver Island, is to the east of the property. The City of Courtenay is approximately 20 km to the north, and Port Alberni is approximately 80 km to the south.

The Raven property can be located within the National Topographic System (NTS) maps (1:50,000) 92F10W and 92F7W and within BC Geographic System (BCGS) (1:20,000) maps 092F056 (north) and 092F046 (south). Coordinates at the centre of the proposed Raven Project footprint are 49° 30' 8.0742" latitude and 124° 52' 36.4074" longitude. The Universal Transverse System's (UTM) for the proposed Raven Project site (zone 10) are X: 362988.91, Y: 5484806.55. Figure 2.2-2 summarizes the proposed Raven Project land tenure. The proposed Raven Project is located on private land and on land administered by PAPA.

The proposed Raven Project is located within the treaty rights area of the:

1. Maa-nulth First Nations:

3075 3rd Avenue, Port Alberni, BC V9Y 2A4

The proposed Raven Project is located in the asserted territories of the:

- Wei Wai Kum First Nation (member of Laich-Kwil-Tach Treaty Society): 1400 Weiwaikum Rd., Campbell River, BC V9W 5W8
- We Wai Kai Nation (member of Laich-Kwil-Tach Treaty Society): PO Box 220, Quathiaski Cove, BC V0P 1N0
- 3. K'ómoks (Comox) First Nation

3320 Comox Road, Courtenay, BC V9N 3P8

- Qualicum First Nation: 5850 River Road, Qualicum Beach, BC V9K 1Z5
- 5. Xwémalhkwu Nation (formerly Homalco Indian Band):

1218 Bute Crescent, Campbell River, BC V9H 1G5

6. Tseshaht First Nation:

5091 Tsuma-as Drive, Port Alberni, BC V9Y 8X9

7. Hupacasath First Nation:

5500 Ahahswinis Drive, Port Alberni, BC V9Y 7M7

8. Métis Nation BC:

30691 Simpson Road, Abbotsford, BC V2T 6C7

The proposed Raven Project is in the vicinity of the asserted territories of the:

1. Hul'qumin'um Treaty Group (which includes the Cowichan Tribes, Chemainus First Nation, Penelakut Tribe, Lyackson First Nation, Lake Cowichan First Nation and the Halalt First Nation):

12611-B Trans Canada Highway, Ladysmith, BC V9G 1M5

2. Sliammon First Nation:

RR2 Sliammon Rd., Powell River, BC V8A 4Z3





2.2.3 Background and Rationale

The Application / EIS will provide a summary of the history of exploration activities on and around the Raven property since its initial discovery. Project rationale and objectives will be presented in the Application / EIS along with economic study results, sustainability principles, and traditional knowledge (TK) that have guided project planning. The rationale for the selection of Port Alberni for the proposed Port Facility will also be presented.

2.2.4 Geology and Coal Resources

This section of the Application / EIS will describe the regional geology (stratigraphy, structure and coal seam development and correlation), proposed Raven Project underground mine geology (stratigraphy, structure, and coal seams to be mined), and include a detailed description of the coal resources, including type and quality of the resources of the proposed Raven Project underground mine. The Application / EIS will include mapping of geological faults in relation to streams, surface water bodies, mine surface components, and underground workings. Results from geo-mechanical analysis of rock strata in relation to their susceptibility to fracturing, subsidence, and potential changes to permeability, including effects due to faults and proximity to faults will be described, including an accounting for the thickness of overlying rock in different sections of the mine.

2.2.5 Geochemical Characterisation

This section of the Application / EIS will describe the approach and methods used to collect data on metal leaching and acid rock drainage (ML/ARD), which has the potential to impact both surface and groundwater quality. The information will also be used to guide waste management planning.

This section will describe the approach, methods, and results of ML/ARD characterization for the Raven coal deposit (including static acid-base accounting (ABA) testing, kinetic leach testing and potentially field based leach testing). The description will be sufficiently detailed to assess the potential for ML/ARD from the overburden and interburden waste rock, coarse and fine rejects that may be generated during mining. The assessment will review and, where appropriate, incorporate available data with respect to ML/ARD. Results from the ML/ARD characterization will be described. The description will document the geochemical characteristics of all mine components and materials to be disturbed or created during mining, including coal, coarse and fine coal rejects, and underground mine surfaces including the waste left in old workings (gob). Results will be integrated into mine planning and used in the assessment of potential impacts to surface and groundwater quality as well as in waste management planning and development of follow-up and monitoring programs. The assessment of ML/ARD will be conducted in accordance with the following ML/ARD policy and guidance documents:

 "Policy for Metal Leaching and Acid Rock Drainage at Minesites in British Columbia", BC Ministry of Energy and Mines (BC MEM) and BC Ministry of Environment, Lands and Parks (BC MELP) (1998); and • "Guidelines for Metal Leaching and Acid Rock Drainage at Minesites in British Columbia" (BC MEM 1998).

Sufficient samples from each material will be collected to ensure adequate representation. Sampling will focus on characterizing the reject rock material, including the gob, as well as interburden and partings between coal seams where pyrite is often found. The program would include sufficient samples to characterize ML/ARD variability and sulphur distributions within the rejects.

Drill core and rock samples will be submitted for ABA and metals testing. Testing will include:

- Paste pH;
- Modified Sobek neutralization potential (NP);
- Total inorganic carbon;
- Sulphur (S) speciation (total S, sulphate-S, sulphide-S and organic-S);
- Total metals by aqua-regia inductively coupled plasma;
- Leachable metals; and
- Mineralogy by Reitveld X-ray diffraction.

A sub-set of the ABA samples will also be submitted for shake flask extraction to assess the soluble metal content.

A kinetic testing program to assess the ML potential and predict the rates of acid generation and depletion of NP (the estimate of lag time until material 'goes acid') in rock units and coal rejects will be conducted following ABA testing.

The ML/ARD characterization will be used to provide geochemical source terms for predictive geochemical and water quality modelling. The ML/ARD management strategy (such as an engineered cover over the rejects or blending of rejects material to inhibit ML/ARD formation) proposed will be sufficiently supported by the appropriate studies to demonstrate their feasibility.

The proposed Raven Project would use existing roads. If road upgrades are required, an assessment for ML/ARD potential would be completed during the construction phase as a component of the Soil Management Plan. Any required assessments would be completed in concert with regulatory agencies.

2.2.6 Mine Plan

The Application / EIS will provide a mine plan and feasibility assessment detailed enough to demonstrate that the proponent has the necessary understanding, resources, technical capability, and intent to develop the mine in a safe and environmentally sound manner. This includes a preliminary mine plan developed in accordance with the "Health, Safety and

Reclamation Code for Mines in British Columbia" (BC Ministry of Energy, Mines and Petroleum Resources (BC MEMPR) 2008) and map(s) as appropriate to demonstrate the possible extent of underground workings. The proponent's objective is to develop a robust mine plan based on the philosophy of "design for closure" and will use accepted sound engineering and environmental practices. The plan will include information regarding premature closure scenarios.

The mine plan will consider the results of environmental studies in order to minimize potential effects of the proposed Raven Project. The proposed Raven Project footprint would be located and sized to minimize potential effects. A preliminary plan of mine surface facilities is presented in Figure 2.2-3.



The mine plan will include discussion of:

- Mine planning, development and production schedules;
- Anticipated underground layout, showing the proposed sequence of coal extraction;
- Locations of support pillars, anticipated pillar spacing and pillar size and strength;
- Locations of ventilation shafts;
- Depth of mining, vertical cover thickness overlying the underground workings and risk of surface subsidence;
- Mine access trench and portal, including design of the main decline and secondary mine ingress;
- Volume of waste rock and rejects to be generated;
- Coal and rejects handling, including rationale for selection of waste rock and rejects disposal sites;
- Water management and drainage collection works design (including mine dewatering facilities for the proposed underground mine and surface water diversions and run-off collection ditches from waste rock and coal processing storage facilities);
- Effluent generation;
- Air and sound emissions;
- Rejects and rejects production;
- Stockpiles, including locations and maximum sizes;
- Shipment of coal down Alberni Inlet and Trevor Channel to the Cape Beale Pilotage Station, as well as potential effects such as accidents and malfunctions that might extend to Barkley Sound;
- Operations;
- Equipment;
- Services;
- Storage, use, handling, and disposal of hazardous materials and dangerous goods including explosives; and
- Emergency response and safety planning, awareness, and training.

The mine plan will include an access plan that will detail the travel routes to be used for transporting workers to and from the site during construction and operations. The mine plan will also include an access plan for transporting the processed coal to Port Alberni, the preferred Port Facility. The Application / EIS will include preliminary designs of any proposed culvert upgrades. The proponent will comply with each relevant provincial,

federal, and municipal regulation related to road construction and maintenance, and incorporate these into the design and operation of roads. For example, trucks to be used off-site would meet required road load limits. In addition, the proponent will work to the best of its ability with other stakeholders to address common aspects of the road construction, road maintenance, and safe road use.

2.2.7 Access and Power

The site is currently accessed via the Inland Island Highway (Hwy) (Hwy 19) from two existing private forest roads built and maintained by Island Timberlands (Figure 2.2-4). The northern road (Buckley Bay Mainline road) would be used by in-coming trucks, and the southern route used by out-going trucks. From the exit point on Hwy 19, the distance travelled on existing two lane logging roads is approximately 7.6 km. Processed coal would be transported by road via Hwy 19 to Parksville, and via Hwy 4 to Port Alberni. Alternative routes from Hwy 4 to the port terminal at the Port Alberni Port Authority will be examined and analyzed. Coal would be loaded to Panamax ships at the proposed Port Alberni Port Facility for export. Existing roads to the proposed Raven Project may require some upgrades. Other local forestry roads and private logging and resource roads provide access to various other parts of the proposed Raven Project property.



Power to the mine site would be brought in by interconnecting to a major BC Hydro 132 kilovolt (kV) transmission line located more or less parallel and to the east of the Inland Island Hwy adjacent to the proposed Raven Project. There are three 132 kV lines and one 230 kV line in this corridor. A line tap connection to one of the three 132 kV BCTC transmission lines and construction of 5.1 km of 132 kV transmission line along the Holiday Main to the facilities area would be required. Construction of a step down substation would be required at the site. Grounding and fault detection equipment would meet all regulatory standards. The location of the Right-of-Way (ROW) for the new power line, which would be based on the selected configuration of the mine site, will be determined in the Feasibility Study. The information pertaining to where the new substation would be located will be provided as it becomes available. The Process Plant would also include electrical rooms for distribution voltage step-down, motor control centres, and emergency generators.

Other infrastructure in the vicinity of the Raven property includes: the Esquimalt and Nanaimo (E & N) railway, which links Courtenay to Victoria and Port Alberni and lies parallel to the Inland Island Hwy and off the eastern edge of the property boundary; and the Vancouver Island 10-inch natural gas pipeline.

2.2.8 On-Site Facilities

The Application / EIS will describe the on-site components of the proposed Raven Project and associated infrastructure, including the results of studies leading to the selection of the sites. Alternate locations for these sites will be discussed. The level of detail will be determined by the predicted potential impact of the preferred site selection. This will include:

- CPP: including coal characteristics, design criteria (including environmental controls), flowsheet, screening, breaking, treatment, crushing, conveying, flotation, environmental controls, and power requirements;
- Coarse and fine rejects stockpiles, and alternatives for disposal based on ML/ARD characterization;
- Power supply and distribution system: power could be transmitted from a main line 5 km away; a substation and connecting electrical switchgear would be required, as well as grounding and fault detection equipment that meets regulatory standards;
- Water management facilities, including surface and underground water balance calculations, ponds, potable water supply and storage (potable water system plans would be provided as part of detailed permitting and would meet the requirements of the *Drinking Water Protection Act* (Government of BC 2001) as administered by the Vancouver Island Health Authority (VIHA)); storm water management measures, diversion systems, water withdrawal and discharge points and facilities used for recycling water (water quality would conform to Waste Management Effluent Permit objectives before being discharged to surface water bodies);
- Mine ventilation facilities for management of mine methane gas;

- Sewage treatment facilities and septic field will comply with the *Sewerage System Regulation* (Government of BC 2004) and "Sewerage System Standard Practice Manual Version 2"; ;
- Solid waste disposal facilities (e.g., landfill, contractor removal to an existing landfill);
- Fire protection system, including consideration of spontaneous combustion risks;
- Concrete foundations for the main underground conveyer drive and the stacker conveyer;
- Tank farm (consisting of double-walled fuel tanks and a double-walled waste oil collection tank), tank farm containment measures, and spill prevention measures;
- On-site containment features (e.g., concrete pads and dykes), and early warning spill detection systems;
- First aid and security;
- Administration building used for on-site personnel offices, communications, first-aid, and other administrative requirements; and
- Maintenance building used as a cover for equipment repairs, and for storage of consumable items such as bagged limestone dust.

Mobile and stationary equipment would conform to the "Health, Safety and Reclamation Code for Mines in British Columbia." (BC MEMPR 2008).

The methods used in the alternatives assessment for the coarse and fine rejects stockpiles (including presenting technical feasibility, environmental capital and operating costs as criteria) would be provided. The rejects would be filtered to 30% moisture content.

2.2.9 Off-Site Facilities

The Application / EIS will describe the off-site proposed Raven Project components and associated infrastructure, including the results of studies leading to the selection of the sites. Alternate locations for these sites will be discussed. The level of detail will be determined by the predicted potential impact of the preferred site selection, but sufficient to identify where effects monitoring would be required for the purpose of risk analysis and to provide details on potential environmental effects. Component areas to be addressed include:

- Electrical power supply and transmission including identifying the power line options considered to provide power to the mine site, and the preferred option;
- Development components and activities at the proposed Port Facility at Port Alberni including information on facility security, pile driving, dredging, dredge spoil testing and deposition, dolphin placement, product storage (e.g., bulk solids and coal storage) and any discharges resulting from coal storage and handling (e.g., water from runoff and leachate and air emissions); and

• Transportation and access - including the access roads and site roads; the transportation of people and materials by road, the marine transportation of coal down Alberni Inlet and Trevor Channel, and the time to time movement of explosives and hazardous materials. The Port Facility and coal transport options would be described and the tenure and ownership of access roads would be identified.

Based on engineering, environmental considerations, costing and consultation work, Port Alberni has been identified as the preferred option for the location of the Port Facility. In addition, trucking has been identified as the preferred option for the transport of coal from the mine site to the Port Facility. Hwy 19 and Hwy 4 would be used to transport coal from the mine site to Port Alberni. The feasibility of transportation alternatives, including: utilizing industrial secondary roads, rail or a combination of the two will be identified and evaluated.

PAPA has advised that the existing wharf at Berths 1 and 2, and the adjacent terminal area, could be made available for vessel berthing / loading and coal storage, respectively. The existing wharf is approximately 320 m long and was built in increments (oldest portion-1950s, newest-1980s) out of timber piling, timber caps, and concrete deck sections. The wharf structure is in satisfactory condition, but does not meet code requirements for seismic resistance. As a result, a standalone coal loader support structure is proposed. The new berthing and loading facility would be structurally independent from the existing timber wharf. The existing wharf structure would not be degraded nor upgraded by the proposed changes.

The new berthing and loading structure would consist of a new concrete deck structure, a covered conveying system, an enclosed ship loader, a new fender system, and new steel pipe piling, located within the footprint of the existing wharf. The southern portion would be used for berthing to minimize the amount of dredging required to accommodate Panamax-sized vessels. An examination and analysis of alternative transportation routes from the mine site to Port Alberni would also be presented. In addition, five new dolphins would be constructed at the southern end to position and moor vessels beyond the wharf face, further minimizing dredging requirements. Upland storage facilities would include covered conveyors to reduce noise and fugitive dust emissions and storage buildings with a storage capacity of up to 80,000 tonnes (Panamax-sized load).

2.2.10 Construction Phase Activities

Construction activities will be described, along with the intended approach for the delivery of required services and associated logistics. These include:

- Employment;
- Access road;
- Transmission line;

- Equipment and machinery transportation to site, including analysis of anticipated changes to traffic (e.g., type and volume) on public roads and marine shipping routes;
- Land clearing;
- Excavating;
- Grading;
- Soil and till salvage, handling and storage, including locations, volumes and impacted areas;
- Dewatering, including water disposal;
- Directional drilling;
- Infilling;
- Surface infrastructure installations;
- Drift supply, conveyer and ventilation shaft development;
- Blasting;
- Temporary sump installation;
- Conveyers installation;
- Fan installation;
- Site set-up (first aid, safety, fire and security);
- Obtaining the applicable permits and approvals from VIHA for water system, sewage system (if applicable), and food premises (if applicable); and
- Environmental mitigation, enhancement and compensation work (including fish habitat compensation structures).

The Application / EIS will include the sequence of events for construction, including construction timelines. On-site construction camp facilities and ancillary facilities (e.g., potable water, solid and liquid waste, and sewage treatment), if required, will be described. The Application / EIS will also describe any construction activities and associated logistics required to upgrade the existing Port Facility at Port Alberni.

2.2.11 Operations Phase Activities

Coal resource extraction and associated activities including maintenance will be described in the Application / EIS. These include:

- Employment;
- Underground mining;

- Processing;
- Coal transportation by truck to the Port Alberni Port Facility (including a description of methods to mitigate fugitive dust emissions, analysis and methods to mitigate anticipated changes to traffic (e.g., type and, volume) on public roads);
- A description of the proposed Port Facility at Port Alberni, including ship activity at port, operational discharges from ships, past, present, and anticipated future frequency of ships, number of days in port, loading procedures and coal storage at port, and including other on-site components and associated infrastructure including water use, water and rain-water treatment, utilities, sewer, noise, light and dust emission management, fire protection and Port Facility traffic congestion management;
- Water management related to coal extraction and processing activities including mine dewatering during the operation, water requirements for processing, management of overflow from the sediment pond(s), and management of waste rock contact water;
- Dust emission control of the underground and CPP ventilation systems;
- Soils and rejects / waste management; and
- Mine methane gas management including management for safety purposes and for collection and use as a fuel if this is planned, or both.

2.2.12 Decommissioning Activities

The Application / EIS will include information about the expected lifetime of the proposed Raven Project and any proposed Raven Project components. Conceptual plans for reclamation and decommissioning, the removal of structures and ancillary equipment, and site remediation will be included in the Application / EIS. The proponent will develop a Conceptual Closure and Reclamation Plan that includes cost estimates, including long-term maintenance and monitoring costs, as well as end land use. The Application / EIS will include a conceptual plan for temporary or early-permanent closure. This plan will also include a discussion of soil capability for reclamation and closure. Activities and issues associated with mine decommissioning will be described, including the following:

- Employment;
- Stream drainage restoration and water management at closure;
- Ongoing water treatment, if required;
- Surface rejects area reclamation;
- Coal stockpile areas reclamation and fugitive dust control;
- Contingency plans for disposal of any remnant stockpiled coal that could not be used;

- Soil use for reclamation;
- Re-vegetation;
- Settling pond decommissioning;
- Mine access roads decommissioning and reclamation;
- Access road decommissioning and reclamation;
- Transmission line decommissioning and reclamation;
- Underground mine works, including subsidence issues;
- Equipment and machinery removal, recycling, disposal;
- Removal and recycling or disposal of any industrial wastes;
- Surface infrastructure dismantling, removal, recycling, and disposal; and
- Decommissioning and / or reassignment of facilities and associated infrastructure at the Port Facility specific to the proposed Raven Project.

2.2.13 Scheduling

An estimated year-by-year construction to post-closure schedule will be incorporated into the Application / EIS.

The anticipated development schedule for the proposed Raven Project (Table 2.2-1) is based on an anticipated mine life of 16 years, and includes the duration of key project phases including construction, commissioning, operations, and decommissioning and abandonment. Additional information and schedule details for the proposed Raven Project will be developed during the ongoing feasibility study and EA process, and will be included in the Application / EIS.

Table 2.2-1:	Preliminary Project Schedule
--------------	------------------------------

Phase	Duration
Construction	2013
Commissioning	2014
Operations	2014 to 2029
Decommissioning and abandonment*	2029 to 2030

Note: *Abandoned mine means a mine for which all permit obligations under the *Mines Act* have been satisfied

2.2.14 Environmental Management System

This section of the Application / EIS will summarize the EMS for the proposed Raven Project. Complete details of the EMS will be provided in Section 10 of the Application / EIS.

The EMS for the proposed Raven Project will ensure a consistent approach to responsible environmental management by inclusion of the following elements, which are described in more detail in Section 10 of this Application Information Requirement / Environmental Impact Statement Guidelines (AIR / EIS Guidelines) document:

- Planning;
- Implementation;
- Checking and corrective action;
- Continual improvement; and
- Stakeholder engagement.

2.2.15 Human Resources Procedures and Procurement Policy

The Application / EIS will outline and identify the proponent's human resources policies and procedures, and procurement policy during each proposed Raven Project stage. The intended approach for the delivery of services and associated logistics required in the operations phase of the proposed Raven Project will be described.

2.3 Provincial Scope of Proposed Project

This section of the Application / EIS will provide a description of the scope of the proposed Raven Project to be assessed in the provincial EA (pursuant to the section 11 Order and subsequent amendments to this order).

Based on the Project Description submitted by the proponent, the BC Environmental Assessment Office (BC EAO) has designated the proposed Raven Project as reviewable under the BC *Environmental Assessment Act (BCEAA)* (Government of BC 2002b). On 5 March 2010, the BC EAO issued an Order under section 11 of the *BCEAA* describing the scope, procedures, and methods for this review. Pursuant to the 30 September 2011 section 13 of the *BCEAA*, the section 11 Order was legally amended by adding on-site and off-site components and deleting the definition of First Nation and replacing it with a new definition. The EA will be tailored specifically to the circumstances of the proposed Raven Project as defined in the section 11 Order and an approved AIR / EIS Guidelines document.

The provincial scope of the proposed Raven Project to be assessed includes:

- An underground mine and associated surface infrastructure;
- Load area and stockpile(s);
- Topsoil and till storage areas;
- Water management and treatment structures, including settling ponds and associated collection ditches;
- New access roads and / or existing road upgrades;
- Potential rail spur from the mainline or rail siding along the mainline;

- Coal processing plant site and associated facilities, including coarse reject piles, fine reject piles, sedimentation ponds, and ancillary infrastructure;
- A power transmission line from the existing BC Hydro transmission line near the Inland Island Hwy to the mine site and related substation, if required;
- Natural gas line, if required, from the existing line near the Inland Island Hwy to the mine site;
- Sewage treatment facilities; and
- Coal haul route to an appropriate deep sea port, now designated as Port Alberni;
- Facility upgrades at the existing port of Port Alberni for the purposes of shipping coal from the proposed Project including: sheet piling; new mooring bollards, dolphin and catwalk; dredging of shipping berth involving upland dredge spoil disposal; covered ship loading conveyor; truck unloading facility; coal storage shed with associated conveyor and dust collection systems; and
- Operation of vessels associated with the proposed Raven Project while moored at the port of Port Alberni.

The scope of the review will include:

- Potential adverse environmental, social, economic, health, and heritage effects, and practical means to prevent or reduce to an acceptable level any such potential adverse effects; and
- Potential adverse effects on Aboriginal groups' interests, and, to the extent appropriate, ways to avoid, mitigate or otherwise accommodate such potential adverse effects.

There are two general stages in the provincial EA process: a pre-Application / EIS phase when appropriate studies are identified through consultation and studies are undertaken; and an Application / EIS review phase during which further consultation occurs and potential environmental, economic, social, heritage and health adverse effects are identified, mitigated, or avoided, and positive effects are identified and enhanced.

2.4 Federal Scope of Assessment of the Proposed Project

This section of the Application / EIS will provide a description of the scope of the proposed Raven Project to be assessed in the federal EA, as directed by the Canadian Environmental Assessment Agency (Agency).

Based on the Project Description submitted by the proponent, the Agency has determined that the proposed Raven Project is subject to the *Comprehensive Study List Regulations* and that an EA is required. The Agency will act as the Federal EA Coordinator and as the Crown Consultation Coordinator for the EA. The BC EAO and the Agency (2003a) have advised the proponent that the proposed Raven Project will undergo a single cooperative

assessment as provided for in the "Canada-BC Agreement on Environmental Assessment Cooperation".

The federal scope of the proposed Raven Project considered for the EA consists of on-site and off-site proposed Raven Project components, which includes:

- On-site components:
 - Underground coal mine, including access trench, ventilation, and truck loading facility;
 - CPP, including screening, crushing, heavy medium separation, washing, cyclone separation, and flotation;
 - Coarse and fine rejects stockpiles and / or ponds;
 - Power supply / distribution, including 24 km from mainline, substation;
 - Water management facilities, including settling ponds, storm water management measures, mine dewatering, diversion systems, water recycling facilities, potential process and mine water discharges to surface waters;
 - Domestic sewage treatment and disposal facilities;
 - Fire protection system;
 - Concrete foundations for main underground conveyer drive and stack conveyer;
 - Tank farm, including double-walled fuel tanks and double-walled waste oil collection tank;
 - First aid and security;
 - o Maintenance building; and
 - Administration building.
- Off-site components:
 - Electrical power supply and transmission line;
 - Access roads and site roads;
 - Transportation of processed coal from mine site to coal storage shed at the Port Alberni Port Facility;
 - Facility upgrades at the existing port of Port Alberni, including sheet piling, new mooring bollards, dolphin and catwalk, dredging of shipping berth involving upland dredge spoil disposal, covered ship loading conveyor, truck unloading facility, coal storage shed with associated conveyor, and dust collection systems; and

• Operation of vessels associated with the proposed Raven Project within Alberni Inlet and Trevor Channel to the Cape Beale Pilotage Station.

The proposed scope of factors to be considered in the federal EA (Table 2.4-1) were defined by the Agency in a document presenting background information for the initial federal public comment period on the Comprehensive Study pursuant to the *CEA Act* for the proposed Raven Project (Agency 2011).

Environmental Component	Scope of Review
Terrestrial physical environment	 Freshwater quality Hydrology Hydrogeology Air quality Climate and meteorology Terrain, soils and geology Light and noise emissions Natural hazards
Terrestrial biological environment	 Vegetation and plant communities Wetlands Wildlife and wildlife habitat Ecologically sensitive or significant areas, species of conservation concern, including species at risk and their habitats Freshwater aquatic environment (e.g., aquatic life, fish and fish habitat) Migratory birds and their habitats
Marine physical environment	 Water quality Marine / coastal processes (erosion, sedimentation) Navigation Air quality Natural hazards
Marine biological environment	 Marine aquatic environment (e.g., aquatic life, fish and fish habitat) Ecologically sensitive or significant areas, species of conservation concern, including species at risk and their habitats
Human environment (i.e., indirect effects resulting from a direct change in the environment)	 Current use of lands and resources for traditional purposes by Aboriginal persons Navigable waters Fisheries (including aquaculture) Human health (e.g., noise, drinking water quality, country foods) Physical and cultural heritage Structures / sites of archaeological significance Marine use (kayakers and boaters)

Table 2.4-1: Federal Scope of Factors

Note: Table reproduced from the Agency's background information document (2011)

Treaty rights of the Maa-nulth First Nations under the Maa-nulth Final Agreement (Government of Canada 2010a) in the vicinity of the proposed Raven Project will also be addressed. Spatial boundaries assessing the marine vessel traffic component of the proposed Raven Project will be established in such a way as to ensure proper evaluation of the effects of the proposed Raven Project on Maa-nulth First Nations treaty rights within the Trevor Channel to the Cape Beale Pilotage Station, as set out in Appendix N (Domestic Fishing Area), Appendix O (Designated Shellfish Aquaculture Sites), Appendix P (Inter-tidal Bi-valve Harvest Areas), Appendix Q (Wildlife Harvest Area), and Appendix R (Migratory Bird Harvest Area) of the Maa-nulth Final Agreement.

Issues related to the Métis Nation BC will be addressed as part of the federal EA.

Additional factors are required for a comprehensive study, as outlined in section 16 of the *CEA Act,* including:

- Cumulative environmental effects, focusing on the interaction between the residual environmental effects (those that were predicted to remain after mitigation) of the proposed Raven Project and the environmental effects of past, present or reasonably foreseeable future projects or activities;
- Need for and purpose of the proposed Raven Project, including a description of the problem or opportunity that the proposed Raven Project intends to solve or satisfy and a description of what is to be achieved by carrying out the proposed Raven Project;
- Comments from the public that have been received in accordance with the *CEA Act* will be considered by the Responsible Authorities (RAs) and the Minister of the Environment. A record of how comments have been considered and incorporated into the EA will be prepared;
- Mitigation measures, including those that are technically and economically feasible, and would mitigate identified adverse environmental effects arising from the proposed Raven Project;
- Environmental effects analysis and the significance of environmental effects, including an evaluation of the nature, extent, and significance of residual adverse environmental effects after mitigation;
- Alternative means of carrying out the proposed Raven Project, including an analysis of the environmental effects and rationale for the preferred alternative;
- Analysis of alternatives to the proposed Raven Project; describing functionally different ways to meet the need and purpose of the proposed Raven Project;
- Effects of the environment on the proposed Raven Project, including an analysis of the changes to the proposed Raven Project that may arise as a result of the environment;

- Sustainability of renewable resources, including an evaluation of the capacity of these resources that are likely to be significantly affected by the proposed Raven Project to meet the needs of the present and the future;
- Potential accidents and malfunctions, including unplanned events that have the potential to occur in any phase of the proposed Raven Project. The EA would consider the likelihood and circumstances under which these events may occur, and the possible environmental effects that may result, should contingency plans not be fully effective;
- Follow-up program, verifying the accuracy of the EA and determining the effectiveness of mitigation measures. The EA would also describe requirements of the follow-up program; and
- Comments from the Maa-nulth First Nations, including addressing those received pursuant to Section 22.2.0 of the Maa-nulth Final Agreement during the conduct of the federal EA for the proposed Raven Project.

Comments from Aboriginal groups will be addressed in accordance with the *CEA Act* and the *BCEAA*. The primary objective of a federal EA is to ensure that a project is considered in a careful and precautionary manner in order to ensure that it would not result in significant adverse environmental effects. The federal EA process aims to promote sustainable development and thereby achieve or maintain a healthy environment and economy, promote communication and cooperation among federal and provincial agencies, as well as with Aboriginal peoples, and provide opportunities for timely and meaningful public participation.

2.5 <u>Alternative Means of Undertaking the Proposed Project</u>

This section of the Application / EIS will provide a summary of and reference to alternative means of undertaking the proposed Raven Project. This section will address both provincial and federal EA requirements for alternative assessment.

Preparation of this section of the Application / EIS will refer to the document "Operational Policy Statement Addressing "Need for", "Purpose of", "Alternatives to" and "Alternative Means" under the *Canadian Environmental Assessment Act*" (Agency 2007b).

The proponent commits to providing the following in the Application / EIS:

- Description of proposed Raven Project alternatives;
- Summary of key issues in considering the alternative means of undertaking the proposed Raven Project;
- An analysis of the alternative means of carrying out the proposed Raven Project that are technically and economically feasible (including supported justification for why an alternative is or is not economically feasible); and
- The rationale for selecting the preferred alternative, with supporting documentation.

The Application / EIS will describe alternative economically feasible means of undertaking the proposed Raven Project which have been considered throughout planning and design as well as general environmental effects (such as water quality and quantity changes, water flow patterns or land subsidence) associated with the alternatives and the rationale for the selection of preferred alternatives.

This section of the Application / EIS will be conducted in accordance with the guidance presented in Agency (2007b), and will include the following considerations:

- Details of alternative means of carrying out the proposed Raven Project, or its components, and identification of technically and economically feasible alternative means;
- Identification of environmental effects of each alternative means; and
- Identification of the preferred means based on relative consideration of environmental effects and of technical and economic feasibility of the alternative means, as well as identification of alternatives that are unacceptable on the basis of the potential for significant environmental effects.

Alternatives considered for the proposed Raven Project will include the following:

- Mining methods, including alternatives to room-and-pillar mining in order to minimize rock fracturing;
- Mining extent and subsurface layout;
- Reject / waste treatment and management methods, including the feasibility of backfilling waste rock and / or tailings into underground mine workings;
- Arrangement of infrastructure, stockpiles and ponds to minimize the area disturbed;
- Arrangement of mine infrastructure, stockpiles, ponds, and diversion ditches relative to environmental constraints (e.g., relative to non-fish bearing streams, geotechnical investigations, seepage management, and closure options, etc.);
- Alternative mining methods;
- Location or size of adit access points, ventilation shafts, subsurface pillars, etc.;
- Access road alignment and location;
- Transporting coal to the proposed Port Alberni Port Facility by truck or by train or by a combination of the two and route alternatives that include utilizing logging roads from the mine site to Port Alberni, and the proposed Haggard connector connecting Hwy 4 via a new highway route adjacent to Horne Lake;
- Location of the Port Facility;
- Methane management including management for safety purposes and for collection and use as a fuel if planned, or both;

- Water disposal;
- Water management; and
- Power options.

The proponent recognizes the importance of the EA process and consultation in mine planning, particularly in the alternatives assessment. The Application / EIS will describe how public and Aboriginal groups' feedback on alternatives was incorporated throughout the EA process and into the mine design, transportation, port facility and shipping process.

2.6 <u>Proposed Project Land Use</u>

The proposed Raven Project's land, marine, and resource use study areas include private and Crown lands. The proponent will provide a description of the land ownership and land use regime, including tenures, licences, permits or other authorizations that will be potentially affected by the proposed Raven Project. The proponent will report on the status of consultation and issues resolution with the holders of the tenures and permits and private land owners. This land use section will also include a description of:

- The Vancouver Island Summary Management Plan, including a list of management objectives;
- Other official community plans and zoning requirements from local governments including CVRD's regional growth strategy (Bylaw No. 120);
- Relevant existing or proposed management and monitoring programs or regional studies;
- Interactions and relevancy of the proposed Raven Project activities with regional land use objectives, including CVRD's regional growth strategy (Bylaw No. 120);
- Future developments that are reasonably foreseeable and sufficiently certain to proceed as defined in the cumulative effects assessment (CEA); and
- Other developments that may result in overlapping effects with the proposed Raven Project.

2.7 <u>Proposed Project Benefits</u>

Having described the main features of the proposed Raven Project, this section will discuss the importance of the proposed Raven Project in the context of regional, provincial, federal and international economies, by considering the implications of supply and demand on the market. This section will itemize the projected economic and social benefits of the proposed Raven Project, including identifying labour force requirements during construction and operations (direct and indirect jobs). Initial capital construction and life-time operating cost estimates will include:

- Any costs for land, buildings, and equipment associated with the proposed Raven Project;
- The potential for use of local facilities, and information about current utilization of these facilities;
- Estimated annual operating costs (excluding labour);
- An indication of how these costs are measured; and
- Costs for decommissioning, closure, abandonment, and reclamation.

Employment estimates will include:

- Direct employment, stated in number of person years (PY) (defined as a single person employed full-time for one year) created by major job categories (e.g., labour, management, business services) during construction and operations. The estimates would distinguish between full-time, part-time, and seasonal workers;
- Wage levels, by major job category, for the construction and operating periods;
- Breakdown of the number of people that are expected to be hired locally, provincially, nationally, or internationally;
- Potential for the proponent to use local human resources that are currently underutilized;
- Any relevant employment policies and practices, including Aboriginal hiring policies and practices (a local hiring strategy will be provided); and
- Indirect employment (i.e., employment in industries that supply goods and services used to produce an industry's output or to be consumed by individuals) for the construction and operations phases of the proposed Raven Project. Estimates would include any assumptions relating to industry specific multipliers or other multipliers used.

This section will also include estimated direct and indirect government revenues (provincial and local) including:

- Local / municipal (property taxes, other);
- Regional district (taxes, other);
- Provincial (income tax, sales tax, lease, licence and tenure, royalties, other); and
- Federal (income tax, Harmonized Sales Tax (HST), payroll taxes, other).

An economic analysis of mining the available deposits, making use of commercial assumptions, including estimated capital investment, prices and shipping, will be included in

the Application / EIS. All assumptions and information sources will be clearly defined and referenced as appropriate. Contractor supply services will be identified including:

- A description of the major types of businesses / contractors that would benefit overall from the proposed Raven Project, broken down at the local, provincial, and national levels;
- The value of supply of service contracts expected for both the construction and operations phases of the proposed Raven Project; and
- Information about a local purchasing strategy, if any.

The following is a list of resources that will be used in providing the above information:

- BC Stats, Quarterly Regional Statistics http://www.bcstats.gov.bc.ca/pubs/pr_qrs.asp:
 - Quarterly data on Labour Force Survey, manufacturing, building permits, tourism, incorporations and bankruptcies, economic structure, unemployment, income assistance and population;
- BC Stats, BC Input-Output Model http://www.bcstats.gov.bc.ca/pubs/pr_pem.asp:
 - Economic gross domestic product (GDP), employment and government revenue multipliers allow users to quickly gauge the potential impact of industrial development / contraction in the province;
- BC Stats, Current Labour Force Data http://www.bcstats.gov.bc.ca/pubs/pr_lfs.asp:
 - This summary of labour force conditions shows employment and unemployment by age, gender, occupation, and industry, with a breakdown for Development Regions, Metropolitan Vancouver, and Victoria;
- BC Stats, Regional District Data http://www.bcstats.gov.bc.ca/regions.asp:
 - Breakdown of regional statistics by population, economic and social profiles, Aboriginal profiles, and population projections;
- BC Stats, BC Regional Socio-Economic Profiles and Indices http://www.bcstats.gov.bc.ca/data/sep/index.asp:
 - These profiles consist of charts and tables for the 26 regional districts, 86 Local Health Areas (LHAs), 16 Health Service Delivery Areas, five Health Authorities, eight Development Regions, and 15 College Regions within the Province of BC. Also included are the special geographies of the Georgia, Fraser, and Columbia Basins; and
- Statistics Canada (SC) Community Profiles (community-level information from the 2006 Census of Population) - http://www12.statcan.ca/census-recensement/2006/dppd/prof/92-591/index.cfm?Lang=E.

This section will also describe contributions of the proposed Raven Project to healthy living and community development.

2.8 <u>Applicable Permits</u>

The proponent will ensure that a list of all applicable provincial and federal licences, permits and / or approvals required for the construction, operations, and decommissioning of the proposed Raven Project and the associated RA are provided in the Application / EIS.

There is an option to apply for concurrent provincial permits under the *Concurrent Approval Regulation* (Government of BC 2002a) under the *BCEAA*. At this time, the proponent does not intend to apply for concurrent provincial permits. Instead, the proponent intends to develop information for key provincial and federal permits in draft form for review during the EA process.

The primary BC authorization for the development of a mine project is a permit under the provincial Mines Act (Government of BC 1996e). Authorizations may also be required under provincial statutes including, but not limited to, the Land Act (Government of BC 1996d), BC Environmental Management Act (BC EMA) (Government of BC 2003), Health Act (Government of BC 1996b), Water Act (Government of BC 1996f), Forest Act (Government of BC 1996a), Hazardous Waste Regulation (Government of BC 1988), etc. An access permit would be required from the BC Ministry of Transportation and Infrastructure (BC MOTI) to connect to the Inland Island Hwy if existing road access or railway access is not utilized. Other authorizations potentially required from the federal government include: Transport Canada (TC) authorization to allow road site access through crossing rivers and streams under the Navigable Waters Protection Act (NWPA) (Government of Canada 1985c); Natural Resources Canada (NRCan) authorization for use of explosives for mining use under the Explosives Act (Government of Canada 1985a); DFO authorization to potentially alter fisheries habitat; and other possible authorizations from Environment Canada (EC), such as those required under the Species at Risk Act (SARA) (Government of Canada 2002). Water system operating permits and source approval would be required under the Drinking Water Protection Act, as administered by VIHA.

3 ASSESSMENT PROCESS

3.1 <u>Provincial EA Process</u>

In the Application / EIS, the proponent will provide the following information, which was compiled during the pre-Application / EIS stage:

- List of the agencies, departments, and organizations likely to be involved in the review (e.g., BC Ministry of Environment (BC MOE));
- List of applicable milestones;
- A discussion paper of major issues raised by the public during public comment periods and other consultation activities;
- Issues Tracking Tables to document issues and concerns raised, and the degree to which issues are considered resolved or addressed by the proponent and other parties during the preparation of the AIR / EIS Guidelines and the Application / EIS by each of the following groups:
 - o Public;
 - First Nations and Aboriginal groups; and
 - Local, provincial, and federal government agencies.

3.2 <u>Federal Review</u>

The proponent will provide a list of the agencies, departments, and organizations likely to be involved in the review, and their anticipated or confirmed roles and applicable federal milestones. Issues and concerns would be summarized in an Issues Tracking Table (similar to that referred to in Section 3.1), which would also include a description of how these matters would be addressed.

The shipping component of the proposed Raven Project EA will include a description of existing legislation (and environmental regulations) governing ports (*Canada Marine Act* (Government of Canada 1998)) and shipping and its environmental effects in Canadian waters (*Canada Shipping Act, 2001* (Government of Canada 2001); *Canadian Environmental Protection Act, 1999 (CEPA)* (Government of Canada 1999)). A general discussion regarding shipping in international waters will be provided in relation to the International Convention for the Prevention of Pollution from Ships, 1973 (http://www.imo.org), of which Canada is a signatory.

3.2.1 Cooperative Review Process

The Application / EIS would describe the cooperative review process followed for the proposed Raven Project.

3.3 Aboriginal Groups Information Distribution and Consultation

3.3.1 Pre-Application / EIS Consultation

The Application / EIS will provide a summary of consultation activities undertaken with the identified Aboriginal groups potentially affected by the proposed Raven Project. The summary would include the preparation of the AIR / EIS Guidelines. The Application / EIS will also include a summary of past consultation activities and a consultation plan for the Application / EIS review stage of the EA prior to submission of this material. Issues and concerns will be summarized in an Issues Tracking Table (similar to that referred to in Section 3.1), which will also include a discussion paper on how these matters will be addressed.

Aboriginal consultation activities completed to date are further described in Section 15 of this AIR / EIS Guidelines.

3.3.2 Consultation Planned During Application / EIS Review

The proponent will provide a description of consultation programs for First Nation and Aboriginal groups that are proposed for the Application / EIS review stage. The proponent will document the proposed methods and processes which will be used to resolve outstanding issues. This process would include the continuation and expansion of the initiatives discussed above and in Sections 15 and 20. The section 11 Order requires that First Nation and Aboriginal groups be provided with a summary of past consultation activities and a consultation plan for the Application / EIS review stage of the EA prior to submission of this material in the Application / EIS. The proponent must provide the BC EAO and the Agency with any comments received from First Nations in relation to the review of the consultation plan. It is recommended that the proponent provide adequate time for the review and subsequent redrafting of the consultation plan.

3.4 Public and Agency Information Distribution and Consultation

3.4.1 Pre-Application / EIS Consultation

The Application / EIS will include a summary of consultations with the public and other key stakeholders, federal, provincial and local government agencies, including the means of information distribution. The summary may include information about:

- Public meetings and open houses;
- One-on-one meetings with interested parties;
- Publication of articles in the media, enclosures and community newspapers;
- Project updates distributed door to door and published in local newspapers;
- Interviews on local radio and television;
- Community Advisory Group meetings;

- Project information telephone line;
- Correspondence in response to questions from the public;
- Regular email updates to stakeholders;
- Issuing regular news releases and responding to all reporter queries;
- Site tours;
- Website and website updates; and
- Participation in community events.

The Application / EIS will document the strategies that the proponent used in its consultation with, among others, the communities of Courtenay, Comox, Union Bay, Buckley Bay, Fanny Bay, Ship's Point, Cumberland, Denman Island, and Port Alberni.

Issues and concerns will be summarized in an Issues Tracking Table (similar to that referred to in Section 3.1), which would also include a description of how these matters will be addressed, list the party(ies) responsible for addressing matters raised through consultation, and the status of issues (e.g., resolved, pending).

Issues and concerns raised in these various venues of public consultation have been tracked and will be incorporated into mine planning and the EA process, as appropriate. The Application / EIS will identify how issues were tracked and addressed.

3.4.2 Consultation Planned During Application / EIS Review

The proponent will provide a description of the public consultation program proposed for the Application / EIS review stage of the EA process. The description will include the following:

- Description of the proposed program for public consultation;
- Description of the proposed programs for consultation with government agencies; and
- Documentation of the proposed methods and process which would be used to resolve outstanding issues.

Consultation would be scheduled to ensure that results are incorporated in planning and decision processes.