



**PROJECT-SPECIFIC CULTURAL
HERITAGE ASSESSMENT**

APPENDIX A








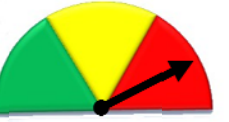


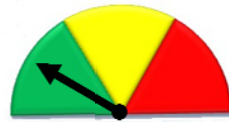







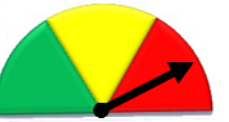

**Fort McKay
Specific Assessment**








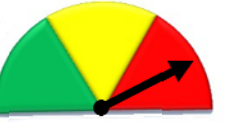












**Fort McKay
Industry Relations Corporation**



























March 2010
































Summary of Cultural Heritage Assessment—Environmental Indicators Gauges for all Scenario/Cases

Industry Stressors (3rd level indicator)	Measuring Change In Stressors (4th Level Indicators)	Green-Yellow-Red Gauge Rating1				
		Pre-Development Scenario	Current Scenario	Base Case	Application Case	Planned Development Case
Stressor: Loss of Land	Land disturbance in Traditional Lands					
Stressor: Loss of Land	Land disturbance in Traplines					
Stressor: Loss of Land	Reclamation					
Stressor: Loss of Land	Protected areas					
Stressor: Loss of Land	Moose habitat and population	 (FTSA, Intense, Moderate, Low Use CSEs)	Note: no Current Scenario – see Base Case	 (FTSA)	 (FTSA)	 (FTSA)
				 (Intense Use CSE)	 (Intense Use CSE)	 (Intense Use CSE)
				 (Moderate and Low use CSE)	 (Moderate and Low Use CSEs)	 (Moderate and Low Use CSEs)

Industry Stressors (3rd level indicator)	Measuring Change In Stressors (4th Level Indicators)	Green-Yellow-Red Gauge Rating1				
		Pre-Development Scenario	Current Scenario	Base Case	Application Case	Planned Development Case
Stressor: Loss of Land	Canada lynx habitat	 (FTSA, Intense, Moderate, Low Use CSEs)	Note: no Current Scenario – see Base Case	 (FTSA)  (Intense Use CSE)  (Moderate and Low use CSE)	 (FTSA)  (Intense and Moderate Use CSE)  (Low Use CSE)	 (FTSA, Intense Use CSE)  (Moderate Use CSE)  (Low Use CSE)
Stressor: Loss of Land	Beaver habitat	 (FTSA, Intense, Moderate, Low Use CSEs)	Note: no Current Scenario – see Base Case	 (FTSA, Intense Use CSE)  (Moderate Use CSE)  (Low Use CSE)	 (FTSA, Intense Use CSE)  (Moderate Use CSE)  (Low Use CSE)	 (FTSA, Intense Use CSE)  (Moderate Use CSE)  (Low Use CSE)

Industry Stressors (3rd level indicator)	Measuring Change In Stressors (4th Level Indicators)	Green-Yellow-Red Gauge Rating ¹				
		Pre-Development Scenario	Current Scenario	Base Case	Application Case	Planned Development Case
Stressor: Loss of Land	Fisher/ marten habitat	 (FTSA, Intense, Moderate, Low Use CSEs)	Note: no Current Scenario – see Base Case	 (FTSA)  (Intense Use CSE)  (Moderate and Low Use CSE)	 (FTSA)  (Intense and Moderate Use CSE)  (Low Use CSE)	 (FTSA, Moderate Use CSE)  (Intense Use CSE)  (Low Use CSE)
Stressor: Loss of Land	Upland Forest	 (upland forests, old growth, timber productive forest, riparian, rare plant potential – moderate and low)	Note: no Current Scenario – see Base Case	 (upland forests, old growth, timber productive forest, riparian, rare plant – moderate, rare plant – low)	 (riparian, rare plant potential – low)  (upland forests, old growth, timber productive forest, rare plant potential – moderate)	 (upland forests, old growth, timber productive forest, rare plant potential – low)  (rare plant potential – moderate)
Stressor: Loss of Land	Wetlands (Muskeg)	 (wetlands, peatlands, old growth associated wetlands, timber productive forest associated wetlands, riparian wetlands, rare plant potential – high and moderate)	Note: no Current Scenario – see Base Case	 (wetlands, peatlands, old growth associated wetlands, timber productive forest associated wetlands, riparian wetlands, rare plant potential – high and moderate)	 (wetlands, peatlands, old growth associated wetlands, timber productive forest associated wetlands, riparian wetlands, rare plant potential – high and moderate)	 (wetlands, peatlands, old growth associated wetlands, riparian wetlands, rare plant potential – high and moderate)

Industry Stressors (3rd level indicator)	Measuring Change In Stressors (4th Level Indicators)	Green-Yellow-Red Gauge Rating1				
		Pre-Development Scenario	Current Scenario	Base Case	Application Case	Planned Development Case
Stressor: Loss of Land	Traditional Plants	 (Traditional plant potential, Berry sites)	Note: no Current Scenario – see Base Case	 (traditional plant potential – moderate, berry sites)  (traditional plant potential – high)	 (traditional plant potential – moderate and high, berry sites)	 (traditional plant potential – moderate and high, berry sites)
Stressor: Loss of Land	Biodiversity		Note: no Current Scenario – see Base Case	 (high and moderate biodiversity potential)  (landscape heterogeneity - wetland cover class)  (landscape heterogeneity - terrestrial cover class)	 (high, moderate and low biodiversity potential, landscape heterogeneity - wetland and terrestrial cover classes)	 (high, moderate and low biodiversity potential, landscape heterogeneity - wetland and terrestrial cover classes)
Stressor: Pollution	Air quality parameters – SO2					
Stressor: Pollution	Air quality parameters – Nitrogen Oxides (NOx)					
Stressor: Pollution	Air Quality – Particulate Matter (PM2.5)					

Industry Stressors (3rd level indicator)	Measuring Change In Stressors (4th Level Indicators)	Green-Yellow-Red Gauge Rating1				
		Pre-Development Scenario	Current Scenario	Base Case	Application Case	Planned Development Case
Stressor: Pollution	Odours					
Stressor: Pollution	Air emission effects on vegetation		 (SO ₂ , Ozone, and PAI - minimal issues, effects very local in nature)  (ozone)  (NO _x)  (nitrogen deposition)  (NH ₃)	 (SO ₂ & PAI)  (ozone)  (NO _x)  (nitrogen deposition)  (NH ₃)	 (SO ₂ & PAI)  (ozone)  (NO _x)  (nitrogen deposition)  (NH ₃)	 (SO ₂ & PAI)  (ozone)  (NO _x)  (nitrogen deposition)  (NH ₃)
Stressor: Industrial Water Use	Athabasca River					

Industry Stressors (3rd level indicator)	Measuring Change In Stressors (4th Level Indicators)	Green-Yellow-Red Gauge Rating ¹				
		Pre-Development Scenario	Current Scenario	Base Case	Application Case	Planned Development Case
Stressor: Industrial Water Use	Watershed Disturbance		 (Muskeg River)	 (Muskeg River)	 (Muskeg River)	 (Muskeg River)
			 (Pierre River)	 (Pierre River)	 (Pierre River)	 (Pierre River)
			 (McLean Creek Beaver, Tar and Calumet River watersheds)	 (McLean Creek Beaver, Tar and Calumet River watersheds)	 (McLean Creek Beaver, Tar and Calumet River watersheds)	 (McLean Creek Beaver, Tar and Calumet River watersheds)
Stressor: Industrial Water Use	Groundwater					
Stressor: Access to Land	Traditional Trails		Note: no Current Scenario – see Base Case			
Stressor: Access to Land	Linear disturbance					
Stressor: Increased Population	Regional Population Trends					

¹ The assessment of significance and the meaning of green, yellow and red varies slightly between components. In general: **green** = significant adverse effect unlikely, **yellow** = possible significant adverse effect and **red** = significant adverse effect. Substantial knowledge gaps or uncertainty regarding the assessment of specific indicator was rated in the yellow or red category depending on the situation. The assessment criteria that indicate when a rating moves from green to yellow to red are specific for each component. These are summarized in [Appendix B](#) of this Project-Specific Assessment and described in detail in each component section of the Fort McKay Environmental Specific Assessment [Fort McKay IRC 2010a; [Section 2 – Air Quality](#) (SO₂, NOX, PM_{2.5}, odours, air emission effects on vegetation), [Section 3 – Groundwater](#), [Section 4 – Surface Water](#) (watershed disturbance, Athabasca River), [Section 5 – Water Quality and Fish Resources](#), [Section 6 – Wildlife](#) (moose, Canada lynx, fisher/marten, beaver), [Section 7 – Vegetation](#) (uplands, wetlands, traditional plants), [Section 8 – Biodiversity](#), [Section 9 – Disturbance and Access Implications for Traditional Use](#) (traditional lands disturbance, trapline disturbance, watershed disturbance, traditional trails, linear disturbance, regional population trends), [Section 10 – Reclamation](#)]