



March 26, 2014

TAZI TWÉ HYDROELECTRIC PROJECT

ADDENDUM I - ENVIRONMENTAL IMPACT STATEMENT

Submitted to:

Canadian Environmental Assessment Agency #425, 10115 - 100A Street Edmonton, AB T5J 2W2

Saskatchewan Ministry of Environment Environmental Assessment Branch 4th Floor -3211 Albert Street Regina, SK S4S 5W6

Report Number: 10-1365-0004/DCN-266



March 26, 2014

Ms. Mai-Linh Huynh, Project Manager Canadian Environmental Assessment Agency CDI Building 425, 10115 – 100 A Street Edmonton, Alberta T5J 2W2

Subject: Response to the Canadian Environmental Assessment Agency Conformity Review of the

Tazi Twé Hydroelectric Project Environmental Impact Statement (Addendum I)

SaskPower and the Black Lake First Nation (together form the Proponent) have received the conformity review comments regarding the Tazi Twé Hydroelectric Project (the Project) completed by the Canadian Environmental Assessment Agency (the Agency). The Agency identified eight deficiencies in the Environmental Impact Statement (EIS) when reviewed against the EIS guidelines for the Project. It is acknowledged that the Agency considers the EIS deficient, and cannot proceed to technical review until the deficiencies are addressed. The following provides the Proponents response to each deficiency.

8.0 Alternative Means of Carrying out the Project, page 13

Identify the effects of each alternative means including both environmental effects and potential adverse impacts on potential or established Aboriginal and Treaty rights and related interests.

Response

Alternative means of carrying out the Project are described in section 4.2 of the EIS. A supplementary table is provided below (Table 1.0) that briefly describes each alternative, the potential environmental/socio-economic effects, the environmental, social, and economic considerations used to evaluate each alternative, the preferred alternative selected for the Project, and the potential adverse effects on potential or established Aboriginal and Treaty rights (e.g., traditional land and resource use, hunting, trapping, and fishing). Section 9.2 of the EIS Guidelines provided by the Agency identifies several Aboriginal communities for consideration in the assessment whose potential or established Aboriginal or Treaty Rights may be affected by the project, including Black Lake Denesuliné First Nation (BLFN), Hatchet Lake Denesuliné First Nation (HLFN), Fond du Lac Denesuliné First Nation (FdLFN), Métis Nation Saskatchewan Northern Region I, (specifically Stony Rapids Métis Local #80 [ML80], Uranium City Métis Local #50 [ML50], and Camsell Portage Métis Local #79 [ML79]).

The preferred option for each component is also identified in Table 1.0. Only the preferred option for each component was carried through the environmental assessment. None of the preferred options are predicted to have significant adverse environmental effects on environmental or social valued components (VCs). Consequently, significant adverse effects on Aboriginal and Treaty Rights are not expected. Details on the mitigation and environmental design features that will be put in place to reduce or eliminate potential effects of the preferred option for each component are described further in the environmental assessment for each valued component.

Table 1.0:	Alternative Means of Carrying Out the Project

Component	Alternative Means of Carrying Out the Project Alternatives Considered	Potential Environmental / Socio-economic Effects	Environmental, Social, and Economic Considerations	Preferred Alternative	Potential Effects on Aboriginal and Treaty Rights
Water Intake	 Placing the water intake near the surface of Black Lake (i.e., surface to 5 m depth). Placing the water intake at greater depths within Black Lake (i.e., greater than 2 to 5 m depth). 	 Direct loss or alteration of fish habitat from the Project footprint or activities can affect fish. Water withdrawal from Black Lake for power generation may impinge or entrain fish, resulting in fish injury or mortality, which can affect fish populations. Changes to traditional and domestic resource use resulting from changes to fish and fish habitat. Changes to access and navigation resulting from the creation of the water intake on Black Lake. 	 Select a water intake location away from sensitive fish habitat (i.e., areas where fish may congregate to spawn). Size the water intake opening so that water velocities in the approach channel are below burst speeds of resident fish, thereby promoting avoidance behavior. Fitting the water intake opening with an "exclusion bar rack" to reduce the potential for fish entrainment by presenting a visual barrier. Configuring the water intake structure so that the soffit (ceiling) of the intake passage will be set low enough to prevent entrainment of air into the power tunnel and subsequently reduce the potential for gas bubble trauma in entrained fish. Selecting a size and shape for the water intake that maintains water intake flow water temperatures similar to those of natural outflows at the Black Lake outlet. Selecting a size and shape for the water intake that limits the flow velocities in the water intake channel and at the trashracks to reduce vibration and limit potential for fish impinging on the trashracks. 	 Construction of a shallow intake near the surface of Black Lake was preferred because it is expected to keep water temperatures through the tunnel and tailrace similar to those found in the Fond du Lac River. The shallow intake is expected to reduce the entrainment of deep-water fish species such as lake trout (Salvelinus namaycush) and cisco (Coregonus sp.). 	 Selection of an alternative that would result in the loss of sensitive fish habitat or increased risk of fish mortality would increase the potential effect on Aboriginal and Treaty Rights. The preferred option is not anticipated to result in significant adverse environmental effects; therefore, there are no predicted significant adverse effects to Aboriginal and Treaty Rights. This applies to BLFN, FdLFN, HLFN, ML80, ML79, and ML50.
Power Tunnel and Surge Facility	 Tunnel alignments connecting to the powerhouse and water intake continue to be reviewed, with power tunnel lengths ranging from 2.65 to 3.3 km. Three options were considered for the method of power tunnel construction. These included an 11 m wide by 10 m high horseshoe shaped (∩) cross-section excavated by drilling and blasting, a circular tunnel excavated by a tunnel-boring machine, and an excavated tunnel with a concrete lining. An inclined tunnel that branches off the power tunnel and daylights at an elevation above the level of Black Lake to accommodate pressure variations in the tunnel. An alternate design option that is being considered uses a raised bore vertical shaft excavated in the rock to the surface, above the level of Black Lake. 	 Withdrawal, diversion, and discharge of water for power generation may change hydrology, which can affect fish habitat. Overburden excavation requires side slopes of up to 5H:1V which results in an increase in footprint size as the depth of overburden increases and additional volume of material that must be disposed. Longer tunnels result in greater volume of excavated rock that must be disposed. 	 The shorter alignment of 2.65 km was eliminated due to the presence of a valley with 20 m or more of overburden along the alignment. A longer tunnel results in a shorter tailrace channel which overall reduces the volume of excavated rock. A longer tunnel alignment was selected to avoid the valley with up to 20 m of overburden resulting in a smaller visible footprint. An inclined adit would provide access to remove rock from the tunnel during construction. A surge facility/adit will be incorporated into the Project water conveyance system to control hydraulic transient pressures. The economic and social concerns for each option are similar. 	 The preferred preliminary power tunnel arrangement consists of a 2.95 km long tunnel with a horseshoe shaped cross-section and a minimum rock cover of 30 m in thickness over the tunnel. The preferred preliminary tunnel alignment of 2.95 m minimizes the overall quantity of excavated material (rock and overburden) that must be disposed. It is anticipated that the tunnel will be constructed using the drill-and-blast method. 	■ The preferred option is not anticipated to result in significant adverse environmental effects; therefore, there are no predicted significant adverse effects to Aboriginal and Treaty Rights. This applies to BLFN, FdLFN, HLFN, ML80, ML79, and ML50.

Table 1.0: Alternative Means of Carrying Out the Project (continued)

Component	Alternatives Considered	Potential Environmental / Socio-economic Effects	Environmental, Social, and Economic Considerations	Preferred Alternative	Potential Effects on Aboriginal and Treaty Rights
Power Generating Capacity	 Generating capacities ranging from 42 to 50 MW were considered for the Project. Two to four turbine generating units are being considered. 	Withdrawal, diversion, and discharge of water for power generation may change hydrology, which can affect fish habitat.	 To produce 42 MW of power, a flow of 160 m³/s typically would pass through the power plant, and the remaining 144 m³/s (on average) would pass through the natural Black Lake outlet into the Fond du Lac River. For the 50 MW power generation alternative, a flow of up to 190 m³/s would normally pass through the power plant, with the remaining 114 m³/s (on average) passing into the Fond du Lac River through the existing Black Lake outlet. A multiple unit generating plant was selected because it provides more flexibility in operation, and scheduling of maintenance outages are easier compared to a single unit power plant. A single unit plant could cost less to construct; however, a multiple unit plant results in less energy loss due to forced and planned outages, along with providing better efficiency and control at lower flow rates. In addition, equipment components are smaller and easier to handle. 	 The preferred generating capacity of the Project is anticipated to be in the order of 50 MW (up to 190 m³/s discharge rate). This generating capacity was selected based on an optimized balance of installed cost and energy production, and with consideration of maintaining minimum riparian flows in the Fond du Lac River. 	 A power generating capacity that does not maintain minimum riparian flows in the Fond du Lac River may have increased the potential for effects to fish habitat. A reduction in fish habitat may lead to potential affects to Aboriginal and Treaty Rights to fish. The preferred option is not anticipated to result in significant adverse environmental effects; therefore, there are no predicted significant adverse effects to Aboriginal and Treaty Rights. This applies to BLFN, FdLFN, HLFN, ML80, ML79, and ML50.
Turbine Selection	 Kaplan style turbine Francis style turbine 	 Turbine use may impinge or entrain fish, resulting in fish injury or mortality, which can affect fish populations. Changes to traditional and domestic resource use resulting from changes to vegetation, wildlife and wildlife habitat, and fish and fish habitat. 	 The blades of the Kaplan-type turbine runner can be adjusted to accommodate variations in water flow and thereby maintain efficiency over a wider range of operating conditions (Paish 2002). Francis turbines become very inefficient when flows drop below 50 percent (%) of normal (Paish 2002). This may have implications for fish injury and mortality, which are generally lowest when facilities are operating at maximum efficiency (CEA 2001). The capital and maintenance costs are generally lower for Francis turbines. Shear stress, which may be highly injurious to entrained fish, cannot be mitigated in a Francis turbine where the blades are fixed. Spacing between fixed (e.g., a wicket gate) and rotating (i.e., runner) parts in a Francis turbine has also been implicated in greater incidence of grinding and abrasion injuries in fish (Odeh 1999). The numbers of blades and blade spacing associated with Kaplan versus Francis turbines is thought to influence injury and mortality rates of passed fish. Fish mortality rates reported for Kaplan turbines are generally lower than those reported for Francis turbines. 	 Final turbine selection was based on an evaluation of equipment performance (i.e., efficiency and output), equipment costs, and civil costs associated with the equipment, as well as potential implications to fish species. Kaplan style turbines are selected for the Project as they are considered more fish-friendly of the two turbine types. 	 Selection of a turbine with higher potential for fish injury and mortality could increase the potential to affect fish populations; this in turn could affect potential Aboriginal and Treaty Rights to fish. The preferred option is not anticipated to result in significant adverse environmental effects; therefore, there are no predicted significant adverse effects to Aboriginal and Treaty Rights. This applies to BLFN, FdLFN, HLFN, ML80, ML79, and ML50.

Table 1.0: Alternative Means of Carrying Out the Project (continued)

Component	Alternatives Considered	Potential Environmental / Socio-economic Effects	Environmental, Social, and Economic Considerations	Preferred Alternative	Potential Effects on Aboriginal and Treaty Rights
Tailrace Channel	 For an installed capacity of approximately 50 MW and full plant discharge of up to 190 m³/s, the optimum tailrace channel cross-section was determined to require a width of 25 m and a flow depth of 5.5 m resulting in an average flow velocity of 1.4 metres per second (m/s). The cross section and length of the tailrace channel has yet to be finalized; the length in the currently preferred design is approximately 800 m, with a potential range of 600 to 1,100 m, with the shorter length preferred. Several options were considered for the location and shape of the tailrace channel outlet. 	 The tailrace channel alignment and outlet may change water flows and may alter fish spawning habitat which can affect fish populations. Site infrastructure (e.g., tailrace channel) could restrict wildlife movement and increase risk of mortality from predation, which can affect wildlife. Changes to traditional and domestic resource use resulting from changes to vegetation, wildlife and wildlife habitat, and fish and fish habitat. Changes to access and navigation resulting from the creation of the tailrace. 	 The size of the tailrace channel has been designed to limit head loss, while considering the overall excavation cost. The final channel width will be selected to reduce the excavated volume and footprint at the site. For the intermediate length (2.95 km) power tunnel, the tailrace location would shift to the east, while maintaining the discharge exit point at the Fond du Lac River. Tailrace excavation on this alignment would be primarily through the bedrock, with minimal overburden excavation, and a reduction in tailrace excavation (by approximately 50% overall), to reduce effects on the terrestrial environment. The tailrace channel will be fenced to prevent wildlife from entering this area and falling into the tailrace channel. The east side of the river where the tailrace is located is very difficult terrain to cross (e.g., rock, muskeg, and deadfall) and is not typically used by the community. The vast majority of activity through the bush occurs on the west side of the river where the terrain is much easier to cross. The tailrace channel outlet has been located upstream of critical fish spawning habitat near the Fond du Lac River outflow into Middle Lake to maintain minimum required flows at this location. The tailrace channel outlet will be flared out so the water blends smoothly with the Fond du Lac River and avoids disruption to the dominant flow direction. The alignment and design will be selected to limit adverse effects of changed flows on the spawning channel located downstream. 	and length will occur in conjunction with optimizing	 Selection of a longer tailrace would require additional disposal of waste rock on the surface (e.g., terrestrial disturbance, larger Project footprint); therefore increasing the potential for effects to Aboriginal and Treaty Rights. The preferred option is not anticipated to result in significant adverse environmental effects; therefore, there are no predicted significant adverse effects to Aboriginal and Treaty Rights. This applies to BLFN, FdLFN, HLFN, ML80, ML79, and ML50.
Submerged Weir at the Black Lake Outlet	 To maintain historical water levels in Black Lake following construction of the generating station, the flow through the natural outlet of Black Lake will be restricted by the construction of a submerged weir. A gated concrete control structure was considered as an alternative to the submerged weir. This structure would be constructed as a combination of 	 Installation of the submerged weir in the Fond du Lac River may block or delay movements of migratory fish species, which can affect fish populations. Changes to traditional and domestic resource use resulting from changes to fish and fish habitat. Changes to access and navigation resulting from the creation of the 	 A gated control structure has the ability to manipulate flows in the Fond du Lac River to meet minimum riparian flow requirements, especially during spawning periods or during droughts when the natural outflows are low. The submerged weir would have limited visibility compared to the concrete control structure, which would have piers, gates, and hoists projecting above the structure, altering the appearance of the natural environment at the lake outlet. The weir also has the advantage of reducing the in water works during construction as opposed to a concrete structure that would require construction of a cofferdam. 	 The submerged weir was selected as the preferred option. The submerged weir is designed to allow for the passage of fish and for navigational purposes if wanted. 	■ The preferred option is not anticipated to result in significant adverse environmental effects; therefore, there are no predicted significant adverse effects to Aboriginal and Treaty Rights. This applies to BLFN, FdLFN, HLFN, ML80, ML79, and ML50.

 Table 1.0:
 Alternative Means of Carrying Out the Project (continued)

Component	Alternatives Considered	Potential Environmental / Socio-economic Effects	Environmental, Social, and Economic Considerations Preferred	Potential Effects on Aboriginal and Treaty Rights
		 Road alignment options were presented to the BLFN and local community during public engagement meetings held on April 9, 2013. The input received at these meetings indicated a preference for an entirely new access route rather than following, and potentially affecting, any existing access routes. Additional input indicated preference for a straight-line 		
			alignment while avoiding sensitive habitats, as much as possible.	
		Discrete la consulta continua a cont	Alignment A is near residential and cultural facilities, would require crossing a known fish-bearing stream, and requires traffic to use a greater portion of Highway 905.	
Access Roads	 Direct loss or alteration, and fragmentation of vegetation from the Project footprint (e.g., access roads). Direct loss and fragmentation of wildlife habitat from the Project footprint (e.g., access roads) can affect wildlife abundance. Ground disturbance can alter or destroy heritage resources. Changes to traditional and domestic resource use resulting from changes to vegetation, and wildlife habitat. Changes to access and navigation resulting from the creation of access roads. 	 Alignment B had similar disadvantages as Alignment A and would involve crossing rough terrain, which would increase construction costs. 	Selection of an access road option that crossed sensitive wildlife habitat, and/or heritage resources	
		wildlife habitat from the Project footprint (e.g., access roads) can affect wildlife abundance. Ground disturbance can alter or	because community members expressed concern that the route crosses an esker with high notential to have listed. Alignment preferred by	ty of Black Lake and Treaty Rights.
		Alignment C is along an existing road, but the route cannot technically		
		Placement of Project access roads and infrastructure considered inputs for public involvement activities and avoids areas of importance to the communities, including the location of cultural camps while improving long-term access to the sites.		
		er de ■ A or	 Access roads will be removed and recontoured and engagement with local communities will be completed to determine the timing for the removal of access roads. 	
			A discussion will be held with the local community about the ongoing use and maintenance of the access roads at the time of Project closure.	

Table 1.0: Alternative Means of Carrying Out the Project (continued)

Component	Alternatives Considered	Potential Environmental / Socio-economic Effects	Environmental, Social, and Economic Considerations	Preferred Alternative	Potential Effects on Aboriginal and Treaty Rights
Bridge Location	■ Locating the bridge across the Fond du Lac River, downstream of Grayling Island or parallel to the axis of the proposed weir.	 Construction of the bridge abutments may affect existing heritage sites on the river banks. Changes to access and navigation resulting from the creation of bridges. 	 Both locations were similar in cost and technically feasible. Based on engagement with the BLFN, the preferred bridge site is located approximately 2 to 3 km downstream of Grayling Island; at a point where the width of the river is relatively narrow. The preferred location of the bridge over the Fond du Lac River avoids interference with possible heritage trails or historical sites near the bridge abutments on the riverbanks. The community expressed concern that the location parallel to the axis of the proposed weir was not preferred. 	■ The preferred location of the bridge across the Fond du Lac River is 2 to 3 km downstream of Grayling Island.	 Selection of the bridge location parallel to the axis of the proposed weir may potentially conflict with existing heritage trails and heritage sites. This could affect traditional land and resource use in the future, resulting in a potential affect to Aboriginal and Treaty Rights. The preferred location is not anticipated to result in significant adverse environmental effects; therefore, there are no predicted significant adverse effects to Aboriginal and Treaty Rights. This applies to BLFN, FdLFN, HLFN, ML80, ML79, and ML50.
Borrow Areas	 Two main sites are under consideration for granular borrow sources, an existing source which is located 0.6 km from Camp Grayling and an unproven source which is located west of the preferred bridge location. A third potential site northeast of the proposed construction camp could provide suitable materials pending further evaluation of available quantities. There could be an opportunity to crush the excavated rock from the powerhouse and tailrace channel to process concrete aggregate. 	 Direct loss or alteration, and fragmentation of vegetation from the Project footprint (e.g., borrow areas). Direct loss and fragmentation of habitat from the Project footprint (e.g., borrow areas) can affect wildlife abundance. Changes to traditional and domestic resource use resulting from changes to vegetation and wildlife and wildlife habitat. 	 Criteria used for determining the preferred location of borrow areas for the Project includes aggregate suitability, available volume of aggregate, and haul distance. If potential locations have similar quality and quantity of aggregate, then the location closest to the site would likely be used. Additional surface and subsurface exploration, including access road construction, test excavations, and materials testing would be required to establish the suitability of the two optional borrow materials sites. The existing granular borrow pit source is approximately 600 m north of Camp Grayling on Chicken Reserve 224 with an esker deposit separating the construction camp and the borrow pit. This existing developed borrow pit source has provided the concrete aggregate for most of the concrete poured in the communities of Black Lake and Stony Rapids and as a result the material properties are known. Placement of Project access roads and infrastructure considered inputs for public involvement activities and avoids areas of importance to the communities, including the location of cultural camps while improving long-term access to the sites. The construction haul route from the borrow pit source to the Project site would be to the north to avoid travel past Camp Grayling. Use of the existing borrow pit source reduces the amount of new surface disturbance and the esker will act as a natural sound and aesthetic barrier. The option to crush the excavated rock from the powerhouse and tailrace channel will be evaluated for cost and suitability after the excavated rock is characterized. If the rock is suitable and cost effective, this option could reduce the amount of material removed and number of haul trips made from the existing borrow pit source. 		 Selection and development of a borrow source that doesn't already exist would result in new surface disturbance; this may increase the potential for adverse environmental effects to vegetation and wildlife and; therefore, the potential for effects on Aboriginal and Treaty Rights. The preferred option is not anticipated to result in significant adverse environmental effects; therefore, there are no predicted significant adverse effects to Aboriginal and Treaty Rights. This applies to BLFN, FdLFN, HLFN, ML80, ML79, and ML50.

 Table 1.0:
 Alternative Means of Carrying Out the Project (continued)

Component	Alternatives Considered	Potential Environmental / Socio-economic Effects	Environmental, Social, and Economic Considerations	Preferred Alternative	Potential Effects on Aboriginal and Treaty Rights
Waste Rock Disposal Areas	Several locations were considered as disposal areas for these materials.	 Seepage from waste rock disposal areas can alter surface water and sediment quality, which can affect fish and fish habitat. Direct loss or alteration, and fragmentation of vegetation from the Project footprint (e.g., waste rock disposal areas). Direct loss and fragmentation of wildlife habitat from the Project footprint (e.g., waste rock disposal areas) can affect wildlife abundance. Changes to traditional and domestic resource use resulting from changes to vegetation, wildlife and wildlife habitat, and fish and fish habitat. 	 Engineering factors considered for determining the disposal locations of the waste rock included: proximity to the main access roads; potential ability to accommodate disposal of the excavated waste rock; suitable topographical features; and the ability to perform short (i.e., during construction) and long-term environmental monitoring. During community engagement activities, residents of the BLFN stated that they would prefer to see waste rock disposal areas with a lower profile spread over a greater area, rather than smaller and taller waste rock disposal areas that would likely be more visible. Overall, there was a preference for the waste rock disposal areas to be located north of Project facilities on the east side of the Fond du Lac River, as this area is not widely used for resource use. There was agreement in the community that people did not prefer the waste rock disposal areas to be near Black Lake, Middle Lake, the Fond du Lac River, or any associated drainage (e.g., creeks and streams). Placement of Project access roads and infrastructure considered inputs for public involvement activities and avoids areas of importance to the communities, including the location of cultural camps while improving long-term access to the sites. Excavated material will be stored away from watercourses or lakes. Excavated rock and aggregate materials will be tested to confirm that this material will not have negative effects on the surrounding environment. Specific mitigation measures will be applied if the material is identified to be acid generating, or containing elevated levels of metals or radionuclides. 	■ While preliminary locations have been identified within the Project footprint, waste rock disposal area locations, and volumes will be refined as the Project design is finalized.	■ The locations of the waste rock disposal area are not anticipated to result in significant adverse environmental effects; therefore, there are no predicted significant adverse effects to Aboriginal and Treaty Rights. This applies to BLFN, FdLFN, HLFN, ML80, ML79, and ML50.
Construction Camp Facilities and Contractor's Work Areas	Because of the timing for the construction of bridge access to the east side, the construction camp, and main contractor's work area will be located on the west side of the river, although a decision has not been made on the exact location.	 Direct loss or alteration, and fragmentation of vegetation from the Project footprint (e.g., camp facilities and work areas). Direct loss and fragmentation of wildlife habitat from the Project footprint (e.g., camp facilities and work areas) can affect wildlife abundance. Changes to traditional and domestic resource use resulting from changes to vegetation, and wildlife and wildlife habitat. 	 The proposed locations for the construction camp were selected based on the plans for construction and input from the community of Black Lake. The final locations of the construction camp and contractor's work areas will be determined based on technical criteria such as preliminary estimates of required areas, limiting haul distances to the various construction locations, and the anticipated locations of the permanent access road and bridge. Community input on locations for the construction camp facilities and contractor work areas was sought through community meetings and workshops. The ecological criterion considered in locating these components will be limiting the adverse effects on the terrestrial environment. 	■ The alternative locations for the construction camp and contractor's work areas will be within the maximum area of potential disturbance.	The location options are not anticipated to result in significant adverse environmental effects; therefore, there are no predicted significant adverse effects to Aboriginal and Treaty Rights. This applies to BLFN, FdLFN, HLFN, ML80, ML79, and ML50.

Table 1.0: Alternative Means of Carrying Out the Project (continued)

Component	Alternatives Considered	Potential Environmental / Socio-economic Effects	Environmental, Social, and Economic Considerations	Preferred Alternative	Potential Effects on Aboriginal and Treaty Rights
Sewage Treatment and Potable Water Facilities	 During construction, portable toilet facilities and holding tanks will be provided at various locations on the Project site and indoor plumbing will be provided at the construction camp. Waste will go to sewage holding tanks, which will be emptied regularly and hauled to the Black Lake sewage lagoon. An alternative considered consisted of treating sewage on-site using a self-contained treatment facility. One alternative considered for sourcing the potable water required for the construction and operation of the Project was from the communities of Black Lake or Stony Rapids. Potable water for construction and operations is expected to be sourced from one or more new wells located near the camp. Draw surface water from Black Lake or Fond du Lac River. 	 Discharge of sewage and grey water can alter surface water and sediment quality, which can affect fish and fish habitat. Water withdrawal for domestic (e.g., potable water) and industrial (e.g., dust suppression) purposes can change hydrology, which can affect fish and fish habitat. Impingement or entrainment of fish in water intake pumps used for domestic and industrial purposes can result in injury or mortality, which can affect fish populations. 	 The alternative of treating sewage on-site was rejected because of concerns about reactions from downstream communities (i.e., Stony Rapids and Fond du Lac) that would receive the treated sewage. The water treatment facility in the Northern Hamlet of Stony Rapids is sufficient for the community, but it does not have the capacity to supply drinking water for the construction camp; there are no current plans to upgrade the capacity of the system. It is unknown if the BLFN water treatment system would have enough capacity to supply potable water for the community of Black Lake and the Project. The BLFN is in the process of designing an upgrade to the system and, depending on when the upgrade is completed, might be able to provide potable water to the construction camp in the future. Drilling one or more new wells near the camp may not be technically or economically feasible. If the wells are not feasible, the water potentially could be drawn from Black Lake or the Fond du Lac River. If surface water were used as a source, the pump intakes would be screened to prevent entrainment of fish in accordance with the "Freshwater Intake End-of-Pipe Fish Screen Guideline" (DFO 1995). 	 The preferred alternative for sewage treatment is to collect sewage in holding tanks that will be emptied regularly and hauled to the Black Lake Sewage Lagoon. The preferred alternative for potable water is to drill one or more new wells located near the camp. 	■ The preferred options are not anticipated to result in significant adverse environmental effects; therefore, there are no predicted significant adverse effects to Aboriginal and Treaty Rights. This applies to BLFN, FdLFN, HLFN, ML80, ML79, and ML50.

CEA (Canadian Electricity Association). 2001. Considering Fish and Fish Habitat in Existing Hydroelectric Operations and Maintenance: Electricity Industry Practices. 74 p.

DFO (Fisheries and Oceans Canada). 1995. Freshwater End-of-Pipe Fish Screen Guidelines. Communications Directorate, Department of Fisheries and Oceans.

Odeh, M. 1999. A summary of environmentally friendly turbine design concepts. DOE/ID-13741. Prepared for the United States Department of Energy (US DOE), Idaho Operations Office, Idaho Falls, Idaho. Paish, O. 2002. Small hydro power: technology and current status. Renew. Sust. Energ. Rev. 6: 537-556.

m = metre; Black First Nation = BLFN; Fond du Lac First Nation = FdLFN; Hatchet Lake First Nation = HLFN; Metis Local 80 Stony Rapids = ML80; Metis Local 50 Uranium City = ML50; Metis Local Camsell Portage 79 = ML79; km = kilometre; MW = megawatts; m³/s = cubic metres per second; % = percent; BLFN = Black Lake First Nation

9.1.2 Biophysical Environment, Atmospheric Environment and Climate, page 15

The EIS will describe the existing ambient light levels at the project site and at any other areas where project activities could have an effect on light levels.

Response

The Project is located in an area of northern Saskatchewan with a low population density and no industrial developments. The closest communities are Black Lake First Nation and Stony Rapids which are 7 and 25 kilometres (km) away, respectively. The ambient light at the Project location is representative of natural sources throughout the year (e.g., sun, moon, stars). Additional lighting will be required within the immediate vicinity of the Project, which will alter the current ambient light levels. Mitigation will be put in place to limit light emissions beyond work areas.

9.2 Potential or established Aboriginal or Treaty Rights and Related Interests, page 24

The EIS will include for each Aboriginal group [named on page 23 and 24] background information and a map of the group's traditional territory; information on each group's potential or established rights (including geographical extent, nature, frequency, timing), including maps and data sets (e.g., fish catch numbers) when this information is provided by a group to the proponent.

Response

Section 9.2 of the EIS Guidelines identifies several Aboriginal communities for consideration in the assessment, including Black Lake Denesuliné First Nation, Hatchet Lake Denesuliné First Nation, Fond du Lac Denesuliné First Nation, Métis Nation Saskatchewan Northern Region I, (specifically Stony Rapids Métis Local #80, Uranium City Métis Local #50, and Camsell Portage Métis Local #79). For the purposes of the assessment (see Section 17.0 of the EIS), potential Project related changes to land and resource use, including those activities identified as Aboriginal or Treaty Rights (e.g., hunting, trapping, and fishing) were evaluated in the Local Study Area (LSA) and Regional Study Area (RSA). The LSA extends between the communities of Black Lake and Stony Rapids, as well as consideration of activities along the Fond du Lac River between the water body of Black Lake and Stony Rapids. The RSA includes the Athabasca region, inclusive of all those communities identified in Section 9.2 of the EIS Guidelines.

The population of the RSA is predominately aboriginal; as such, the assessment of effects to people inherently considers those groups identified in Section 9.2 of the EIS Guidelines. The traditional and contemporary land and resource use by Aboriginal people in the vicinity of the Project is described in Section 17.0 of the EIS, and further details are provided in Annex VI. Potential or established Aboriginal or Treaty Rights may include land and resource use within traditional territories, including activities such as hunting, trapping and fishing. Figures showing the extent of the land and resources use of the Black Lake First Nation are shown in Section 17.3 (Figures 17.3-1; 17.3-2) of the EIS. The area surrounding the Chicken Indian Reserve No. 224 is provincial crown land and accessible to all aboriginal people for the pursuit of traditional and cultural activities. While no other First Nations Reserves will be directly affected, the Project's potential effects may extend outside of reserve land, and may affect the traditional territory, and therefore, the potential or established Aboriginal or Treaty Rights of the following communities:

- Fond du Lac Denesuliné First Nation;
- Hatchet lake Denesuliné First Nation;
- Métis Nation Saskatchewan Camsell Portage Local 79;
- Métis Nation Saskatchewan Stony Rapids Local 80; and

Métis Nation Saskatchewan Uranium City Local 50.

Maps of the traditional territories of those groups requested in Section 9.2 of the EIS Guidelines were not provided by these groups during the course of the public involvement program or during the process of data collection specific to land and resource use. To the extent of the proponent's knowledge, community specific traditional territory mapping is not publically available.

Some land use mapping information is publically available through the Athabasca Land Use Planning Interim Advisory Panel (ALUPIAP) (2003), which was considered in the baseline studies (see Annex VI, Section 4.1). The interim land use report from this process is inclusive of the people of Black Lake, Fond-du-Lac, Camsell Portage, Stony Rapids, Uranium City, Hatchet Lake, and Wollaston Lake, and recognizes that (at the time of the report) roughly 98% of the population in the region were Métis, Cree or Dene (ALUPIAP 2003). The interim report includes a map of "Travel Routes, Traplines, and Cabins in the Athabasca Denesuline Territory" (Figure 1.0), which is suggestive of traditional territories, although this has not been confirmed at a community level.

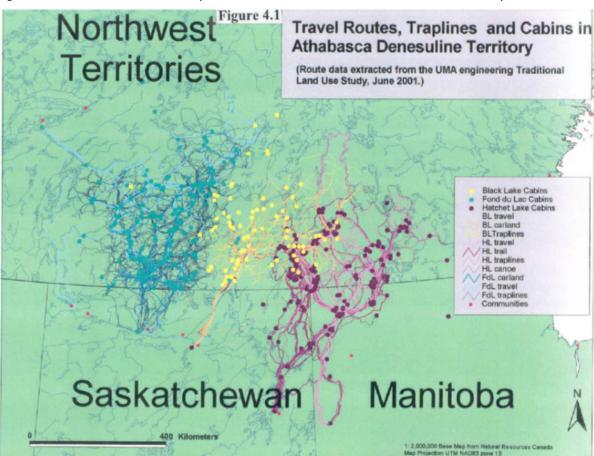


Figure 1.0: Travel Routes, Traplines and Cabins in Athabasca Denesuline Territory

Source: ALUPIAP (Athabasca Land Use Plan Interim Advisory Panel). 2003. Athabasca Land Use Plan Interim Advisory Panel Report: Athabasca Background Document. Available from

http://www.environment.gov.sk.ca/Default.aspx?DN=77e08791-38ff-4b6c-bbd3-79c2af8320cc (accessed April 2, 2012).

The travel patterns identified in the map suggest that resource use, travel, and movement on the landscape typically extends north from each community, with limited travel east to west and limited overlap of travel patterns within northern Saskatchewan. As such, the focus of the assessment was on those communities in closest proximity to the Project, including the Black Lake Denesuliné Nation (or Black Lake First Nation) and Stony Rapids (inclusive of Métis residents).

The Project footprint is located on reserve land (Chicken #224) set aside for Black Lake Denesuliné Nation; this land was set aside by Order-In-Council (OIC) 1978-1647 for exclusive use of this First Nation's members. As depicted in Figure 1.0-1 of the EIS, Chicken # 224 encompasses the area between Black Lake to the area immediately east of Stony Rapids, with some members of Black Lake Denesuliné Nation residing at the west end of the reserve. There is a very small possibility that potential Aboriginal or Treaty rights may be exercised by other Aboriginal and Métis individuals or groups within the LSA, although substantiated evidence of this occurring has not been provided through the public involvement process or through the key person interviews conducted.

Areas beyond the Project footprint, including areas considered as Crown Land, are unlikely to experience discernible effects. The exception to this is the lodge and outfitter, Camp Grayling, located on Private Land within the reserve parcel and discussed in Section 17.5.2.

10.1.3 Effects of Changes to the Environment on Aboriginal Peoples, page 28

The EIS will describe the effects of any changes the project may cause to the environment, with respect to Aboriginal peoples, on health and socioeconomic conditions, physical and cultural heritage, the current use of lands and resources for traditional purposes, or any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.

Response

In Section 20.3.1 of the EIS, the population of the LSA, including the communities of Black Lake and Stony Rapids, is identified to be predominately of Aboriginal descent. This is true of the broader Athabasca region communities as well, including (beyond Black Lake and Stony Rapids), Fond du Lac, Wollaston Lake, Hatchet Lake, Uranium City and Camsell Portage, which make up the RSA examined in Section 17.0 Land and Resource Use, and Section 18.0 Economy. Since Aboriginal people make up the vast majority of residents in the study areas (94% based on the 2006 Census of Canada [Statistics Canada 2007]), socio-economic effects identified in these sections are inclusive of all the Aboriginal groups identified in Section 9.2 of the EIS Guidelines.

Effects to land and resource use, inclusive of activities that constitute Aboriginal and Treaty Rights, considered effects stemming from changes to fish and fish habitat, wildlife and wildlife habitat, sensory disturbances (e.g., noise from traffic and the presence of the construction workforce etc.), and changes to access and navigation resulting from Project infrastructure and activities (Section 17.0). Effects are only anticipated within the LSA and not expected in the RSA.

Effects related to the Economy (Section 18.0) are anticipated to be positive in both the LSA and RSA, although Black Lake Denesuliné Nation, as a partner in the Project, stands to experience greater benefits than the other communities in the region (e.g., through training opportunities, employment preferences, business opportunities, equity in the Project, and other payments associated with land leases and community investment). Regionally, benefits are expected to accrue from hiring preferences for the Athabasca region, in addition to preference for businesses and contractors from the Athabasca region.

Other effects to Aboriginal people and communities are considered in Section 19.0 Infrastructure and Services, and Section 20.0 Human Health and Population. The LSA for both these valued components include the communities of Black Lake and Stony Rapids, while the RSA are defined more narrowly (see sections 19.2 and 20.2 for definitions of these RSAs respectively). Although not all of the communities identified in Section 9.2 of the EIS Guidelines are captured within these RSAs, effects to these valued components are not anticipated beyond the LSA.

The potential effects to heritage resources are described in Section 16.0 of the EIS. The scope of the heritage resources section includes an analysis of Project-related changes during construction, operation, and closure, and considers accidents, malfunctions, and unplanned events. Potential effects on heritage resources are limited to direct disturbance and loss of archaeological sites during Project construction activities. No heritage resources were identified in conflict with the Project footprint. There are no expected effects on heritage resources outside the Project footprint.

The effects of changes to the environment on Aboriginal people are summarized in Section 23.3 of the EIS. Based on the environmental assessment, no significant adverse residual effects to health and socio-economic conditions, physical and cultural heritage, the current use of lands and resources for traditional purposes, or any structure, site or thing that is of historical, archaeological, paleontological, or architectural significance were identified as a result of the Project. The environmental assessment was completed at a local and regional scale to evaluate the potential effects on Aboriginal communities that would be directly affected by the Project (e.g., Black Lake First Nation), and the potential indirect effects to Aboriginal communities that may use the provincial Crown land surrounding the Black Lake First Nation for traditional land and resource use activities (including the ability to exercise Aboriginal or Treaty rights). This may include Fond du Lac Denesuliné First Nation, Hatchet Lake Denesuliné First Nation, Métis Nation Saskatchewan Camsell Portage Local 79, Métis Nation Saskatchewan Stony Rapids Local 80, and Métis Nation Saskatchewan Uranium City Local 50. No significant adverse residual effects were identified from the Project.

10.2 Adverse Impacts on Aboriginal and Treaty Rights and Related Interests, page 28

The EIS will describe, from the perspective of the proponent, the potential adverse impacts of the project on the ability of Aboriginal peoples to exercise the potential or established Aboriginal and Treaty rights and related interests identified in section 9.2.

Response

Aboriginal Affairs and Northern Development Canada (AANDC) defines Aboriginal rights as "rights that some Aboriginal peoples of Canada hold as a result of their ancestors' longstanding use and occupancy of the land. The rights of certain Aboriginal people to hunt, trap, and fish on ancestral lands are examples of Aboriginal rights. Aboriginal rights vary from group to group depending on the customs, practices and traditions that have formed part of their distinctive cultures." (AANDC 2010).

Section 17.0 of the EIS considers potential effects on land and resource use, inclusive of activities such as hunting, trapping, and fishing (e.g., those activities defined as Aboriginal rights), be it for traditional or domestic purposes. Although not considered an Aboriginal right, effects to commercial resource use were also considered. Given that the vast majority of the population of the LSA and RSA is of Aboriginal descent, these effects pertain to those communities identified with respect to Aboriginal and Treaty rights set out in Section 9.2 of the EIS Guidelines.

Effects on land and resource use activities (including the ability to exercise Aboriginal or Treaty rights) are not expected to extend beyond the LSA, and for the most part occur in close proximity to the Project footprint on

reserve land. This includes consideration of effects stemming from changes to fish and fish habitat, wildlife and wildlife habitat, sensory disturbances (e.g., noise from traffic and the presence of the construction workforce etc.), and changes to access and navigation resulting from Project infrastructure and activities. There is a very small possibility that potential Aboriginal or Treaty rights may be exercised by other Aboriginal and Métis individuals or groups within the LSA, although substantiated evidence of this occurring has not been provided through the public involvement process or through the key person interviews conducted.

It is important to note the Project is located on the Chicken Indian Reserve #224, which was created under the Order-in-Council 1978-1647 as noted in Section 17.4.2 of the EIS. The land is set aside for the exclusive use and benefit of the members of Black Lake First Nation. Any effects beyond the reserve within the LSA (e.g., on the water body of Black Lake, or in closer proximity to Stony Rapids) are expected to be negligible.

No effects on land and resource use are expected elsewhere within the RSA. As such, effects on the ability of Aboriginal people identified in Section 9.2 of the EIS Guidelines (other than Black Lake First Nation members) to exercise Aboriginal and Treaty rights are not expected to be measurable, adverse or significant. There may be effects on the lodge and outfitter located on Black Lake at Camp Grayling. However, the proprietor of Camp Grayling is not aboriginal or a member of those communities identified in Section 9.2 of the EIS Guidelines; while considered in the EIS, this is not an effect on Aboriginal and Treaty rights).

11.2 Measures to Address Impacts on Aboriginal Rights, page 31

This section will describe, from the perspective of the proponent, the measures identified to mitigate the potential adverse impacts of the project described in section 10.2 on the potential or established Aboriginal and Treaty rights and related interests identified in section 9.2.

Response

Effects on land and resource use, inclusive of Aboriginal or Treaty Rights as defined by AANDC, including activities such as hunting, trapping and fishing are expected only within the LSA (including the communities of Black Lake and Stony Rapids) and described in Section 17.4 of the EIS. Within the RSA, (includes to the communities of Camsell Portage, Uranium City, Fond du Lac, Stony Rapids, Black Lake, Wollaston Lake, and Hatchet Lake) effects are expected to be negligible, if at all discernible.

Section 17.4 (page 17-20 to 17-21) identifies a suite of mitigation measures to address potential effects on land and resource use, inclusive of those activities defined as Aboriginal or Treat Rights by AANDC. Some of these measures include:

- an access management plan to address land-based, water-based, and ice-based travel within the LSA to ensure safety, while permitting continued travel for resource use purposes so long as it is safe to do so;
- participation of the Black Lake First Nation in Resource Management Strategies (applicable to residents of the community and to the construction workforce) to limit competition for trapped, hunted and fished species and to protect public safety;
- practices to address local resource users' concerns (whether they are Aboriginal or not) through on-going and timely communication; and
- compensation for demonstrated losses on a case-by-case basis.

Although no effects are anticipated beyond the LSA, if an Aboriginal or Métis individual or group is able to demonstrate significant adverse effects or demonstrated losses as a result of the Project or Project activities, the proponent would apply the same consideration as those measures applicable within the LSA. SaskPower's

existing policies for compensation will be used as guidance, subject to consultation with the Elizabeth Falls Hydroelectric Limited Partnership. There is a very small possibility that potential Aboriginal or Treaty rights may be exercised by other Aboriginal and Métis individuals or groups within the LSA, although substantiated evidence of this occurring has not been provided through the public involvement process or through the key person interviews conducted. It is important to recognize that the Project is located on Chicken Indian Reserve #224, which is set aside for the exclusive use of Black Lake Denesuline Nation members.

Monitoring and follow-up programs associated with effects to vegetation, wildlife, and fish are described in Section 14.7, Section 15.7, and Section 12.7 of the EIS respectively. These components of the environment are potential pathways to changes to land and resource use activities, including those activities considered as Aboriginal or Treaty rights. Section 17.7 of the EIS also notes that monitoring related to land and resource use, including broad community concerns, will be managed through a Project advisory committee consisting of the Project proponents (e.g., SaskPower and Black Lake First Nation through the Elizabeth Falls Hydroelectric Limited Partnership).

12.2 Outstanding Aboriginal Issues, page 35

This section will describe, from the perspective of the proponent, the potential adverse impacts on potential or established Aboriginal and Treaty rights and related interests that have not been fully mitigated as part of the environmental assessment and associated consultations with Aboriginal groups. This includes potential adverse impacts on potential or established Aboriginal and Treaty rights and related interests that may result from the residual and cumulative environmental effects described in section 10.2.

Response

The majority of effects on Treaty and Aboriginal rights are expected to accrue in close proximity to the Project, within the boundaries of the Chicken Indian Reserve #224, which is set aside for the exclusive use of the Black Lake First Nation and its members. Although the local study area extends to Stony Rapids and the water body of Black Lake, effects beyond the immediate area in closest proximity to the Project are expected to be negligible.

There is a very small possibility that potential Aboriginal or Treaty Rights may be exercised by other Aboriginal and Métis individuals or groups within the LSA, for example when members from other communities are visiting family and friends in Black Lake or Stony Rapids, or when travelling through the LSA to reach resource use areas further afield. Although broad statements have been made during the engagement process about traditional use of the Athabasca region in general, traditional territory mapping or substantiated claims of resource use in proximity to the Project have not been made. It is recognized that the communities of the Athabasca region have traditional land and resource use relationships that do not preclude the exercising of rights in the LSA, particularly historically; however, in the contemporary context, those rules that set aside reserve lands for the use of members of the BLFN are, to the extent known, respected by other Aboriginal groups.

The environmental design features and mitigation that will be put in place through the duration of the Project are anticipated to result in no significant adverse residual effects to the biophysical and socio-economic environments. As a result, it is predicted that there would be no effects to the Aboriginal and Treaty Rights of the Black Lake First Nation, Fond du Lac Denesuline First Nation, Hatchet Lake Denesuline First Nation, Métis Nation Saskatchewan Camsell Portage Local 79, Métis Nation Saskatchewan Stony Rapids Local 80, and Métis Nation Saskatchewan Uranium City Local 50.

If an Aboriginal or Métis individual or group identified in Section 9.2 of the EIS Guidelines were able to demonstrate significant adverse effects or demonstrated losses as a result of the Project or Project activities, the

proponent would apply the same consideration as those measures applicable in the LSA. This is consistent with SaskPower's existing policies for compensation with respect to trapping and fishing.

Section 17.7 of the EIS also notes that monitoring related to land and resource use, including broad community concerns, will be managed through a Project Advisory Committee consisting of the Project proponents (i.e., SaskPower and Black Lake First Nation through the Elizabeth Falls Hydroelectric Limited Partnership). It is anticipated that, if effects beyond the LSA are demonstrated, the Project Advisory Committee would be responsible for addressing them.

14 Summary Tables, page 37

The EIS will contain a series of tables summarizing the following key information: Potential adverse impacts on potential or established Aboriginal and Treaty rights and related interests (section 10.2); Proposed mitigation measures and commitments by the proponent to address potential impacts on Aboriginal rights (section 11.2); Outstanding Aboriginal issues (section 12.2); Relationship of the identified Valued Components to Aboriginal groups' potential or established Aboriginal and Treaty rights and related interests (section 9.2).

Response

The potential adverse effects on potential or established Aboriginal and Treaty rights and related interests, including activities such as hunting, trapping and fishing, and the proposed mitigation measures that will be put in place for the Project are included in Table 17.4-1 of the EIS. Related corporate commitments are provided in Section 22 of the EIS.

No outstanding Aboriginal issues have been identified for the Project; as such a table has not been prepared. As mentioned above, if an Aboriginal or Métis individual or group identified in Section 9.2 of the EIS Guidelines were able to demonstrate significant adverse effects or demonstrated losses as a result of the Project or Project activities, the Proponent would apply the same consideration as those measures applicable in the LSA. This is consistent with SaskPower's existing policies for compensation with respect to trapping and fishing.

The process of selecting the valued components for the Project is described in section 7.2.1.1 of the EIS. Selection of valued components considered feedback from ongoing regulatory, public, First Nations and Métis engagement activities, professional judgment and experience, and current environmental assessment practices. The rationale behind the selection of each valued component is included in Table 7.2.1. While the relationship between the valued components and potential or established Aboriginal and Treaty Rights are not specifically identified in the table, concerns or interests relating to traditional land and resource use, and activities such as hunting, trapping and fishing (e.g., activities that reflect potential or established Aboriginal or Treaty Rights) are included.

Given that additional information has been provided to supplement the original EIS submission, a revised concordance table has been attached.

Closure

We trust this letter provides sufficient detail to address the deficiencies identified by the Agency. If you have any questions or require additional details, please contact the undersigned on behalf of the Proponent.

Stan Saylor Environmental Supervisor Business Development SaskPower 2025 Victoria Avenue Regina, Saskatchewan S4P 0S1

Phone: 306-566-2879 Fax: 306-566-2575

E-mail: ssaylor@saskpower.com

cc: Alvin Yuen, Saskatchewan Ministry of Environment

Ted de Jong, CEO, Elizabeth Falls Hydro Development Corporation Mark Peters, Project Manager, Business Development, SaskPower

Attachments: Concordance Table

References:

ALUPIAP (Athabasca Land Use Plan Interim Advisory Panel). 2003. Athabasca Land Use Plan Interim Advisory Panel Report: Athabasca Background Document. Available from http://www.environment.gov.sk.ca/Default.aspx?DN=77e08791-38ff-4b6c-bbd3-79c2af8320cc (accessed April 2, 2012).

AANDC (Aboriginal Affairs and Northern Development Canada). 2010. Fact Sheet: Treaties with Aboriginal people in Canada. Available from http://www.aadnc-aandc.gc.ca/eng/1100100016302/1100100016303 (accessed March 3, 2014).

Statistics Canada. 2007. Census of Canada 2006. Government of Canada.