

Rook I Project

Environmental Impact Statement

Annex V: Aquatic Baseline Road Map

AQUATIC BASELINE ROAD MAP FOR THE ROOK I PROJECT

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1 INTRODUCTION

This road map provides an overview of the aquatic environment baseline program undertaken by NexGen Energy Ltd. (NexGen) for the Rook I Project (Project). Section 2, Aquatic Study Area (ASA), describes the location of the proposed Project in relation to key waterbodies and watercourses that comprise the aquatic environment. Section 3, Joint Working Group (JWG) Feedback, provides context on NexGen's approach to engagement and where feedback related to the aquatic baseline from the JWGs can be found. Section 4, Aquatic Baseline Document Map, provides information on the scope of each baseline report and identifies where key topics associated with the aquatic environment baseline program can be found in the reports appended to this road map or in baseline reports for other disciplines (e.g., hydrology).

The characterization of the aquatic environment baseline for the Project was based on desktop analyses, field studies, and feedback from First Nations and Métis Groups (collectively referred to as Indigenous Groups). The various baseline reports, presented as Annexes V.1 through V.3, are part of the comprehensive baseline program that documents different aspects of the aquatic environment in the anticipated area of the Project. These baseline reports present information on lake morphometric conditions, water and sediment quality, fish and fish habitat, and lower trophic level communities (e.g., plankton and benthic invertebrates). Data were collected within the baseline ASA, which was selected to include the watershed that would receive a proposed treated effluent release, professional judgement of the potential extent of effects to be considered in the Environmental Assessment (EA) and long-term monitoring for similar developments, and consideration of potential cumulative effects (Annex V.1).

The following Annexes present the main information used to characterize aquatic environment baseline conditions for the Project:

- Annex V.1: Aquatic Environment Baseline Report
- Annex V.2: Overwintering Fish Habitat Report
- Annex V.3: Naomi Lake Bathymetry Report

The Aquatic Environment Baseline Report (Annex V.1) was based on studies carried out from 2018 to 2020 completed by Canada North Environmental Services (CanNorth). This report characterizes the physical aquatic environment including lake morphometry, water and sediment quality, plus the biological resources including plankton, benthic invertebrates, aquatic macrophytes, fish and fish habitat. The Overwintering Fish Habitat Report (Annex V.2) was completed by Golder Associates Ltd. (Golder) in winter of 2019 and complements the characterization of fish and fish habitat presented in the Aquatic Environmental Baseline Report. Finally, the Naomi Lake Bathymetry Report (Annex V.3) completed by Golder documents the March 2019 bathymetric survey to complete the mapping for the lakes in the area of the Project.

2 AQUATIC ENVIRONMENT STUDY AREA

The proposed Project would be located adjacent to Patterson Lake, within the Patterson Lake watershed near the headwaters of the Clearwater River watershed. The Clearwater River flows from the area near Broach Lake through a series of lakes including Patterson Lake, Forrest Lake, Beet Lake, and Naomi Lake in order from upstream to downstream. The upper Clearwater River, which flows an approximate distance of 40 km from Broach Lake to Naomi Lake, is dominated by glaciolacustrine terrain with a channel that is shallow, flat, and meandering (Annex IV.3). From Naomi Lake, the Clearwater River flows an additional 20 km southeast before reaching the Mirror River confluence. Below the Mirror River confluence, the Clearwater River deepens and receives higher flow volumes from the Mirror River, and the channel form changes to meandering within a well-defined river valley.

Farther downstream, the Clearwater River flows through Lloyd Lake, which is immediately upstream of the Clearwater River Provincial Park; the downstream end of the park is at the Saskatchewan-Alberta border. The Clearwater River flows into the Athabasca River at the city of Fort McMurray, Alberta, which flows north into the west end of Lake Athabasca through the Peace-Athabasca delta. Water from the Clearwater River ultimately flows to the Arctic Ocean through the Slave River, Great Slave Lake, and the Mackenzie River.

The baseline ASA is shown in Figure 1.

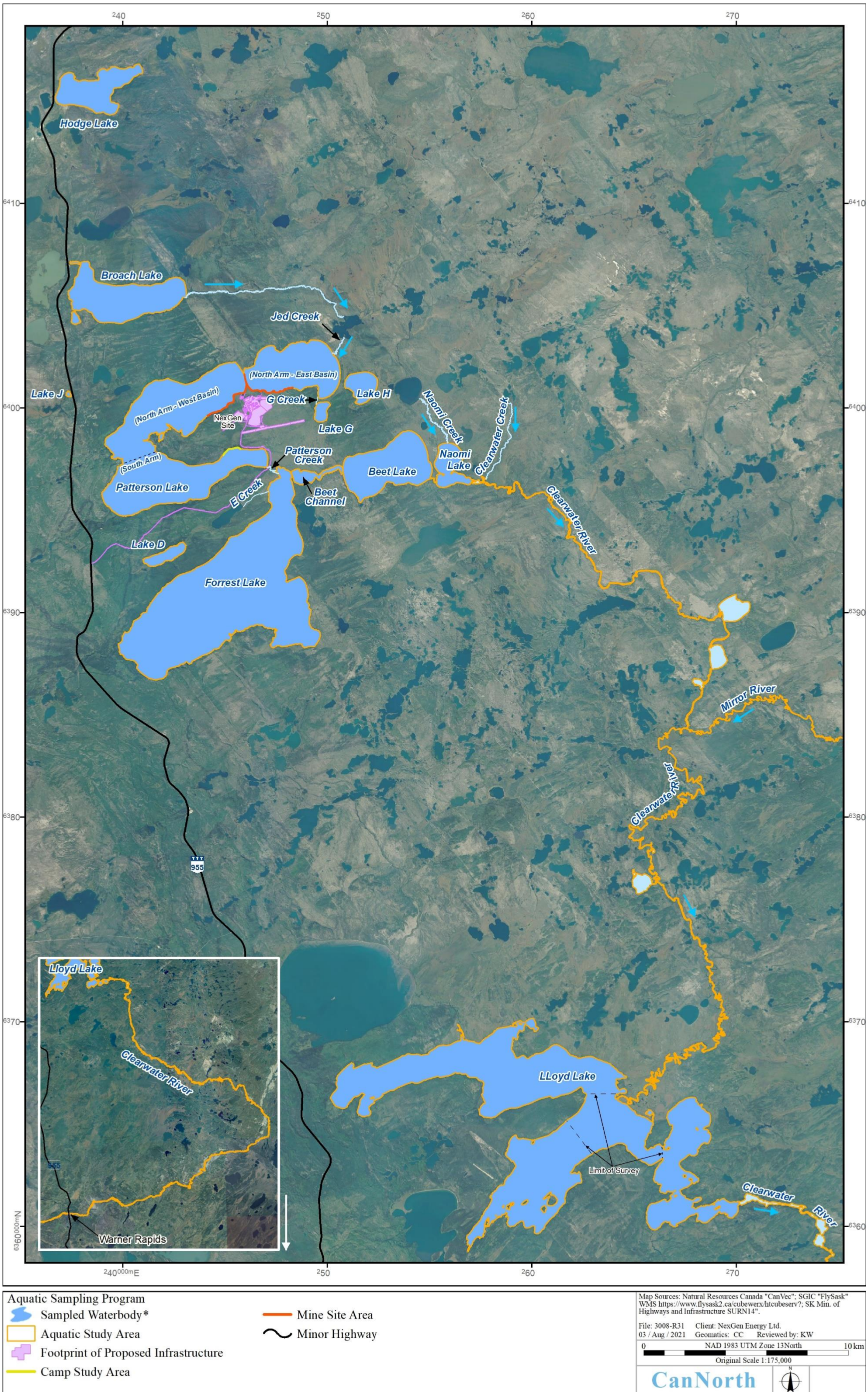


Figure 1. Aquatic Study Area

3 INDIGENOUS GROUP FEEDBACK

Since exploration at the Project site commenced in 2013, NexGen has engaged regularly and established relationships with local Indigenous Groups and northern communities, specifically those closest and with greatest access to the proposed Project.

An important component of engagement to date has been the establishment of JWG's to support the gathering and incorporation of Indigenous and Local Knowledge throughout the EA process. A summary of feedback from JWG's related to the aquatic baseline program is presented in Appendix A of this road map, and includes feedback from the Birch Narrows Dene Nation, Buffalo River Dene Nation, Clearwater River Dene Nation, and Métis Nation – Saskatchewan. Participant questions and comments demonstrated an interest in potential impacts from the proposed Project to water quality and fish and fish habitat, particularly as a food source. Indigenous and Local Knowledge was also included, where appropriate, from Project-specific studies completed by Indigenous Groups, which included Traditional Land Use and Occupancy studies, Traditional Knowledge and Use studies, Indigenous Rights and Knowledge studies (henceforth referred collectively as Indigenous Knowledge and Traditional Land Use [IKTLU] Studies¹) (TSD II: BNDN; TSD III: BRDN; TSD IV: MN-S; TSD V: CRDN; TSD VI: YNLR) was also included in the individual baseline reports where appropriate.

4 AQUATIC BASELINE DOCUMENT MAP

Table 1 provides a summary of key topics related to the aquatic baseline program and cross references to where analysis and discussion of key topics are located within the individual aquatic baseline reports. The topics in Table 1 comprise the aquatic environment components sampled as part of the Project's environmental baseline study. Section 4.1 through Section 4.7 provide context and direction to where information related to key aquatic topics can be found.

Key topics from these baseline studies may also overlap with baseline studies for other disciplines (e.g., hydrology); this information is also provided in Table 1 to assist in comprehensive review.

¹ Referred to as TLU Studies in the baseline reports.

Table 1: Aquatic Baseline Key Topic Location Summary

Key Topic	Baseline Report Title	Baseline Report Section Reference	Approach to Topic ¹
Lake morphometry (i.e., shape and dimensions)	Annex IV.4: Patterson Lake Currents Assessment Report	Section 4.0 Methods Section 5.3 Patterson Lake Currents Observations (Results)	Primary and applied data source
	Annex V.1: Aquatic Environment Baseline Report	Section 2.0 Lake Morphometry	Primary data source
	Annex V.3: Naomi Lake Bathymetry Report	All	Primary data source
Water quality	Annex III: Hydrogeology Baseline Report	Section 4.5 Groundwater Quality Sampling Section 5.2.3 Groundwater Chemistry Baseline	Primary data source
	Annex V.1: Aquatic Environment Baseline Report	Section 3.0 Water Quality	Primary data source
Sediment	Annex IV.2: Hydrometric Monitoring Characterization Report	Section 4.6 Sediment (Methods) Section 5.4 Sediment (Results)	Primary data source
	Annex IV.3: Geomorphology Characterization Report	Section 5.2 Patterson Lake (Results)	Primary data source
	Annex V.1: Aquatic Environment Baseline Report	Section 4.0 Sediment Quality	Primary data source
Plankton	Annex V.1: Aquatic Environment Baseline Report	Section 5.0 Phytoplankton Section 6.0 Zooplankton	Primary data source
Benthic invertebrates	Annex V.1: Aquatic Environment Baseline Report	Section 7.0 Benthic Invertebrates	Primary data source
Aquatic macrophytes	Annex V.1: Aquatic Environment Baseline Report	Section 8.0 Aquatic Macrophyte Chemistry	Primary data source
Fish and fish habitat	Annex V.1: Aquatic Environment Baseline Report	Section 9.0 Fish and Fish Habitat	Primary data source
	Annex V.2: Overwintering Fish Habitat Field Program Results Summary Report	All	Primary data source
	Annex VII.2: Vegetation Baseline Report 2 (Inventory, Rare Plants, and Wetlands)	Section 3.0 Vegetation Inventory and Rare Plant Survey	Primary data source

¹Approach to Topic is noted as either primary data source or applied data source. Primary data source refers to field data collected for the Project. Applied data source refers to modelling, analysis or characterization of conditions informed by primary and second-hand data sources (e.g., government).

4.1 Lake Morphometry

Lake morphometry provides basic physical information on the shape of waterbodies, including shoreline, bathymetry and water level–surface area–volume relationships. Lake morphometry influences physical, chemical, and biological characteristics of waterbodies and provides supporting information for calculating lake water balances and hydrological modelling. The primary sources for lake morphometry information are the Aquatic Environment Baseline Report (Annex V.1) and the Naomi Lake Bathymetry Report (Annex V.3). Most lake bathymetry surveys were conducted during the open-water period in 2018 as part of the Aquatic Environment Baseline Report (Annex V.1). Naomi Lake bathymetry was collected the following winter from 20 March 2019 to 26 March 2019 using ground penetrating radar surveys, and results are provided in Annex V.3. Lake morphometry information was used to support interpretation of the focused studies in Patterson Lake (Annex IV.3 and Annex IV.4) and Forrest Lake (Annex IV.5). Lake bathymetry was observed to influence Patterson Lake currents differently in different locations (Annex IV.4).

4.2 Water Quality

Water quality is a general term that describes the physical and chemical properties of waterbodies and watercourses. The water quality of a waterbody or watercourse can be characterized in terms of color, turbidity, suspended solids concentrations and chemistry. Water quality and its seasonal variation play an important role in defining the characteristics and function of local aquatic ecosystems. Water quality conditions were characterized for 18 waterbodies and watercourses in the baseline ASA (Annex V.1). Groundwater quality was also characterized in the Hydrogeology Baseline Report (Annex III). These measurements provide an understanding of the existing physical and chemical conditions of the waterbodies and watercourses and provide a basis for evaluating changes to surface water quality due to the proposed Project. The water quality baseline characterization also supports the regional and near-field water quality modelling and environmental risk assessment modelling completed for the EA. Water quality samples for the baseline program were collected and analyzed seasonally throughout 2018 to 2020.

4.3 Sediment

Sediment quality refers to the physical and chemical characteristics of the sediments underlying waterbodies (i.e., the lake bed materials). The chemical and physical properties of sediments were characterized for local waterbodies, as these factors play important roles in the aquatic ecosystem and can influence the overall water quality and the benthic invertebrate communities that reside within the aquatic sediments. Sediment composition (i.e., chemistry and particle size) was characterized for eight waterbodies in the baseline ASA (Annex V.1). These measurements provide an understanding of the existing environmental conditions of the waterbodies and provide the basis for evaluating changes to sediment quality as a result of the proposed Project. The sediment quality characterization also provided information to support the environmental risk assessment completed for the EA. Information on sediment transport conditions and particle size distribution was also collected as part of the Project's hydrometric baseline study (Annex IV.2). Lake geomorphology was also evaluated to provide an understanding of currents and mixing patterns (Annex IV.3). Sediment quality samples for the baseline program were collected and analyzed once per summer in 2018 and 2019.

4.4 Plankton

Plankton is a general term referring to microscopic organisms that live suspended in the water. Plankton can be subdivided into two different groups: phytoplankton and zooplankton. Phytoplankton refers to the algal component of the plankton community, ranging between 2 µm and 20 µm in size. Zooplankton refers to microscopic animals that live suspended in the water. In general, phytoplankton provide the food base for zooplankton, which in turn are an important food source of many fish species. The primary information source for plankton is the Aquatic Environment Baseline Report (Annex V.1). The objective of the plankton sampling program was to collect baseline data on community structure, density, richness, diversity, and biomass to characterize phytoplankton and zooplankton communities in the ASA. This information is important for understanding nutrient dynamics in lakes and for characterizing fish habitat. Plankton sampling occurred in a subset of waterbodies sampled during the aquatic environment baseline study in fall 2018.

4.5 Benthic Invertebrates

Benthic invertebrates refer to bottom-dwelling organisms (e.g., worms, snails, clams, crustaceans, insects) living on or within the sediments of waterbodies and watercourses. Benthic invertebrates are an important link in aquatic food webs. Most are herbivores, detritivores (i.e., feeding on dead, organic material), or filter-feeders, deriving much of their energy from algae, aquatic plants, and decaying organic material; however, some benthic invertebrates are predators that feed upon other invertebrates. Many fish species, including early life history stages of piscivorous species, rely upon benthic invertebrates as a food source. The primary information source for benthic invertebrates is the Aquatic Environment Baseline Report (Annex V.1). The objective of the benthic invertebrate sampling program was to collect baseline data on community structure, density, richness, diversity, and biomass to characterize benthic invertebrate communities in the ASA. Understanding the benthic community provides information about fish habitat and sets a baseline against which to compare future results of Environmental Effects Monitoring, should the Project be approved. Benthic invertebrate samples were collected from a subset of waterbodies and watercourses sampled during the aquatic environment baseline study in fall 2018.

4.6 Aquatic Macrophytes

Rooted aquatic macrophytes are plants rooted in lake substrates where the current is low enough to permit fine sediments to accumulate. Substances in sediment may be taken up by the roots and transferred to the shoots of the plant via the plant's vascular system. Since animals may consume aquatic macrophytes, the plants may serve as a vector for contaminant transfer from plant to primary consumers in the ecosystem. The primary information source for aquatic macrophyte chemistry is the Aquatic Environment Baseline Report (Annex V.1). The objective of the aquatic macrophyte chemistry monitoring program was to collect tissue chemistry data used to support the risk assessment modelling completed for the EA. Aquatic macrophyte tissue chemistry samples were collected from a subset of waterbodies and watercourses sampled during the aquatic environment baseline study in summer 2019.

4.7 Fish and Fish Habitat

Fisheries investigations were completed in the ASA to provide information on existing fish habitat conditions, fish communities, and fish health in waterbodies and watercourses potentially affected by the proposed Project. The primary sources of information on fish and fish habitat are the Aquatic Environment Baseline Report (Annex V.1) and Overwintering Fish Habitat Field Program Results Summary Report (Annex V.2). The objectives of the fish habitat assessments were to characterize baseline habitat conditions and to document potentially sensitive habitats that may be present adjacent to or downstream of the Project. The habitat assessments included characterization

of existing spawning, nursery, rearing, feeding, and overwintering habitat conditions. The objectives of the fish community sampling were to determine fish community composition, fish species abundance, morphometry, and health in ASA waterbodies and watercourses. Fish tissue sampling was also completed for selected large-bodied fish species to characterize existing fish tissue chemistry concentrations of metals and radionuclides, and to provide data for the risk assessment modelling completed for the EA. Sampling occurred in 2018 and 2019 during the spring, summer, fall or winter, depending on the waterbody or watercourse sampled, and survey type.

Aquatic vegetation was also surveyed in Vegetation Baseline Report 2 (Annex VII.2), which assisted with the characterization of fish habitat.

APPENDIX A

**Joint Working Group Feedback
Applicable to Hydrology Baseline**

Table A-1 presents the comments and feedback NexGen has received from members of local Indigenous communities through established JWG meetings. Where appropriate, feedback from local Indigenous communities was considered within the baseline and/or EA processes or tracked as issues or concerns for resolution. NexGen continues to engage with communities, and the feedback presented in Table A-1 reflects comments and feedback received through March 2020 that were related to the aquatic baseline or the comprehensive baseline program generally.

Table A-1: Joint Working Group Feedback – Aquatic Baseline

Community	Comment
Birch Narrows Dene Nation (BNDN)	Are you aware of any huge adverse environmental impacts in any of the current mine sites?
	Important topics for the Joint Working Group (JWG) moving forward are Indigenous knowledge, traditional land use, the species discussion, water quality, environmental monitoring, employment, and business opportunities.
	The fish species look like they were chosen because of their value for commercial use.
	What about Lake Trout?
	My concern is the walleye. Over the years I have noticed that almost equal portions of pickerel, jackfish, and whitefish. Now it is 90% pickerel.
	Whitefish are bottom feeders, so good to include them. Also, when we went to just winter fishing and smaller quotas. I think there is a balance of harvesting certain species at certain times of the year. We have a healthy walleye population.
	Someone I know who lives close to Rabbit Lake mine, saw a moose with two heads, but he never said a word until a year ago. He had a commercial fishing camp, saw fish that were deformed.
	Could we ask that you take samples here? That way we can see changes into the future. Even if it isn't affected by the mine. Respectfully, I request that samples are taken here.
	Are the little lakes in between tested?
	Who's responsible for the modeling of the water?
	A lot of those lakes have whitefish, all low-grade.
Buffalo River Dene Nation (BRDN)	Respect the land, the water, the trees. Don't clear-cut the small trees – they take 50 years to grow back. (inaudible) water in one big lake, trout, everything, – just grass there now. They didn't put the water back. Didn't fix it. It used to be a big lake, but now there's nothing there.
	Have you gone to communities to show what you are doing? If so, what was the feedback?
	Elders are concerned that the water quality will be negatively affected by the Project.
	It's important to explain the Project to elders in a way that they can then explain it to other elders in the communities.
	Water is the main thing that people worry about.
	How do you identify fish habitat?
	It'll be important to explain to the community that waterways and rivers are natural filters, and peat moss.
	I've never heard of golden-eye, people eat mallards. We eat more whitefish, and they are more delicate, you see their skin has issues and they get worms, I think they should be looked at instead of northern pike.
	Please explain the natural filter systems – the river filters out lots of stuff- rocks, gravel. The elders think whatever goes into the water will carry all the way done here.
	I fished all over. In Slave Lake the water is contaminated already. I worked at Anzac. We have to watch that lake too. The best lake in Saskatchewan is right here – we don't need to buy water.

Table A-1: Joint Working Group Feedback – Aquatic Baseline

Community	Comment
Buffalo River Dene Nation (BRDN)	Our water in these big lakes is all coming from the muskeg, not the river, that's why it's clear. You can see the bottom, and the fish.
	In 2001 in Dillon, the water was shallow. Since then, it never went down; still going up. This lake is still full here. In Dillon, the water is just about full now. But a lot of things are going to change; there are signs of acid rain from Alberta – changes to trees. Half of the trees are different colours. Every time it rains, the trees look a little but different.
	I would like to report one more thing about a beaver. There is a river coming from Barney Lake through Dillon Lake, and from there to Dillon. Every spring our water, before the water plant came in, the water was like a poison, no one wanted to drink it. Beavers along that river all the way have beaver houses; they pee and whatever there all winter, just like people, and in the springtime, it flows into the lake where we live. Every spring the water isn't any good. I tried to report it to [Ministry of] Environment, but no one seems to listen.
	They break open; lots of logs and everything coming out, running all the stale water that has been sitting.
	I also acknowledge we are in Treaty 10 traditional territory, where we get our food, medicines, water different species some of which grow only in that area which none of you are familiar with, but our elders know that. They fish there. The caribou – we saw 11 recently – haven't been around for a long, long time. They're very sensitive. The migration routes – we haven't seen them for a long time, and it was nice to see them. The comparison: when we go to a farmer's back yard, the farmer wouldn't want you to start drilling in his back yard. It's the same with our traditional territory. Treaty 10 was signed for the whole area, not parts of it. That's recognized on the maps.
	When I was growing up, we used to drink water from the lake. There was no treatment then.
	When you say Patterson Lake it gets peoples' attention. The fishing is good. There is lake trout. Peter Pond Lake doesn't have any lake trout. Also, perch.
	They know where the jumbo whitefish are.
	One of the elders was telling us that there's a little lake on our traditional territory where in spring when it's starting to melt, the water that sits on top of the ice, there's nothing that tastes so good. He goes there just to have that water every year. Fresh melt water. I would think in Dillon I could drink the water on top of the ice, but he said in that little lake it's totally different.
	Some of our traditional territory is in the Air Weapons Range. Back before the range was formed, people from our community used to get jumbo whitefish there before the Easter holidays. It's just like flying lobster from out east. It's a delicacy. They have a group that goes up there.
Clearwater River Dene Nation (CRDN)	Looks like it's kidney shaped. Just jumbo whitefish, we were there for three days. It takes eight hours to get there from Dillon.
	For trout we go to different areas like Patterson Lake, because we don't have trout in our lake. The Elders know exactly where these fish are. Food and shelter are the biggest thing, and survival.
	Our elder is 82 years old, one of the well-respected elders in our community. Right now, he's in the middle of harvesting – fishing as a fishing outfit – he took a couple of days off from sustaining his own livelihood to come here because he feels it is important, and water is really important. His son is running his fishing outfit right now while he attends this meeting. He also has a wild rice lease and a tourist outfit – he does sustainable tourist stuff, only taking in a few clients a year. He is one of our biologists and environmentalists.
	From home we take bottled water up north. It doesn't make sense, but we're doing it because we think there's something wrong with it.
	The perception is there, but it was always common practice after bottled water came into existence. The perception is there. If you got to Hodge Lake, a stream crosses the road, and that water is unbelievably clear and perfect.
	I stop at the Clearwater River to grab fresh river water.
	Water is always the key issue back home.
	Remember we're trying to implement a plain speak document because of visual concepts of understanding. That is what the Chief is talking about.

Table A-1: Joint Working Group Feedback – Aquatic Baseline

Community	Comment
Clearwater River Dene Nation (CRDN)	In terms of baseline studies, are there any opportunities for community involvement with any of your residual baseline work, from fish, terrestrial, etc.?
	And we will eventually throw in our environmental monitors. I don't know if you knew that. We want to train our own people because of lack of trust of government and industry.
	The interim CRDN Rights and Knowledge study will come out of the CRDN-defined initial list of valued components (VC) that we want to talk to you about. As we go through there may be additional ones. We know there's a certain window, but we'll try to be as comprehensive as possible. It may not be as linear as moose; it might be having undisturbed places on waterbodies. They might be more complex.
	And our people? We use that water quite a bit. It goes into the Clearwater and all the way down. [CRDN member] picks up water from the Clearwater.
	Not on the old or existing mines that are sitting there?
	You're doing what you're supposed to do – lessons learned from the mines. You should also learn lessons from the First Nations – have your hunting areas decreased? Can you eat the fish, the moose? (response from CRDN: it has decreased a lot). You guys are learning lessons on structures and that stuff, but the realities I look at in environmental impact is taking a look at learning those lessons. You're taking more area – six new companies coming up that way – nobody takes a look at the real impacts to the Nation and the people. That's what I see as an environmental review. The people are getting less and less land; the fear of eating moose and fish, the fear of having this released back into the lake because you guys say it's safe. You have to get this sold to the elders and the community.
	Golder does the same thing – hires three or four band members to do the interviews, then takes the notes and puts the document together. When you find the stuff it's not always based on the relationship to the stuff. It's based on what the government's qualifications are on the environmental assessment's impacts, and not the actual concerns of it. I'm trying to reach what [CRDN member] is saying between traditional and modern ways.
	When we started looking at the strategy process, there's that interpretation of cumulative effects. Then we define and introduce an interpretation for that. It's not just one side, western science, we're doing the traditional side as well. That's what the Chief's referring to.
	Both traditional and western science are very important.
	All the studies I've ever seen done is more or less where you hunt and trap, and you can come back in 10 or 20 years when we've finished here. I would like to see it based on how much land has been lost already over the last 5-6 mines compared to the fears on fishing etc. – really saying this is what the impacts are, not the traditional knowledge like where they hunted, fished, or gathered or what's sacred to them.
	In certain areas, communities can't even practice their traditional activities or do their ceremonies on the land within 1 kilometre of a gas well. Nobody takes that into account. So, what if you smell gas, so what if you hear a noise – there's actually impacts. When you're talking about total loss, and continually being squeezed in, this is just another step. That's what I would like to see in Indigenous knowledge. Fear of eating that moose or fish or drinking the water.
	You are a great example, because you use your fishing and hunting skills. Once that's there and you start putting stuff in the lake, will you be eating fish there?
	Right now, I would not want to drink water from Cluff Lake, whoever told me it was safe. We've been hunting there for a long time, but I've never shot a moose from that area. Or eaten the berries. It's all messed up.
	Moving forward, because of where you're located and what you're doing, we need more input and more working together for our people. Jobs are hard in the north; we have a high unemployment rate; we need jobs to get to that next point where we think this isn't so bad. At the same time, we have to keep our land and water safe. I want my kids and grandkids to use the land. We have to work together, make sure everything is on par. It's good that we can work together.
	Will we see the results of those studies?
	You said there was a couple of watersheds – can you talk about that selection process?
	When you're talking about testing the water, are other studies being done on the Alberta side with the Clearwater system? Do they do their own studies?

Table A-1: Joint Working Group Feedback – Aquatic Baseline

Community	Comment
Clearwater River Dene Nation (CRDN)	I've been on that Clearwater River system many times; the water is really clear until you hit the Alberta side, then the quality is completely different.
	How many other projects are in that square box (referring to map)?
	Do other companies have mineral holdings in that box on the map – like for oil and gas?
	What are the rare species?
	Did you take any sediment samples?
	Did you take any samples around the deposit that's underneath the lake? Thinking you should take sediment samples before and after mining activity starts.
	How did you come up with those?
	In these studies, is there any animal tagging involved?
	I think it's really important to compare Cluff Lake to what's happening in the baseline studies. It's a good question.
	Regarding Cluff Lake: were there tests being done then and now, and can you see if the water is changed? Would Cluff's watershed flow into this one?
	You're sampling at Hodge, you said? How is the water?
	It's really good water; people from town drive up there with jugs. There's a little stream that crosses the road. Tons of people go up there just to get water.
	When they check the water, do they ever come across large objects in the lake, like Loch Ness?
	People have said they have seen large things in northern lakes. There is something huge in La Loche lake. I've seen it myself. It's about the length of a boat. There were two other boats on the lake fishing at the same time, and we went further south. On our way back, the guy furthest out hit a deeper spot, so he was reconnecting rope and he hooked onto whatever it was. It surfaced about six feet from his boat. They caught tons of fish in that area. People see it every summer in our lake.
	On La Loche Lake we have one island. On the north side of that island, just near the reserve, we set nets. The next morning, we went back, and the nets were gone. They were dragged way out into the middle of the lake. There were other times when there were huge holes in the nets in that same area.
	They say there's a big fish, some kind of mariah, that's prehistoric and still lives there. I've never seen it yet! Maybe a sturgeon - they grow up to 20 feet long.
	They have pictures at a museum in Drumheller, Alberta. When I saw the picture, I said isn't this what people have been describing in the lake back home? I asked if the water connected to Fort Mac, to see if it might have come from there. Who knows?
	This is something we heard about Cluff Lake, and we don't have a great understanding about it – we don't have our own hydrologist; I heard there's still materials leaching out of that facility through the groundwater, at a glacial rate but there is a slow release of materials; is that what you're talking about? That's what I'm trying to understand in terms of your baseline monitoring – how are you measuring what the baseline groundwater movement is? It's quite difficult in the short timespan you're looking at.
	Community members mentioned every year the water level's going down. If there's lack of oxygen the fish could die off too. Have you come across anything?
	Do fish travel in underground streams? I've heard stories about that.
	When we built the community hall back home, there was an underground stream that was flowing like a river. I figured there could be fish going through there
	What's the purpose of trying to gather all this information?
Métis Nation – Saskatchewan (MN-S)	Also, it would be good to see baseline radiometric data.
	We have to understand all living and non-living things.
	We are seeing lots of effects from the oil sands – water is changing, plants and animals are dying.
Métis Nation – Saskatchewan (MN-S)	Also need to understand the health of fish and the potential effects of the Project on them and their food chain.

Table A-1: Joint Working Group Feedback – Aquatic Baseline

Community	Comment
	Mariah could be considered as a VC.
	Are any community members involved in the establishment of the baseline for environmental monitoring, so can they verify their accuracy?
	Would the results be released and reviewed by the community?
	From a trust point of view, our people will want to know that those numbers are accurate now, not later. Just a comment to think about.
	How would this group know – is there a way for the people involved in the studies to inform the group of what they saw and if they are confident, they are accurate? Once the stuff hits the EIS, how do we know that it's good? If community folks that were involved in that process and they can validate the results, that brings comfort to community members.
	How often are you monitoring?
	How many locals do you have working with you? You guys talk, but we won't hear anything about water sampling in La Loche.
	It's that validation we're looking for. When I had to involve community members in monitoring, I would get them to write a report if they couldn't speak to the broader community in general. If they didn't feel like writing it, they could talk so someone who would transcribe it. That report could give a summary of how things went, what they saw, were the readings accurate; that could come back to this group, if they couldn't present themselves. The point [MN-S member]'s trying to make is, we need some connection to that community resource that's out there doing the monitoring and seeing this stuff. We know who they are, and we're confident in the results. That builds trust.
	We're the experts here. We see the big mess left behind at Cluff Lake. Look at the colour of the water; is it safe to drink?
	Do you have instruments or people taking samples? What does an instrument look like?
	What he's getting at is simply - you can put a box in there, but if you open the box, is there anything in it? It measures, turbidity, flow, pH balance, all the different main chemicals, natural chemicals in there. Then you have a true baseline. If we look at it and say yes, they have a measuring apparatus there, it's nothing. We want to know what it does and how.
	Our questions are also valid for you. If it's something like the pH balance is at 5, are you or someone else responsible for that?
	When I was young, I could walk along the lakeshore and turn rocks up trying to catch the little mariah that lived underneath. Today, I can't even see the rocks, there's so much green slime. It took 50 years to achieve that; 50 years from now, what did you leave behind – maybe we can't see the bottom of the lake, yet when you first came it was clear. At the same time, if McMurray is interfering, we don't want to blame you.
	You have to go back too – I know there was a study just done on a 100-km range around Fort McMurray on water quality. Do you access government information on these things too?
Métis Nation – Saskatchewan (MN-S)	People do drink water from the Clearwater.
	What about the little lakes on the side?
	These are very important to us. Do I take my children and grandchildren to Cluff Lake – what am I subjecting them to? Nobody will tell me the truth about what is there, but when I look, I know something is not right. My grandmother knew lightning wakes up earth in the spring. She didn't understand the process, but she knew it. Today we see the same things; we see the problems Cluff Lake has created in the animals. If it can do that in the animals, why is it not doing it in us? We just don't want to see that anymore. Not that we have anything against what you do; we need a cleaner environment. Without it we will just destroy ourselves anyway. All we can ask is, be honest with us, be upfront, and if we give you some direction, listen to us.
	They're not up in my area. The loon also eats straight fish; he doesn't eat much else. The loon is protected; may be hard to get a permit to get one, but it is the most reliable because the loon lives in all of the lakes. He flies between lakes and eats fish there, so it's not 100%, but it gives you an idea to understand our fish. I know you also catch fish and study them, but something that consumes it constantly will show better, like the jackfish, eats all the fish. So, he's the best one, where a sucker eats off the bottom and will tell you what's on the bottom. The jackfish eats everything.

Table A-1: Joint Working Group Feedback – Aquatic Baseline

Community	Comment
	The studies we did a few years back, these guys don't want to use them. That's what I heard.
	I had feedback on community engagement, and I'm trying to figure out how we can move forward in a responsible way where people have their input without being offended. We're working towards a bigger goal than what is currently perceived. We need a discussion on how we can approach it. I can offer some high-level thinking to help bring my community around.
	[MN-S member] provided a history of commercial fishing and trapping on Patterson Lake.
	[MN-S member] described some of the changes he's seen to vegetation and waterbodies over time.
	We should have more of these meetings with other companies like this. I'd like to get a Métis community member to work side by side with you guys and report the environmental side to the community instead of you guys doing it, so we know where we are and how much damage is being done to the land.
	This is general – the same information will come back to all the JWG's?
	We live in a very clean environment, other than Fort McMurray - we can sometimes smell the oil. The air is very clean; we can drink the water and eat the berries wherever they are. As you come south, those things change. We live in a very clean land; in our culture we call it the "land of the white eagle" because of the snow, and that represents clean.
	About 15 years ago at a workshop in Saskatoon, we knew why there were dying trees along the road – acid rain on the lakes. I said at least where I live, that nice clean water. I was introduced to a political scientist. She said the water looks clean but it's not. But I still drink water out of the lake when I camp, but it's getting there.
	We are the world's water purifying system – the swamps and muskegs break down all kinds of pollutants and turns it back to normal. That's one of the benefits of our north; we are the filter for most of the world's water. Each forest plays a role in everything, like rainforest in B.C.
	When we see the damage Fort McMurray is doing to our area – it's 100+ miles from us, but it's still affecting us. So much sulphur is put into the air and it comes down as acid rain. That changes our lake structures and the pH balance. It gets rid of the aquatic life. That oil industry is vastly affecting our area. Our lakes are turning to blue-green algae from the lower pH from acid rain. They have no concern for me if my fishing industry dies, as long as they get the last gallon of oil. They should be a lot more aware. Our government doesn't care about it as long as they get their percentage. It's about money with everything.
Métis Nation – Saskatchewan (MN-S)	It's mainly the food, for everything. We put seeds out, all kinds of birds come. Food is the main item of why things move around; water's the second one. Because of the Let it Burn policy, fire destroyed their food habitat. It's gone, and I don't know what I could tell you to change that. Go and find caribou moss is the simplest solution I could tell you. In the NWT, pipelines affect them – they are a big barrier.
	On our lake, we have algae on the surface of the water that never was there; what's promoting that algae to grow like that in our lakes? Those are the answers to solve. One day all the fish leave because we can't take notice and say we have to change, or we will lose it. I don't know what to say on the caribou; that's been going since I was young, and they put caribou in CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora). Still today they have no answers on how to protect the caribou, so they don't go extinct. Government has been involved in it all over, but nothing changes; they're still declining. All the things we do to try to protect and enhance mean nothing if we're going backwards. The biggest thing is to find the cause – why is it? Probably the main thing is pollution.
	When you talk about using local, that's good. For example, we wanted to re-establish the fish population in our lakes, that had been taken out. Government said no, we'll bring you the eggs. We wanted to use the eggs from our own lakes. They said no. Today we have sauger in the lakes that should never ever be there. That's from taking something from somewhere else and bringing it here. You can't take a lady slipper from up north and plant it in Saskatoon and expect it to grow. The environment is not right. But you can plant it up where I live, and it will grow. Using local is the best opportunity to re-establish the vegetation.

BNDN = Birch Narrows Dene Nation; BRDN = Buffalo River Dene Nation; CITES = Convention on International Trade in Endangered Species; CRDN = Clearwater River Dene Nation; JWG = joint working group; MN-S = Métis Nation – Saskatchewan; VC = valued component.