



NIRB Uuktuutinga Ihivriughikhamut #126005

Hydrology Modelling for McKeand River South

Uuktuutinga Qanurittuq:	New
Havaap Qanurittunia:	Scientific Research
Uuktuutinga Ublua:	9/28/2024 4:52:39 PM
Period of operation:	from 2024-10-11 to 2025-10-11
Havauhikhaq	Heather Shilton
Ikayuqtinga:	Nunavut Nukkiksautiit Corporation P.O. Box 1228 Iqaluit NU X0A0H0 Canada Hivayautit Nampanga:: 8672224658, Kayumiktukkut Nampanga::

QANURITTUT

Tukihiannaqtunik havaariyaumayumik uqauhiyun

Qablunaatitut: Introduction Nunavut Nukkiqsautiit Corporation (NNC) plans to collect river current data at McKeand River South, 60km Northeast of Iqaluit. This is a part of the Front-End Engineering and Design (FEED) stage of investigating the potential for community scale hydroelectric project in Iqaluit. This location was determined in a community vote by Iqalungmiut. The Qikiqtani Inuit Association has also approved support for further investigation of a potential hydroelectric project at this location through a FEED Study. Analysis from a QIA-led Tusaqtavut Study showed that the site at Kuugaluk River had zero reported values in the categories of cultural continuity, fishing and fresh water resource use, marine harvesting, terrestrial harvesting, travel trails and habitation. Based on these factors and support from Iqalungmiut, NNC is continuing to investigate the potential for waterpower at this location. NNC has contracted Sea to Sky Energy Solutions (SSES) to complete the design, installations and monitoring of the two hydrometric stations. Timeline NNC is aiming to start collecting data this calendar year. To do this, the two hydrometric monitoring systems will be installed in the fall of 2024; pending approval and procurement of materials, the installation will take place in early October 2024. These monitoring stations will operate for a one-year period, and the two monitoring systems will be decommissioned and removed from the site in the fall of 2025. The processing and analysis of the collected data will be finalized in a report by January 2026. Project Methodology In the fall of 2024, the SSES design team will visit the McKeand River South site to install the two Fathom AutoSalt hydrometric monitoring systems. The team will camp out at the site with a local guide and this initial installation period will last 10-14 days. Once these stations are installed, data will be collected remotely via satellite technology. During the one-year period of data collection additional site visits may be required to amend any equipment, such as in the spring when the river thaws. One year following the deployment of these systems the team will return to the site to decommission the monitoring devices and remove all equipment from the site. All data collected will be analyzed to determine the flow rates and the feasibility of waterpower at this location. This data will be included in the final report of this monitoring project. Environmental, Social and Wildlife Interactions Based on QIA's Tusaqtavut Study, Kuugaluk River had no identified areas of land use and cultural activities. The deployment of two hydrometric monitoring systems will have no environmental, social or wildlife impacts as the equipment is temporary and non-invasive. Data Management The Fathom's AutoSalt systems will transmit data via satellite, this data will be collected, analyzed and summarized in a report by SSES. The raw data as well as the analyzed data from the report will be reported back to NNC. Local Benefits This data collection is necessary to determine the feasibility of waterpower in Iqaluit. This data collection will provide the data needed to move forward with a community scale hydroelectric project, which has the potential to significantly reduce the city's diesel reliance and consumption. This hydroelectric project, if constructed, also has the potential to ultimately result in health and environmental benefits, decreased cost of power and investing our current diesel expenses into the local economy and providing more local job opportunities. Distribution of Results All results will be summarized and available in the final report of this data collection project as well as in the phase 3 decision support package for the Iqaluit Nukkiqsautiit project.

Uviititut: Introduction La Nunavut Nukkiqsautiit Corporation (NNC) prévoit recueillir des données sur le courant fluvial à McKeand River South, à 60 km au nord-est d'Iqaluit. Cette collecte fait partie de l'étape d'ingénierie et de conception préliminaires (FEED) de l'étude du potentiel d'un projet hydroélectrique à l'échelle communautaire à Iqaluit. Cet emplacement a été déterminé par un vote communautaire des Iqalungmiut. La Qikiqtani Inuit Association a également approuvé le soutien à une étude plus approfondie d'un éventuel projet hydroélectrique à cet endroit par le biais d'une étude FEED. L'analyse d'une étude Tusaqtavut dirigée par la QIA a montré que le site de la rivière Kuugaluk n'avait aucune valeur signalée dans les catégories de continuité culturelle, de pêche et d'utilisation des ressources en eau douce, de récolte marine, de récolte terrestre, de sentiers de déplacement et d'habitation. Sur la base de ces facteurs et du soutien des Iqalungmiut, la NNC continue d'étudier le potentiel hydroélectrique à cet endroit. NNC a confié à Sea to Sky Energy Solutions (SSES) la conception, l'installation et la surveillance des deux stations hydrométriques. Calendrier NNC souhaite commencer à recueillir des données au cours de cette année civile. Pour ce faire, les deux systèmes de surveillance hydrométrique seront installés à l'automne 2024. Sous réserve de l'approbation et de l'approvisionnement en

Inuktitut:

[illegible]

Post-Closure Phase: from to

Hulilukaarutit

Inigiya	Hulilukaarut Qanurittuq	Nunannga Qanurittaakhaanik	Initurlinga qanuritpa	Initurlinga utuqqarnitat unaluuniit Ingilraaqnitat Uyarannguqtut akhuurninnga	Qanitqiyauyuq qanitqiamut nunallaat kitulluuniit ahiruqtailiyainnit nuna
Planned location for hydrology data collection. Similar work done in similar location by ECCC years previously.	Baseline data	Crown	Location was selected by Iqalungmiut in 2023 for further exploration of a potential waterpower station to generate electricity. Current proposed activities include installation of hydrometric stations to collect data related to water flow speeds, which will determine feasibility for potential future use.	Unknown - to be determined	60 km

Nunaliin Ilauyun, Aviktuqhimayuniitunullu Ikayuuhiarunguyun

Nunauyuq	Atia	Timiuyuq	Upluani Uqaqatigiyaungmata
Iqaluit	Heather Shilton	Nunavut Nukkiqsautiit Corporation undertook multiple community engagement events in 2023 to enable Iqalungmiut to determine how they view their energy future. McKeand River South (Kuugaluk South) was selected by Iqalungmiut in November 2023 for further investigation regarding potential waterpower.	2023-11-22

Angiuttauvaktunik

Naunaiqlugu nunanga talvani havauhikhaq ittuq:

Angiuttauvaktunik

Munariniqmut Ayuittiaqtuq	Angirutinga Qanurittuq	Tadja Qanurittaakhaanik	Ublua Tuniyauyuq/Uuktuqtuq	Umikvikhaa Ublua
Nunavunmi Ihivriuqniqmut Timiqutigiyanga	Application submitted to NRI August 20, 2024	Applied, Decision Pending		

Project transportation types

Transportation Type	Qanuq Atuqtauniarmangaa	Length of Use
Air	Helicopter	

Project accomodation types

Temporary Camp

Ihuaqutivaluin Atuqtauyukhan

Hanalrutit atuqtaunahuat (ukuallu ikuutat, pampiutainnik, tingmitinik, akhaluutinik, hunaluuniit)

Hanalrutit Qanurittuq	Qaffiuyut	Aktikkulaanga – Qanurittullu	Qanuq Atuqtauniarmangaa
AutoSalt water flow monitoring systems	2	24.5 x 23 x 48 tall	The two AutoSalt monitoring systems will be commissioned in the Mckeand River to monitor water flow for a one-year period.

Qanurittuq Urhuqyuaq unalu Qayangnaqtut Hunavaluit Aturninnga

Qanurittuq urhuqyuaq hunavaluit aturninnga:	Urhuqyuaq Qanurittuq	Qaffiuyut qattaryut	Qattaryuk Aktikkulaanga	Atauttimut Qaffiuyut	Ilanga	Qanuq Atuqtauniarmangaa
Aviation fuel	fuel	1	975	975	Liters	Helicopter Transport
None	hazardous	0	0	0	Liters	None

Imaqmik Aturninnga

Ubluq qanuraaluk (m3)	Aturumayain imavaluin utiqittagaani qanuq	Atulirumayain imavaluin utiqittagani humi
0		

Iqqakuq

Ikkakunik Munakgiyauyunik

Havauhikhaq Hulilukaarut	Qanurittuq Iqqakut	Ihumagiyauyuq Qanuraaluktut Atuqtait	Qanuq Iqqakuurniarmangaa	Halummaqtirarnirutikhan piyutin
Camp	Other, Food Waste	Minimal	Bring back to Iqaluit for disposal	None.

Avatiliriniqmut Ayurhautingit:

No impacts anticipated from these research activities.

Additional Information

SECTION A1: Project Info

SECTION A2: Allweather Road

SECTION A3: Winter Road

SECTION B1: Project Info

SECTION B2: Exploration Activity

SECTION B3: Geosciences

SECTION B4: Drilling

SECTION B5: Stripping

SECTION B6: Underground Activity

SECTION B7: Waste Rock

SECTION B8: Stockpiles

SECTION B9: Mine Development

SECTION B10: Geology

SECTION B11: Mine

SECTION B12: Mill

SECTION C1: Pits

SECTION D1: Facility

SECTION D2: Facility Construction

SECTION D3: Facility Operation

SECTION D4: Vessel Use

SECTION E1: Offshore Survey

SECTION E2: Nearshore Survey

SECTION E3: Vessel Use

SECTION F1: Site Cleanup

SECTION G1: Well Authorization

SECTION G2: Onland Exploration

SECTION G3: Offshore Exploration

SECTION G4: Rig

SECTION H1: Vessel Use

SECTION H2: Disposal At Sea

SECTION I1: Municipal Development

Qanurittuq Ittunik Avatinga: Avatingalluanga

Qanurittuq Ittunik Avatinga: Inuuhimayunut Avatinga

Qanurittuq Ittunik Avatinga: Inungit-maniliurutingit Avatinga

Miscellaneous Project Information

Naunaiyainiq ukuninnga Ayurhautingit unalu Piumayaat Ikikliyuumiutinahuarutit

Tamatkiumayunik Ihuikgutivaktunik

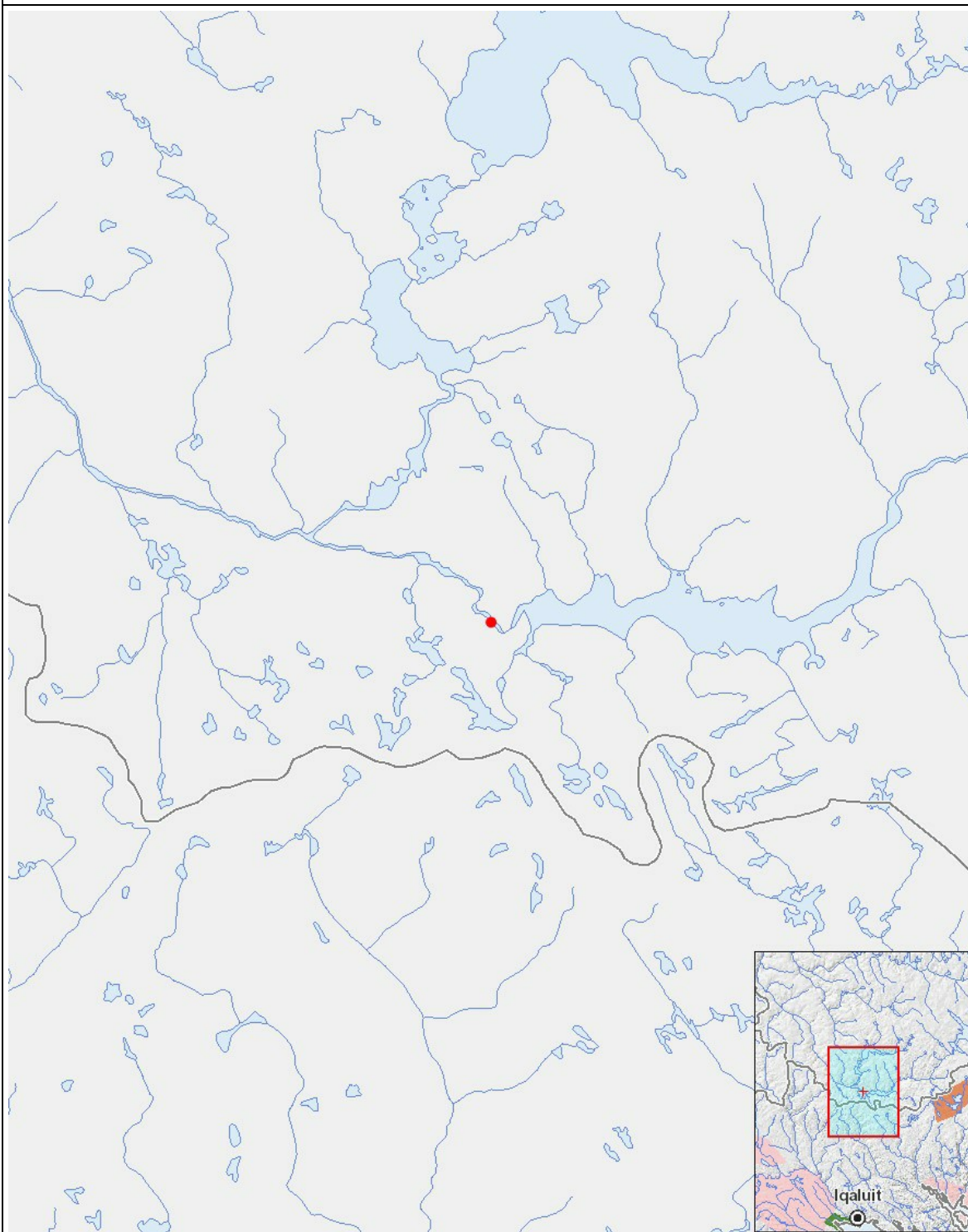
Impacts

Ilitariyauniq Avatiliriniqmut Ayurhautingit

		PHYSICAL													BIOLOGICAL													SOCIO-ECONOMIC																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
		Designated environmental areas					Ground stability			Permafrost					Hydrology / Limnology			Water quality					Climate conditions					Eskers and other unique or fragile landscapes					Surface and bedrock geology			Sediment and soil quality			Tidal processes and bathymetry			Air quality			Noise levels			Vegetation			Wildlife, including habitat and migration patterns					Birds, including habitat and migration patterns			Aquatic species, incl. habitat and migration/spawning			Wildlife protected areas			Archaeological and cultural historic sites					Employment			Community wellness			Community infrastructure			Human health																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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(P = Nakuuyuq, N = Nakuungittut unalu mikhilimaittuq, M = Nakuungittut unalu mikhittaaqtuq, U = Naluyauyuq)

Havaariyauyukhamut Nayugaa



List of Project Geometries

- 1 point Planned location for hydrology data collection. Similar work done in similar location by ECCC years previously.