NIRB Application for Screening #126005
Hydrology Modelling for McKeand River South

Application Type: New

Project Type: Scientific Research

Application Date: 9/28/2024 4:52:39 PM

Period of operation: from 2024-10-11 to 2025-10-11

Project Proponent:

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DETAILS

Non-technical project proposal description

English: IntroductionNunavut Nukkiksautiit 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.TimelineNNC 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 MethodologyIn 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 InteractionsBased 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 ManagementThe 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 BenefitsThis 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 ResultsAll 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 Nukkiksautiit project.

French: IntroductionLa Nunavut Nukkiksautiit 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.CalendrierNNC 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 matériaux, l'installation aura lieu début octobre 2024. Ces stations de surveillance fonctionneront pendant une période d'un an et les deux systèmes de surveillance seront mis hors service et retirés du site à l'automne 2025. Le traitement et l'analyse des données collectées seront finalisés

dans un rapport d’ici janvier 2026.Méthodologie du projetÀ l’automne 2024, l’équipe de conception de SSES visitera le site de McKeand River South pour installer les deux systèmes de surveillance hydrométrique Fathom AutoSalt. L’équipe campera sur le site avec un guide local et cette période d’installation initiale durera de 10 à 14 jours. Une fois ces stations installées, les données seront collectées à distance via la technologie satellite. Durant la période d’un an de collecte de données, des visites supplémentaires sur place peuvent être nécessaires pour modifier l’équipement, comme au printemps lorsque la rivière dégèle. Un an après le déploiement de ces systèmes, l’équipe reviendra sur le site pour mettre hors service les dispositifs de surveillance et retirer tout l’équipement du site. Toutes les données recueillies seront analysées pour déterminer les débits et la faisabilité de l’énergie hydraulique à cet endroit. Ces données seront incluses dans le rapport final de ce projet de surveillance. Interactions environnementales, sociales et fauniques D’après l’étude Tusaqtavut de la QIA, la rivière Kuugaluk n’avait aucune zone identifiée d’utilisation des terres et d’activités culturelles. Le déploiement de deux systèmes de surveillance hydrométrique n’aura aucun impact environnemental, social ou faunique, car l’équipement est temporaire et non invasif. Gestion des données Les systèmes AutoSalt de Fathom transmettront des données par satellite. Ces données seront collectées, analysées et résumées dans un rapport par SSES. Les données brutes ainsi que les données analysées du rapport seront transmises à NNC. Avantages locaux Cette collecte de données est nécessaire pour déterminer la faisabilité de l’énergie hydraulique à Iqaluit. Cette collecte de données fournira les données nécessaires pour aller de l’avant avec un projet hydroélectrique à l’échelle communautaire, qui a le potentiel de réduire considérablement la dépendance et la consommation de diesel de la ville. Ce projet hydroélectrique, s’il est construit, a également le potentiel d’entraîner à terme des avantages pour la santé et l’environnement, une réduction du coût de l’électricité et un investissement de nos dépenses actuelles en diesel dans l’économie locale et la création de davantage d’opportunités d’emploi locales. Distribution des résultats Tous les résultats seront résumés et disponibles dans le rapport final de ce projet de collecte de données ainsi que dans le dossier d’aide à la décision de la phase 3 du projet Iqaluit Nukkiksautiit.

Inuktitut: ᐱᑎᐊᖅᓄᓗᓇᕐᓂᑦ ᓄᑲᑭᓴᐅᑎᑦ ᑯᐊᐳᓗᓴᐦ <ᖅᓇᐃᓕᒍᓂᑦ ᓄᐊᖅᑎᓗᑎᑦ ᒪᓕᓂᓄᓂᑲ ᖃᐅᔨᓴᕈᑎᑦᓗᑎᑲ ᑕᐃᑲᓂ ᐊᐅᑲᖃᓕᓂᑦ ᑯᐃᓗᑲ, 60 ᑭᓪᒋᑦᑐᑦ ᐅᐊᖓᓇ, ᓂᕈᐊᓂ, ᐅᓇᓕᒍᓂᑦ ᐅᐊᖓᓇ ᐃᓇᓗᐊᖅᑐᑦ ᐊᐅᓚᑲᓇᑎᑦ ᐊᐅᓚᑲᓇᑎᑦ ᐊᐅᓚᑲᓇᑎ

ᐱᐅᓯᑐᖅᖃᐅᔨᒪᔭᑦ. ᐅᓇ ᐱᑎᐊᖅᑎᑎᓂᖅᓱᔭᑦ ᒪᖁᑲᖅᓴ ᐃᒧᓂ ᖃᐅᔨᕕᑭᑎᑦ ᒥᐊᓂᓚᐠᑦ ᑕᐃᒪᓗ ᐊᐢᓄᒥᑦ, ᐃᓄᓯᖏᑦ ᐅᐢᓂᓐᓄᓪᑦ ᓂᖁᐊᓂᓴ ᐊᐅᑐᐃᖅᓱᔭᑦᑐᑦ ᑕᐃᒪᓗ ᐊᐅᓪᓕᐅᑎᓕᑦ ᖵᓪᒥᑯᓗᑦ ᐊᑕᓂᐊᖅᑐᖅ ᐊᒪᓗ ᑭᓱᒪᓕᕐᓂᖅ ᐸᑲᕕᐃᓐᔭᖅᑐᑦ .ᖃᐅᔨᕕᑭᑎᑕᑦ ᐊᐅᓪᓕᑕᐅᑦᓴᓯᖏᑎᐅᑯᐊ Fathom’s AutoSalt ᖃᐅᔨᕕᖅᓯᓴᑎᑦ ᐊᐅᓪᓕᐅᑎᓕᑦ ᐊᑦᑕᑕᒪᑦᕕᐅᓴᑦ ᐅᒪᓴᑦ ᖃᖏᑦᑕᖅᑎᑕᐅᓴᖅ ᐊᑐᖅᓴᒃᑯᒍ, ᐅᓇ ᖃᐅᔨᕕᑭᑎᑕᑦ ᓄᐊᑕᐅᓴᖅ, ᖃᐅᔨᕕᖅᑕᑎᐊᐳᖅᑕᐅᑦᓂᓪᓕᓂ ᐊᐅᓪᓕᐅᑎᓕᑦ ᐊᐅᓪᓕᐅᑎᓕᑦ ᐊᐅᓪᓕᐅᑎᓕᑦ

Activities

Location	Activity Type	Land Status	Site history	Site archaeological or paleontological value	Proximity to the nearest communities and any protected areas
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

Community Involvement & Regional Benefits

Community	Name	Organization	Date Contacted
Iqaluit	Heather Shilton	Nunavut Nukkiksautiit 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

Authorizations

Indicate the areas in which the project is located:

Authorizations

Regulatory Authority	Authorization Description	Current Status	Date Issued / Applied	Expiry Date
Nunavut Research Institute	Application submitted to NRI August 20, 2024	Applied, Decision Pending		

Project transportation types

Transportation Type	Proposed Use	Length of Use
Air	Helicopter	

Project accomodation types

Temporary Camp

Material Use

Equipment to be used (including drills, pumps, aircraft, vehicles, etc)

Equipment Type	Quantity	Size - Dimensions	Proposed Use
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.

Detail Fuel and Hazardous Material Use

Detail fuel material use:	Fuel Type	Number of containers	Container Capacity	Total Amount	Units	Proposed Use
Aviation fuel	fuel	1	975	975	Liters	Helicopter Transport
None	hazardous	0	0	0	Liters	None

Water Consumption

Daily amount (m3)	Proposed water retrieval methods	Proposed water retrieval location
0		

Waste

Waste Management

Project Activity	Type of Waste	Projected Amount Generated	Method of Disposal	Additional treatment procedures
Camp	Other, Food Waste	Minimal	Bring back to Iqaluit for disposal	None.

Environmental Impacts:

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

Description of Existing Environment: Physical Environment

Description of Existing Environment: Biological Environment

Description of Existing Environment: Socio-economic Environment

Miscellaneous Project Information

Identification of Impacts and Proposed Mitigation Measures

Cumulative Effects

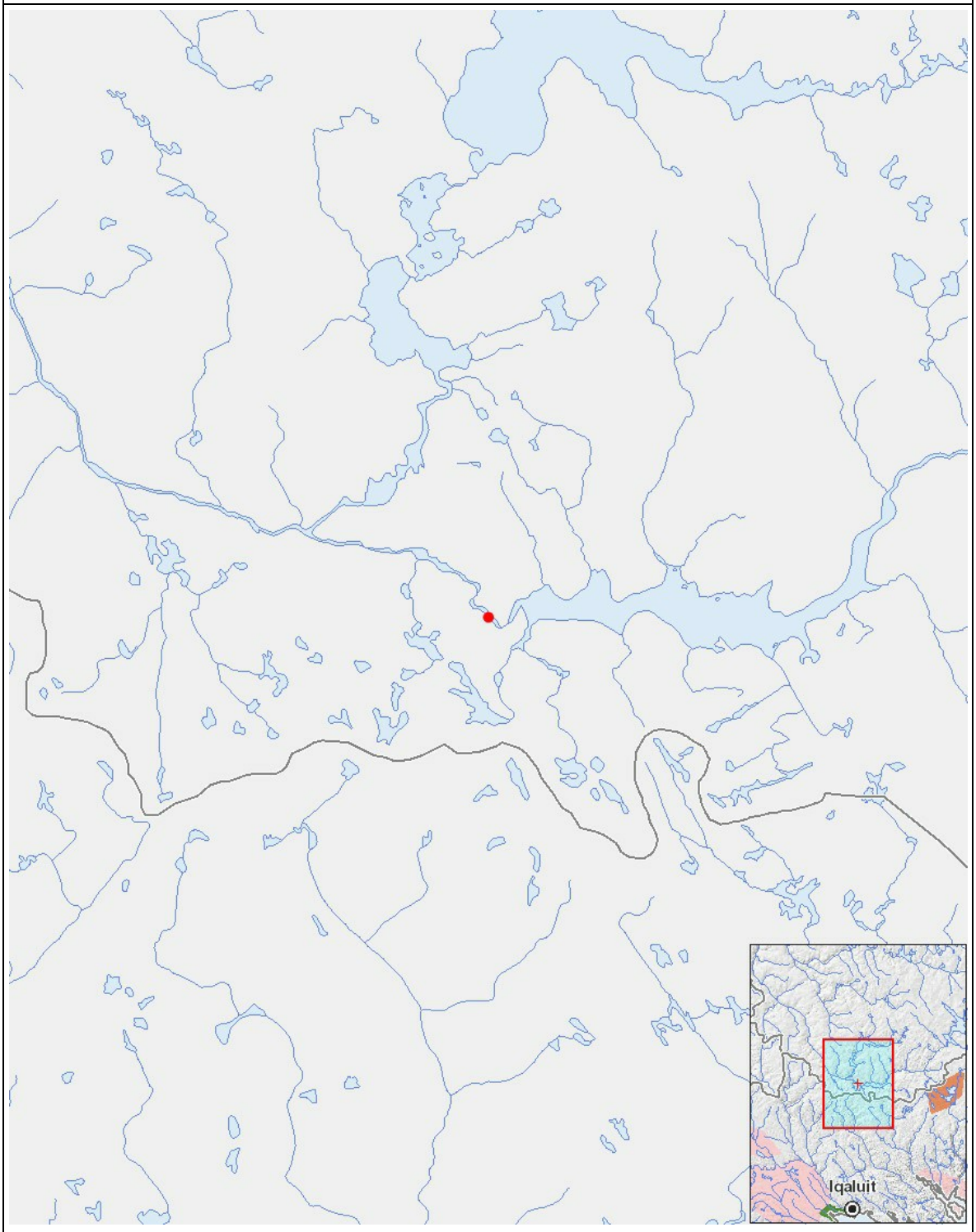
Impacts

Identification of Environmental Impacts

	PHYSICAL	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	BIOLOGICAL	Vegetation	Wildlife, including habitat and migration patterns	Birds, including habitat and migration patterns	Aquatic species, incl. habitat and migration/spawning	Wildlife protected areas	SOCIO-ECONOMIC	Archaeological and cultural historic sites	Employment	Community wellness	Community infrastructure	Human health
Construction																									
Baseline data		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	P	-	-	-
Operation																									
Baseline data		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	P	-	-	-
Decommissioning																									
-		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-

(P = Positive, N = Negative and non-mitigatable, M = Negative and mitigatable, U = Unknown)

Project Location



List of Project Geometries

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