



## **NIRB Application for Screening #125620**

### **Gjoa Haven New Power Plant**

**Application Type:** New

**Project Type:** Power Plant

**Application Date:** 6/26/2021 2:19:12 PM

**Period of operation:** from 0001-01-01 to 0001-01-01

**Proposed Authorization:** from 0001-01-01 to 0001-01-01

**Project Proponent:** Megan Larose  
Qulliq Energy Corporation  
PO Box 250  
Iqaluit Nunavut X0A 0H0  
Canada  
Phone Number:: 867 979 7553, Fax Number::

## DETAILS

### Non-technical project proposal description

English:

Qulliq Energy Corporation (QEC) is a Government of Nunavut (GN) territorial corporation. Through the operation of 25 stand-alone diesel power plants, QEC is the sole provider of electricity to approximately 15,000 customers in the territory. Qulliq Energy Corporation is proposing to construct and operate a new power plant in the Hamlet of Gjoa Haven located in the Kitikmeot Region of Nunavut (the project). Gjoa Haven is a community with increasing demand for electricity, reflecting its growing population. The existing power plant was constructed in 1977 and has exceeded its design life. As the facility continues to age and become more outdated, it will become more difficult to maintain, and plant reliability will become an issue. Without reliable equipment, QEC's customers are at risk of system failure. This proposed multi-year project will include a new four-engine power generation facility with installed capacity of 3,100 kilowatts, designed for a 40-year life and will incorporate new technology to improve reliability, efficiency, operation, and safety. Construction will include a fuel storage system consisting of two 90,000 litre horizontal fuel tanks, and fuel pumping facilities. Additionally, QEC plans to construct a Quonset garage, transformer storage, pole racks, and oil and glycol drum storage and waste disposal area with secondary containment berm. Space will be allocated for transient staff accommodations, sea cans for storage, and a back-up emergency generator. Upgrades to the existing distribution system will also be required to connect to the new power plant. An approximately 50-metre fuel pipeline will be constructed to connect to the Petroleum Products Division (PPD) bulk fuel facility located to the east. The pipeline will be a combination of aboveground and underground construction. The new plant will be capable of integrating renewable energy sources. The proposed new lot is approximately 10,110 square metres located on unsurveyed, untitled municipal land along Nuvu Road (Road R36) and is approximately 50 metres west of the PPD bulk fuel facility. The area proposed for the power plant has been designated by the Hamlet for industrial land use. The proposed lot was presented to and approved by the Hamlet of Gjoa Haven on June 1, 2021. The GN-CGS Planning and Lands Division issued a Sketch Plan Approval Report on June 18, 2021. There are no natural drainages, or watercourses within 100 metres of the project location. There are no designated wildlife areas, marine protected areas, territorial or national parks or Inuit owned lands in conflict with the power plant location. An archaeological impact assessment will be carried out in July 2021 to determine if archaeological sites are in potential conflict with the project and identify any necessary avoidance or mitigation measures. The anticipated project schedule is shown in Table 1.

Task	Anticipated Milestone	Secure Land and Complete Archaeological Impact Assessment
March 2021 to March 2022	Detailed engineering design	April 2022 to March 2023
Contracting and procurement	April 2023 to March 2024	Construction
April 2024 to December 2025 (seasonal)	Testing and commissioning	January 2026 to March 2026
Plant handover to QEC staff	March/April 2026	On average, 21 workers are estimated to be required on-site for the duration of construction. This will fluctuate based on the construction phase. The contractor awarded the construction tender will determine the required labour force to meet project requirements. Contractors will be obligated to meet mandatory Inuit labour levels for all construction work. QEC has staff in Gjoa Haven that are responsible for the day to day operation of the power plant. This includes a full-time Plant Superintendent, and two part-time Assistant Operators. Existing staff will transition over to the new power plant once it has been constructed and commissioned. No new staffing is anticipated to be required as a result of this project. The majority of construction materials for the Project will be delivered by annual sealift. Some materials may be sourced locally or delivered via cargo plane depending on size and quantity. The contractor will be responsible for sourcing construction equipment. This may include sub-contracting locally available equipment or bringing equipment to the community through the annual sealift. This project is anticipated to provide an overall benefit to the Hamlet of Gjoa Haven with more efficient use of diesel, a non-renewable resource, and the reduction of greenhouse gas emissions. It will also allow QEC to improve power generation infrastructure in the community, support continued community growth and achieve its mandate for the provision of safe, reliable electrical power to the communities it serves.

French: Traduction française non identifiée comme requise pour cette communauté.

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nakuuhivalliadjutiqhaatigun pauwaqtautikkut nunallaami, ikayuqtau himmangginna klugitlu amigaingniat nunaqaqhimayut, tikiutilugulu hivuniquhaliuqtaat aanniqhimaittumik, piqainnaktittilugit pauwaqhainnik nunallaami.

**Personnel**

Personnel on site: 21

Days on site: 580

Total Person days: 12180

Operations Phase: from 2024-04-01 to 2026-03-31

Operations Phase: from 2026-04-01 to 2046-03-31

Post-Closure Phase: from to

## Activities

Location	Activity Type	Land Status	Site history	Site archaeological or paleontological value	Proximity to the nearest communities and any protected areas
Lot A - Proposed Power Plant	Fuel and chemical storage	Municipal	The proposed lot is within the Municipality of Gjoa Haven and has been designated for industrial land use. A portion of the selected location is currently being used by Canadrill and XYZ Contractor as a storage location for sea cans, construction materials, unmarked drums, and drilling supplies/equipment.	An archaeological impact assessment will be carried out in summer 2021 to determine if archaeological sites are in potential conflict with the project and identify any necessary avoidance or mitigation measures	Within the Municipality of Gjoa Haven, on the east side of the community, outside the core community area. There are no natural drainages within 100 metres and no designated wildlife areas, marine protected areas, territorial or national parks, or Inuit Owned Lands in conflict with the proposed power plant location.
Lot A - Proposed Power Plant	Municipal and Industrial Development	Municipal	The proposed lot is within the Municipality of Gjoa Haven and has been designated for industrial land use. A portion of the selected location is currently being used by Canadrill and XYZ Contractor as a storage location for sea cans, construction materials, unmarked drums, and drilling supplies/equipment.	An archaeological impact assessment will be carried out in summer 2021 to determine if archaeological sites are in potential conflict with the project and identify any necessary avoidance or mitigation measures	Within the Municipality of Gjoa Haven, on the east side of the community, outside the core community area. There are no natural drainages within 100 metres and no designated wildlife areas, marine protected areas, territorial or national parks, or Inuit Owned Lands in conflict with the proposed power plant location.

## Community Involvement & Regional Benefits

Community	Name	Organization	Date Contacted
Gjoa Haven	Hamlet Council	Hamlet of Gjoa Haven	2020-07-30
Gjoa Haven	Hamlet Council - Senior Administrative Officer	Hamlet of Gjoa Haven	2021-01-12
Gjoa Haven	Land Development, Senior Administrative Officer	Hamlet of Gjoa Haven	2021-05-18

## Authorizations

Indicate the areas in which the project is located:

Kitikmeot

### Authorizations

Regulatory Authority	Authorization Description	Current Status	Date Issued / Applied	Expiry Date
Government of Nunavut, Community Government & Services	Lease agreement for new lot	Active		
Hamlets and Municipalities	Development Permit	Not Yet Applied		
Government of Nunavut, Community Government & Services	Building Permit	Not Yet Applied		
Transport Canada	Aeronautical Assessment (2021-344)	Active	2021-06-24	
Hamlets and Municipalities	Land application and lease agreement for new lot - applied 2021-05-18	Active		
Nunavut Water Board	Hydrostatic Test - Type B license for water use and disposal of test water	Not Yet Applied		
Other	NavCanada - Land Use Proposal SubmissionNo Objection Letter received 2021-06-30	Active		
Other	Nunavut Airports Division - Project ReviewNo Objection Letter Received - 2021-06-30	Active		

### Project transportation types

Transportation Type	Proposed Use	Length of Use
Air	Construction labour and some materials will be transported to the community by air	
Water	Construction equipment and materials will primarily be transported to the community by sea lift	

### Project accomodation types

Community

## Material Use

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

Equipment Type	Quantity	Size - Dimensions	Proposed Use
Excavator	1		excavation as needed on-site
Backhoe	1		excavation as needed on-site, material collection
Bulldozer	1		material excavation and movement on-site
Grader	1		civil construction, level soil/gravel as needed
compactor machine	1		site compaction as required
articulated truck (dump truck)	1		transport of material to and from site
tower crane	1		lifting materials to height
Bored pile drilling equipment	1		pile construction
Boom Truck	1		lifting construction materials to height
Telehandler	1		carrying/transporting heavy loads
Fork lift	1		carrying/transporting materials
trailer	1		transporting materials to and from site
Concrete mixer	1		mix and pour concrete
Welding Machine	2		welding
Generator	4		Four generators will be installed in the power plant with a generating capacity of 3,100 kilowatts

### Detail Fuel and Hazardous Material Use

Detail fuel material use:	Fuel Type	Number of containers	Container Capacity	Total Amount	Units	Proposed Use
Diesel	fuel	1	0	0	Liters	Fuel will be required during construction for all equipment used on site. Fuel storage and handling during construction will be the responsibility of the contractor. Details regarding the location and volume of fuel storage and location of equipment refueling during construction are not known at this time. The



						contractor will be required to have a fuel management plan.
Diesel	fuel	2	90000	180000	Liters	Fuel will be used/stored at the power plant to run the generators. Fuel will be stored in above-ground horizontal fuel storage tanks.
solvent	hazardous	4	205	820	Liters	generator maintenance and operation
engine oil	hazardous	16	205	3280	Liters	generator maintenance and operation
propylene glycol	hazardous	1	2000	2000	Liters	power plant operations, heat transfer

#### Water Consumption

Daily amount (m3)	Proposed water retrieval methods	Proposed water retrieval location
0	To be determined by the Contractor.	To be determined by the Contractor.

# Waste

## Waste Management

Project Activity	Type of Waste	Projected Amount Generated	Method of Disposal	Additional treatment procedures
Municipal and Industrial Development	Combustible wastes	unknown	Disposal of construction waste will be the responsibility of the contractor. If permitted by the Hamlet, some waste may be disposed of at the local landfill.	unknown
Municipal and Industrial Development	Combustible wastes	unknown	During operations, QEC will dispose of domestic waste in the local landfill if permitted by the Hamlet. Waste that is not permitted in the local landfill will be shipped south as part of QECs annual waste shipment.	none
Fuel and chemical storage	Hazardous waste	2,460 litres	Amount of liquid waste during operation will vary annually. Waste fuel/glycol will be collected in drums, stored within secondary containment and shipped south for disposal.	none
Municipal and Industrial Development	Non-Combustible wastes	200 litres	Amount of non-combustible waste generated during operation will vary annually. Material will be stored in quatrex bags or other appropriate containment and shipped south for disposal.	none
Municipal and Industrial Development	Non-Combustible wastes	unknown	Amount of non-combustible waste generated during construction is not known. Appropriate disposal of all non-combustible waste generated during construction will be the responsibility of the contractor.	none
Municipal and Industrial Development	Overburden (organic soil, waste material, tailings)	unknown	Disposal of overburden and soil/rock excavated	none

			for power plant to be determined by the contractor in communication with the Hamlet. Volume to be determined. If possible, some overburden material may be used to build up other areas within the plant site.	
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#### **Environmental Impacts:**

Please refer to the attached Project Description (Table 4). Note: The environmental impact identified for permafrost, sediment and soil quality, air quality, and noise levels should be negative/mitigable for the construction and operation phases of the Municipal and Industrial Development activity. The selection seems to change automatically to negative/non-mitigable every time this page is viewed.

# **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**

Please refer to the attached Project Description.

**Description of Existing Environment: Biological Environment**

Please refer to the attached Project Description.

**Description of Existing Environment: Socio-economic Environment**

Please refer to the attached Project Description.

**Miscellaneous Project Information**

**Identification of Impacts and Proposed Mitigation Measures**

Please refer to the attached Project Description.

**Cumulative Effects**

Please refer to the attached Project Description.

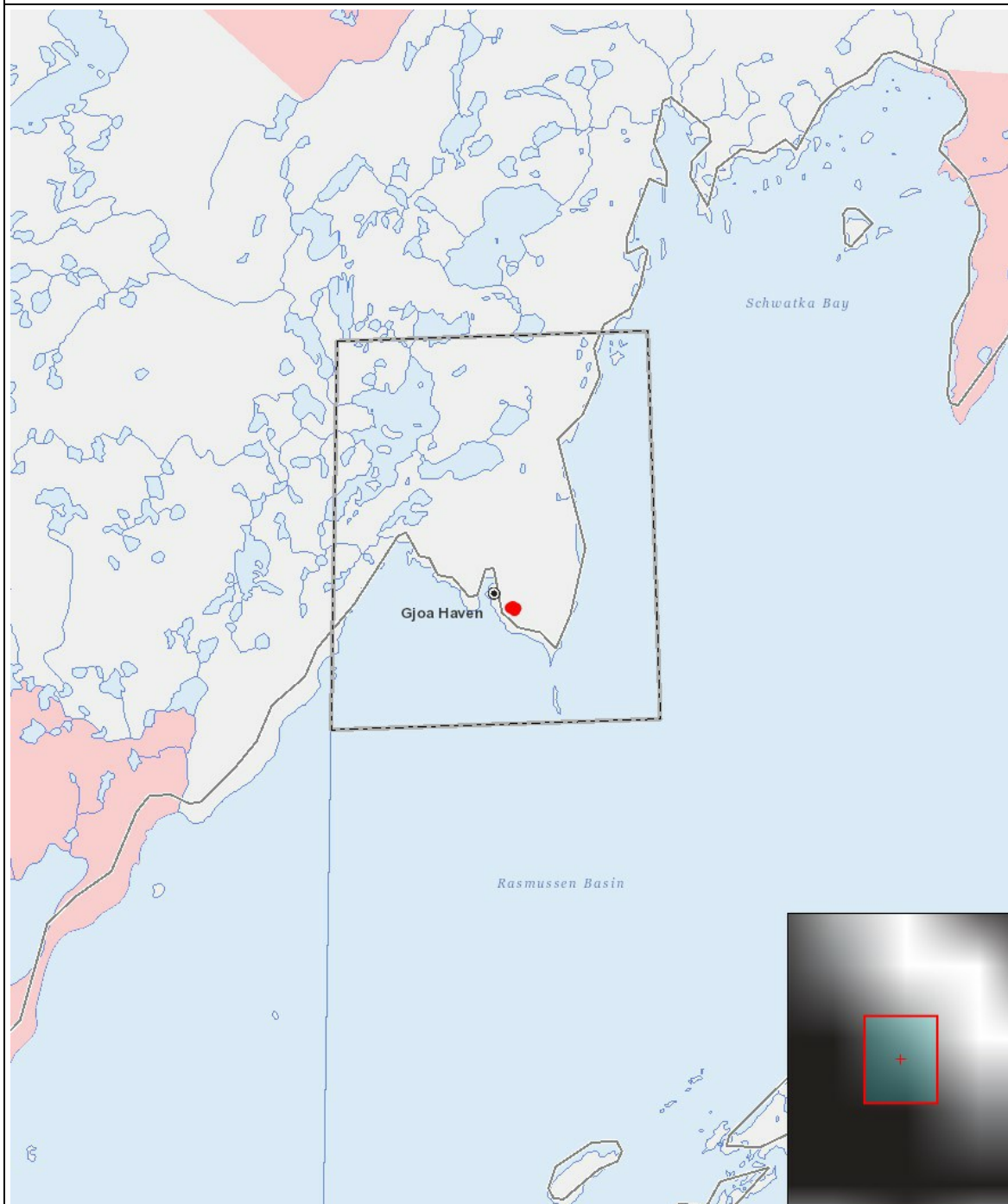
# Impacts

## Identification of Environmental Impacts

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		Designated environmental areas					Ground stability					Hydrology / Limnology					Water quality					Climate conditions					Eschers 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 = Positive, N = Negative and non-mitigatable, M = Negative and mitigatable, U = Unknown)

## Project Location



## List of Project Geometries

- |   |         |  |
|---|---------|--|
| 1 | polygon | Lot A - Proposed Power Plant           |
| 2 | point   | FourCorners-GjoaHaven_Option1_Location |