Environmental Protection Operations Directorate
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ECCC File: 6200 000 004/003
NIRB File: 24XN034

August 1, 2024

via email at: info@nirb.ca

Francis Emingak
Screening Officer
Nunavut Impact Review Board
29 Mitik Street
P.O. Box 1360
Cambridge Bay, NU X0B 0C0

Dear Francis Emingak:

RE: 24XN034 – Qulliq Energy Corporation – New Kugaaruk Power Plant – Notice of Screening and Comment Request

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Nunavut Impact Review Board (NIRB) regarding the above-mentioned screening and comment request.

ECCC provides expert information and knowledge to project assessments on subjects within the department's mandate, including climate change, air quality, water quality, biodiversity, environmental preparedness and emergencies. This work includes reviewing proponent characterization of environmental effects and proposed mitigation measures. We provide advice to decision-makers regarding a proponent's characterization of environmental effects, the efficacy of their proposed mitigation activities, and may suggest additional mitigation measures. Any comments received from ECCC in this context does not relieve the proponent of its obligations to respect all applicable federal legislation.

The following comments are provided:

1. **Topic: Water Management – Bermed Area**

   Reference(s)

   - NIRB Application
     - Non-technical Project Proposal Details (pdf pg. 2)
     - Section I1 : Municipal Development

Comment

The application indicates that the project will not entail any water-takings, instream works, or discharge to any small water features in the project area and acknowledges that the contractor will be required to ensure that surface disturbance during construction will not be able to run off site. However, the application also states that the project will involve construction of oil and glycol drum storage and a waste disposal area with a secondary containment berm. ECCC notes that water may accumulate within the secondary containment berm, come into contact with contaminants, and ultimately require management in such a way that it is not released to surface waters. No details have been provided on how operational water/runoff management will be handled on the site.

ECCC Recommendation(s)

ECCC recommends that the Proponent manage all runoff collected within the bermed area in such a way that it does not enter surface waters.

2. Topic: Greenhouse Gas Emissions

Reference(s)

1. Notice of Screening for Qulliq Energy Corporation's "New Kugaaruk Power Plant" Project Proposal (PDF page 2)

Comment

The Proponent states that the project will result in a reduction of Greenhouse Gas (GHG) emissions but does not provide details of the anticipated GHG emissions that will be produced from the Project in the application. For guidance, the Proponent can refer to the Strategic Assessment of Climate Change (SACC) and the associated Technical Guides.

ECCC Recommendation(s)

ECCC suggests the Proponent consider the impact of the project on federal and territorial (as available) emissions reduction efforts and on global GHG emissions. As outlined in Section 3 of the SACC, the GHG emissions from replacement projects are assessed based on the additional capacity the project creates in comparison to the original design capacity. To assist in this comparison, ECCC recommends the Proponent provide an estimate of the annual emissions from the Project's construction, operations, and decommissioning. ECCC recommends the Proponent provide the average amount of diesel consumed per year for operations of the current power plant, and the proposed power plant.

ECCC also recommends the Proponent consider potential GHG mitigation measures for the Project, provide details on the potential future integration of renewables, and outlines a plan to achieve net-zero by 2050, as described in the SACC and the Technical Guides.

3. Topic: Greenhouse Gas Emissions

Reference(s)

2. Notice of Screening for Qulliq Energy Corporation's "New Kugaaruk Power Plant" Project Proposal (PDF page 2)

Comment

Under unabated conditions, a diesel power plant such as the one proposed would emit air pollutants (AP) including such pollutants as PM, NOx, CO and NMHC under normal operation. The units will also release GHGs (CO2).

The Canadian Off-road Compression-Ignition (Mobile and Stationary) and Large Spark-Ignition Engine Emission Regulations SOR/2020-2582020 requires:

"*(3) A stationary compression-ignition engine that is to be used in a remote location may, instead of conforming to the emission standards set out in subsection 11(1), conform to those set out in section 4201(f), subpart IIII, of CFR 60 or those set out in sections 4202(a)(1)(ii), (a)(2), (b)(2), (e)(2) and (4) and (f)(1) and (2), subpart IIII, of CFR 60."*

The proposal mentions that to mitigate any possible air pollutants and GHG emissions, the fuel control system will be of the latest standard, for optimization of combustion and optimized AP formation, the reciprocating type engines will have mechanical maintenance design features such that optimal combustion can be maintained over time, and the exhaust system will have PM filtration built in. The proposal states that the system will not use SCRs etc. for emissions control.

ECCC Recommendation(s)

ECCC recommends validation of proponent assertions above via provision and review of supplier performance guarantees and technical specifications.

4. Topic: Tier 4 Machines

Reference(s)

Construction Materials and Equipment, Kugaaruk New Diesel Power Plant Submission to Nunavut Planning Commission

Comment

The Proponent has stated that the contractor who is awarded the construction tender will be responsible for sourcing equipment, such as by subcontracting equipment that is locally available or using the annual sealift.

ECCC Recommendation(s)

When sourcing equipment, ECCC recommends that the Proponent ensures the construction contractor selects Tier 4 certified machines where possible. Tier 4 is currently the most stringent emission standard for air pollutants from off-road machines, reducing PM and NOx emissions by 90% relative to older emission standards.

5. **Topic: Assessing Potential Air Quality effects**

Reference(s)

Table 4: Potential Environmental Effects Resulting from the Kugaaruk New Power Plant Project (to replace the existing power plant), Kugaaruk New Diesel Power Plant Submission to Nunavut Planning Commission

Comment

The Proponent has listed some potential environmental effects and associated mitigation measures. Given that construction will span multiple years and numerous construction machines will be used, ECCC expects that the Project will produce air pollutant emissions and may also have potential negative air quality effects.

ECCC Recommendation(s)

ECCC recommends that the Proponent assesses the potential negative air quality effects resulting from the Project, such as an increase in air pollutants due to emissions from construction machines, and that the Proponent implements air quality mitigation measures. For example, mitigation measures could include limiting the idling of construction machines, ensuring regular inspection and maintenance of construction machines, and using Tier 4 certified machines where possible.

6. **Topic: Length of fuel pipeline from Petroleum Products Division (PPD) tank farm to proposed power plant site**

Reference(s)

3. Kugaaruk Project Statement to NIRB (PDF page 1)
4. Kugaaruk New Diesel Power Plant – Submission to Nunavut Planning Commission (PDF pages 1 and 9)
5. NIRB Application for Screening #125981 New Kugaaruk Power Plant (PDF page 2)
6. Notice of Screening for Qulliq Energy Corporation's "New Kugaaruk Power Plant" Project Proposal (PDF page 2)
7. Notice of Screening – Opportunity for Public Comment (PDF page 1)

Comment

The length of the pipeline connecting the PPD tank farm and the proposed power plant is listed as 75 m in references #1 and 2, while it is listed as 30 m in references #3—5.

ECCC Recommendation(s)

The proponent should clarify the length of the pipeline between the PPD tank farm and the proposed power plant and ensure that all documents are in alignment with the correct length.

7. Topic: Inclusion of day tank(s) specifications in project documentation

Reference(s)

1. Kugaaruk New Diesel Power Plant – Submission to Nunavut Planning Commission (PDF page 13)
2. NIRB Application for Screening #125981 New Kugaaruk Power Plant (PDF page 15)

Comment

The referenced documents refer to a day tank (single) or day tanks (potentially multiple), located inside the proposed power plant, which will be used to directly supply fuel to the generators. No information is provided on the specifications of the day tank(s) or whether secondary containment will be present. No reference is made to the day tank(s) in any of the other project documentation.

ECCC Recommendation(s)

ECCC recommends that the Proponent include within the appropriate documents, the specifications of the day tank(s) (e.g., capacity, configuration) as well as any secondary containment and overfill protection mechanisms that will be in place for the day tank(s).

8. Topic: Best practices for construction environmental management plan

Reference(s)

- NIRB Application for Screening #125981 New Kugaaruk Power Plant (PDF page 15)

Comment

ECCC notes that the construction firm will follow its own environmental management plan; however, the various mitigation strategies that will be employed in the plan are not yet available, as the plan has not been developed.

ECCC Recommendation(s)

ECCC recommends that the construction firm include best practices in their environmental management plan, including the use of drip trays for equipment that is parked / stationary, as well as ensuring that equipment undergoes regular inspection, maintenance (with logs), and cleaning.

9. Topic: Risk of accidents and malfunctions

Reference(s)

- N/A

Comment

The proposed project involves the construction and operation of a diesel-fueled reciprocating engine-based power plant. Works to be constructed include:

- Generator building, including five diesel generators and a diesel day tank
- Two double-walled 90,000 L horizontal diesel storage tanks
- Fuel pumping facilities
- Storage facilities, including for oil and glycol, and associated operational wastes
- Aboveground pipeline (length unclear – see comment #1) connecting the facility with the nearby PPD tank farm

Operation of the plant will involve:

- Use and storage of diesel and occasional refueling of storage tanks through pipeline or fuel truck transfer
- Use of glycol and oil in generator operations

There is potential for adverse environmental effects to air quality, water quality, migratory birds, and species at risk from accidents and malfunctions, such as releases of diesel, glycol, or oil, during construction and operation of the plant.

Optimized spill prevention, preparedness, and response measures and systems will be important during construction and operation of the power plant, given the risk of release of hazardous substances to the environment. Part 8 of the *Canadian Environmental Protection Act, 1999* (CEPA) on environmental emergencies (sections 193 to 205) addresses the prevention of, preparedness for, response to, and recovery from environmental emergencies caused by uncontrolled, unplanned, or accidental releases. It also addresses the reduction of any foreseeable likelihood of releases of toxic or other hazardous substances listed in Schedule 1 of the *Environmental Emergency Regulations, 2019*. This act may apply if Schedule 1 substances onsite meet or exceed the threshold to be regulated under CEPA.

ECCC Recommendation(s)

ECCC recommends reviewing the regulations to assess whether they may apply to the project.

If you need more information, please contact Russell Wykes at (867) 446-1263 or Russell.Wykes@ec.gc.ca.

Sincerely,

[original signed by]

Russell Wykes

A/ Senior Environmental Assessment Officer

cc: Eva Walker, Head, Environmental Assessment North (NT and NU)