



## Meeting summary

The 281th meeting was held by videoconference on March 6, 2024.

Present:	Pierre Philie	Charlie Arngak
	Daniel Berrouard	David Annanack
	Cynthia Marchildon	Joseph Annahatak
	Thérèse Spiegele	Lisa Koperqualuk
	Murielle Vachon	

Executive Secretary: Florian Olivier

### PROJECTS AND OTHER MATTERS

### DISCUSSIONS OR DECISIONS

<b>Nunavik nickel Project Phase 2a Phase 2a: Operation of the Expo Sud and Nanaujaq Satellite Mines and the Ivakkak and Méquillon Underground Mines (3215-14-007)</b>	<ul style="list-style-type: none"><li>• In the light of the information presented, the Commission decided to exempt the project of the environmental and social impact assessment and review procedure.</li></ul>
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Kativik environmental quality commission  
Commission de la qualité de l'environnement Kativik

## **1. Adoption of the agenda**

*Adopted*

## **2. Correspondence**

*Follow-up of the correspondence can be found in Appendix B of this document*

## **3. Adoption of the minutes of the meeting 280**

*Adoption of the minutes postponed to the next meeting*

## **MATTERS ARISING FROM PREVIOUS MEETINGS**

### **4. Nunavik Nickel Project Phase 2a Phase 2a: Operation of the Expo Sud and Nanaujaq Satellite Mines and the Ivakkak and Méquillon Underground Mines**

#### **4.1. Request to amend the May 20, 2008 Certificate of Authorization**

*Task: For discussion, decision*

The present request for an amendment to the CA concerns phase 2a of the Nunavik Nickel Project (NNiP) which would allow the proponent to maintain mining operations until at least 2032 while taking advantage of existing facilities including the Port of Baie Deception, the existing road access system and ore processing plant at the Expo site. The request includes the addition of the Nanaujaq underground deposit, as well as underground extensions of the Expo sud, Méquillon (Méquillon UG2) and Ivakkak (Ivakkak UG) sites. The proponent stated that the daily amount of ore processed at the mill, with an allowable limit of 4,500 tonnes per day, will not be changed. This request also covers a number of infrastructures, which will be adjusted or added to continue operations, including the expansion of the capacity of the workers' camp at Expo.

In this application, the management of tailings has attracted the Commission's attention. According to the proponent, the capacity of the Expo pit was intended to store most of the Phase 2a tailings until January 2031. According to the Commission's information, the Expo pit reached the maximum capacity of 2.91 Mt (1.96 Mm3) in 2022 at the beginning of 2024. The Commission is concerned about the continued processing of the ore and the storage of the residues generated.

In addition, the Commission members are concerned about the quality of the consultations that the proponent must organize. Members wonder about the necessity of the Commission itself to step in and complete the consultations of the proponent. The Commission is also concerned about the proponent's communication efforts with the communities, and whether it would be necessary to inform other communities in addition to those that are part of the Nunavik Nickel agreement.

The Commission also questions the nature and effectiveness of the proponent's efforts to limit impacts on caribou, particularly on its breeding area. Still on the subject of impacts on caribou, the Commission wonders about the quality of the data used by the proponent and the necessity of requesting additional advice from local hunting associations.

Members of the Commission also discussed the use of water resources and their management.

Accordingly, the Commission decided to send the proponent a second series of questions and comments, reproduced in Appendix C of this report.

**5. Varia**

**6. Next meetings**



## **DOSSIERS UNDER ANALYSIS**

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**Environmental monitoring report 2021 Raglan Mine Project, phases II and III by Glencore (3215-14-019)**

**Environmental and social monitoring report 2020, direct shipping ore project, project « 2a » (Goodwood) by Tata Steel Minerals Canada, (3215-14-014)**

**Raglan Mine Project, phases II and III by Glencore – follow up to conditions 1 and 3 of the certificate of authorization of July 11, 2017 (3215-14-019)**

**Raglan Mine Project, phases II and III by Glencore - follow up to conditions 4 of the certificate of authorization of July 11, 2017 (3215-14-019)**

**Nunavik Nickel Project by Canadian Royalties Inc. Annual report (3215-14-007)**

**Crushing and Reclamation of Waste Rock at the Ivakkak Site - Nunavik nickel project (3215-14-007)**

**Restoration plan of the Nanaujaq underground mining site - Nunavik Nickel Project (3215-14-007)**

**Project of Construction of an Access Road in the Northern Village of Kangiqsujuaq, by Hydro-Quebec (3215-05-011)**

**Project of Construction of two thermophilic composting sites in Kuujuaq and Kangiqsualujuaq, by the KRG (3215-16-064)**

**Nunavik Nickel Project Phase 2a: presentation of the PEIC, by Canadian Royalties Inc. (3215-14-007)**

**Project of Construction of two thermophilic composting sites in Kuujuaq and Kangiqsualujuaq by the Kativik Regional Government (3215-16-064)**

**Project of Construction of four drop-off points for products under extended producer responsibility (EPR), used tires and Hazardous Household Waste (HHW) in Akulivik, Ivujivik, Aupaluk and Tasiujaq (3215-16-065)**





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Kativik environmental quality commission  
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## Questions and comments (second series)

### Analysis of alternatives

**QC 2 - 1.** In addition to answering question QC-2, the proponent must indicate what measures it intends to take to consult and inform the community of Puvirnituq about the preservation of water quality in the watershed where the mine effluents are located. The proponent must also specify the monitoring measures that will be applied.

### Wastewater and drinking water

**QC 2 - 2.** The CIMA report, provided in Appendix C of the answers to the questions, mentions a site occupancy of 722 workers, whereas the requested occupancy is for 700. It should also be noted that, following a visit by the Direction régionale du contrôle environnemental, it would appear that the camp is currently occupied by more than 722 workers. The proponent must be sure to request the maximum capacity of the workcamp it intends to use and confirm this capacity.

The proponent must demonstrate the volume of sanitary water to be supplied by the treatment system, including for the Expo camp and any other facilities, if applicable. The proponent must specify the volume of water to be treated per source (the Expo camp, the Deception Bay camp, satellite buildings, the supernatant from the sludge treatment basin, etc.). If the camp capacity is over 700 people, the proponent must present the adjustments it will make to the sanitary water treatment system to reach sufficient capacity. The proponent must demonstrate that its system is capable of providing the maximum capacity required and of meeting quality parameters. The proponent must specify how it plans to ensure that water quality at the outlet of the sanitary water treatment system complies with applicable quality criteria and parameters. The proponent must also submit a complete flow diagram of the sanitary water treatment system, from source to effluent.

The proponent must also undertake to submit an environmental discharge objective application for the maximum capacity of the sanitary water-treatment plant.



### **Northern Landfill Site (NLS)**

- QC 2 - 3.** The proponent must justify the addition of a landfill cell, in particular by foreseeing the volumes of residual materials that will be generated by the end of mine operations. It must also specify the capacity of the new cell in volume.
- QC 2 - 4.** The proponent indicated in its mitigation measures that it will implement a waste management plan based on the 5Rs (reuse, reduce, recover, recycle, reclaim before disposing of materials). The proponent must specify which measures it plans and how they will be applied. It must also specify whether any improvements could be made to reduce the overall amount of waste produced.
- QC 2 - 5.** The proponent must provide details on all the facilities already at the northern landfill, including the capacity and dimensions of the cells, basins, geotubes and waste-burning infrastructures. It must also detail the components it plans to add to the site. The proponent must specify the current and projected total surface area of the northern landfill site.
- QC 2 - 6.** The proponent must submit an up-to-date plan showing the location of the northern landfill on the mine site. It must also show on a map the elements currently on the northern landfill site and the infrastructures planned.

### **Geochemical characterization**

- QC 2 - 7.** The proponent must submit the geochemical characterization report for the Nanaujaq deposit, which was slated for completion in 2023. In addition, other detailed characterization reports dealing with the reactivity of mining materials should be provided to the Administrator as soon as they become available. These studies must be submitted in their final, signed French version. Depending on the results of these studies, additional mitigation measures may be required.
- QC 2 - 8.** The proponent mentioned that: “When possible, PAG waste rock from these piles will also be returned underground to backfill the galleries.” [courtesy translation] The proponent must describe what it means by “when possible” and what any limitations might be.

The proponent must prioritize the return of all PAG and leachable waste rock underground. If not, the proponent must justify why it is not possible.

### **Exploration and mining**

- QC 2 - 9.** The proponent must undertake to inform the MELCCFP immediately if changes in temperature or thawed zones are observed and, if applicable, of the measures that have been put in place to ensure adequate management of additional water. Further, the proponent must include in its annual report a summary of the monitoring data collected from the thermistors.
- QC 2 - 10.** The proponent must forward the hydrogeological study currently being carried out at the Méquillon site and, if applicable, the hydrogeological studies to be carried out at

the Ivakkak and Nanaujaq sites, should thermistances indicate that mining is reaching the permafrost boundary.

### **Crushing and management of waste rock at Méquillon**

**QC 2 - 11.** The proponent must submit the final atmospheric dispersion modeling report on contaminants from the Méquillon UG mine activities it refers to in its answer to question QC-12.

### **Design of the Nanaujaq waste rock pile**

**QC 2 - 12.** The proponent must submit detailed design studies demonstrating the geotechnical stability of the Nanaujaq waste rock pile if these are now available.

### **Expo Sud**

**QC 2 - 13.** The proponent must provide the stability studies mentioned in the answer to question QC-14.

### **Management and treatment of mining water**

**QC 2 - 14.** In addition to answering question QC-16, the proponent must submit the following information:

- 1) The design of the Nanaujaq mine's main collection basin is based on the volume required by Directive 019 for storage of the operating water and on the flooding below the emergency spillway. This basin is used in the management of acid-generating waste rock and includes a retention dyke. Directive 019 stipulates the design criterion of the project's flood recurrence be 1:2000. The proponent must confirm that the detailed engineering of the basin and the dyke will be based on this recurrence.
- 2) The proponent stated that groundwater protection depends on permafrost at the Nanaujaq site, which will prevent any infiltration of contact water into the soils beneath the active layer. The proponent must specify whether basin design will consider the risk of contaminating the active permafrost layer, caused by summer thawing of the basin foundation. In particular, the proponent must specify the risks in summer of contaminants in the active permafrost layer migrating into the surface waters of waterways downstream of the basin. Where applicable, the measures that will be applied to prevent the migration of contaminants beyond the basin should be detailed.
- 3) The proponent must provide the detailed design, which should be available in fall 2023.

**QC 2 - 15.** The proponent must complete the study to establish the water treatment requirements for the Méquillon and Nanaujaq sites and demonstrate that the Méquillon water treatment plan has the capacity to treat wastewater from the Nanaujaq site. It must specify the estimated volumes of exceedances and how it intends to avoid discharging contaminated water into the environment. In such cases, the proponent must submit the necessary adjustments to the treatment infrastructure in this request to amend its certificate of authorization. The proponent must also submit all data required to review the EDOs calculated for the point of discharge. The proponent is invited to consult the following reference and to submit to the MELCCFP a request to calculate of its EDOs:

- Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques (MDDELCC). 2017. *Guide de caractérisation physico-chimique de l'état initial du milieu aquatique avant l'implantation d'un projet industriel*. Direction générale du suivi de l'état de l'environnement, 12 pages and 3 appendices. [Online]. [https://www.environnement.gouv.qc.ca/eau/oer/Guide\\_physico-chimique.pdf](https://www.environnement.gouv.qc.ca/eau/oer/Guide_physico-chimique.pdf)
- MELCCFP, Demande d'objectifs environnementaux de rejet (OER) pour les eaux usées d'origine industrielle [Online] [https://view.officeapps.live.com/op/view.aspx?src=https://www.environnement.gouv.qc.ca/eau/oer/OER\\_industrie.docx&wdOrigin=BROWSELINK](https://view.officeapps.live.com/op/view.aspx?src=https://www.environnement.gouv.qc.ca/eau/oer/OER_industrie.docx&wdOrigin=BROWSELINK).

If exceedances are anticipated, the proponent must provide mitigation measures or justify its inability to implement solutions. It should be noted that the proponent has undertaken to monitor and work toward meeting the EDOs. To be consistent with prior commitments, the proponent must aim to comply with the EDOs, which are more stringent than Directive 019.

Also, for each Phase 2a site, the proponent must specify whether the project involves an increase in final effluent flow. If it anticipates an increase in flow, the proponent must specify the impact this increase will have on the quality of discharged water and compare anticipated concentrations with the EDOs applicable to the site.

**QC 2 - 16.** In its annual report, the proponent must commit to submitting further details on the quantity of mine water generated by an underground mine in permafrost conditions:

- 1) Data on volumes of mine water pumped from the Expo Ouest underground mine, including water required for mine operations and mine water seeping into underground workings;
- 2) An estimate of the volumes of mine water that will be pumped from the Expo Sud mine.

**QC 2 - 17.** In the adaptation measures compiled in Table 20, for the water management component, mention is made of regular monitoring of the condition of tailings facilities and collection basins, inspection of pipes and ditches, and checking for erosion of waste rock and ore stockpiles, in accordance with a mining facility monitoring procedure derived from CRI's facility operation, maintenance and monitoring manual. According to the proponent, these observations are compiled in a report. New measures have also been added, including drainage-system capacity studies and increased monitoring of facilities following heavy rainfall.

The proponent must include a summary of these monitoring measures in its annual monitoring program submitted to the Administrator. The proponent must specify the date on which main catchment basins are emptied before the annual freeze as well as the volumes discharged. Where applicable, the proponent must specify whether water was discharged through the emergency spillway and it must describe any such event.

**QC 2 - 18.** In response to QC-41, the proponent mentioned lower catch basins (LCB), but these do not seem to be shown on the maps of the various operating sites. The proponent must justify the purpose of the LCBs and specify their location. The proponent must locate each infrastructure on the mine sites and identify them correctly. We also understand that the main catch basin (MCB) corresponds to “MCP” on the maps.

**QC 2 - 19.** In response to question QC-41, the proponent mentioned installing a mobile water-treatment plant to treat the water collected in the MCB before this water is released into the environment. Since water treatment plants are authorized only at the Méquillon, Mesamax and Expo sites, the proponent must clarify what is meant by a “mobile plant.”

**QC 2 - 20.** A request to amend a certificate of authorization for the development of new deposits must be accompanied by a complete description of the water management for this development. The proponent must present full information:

- 1) The proponent must clarify how water accumulating in the Expo pit (supernatant) will be managed, and the implementation schedule (recycling vs. water treatment). It must also provide details on cells 1 and 2 of the tailings facility.
- 2) The proponent must specify how water accumulation in the Expo pit is monitored to reduce the risk of overflow.
- 3) In the restoration plan authorized in the January 6, 2022, amendment to the certificate of authorization, the proponent argued for accumulating 50 m of fresh water pumped from Bombardier Lake above the tailings to limit potential for the oxidation and the leaching of metals through the walls. The proponent must justify how this risk will be managed in the absence of this layer of water.
- 4) The proponent mentioned that, in the absence of other water management infrastructure, tailings deposition must be stopped to avoid taking up more space in the pit. The proponent must provide further explanation and all information relevant in the analysis of this element as part of the current amendment. The proponent must: specify, but without being limited to, the water source in question; provide the water balance; the required capacity in cubic metres; specify the location of the basin, etc. The proponent must also describe the potential impacts of and mitigation measures for this infrastructure.
- 5) The proponent must provide a schedule for the construction and operation of the water management infrastructure.

## Tailings management

**QC 2 - 21.** As of January 1, 2022, residual storage capacity in each cell was 575,000 m<sup>3</sup> for cell 1 and 185,000 m<sup>3</sup> for cell 2. Since the Expo pit will have reached its maximum authorized capacity of 2.91 Mt (1.96 Mm<sup>3</sup>) for tailings storage in early 2024, the proponent must describe the measures implemented to continue current ore processing and store the generated tailings.

**QC 2 - 22.** Total tailings production for phases 1 and 2 of the mining project is estimated at 17.33 Mt, based on a tailings/mining ratio of 0.96. Of this, Phase 1 accounts for 4.39 Mt, while Phase 2 (a and b) is expected to account for 12.94 Mt. However, the sum of the quantities of residues generated presented in the amendment request documents for each of the deposits is significantly lower. The currently authorized total storage capacity is 11.01 Mt, including cells 1 and 2, and the Expo pit.

The proponent must specify tailings production for phases 2a and 2b.

**QC 2 - 23.** Based on projected tailings volumes, tailings storage capacity was expected to be reached in October 2024. The proponent must justify why this capacity was reached more quickly than expected. The proponent must validate the tailings/ore ratio. The proponent must provide a balance sheet of annual ore, waste rock and tailings production since site operations began. Similarly, the proponent must provide a detailed tailings deposition plan for each deposit for the entire duration of the operation.

**QC 2 - 24.** The design report (Golder 2022) states that “storage of Phase 2 tailings in the Expo pit provides capacity until 2031” and that 3.53 Mt of tailings will have to be stored in a new, as yet unknown, tailings facility. However, in response to QC-23, the proponent mentioned that the surplus is estimated to be 4.35 Mt and that the pit’s capacity would allow for operation storage until 2034. The proponent must clarify and justify the exceedances of tailings to be stored and the schedule for each phase.

**QC 2 - 25.** The proponent must provide a progress report on its efforts to determine the additional accumulation area it plans to build. It must provide a complete description and justification of the future location selected for tailings management when the Expo pit and Expo tailings cells are filled. The proponent must present the results of the environmental, social, technical and economic characterizations carried out as part of the impact study for tailings storage. The proponent must submit the results of its identification of alternatives, technical, environmental, social, economic selection criteria, project schedule (including the stages of authorization), and consultations with Inuit communities.

**QC 2 - 26.** The proponent must explain the measures that will be put in place to limit the oxidation of tailings during in-pit storage and mine restoration. Since the proponent believes that the Phase 2a deposits could acidify more rapidly than other deposits, the proponent must clarify the speed of pit capping.

## **Agreement with Inuit communities**

**QC 2 - 27.** The proponent must provide the minutes of the second meeting of the Phase 2a subcommittee that was scheduled for May 2023 and the proposed mitigation measures to address concerns, if any.

## **Impact of mining activities**

### *Surface water*

**QC 2 - 28.** The proponent has undertaken to monitor and work toward meeting the EDOs. To be consistent with prior commitments, the proponent must aim to comply with the EDOs, which are more stringent than Directive 019.

**QC 2 - 29.** A change in water quality at the final effluent may result in higher exceedances of certain contaminants, thus increasing the impact on the receiving aquatic environment. To predict potential impacts, the proponent must compare expected contaminant concentrations in the final effluent from the Méquillon deposit with all applicable EDO parameters. If exceedances are anticipated, the proponent must provide mitigation measures or justify its inability to implement solutions.

**QC 2 - 30.** The proponent states that the Méquillon water balance is currently under construction. Therefore, it cannot confirm whether the Méquillon water treatment facility will have the capacity to treat water from both sites, and whether it will be able to meet the requirements. The proponent's answer is incomplete. It must provide the Méquillon water balance and show that the water treatment facility is able to treat water from the Méquillon and Nanaujaq sites. It must justify any changes to the processing chain and operations.

### *Air quality*

**QC 2 - 31.** The proponent must submit a dust management plan for its mine site.

**QC 2 - 32.** Since the Expo site will be used through the end of Nunavik Nickel mining operations, the proponent must undertake to evaluate and justify the possibility of implementing the operational and permanent measures that AECOM suggested in its July 8, 2021, memo. These measures must also be assessed for all current and planned mine sites. The proponent must justify whether or not these measures have been implemented. In addition, the proponent must present a schedule for restoring the tailings stockpiles to limit erosion, given that they are at full capacity.

**QC 2 - 33.** The proponent must describe the products used and provide Material Safety Data Sheets (MSDS) for polymers. It must specify whether the use of polymers is likely to have an impact on the environment and, if so, describe the mitigation measures in place.

### *Caribou*

**QC 2 - 34.** Road transport has a major impact on the Rivière-aux-Feuilles herd, thus disturbing caribou during migration. Targeting periods when caribou travel, the proponent needs to better describe the increase in trucking, particularly between Ivakkak and Méquillon.

In addition, it must consider the impact of increased trucking on caribou, which goes beyond the temporary disturbance caused by noise or dust. The proponent must describe how increased transport will result in a loss of functional habitat for caribou and a change in their migration patterns. The proponent must specify the number of trips planned between May and September of each year, in order to assess the real impact on migratory caribou. These impacts will have to be taken into account so that appropriate mitigation measures can be put in place, including, but not limited to, the reduction or even suspension of ore transport during periods when caribou are moving to their calving and wintering grounds, for all phases of operation of the deposits.

- QC 2 - 35.** The proponent must consider reducing or even suspending its traffic between Ivakkak and Méquillon during the period when the Rivière-aux-Feuilles caribou herd is migrating, for all the phases of operation of these deposits. The proponent must undertake to contact the MELCCFP's wildlife sector (DGFa-10) in May, for each year that deposits are exploited on this section of road, to validate the location of the caribou and plan the work in relation to sensitive areas.

*Water withdrawal*

- QC 2 - 36.** The proponent must estimate the total annual quantity of water withdrawn for Phase 2a and specify separately the quantity required for the manufacture of cement slurry. The proponent must also present the quantity of water currently being withdrawn annually from Bombardier Lake and the authorized quantity. The proponent must assess the impact of an increase in water withdrawal from Bombardier Lake would cause, particularly on fish habitat. It must show that the lake has the necessary capacity to support all withdrawals.

*Wetlands and water environments*

- QC 2 - 37.** The proponent must submit a summary table of the loss of wetlands and water environments (WWE) caused by amendments to the certificate of authorization not included in the current EEPIC (i.e. From June 30, 2022, to present) including modifications currently being processed. The table should distinguish wetland and water environment losses for each of the amendments by type of environment (wet or water) and for each of the sites concerned (Méquillon, Ivakkak, Nanaujaq, etc.).

- QC 2 - 38.** The proponent must demonstrate that it has applied the avoid-minimize-compensate approach in selecting the location of its future Phase 2a infrastructures, prioritizing the avoidance of WWE, then mitigating the impacts and, as a last resort, compensating for WWE losses.

- QC 2 - 39.** The proponent must undertake to submit to the Provincial Administrator, for information purposes, an update of the EEPIC including the new WWE losses caused by Phase 2a, no later than the first request for ministerial authorization for Phase 2a.

**Perceptions assessment plan**

- QC 2 - 40.** The proponent must specify whether the visits were carried out in 2023 as part of NNiP's perceptions assessment plan, as planned, as well as the survey results. It should specify whether any concerns were raised and what mitigation measures were put in place.

**Resilience to climate change**

**QC 2 - 41.** The proponent must submit the climate change adaptation plan mentioned in its answer to question QC-40.

**Greenhouse gas emissions (GES)**

**QC 2 - 42.** The proponent must submit its new decarbonization strategy and an updated quantification of the project's GHG emissions that reflect the new mitigation measures in the decarbonization strategy.

**Summary of commitments, conditions and monitoring**

**QC 2 - 43.** The proponent must provide all the information requested in question QC-56. Therefore, it must present a table listing all the commitments it made for the NNiP.

The proponent must present the size of the study area for each site in operation.

**II - Comments****General comments**

**QC 2 - 44.** The proponent must add to the maps submitted in December 2023 the boundaries of authorized infrastructures currently in place and being requested, in order to provide a reference for both the proponent and the MELCCFP. These maps must be updated in the annual monitoring report.

**QC 2 - 45.** The proponent must be sure to check and validate the documents that are listed and appended. Several errors were observed.

**Wastewater and drinking water**

**QC 2 - 46.** The proponent stated that the wastewater treatment plant will be designed for 231 m<sup>3</sup>/day, and the drinking water treatment plant for 245 m<sup>3</sup>/day. The proponent must therefore be consistent and ensure that it is issued a ministerial authorization for 245 m<sup>3</sup> of water withdrawal per day.