



June 26, 2017

Ms. Marie-Renée Roy, Deputy Minister  
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**Subject: ANSWERS TO QUESTIONS—Request for exemption from the environmental and social impact assessment and review procedure for projects in northern regions—Hydro-Québec Production—Saguenay-Lac-St-Jean—Operation of the quarry at KM 85.7 of the Transtaïga highway—HQP-QUFHI-A-10**

**Reference no.: 3214-03-037**

Dear Ms. Roy:

Please find enclosed the answers to the questions that were asked on June 14 about the above-mentioned project.

- We enclose seven (7) hard copies in French and five (5) hard copies in English of this document, as well as three (3) electronic copies in French and three (3) electronic copies in English in PDF format.

Please note that the electronic copies are identical to the hard copies.

If you would like more information on this request, please contact Marjorie Harvey at 418 696-4500 (ext. 2448).

Thank you in advance for your collaboration.

Yours truly,

Richard Perron  
Regional Director

c.c.: Marjorie Harvey

### **QC-1. Length of time quarry will be worked and estimated total quantity of crushed stone in the operating area**

The portion of the quarry that is targeted in this request will allow roughly 127,500 metric tonnes (58,000 m<sup>3</sup>) in total of granular material to be produced. To meet the requirements of its current project to refurbish the LG3 airport runway, Hydro-Québec estimates that it will need 88,000 metric tonnes (40,000 m<sup>3</sup>) of granular material (quantity specified in the terms of reference for the call for tenders). Initially, Hydro-Québec had estimated its requirements for this project at 127,500 metric tonnes (58,000 m<sup>3</sup>) of granular material, but this was subsequently revised downward. The work will be carried out between July and November 2017.

However, Hydro-Québec would like to keep the quarry open after the project has been completed, in order to meet its future needs related to maintaining roads and other infrastructure (dikes, dams, etc.) in the LG3 area. This will mean that the quarry will remain open until the authorized operating area has been mined out (indeterminate period). This would also allow piles of granular material to be stockpiled at the site.

### **QC-2. Quarrying above the water table**

The entire rock face where quarrying will be carried out is located above the current operating floor of the quarry (see illustration below), where no water buildup was observed in 2016. To ensure that excavation occurs exclusively above the current operating floor and the water table, visual markers will be installed on either side of the operating face throughout the work.



### **QC-3. Species used for reforestation**

In recent decades, the borrow pits used during the construction of the various phases of the La Grande complex have undergone major restoration work. In the case of sites used during Phase I (1976–1986), over 6,000 hectares have been reforested, involving the planting of over 8.8 million seedlings. All sites used during Phase II (1989–1997) have been reforested or seeded, with the work covering 1,490 hectares and requiring 6.8 million seedlings. Mountain alder has generally been the species used in these efforts. A number of follow-ups have been carried out over the years to monitor the condition of the renaturalized sites (1988–1992, 2003). Despite the region's harsh climate, low temperatures, and periods of drought in summer, the results have been satisfactory. The latest studies carried out provide useful recommendations on improving restoration techniques and yields. Hydro-Québec is incorporating these recommendations in all its new borrow pit restoration projects.

Sites in the Baie-James region are often characterized by meager topsoil (in a thin layer) or no topsoil at all. This means that, once borrow pit operations have been completed, the quantity of topsoil available for revegetation efforts is limited. The decision on the type of vegetation to be used in such efforts is highly dependent on the substrate since the small amount of topsoil limits growth in a number of plant species. The priority should be on using pioneer species, preferably native ones, which in turn encourage other native plant species to get established through succession.

In this context, Hydro-Québec will determine the most appropriate species for reforesting the quarry once operations have been completed. Native species like jack pine, which is well adapted to sandy soils, will be favored rather than using mountain alder in single-species plantations as was done in the past. Jack pine has already been used in borrow pit rehabilitation projects and has provided satisfactory results. The suggested planting density for jack pine is around 1,500–3,000 seedlings/hectare.

### **QC-4. Progressive restoration**

The clearing and stripping of the vegetation in the new operating area will be done progressively, in a way that limits the disturbed area to the strict minimum.

Since a number of stockpiles of granular material are present at the site and Hydro-Québec would like to keep the quarry open to meet its future needs and until the authorized operating area has been fully exploited, waiting until the end of operations to begin the definitive reforestation of the quarry seems appropriate. However, when Hydro-Québec no longer needs to

use certain areas in the quarry (access roads, stockpiling areas, operating areas), the following measures will be taken:

- All debris, waste, stumps, etc., will be removed
- Slopes will be leveled
- The soil will be scarified and the duff (litter) layer and topsoil will be spread to improve the regrowth of vegetation.

Vertical cuts with a maximum height of 10 metres (or benches at least 4 metres wide) will be used.

The definitive reforestation of the site will be carried out within one year of the end of quarrying operations by Hydro-Québec.

#### **QC-5. Follow-up on restoration**

Since the 1990s, Hydro-Québec has conducted numerous studies on the renaturalization of disturbed sites and the restoration of borrow pits in the Baie-James region and elsewhere in Québec. The following indicators are generally used: evolution of plantations (survival rates and annual growth rates), distribution of vegetation in vegetation strata, the natural process of recolonization by native plants and plant succession, use of plantations by wildlife, etc. Follow-ups of this type allow the effectiveness of restoration work to be validated, as well as the evolution of restored sites towards stands similar to those present before disturbance.

#### **QC-6. Access road to operating area**

Only one access road, 3.5-m wide, will be built to access the top of the new operating area, to allow clearing, stripping and drilling operations. The route used will be the same as the existing road. See the attached map for the location of the access road.

#### **QC-7. Follow-up of mitigation measures (erosion, noise, dust)**

No water will be used in the production of granular material. In addition, the location of the operating area meets the requirements in Section 14 of the *Regulation respecting pits and quarries*. The operating area is more than 75 metres from any river, stream, lake or swamp. Consequently, it is unlikely that runoff (**erosion**) will transport sediments into watercourses, water bodies or wetlands. If required, runoff will be directed into a drainage ditch along the highway or towards wooded areas so that the sediments are trapped and retained by the vegetation.

In terms of **noise**, siting standards (sections 10 and 11 of the *Regulation respecting pits and quarries*), particularly minimum distances from sensitive components, will be respected at all times. The quarry is located more than 600 metres from any dwelling, school or educational institution, place of worship, campground or other establishment. Work will take place between 7:00 a.m. and 5:00 p.m.

Regarding **dust** emissions, the location of the quarry respects the requirements in sections 14 and 18 of the *Regulation respecting pits and quarries*. It is situated more than 75 metres from any river, stream, lake or swamp. The operating area, stockpiling site and jobsite will also be located more than 70 metres from a public thoroughfare (Transtaiga highway). The environmental clauses in the contract stipulate that dust emissions shall not be visible more than 2 metres from the emission source and that appropriate work methods and equipment (dust collector, etc.) shall be used to minimize atmospheric dust emissions.

The work will be supervised at all times. A foreman/superintendent will be present occasionally at the jobsite and will be responsible for validating the contractor's respect of the health and safety and environmental clauses in the contract. A technician from an outside firm shall also be present at the site at all times to supervise the contractor's work in accordance with the instructions from the foreman/superintendent. Lastly, a Hydro-Québec environmental advisor will pay at least one visit to the site during the work to ensure compliance with the environmental clauses and applicable legal requirements and produce a monitoring report. These individuals will be responsible for determining if additional environmental protection measures are required.

#### **QC-8. Consultation and land access**

The other users that could potentially utilize the land include:

- Société de Développement de la Baie James (presence of reserve piles for their use)
- Members of the Cree Nation of Chisasibi
- Vacationers (anglers)

Throughout the work, the free movement of other land users will be ensured, as well as conformity with the strictest health and safety rules (signage, vehicle speed limits, etc.). There will be no gate at the entrance to the quarry. Furthermore, there are no camps or cottages nearby that other users could utilize. Given the potential minor impact of the work on other users, Hydro-Québec did not carry out consultations. However, all potential land users will be informed as soon as the date of the start of work is known.

Furthermore, no consultations will be held by the Ministère de l'Énergie et des Ressources Naturelles, since it concluded that Hydro-Québec did not need to obtain an operating lease for the work planned in the quarry. In the case that a mining claim has been staked on the site, Section 71 of the *Mining Act* stipulates that “stone may be extracted from lands in the domain of the State, without compensation to the claim holder, for the construction or maintenance of State works.” This provision allows Hydro-Québec to extract stone from lands on which a claim is held by a third party, without having to obtain a mining lease.

**QC-9. Location of quarry (km)**

The quarry is located at KM 85.7 of the Transtaïga highway, as illustrated on the attached map.