

Authority services

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Swedish Environmental Protection Agency
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Reference: NV-05161-23, Sahavaara mine

Finland's response to the consultation letter regarding the environmental impact assessment for the zoning plan of the Sahavaara mine, Pajala municipality, Sweden

Finland has received a notification, dated 1 August 2023, from Sweden in accordance with Article 9 of the Protocol on Strategic Environmental Assessment (Protocol on SEA) to the UN/ECE Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention) regarding an environmental impact assessment for the zoning plan of the Sahavaara mine. Pajala municipality intends to draft a zoning plan for the properties Kaunisvaara 1:7 and others to create planning conditions for the development of Kaunis Iron AB's existing mining operations adjacent to the plan area located approximately 17 kilometres north of Pajala central town in Norrbotten County. The current plan area consists of approximately 909 ha in which Kaunis Iron AB means to mine iron ore deposits. The planning area for the current detailed plan includes the area for the new opencast mine and the transport route to the nearby processing plant in Kaunisvaara, also owned by Kaunis Iron AB.

According to the Act on Environmental Impact Assessment (252/2017) and the Act on Environmental Impact Assessment of Plans and Programmes of Public Authorities (200/2005), the Finnish Environment Institute is the competent authority in Finland for information and consultation tasks regarding the Espoo Convention and the Protocol on SEA. The Finnish Environment Institute stated on 8 September 2023 that Finland wishes to participate in the SEA procedure for the zoning plan of the Sahavaara mine and to continue the transboundary consultations.

Consultation in Finland

The Finnish Environment Institute hereby acknowledges that Finland has received the consultation letter from the Swedish Environmental Protection Agency, dated 20 December 2023, and the documentation, which included the summary of the environmental impact assessment for the zoning plan of the Sahavaara mine in Finnish and a link to the Pajala municipality webpage. In its letter, the Swedish Environmental Protection Agency requested Finnish Environment Institute to submit comments received from Finland to Sweden.

In Finland, the public and authorities were given the opportunity to comment on the consultation documents from 28 December 2023 to 2 February 2024. The consultation documents were



available, and statements were asked on the website of Finland's environmental administration and on the website of electronic public consultation. The Finnish Environment Institute received 7 statements.

The Finnish Environment Institute would like to highlight the following concerns raised in the statements it has received regarding the transboundary environmental impacts of the Sahavaara mine zoning plan. In the statements, it was requested that the possible transboundary impacts on Finland are carefully assessed. For example, it was noted that the effects on reindeer husbandry on the Finnish side of the border have not been assessed. Furthermore, based on the information received, it was not possible to take a justified position on the potential transboundary risks to human health and the environment deriving from the planned opencast mine containing potentially acid-forming waste rock, which, if managed incorrectly, may pose a risk of acidic leachate spreading to both groundwater and surface water.

The Finnish Environment Institute has made a summary of the received statements in Finland below. However, the original statements enclosed to this letter need to be considered fully in the continuation of the SEA procedure.

Comments received during the consultation

Statement by the Reindeer Herders' Association

Detailed plan of Sahavaara mine, Pajala, Sweden

On 20.12.2023, the Finnish Environment Institute has received a notification from the Swedish Environmental Authority (Naturvårdsverket) concerning the detailed plan for the Sahavaara mine. The UN/ECE Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention) is applied in environmental assessment. SYKE requests a statement from the Reindeer Herding Association.

The municipality of Pajala intends to draw up a zoning plan that will create the conditions for the planning of mining operations of Kaunis, Iron AB (KIAB) in terms of areas to be developed. KIAB intends to mine iron ore deposits in the Sahavaara area in question. The aim is to create planning conditions in connection with the plan area for the further development of Kaunis, Iron AB's established mining operations.

The planned area covers approximately 909 hectares and is located west of Highway 99. The final phase of the town plan is now underway before the municipality approves the plan.

The Kaunisvaara mining project includes current mining operations at the Tapuli iron ore quarry and the Kaunisvaara concentrator plant, which will be expanded with opencast mining of iron ores from Palotieva and Sahavaara and their enrichment at the Kaunisvaara concentrator plant. In addition, the project includes the expansion of existing waste facilities and water reservoirs, as well as the construction of new waste facilities and a water treatment plant. The operations are located approximately 5 km from the Finnish-Swedish border. The project includes raw water intake from the Muonio River. Surplus water from mining operations will be discharged into the Muonio River from the current discharge point below Aareavaara.

The mining project is located in the Muonio Sameby area in Sweden. In Finland, the project's area of influence includes the Muonio reindeer herding cooperative against the border, and downstream along the fairway, the reindeer herding communities of Kolari, Orajärvi and Lohijärvi.

Impacts of the project on reindeer husbandry and their assessment

A report has been prepared on the effects of the plan, which showed the effects on Muonio Sameby area. The effects on reindeer husbandry on the Finnish side of the border have not been assessed. The reindeer herders' association considers that the impacts on reindeer husbandry in Finland should have been assessed already during the EIA procedure aimed at opening the original mine or, at the very least, during the environmental permit process for expanding the mine. Local reindeer herders should have been involved in the impact assessment, as they have the best expertise about their area, potential impacts, and ways to prevent and mitigate them. In previous proceedings, KIAB has admitted that disturbances from its operations are likely to extend to reindeer husbandry on the Finnish side. According to the Reindeer Husbandry Act, other land use on state-owned land in the Muonio reindeer herding municipality area shall not cause significant harm to reindeer husbandry (Reindeer Husbandry Act 848/1990, section 2 Reindeer herding area). Among other things, this should have been considered in the project.

In connection with the mine's environmental permit procedure, the Finnish Muonio reindeer herding cooperative has proposed that mining operations at the Kaunisvaara mine cause disturbances to reindeer grazing in the vicinity of the mine, which causes interference effects to the Muonio reindeer herding cooperative when Swedish reindeer move across the border to Finland. As a result, the project will cause indirect pasture losses and additional work for the Muonio reindeer herders. In addition, the water released by the mine into the Muonio River would have adverse effects on the aquatic ecosystem and could cause health effects. Due to the ice deterioration in the Muonio River, weakened by the discharge water from the mine, accidents to reindeer may occur. The reasoning is based on observations of the migration of Swedish reindeer to the Muonio reindeer herding area, as well as research results and observations made in other reindeer herding cooperatives in the Finnish reindeer herding area about the effects of the mines located there. The reindeer herders' association considers that the impacts presented by the Muonio reindeer herding cooperative and the demands for compensation for them are justified. However, the compensation claims of the Muonio reindeer herding cooperative were not considered in the environmental permit decision. The reindeer herding cooperative is also concerned about the combined and cumulative effects of the mining operations in Kaunisvaara and Hannukainen in Kolari on reindeer husbandry and the border river.

The reindeer herders' association considers that the harm and damage caused to Finnish reindeer herders should be prevented and that the remaining disadvantages should be compensated in full. According to the documents in the proceedings, Muonio Sameby of Sweden has proposed the construction of a fence along the border with Finland. It would also reduce the harm caused to Finnish reindeer husbandry. The harm caused by mining operations to waterways and the environment in general must be prevented with the best available techniques.

Statement by Finnish National Institute for Health and Welfare (THL)

THL's key observations regarding the potential cross-border risks of the mine's operations are listed below.

Document: "Environmental impact assessment on the zoning plan of the Sahavaara mine, Assignment no: 1084829 Version: 8 Date: 22.11.2023"

- Heavy metal runoff from acid-forming waste rocks is the most long-term critical and virtually "perpetual" risk for many mines. Section 8.2.2 briefly describes *"The planned opencast mine contains potentially acid-forming waste rock, which will be disposed of by placing it in a designated area at the planned waste rock disposal site. If improperly managed, treatment can pose a risk of acidic leachate spreading to both groundwater and surface water (Golder, 2021b). The judgment of the Land and Environment Court on the activities of the Court of Agriculture and the Environment contains a number of conditions concerning the monitoring of the acid-forming capacity of waste rock and the conservation and control of these masses."* Since the document did not contain the judgment of the district court, it was not possible to comment on this statement. For this reason, the Finnish National Institute for Health and Welfare cannot take a justified position on the greatest cross-border risk of all in a well-prepared plan.

- Bioavailability and not total concentration was applied to uranium because (a) they are based on limit

values and (b) this is standard practice in the mining sector. However, the text does not consider whether it is possible that non-bioavailable uranium (bound to particles) accumulates over a long period of time at the bottom of the Muonio River near the discharge site. According to THL, this should be taken into account. For substances other than heavy metals, the long-term risks are likely to be lower, e.g. eutrophication is likely to be confined to the immediate vicinity of the discharge site.

- On page 35 (63/147) it says: *"The regulating pool must be dimensioned in such a way that it can withstand the so-called "Reservoir" - 10 years of rain flow, which translates to 204,000 m³ of water."* If 10 years of rain statistically refers to heavy rainfall occurring once every 10 years, it should be written in a form that everyone understands. In addition, it would be good to write what this rain means in millimeters/day or similar commonly used terms.
- In addition, it would be justifiable to take a clearer position on the extent to which repeated overflows at the treatment plant may increase metal emissions from "normal times" to the clearing pools and further to the Muonio River.
- No estimate has been made of the possible transmission of noise to Finland. Thanks to the planned noise abatement measures, the calculated noise levels do not exceed the guideline values in residential buildings located near the mine, so the operations will not cause significant noise nuisance even on the Finnish side, where the distance is at its shortest about 10 km.
- Air quality is expected to deteriorate compared to the current situation due to dust and particulate emissions, among other things, but air quality standards are not expected to be exceeded. In mining, the emission height of particle emissions is low, so the impact on Finnish particulate matter concentrations is minimal. The smallest particles lifted into the air by explosions may travel all the way to Finland, but any increases in concentrations are short in time and thus their significance for health is low.

In conclusion, the Finnish National Institute for Health and Welfare states that the direct chemical or physical health risks that exceed the limits of the planned activities are likely to be very low. It is not likely that e.g. the concentrations of heavy metals in the Muonio River from the operations of the plan area would increase significantly, at least not during the estimated 20-year operating period of the mine, during which wastewater is actively purified. However, based on the data obtained, it is not possible to take a position on the long-term management of acid runoff. In addition, the plan document does not comment on the cumulative adverse effects of several mining projects in the Lapland region on the Muonio/Torne River, which may cause health risks.

Statement by the Municipality of Kolari

The municipality of Kolari considers that, in addition to the matters mentioned in the presentation text, it is necessary for the Finnish Environment Institute to carefully assess the possible cross-border impacts on Finland and their significance for Finland. Special attention shall be paid in the assessment to the situation of water bodies and other natural resources so that the impacts do not cause unreasonable harm to the area's waterways and the current natural situation, as well as to local residents and business activities related to the Tornio-Muonio River. Special attention should be paid to the treatment and management of process water, rainwater, and stormwater.

Statement by Regional Council of Lapland

The areas of the mining project will be located in the vicinity of the regional plan for Fell Lapland, which entered into force on 16.5.2012 on the Swedish side. In the regional plan, the border river Torne River is designated as a nature reserve (SL 4207) and the river is part of the Natura 2000 network. The regional plan allocates three mining areas to the vicinity of the mining project on the Finnish side: Limekangas (SS 1911), Mannakorpi (SS 1909) and Hannukainen (SS 1907). Mining areas are subject to zoning regulation, according to which mining operations must be planned in such a way that they do not cause significant emissions or hydrological impacts in the Natura 2000 network area of the Torne River–Muonio River basin or otherwise significantly weaken the natural values of the area that has been included in the Natura 2000 network.

The regional plan for Fell Lapland also contains provisions concerning the entire regional plan area, for example, on securing the operating and development conditions for reindeer husbandry and other natural livelihood areas.

On 4.9.2023, the Regional Council of Lapland has issued a statement to the Finnish Environment Institute on matters relevant to Finland concerning the zoning plan for the Sahavaara mine.

The Regional Council of Lapland Agency states that it is necessary for the Finnish Environment Institute to carefully assess the possible cross-border effects of the detailed plan for the Sahavaara mine on Finland and their significance for Finland. The environmental impact assessment should also assess the potential combined effects of other mining projects in the nearby areas on the Torne River–Muonio River watercourse. Special attention shall be paid to the treatment and management of process water, rainwater, and stormwater, as well as extreme weather phenomena and other exceptional situations. In addition, the detailed plan should assess the impacts of the operations of the Sahavaara mine on reindeer husbandry on the Finnish side.

Statement by Lapland ELY Centre

The Lapland ELY Centre has participated in the EIA procedure and the permit procedure under the Environmental Code concerning the continuation and expansion of mining operations at the Tapuli, Palotieva and Sahavaara quarries and the Kaunisvaara concentrator plant.

The Lapland Centre for Economic Development, Transport and the Environment considers it unnecessary to comment on the detailed plan of the Sahavaara mine.

Statement by Geological Survey of Finland

Geological Survey of Finland is thanks you for the opportunity to comment on the detailed plan of the Sahavaara mine, however Geological Surveys of Finland does not issue a statement.

Metsähallitus

Metsähallitus has no comments to make on the request for comment SYKE/2023/1343 Sahavaara detailed plan.

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This document has been electronically signed. The electronic signatures can be verified from the register office at the Finnish Environment Institute.

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