mkg
Miljöorganisationernas
kärnavfallsgranskning

October 28, 2020

Your Dnr: NV-06662-20

To: Swedish Environmental Agency
registrator@naturvardsverket.se

Concerning the Espoo consultation on the lifetime extension of the nuclear reactors at the Loviisa nuclear power plant in Finland

Miljöorganisationernas kärnavfallsgranskning (MKG) [The Swedish NGO Office for Nuclear Waste Review] that has as member organisations Naturskyddsföreningen [Swedish Society for Nature Conservation] and Jordens Vänner [Swedish Friends of the Earth] wants to provide the following statement regarding the possible lifetime extension of the nuclear reactors at the Loviisa nuclear power plant in Finland.

MKG sees the risk that Sweden may subject to the threat of considerable environmental impact [betydande miljökonsekvenser] if the lifetime extension takes place and is of the opinion that Sweden should take part in the continued consultation process.

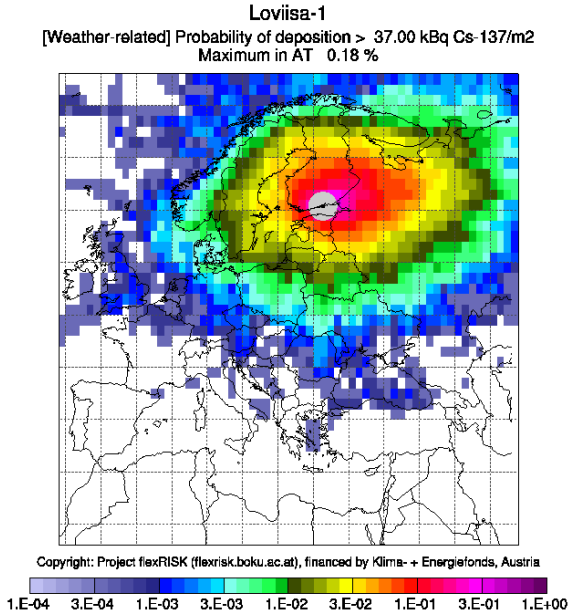
1. The main reason for this opinion is that as a nuclear reactor ages there is an increasing risk for a major nuclear accident. Although the risk may still be low the environmental consequences can be very severe.

The environmental impact assessment for the lifetime extension needs to provide more data on the assessment of the consequences of a severe accident. It is insufficient to restrict calculations to a source term of 100 terabecquerel (TBq) Cesium-137 and dispersion calculations up to a distance of 1 000 km. A steam generator tube rupture accident in Loviisa

Swedish NGO Office for Nuclear Waste Review (Miljöorganisationernas kärnavfallsgranskning), MKG
Första Långgatan 18, SE-413 28 Göteborg, SWEDEN
Phone: +46 31 7110092 Web: www.mkg.se

unit 1 or 2 could release up to 30% of the radioactive inventory, that is 31.5 petabecquerel (PBq) Cesium-137.

In the figure below a simulation has been made with the Austrian simulation tool flexRISK shows the weather-related fallout risk for Europe to be contaminated with Cs-137 above 37 kilobecquerel (kBq) Ceasium-137 per m^2 in case of such an accident happening. More information about the simulation can be found here: http://flexrisk.boku.ac.at/index.html.



MKG is of the understanding that Sweden must demand the best available technology for radiation safety is added if the lifetime of the reactors is extended. The Swedish Radiation Safety Authority (SSM must actively support the Swedish government to ensure that the Finland does not choose cheaper and less safe technology solutions.

2. MKG also wants to point out that a decision to extend the lifetime of a nuclear reactor should not be taken unless there is an assurance that the nuclear waste from the reactor can be managed in an environmental and sustainable way in the long term. The planned Finnish repository (Onkalo) for spent nuclear fuel in Olkiluoto will use copper canisters for waste isolation in a copy of the Swedish KBS method.

MKG would like to point out the new research results have shown that copper may corrode even in an oxygen free environment. This, together with other corrosion mechanisms and mechanisms that can provide stress on the copper canister, means that the long-term integrity of the copper canister cannot be guaranteed. As a result, the Swedish government has so far not approved the KBS method but are awaiting more research. The Swedish Radiation Safety Authority (SSM) is presently evaluating what appears to be severe anoxic corrosion, including pitting, in 20-year old experimental

packages from the LOT experiment in the Äspö Hard Rock Laboratory[1]. The question arises how Finland intends to handle this issue and what consequences it can have for a decision to possible extend the lifetime of the Loviisa reactors.

Best regards,

Johan Swahn

Director, MKG
Mobile: +46 70 4673731
E-mail: johan.swahn@mkg.se

[1] For more information see: http://www.mkg.se/en/scientifically-inferior-skb-report-on-copper-corrosion-in-lot-project-shows-that-copper-is-not