



EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR ENERGY

The Director-General

Brussels,
ENER/ARES (2016) 1291287

TO BE SENT FOR TRANSLATION (SE)

Subject: Notification of the National Programme of Sweden on spent fuel and radioactive waste management

His Excellency,

I would like to thank you for the submission of the National Programme on management of spent nuclear fuel and radioactive waste in Sweden¹ according to Article 13(1) and Article 15(4); and the Report² according to Article 14(1) of the Council Directive 2011/70/EURATOM of 19 July 2011 establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste. The communication of both documents has been registered on 24 August 2015.

The Commission services also highly appreciated the communication of the English versions of these documents, which is facilitating our review and the preparation of the Commission report on implementation of this Directive in the Member States, to the Council and the European Parliament in 2016.

The National Programme of Sweden provides good information on the current practices and future plans for spent fuel and radioactive waste management. In the review of the programme, my services noted that it covers the majority of the information required by the Directive. In some cases limited information on key performance indicators; long term management, cost assessment and funding for radioactive waste outside nuclear power plants (e.g. users of sources of ionising radiation in research, medicine) has been found, as well as on international agreements for spent fuel and radioactive management. For the remainder my services identified a set of questions for clarification that are attached to this letter. In accordance with Article 13(3) of the Directive, Member States

¹ Safe and responsible management of spent nuclear fuel and radioactive waste in Sweden- Notification of the Swedish National Programme under the Council Directive 2011/70/Euratom (National Plan), 2015:32.

² Sweden's first national report on implementation of Council Directive 2011/70/Euratom establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste.

His Excellency Mr Anders AHNLID
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are required to provide the requested clarifications within 6 months of the receipt of the Commission's request. Notwithstanding this, I would like to invite Sweden to provide answers to these questions in English, if possible, at the earliest convenience. Preferably, this would be within 3 months of the receipt of this letter to allow for seamless continuation of the assessment and timely issuing of the Commission's opinion and the report to the Council and European Parliament.

In line with its policy of transparency, the Commission encourages all Member States to ensure the widest possible dissemination of the national reports and programmes, in particular by making them available online. I would like to use this opportunity to ask for your approval of the publication of the notified programme and report on the website of the European Commission together with those from the other Member States.

The services of the Commission, and in particular Ms I. Metaxopoulou, Head of Unit D.2 of the Directorate General for Energy (Ioanna.Metaxopoulou@ec.europa.eu) and Ms B. Batandjieva, responsible for this file (Borislava.Batandjieva@ec.europa.eu), remain at your entire disposal for any further discussion on this issue.

Yours faithfully,

Dominique Ristori

Cc.: Ms Felizia Grindefjord, Permanent representation of Sweden to EU
Mr Flavio Lanaro, SSM

Encl.: Questions on Safe and responsible management of spent nuclear fuel and radioactive waste in Sweden - Notification of the Swedish National Programme under the Council Directive 2011/70/Euratom (National Plan)

Annex

Questions on Safe and responsible management of spent nuclear fuel and radioactive waste in Sweden- Notification of the Swedish National Programme under the Council Directive 2011/70/Euratom (National Plan)

submitted under the Article 13(1) of the Council Directive 2011/70/EURATOM of 19 July 2011 establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste

I General and policy questions

- 1.1. Could you please clarify the management routes (incl. disposal) of spent fuel from the research reactor R1 and Ågesta reactors, institutional radioactive waste and the radioactive waste from decommissioning the Ranstad U-mining facility?
- 1.2. Can you please confirm that waste from fallout contaminated with Cs-137 (see Section 6.5.2 of the Programme) and waste with enhanced concentrations of naturally occurring radionuclides are not categorised as radioactive waste in Sweden?
- 1.3. Based on the policy presented on page 8 of the Programme, could you please clarify:
 - the amounts and types of radioactive waste from foreign origin in Sweden (e.g. melting at Studsvik site) and the plans for their further management (e.g. their return to the country of origin)?
 - and give examples of the “*exceptional cases*” for disposal of spent fuel and radioactive waste referred to in the Summary of the programme?
- 1.4. It is not self-evident from the notifications that Studsvik Nuclear AB will accept orphan sources for which there is neither a processing method nor a final disposal solution, despite the availability of financing. So can you please clarify the responsibility for long-term storage/disposal of orphan sources that are declared as radioactive waste, when Studsvik Nuclear AB cannot accept this material?
- 1.5. How is the interdependency principle for radioactive waste/spent fuel management applied so the waste is acceptable in the future SFL³ and SFK⁴ disposal facilities?

II Inventory, concepts and plans

- 2.1. Taking note of the inventory information provided to the Commission to date, can you please clarify the radioactive waste inventory and location (per category) stored outside the NPPs (e.g. Studsvik) as per Article 12(1)c of the Directive?
- 2.2. Can you please clarify the available and planned storage and disposal capacities and how they correspond to the existing and estimated inventory for spent fuel and radioactive waste, e.g. are there any specific plans for future storage facilities in addition to the interim waste storage at Barsebäck NPP?
- 2.4. Can you please explain how the principle for long term safety with passive safety features is applied to SFL and near surface disposal facilities?

³ Repository for long-lived radioactive waste

⁴ Final repository for spent nuclear fuel

- 2.5. What is the current timeframe and closure plans for the interim storage facilities for radioactive waste and spent fuel at Studsvik? What are the plans for managing "non-nuclear waste"⁵ after closure of Studsvik?

III Timescales

- 3.1. What is the plan for shutdown of Westinghouse's fuel fabrication facility in Sweden? Can you please explain the predisposal and disposal methods for radioactive waste from operation and decommissioning of this facility?
- 3.2. Taking note of the detailed disposal timeframes in the programme, could you please elaborate the milestones for predisposal management of radioactive waste at NPPs other than Barsebäck NPP?
- 3.3. Can you please specify when the needs analysis of SVAFO for waste storage of long-lived low and intermediate level waste is expected to be completed?
- 3.4. Can you please provide an update on SNAB preliminary study results for options for "non-nuclear waste" treatment and disposal (due to be complete in 31 December 2015)?

IV Research, development and demonstration

- 4.1. Can you please explain the research activities in place/foreseen to facilitate the site selection for the SFL disposal facility?
- 4.2. Recognising the detailed timeframes presented in the National Programme, can you please explain the key performance indicators (KPIs) that have been identified to monitor progress in the implementation of the whole National Programme (and in particular the activities related to the management of "non-nuclear waste", e.g. at Studsvik) and what is the basis for the KPIs?
- 4.3. In addition to the safety case for SFK, how do the policy and the National Programme address the evidence based and documented decision making process for all other types of spent fuel and radioactive waste management facilities in line with Article 12(1)f of the Directive?

V Post closure and knowledge preservation

- 5.1. What are the plans for operation and closure of the four landfill disposal facilities at the Ringhals AB, Forsmark AB, Oskarshamn, and Studsvik sites?
- 5.2. What specific post closure measures are in place/foreseen for the existing disposal facilities (e.g. SFR and four landfills) and planned facilities (SFK and SFL)?

VI Costs and financial schemes

- 6.1. Taking note of the cost estimates for SKB⁶ and as per Article 12(1)h of the Directive, could you please provide the most recent cost assessment of National Programme as a whole, including the costs for management of "non-nuclear waste" (e.g. costs from generation to disposal, incl post-closure; split per year and breakdown per category of radioactive waste)?

⁵ Waste generated by non-nuclear activities, such as at hospitals, industries and research institutes as a consequence of using radioactive material in the operations.(Section 1.3.2 of the Plan)

⁶ Plan 2013 Costs from and including 2015 for the radioactive residual products from nuclear power Basis for fees and guarantees for the period 2015–2017

Can you please further explain the underlying basis and hypothesis/assumptions for calculating the underlying costs (e.g. interest rates, cost escalation rate and assumed inflation)?

- 6.2. Section 7.3.3. of the National Programme states for historical waste management that "*assets belonging to the Studsvik Fund will nevertheless still be used for the same purposes thereafter (until around 2050)*". So what will be the mechanisms to cover the costs for the legacy waste management after 2050 if further financing is required?

Can you also clarify the fees to be paid by non-nuclear generators to Studsvik Nuclear AB's, the available funds to date and how does this organisation ensure the availability of funds when needed in the future?

- 6.3. Can you please provide further information on the annual contribution to the funds for spent fuel and radioactive waste management (e.g. Nuclear Waste Fund, Studsvik Fund), where these funds are kept and funds secured (internally with the operator or externally and who manages these funds (e.g. third party) and how is it ensured that such funds are available when needed?

Please provide investment policy and guidelines of the Nuclear Waste Fund and Studsvik Fund? Please provide the break-down of the Funds' structures per type of investment.

The information under points 6.1 to 6.3 above should provide all the elements that are necessary for the Commission to obtain assurance on the adequacy and availability of financial resources for the safe management of all types of activities and facilities for spent fuel and radioactive waste management - from generation to disposal (incl. post closure).

VII Agreements

- 7.1. Sweden notified in its second report under the Directive 2006/117/Euratom⁷ for the period 2012-2014 that radioactive waste was shipped to Japan and the USA and spent fuel to Norway, so could you please clarify the purpose of the shipments (processing/disposal); when the shipments were made and how the obligations of Article 4(4) of Directive 2011/70/Euratom have been met and under which agreement?
- 7.2. Please provide the text of the relevant agreements in line with Article 12(1) k of the Directive 2011/70/Euratom?

⁷ Council Directive 2006/117/EURATOM of 20 November 2006 on the supervision and control of shipments of radioactive waste and spent fuel