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Appendix 2 - Clarifying questions from Poland

Five clarifying questions were received from Poland in mail dated April 14 from Dorota Toryfter-Szymanska to the Environmental Protection Agency. The mail from Poland as well as the questions from Poland and SKB's replies is found in this Appendix.

From: Dorota Toryfter-Szumanska [mailto:dtoryfter@gdos.gov.pl]
Sent: den 14 april 2016 10:44
To: Registrator; Wisén, Åsa; Enocksson, Egon
Copy: katarzyna.twardowska@gdos.gov.pl
Subject: polish position on the case number NV-07138-15

Dear All,

On behalf of Katarzyna Twardowska – Focal Point for The Espoo Convention in Poland I would like to thank you one more time for a great opportunity to take part in transboundary consultations with site visit.

Poland does not see the need to organize additional consultation meeting (most of the questions from our site were answered) but we would like to kindly ask for few more clarifications which are very important for us.

Finally we would like to inform you that public participation is still ongoing in Poland (will finish by 23 April 2016) but till now no comments were received.

Thank you in advance
Kind regards
Dorota Toryfter-Szumańska

Question 1 from Poland: First of all we would like to mention a huge importance of the safety analysis of assessed sites (evaluation of the risk, information about ways of informing neighboring countries about accidents) especially during transportation of spent fuel what is the most important issue for Poland.

SKB's reply: *In Sweden virtually all radioactive waste and spent nuclear fuel is transported by sea. SKB's own ship, M/S Sigrid, collects the waste from the nuclear power plants and takes it to our facilities at Oskarshamn and Forsmark. M/S Sigrid has been designed specifically for transporting radioactive materials.*

In the harbours the waste has to be transported for short distances on land. Special terminal vehicles are used for this.

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IAEA have set up the regulations for the safe transport of radioactive material, including all modes of transport on land, water or in the air. The aim of the regulations, [ref SSR-6: <http://www-pub.iaea.org/books/IAEABooks/8851/Regulations-for-the-Safe-Transport-of-Radioactive-Material>] is that it should be as low impact on the environment as possible. Packages for transport of radioactive material are therefore designed to withstand extreme conditions. A package for fissile material (including spent nuclear fuel) has a Package Design Safety Report, is certified by a competent authority and shall, amongst a long list of requirements, for example manage drop tests including a nine (9) meter drop, directly followed by 30 minutes of fire and on top of that a water leakage test without losing its integrity. The package itself is with other words designed to keep the content in case of an accident.

When it comes to maritime shipments of irradiated nuclear fuel, there are also requirements on the vessels carrying the packages. The requirements are set by the International Maritime Organisation (IMO) and there are three levels of classification, INF-1, INF-2 and INF-3. M/S Sigrid is designed and certified to the highest class for this category of material, INF-3 which means enhanced requirements for:

- Damage stability*
- Fire protection*
- Temperature control of cargo spaces*
- Cargo securing arrangements*
- Electrical supplies*
- Radiation protection*
- Structural strenght*
- Training and shipboard emergency plan*
- Surveys and certification*

Preparedness in Sweden is represented by a network of authorities at all levels of society.

If there is an accident at sea vessels always send an alarm to JRCC, Joint Rescue Co-ordination Centre. This centre is available on alert 24 hours a day and is responsible for coordinating major search and rescue operations. Every center is responsible for a geographic area, known as a "search and rescue region of responsibility" (SRR). SRR's are designated by the International Maritime Organisation (IMO) and the International Civil Aviation Organisation (ICAO). RCC's are operated unilaterally by personnel of a single military service (e.g. an Air Force, or a Navy) or a single civilian service (e.g. a national Police force, or a Coast Guard).

In the event of a radiation accident, The Swedish Radiation Safety Authority (SSM) is also on alert 24 hours a day, every day of the year and can be reached via SOS Alarm. The Authority provides advice and information, domestic and international as applicable, in the event of an incident or accident involving radiation. More information about the SSM emergency preparedness can be found at <http://www.stralsakerhetsmyndigheten.se/In-English/Facts-about-us/Emergency-preparedness/>.

Question 2 from Poland: We would like to receive detailed information about monitoring (as soon as available) systems which will play in our opinion a role of post project analysis and life verification of assumed impact.

SKB's reply: All systems of safety importance will be subject to "Quality control and inspection". This refers to the actions that need to be taken to provide assurance that the requirements made on the facilities during operation and after closure of the Spent Fuel

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Repositories are satisfied. The goal is that the results obtained should conform to acceptable values for properties that contribute to safety and radiation protection. Systems for quality control and inspections will be established and implemented to quality assure the production and installation of the barriers in the KBS-3 system. This will include, but is not limited to, control of the production of each weld in the copper canister, non-destructive testing of each canister to ensure they will fulfil all requirements, sampling and testing that the bentonite material to be used for buffer and backfill block production has composition and properties in accordance with design and that the measurable properties of the rock surrounding potential deposition fall within acceptable limits. It will also be established who will make these inspections. For some safety critical aspects the inspections will be made by accredited third parties independent from SKB.

The function of the final repository will be monitored even after deposition. This is important for confidence, even if the additional knowledge only can cover a very short period of time of the repository evolution.

- The monitoring is primarily not aimed to find any defects or other abnormalities in the material, equipment or handling. These important tasks are handled within the quality control program.*
- There are physical limitations of what is directly measurable regarding the evolution of the barriers. These limitations include problems to uniquely interpret the signals from instruments and sensors as well as that measuring instruments can age. Furthermore, the measurements must not impair the function of the barriers.*
- There are other possibilities for monitoring that can provide more relevant information about the barrier performance at the repository site, without jeopardizing the safety. One such possibility is to install long-term tests of various scale and nature, focusing on the most important aspects of the technical barriers at representative locations in the repository.*

It can also be noted that Sweden participate in the Modern2020 project, which is a collaborative project funded by the European Commission under Horizon2020. The Modern2020 project aims at providing the means for developing and implementing an effective and efficient repository operational monitoring programme, taking into account the requirements of specific national programmes.

Question 3 from Poland: Please clarify information about activity of a spent fuel (page 37, Environmental Impact Statement, 2011) after 1 year (25% left) and after 40 years (3,5% LEFT) which were shown also in the graphs.

SKB's reply: *The figure shows how radioactivity changes with time after the fuel has been discharged from the reactor. The 100 % level corresponds to the activity 1 month after discharge. The activity has decreased to 25 % after 1 year and to 3.5 % after 40 years. To illustrate how activity declines in the long term, the figure has been divided into three parts with different activity scales.*

Question 4 from Poland: We are very interested in receiving (when available) “Data document” and “Radionuclide transport report” mentioned in Table 13-3 (Technical Report TR-11-01, paragraph 13).

SKB’s reply: *The reports are available. In Table 2-1 on page 76 in the first part of the SR-Site report (TR-11-01_voll_Eng) you will find full name of the reports and the report numbers. The Data report is SKB TR-10-52 and the Radionuclide transport report is SKB TR-10-50. These reports, as well as the rest of the main references in SR-Site, are available at <http://www.skb.se/publications>*

Question 5 from Poland: Going back to the notes from the meeting we do not have any comments to written questions and answers but we see the need to add information that only part of questions and issued discussed during the consultation meeting are included and that the Affected parties have opportunity to send their final position till 15 of April 2016.

SKB’s reply: *You are correct that clarifying questions that were asked during the meeting has not been included in the notes from the meeting. On page 2 in the notes you will therefore find: “In the notes from this meeting, discussions about factual matters and responses will be presented. Clarifying questions will not be noted.” We will add a sentence in the notes that clarifies that affected parties have opportunity to send their final position till 15 of April 2016.*