Main points discussed by Johan Swahn NTW/MKG at the EC SAMIRA Conference Mar 20-21, 2018

1. It is important of minimise radioactive waste when producing medical isotopes. Of special importance is to avoid the production long-lived radioactive waste in the form of spent nuclear fuel or uranium targets that have undergone fission. Producing medical isotopes with reactors and/or uranium targets gives a considerable waste problem with long-lived radioactive waste.

2. One major challenge is to find non-reactor and non-uranium fission target production of molybdenum-99 that is the source for Tc-99m, a very widely used medical isotope. The development of non-uranium molybdenum-99 production by the U.S. company called NorthStar is in this context very interesting[*].

3. The EC needs to follow along this path and support research and development on as well as industrial investment for the production of non-uranium medical isotopes including molybdenum-99, in order to make this alternative cost-effective and safe.

4. To only accept “what is available on the market” is not a progressive way for buyers of medical isotopes to use their purchasing power. Demand from buyers for sustainable production of medical isotopes can be an important to push for change. Waste minimisation in production is critical for a sustainable production. In addition the final consumer, i.e. the patient, can also have concerns about the broader environmental impact of the diagnostic tool or treatment that is used.

5. It will always be difficult and expensive to safely manage and dispose of spent fuel and other long-lived radioactive waste. The existing nuclear energy programmes in several EU member states means that there for several decades to come will be on-going efforts in Europe to manage and dispose of spent fuel/high-level waste as well as short-lived operational and decommissioning waste.

6. However, there will come a time when radioactive waste from the production of medical isotopes and hospital wastes will

[*] https://www.northstarnm.com/development/non-uranium-molybdenum-99/

become the major source of radioactive waste in most, if not all member states. When this time comes, only short-lived waste from medical isotope production and use will need management and repository systems.

7. There are, of course, already a number of member states that are in a position already now where they only have non-energy radioactive waste to deal with. The EU can here play a role in allowing and facilitating co-operation for regional management and final disposal solutions, but only for these states, not member states with nuclear energy programmes.

8. A possible forum for discussions of different possibilities is within a European Joint Programming (EJP) in Radioactive Waste Management, where a proposal is under development for Euratom R&D support. The proposal includes a networking strategic study entitled “Waste management routes in Europe from cradle to grave”. Here representatives from non-nuclear energy member states can analyze the possibilities for such co-operation. The EJP will include WMOs, TSOs/regulators and other research entities including the EU JRC. Also there will be civil society interaction, for example with NTW and environmental NGOs such as MKG.

9. To summarize:

- The EU should work for waste minimisation for the production of medical isotopes, especially for developing non-uranium/fission systems.

- It is important to make sure that only short-lived radioactive waste is produced in the long term.

- It is always difficult and expensive to manage and dispose of radioactive waste.

- It may be time to start to think about cooperation between non-nuclear energy member states for management and final disposal of short-lived radioactive waste.