



MINISTRY OF ENVIRONMENT,  
WATERS AND FORESTS

MINISTER CABINET

Nr. DGEICPSC/108425/24 .11.2023

To: Mr. Julian Popov, Minister  
Ministry of Environmental Protection of the Republic of Bulgaria

Ref: Bilateral consultations for the updated Strategy for the management of spent nuclear fuel and radioactive waste in Bulgaria

Dear Minister Popov,

The Ministry of Environment, Waters and Forests of Romania sends cordial greetings to the Ministry of Environmental Protection of the Republic of Bulgaria and particularly appreciates the bilateral cooperation in the field of environmental protection.

We would like to express our gratitude for being notified under Article 10 of the Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a transboundary context for the updated Strategy for the management of spent nuclear fuel and radioactive waste of the Republic of Bulgaria, notification which we have received through your letter no. E0-6/06.10.2023. We would also like to express gratitude for receiving the environmental assessment report and *Annex 2 Impact assessment at the level of strategic objectives and at the level of tasks and measures under the strategic objectives in the action plan* in both English and Romanian.

Through the updated *Strategy for the management of spent nuclear fuel and radioactive waste* it is highlighted that in the Republic of Bulgaria:

- national policies regarding spent fuel and radioactive waste management were established and maintained; this framework distributes responsibilities and provides for coordination between the relevant competent bodies;
- a competent regulatory authority was established and maintained in the field of safe management of spent fuel and radioactive waste (Bulgarian Nuclear Regulatory Agency);
- the responsibility for the security of the installations and/or spent fuel and radioactive waste management activities rests mainly with the authorization holder;
- its own national program for the management of spent fuel and radioactive waste is applied, regarding all types of spent fuel and radioactive waste under its own jurisdiction and at all stages of the management of spent fuel and radioactive waste, from generation to final storage;
- education and training measures are adopted and upheld by all parties for their own personnel, as well as research and development activities to meet the needs of the national programme in the matter of spent fuel and radioactive waste management, to continuously maintain and develop the necessary expertise and skills;

- adequate financial resources will be available when necessary for the implementation of national programmes for the management of spent fuel and radioactive waste, emphasizing that the responsibility for financing rests with the generators of spent fuel and radioactive waste;
- the necessary information regarding the management of spent fuel and radioactive waste is made available to workers and the population; the information is made available to the public in accordance with national legislation and international obligations, provided that they do not endanger other interests such as, inter alia, safety, recognized by national legislation or international obligations.

This strategy ensures that the Republic of Bulgaria establishes adequate national measures for a high level of security regarding the management of spent fuel and its provisions can appropriately solve the management of spent nuclear fuel (SNF) and radioactive waste (RAW) with respect to environmental protection and sustainability. We appreciate the fact that it was mainly supported by promoting the harmonization of the objectives of the Strategy to the targets of the European Union and Bulgaria.

After careful consideration of the information provided regarding the *updated Strategy for the management of spent nuclear fuel and radioactive waste in Bulgaria* and the consultations with the competent authorities in our country, a series of comments and proposals have been formulated, as follows:

1. According to the draft strategy, the new disposal facility under construction “National Disposal Facility for low and medium level RAW” is dedicated to LILW. What plans does Bulgaria have for managing the Category 1c- very low level wastes?
2. Are radioactive waste containing long-lived radionuclides (both beta and alpha) that exceed the limits for Category 2a and cannot be accepted for near surface disposal generated during the current decommissioning activities? In the draft strategy there are no indications on the volumes and storage facilities for such waste.
3. The *Draft of the updated Strategy for the management of spent nuclear fuel and radioactive waste in Bulgaria* has taken into account the occurrence of unfavorable geopolitical changes in the beginning of 2022, following the war initiated by the Russian Federation against Ukraine and the emerging risks associated with the management of SNF and high level radioactive waste (HLW), considering three scenarios: realistic scenario, optimistic scenario and pessimistic scenario.

Could you please clarify which of the three presented scenarios for long term management of SNF and RAW represents the reference scenario that was the basis for the development of the *Strategy for the management of spent nuclear fuel and radioactive waste in Bulgaria*?

Furthermore, the realistic scenario provides for action in 2023 „sending two shipments, as per contract, of 118 fuel assemblies with snf from WWER-1000 (around 45.3 t HM), with signed contracts and approved by the ESA (if possible, the two transports will be merged into one).” Is it possible to detail the degree of fulfillment of this activity considering that we are almost at the end of 2023?

In relation to the long-term strategic plan covering the expected lifetime of the Nuclear National Programme and intermediate plans for the periods between significant milestones, could you specify more clearly, what is the perspective envisaged for the *Updated Strategy for the Management of Spent Nuclear Fuel and Radioactive Waste*?

In the "Pessimistic scenario", assuming the impossibility to send the WWER-440 SNF and WWER-1000 SNF for reprocessing in RF, you consider sending the SNF for reprocessing in France and the construction of a buffer capacity for dry storage of WWER-1000 SNF as the only alternative. What is the alternative if the reprocessing of WWER SNF in France will prove technically impossible or too expensive? Is the SNF direct disposal in DGR taken into consideration?

4. If proposed activities/projects are delayed, please detail the impact these delays on SNF and RAW management. For example, do current storage facilities have sufficient capacities to receive all of these?

4.1. Please detail the proposed measures to prevent, reduce and compensate as completely as possible any adverse effect on the environment of the implementation of the *Updated Strategy for the Management of Spent Nuclear Fuel and Radioactive Waste* on one hand and also of its non-implementation on the other hand.

4.2. Could you explain about main challenges in preventing unplanned releases and protection of the environment? Who performs environmental monitoring of radionuclides around facilities for nuclear and radioactive waste management - these facilities or some independent legal entities?

4.3. What can you tell us about the contaminated soils, if any? Are they stored in situ? Is there a treatment plan for them? If they are expected to be disposed of near surface disposal site in the future, what conditioning technology is planned to be used?

4.4. From the analyzed documents, it is not clear under what conditions there is the possibility of declaring SNF to be RAW in compliance with SUNEA therefore please detail these conditions and the possible impact on the environment.

4.5. Regarding the policy of transparency and open dialogue, the *Draft of Updated Strategy for the Management of Spent Nuclear Fuel and Radioactive Waste* notes „SE RAW annually prepares and implements communication programmes with a schedule of the activities in compliance with the current projects of the SE RAW. For each of its major projects, the SE RAW identifies the stakeholders in the public and implements a Plan to involve them in the discussion process of the potential negative or beneficial impacts on the environment and the social media”.

How much public acceptance has engaging SE RAW in communication with local communities raised? Do you have any good attempts in the management of SNF, storage SNF and communication with the local public and the Romanian communities in close proximity to the nuclear facilities in Bulgaria?

4.6. Can you let us know if you achieved tangible results?

5. Are there any provisions to ensure that harmonized approach and appropriate coordination across national borders will be in place during emergencies?

6. Section 5.1 last paragraph writes that “When a decision is taken to construct new nuclear facilities under Art. 45 of the SUNEА, the Strategy must be updated to take into account the expected quantities of SNF that will be generated from them.”

Please provide the provisions of the Bulgarian regulation that allow the mechanism that “the amounts raised in the funds will bear interest at a fixed and agreed interest rate between the Minister of Finance and the Minister of Energy.” Also, please inform us what structures have responsibilities in applying this requirement and how the level of the interest rate is established.

7. Referring to Section 5, who is the owner of the SNF resulting from the decommissioning of the 4 reactors in decommissioning? The technology for storing and processing HLW resulted from reprocessing SNF are not established, yet. Is any R&D needed to set up the technologies needed here? Who is formally responsible to ensure these R&D works and decide the technical solutions, environmentally friendly, that should be implemented?

8. In section 5.1.2 the current situation as presented as follows “In general, the long-term dry storage of spent nuclear fuel can lead to significant risks to the Bulgarian Nuclear Programme in the absence of options for transportation and/or processing of the spent nuclear fuel stored like this in the future. This may require its direct disposal, respectively a radical change to the Deep Geological Repository (DGR) Project in order to solve a number of complex technical issues.”

Is any previous assessment on the alternative of disposing SNF in DGR and/or comparison, particularly financial-economical comparison, between the route of reprocessing SNF and returning, storing processing and disposing HLW and the route of direct disposal of SNF? In relation with this question, in section 5.1.5 please take into consideration to revise the 4th paragraph/remove the text extracted bellow. It is understood that direct disposal of SNF is difficult and it has technical issues and we do not think this was the intention (Finland and Sweden already issued construction decisions for DGRs accommodating SNF)

“If this option is not implemented, the only option for SNF (Westinghouse) management shall be to extend the time for its interim storage and further direct disposal in the DGR.”

9. In Sections 5.2.3.2 the text mentions about a potential underground research laboratory (URL). The URL is also mentioned in Section 7.6 for research but it is not included in the plan in Annex 7. What are the factors that determine the need for a URL? Does Bulgaria plan for a URL in this strategy?

10. In Section 2.1 of the EIA Report and Section 5.1 - last paragraph of the draft updated Strategy, it is translated that the updated strategy will be revised in order to report the expected quantities of SNF.

Please present what is the document that represents the approval of a decision in terms of Bulgarian law. Please clarify if the legal requirement mentioned above means that the updated Strategy would have to integrate beyond inventory, as understood from the translation, also technical solutions (for e.g. updated of the capacities of the planned long term facilities for SNF and RWM), cost estimations and associated financial mechanism. Also, please mention if a new SEA procedure is required for that updated strategy.

11. In Section 9.4 page 271 it is mentioned that: "A local, temporary, reversible negative impact which will not be significant on the environment is expected from: [...] dismantling and reclamation at DC of WSFSF until reaching the final "brownfield" condition".

Please describe what "Brownfield condition" or "brownfield" state means, including the quantitative criteria to be respected/met from the Bulgarian requirements.

12. In Annex 2 ref. to Section 9.1 *Impact assessment at the Strategic objectives level* for strategic objectives #2 and #3 the assessment rates "long term radiological positive impact". Please provide more in detail the rationality why interpretation gets to "positive impact". Both for transportation of SNF for reprocessing it and return of HLW at a time in the future implies events in normal conditions and risks of some accidents. Thus, even mitigating measures would be on place from the concept and assessment of the activities if we analyze only the transportation, it gets to some impact which could not be positive from a radiological point of view.

We suggest that the Strategy details the objectives and actions provided for, namely the investment ones (the facilities where the radioactive waste will be stored), those for monitoring the radioactivity of environmental factors in the depositories area of influence and the socio-economic objectives and actions provided for (measures to protect the population and the environment in the critical area of 30 km, which includes Romanian territory from Olt and Dolj counties).

The Environmental Assessment report develops all the mandatory aspects of such an assessment, but gives little attention to the transboundary impact of the strategy. For example, in the "Water" section, the tributaries on the right side of the Danube are presented, but not the Danube river itself. The Danube river collects these tributaries and, in addition, crosses the critical area of influence of the Kozloduy facilities. We consider that the Environmental Assessment report should contain detailed and concrete information on the current radioactivity monitoring system for the water of the Danube river downstream of Kozloduy, and the Strategy should provide for both a program for radioactivity monitoring within the environmental factors (water, air and soil) and a plan of measures, provided for cases of high levels of radioactivity detection.

Also, the assessment of the impact on the shallow aquifer is not certain, as long as no details are presented regarding the vertical extension and zonal characteristics of this aquifer and the depth of radioactive waste storage is not specified. From the point of view of transboundary impact, we are interested in the shallow aquifer due to the fact that it is drained by the Danube and could influence the quality of the river's waters.

Within the Impact Assessment at the level of Strategic Objectives, it is recognized that for 3 of the 10 measures and objectives provided for in the Strategy, the lack of details makes it “impossible/does not allow” the assessment of the impact of the strategy on the surface water and on the shallow aquifer. For the rest of the measures and objectives, a positive impact is expected, but no convincing arguments are presented in this regard.

Finally, please let us bring to your attention some punctual remarks:

1 The draft strategy presents only the currently inventory of RW and SNF generated and stored in Bulgaria. Such a document should also contain estimates for future quantities.

2. the acronyms for the two storage facilities for spent fuel (WSFSF and DSFSF) are not used consistently throughout the document; WSNFS, DSNFS and SFSF are also used.

3. Both in chapter 5.1.6 (page 27) and in Appendix 3 an amount of stored SNF of around 957 t HM is reported, while the difference between the total quantity of SNF generated during 1979-2022 and the quantity shipped for long-term storage and processing, indicated in Chapter 5.1.6 is higher (1102 t HM).

4. The EA Report should also include :

- cooperation with relevant institutions in Romania for the environmental radioactivity monitoring programme from the Kozloduy NPP

- what types of reactors will be built in the future at the Belene and Kozloduy sites

- on page 14 of the document, it is stated that a scheme for the transport of SNF to France has been drawn up: does this also refer to the schedule for the shipment of SNF and the return of the processed SNF and the resulting RAW? Have the means and routes of transport been identified?

As Kozloduy NPP is situated close to the border of Romania, respectively in the vicinity of several Natura 2000 sites (ROSAC0045 Jiu river corridor, ROSPA0023 Confluence Jiu-Danube, ROSPA0135 Sands of Dăbuleni, ROSPA0010 Bistret), as well as other natural protected areas (such as the Ramsar site Confluence Jiu-Danube, Zăval Forrest natural reserve), we consider it opportune to evaluate the impact of the strategy in regard to these sites, namely in relation to the species and habitats for which the sites have been designated and the establishment, as the case may be, of measures to reduce the impact.

Please accept, Mr. Minister, the expression of my high consideration and esteem.

**Mircea FECHET**

Minister