



**REPUBLIC OF BULGARIA**

**MINISTRY OF ENVIRONMENT AND WATER**

EO-39

18, February 2021

**Regarding:** *Strategic Environmental Assessment (SEA) procedure for the National Strategy for Medium and Long-Term Safe Management of Spent Nuclear Fuel and Radioactive Waste*

**DEAR MINISTER,**

*In addition to the letter with outgoing No. EO-39/07.01.2021 of the Ministry of Environment and Water (MOEW), by which the Republic of Bulgaria has expressed a written wish to participate in a transboundary SEA procedure for the National Strategy for Medium and Long-Term Safe Management of Spent Nuclear Fuel and Radioactive Waste, we also provide you with the following additional information obtained as a result of the consultations:*

*1. With regard to human health:*

*The presented report examines the possible impacts on the environment and human health from the implementation of the strategy, assessing all three options presented in the strategy - the selected reference scenario and two other alternatives.*

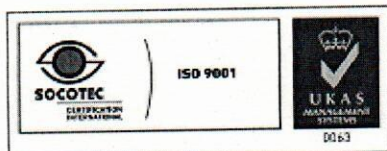
*According to the conclusion of the report, prepared on the basis of mathematical analysis and spectral analysis to assess the impact on the environment, including human health, is that the quantitative overall impact corresponds to a negligible impact.*

**H.E.Mr Barna TÁNCZOS**

**Minister of Environment, Waters and Forests of Romania**

**12 Libertatii Blvd.,**

**Sector 5, Bucharest, Romania**



Sofia, 1000,22 Mariya Luiza Blvd.

Phone:+359(2) 940 6194, Fax:+359(2) 986 25 33



*The environmental report also envisages measures to prevent/reduce the potential impact on the environment and human health, as well as indicators to be monitored in order to assess the impact after the construction of the sites.*

*It should be noted that at this stage the location of one of the most important sites has not yet been selected - the future deep geological depot for final storage of spent nuclear fuel and highly active radiological waste, which according to the preferred version of the strategy should be built in 2055, therefore the assessment of the transboundary impact of the strategy cannot be considered final and should be supplemented after the selection of the exact location of this repository.*

*In general, the Ministry of Health proposes in the documentation to consider in more detail the possible impact of the implementation of the strategy for the management of spent nuclear fuel and radioactive waste on the health status of the population in the Republic of Bulgaria. In the analysis of the results to pay attention to groups of diseases for which a causal relationship with radiation exposure is allowed. The indicators regarding the assessment of the impact of the implementation of the strategy on human health should also include the conduct of a periodic analysis of the morbidity of this group of diseases for which a causal relationship with radiation exposure is allowed.*

*Additional information should be provided regarding the assessment of seismic risk and possible adverse effects and impacts on environmental factors, in particular groundwater and surface water, and regarding human health as a result of the maximum possible seismic events that may affect the area of the nearest to the northern border of the Republic of Bulgaria depot for final storage of waste with low and medium activity in the "exclusion zone" of Cherna Voda NPP.*

*2. As stated by the Ministry of Energy:*

*The presented National Strategy for Medium and Long-Term Safe Management of Spent Nuclear Fuel (SNF) and Radioactive Waste (RAW) meets the requirements of Art.12 of Directive 2011/70/Euratom establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste as regards the content of a national SNF and RAW management program. There is room for improvement in order to make the data in the program more complete and more fully in line with the requirements of Directive 2011/70/Euratom.*

*The document considers one baseline scenario for the implementation of the national program and two alternative scenarios. The baseline scenario (item B.2) envisages extension by 25 years of the life of Units 1 and 2 of Cherna Voda NPP, commissioning and extension of the life of Units 3 and 4, operation and decommissioning of research installations and industrial facilities with sources of ionizing radiation. The alternative scenarios take into account the future construction of a repository for short-lived low and intermediate level waste (NSRF) and a deep geological repository, providing options with a deviation from the schedule for the implementation of the baseline scenario. The construction of these two important facilities for the program should also be mentioned in the baseline scenario with the specific deadlines for implementation. Also, when considering the costs of implementing the scenarios, they should be compared.*

*The presented inventories of SNF and RAW in the annexes to the strategy are current as of 2016. Considering that ANDR prepares annually the national inventory of quantities and types of generated radioactive waste and that licensees report annually the inventories of SNF and RAW is appropriate in the strategy to present such quantities by 2019.*

*The text of the strategy stipulates that ANDR provides post-closure monitoring of spent nuclear fuel and radioactive waste repositories. The presented environmental assessment of the strategy also notes the planned pre-operational monitoring during operation, which should be reflected in the strategy, taking into account the relevant costs for project implementation (pp. 17, 29).*

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Taking into account the requirement of Article 12, item 1 (b) of Directive 2011/70/Euratom, it is desirable in the strategy presented by Romania to specify the deadlines for the construction of the intermediate storage facility for long-lived NSRFs in RATEN ICN - Pitesti.

As the planned for construction facility for processing and conditioning of short-lived NSRF is an important element of the preparation of RAW for disposal in the repository for short-lived NSRF, it is appropriate to include it as a stage in Table 5 with key indicators and deadlines.

Taking into account the requirements of the European Commission presented in Article 12, item 1 (h) of the Directive, it is desirable, after ANDR has prepared the planned additional assessment of the costs for the implementation of the program, in a new version of the strategy, to present estimates for accumulation and spending of funds in the RAW management and decommissioning funds.

The presented Environmental Assessment Report of the Strategy for Medium- and Long-Term Safe Management of RAW and SNF of Romania is comprehensive and covers all aspects of impact. The analyzes of the expected impact have been made for the different scenarios of the Strategy implementation, mainly for the envisaged project of a storage facility for low- and intermediate-level radioactive waste, DFDSMA next to the site of Cherna Voda NPP. All routes of impact, incl. radiological impact during operation and post-institutional control of the repository. Technical and organizational measures have been proposed to ensure the radiation protection of personnel, the population and the environment. The set dose limits guarantee compliance with the dose limits for staff and the general public. Site selection satisfies safety criteria, minimizes the cumulative effect and negligible transboundary impact. An example program for radiation monitoring during operation of the DFDSMA repository is presented.

In order to make the Strategic Environmental Assessment Report more informative and the forthcoming future Environmental Impact Assessment (EIA) procedures for the projects of the National Strategy, we consider it appropriate to supplement the relevant parts of the report, namely:

- The set dose limit of 0.3 mSv/y for the population for the period of post-institutional control is the same as during operation, which is not justified in view of the reduction of the activity of the radionuclide inventory in the storage and the penetrating radiation from it. Possibly more conservative (lower) limits for the population can be reconsidered and proposed - e.g. 0.1 mSv., Which is the limit for annual individual effective dose for a critical group of the population as a result of a facility for surface disposal of RAW after its closure in the Republic of Bulgaria.
  - The cumulative effect of the commissioning of new storage projects has not been considered, but only mentions that it is impossible to assess at present and that no potential effect is predicted. From a radiological point of view, it is good to mention the sites that will be included in the assessment of the cumulative effect - existing and future. For greater information, data from the currently available nuclear and radiation facilities in operation, such as Cherna Voda NPP, can be cited, with a major contribution to the formation of the cumulative effect of the effective dose of personnel and the population in the area. In this context, the share of the future repository for short-lived low and intermediate level RAW, DFDSMA is insignificant.
  - Is radiation monitoring of the mentioned constructed network of multiple drilling wells (piezometers) for monitoring of chemical indicators of groundwater performed? For some piezometers, including near the border with the Republic of Bulgaria it is good to provide for radiation monitoring.
  - Table 13 attached to the Report, Monitoring Program, indicates which sites will be subject to radiation control, but does not specify specific indicators that will be tested - e.g. total beta activity, total alpha activity, key radionuclides ( $^3\text{H}$ ,  $^{137}\text{Cs}$ , etc.). It is desirable to supplement the parameters of the monitoring program, taking into account the requirements for the scope
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of monitoring in Directive 2000/473/Euratom and for drinking water indicators with Directive 2013/51/Euratom.

In order to continue the transboundary procedure with the participation of the Republic of Bulgaria, it is necessary to provide us with the documentation on the SEA and the Strategy with the above-mentioned remarks and recommendations.

I take this opportunity to express my respect and willingness for cooperation.

Yours sincerely,

**EMIL DIMITROV**

**Minister of Environment and Water**

*Emil Dimitrov*

"Зе министър  
Заместник-министър  
Заповед за заместение

*Николай Кенчев*

*РА-138/16.02.2021 г.*