

Attachment 7

Written documents on the exchange on the information for EIA in transboundary context (with the CA of Republic of Romania)



**GOVERNMENT OF ROMANIA
MINISTRY OF ENVIRONMENT AND FORESTS**

Cabinet of the Minister

No.: 3674 /RP/ 01.10.2012

To: Ms. Nona KARADJOVA, Minister of Environment and Water, Republic of Bulgaria

Ref: Terms of references for investment proposal for „*Facility for treatment and conditioning of solid radioactive wastes with a high volume reduction factor at Kozloduy NPP*”

Dear Ms. Karadjova,

We have the pleasure to inform you that we received your address no. 26-00-3177, dated 27 July 2012 and the Terms of Reference (ToR) on the scope of the environmental impact assesment of the investment proposal for „Facility for treatment and conditioning of solid radioactive wastes with a high volume reduction factor at Kozloduy NPP”.

In reponse to the above mentioned letter we would like to convey to you the comments, proposals and requirements elaborated by the Romanian competent authorities on ToR, attached to the present letter **as Annex 1**.

We would also like to draw your attention on **Annex 2** attached to the present letter which was sent to the Bulgarian Ministry of Environment and Waters previously (by letter no. 281/LB/22.02.2012) and which represents, as well, the Romanian point of view on the scope of the EIA for the Bulgarian investment proposal. The content of Annex 2 has been forwarded to Republic of Bulgaria in response to the Notification received on this project.

Dear Minister, please take into consideration the two annexes as the Romanian requirements on ToR.

Bld. Libertății no.12, Sector 5, Bucharest, Phone: 004 021 408 9523, Fax: 004 021 312 4227
www.mmediu.ro

A public hearing on the Romanian territory for the Bulgarian investment proposal would be much appreciated by the public in the possible affected region. The details of the meeting could be arranged by the Espoo focal points of our countries.

Looking forward to receive all the necessary information that will ensure the Romanian participation in the transboundary environmental impact assessment procedure regarding this project, please accept, Ms. Minister the assurance of my highest consideration and esteem.

Yours sincerely,

MINISTER
Rovana PLUMB



Bld. Libertății no.12, Sector 5, Bucharest, Phone: 004 021 408 9523, Fax: 004 021 312 4227
www.mmediu.ro



**GOVERNMENT OF ROMANIA
MINISTRY OF ENVIRONMENT AND FORESTS**

Impact Assessment and Pollution Control Directorate

Annex 1

**IDENTIFIED NUCLEAR SAFETY AND ENVIRONMENT PROTECTION
PROBLEMS on the TERMS OF REFERENCE**

We kindly request to include to be treated in the EIA Report, the following aspects:

A. Information related to the water in technological process :

1. At the point 3.8.2., it is necessary that the obtained monitoring data to be included in the EIA and compared with previous similar data, both national and JDS 2 data base for the radiation and non-radiation indicators.
2. At the point 3.8.2.1., it can not be told that only the mentioned indicators offers information about chemical pollution; there is a much longer list of chemical substances and compounds that assess chemical characterization at EU level; maybe it can be told that these indicators are mostly used for revealing possible accidental pollution of waters. It is normally that, besides these general indicators, to be analyzed and quantified all substances mentioned in chapter 1.2.2., as well as the assessment of possible presence and concentrations in waters. Furthermore, besides the national norms from table 3.8.2.1.1., the obtained data should be compared at least with ICPDR norms for Danube, for having a homogenous view of the approach.
3. In a similar way, as for point 2., the quality of Ogosta River must be analyzed, as well as the quality of other rivers in the vicinity of the project area. All data must be present as they are, both comparison with previous status and ICPDR norms must be mentioned also. Similar for other rivers in the discussed area, as Skar, etc. All presented data must be assessed back to back with European laws for protection of population and environment,

Blvd. Libertății no. 12, Sector 5, Bucharest, Phone: 004 021 408 9523, Fax: 004 021 312 4227
www.mmediu.ro

mainly (in this case) norms for ecological and chemical status of waters (according to Directive 2000/60/EC) and norms for different water uses.

4. The chemical indicators mentioned in table 3.8.2.1.1. are, in present, part of assessment of ecological status. In this respect, the ecological status, as well as the prediction of reaching or not the “good status” within Directive 2000/60/EC must be included also in the EIA.
5. The chapter 3.8.2.2. must offer also data about the analyzed indicators, measured values and comparison with previous status, using both national (if exist), AIEA norms and ICPDR data.
6. All the other remarks referring to surface waters from the previous document must be taken into account in detailed description in the EIA study.
7. The last, but not the least, is **to present the cumulative impact of all activities** developed or under preparation for future development in the mentioned area, taking into account that this project is not the only one and all the other projects use water and discharge waters in the same river. Even each project states that the discharged waters are not significant in comparison with Danube flow and indicators load, the cumulative discharges could lead to significant impact.
8. Concerning groundwater, text explanations are confusing without references to maps with boreholes situation and flow direction and to the hydrogeological cross-sections. We consider that schematic maps and cross-sections should be included in order to better assess and understand the impact.
9. Data on the groundwater abstractions and discharges on the studied groundwaters is missing. We consider this data very important, taking into account the strong relationship between the chemical and quantitative status of groundwater and the mention (page 59) that the aquitard between the Quaternary aquifer and the Pliocene aquifer below is imperfect.
10. Subchapter 3.8.3.2 should be considerably detailed taking into account the pollution by tritium already occurred. Finding and removal of the sources of the pollution and other measures to improve groundwater quality should be provided. Also the natural radioactivity of groundwater should be proved by tests previous to the Kozloduy Power Plant construction.
11. Referring to air pollution, a simulation about the diffuse pollution from rain water and run-off water must be also presented (models, predictions, dispersion wave) both for radiation and non – radiation indicators.

B. Considering the existing natural protected areas ROSCI 0045 Coridorul Jiului and ROSPA 0023 Confluenta Jiu Dunare , we consider necessary to include also the following issues:

1. The impact of the project on species of flora and wild fauna located inside or outside of the natural protected areas, but in the project areas, on the both banks of river Dunarea.
2. The cumulative impact with other projects developed on the proposed site or in the neighborhood which could damage the natural capital from both states.
3. Measures for mitigation the impact of the project on the biodiversity and also provide dates about the residual impact after their implementation.

C. In general terms and in the available / provided documentation, the position of the Bulgarian can be considered acceptable. However, there are issues that require a greater degree of detail, even at this phase level of the project. These issues should at least be considered and should be confirmed that they will be treated or highlighted in the future environmental impact report and that it will impose a structure targets or be specified in the ToR. The following topics require a breakdown by the Bulgarian side:

1. **Attachment 7, B.3.** Considering the Bulgarian response: *"A detailed accident and risk analysis is completed in the Safety Analysis Report document. This document is an integral part of the project documentation which is subject to regulator's approval. It is impossible to build the PMF without the approval of this document"*, we would still like the ToR to contain at least the postulated initiating events list, including the identification of the maximum credible accident in terms of frequency and radiological consequences. Our request has its justification in the fact that the accident analysis will be part of a licensing documentation (SAR) at which the Romanian side has no access as a tool to demonstrate the suitability of radiological / industrial safety for this project. This requirement is minimal and should not be negotiable.
2. **Attachement 7, B.4.** Considering the Bulgarian response: *„The aging processes are considered in the facility design. The possible negative impacts shall be assessed in the EIA Report”*, we believe that it is necessary to confirm that the document referenced as Technical Specifications (known as the Limiting Conditions for Operation) will be issued based on which the whole operating process of the mentioned facility should be performed. Our request has its justification in the fact that developing such a licensing process support document will provide an additional guarantee that the safety limits, the operation and design features and administrative controls are defined, identified and evaluated, in liaison with the demonstration of the radiological safety, objectives, principles requirements and best operating practices.

Blvd. Libertății no. 12, Sector 5, Bucharest, Phone: 004 021 408 9523, Fax: 004 021 312 4227
www.mmediu.ro



**GOVERNMENT OF ROMANIA
MINISTRY OF ENVIRONMENT AND FORESTS**

Impact Assessment and Pollution Control Directorate

Annex 2

**IDENTIFIED NUCLEAR SAFETY AND ENVIRONMENT PROTECTION
PROBLEMS on the NOTIFICATION**

A. We kindly request to include in the Terms of Reference issued for the PMF project and than to be treated in the EIA Report, the following aspects:

1. The types of solid waste to be treated in PMF, the volume, the flows that generated them and the radiological characteristics; please specify if in the PMF there will be treated only Bulgarian waste or third parties waste as well ?
2. The predicted life time of the PMF installation, the dismantling time of installation and the way of treating the waste which result from dismantling the installation.
3. The legal limits for the radioactive effluents which are discharged in environment (surface/underground waters, in air, etc, and the monitoring method of these effluents).
4. Specify the annual processing capacity considering that from mathematical calculations result a value which is different from the capacity of 250 tons/year mentioned in the Notification.
5. During the treatment process you are using other substances as well, (e.g. ammonium, nitrogen), please, specify the storage capacity of such substances on the facility site.
6. We kindly request the following data related to the water used in technological process:

Blvd. Libertății no. 12, Sector 5, Bucharest, Phone: 004 021 408 9523, Fax: 004 021 312 4227
www.mmediu.ro

- a) complete information about cooling water e.g: the source of cooling water, the cycle provided (closed/opened), the way of discharging, the temperature characteristics and other pollution indicators if the cooling water will be discharged in surface water;
 - b) complete information about the characteristics of the water used in the process as a wastewater e.g: the source of supply (potable water/surface water/technological water with special treatment etc), the place of discharge, the values of the pollution indicators expressed in concentration-mg/l and total annual loading –kg/y of pollutant.
 - c) the operating way of the PMF installation (continuously or discontinuously) considering the different data mentioned (nominal flow of 0,625 m³/h leads to 15mc/day and 5475 m³/year of water consumption), while the water consumption mentioned in the Notification is 2500m³/year.
7. Considering the existing natural protected areas ROSCI 0045 Coridorul Jiului and ROSPA 0023 Confluenta Jiu Dunare please specify the sensitive areas which could be affected by the pollution.
 8. Please specify the European legislation that regulates the radioactive waste treatment and which will be used in the project.
 9. Please specify if the PMF is an incineration plant considering the definition of the incineration plant (equipment or technical unit fixed or mobile designed for thermal treatment of the waste with or without recovering the heat; thermal treatment means incineration by oxidation or other thermal treatment procedure e.g pyrolysis, gasification or plasma processes).
 10. Explain why under the chapter "Results"(pag.7) and chapter "Additional Informations/ Comments"(pag.10) of the Notification it is mentioned the Directive nr.76/2000/CE for waste incineration, considering that in this Directive, under art.2, the **radioactive wastes are excluded**.
 11. Please specify what "almost fully" means, within the statement from the chapter "Results"(pag.8) *the rest amount of the radioactivity together with the fly ash from the flue gas are caught almost fully in the filter*; What is the percentage of radioactivity released ?
 12. We kindly request to assess the radiological impact on environment and human health within a radius of 30 km from the PMF installation, considering the importance of this issue in taking the decisions, and also considering that population on the Romanian territory in area of influence of the PMF is around 23 communities.

Blvd. Libertății no. 12, Sector 5, Bucharest, Phone: 004 021 408 9523, Fax: 004 021 312 4227
www.mmediu.ro

13. Please include in the EIA Report an analysis of dispersion of all types of pollutants emitted within a radius of 30 km around the plant, considering all possible impacts on environmental and human health of the pollution resulted from the treatment process.
14. Please assess the cumulative impact (radioactive and non radioactive) of all 3 projects developed in Kozloduy area (PMF, dismantling of NPP and the nuclear deposit) because of a likely cumulative transboundary impact on Romania:
 - a) considering the dismantling period of time -2011-2035 mentioned in the Notification for the project "Dismantling of units 1-4 of Kozlodui NPP" please present a timetable of the development of all 3 projects, specifying the construction period of time, the normal operation period of time, the dismantling period and recovery of the site period. We are very much interested what the cumulative impact of all 3 projects is in the overlapping periods;
 - b) specify in detail the sources of pollution, an estimation of the radioactive and non radioactive emissions, the impact on environmental and human health in Romania, the legal requests for monitoring of the pollution, the constructive and management measures proposed in order to reduce the cumulative impact of pollution on environment and human health in Romania;
 - c) specify the additional measures to be implemented in case of identification of a cumulative and synergistic effects.

B. The plasma melting facility, PMF, is an advanced technology related to radioactive wastes processing. In Europe, such installations are built and operated in Belgium (CILVA) and in Switzerland (ZWILAG). Despite of these, there are some sensitive aspects that should be assessed in the frame of Environment Impact Assessment, documentation which will be issued at later stage:

1. The problem of radioactivity concentration in the resulted slag: is claimed attention and special treatment on how the waste slag will be conditioned so that packages can be interim stored in a safe manner on-site KNPP, including specifying how the conditioning of such packages will be done in order to meet the wastes acceptance criteria, WAC, associated to the Low and Intermediate level Wastes Final Repository which is expected to be built nearby NPP Kozloduy site.
2. The problem of qualitative and quantitative emission limits authorized for chemicals: further details are needed regarding the alignment of Bulgarian regulations associated to emission limits allowed for toxic and hazardous chemicals (as stated by the Bulgarian side in the notification), in terms qualitatively and quantitatively, with European legislation and regulatory requirements equivalent in Romania.

Blvd. Libertății no. 12, Sector 5, Bucharest, Phone: 004 021 408 9523, Fax: 004 021 312 4227
www.mmediu.ro

3. The problem of accident and hazard analyses: a special attention has to be pay to risk analysis (e.g., HAZOP) and those of postulated accident (design basis accident) that have to quantify all possible scenarios associated with fire and explosion hazard, with nearby human activities, including the associated common cause events (e.g., earthquake, flooding), given that the PMF installation processes metallic materials melt at high temperatures, which might change the risk level from radioactive hazard to industrial hazard or both, in some accident conditions, which can significantly affect the environment over considerable distances.
4. The problem of technical specifications for operation and degradation management measures: it must be rigorously and systematically address a set of technical specifications related to operation of that objective, including the development of specific programs for aging management for relevant systems, structures and components, taking into account the terms source, the characteristics of the technological process, the extended lifetime of the PMF installation, the ultimate heat sink, the safety design criteria and the possible negative environmental impact on large areas, in case of failures or accidents resulting from the neglect of these issues.
5. From the point of view of the environmental impact, incineration of radioactive waste is regarded as a method with a higher environmental impact than other volume reducing methods (such as supercompaction, for ex.), because it can lead to emission of radioactive and non-radioactive pollutants. Therefore, we kindly request the future documentation to detail the characteristics of the waste to be incinerated, in terms of volume, source and level of activity.
6. The future technical documentation should also include a facility conceptual decommissioning plan, including the management of radioactive waste generated during this activity.
7. *"Construction is planed to start in January and to finish in August 2013".* Taking into account the long period of time which is necessary in general to get all the agreements and permits for a new nuclear facility and keeping in mind that plasma melting is a relatively new technology, please let us know if the mentioned terms are fix or they can be changed.
8. The Environmental Impact Assessment Report which will be sent to Romanian Ministry of Environment and Forests should include the potential radiological and non-radiological releases, for all the facility operating conditions.
9. We kindly ask you to mention the foreseen PMF's lifetime and how it was correlated with the decommissioning plan of the 4 Units of KNPP.

Blvd. Libertății no. 12, Sector 5, Bucharest, Phone: 004 021 408 9523, Fax: 004 021 312 4227
www.mmediu.ro