

## STRATEGIC ENVIRONMENTAL ASSESSMENT FOR THE NATIONAL PROGRAMME FOR MANAGEMENT OF RADIOACTIVE WASTE:

# RESPONSE TO STATEMENTS FROM CZECH REPUBLIC

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## 1 STATE OFFICE FOR NUCLEAR SAFETY (SUJB)

#### 1.1 REPOSITORY SITES AND INTERNATIONAL COOPERATION

**Statement:** As it is clear from the draft concept, the basis of Austrian radioactive waste management policy is the long-term storage of institutional radioactive waste (hereinafter "the RAW") in the RAW repository at Nuclear Engineering Seibersdorf (hereinafter "the NES") and the endeavour to impose this waste abroad after 2045. No option of developing own storage is mentioned in the main text of the draft programme. While other principles of the RAW management are in line with international conventions and regulations, including Council directives, the SÚJB expresses serious doubts about the factuality of their implementation. Virtually, no European country allows the import of the RAW into its territory for storage purposes, and even on a global scale there are no real projects for the development of joint regional or international RAW repositories. It is already clear that the principle of the ultimate responsibility of the Republic of Austria for the safe deposition of the RAW, which originated and will arise on ist territory, will not be possible without the development of its own national RAW repository.

**Statement:** Since 2003 within the evaluation meetings of the Joint Convention, the Czech Republic has raised serious doubts as to whether Austria will be able to fulfill its obligations under this Convention in the long term. Sustainable use of ionizing radiation sources, which none of the developed countries will avoid in the future, is in many ways dependent on the availability of safe national RAW repositories. Austria relies on the fact that the burden related to the development of the repository for "Austrian RAW" will be borne in the large measure by a foreign partner in the future and does not even consider the possibility of building an international repository on its territory.

**Response:** The Republic of Austria shall bear the ultimate responsibility for the safe management of radioactive waste arising in its territory and will devote itself specifically to the issue of final disposal. Irrespective of any international cooperation the Task force "Disposal" to be established after the adoption of the national radioactive waste management programme will – as described in that programme – propose criteria which need to be met in order to ensure the safety and security of the final disposal as well as the protection of the environment and of future generations. These criteria have to be fullfilled regardless of the state in which the repository is built. (Pre-)selection of an adequate site for a repository is only possible once the criteria mentioned above are available. The evaluation of possible sites will of course be performed in Austria.

Especially in the fields of research and development the cooperation with other states can effectively contribute to the acquisition and management of knowledge. Therefore, Austria strives for participation in international cooperation. The creation and utilisation of a shared repository is a possible outcome of these joint efforts. In any case the search for a repository in cooperation with other states offers an additional possibility to tackle this complex challenge.

#### 1.2 RAW INVENTORY

**Statement:** The SÚJB further notes that the entire text of the draft programme seeks to marginalize the quantity and activity of the stored RAW in the NES. But an inventory of 11 200 barrels of 200 litres and an annual production of about 200 barrels corresponds to conventional RAW production in European countries of approximate size of Austria. For example, there are about 16 000 packages (200 l barrels in total) currently safely stored in two RAW repositories containing similar types of the RAW as NES, and annual production, excluding nuclear power plants, is around 150-250 barrels in the Czech Republic. The total activity of the deposited institutional RAW is about 5.1014 Becquerel and is thus about 20 times smaller than the inventory of the RAW storage in NES (1.1016 Bq). However, the share of short-term nuclides in the inventory of the RAW repository in the NES is significantly higher than in the RAW repositories in the Czech Republic.

#### RESPONSE TO STATEMENTS FROM SUJB

**Response:** It is not intended to marginalise the Austrian inventory of radioactive waste. Solely, it shall be emphasised that in Austria no high active waste arises for disposal. The passage dealing with the origin of radioactive waste and its treatment by NES has been rewritten in the national radioactive waste management programme to provide clarification.

#### 1.3 MILESTONES AND TIME HORIZONS

**Statement:** Milestones and time horizons for the development of the RAO repository are very vaguely defined. There are no obvious tasks and time horizons for their implementation for the "Liquidation Working Group", especially until 2030. Only in Appendix I of the draft programme, there is stated that the decision on the type of storage should be made by 2030 and by 2045 the RAW should be exported from the NES.

**Response:** The Task force "Disposal" which will be established after the adoption of the national radioactive waste management programme will – as described in that programme – propose criteria which need to be met in order to ensure the safety and security of the final disposal as well as the protection of the environment and of future generations. In addition, the Task force "Disposal" will provide advice on milestones and timetables.

#### 1.4 ACCEPTABILITY OF DISPOSAL OPTIONS

**Statement:** Appendix II provides an overview of possible future RAW repository solutions under the IAEA NW-G-1.1 "Policies and Strategies for Radioactive Waste Management". Unfortunately, the conclusions regarding the storage of short and long-term RAW are misleading and do not correspond to the international practice of RAW storage. The basic criterion for the acceptability of the RAW in the storage process is the so-called acceptability conditions derived for a specific location and a specific repository type.

**Response:** The evaluation mentioned serves as a rough orientation concerning the suitability of potential disposal options for certain types of radioactive waste. It takes into account safety and security as well as economic aspects and is, in essence, based on the IAEA publication NW-G-1.1 "Policies and Strategies for Radioactive Waste Management".

For the Austrian situation, the Task force "Disposal" will deliberate on the criteria which need to be met in order to ensure the safety and security of the final disposal as well as the protection of the environment and of future generations. Based on these criteria, the types of waste disposal facilities will be reassessed at a later date.

#### 1.5 SAFETY AND SECURITY OF DISPOSAL OPTIONS

**Statement:** Finally, the SÚJB took the liberty of noting that the submitted draft programme is only an attempt to formally meet the requirements of the Directive 2011/70/Euratom. The overall objectives of the Republic of Austria's national policies, significant milestones and clear time schedules for their achievement, key performance indicators and other details concerning the development of the "Austrian RAW" repository as required by the Article 12 of the Directive 2011/70/Euratom are not stated at all or are mentioned only insufficiently in the draft programme.

**Response:** The Task force "Disposal" will propose criteria which need to be met in order to ensure the safety and security of the final disposal as well as the protection of the environment and of future generations. Additionally, the Task force "Disposal" will provide advice on milestones and timetables.

### 2 RADIOACTIVE WASTE REPOSITORY AUTHORITY (SÚRAO)

#### 2.1 INVENTORY OF RADIOACTIVE WASTES

**Statement:** In the RAW inventory chapter, the draft programme states that about 2 240 m<sup>3</sup> of RAW type LILW-SL and 60 m<sup>3</sup> of RAW type LILW-LL are stored in Austria as of 31. 12. 2015. Whereas in the SEA report, this inventory is dated 31. 12. 2016. It is therefore not clear which date the RAW inventory relates to. The SÚRAO recommends eliminating this discrepancy, and given the date of both documents recommends updating the inventory at least as of 31. 12 2017.

**Response:** The passage dealing with the origin of radioactive waste and the inventory at NES has been rewritten and updated in the national radioactive waste management programme to provide clarification.

#### 2.2 FORECAST OF RADIOACTIVE WASTES

**Statement:** The draft programme as well as its SEA report indicates that about 3 600 m<sup>3</sup> of RAW type LILW-SL and 60 m<sup>3</sup> of RAW type LILW-LL will be stored by the year 2045. Given that the existing inventory indicates the existence of 60 m<sup>3</sup> of RAW type LILW-LL at the end of 2015, does it mean that no RAW type LILW-LL will emerge in the next 30 years, although the research reactor TRIGA and some workplaces in NES are expected to be put out of the service? The SÚRAO recommends adding information to prove that no RAW type LILW-LL will be generated in the next 30 years, as this figure seems unlikely due to the nature of the discarded equipment in the future.

**Response:** Due to the ongoing reconditioning of some of the waste already held in interim storage, a significant volume reduction has been achieved. Meanwhile, the volume and activity of the newly accruing waste after conditioning is comparatively small. For this reason, it can be expected that the inventory of radioactive waste will not change significantly over the next few decades.

#### 2.3 DESCRIPTION OF DISPOSAL OPTIONS

**Statement:** In terms of the RAW management alternatives, the draft programme states that RAW is currently being stored for a long time, with storage expected until 2045. The SEA report assesses RAW management alternatives, such as long-term storage, which is marked as zero variant, and final repository in Austria. The storage in an international repository represents another acceptable option for RAW type LILW-LL. It should be noted that the alternatives are described very generally in terms of the technical solution and the assessment of the potential impact on the environment. No decision on what variant Austria will choose, nor where these facilities can be located, has been made, thus it is not possible to assess the potential cross-border impacts.

**Response:** The evaluation mentioned serves as a rough orientation concerning the suitability of potential disposal options. For the Austrian situation, the Task force "Disposal" will deliberate on the criteria which need to be met in order to ensure the safety and security of the final disposal as well as the protection of the environment and of future generations. Based on these criteria, all management alternatives and types of waste disposal facilities will be reassessed at a later date.

#### 2.4 TIME PLAN FOR THE DECISION ON THE FINAL OPTION

**Statement:** The draft programme also states that the decision on the final option of the RAW storage should be made about 10-15 years before the expiration of the NES contract, which should be between 2030 and 2035. The SÚRAO recommends better justification of this term. It is necessary to provide more detailed evidence, for example by a time schedule, that the 10-15 years considered are sufficient time to make decision, to select the site, to assess its suitability both from the point of view of security and sociology (acceptance of the public concerned), as well as to construct the facility including obtaining an operator's permit. From the point of view of the experience, the timeframe of 10-15 years for the above mentioned activities is greatly underestimated.

**Statement:** The SÚRAO asks why the preparatory phase, which will focus on the geological work to find a suitable site, is not evaluated in the descriptions of the various phases (construction, operation, closure of the RAW repository).

**Response:** The national radioactive waste management programme does not forstall decisions. It is the duty of the Task force "Disposal" to deliberate factually, carefully and transparently on the process of final disposal.

The Task force "Disposal", which has to be set up after the adoption of the national radioactive waste management programme, will propose criteria which need to be met in order to ensure the safety and security of final disposal as well as the protection of the environment and of future generations. Additionally, the Task force "Disposal" will provide advice on milestones and timetables.

Only after the criteria have been adopted a decision about possible disposal options will be made, taking into account the specific Austrian situation. Therefore, including the preliminary lead times for building a geological repository already now in timetables does not appear to be appropriate.

#### 2.5 NEW STRATEGIC ENVIRONMENTAL ASSESSMENT

**Statement:** At the time of the decision on the final solution, an update of the National RAW Management Programme must be prepared, as it is a fundamental change to the programme, and it's a strategic environmental assessment must be carried out.

**Response:** We agree with this statement without reservation. The selection of possible disposal options and/or possible sites will certainly constitute a substantial change of the national radioactive waste management programme. Therefore, they require a new SEA.

The respective passage has been rewritten in the national radioactive waste management programme to provide clarification.

#### 2.6 POTENTIAL IMPACT ON LANDSCAPE

**Statement:** The SÚRAO also asks where and how it is proven that the construction of RAW storage facilities will not change the landscape character and, after the end of the repository, only minor impacts will be visible and minimal impacts on the population are expected, as the current SEA report shows. The SEA report should be completed with the information required, as it is clear from domestic and other international experience that the preparation phase is a prerequisite for the implementation of the repository and ist implementation will certainly have an impact on the environment and the population.

**Response:** Only after the criteria have been adopted a decision about types of final disposal will be made, taking into account the Austrian situation. Based on these criteria and on the state-of-the-art of science and technology available at that time, the types of waste disposal facilities and their impacts on the landscape will be reassessed in due course.

#### 2.7 INTERNATIONAL COOPERATION

**Statement:** The draft programme further states that the RAW type LILW-LL storage in an international repository is a permissible variant. Have any consultations with specific countries on this topic been running? Specific information on whether Austria is already working on the preparation of an international repository should be added to the draft programme and its SEA report, as it cannot be assessed whether this measure, if implemented, will have no cross-border impact on the Czech Republic, e.g. due to the RAW transport across the Czech territory.

**Response:** Austria is participating in the ERDO Working Group and aims at participating in international research projects. Currently, no concrete projects for the construction of a shared repository exist.

#### 2.8 REQUIREMENTS FOR MONITORING

**Statement:** In terms of monitoring, there are only the general requirements for monitoring the quality of the environment mentioned in the SEA report. Given that Austria has RAW storage facility at its disposal, the description should be focused on more detailed assessment of the situation surrounding the facility. It should also be stated what extraordinary events (with the exception of a passenger aircraft crash already mentioned) have been assessed, including evidence of environmental and population impact. Also the information on which specific authorities the monitoring of the situation is submitted to should also be added to the SEA report.

**Response:** Which type of repository will be selected for the Austrian radioactive waste still has to be determined. The same holds true for surveillance measures.

#### 2.9 FINANCING

**Statement:** Regarding to the financial aspects of the issue, the draft programme states that the financing of the RAW management is made from two sources - both waste producers and public sources. It is also stated that the estimation of the costs of final RAW is very uncertain due to the fact that the final method of disposal has not yet been decided. The SÚRAO is interested in the share of funding from waste producers and public funding. Can Austria prove that it will have sufficient financial resources for final RAW repository? The information on the sources to be covered by the decommissioning of NES is also missing. The required information should be added to the draft programme, as it is an evidence that Austria has sufficient financial resources to cover the costs of final RAW deposition. This information together with a more detailed description of the technical solution should be part of the assessment of the variants presented in the SEA report as it is the basis for the comparison of the variants.

**Response:** The passage dealing with financing has been rewritten in the national radioactive waste management programme. The presumable costs of final disposal will be paid by the originators of radioactive waste through the precautionary fee. The Republic of Austria shall bear the ultimate responsibility for the safe management of radioactive waste arising in its territory and will bear any additional costs, if necessary.

## 3 SOUTH MORAVIAN REGION

#### 3.1 INVENTORY AND FORECAST OF RADIOACTIVE WASTES

**Statement:** The South Moravian Region states that since the current draft programme does not specify the manner of depositing radioactive waste, in case of subsequent updates or specification of the programme in question, it is necessary to examine the area of strategic environmental impact assessment of the programme with regard to possible impact on the territory of the Czech Republic with perspective of the South Moravian Region, especially the Lednice-Valtice Area, registered as a part of the UNESCO World Heritage, and the town of Mikulov.

**Response:** It has been agreed that in the case of substantial changes in the national radioactive waste management programme another strategic environmental assessment has to be performed. This may for example be any decision about disposal options.

The respective passage has been rewritten in the national radioactive waste management programme to provide clarification.

## 4 ASSOCIATION FOR PRESERVATION OF THE ENVIRONMENT (CALLA)

#### 4.1 INVENTORY AND FORECAST OF RADIOACTIVE WASTES

**Statement:** Calla states that the data on the inventory of radioactive waste are incomplete. According to the draft programme, the Austrian waste destined for disposal consists of low- and intermediate-level waste only, but it also contains long-lived radionuclides, e.g. radium-226 with a half-life of 1 600 years, which must be kept isolated from the environment for a considerable period of time. At one point – waste inventory – the disposal programme indicates 4.57x1012 Bq overall activity of intermediate- and low-level waste in the Austrian inter-stock at NES, whereas in a different table (Table 2), it is indicated much higher. An accurate inventory of the Austrian nuclear waste should therefore be published.

**Response:** The apparent inconsistency in the information concerning the inventory of radioactive waste is due to the fact that limited concentration of activity of long-lived radionuclides is allowed in short-lived radioactive waste. This is also described in the national radioactive waste management programme. Based on the recommendation of the EU Commission (Commission Recommendation of 15 September 1999 on a classification system for solid radioac-tive waste 1999/669/EC, Euratom), short-lived radioactive waste may contain up to 400 Bq/g and a maximum of 4000 Bq/g on average and in single containers, respectively. For final disposal, it is not necessary to separately consider the long-lived radionuclides contained in short-lived waste. Therefore, they are not separately indicated in the context of short-lived waste. However, they appear if the activities of single radionuclides are provided.

Since – as described – these very low concentrations of long-lived radionuclides do not need to be considered separately, the statement that long-lived radionuclides require other types of repositories is correct but not applicable in the context.

#### 4.2 SAFETY OF DISPOSAL OPTIONS

**Statement:** The Calla also draws attention to the lack of information on which type of repository is the safest for Austrian radioactive waste. No information is provided on how long the Austrian radioactive waste has to be stored until it reaches an acceptable level. The table in Annex II lists the intermediate depth facility or deep geological repository as a preferred choice for long-lived low- and intermediate-level waste. Borehole facilities are referred to as only "acceptable solutions". At the same time, boreholes are recommended because alternatives marked as safer (intermediate depth facility or deep geological repository) are not economically efficient. Criteria described as "acceptable" or preferred" are not sufficient to understand basic safety assumptions and assessments. Security must take precedence and options and costs need to be compared using transparent criteria.

**Response:** The safety and security of the final disposal as well as the protection of the environment and of future generations are of utmost importance.

The above-mentioned evaluation serves as a rough orientation concerning the suitability of potential disposal options for certain types of radioactive waste. It takes into account safety and security as well as economic aspects. For the Austrian situation, the Task force "Disposal" will propose criteria, which will be the basis for the decision on the suitability of the individual disposal options.

#### 4.3 SHARED REPOSITORY

**Statement:** Even the Calla considers Austria's intention to place nuclear waste in a shared repository in another EU country or in third countries unrealistic. The Joint Storage Decision should be adopted by 2030. While roughly half of the EU Member States have expressed their interest in a shared repository, none of them has offered the option of setting up on their territory. The Calla therefore recommends that Austria revises the possibility of storing radioactive waste in a shared repository and rather concentrates on the preparation of a national repository.

#### RESPONSE TO STATEMENTS FROM CALLA

**Response:** Irrespective of any international cooperation, the Task force "Disposal" will deliberate on the criteria which need to be met in order to ensure the safety and security of final disposal as well as the protection of the environment and of future generations. These criteria have to be fullfilled regardless of the state in which the repository is built. Especially in the field of research and development the cooperation with other states can effectively contribute to the acquisition and management of knowledge. In any case striving for solutions for a repository in cooperation with other states offers an additional possibility to tackle this complex challenge.

#### 4.4 FINANCING

**Statement:** Another comment put forward by the Calla concerns the costs and funding of the disposal of Austrian nuclear waste, as data on these costs are currently unavailable. It is therefore not possible to assess whether the existing fees paid by the producers are sufficient or that the bill will have to be paid by the state. The Calla therefore points out that the costs of depositing and financing their waste must be made public and a transparent financing system must be implemented.

**Response:** So far no decisions have been made concerning the type or the site of a future repository. For this reason, it is not possible to provide a realistic estimation of costs at this point in time.

Already now, generators of radioactive waste have to pay a precautionary fee to compensate for the costs that will arise later on. The amount of this fee is based on rough estimates for future repositories and corresponding funds in other states. However, the Republic of Austria shall bear the ultimate responsibility for the safe management of radioactive waste arising in its territory and will therefore bear any additional costs, if necessary. The national radioactive waste management programme has been supplemented accordingly.

#### 4.5 SITE SELECTION PROCESS

**Statement:** Additionally, there is no description of how to select the appropriate site. According to information from the Calla Association, the search for final storage sites in Austria began in the 1980s and led to huge protests. At this point, the role of 16 previously selected and discussed sites remains unclear in the new concept. There is also an unclear way of co-decision of the communities concerned and their possibility of veto as a prerequisite for a successful process.

**Response:** The respective passage has been supplemented accordingly in the national radioactive waste management programme. The development of a concept for comprehensive information and involvement of the public is the responsibility of the Task force "Disposal". The declared goal is a transparent process. Additionally, the involvement of the public in the context of a strategic environmental assessment (SEA) is stipulated in the Radiation Protection Act. When substantial changes in the national radioactive waste management programme (for example a decision about final disposal options) are made, another SEA will be performed.

## 5 MINISTRY OF THE ENVIRONMENT (MOE)

#### 5.1 POTENTIAL CROSS-BORDER IMPACTS

**Statement:** According to the Ministry of the Environment, in terms of a strategic environmental assessment, the stated reason for a lack of cross-border strategic environmental assessment (namely that "the main amount of radioactive waste generated in Austria shall be stored in its own country") cannot be considered as sufficient. There is no reason stated for this decision in the English version of the documentation what was provided by Austrian party. Due to the fact that the draft concept does not contain any data on a particular site or several future sites for the final repository or repositories of Austrian radioactive waste, the areas very close to the Czech border remain as potential sites. Under these circumstances, the MoE believes that cross-border impacts of the draft programme cannot be exclude with certainty, while its consideration and assessment has not been done. Therefore, the MoE considers it particularly important to complete an assessment of the effects of the draft programme with an assessment of its potential impacts on the Czech Republic's territory, especially in relation to sites nearby border with the Czech Republic, international transport of RAW etc., or to provide a satisfactory justification for non-carrying out this transboundary assessment.

On the basis of the above, the Ministry of the Environment of the Czech Republic continues to request the participation of the Czech Republic in the transboundary SEA procedure of the submitted draft programme in compliance with the Art. 7 of Direction 42/2001/EC on the assessment of the effects of certain plans and programmes on the environment (the SEA Directive) and the Art. 10 of Protocol on strategic environmental assessment to the Convention on environmental impact assessment in a transboundary context (the SEA Protocol). For the time being, the MoE requests the participation in the form of a written settlement of all comments and requirements stated above and their reflection in the draft programme and its SEA report while considering full wording of the Czech authorities' and associations' statements.

**Response:** As soon as the criteria which need to be met in order to ensure safety and security of the final disposal as well as the protection of the environment and future generations have been developed by the Task force "Disposal", decisions about possible final disposal options can be made taking into account the criteria and the Austrian situation. Only then, possible impacts on neighbouring countries can be assessed. Since such a decision constitutes a substantial change of the national radioactive waste management programme a new SEA with participation of the neighbouring states has to be performed at this stage.

#### 5.2 NEW STRATEGIC ENVIRONMENTAL ASSESSMENT

**Statement:** The MoE points out that it will be necessary to carry out a strategic environmental assessment also of subsequent specification of the National Radioactive Waste Management Programme, where there will be alternatives that can be realistically compared in terms of their impacts on the environment and on human health.

**Response:** We agree with this statement without reservation. The reduction of possible disposal options and/or the preselection of possible sites will certainly constitute a substantial change of the national radioactive waste management programme. Therefore, they require a new SEA.

The respective passage has been rewritten in the national radioactive waste management programme to provide clarification.