Report on the Implementation of the National Programme for Handling of Spent Nuclear Fuel and Radioactive Waste in Slovak Republic for the Year 2019

1. Introduction

The National Programme for Management of Spent Nuclear Fuel and Radioactive Waste (hereinafter referred to as „National Programme“), approved by the Government of the Slovak Republic by the Decree No. 387 of July 8, 2015, has been sent to the European Commission pursuant to the Directive 2011/70/EURATOM in August 2015. Therefore, it has become a strategic document for the Final Stage of the Peaceful Use of Nuclear Energy in the SR. Pursuant to § 6 section 9 of the Act No. 308/2018 Coll. on the National Nuclear Fund, the Board of the Governors of the NJF shall develop jointly with JAVYS, a. s. (legal entity pursuant to § 3 section. 9 of the Atomic Act) and holders of authorization or permission of the Nuclear Regulatory Authority of the Slovak Republic (§ 5 section. 3 and § 8 section. 3 of the Atomic Act) the Report on Implementation of the National Programme for the preceding year annually. The Board shall submit it to the Ministry of Economy of the SR for approval, supplemented by the Opinion of the Nuclear Regulatory Authority of the SR.

The Report reviews implementation period of the National Programme to date 31 December 2019. The Report is based on contributions provided by MH SR, JAVYS, a. s., SE, a. s. and NJF, follows on from the Report for the period of 2018 and considers current progress in the area of decommissioning of nuclear installations, management of SNF and RAW and the radioactive materials of unknown origin in the SR in 2019. The Report refers to policies intention, and objectives specified in individual chapters of the updated National Programme for the years 2016 - 2021.

Progress in the area of meeting short-term and long-term objectives specified in the Chapter 1.2 of the National Programme is given in the Chapter 2 of the Report. The objectives No. 2, 7, 9 ,11 and 12 are not included in the Chapter, as they have been evaluated in the previous reports as met. Overview of inventory of RAW, respectively SNF is updated in the Chapters 3 and 4. Progress made in the area of development of deep geological repository is described in the Chapter 5 and activities in the area of research, development and demonstration activities are summarized in the Chapter 6. Concise balance of existing costs spent for the Final Stage of Nuclear Power Engineering in the SR, as well as current status of total assumed costs including the way of securing of adequately accumulated funds to cover the costs are described in the Chapter 7. Recommendations for next monitoring period of the National Programme implementation and information on its next following update development planned for 2019 – 2021 are summarized in the Chapter 8.

2. Meeting the objectives of the National Programme for Management of spent nuclear fuel and radioactive waste

Partial objectives of the National Programme are grouped into six categories: infrastructure and legislation, decommissioning of nuclear installations, management of radioactive waste and spent nuclear fuel in general, disposal of radioactive waste and spent nuclear fuel, research and development, transparency. The status of the fulfillment of partial objectives (measures) is described as of 31 December 2019 in the following points numbered from 1 to 19.

No.	Measure	Deadline	Responsible
In the area of infrastructure and legislation			
1.	To fundamentally amend the Act on the National Nuclear Fund and other related legislative documents with objective: - to guarantee that the state will take responsibility for decommissioning, management of RAW from decommissioning and for the long-term storage of SNF, - to guarantee that the amendment to the Act shall establish a safe manner of handing over the nuclear installations by the operator to organization authorized by the State for purposes of their decommissioning, - to guarantee that the amount of contributions and payments to the NJF shall be determined by independent body (NJF) pursuant to established legislative procedures, - to guarantee that beneficiary of financial resources of the NJF shall submit eligible cost data to the NJF in scope and terms set by legislation, - to guarantee that the scope and structure of eligible costs for activities of ZČJE shall be defined in legislation, - to guarantee that operator of non-reactor nuclear installations shall make payments to the NJF for the purposes of financing of decommissioning of these installations.	2016	MH SR
The new Act on the NJF was enacted by the National Council of the Slovak Republic in October 2018 and after signature of the President was published in the Collection of Laws in November 2018 under the number 308/2018 with effect from 1 January 2019. Implementing regulations to the Act, namely the Government Regulation on Compulsory contributions and compulsory payments (No. 22/2019 Coll.), the Government Regulation on Levy collected from the electricity end users to cover the historical debt (No. 21/2019 Coll.) entered into force as of 1 February 2019. A Decree of MH SR No. 31/2019 Coll. on Eligible costs and price calculations of own services of license holder entered into force as of 15 February 2019.			

No.	Measure	Deadline	Responsible
The new Act on the NJF with all three implementing regulations were fully being implemented in practice during 2019. The task is completed.			
In the area of decommissioning of nuclear installations			
2.	To complete the Stage II of NPP A1 decommissioning	2016	JAVYS, a. s.
The task is completed.			
3.	To implement further stages of NPP A1 decommissioning	2033	JAVYS, a. s.
The Stage III and IV of decommissioning has been executed from 1 January 2017 in continual process of NPP A1 decommissioning with the planned completion in 2024. Based on the Decision of NRA SR No. 369/2016, a permission was issued for implementation of the Stage III and IV of decommissioning of NPP A1 to the extent specified in the document „The Plan of the Stage III and IV for NPP A1 decommissioning" and also in relation to following documents: „The Plan for management and transport of RAW and the Plan for management of conventional waste from the Stage III and IV of NPP A1 decommissioning". The subsequent Stage V of decommissioning is planned for the period 2025 – 2033. The main subject of the Stage III and IV is decommissioning of technological installations of gas management, management of heavy water, management of cooling water of primary circuit, systems for emergency discharge of steam generators and relief valves of steam generators, 2 pieces of steam generators, oil management of turbocompressors, system for fuel cladding, systems of dosimetric control, liquid leakage detecting and disconnected air ventilation systems. In parallel with activities of NPP JE A1 technological installations decommissioning, activities related to processing of casings of the long-term storage of SNF, processing of historical liquid radioactive waste used as cooling medium for SNF storage (chrompik III – aqueous solution of chromium and potassium dichromate $K_2Cr_2O_7$), processing of sludge layers resulting from the long-term storage of SNF and sludge layers from outer tanks originally used for storage of liquid RAW from NPP A1 are under way. Activities regarding the contaminated soils and concrete management and contaminated groundwater remediation are being executed. In parallel with all activities, monitoring, processing of RAW from NPP A1 decommissioning, their transport and subsequent disposal in NR RAW in Mochovce is ongoing. Radioactive waste, which does not meet criteria for disposal in NR RAW in Mochovce is stored in installations and premises constructed for this purpose until their final disposal in the deep geological repository. Following key activities were executed in the Stage III and IV of decommissioning in 2019: • completion of technological installations decommissioning in the object of gas management, • completion of technological installations decommissioning of turbocompressors of oil management in the inter room of turbine hall of the NPP, • decommissioning of remaining technological equipment of relief valves, and valves of emergency discharge of steam generators in the inter room of turbine hall of the NPP,, • continuation of decommissioning activities of heavy water technological system, carbon dioxide cooling technological system, technological system for cooling water, • decommissioning of gantry crane on the roof of the turbine hall of the NPP and related			

No.	Measure	Deadline	Responsible
	equipment, • preparatory activities for decommissioning of 2 pieces of steam generators in scope of development of implementation project for workplace with equipment for decommissioning of 2 pieces of steam generators, • implementation of local fragmentation workplace for management of waste arising from decommissioning of components of the primary circuit, as well as delivery of equipment required for decommissioning of primary circuit pipelines, • processing of casings from the long-term storage of A1 spent nuclear fuel, • vitrification of chrompik III, • processing of sludges coming from storage for the long-term storage of NPP A1 spent nuclear fuel, • processing of sludge layers from outer tanks of NPP A1, • restoration, monitoring and classification of contaminated soils and concrete, • other related decommissioning activities in accordance with the approved Plan for the Stage III and IV of NPP A1 decommissioning and based also on the detailed plan of the contractor and relevant work programmes developed for individual technological units, or parts of objects, respectively. All activities are implemented in accordance with the time schedule specified in the Plan for the Stage III and IV of NPP A1 decommissioning. Furthermore, preconditions for fulfillment of all objectives and completing of the Stage III and IV of NPP A1 decommissioning until the end of 2024 are created. After completion of the Stage III and IV of NPP A1 decommissioning, successive implementation of the Stage V of NPP A1 decommissioning is continually planed from 2025 to 2033. Its principal objective will be decommissioning of 4 pieces of remaining steam generators, decommissioning of long-term storage facility for the spent nuclear fuel from NPP A1, the reactor and other related technology equipment used during NPP A1 operation. Continual monitoring of overall progress of NPP A1 decommissioning is taking place at regular monthly meetings of Project management of NPP A1 decommissioning attended by NJF representative. The Project Management meetings are preceded by technical meetings of managers of individual project tasks of NPP A1 decommissioning. Successful conduct of planned activities of NPP A1 decommissioning presumes adequacy of NJF resources at the relevant time. The task is under way.		
4.	To implement the Stage II of NPP V1 decommissioning	2025	JAVYS, a. s.
	Implementation of the Stage II of NPP V1 decommissioning started on 01. January 2015, based on the Decision of NRA SR 900/2014 issued on 23 December 2014. NPP V1 decommissioning is carried out through partial projects that cover all the activities necessary for achievement of defined objective – „brown field“, i. e. the release of the site for industrial uset until 31 December 2025. Projects implemented in 2019 are listed in the Figure No.1.		

No.	Measure	Deadline	Responsible

Figure No. 1: Projects implemented in 2019 in NPP V1 decommissioning

Project No.	Title of the project	Status of the project
A1.9	PMU Consultant (the Stage 9)	preparation
A1.10	PMU Consultant (the Stage 10)	preparation
A5-A2a	Correction	preparation
B6.6A	Measurements for decommissioning support	implementation
C7-A4	Facility for remelting of metallic RAW	extended
C9.4	Design and construction of new disposal structures for LLW and VLLW from NPP V1 decommissioning in NR RAW Mochovce	completed
D0	Implementation of decommissioning programme using the human resources available at Bohunice NPP V1	implementation
D4.1	Modification of power plant and installation of new facilities	implementation
D4.2	Dismantling of large system components of primary circuit	implementation
D4.4A1	Modification of facilities in Physical Area Protection and Barrier System (AKOBOJE)	implementation
D4.4B	Dismantling of systems in controlled area of NPP V1 – part 1	implementation
D4.4C.01	Dismantling of systems in controlled area of NPP V1 – part 2	preparation
D4.7	Merged activities D4.5, D4.6 and D4.7 Decontamination and demolition of NPP V1 objects and restoration of NPP V1 area	preparation
D6.2	Final monitoring and release of the site for industrial use	planning

The project C9.4 „Design and construction of new disposal structures for LLW and VLLW from NPP V1 decommissioning in NR RAW Mochovce“ was successfully completed in 2019. Purpose of the project was design, licensing process, construction and commissioning of new disposal

No.	Measure	Deadline	Responsible
structures for LLW VLLW from NPP V1 decommissioning in NR RAW Mochovce. One of the key projects for achievement of final stage is implementation of the project D4.2 „Dismantling of large system components of primary circuit“, primary purpose of which is dismantling the most contaminated facilities (reactor pressure vessels of both units, steam generators, main circulation pumps, pipelines of primary circuit and other technological components) and linings in controlled area of primary circuit of NPP V1. In parallel with this project, the implementation of D4.4B project „Dismantling of systems in controlled area of NPP V1 – part 1” is ongoing as well as the implementation of other related projects. The date of commencement of the project D4.4C.01 “Dismantling of systems in controlled area of NPP V1 – part 2” is envisaged in 2019. The most important milestones achieved in 2019 include the completion of disconnection of 12 pieces of steam generators from primary circuit of unit I and II and their gradual transfer to the machine room and the selection of techniques for a gradual fragmentation of steam generators. In addition to this, the dismantling of other technology systems in the controlled area was performed. Operation of workplaces for fragmentation and decontamination in main production unit of NPP V1 for the management of RAW arising from the dismantling of equipment of primary circuit has started in 2019. The implementation of NPP V1 decommissioning is undertaken in conformity with the approved plan of the Stage II with slight delays in some projects compared to the timetable of 2014. Longer delay occurred in project C7-A4 “Facility for remelting of metallic RAW”, completion of which was shifted from 2018 to 2019 by amendment to the contract, then to the first half of 2020, presumably without affecting overall timetable of NPP V1 decommissioning. The delay of the project of remelting of metallic RAW has a secondary impact on extension of storage period of metallic RAW at NPP A1 premises, which are intended for gradual decommissioning. Simultaneously with dismantling activities, a continual process of management of generated RAW is ongoing, their transport and release of materials meeting the criteria for their release into the environment. The progress of the overall process and individual projects is monitored continually via monthly and also semiannual reports and via meetings of managers of BIDSF projects and representatives of consultant and EBRD. In addition to this, monitoring committee meetings take place twice a year with the participation of JAVYS, a. s., SIEA, NJF, MH SR, and representative of EBRD and the EC. Implementation of the Stage II of NPP V1 decommissioning is significantly influenced by mastering a comprehensive financial management of this process. For successful implementation of decommissioning projects, the adequate funding from BIDSF, SIEA and national (i. e. Slovak) financial resources of NJF is expected. Based on the current status of NPP V1 decommissioning, the status of planned future activities and in spite of the above-mentioned delay, it is assumed, the main objective of NPP V1 decommissioning will be achieved until the end of 2025. <u>The task is under way.</u>			
5.	Maximum use of financial resources from BIDSF for NPP V1 decommissioning projects	2025	JAVYS, a. s.
The effectivity of the use of BIDSF resources in the NPP V1 decommissioning is monitored pursuant to project management procedures for NPP V1 decommissioning and monitored via regular monthly reports and reports for the monitoring committee of NPP V1 decommissioning conducted semiannually. NPP V1 decommissioning financing is comprised of two resources – resources of EU and national resources of the SR. Financial resources of the EU are preferably used in implementation			

No.	Measure	Deadline	Responsible
of projects. Out of total number of 74 NPP V1 decommissioning projects, 69 projects were funded predominantly through the EU resources. National resources of the SR are used mainly for covering the activities connected with incurred supporting costs associated with implementation of decommissioning projects, considerations and co-financing of projects, for maintenance and repairs of objects, management of RAW including disposal and for storage of SNF. As of 31 December 2019, 18 Grant agreements were approved between EBRD and JAVYS, a. s. for an amount of € 471 million. Additionally, 2 Grant agreements were concluded between the SIEA and JAVYS, a. s. for a total amount of € 151 mil., thus the total amount of agreements concluded represents € 622 mil. A cumulative amount of € **350** million was withdrawn from BIDSF and SIEA funds to date 31 December 2019. An amount of non-guaranteed EU funds corresponds to € 7 million to date 31 December 2019. An amount of non-guaranteed funds managed by the SIEA corresponds to € 9 million. Total estimated costs for NPP V1 decommissioning (stated at the price level of 2018) represent € **1 237** million, whereby the sum of € **672** million shall be reimbursed by the EU (EBRD and SIEA). <u>The task is under way.</u>			
6.	To prepare decommissioning of other NI	permanently	JAVYS, a. s. SE, a. s.
Procedures, timetables and the costs for decommissioning of other NI are given in the conceptual plans for decommissioning of respective nuclear installations from operation, developed in line with the requirements under the Act No. 541/2004 Coll. on the Peaceful Use of Nuclear Energy and amending and supplementing certain acts and the Decree of NRA SR No. 58/2006 Coll. Decommissioning plans of NI other than installations for generating electricity (installations which are subject to compulsory payment obligations under the new Act on NJF No. 308/2018 Coll. to ensure financing of their decommissioning) are subject of verification of input parameters and optimization of technical and economic data. Also reclassification of NPP A1 and NPP V1 particular facilities to the TTC RAW nuclear installation is a subject of discussions , primarily from the point of cost optimization for decommissioning of these facilities. In the process of preparation of the National Programme update which started in the half of 2019, requirements for development of concepts for analysis of decommissioning procedures for non-reactor nuclear installations were defined. For non-reactor nuclear installations, separate analytical accounts under NJF for their decommissioning were created. Financial resources, so-called compulsory payments, are accumulated on these accounts. <u>The task is under way.</u>			
In the area of the management of radioactive waste and spent nuclear fuel in general			
8.	To build new storage capacities of SNF	2020	JAVYS, a. s.

No.	Measure	Deadline	Responsible
The construction of new storage capacities of SNF, as a necessary condition for the safe operation of nuclear units in the SR, is implemented under investment project „Enlargement of storage capacities of SNF“, implementation of which started in 07/2017 after issuing the Final Opinion of MŽP SR No. 1064/2016-3.4/hp on proposed activity. In 2019, project activities related to the construction of the dry storage for SNF continued in the following extent: 1. Elaboration of project documentation of SNF storage capacities in the scope of implementation project for building permit issuance. 2. Development of safety analyses and other analyses. 3. Elaboration of project documentation of the physical protection system. 4. Development of general data pursuant to the Annex I of Commission Recommendation 2010/635/Euratom on implementation of the Article 37 of EURATOM TREATY. At the same time, a replacement of the engineering networks, nitrogen station and parts of pipeline channel was implemented and completed in 2019. These activities were crucial to start construction works for building new SNF storage capacities. Based on the requirement of NRA SR to take into account the recommendations and guidance documents of IAEA and WENRA on increased seismic resistance of built SNF storage capacities, i. e. to maximum horizontal acceleration PGAH = 0,516 g and to maximum vertical acceleration PGAV = 0,321 g, it was necessary to revise original construction-technical and technology solution for SNF storage capacities. Abomentioned modifications in project implementation requirements caused delay in completion, while planned commissioning of enlarged SNF storage capacities considering indicated modifications is expected in 2022. **The task is under way.**			
10.	To construct Facility for remelting of metallic radioactive waste	2018	JAVYS, a. s.
The authorization for construction of the Facility for remelting of metallic RAW, preparation for implementation of which started in 2016, was issued in December 2017. The investment project is implemented within the NPP V1 decommissioning project (C7-A4) with the coverage of 19% funding from BIDSF and 81% from the NJF and JAVYS, a. s. Finalization including tests was expected until the end of 2018. Processing of project documentation related to supplier, respectively to manufacturer of melting furnace itself took place in 2018. Contract was concluded in 03/2018. Construction modifications were carried out in the object 34 of NPP A1, in the premises of installation of remelting facility. The main technological equipment and auxiliary systems were manufactured and delivered, . The actual installation of equipment at place started in December 2018. Documentation for approval for construction was elaborated and submitted to NRA SR and documentation for commissioning was also elaborated. Commissioning was expected in 07/2019 (original deadline was 12/2018). Construction works and modifications were completed, installation of technology systems and gradual recovery and tests of components of metallic RAW remelting line were on progress in 2019. However, during the test, severe damage to the transformer occurred, which required repair of the equipment by the manufacturer. Commissioning of the facility is due to the above-mentioned reasons postponed and completion of the project is expected in December 2020.			

No.	Measure	Deadline	Responsible
	The task is under way with a delay.		
In the area of disposal of the radioactive waste and the spent nuclear fuel			
12.	To construct Repository for Very-Low Level radioactive waste	2018	JAVYS, a. s.
	The first module for VLLW from NPP A1 constituting a part of the NR RAW was commissioned in 06/2016. Construction of the second module of disposal places for VLLW from NPP V1 was implemented within BIDSF project C9.4 in 2017. The second module (disposal space with system of barriers ready to be covered) was completed in September 2017 and was handed over to the operator of NR RAW after the tests in October. Inspection took place and the building permit was issued in December 2017. The task was completed in 2017 and the installation is in operation. Note: Coverage of the first disposal lane of the first module of VLLW and relocation of the hall over the second disposal lane of the first module of VLLW repository were carried out in 2019.		
13.	To construct other disposal structure after filling of the second double row of NR RAW	2018	JAVYS, a. s.
	Under the C9.4 project, the construction of disposal boxes of the third double row of LLW repository and related systems was completed by successful execution of relevant tests and handed over to JAVYS, a. s. assets in November 2018. NRA SR authorized the operation by the Decision No.117/2019 as of date 11 April 2019 and by the Decision No. 98/2019 of 15 April 2019 allowed the use of the third double row for disposal of LLW. The task is completed.		
14.	To adopt decision on continuation or stopping of dual approach in the development of deep geological disposal – comprehensively assess the idea of international deep geological repository	2020	MH SR
	One of the two alternatives for addressing the Final Stage of the Nuclear Fuel Cycle in the National Policy for the Management of SNF and RAW in the SR is considered a development of international deep geological repository. An ERDO working group, as an outcome of SAPPIER project supported by EC with active participation of Slovakia, was established in 2009. Its objective is to examine feasibility of shared repository in Europe. Slovakia has not become a member of the ERDO group and also has not actively participated in its meetings so far. NJF joined the research project EC EURAD („European Joint Programme on Radioactive Waste Management“) the work package ROUTES (“Waste management routes in Europe from cradle to grave”) in order to participate more actively in activities connected also with shared solution for management of waste. „Shared solutions in European countries“ is one of the tasks being researched. The project was approved by the European Commission and its implementation		

No.	Measure	Deadline	Responsible
started in 2019. As none of the alternatives for solution of deep geological disposal in the SR has not been researched adequately so far, the decision on dual approach is recommended to be postponed for the next years. Such decision must be preceded by detailed expert analysis of both alternatives. This intention was integrated into the structure of preparation of the National Programme update, which was commenced in the first half of 2019. In 2019, representatives of JAVYS, a. s. participated in the international expert seminar organized by the group ERDO in order to renew contacts with professional group ERDO. The seminar was focused on the shared approach to projects in the area of RAW management. As indicated in 2.4.5. of the Report on Implementation of the National Programme for 2016, the final decision on siting of the Deep Geological Repository in the SR will be possible to definitively adopt until the end of 2030 and the idea of international deep geological repository still remains as one of the open possibilities for the SR. In 2019, the Prime Minister of the SR presented an idea of common Czecho-Slovak activities in the development of deep geological repository at the Nuclear Forum meeting in Prague. <u>The task is under way.</u>			
15.	To elaborate plan for further stages of renewed development of deep geological disposal	2016	JAVYS, a. s.
The implementation of the project „Deep Repository – site selection, Stage 1“, part of which was also a proposal for further development of DGR in the SR was completed in 2016. In this context, the task was evaluated as **<u>completed</u>** to date 31 December 2016. Note: Based on the elaboration of detailed plan for research and development and elaboration of the project of geological task in the Stage 2 of the project, the plan for development of DGR was updated in 2018. It is included in the final report of the task (B.4) described in detail in the point 16 below.			
16.	To decide on siting of Deep Geological Repository in the SR (in case of termination of dual approach)	2030	JAVYS, a. s.
Under the project „Deep Repository – site selection, Stage 1“, completed on 12 December.2016, the document „Criteria for selection and evaluation of DGR localities“ was updated and documents „Detailed work plan for 2017-2023 and Proposal of further development of DGR in the SR“ were elaborated in 2016. Programme for development of DGR continued with the implementation of the project „Deep Repository – site selection, Stage 2 – part I“ in 2017-2018. Following documents were elaborated by consortium of contractors: B.1 Project of geological task B.2 Framework programme for development and research in the area of deep geological disposal including requirements for its implementation.			

No.	Measure	Deadline	Responsible
B.3	Proposal for implementation of a system ofr economic stimulation of localities affected by development and operation of Deep Geological Repository.		
B.4	Final report of the task.		

A requirement for investment project „Development of the Deep Repository the Stage 2 – Part II“ was approved in JAVYS, a. s. in August 2019.

Additionally, based on the MH SR requirement, JAVYS, a. s. elaboratedand approved by the company management in December 2019 a staged timeschedule for the development of Deep Geological Repository including a strategy for communication with the public and setting of key milestones of the project. They will form the basis for the planned update of the „The National Policy and the National Programme for the Management of Spent Nuclear Fuel and Radioactive Waste in the SR“. This satisfies the requirements of point B.3. of the Resolution of the Government of the SR No. 402 of 5 September 2018.

In the next period, further works will be carried out within the investment project „Development of Deep Repository the Stage 2 – Part II“, including exploratory geological works, public involvement and so on in selected localities in such a way (in case of termination of dual approach) that it would be possible to decide finally on siting of Deep Geological Repository in the SR until 2030.

The task is under way.

17.	To commission the Deep Geological Repository	≈ 2065	JAVYS, a. s.

Implementation of the project „Deep Repository – site selection, Stage 1“ completed in 2016 and implementation of the project „Deep Repository – site selection, Stage2 – part I“, which was in progress in 2017 - 2018, should ensure basic conditions to define steps leading to the selection of locality for construction of DGR in the SR. This will help to ensure construction and commissioning of DGR in the SR until 2065.

Except of the „Project of geological task“, following tasks were implemented within the project „Deep Repository – site selection, Stage 2 - Part I“

- Framework Programme for development and research in the area of deep disposal for all stages and for all areas of DGR development,
- Development and preparation of the implementation of the system of economic stimulation of localities affected by development and operation of repositories.

Current works on continuation of the project „Development of Deep Repository, Stage 2 – Part II“ of development of DGR in the SR are ongoing, namely elaboration of concept for public involvement and preparation of documents for contractor selection for the next stage (see evaluation of the measure No. 19).

The task is under way.

In the area of research and development			
18.	To develop Framework Programme for development and research in the area of deep geological disposal and set internal conditions for its implementation.	2018	JAVYS, a. s.

No.	Measure	Deadline	Responsible
Document "B.2 Framework Programme for development and research in the area of deep geological disposal" was elaborated by contractors (DECOM, ÚJV Řež) within implementation of the project „Deep Repository – site selection, Stage 2 - part I", which was in progress during 2017 – 2018. **Framework Programme for development and research** was described in detail for all phases and areas of development of DGR. Whole process until the phase of repository closure is planned practically for at least 100 years. Therefore, it was possible to describe in detail especially activities for the next 15 - 20 years (site selection phase). Activities in the longer time horizon can be described only in general framework and it is possible that they will be performed in different form and under different conditions (e. g. legislative) than existing assumptions indicate. A significant part of the document forms Proposal for Programme for maintenance of educational level. A brief overview of potential fields of cooperation between Czech and Slovak Programme for development of DGR was developed in the field of science, research and development. The task concerning development of Framework Programme for development and research is **completed**, the part of the task related to the creation of internal conditions for implementation of this framework programme remains still monitored after 2019.			
In the area of transparency			
19.	To develop and prepare an implementation of system of economic stimulation of localities affected by development and operation of repositories To focus exclusively on economic stimulation of localities is not adequate. A comprehensive system for information and public involvement for a long time period should be established.	2018	MH SR, JAVYS, a. s. National Nuclear Fund
The document **B.3 Proposal for implementation of the System for economic stimulation of localities affected by development and operation of Deep Geological Repository** was elaborated within implementation of the project „Deep Repository – site selection, Stage 2 – part I" in 2017 - 2018. The document is based on the recommendations for public involvement elaborated in the Stage 1 of the DGR project – site selection. . The document elaborates a proposal for economic stimulation of affected localities in three variants. These three variants are elaborated in detail in the complete paragraph wording of the drafts of Government Regulations including related supporting documents. A timetable and sequence of individual steps including responsibilities for their implementation were also described in the document. In addition to proposal for stimulation, the document also contains conditions and recommendations for the area of public involvement, which is extremely important in the decision-making process on site selection. In 2019, based on the task of the Minister of Economy, the document „Proposal for staged timetable for preparation of DGR and the strategy for public involvement in the area of DGR development in the SR" was elaborated in JAVYS. In addition to the Proposal of own procedure until 2030 or 2038 respectively, the document includes a Proposal for public involvement and a Proposal for the Government Regulation laying down the conditions and procedure for economic			

No.	Measure	Deadline	Responsible
stimulation of affected localities (developed based on the outcomes of the project „Deep Repository – site selection, Stage 1, Stage 2 – the Part I respectively "). The implementer thereby selected and slightly modified one of three suggested variants. The task concerning development of the proposal for economic stimulation on 31 December 2018 is evaluated as **completed.** The part concerning establishment of comprehensive system for information and public involvement for a long time period is completed only partially by elaborating of relevant documents in 2016. Therefore, it was perceived as ongoing as of 31 December 2018 and this part of the task continues also after 2019 (see Chapter 5 of this Report). Both above-mentioned documents should be evaluated in a broad discussion of stakeholders concerned (e. g. in the preparation of the National Programme update), taking into account the requirement for creation of instruments and conditions to enable public participation in the process of site selection, as well as mechanisms to control how effectively are these instruments and conditions applied in practice.			

3. Management of RAW

Overview data on RAW for the period from the previous evaluation period which is contained in the Implementation Report of the National Programme for the period until 31 December 2018. The data are indicated according to individual areas of management of RAW.

3.1 Overview of generation and recording of RAW

Following quantities of RAW from implemented activities of decommissioning and operation of individual NI were transferred to company JAVYS, a. s. for further processing . The quantities of RAW are reported for the period from previous evaluation of the implementation of the National Programme for management of the spent nuclear fuel and radioactive waste i. e. for 2019.

3.1.1 Decommissioning of NPP A1:

- liquid radioactive waste: 1044 m^3,
- combustible solid radioactive waste: 23,447 t
- compressible solid radioactive waste: 188,799 t,
- metallic RAW intended for remelting: 68,785 t,
- other solid radioactive waste (fixed ra-sludges in matrix, etc.): 228,514 m^3,

- used contaminated filtration cartridges of air conditioning systems: 2,905 t.

3.1.2 Decommissioning of NPP V1:

- liquid radioactive waste-concentrates: 19,93 m^3,
- combustible solid radioactive waste: 15,071 t,
- compressible solid radioactive waste: 307,644 t,
- metallic RAW and contaminated material: 981,427 t,
- used contaminated filtration cartridges of air conditioning systems: 2,775 t.

3.1.3 Following quantities of RAW from operation of NPP V2 and NPP EMO1, 2 were transferred by company SE, a. s. for further management in JAVYS, a. s.:

- liquid radioactive waste – concentrates: 75,6 m^3,
- liquid radioactive waste – exchange resins: 37,065 m^3,
- solid radioactive waste – combustible: 17,392 t,
- solid radioactive waste – compressible: 13,427 t,
- solid radioactive waste - metallic RAW: 11,851 t,
- radioactive sources: 207 pieces.

RAW generated in NPP A1 decommissioning process were continuously processed at TTC RAW processing lines and soils and contaminated concrete at dedicated workplaces in conformity with the plan for flows of RAW for 2019. Final product - filled FCC and big bags and drums with VLLW were continuously disposed in NR RAW. RAW requiring temporary storage were accumulated in case of metals intended for remelting and in case of dismantled equipment intended for decontamination and monitoring originated from NPP V1. In comparison with the expected quantities of RAW from NPP A1 decommissioning indicated in the document Plan for the Stages III and IV of NPP A1 decommissioning, actual quantities of RAW generated until 31 December 2019 are lower than expected.

RAW quantities generated in NPP V1 decommissioning process were significantly higher in 2019 than in 2018. However, generation of filled and disposed FCCs with RAW from NPP V1 is lower than expected.

Processing and conditioning of RAW

3.1.4 Following activities in management of RAW were implemented in nuclear facility TTC RAW:

- incineration of RAW – by incineration was processed:
  - 36,444 t SRAW and 1,35 m^3 combustible LRAW and spent sorbents from NI decommissioning,
  - 11,282 t SRAW 5,949 m^3 combustible LRAW and spent sorbents from NI operation,
- - high-pressure compacting of SRAW – by high-pressure compacting was processed:
  - 367,113 t compressible SRAW from NI decommissioning,
  - 44,585 t compressible SRAW from NI operation,
- cementation of RAW – by cementation into FCC was conditioned:
  - 340,954 m^3 SRAW from NI decommissioning,
  - 24,17 m^3 SRAW from NI operation,
  - 145,786 m^3 LRAW from decommissioning,
  - 123,253 m^3C LRAW from NI operation,
- by fragmentation was processed:
  - 233,536 t metallic RAW from NI decommissioning,
  - 12,048 t from NI operation,
- by decontamination was processed:

- 2267,317 t metallic RAW from NI decommissioning.
- 5,405 t from NI operation.

3.1.5 Following quantities of RAW were used in specialized technology facilities of JAVYS, a. s.:

- vitrification of chrompik:
  - 1,8 m^3 of chrompik III was processed,
- management of contaminated soils and concrete:
  - 2 044 m^3 of contaminated soils and concrete were processed,
- fragmentation of casings of the Long-term storage facility:
  - 45 pieces of PDS were processed,
- fixation of sludges:
  - 75,83 m^3 ra-sludges were fixed into cement matrix from N1/2 tank of obj. 44/10 and N 5/11 of obj. 41 in ZFK facility, 2,94 m^3 ra-sludges of NPN 2 tank was fixed in SUZA II facility

3.1.6 In nuclear facility FTC LRAW JAVYS, a. s. in Mochovce was primarily

- By bituminization of spent sorbents and by cementation processed and conditioned:
  - 70,998 m^3 RAW from decommissioning of NPP A1 and NPP V1,
  - 71,527 m^3 LRAW from operation of NPP EMO 1, 2.

Processing of RAW at technology lines of TTC RAW and FTC LRAW was implemented in line with the plan of RAW flows in 2019. Capacities of processing lines **were adequate**, coordination of individual processes and relations including transports and disposal in NR RAW were in conformity with JAVYS, a. s. plan. Processing of RAW from SE, a. s. was executed in conformity with the contract.

Special types of RAW, e. g. chrompik, sludges from DS, casings of DS and other RAW from NPP A1 were processed in line with the scheduled plan and RAW flows in conformity with the time table of NPP A1 decommissioning project. It is assumed, these RAW will be continuously processed in the expected terms, although for some RAW, e. g. sludges from chrompik, defining the optimal procedure for their fixation is still under development.

3.2 Storage of RAW

3.2.1 Storage in NI TTC RAW JAVYS, a. s.

Following quantities of RAW were stored in certified storage facilities of RAW, located at NI TTC RAW operated by JAVYS, a. s. to date 31 December 2018:

Object	Room number	Filling status (200 dm^3 drum)	Filling status (%)	Storage capacity (200 dm^3 drum)
32	30/54	3225	86,6	3724

32	97	1609	78,5	2050
32	106	1304	88,1	1480
34	1	2820	98,6	2860
723	-	673	84,12	800
Object	**Room number**	**Filling status (m^2)**	**Filling status (%)**	**Storage capacity (m^2)**
641	-	1905*	76,0	2506**
810	-	487,522***	3,64	13400

** 3254 drums of 200 litres of RAW, 20 drums of 220 l of RAW, 237 containers 2EM-01 of RAW, 720 pieces of metallic fence pallets of RAW covering place of 1905 m^2.*

*** Maximum area coverage, i. e. combination of package forms of RAW and freely stored radioactive materials.*

**** 1242 pieces 200* ***dm^3 drums of RAW, 12 pieces ISO 20´ISO-containers of RAW, out of these 410 pieces of drums containing metallic RAW intended for remelting***

Out of total quantity of RAW stored in certified storage facilities of RAW, 7064 pieces of drums are intended for remelting and 9 pieces of package forms is not disposable in NR RAW.

3.2.2 Storage in SE a. s.

To date 31 December 2019 following quantities were stored in NPP V2 storage facilities:

- 89,7 t SRAW,
- 1491,7 m^3 concentrates,
- 103,6 m^3 ion exchangers.
-

To date 31 December 2019 following quantities were stored in EMO 1, 2:

- 49,5 t SRAO,
- 1177,6 m^3 concentrates,
- 0 m^3 ion exchangers.

Storage capacities of SE, a. s. are adequate in regard to continuous transfer of RAW for processing. Air conditioning filters have also affected increase of the inventory of solid RAW as they no longer meet limits for the release into the environment pursuant to the Act No. 87/2018 Coll.

A pre-complex testing (PKV) of technology for selective separation of radionuclides from liquid concentrates in NPP EMO was performed in February 2019. After obtaining the authorization by NRA, KV (active) tests are planned with expected term in 06/2020, when all systems of the line will be tested. 15 m^3 of radioactive concentrates are planned to be processed in KV tests.

The filling status of certified storage facilities in TTC RAW installation in JAVYS, a. s. indicates the need for processing of metallic RAW at the facility designed for remelting. On the other hand, the coordination of processes of management of materials from NPP A1 and NPP V1 decommissioning is necessary to avoid overload in storage facilities.

Utilization of storage capacities is analyzed in the document „Comprehensive Programme for Management of RAW and SNF in JAVYS, a. s. No. 11“, released in September 2019. The measures for their extension by means of already ongoing investment projects are proposed, based on the applications submitted for provision of financial resources from NJF. However, this document has not been discussed in detail so far, in order to review possibilities for optimizing procedures in a more comprehensive manner.

3.3 Disposal of RAW

3.3.1 Disposal of FCC in the nuclear facility NR RAW Mochovce

- to date 31 December 2019 in total of 5812 pieces of FCC from decommissioning and from operation of NI were disposed in the National Repository for RAW (the first and second double row), whereby for the period of 2019, 338 pieces of FCC from decommissioning and operation of NPP were transported and subsequently disposed in this installation.

3.3.2 Disposal in the VLLW repository

- for the year 2019 quantity of 3355,41 m^3 of VLLW was disposed in this installation, out of this 3293,31 m^3 from the NPP A1 decommissioning and 62,10 m^3 from the NPP V1 decommissioning (1. disposal module with capacity of 20 000 m^3). To date 31 December 2019 in total 10716,91 m^3 of VLLW was disposed in the VLLW repository.

4. Management of SNF

Activities connected with SNF management are assessed for the period from previous evaluation of the National Programme implementation until 31 December 2019.

4.1 Transfer of SNF for storage

For the period from the previous evaluation of the National Programme implementation, thus for the year 2019, following quantities of SNF from the NPP V2 and NPP EMO 1, 2 operation were transferred by the company SE, a. s. for the long-term storage in the nuclear facility ISFS:

- the spent nuclear fuel from NPP V2 operation: JE V2: 194 pieces,
- the spent nuclear fuel from NPP EMO 1, 2 operation: 144 pieces.

4.2 Storage of SNF

- To date 31 December 2019, 12 374 pieces of fuel assemblies of SNF were stored in the nuclear facility ISFS out of which:
- 5143 pieces from the nuclear power plant V1,
- 5361pieces from the nuclear power plant V2,

- 2208 pieces from the nuclear power plant EMO 1, 2.

5. Development of Deep Geological Repository

The document „*B.4.2 Plan of works for the years 2019 - 2024 in the area of DGR development in the SR", elaborated in 2018 (see text of the task No. 16),* describes a plan of works for a given period of time in different areas of the Programme for Development of Deep Geological Repository. It concerns specifically following sections:

- Section 1: Coordination of the DGR Programme
- Section 2: Exploratory geological works for a site selection
- Section 3: Public involvement in the Programme for DGR development
- Section 4: Demonstration of safety
- Section 5: Feasibility study

The report for the year 2018 indicates „In next period, JAVYS, a. s. will carry out, based on the above-mentioned documents, a tender for general contractor for implementation of site selection activities (geological activities, terrain and surveyworks in selected localities, safety demonstration, support for public involvement, etc.), so the final decision on siting of Deep Geological Repository in the SR will be possible to adopt until the end of 2030".

In 2019, financial resources in amount of € 13 034, planned for the coverage of investor overheads, were requested by JAVYS, a. s. in the application for funding the activities related to the DGR development from the NJF but not spent for this purpose.

In accordance with recommendations of the 6th Review meeting pursuant to *Joint Convention on the Safety of Spent Fuel Management and on the Safety of RAW Management,* the task was assigned to Minister of Economy of the SR by the Government Resolution No. 402 of 5 September 2018 *„to develop staged timetable for preparation of Deep Geological Repository, including strategy for communication with the public and to determine crucial milestones of the project, which will form the basis for the planned update of the National Policy and the National Programme for the Management of SNF and RAW in the SR*" until 31 May 2020.

In the framework of this task, the document „Proposal of staged timetable of DGR preparation and strategy for communication with the public in the area of DGR development in the SR" was elaborated in JAVYS, a. s. at the end of 2019. The document is described in the text of the task No. 19 in the Chapter 2 of this Report. The document was delivered to MH SR and NJF for the purpose of preparing of opinions and launching a broader discussion in the preparation of the National Report for the 7th Review meeting pursuant to Joint Convention and also in the preparation of the update of the National Programme for the Management of RAW and SNF in the SR.

6. Evaluation concerning Chapter 5 of the National Programme the Demand for the research, development and demonstration activities

In addition to already described area of Deep Geological Repository, the research and development activities listed in the following Table were implemented in 2019, respectively the projects indicated in the Report for 2017 continued:

Table No. 2: Project/tasks focused on research and development activities in 2019

Title and content of task/project	Competent organization in SR	User of outcomes	Financial arrangement
THERAMIN Thermal Treatment of waste focused on minimization of RAW and reduction of risks	VUJE, a. s.	European Commission, user of partial outcomes JAVYS, a. s.	European Commission, H2020 Euratom Programme
Development of fixation matrix for sludges from chrompik	VUJE, a. s. within decommissioning activities of NPP A1	JAVYS, a. s.	NJF resources within costs for decommissioning of NPP A1
EURAD - European Joint Programme on Radioactive Waste Management, work package ROUTES ("Waste management routes in Europe from cradle to grave")	NJF, VÚJE, FEI STU	European Commission, user of partial outcomes NJF, MH SR, JAVYS, a. s.	European Commission, H2020 Euratom Programme

Project THERAMIN involving up to 20 professional organizations within Europe contributed to optimization of input materials (glass, additives) for vitrification of chrompik and its contribution is a possibility of exchange of experience and transfer of know-how in the field of monitoring and declaration of fixation matrix from thermal processing of RAW among renowned organizations in EU.
On one hand, the development of fixation matrix for sludges from chrompik is executed in the framework of tasks for the Stages III and IV of NPP A1 decommissioning, but on the other hand, the implemented activity has a developmental and scientific character, although it is in principle specific and related solely to management of RAW from NPP A1.
Project EURAD, work package ROUTES is in its initial stage, focused on collection and processing of input information on different issues relating to RAW management from individual partner countries in the form of a questionnaire.

Activities proposed respectively assumed in the area of research and development of DGR in the SR are described within the task No. 18 in the Chapter No. 2.

7. Evaluation to Chapter 7 Plan of costs

Considering evaluation of status of financial resources necessary for the coverage of costs for the Final Stage of Nuclear Power Engineering in relation to the Chapter 7 of the National

Programme containing data on assumed total costs at price level of 2014 (€ 8 000 million), data on 31 December 2019 are as follows:

- total sum of accumulated financial resources on NJF accounts: € 1 744, 396 mil.,
- the sum of financial resources spent for the coverage of costs on the NPP A1 sub-account: € 723,6 mil.,
- the sum of financial resources spent for the coverage of costs on the NPP V1 sub-account: € 217,5 mil. (including SNF storage),
- the sum of costs for RAW disposal from NPP A1 and from NPP V1 in NR RAW: € 38,7 mil.,
- the sum of financial resources spent for Deep Geological Repository development: € 3,03 mil.

Overall, financial resources were incurred to NPP A1 and NPP V1 decommissioning (including SNF storage and disposal of RAW in NR RAW in Mochovce) in the amount of € 978,8 million of NJF resources and € 350 million of EU resources to date 31 December 2019.

In 2018, in the process of preparation of the new Act on NJF, the methodology for determination of the amount of compulsory contributions and compulsory payments to NJF was adopted and calculated amounts were reflected in the proposal of Government Regulation on compulsory contributions and compulsory payments to NJF. This will ensure financial resources for the coverage of costs of the Final Stage of operating installations. The total costs of Deep Geological Repository were estimated to be **€ 3 573,4 million**. Amount of compulsory contributions for operating nuclear power plants and their payment pursuant to the new Government Regulation effective from 1 February 2019 will not jeopardize stability of electricity supply in the SR.

The transfer from MH SR collected by the operators of distribution systems and transmission system serves for financing of NPP A1 and NPP V1 decommissioning. The transfer is collected in the form of levy included in the price for electricity delivered to its end users . The Government Regulation on the amount of levy for the year 2019 was discussed and adopted in the legislative process following the endorsement of the new Act on NJF. The Government Regulation is effective from 1 February 2019. Analysis of historical deficit and proposal of procedure for securing of financial resources for the its coverage is expected within preparation of the National Programme update. It has started in the first half of 2019 and its completion is foreseen at the end of 2021.

The estimated costs of decommissioning of operating nuclear installations are involved in (updated) conceptual decommissioning plans. Estimated costs for NPP V1 decommissioning including BIDSF projects and related costs are the subject of updated detailed plan for NPP V1 decommissioning. Economic part of the document was reviewed by the NJF as a result of submitted application for amendment of the document at the end of 2019. Estimated costs for NPP A1 decommissioning are currently available from data given in the adopted National Programme for the Management of SNF and RAW. An update of the data will take place within preparatory analyses for the Stage V of NPP A1 decommissioning.

8. Proposals of modifications to the National Programme in the forthcoming revision

The term for execution of *peer review* of the National Programme for Management of SNF and RAW in the SR was scheduled for the year 2021, based on the consultation between NJF and NRA SR. Following official request expressed by NRA SR, IAEA confirmed in writing the term for the execution of the ARTEMIS Mission in February 2021. In the meantime, a working group for preparation and execution of the mission, composed of delegated representatives of the organizations concerned, will analyze reports on outcomes of equivalent *peer reviews* already implemented in other member states of EU. The working group will also compile documentation and supporting documents and will ensure technical and organizational conditions for preparation and execution of the mission. The coordinator and organization responsible for arranging and financing of the mission is the NJF. It is assumed MH SR will be informed in the form of a report about the status of works in this area in the second half of 2020.

An evaluation of fulfillment of tasks of the National Programme will be summarized in the process of the National Programme update preparation. Attention will be paid to the update of the economical part of the Programme and update connected with the technical and scientific progress in the area of decommissioning of nuclear installations and management of SNF and RAW. In addition, information gained from analyzing programmes of other member states will become a source of incentives for an update of the National Programme of the SR. .

The update of the National Programme and the National Policy will concern the following issues primarily:

- update of the National Policy, particularly in the area of establishing objectives,
- update of overall Strategy for management of RAW considering current and future needs, technical capacities and an effort for optimal use of resources,
- calculation of compulsory contributions and compulsory payments, which will be preceded by an update of the methodology for calculation including calculation of compulsory contributions for EMO 3,4
- analysis of the amount of historical deficit and time table of its settlement,
- updates of the site selection procedure for Deep Geological Repository,
- supplement of the indicators for monitoring and demonstration of progress in implementation of the National Programme not only in the area of management of SNF and RAW, but also in other parts of the Final Stage of Nuclear Power Engineering, especially in the area of NPP V1 decommissioning (planned until 2025) and NPP A1 decommissioning,
- other content and structural modifications of these strategic documents.

An opening meeting of organizations, which will participate in a preparation of the update of the National Programme (MH, NJF, NRA, PHA, MŽP, JAVYS, SE, VÚJE), was held in June 2019. Other organizations will be involved into the process during the work of the already specified working groups.

9. Conclusion

During the current period of implementation of the National Policy for Management of Spent Nuclear Fuel and Radioactive Waste and the National Programme for execution of the National Policy, a progress has been recorded not only in National Programme partial objectives implementation but also in the area of nuclear power plants (NPP A1 and NPP V1) decommissioning and management of SNF and RAW. They represent crucial activities of the Final Stage of Peaceful Use of Nuclear Energy in the SR. The first payments of compulsory contributions and compulsory payments to NJF based on the new Act on NJF were executed in 2019. These payments enable more targeted creation of financial resources for the coverage of costs of the Final Stage of reactor and non-reactor nuclear installations. Decommissioning of nuclear power plants NPP A1 and NPP V1 including management of RAW and SNF was in process in 2019 in conformity with the project timetables and in line with the National Programme and financial plans in the area of covering the costs of the Final Stage of Peaceful Use of Nuclear Energy in the SR.

Progress in the area of development of Deep Geological Repository in the SR for the period of 2017 was the subject of critical comments from NRA SR mainly due to the very small demonstrated progress. In 2018, the progress was achieved exclusively in the area of proposal of further steps. Progress made in 2019 is not considered as "sufficient“, since apart from the elaboration of the document „Proposal of staged timetable ...“ and development of the requirement for investment for the purpose of general contractor selection, no other activity in the area of development of DGR was reported. Preparation, or setting up a project team of the implementer may be regarded as an important step in the process.

Based on the first comprehensive evaluation of the National Programmes by EC issued in 2017, and based on the comprehensive assessment of the status described in the report of EC from the workshop on implementation of the Directive 2011/70/EURATOM issued in November 2018, it may be possible to conclude, that the National Policy in the SR was executed in conformity with the Directive 2011/70/EURATOM, and management of RAW and SNF was implemented in consistency with international good practice in 2019.

List of Acronyms

AKOBOJE	- Physical Area Protection and Barrier System
BIDSF	- Bohunice International Decommissioning Support Fund
ČR	- The Czech Republic
DGR	- The deep geological repository
DS	- Long-term storage
EBO	- Nuclear Power Plant Jaslovské Bohunice
EBRD	- The European Bank for Reconstruction and Development
EC	- The European Commission
EIA	- Environmental Impact Assessment
EMO	- Nuclear Power Plant Mochovce
ERDO	- The European Repository Development Organization, task force
EU	- The European Union
EURATOM	- The European Atomic Energy Community
FCC	- Fiber concrete container
FEI	- The Faculty of Electrical Engineering and Information Technology of Slovak University of Technology in Bratislava
FTC LRAW	- Nuclear installation: „The Final Treatment Centre for Liquid RAW“
IAEA	- International Atomic Energy Agency
IRAW	- Institutional Radioactive Waste
ISDC	- International Structure for Decommissioning Costing
JAVYS, a. s.	- Nuclear and Decommissioning Company
JOPRAD	- Project entitled „Joint Programme on Radioactive Waste Disposal”
LRAW	- Liquid Radioactive Waste
LLW	- Low-Level Radioactive Waste
MH SR	- The Ministry of Economy of the Slovak Republic
MSVP	- Interim Spent Fuel Storage Facility
MŽP SR	- The Ministry of Environment of the Slovak Republic
NI	- Nuclear installation

NJF	- The National Nuclear Fund
NPP	- Nuclear power plant
NRA SR	- The Nuclear Regulatory Authority of the Slovak Republic
NR RAW	- The National Repository for Radioactive Waste
PDS	- Casings of Long-term storage
PHA SR	- The Public Health Authority of the Slovak Republic
PMU	- The Project Management Unit
PV	- Board meeting of MH SR top management
RAW	- Radioactive Waste
SE, a. s.	- Slovenské elektrárne, joint stock company
SIEA	- The Slovak Innovation and Energy Agency
SNUS	- The Slovak Nuclear Society
SNF	- Spent nuclear fuel
SR	- The Slovak Republic
SRAW	- Solid Radioactive Waste
STU	- The Slovak University of Technology
THERAMIN	- Project entitled „Thermal Treatment for Radioactive Waste Minimization and Hazard Reduction”
TTC RAW	- Nuclear installation: “Technology for Treatment and Conditioning of RAW”
ÚJV	- The Institute for Nuclear Research, Czech Republic
VLLW	- Very Low-Level Radioactive Waste
VUJE, a. s. Trnava	- VUJE, a. s. Engineering, design and research organization, joint stock company
VVER	- Water-water power reactor
ZČJE	- Final Stage of Nuclear Power Engineering
ZMOS	- Associations of Local Authorities
ZRAM	- Radioactive Materials of Unknown Origin