SAFETY GUIDES

ON IMPLEMENTATION OF THE
LEGAL REQUIREMENTS

SAFETY GUIDE

Structure and Contents of a NPP Decommissioning Plan

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1. GENERAL PROVISIONS

OBJECTIVE

1.1. The objectives of the present Guide are:

1) To provide recommendations to the structure and contents of the Decommissioning Plan (DP) of a Nuclear Facility (NF) – nuclear power unit in order to help the applicants and the licensees to better understand the criteria used by the regulating authority to assess the adequacy of the set of documents justifying the safety of the decommissioning (DECO) activities;
2) To provide a common approach to the safety justification and ensuring by the persons who plan the DECO activities. The use of this Guide by the applicants and the licensees will allow BNRA to apply the principle of equality among the different applicants and licensees.

SCOPE

1.2. The Guide considers the main aspects of the planning, application and implementation of the defense in depth and protection until the final release of the Nuclear Facility site from regulatory control. The matters related to the systems of physical barriers and levels of protection during the entire DECO period are also covered in order to prevent their overcoming and the release of radioactive substances into the environment as well as to prevent the generation of unacceptable risks and doses for the personnel and the population along the various paths of influence.

1.3. The Guide is used in the process of planning of the NF DECO activities.

LEGAL BACKGROUND

1.4. The present Guide is issued pursuant to § 7 of the additional provisions of the Regulation on the Procedure for Issuing Licenses and Permits for Safe Use of Nuclear Energy, [1] in relation to Article 59, Paragraph 1 of the same regulation.

1.5. The Guide is recommended to each entity who participate in the design, construction, commissioning, operation and decommissioning of NF.

1.6. The Guide is used in the development of a DECO plan which is submitted with the Application for issuing of license for operation of a NF or license for decommissioning.

1.7. The present Guide is of a recommendatory nature. It reflects the BNRA understanding of how the legal requirements with respect to the NF DECO activities, as stipulated in reference documents [2] – [8], should be satisfied. Some of the recommendations derive from the requirements and good practices as described by International Atomic Energy Agency in reference documents [9] – [17], as well as from the results of [18].The BNRA understanding is that the Guide should be used by the applicants and the licensees in order to provide an adequate safety justification matching the safety requirements in the normative documents.

1.8. The application and use of other methods and criteria for justification of the DECO activities safety is entirely the responsibility of the applicants and the licensees and is acceptable

when an equivalent level of safety is guaranteed. In such cases these methods need to be justified and BNRA to be convinced that all normative requirements are adequately considered and that safety has not been compromised. These activities require a longer licensing process.

1.9. If the DECO plan provides for the NF to be decommissioned in stages, a separate permit is issued for each separate stage. An updated DP for each stage is filed together with the application, consisting of description of the performed activities and the achieved results in the previous stages of the NF decommissioning, current state of the facility as well as possible changes in the originally planned volumes, technologies and terms for completion of the stages and the activities, which have originated from new circumstances or technology improvements.

2. REGULATORY REQUIREMENTS TO THE SCOPE AND CONTENT OF THE NUCLEAR FACILITY DECOMMISSIONING PLAN

Summary structure of DP is presented in Annex I.

INTRODUCTION
(to Chapter 1 and Chapter 2 of the Summary DP structure)

2.1. In this section the Applicant should submit the following:

1) Brief information about the owner and the applicant for the license or the DECO permit;
2) Information about available funds and financial provision of the DECO activities;
3) Information about available and trained personnel, familiar with the facility and its operational history;
4) Brief description of the main parts of the DP. The purpose and aims of each chapter in the plan are visualized through diagrams or figures. The existing connections among the separate chapters and sections are also marked;
5) Brief description of the developed documents used as a basis for the drafting of the final DP.

DESCRIPTION OF THE FACILITY AND ITS SITE
(to Chapter 3 of the Summary DP structure)

Description of the Facility

2.2. The Nuclear Facility description includes information about the available buildings, the main systems and equipment and the auxiliary equipment. Maps and schemes are included, identifying the areas of the buildings which are part of the DP. The Applicant should submit technical drawings and schemes of the main facility systems and equipment, which are subject to dismantling during DECO, as well as newly-built systems, and provides the following detailed information:

1) Structural characteristics of the buildings;
2) Main components – main equipment and components which remain in operation in the buildings, including description of equipment related to the NF DECO activities;
3) Supporting and auxiliary systems such as heat-supply, electrical supply, water supply and others;
4) New facilities and equipment facilitating the DECO process and RAW management.

Radiological status

2.3. The information in this section consists mainly of data from the records of the facility operational history. The Applicant should include information regarding the contaminated SSC and data about the level of surface contamination in the buildings and the premises as well as the contamination of the surface soil of the site and surface and ground water.

Description of the Nuclear Facility site

2.4. The description of the Nuclear Facility site includes:

1) Master plan of the site and plan of the area – schemes and maps representing the site plan;
2) Geographical location representing data and information about the geographical location of the facility, infrastructural characteristics
3) Topographic conditions – data from the topographic surveys of the site;
4) Geological, engineering, hydrological and seismotectonic conditions – data about the geological structure of the site, characteristics of the lithological and stratigraphic layers; presence of surface water including temporary water flows, underground water horizons, point of unloading of main water horizon; data about the seismic activity of the site;
5) Meteorological conditions – climate data including wind rose, rainfall, extreme climate phenomena from the last century;
6) Demographics – statistical data about the population density, age characteristics and diet, characteristic features of the habits and recreation of the local population;
7) Presence of military, industrial, sports and other facilities close to the NF site – the presence of such facilities is described so that they are considered in the safety assessment as an additional influence on the population and in order to determine the emergency planning areas;
8) Information about the infrastructure and the access to the facility – data about the available approaches to the facility, available transport networks and others;
9) Information about the physical separation of the facility from other existing NF on the site which remain in operation – developed plans, supported by diagrams and drawings of the physical separation of site of the facility to be decommissioned from other NF which remain in operation, located in close proximity.

DESCRIPTION OF THE OPERATIONAL HISTORY OF THE FACILITY
(to Chapter 4 of the Summary DP structure)

2.5. The Applicant describes the information regarding the operational history which should be reviewed and processed during the DECO planning in order to ensure the safety of the personnel. There are two types of such information:

1) the first type includes records of the locations where activities with radioactive materials have been performed;
2) the second type refers to operational events which have caused radioactive contamination and which may influence the DECO schedule and the safety.

2.6. The Applicant should provide information about the locations in the facility where activities with radioactive materials have ever been performed as well as information about the measured levels of contamination during these activities. Maps and drawings of the facility are included showing data from the radiation control registers on the NF site at the stage of NF decommissioning.

TECHNOLOGICAL SOLUTIONS STANDARDS
(to Chapter 5 of the Summary DP structure)

2.7. The Applicant specifies the national and municipal regulations, standards and laws which will be applied in the DECO process. The main subjects which should be covered are the following:

1) The health and safety of the personnel and the population;
2) The environment protection legislation;
3) The RAW management;
4) The free release criteria;
5) Measurement standards;
6) Technical safety.

RADIOLOGICAL CRITERIA DURING DECOMMISSIONING
(to Chapter 6 of the Summary DP structure)

2.8. The safety criteria applied to the DECO activities and serving as basis for the activity risk assessment should be identified and described. These criteria are based on:

1) Regulated occupational dose for the personnel;
2) Regulated occupational dose for the population;
3) The limits for release in the environment;
4) The criteria for free release of the site after DECO.

JUSTIFICATION OF THE SELECTED DECOMMISSIONING OPTION
(to Chapter 7 of the Summary DP structure)

2.9. The selection of a DECO option is made based on the justified preliminary concepts, strategies and intermediate DECO planning. At this stage the selected conceptual technical DECO option is identified – immediate dismantling, deferred dismantling or other options which comply with the legal regulations and the good international practice. The way in which the selected strategy for each NF is applied should be described and the schedule for implementing the DP plan in stages or in campaigns should be included or the document in which this schedule has been developed should be indicated.

2.10. The justification of the selected strategy is a key element which should demonstrate that the Applicant considers and covers completely the presentation of the entire DECO process. The main principles in the strategy and the criteria which are used in it for assessment of the selected strategy are compulsory part of the justification.

2.11. The Applicant should also submit a schedule for the implementation of the plan. A description of how the schedule is managed during the process (how it is published, maintained, revised and ended) should also be submitted.

ASSESSMENT OF THE AMOUNT, KIND AND LOCATION OF RADIOACTIVE AND OTHER HAZARDOUS MATERIALS IN THE FACILITY
(to Chapter 8 of the Summary DP structure)

2.12. The radiological characterization is the main step in the DP development. In particular, the characterization and classification of the SSC is a step towards the categorization of the

waste in order to achieve compliance with the criteria for waste storing, transportation, processing, conditioning and disposal.

2.13. The Applicant should submit a review of the existing methods and justification of the selected methods for the specific assessment. A similar review of the hazardous and toxic materials should also be made.

2.14. Before the start of the dismantling activities the Applicant should determine the characteristics and the distribution of the radioactive and non-radioactive hazardous materials and the radiation fields in the premises. Based on the existing records of the operational history the need of a more detailed radiological characterization is determined. This information is necessary for the assessment of the radiological risks of the DECO tasks, for organizing of the radiation protection and for assessment of the various types of materials resulting from the DECO process, such as non-active, materials expecting free release, materials for reuse or recycling and non-radioactive hazardous and toxic materials.

2.15. The radiological characterization includes determination by measurement and/or calculation of:

1) The specific activity of radionuclides as of the moment of the final shutdown;
2) The radiation fields for all spaces and premises, equipment and structures related to the DECO program;
3) The contamination levels for each radionuclide, including measurements and assessment of the contamination of the external and internal surfaces of the constructions and the equipment in the facility;
4) Assessment of activated materials resulting from the activation of the construction materials for each radionuclide;
5) Assessment of the residual contamination from damaged fuel cassettes;
6) The surface contamination of the active zone components;
7) Assessment of the biological protection status (various activated products);
8) Assessment of the internal contamination of the primary circuit coolant (mainly activated products);
9) Occurring operational waste (mainly solid and liquid materials, contaminated with activated products plus actinides and division products);
10) Unit work spaces (general or localized contamination).
11) The Applicant should submit information about the identified hazardous materials which are expected as of the DECO start date, description of their types and amounts. The information consists of classification in terms of the degree of risk for the personnel, the population and the environment. The considered disposal methods for each type of hazardous material are also summarized.

CLASSIFICATION OF THE SYSTEMS AND FACILITIES IN TERMS OF THEIR SAFETY SIGNIFICANCE
(to Chapter 9 of the Summary DP structure)

2.16. In this chapter the Applicant should include information about the method used for SSC classification and categorization in terms of safety and about the determined methods for performing the DECO activities.

2.17. The information also includes preliminary SCC lists with their acquired safety category and classification in the DECO process as well as description of their functions at the separate DECO stages.

DESCRIPTION OF THE PLANNED MODIFICATIONS TO EXISTING SYSTEMS AND THE NEW SYSTEMS NECESSARY FOR THE DECOMMISSIONING
(to Chapter 10 of the Summary DP structure)

2.19. The Applicant should submit description of the structures or the systems necessary for the nonproliferation or localization of radioactive contamination and distribution of hazardous materials during the DECO process.

2.20. A list with description of the systems which are planned to be modified or replaced as well as the necessary new systems and equipment should be included.
2.21. In cases when any piece of equipment is structurally connected with another piece which will be left for the next DECO stage, this piece should also be described together with the means providing the integrity of the remaining structure.

DESCRIPTION OF DECONTAMINATION ACTIVITIES
(to Chapter 11 of the Summary DP structure)

Existing options

2.22. In order to reduce the radiation fields during DECO, decontamination is performed through removal of division and activation products, contained in sediments, oxide layers and dust in the facility, so that the exposure of the DECO personnel is minimized. Other reasons for performing of decontamination include reducing/removal of surface contamination of materials and equipment to allow reuse or recycling. The information contains description of the selected decontamination methods (chemical, mechanical and others).

Justification of the selected option

2.23. In this section all decontamination activities are identified and analyzed to the extent of providing the necessary human, financial and material resources. The available experience from other similar decontamination processes is considered. The man hours, materials and equipment necessary for each specific activity are assessed along with the expected occupational doses for the personnel. The required information for each activity includes the following:

1) Number, qualification and experience of the personnel;
2) Equipment and tools (decontamination equipment, cutting tools, decontamination reagents);
3) Protection equipment (gloves, masks and others);
4) Supporting activities (dose control, mechanical activities in workshops, laboratory analysis);
5) Radiological equipment;
6) Required time for performing of the activity;
7) Expected occupational doses in accordance with the ALARA principle;
8) Waste generation.

DESCRIPTION OF THE AVAILABLE AND PLANNED TECHNOLOGIES AND TECHNICAL MEANS FOR DISMANTLING
(to Chapter 12 of the Summary DP structure)

Existing options

2.24. Each dismantling activity is identified and analyzed to the extent of providing the necessary human, financial and material resources.

2.25. Information about the existing technologies and technical means is submitted as well as a justification of the extent to which they correspond to each specific activity.

2.26. A set of criteria for ranking the alternatives is developed and the assessment methodology is described.

Justification of the selected option

2.27. In this section the main dismantling options are identified. The detailed steps in implementing the DECO project are also shown.

2.28. The man hours, materials and equipment necessary for each specific activity are assessed along with the expected occupational doses for the personnel and the labor costs.

2.29. Currently there are many tested and qualified technologies for decontamination and dismantling for which the operational safety, the emissions behavior and the applicable measures for radiation protection of the personnel as well as the costs are known. In case of planning of new technologies application, informative description of the test procedures (qualification) of these technologies is necessary.

2.30. In this section additional information is submitted as follows:

1) Main components subject to dismantling with their characteristic data (size, weight, material, activity);
2) Necessary new cranes and transport vehicles;
3) Designation of facilities for safe enclosure of the various materials;
4) Limits, boundary conditions for operation of the planned equipment;
5) Structural changes;
6) The Applicant provides information regarding the maintenance and control of the DECO activities, namely:

- The control and maintenance activities in accordance with the selected strategy (immediate or deferred dismantling);
- List of the equipment and systems which will be used in the DECO process;
- Time-schedule for maintenance of these systems and equipment;
- List of necessary spare parts and technical means and their storage;
- Method of control;
- Specifications for acceptance of the equipment and the measurement tools;
- Zoning in cases of expected changes in the radiological work conditions;
- Training and qualification of the maintenance personnel;

- Procedure for actions by the personnel in cases of deviation from the normal operational conditions;
- Procedure for corrective actions;
- Schedule for periodic inspections of Nuclear Facility SSC.

PROGRAM FOR MANAGEMENT OF RAW AND OTHER HAZARDOUS MATERIALS
(to Chapter 13 of the Summary DP structure)

2.31. In this chapter the Applicant should submit a summary of the RAW Management Program during the DECO process as well as of the Programs for management of combustible and toxic materials during dismantling activities. The main elements of the information are:

1) Identification of all waste flows which are expected to be generated in the DECO process ;
2) Waste classification;
3) Types and expected quantities of RAW as well as of non-radioactive materials including materials expecting free release;
4) Methods for removal of combustible and hazardous materials.

2.32. In regard to the solid and liquid RAW as well as of RAW containing other hazardous and toxic substances, expected to be generated in the DECO process, the following information is submitted:

1) Type and expected quantities;
2) Forecast for radiological characteristics of the expected RAW;
3) Description of Procedures for processing, conditioning and storing of various types of RAW;
4) Measures for minimizing of the RAW quantities and the secondary waste;
5) Description of Procedures for handling solid RAW with volumetric contamination;
6) Locations of areas and facilities for temporary storing of RAW and other hazardous materials;
7) Description of Procedures for radiological characterization of RAW;
8) Description of Procedures for tracing and recording of the radiological characterization data in accordance with the QA system.

SAFETY ASSESSMENT
(to Chapter 14 of the Summary DP structure)

2.33. A short summary of the results from the SA of the DECO activities in the DP is submitted. The main elements are:

1) Identification of the radiological criterion selected in the Safety Assessment (SA);
2) Results from the analysis and the screening of the initial events to generate scenarios in the SA;
3) Description of the used methods and models for the assessment;
4) Results from the risk analyses during normal operation in the DECO process;
5) Results from the risk analyses during incidents and accidents;
6) Results for the estimated radiological consequences for the personnel, the population and the environment for the various analyzed scenarios in the assessment;
7) Determined SSC operational levels and safety conditions for each DECO activity based on the results from the SA;
8) Preventive measures reducing the consequences from the development of the analyzed scenarios;

9) Conclusions – comparison between the obtained results and the selected radiological criterion/criteria in the assessment.

RADIATION PROTECTION CONCEPT AND RADIATION MONITORING
(to Chapters 15 and 16 of the Summary DP structure)

2.34. The Applicant includes information and data about the main elements from the following programs and documents:

1) Description of a Radiation Protection program for the DECO activities;
2) Description of a Radiation Monitoring program;
3) Description of a Medical monitoring program for the personnel;
4) Description of Programs for assessment of possible industrial risks;
5) Description of a Procedure for safety assurance during DECO;
6) Description of Procedures for measurements and control;
7) Tools and equipment;
8) Description of a Procedure for traceability of the data and the records of the measurements;
9) Methods and criteria for release from control of materials and equipment (free release or release for reuse);
10) Methods and criteria for release of the buildings when they are intended to be used after final completion of the DECO process.

ORGANIZATIONAL STRUCTURE DURING DECOMMISSIONING
(to Chapter 17 of the Summary DP structure)

2.35. A description of the organizational structure is included as well as the main responsibilities of the operating organization for safety. The implementation of the principle of delegating the performance of specific tasks to subcontractors is described.

2.36. Staff positions are listed. Description of the decommissioning management's reporting hierarchy and lines of authority in respect to avoid conflicts with potential to compromise safety is presented.

2.37. Proof of qualification of the decommissioning personnel is provided. Minimum requirements for qualifications of staff in each position, based on the evaluation of the skills needed are included.

QUALITY MANAGEMENT
(to Chapter 18 of the Summary DP structure)

2.38. The Applicant should submit a summary of a Quality Management (QM) Program for the DECO activities, focusing mainly on:

1) Organizational structure;
2) Policy for quality and safety assurance during DECO;
3) Document control;
4) Control of the measurements and the measurement equipment;
5) Procedure for corrective measures;
6) Personnel training program;

7) Procedure for traceability of data and records;
8) Program for planned audits.

EMERGENCY PLANNING
(to Chapter 19 of the Summary DP structure)

2.39. The purpose of the presented information is to outline the basic principles set in the internal emergency plan during DECO. The Applicant should submit assessment of the NF risk category at the DECO stage as well as additional information about:

1) The emergency planning and reaction organization during DECO;
2) The responsibilities in emergency reaction;
3) Notification procedure for incidents and accidents;
4) Classification of possible accidents during decommissioning activities;
5) Description of the personnel actions during the classified accidents;
6) Emergency stocks;
7) Measures for reducing the risk of incidents and accidents;
8) Procedure for traceability of data, events analysis and records.

PHYSICAL PROTECTION
(to Chapter 20 of the Summary DP structure)

2.40. The safety measures for the site that guarantee the nonproliferation of radioactive materials left at the site are presented here.

2.41. Information about the Protection plan is presented in summary.

2.42. The Applicant should demonstrate the organizational diagram of the Physical Protection functions and should indicate the personnel responsibilities.

2.43. Information regarding the general approach to the PP should be presented. Description and schedule of the measures in the PP plan approved by the regulating body should also be included.

FINANCING MECHANISMS
AND PRELIMINARY COST EVALUATION IN THE DECOMMISSIONING PROCESS
(to Chapter 21 of the Summary DP structure)

2.44. Information on the estimated costs for implementing the entire facility DECO process should be included. The selected approach to the evaluation of the estimated costs and the assumptions in the Nuclear Facility SSC assessment included in it should be briefly presented.

2.45. One of the best possible choices of approach to the evaluation of the estimated costs is comparison of conceptual and technical DECO options as well as solving optimization equations and sensitivity analyses of the cost/benefit type or equations that determine the smallest amounts of the factors influencing the DECO processes.

2.46. The financing mechanisms that are in force or will come into force for supporting the activities until the final DECO should also be described.

2.47. The Applicant should submit a summary of the measures to be taken for minimizing the risks of cost increase during the DECO process.

RADIATION MONITORING AFTER THE FINAL COMPLETION OF THE DECOMMISSIONING PROCESS
(to Chapter 22 of the Summary DP structure)

2.48. The Applicant should submit brief information on:

1) Radiation Monitoring program after the final completion of the decommissioning process;
2) Methods for measurement and measurement equipment;
3) Procedure for measurement control;
4) Procedure for release of the site and elements of the structures;
5) Records.

3. ABBREVIATIONS AND ACRONYMS

ALARA	As Low As Reasonably Achievable
ASUNE	Act on Safe Use of Nuclear Energy
BNRA	Bulgarian nuclear regulatory agency
DECO	Decommissioning
DP	Decommissioning plan
NF	Nuclear facility
PP	Physical protection
QM	Quality management
RAW	Radioactive waste
RM	Radiation monitoring
RP	Radiation protection
SA	Safety assessment
SSC	Structures, systems and components

4. REFERENCES

[1] Regulation on the Procedure for Issuing Licenses and Permits for Safe Use of Nuclear Energy, promulgated in the State Gazette No. 41 of 18 May2004.

[2] Act on Safe Use of Nuclear Energy, promulgated in the State Gazette No. 63 of 28 June 2002, amended in the State Gazette No.80 of 12 October 2010.

[3] Regulation on emergency planning and emergency preparedness in case of nuclear and radiological emergencies, promulgated in the State Gazette No. 71 of 13 August 2004.

[4] Regulation on the safe decommissioning of nuclear facilities, promulgated in the State Gazette No. 73 of 20 August 2004.

[5] Regulation for safe management of radioactive waste, promulgated in the State Gazette No. 72 of 17 August 2004.

[6] Regulation on ensuring the safety of nuclear power plants, promulgated the State Gazette, No. 66 of 30 July 2004.

[7] Regulation for Basic Norms for Radiation Protection, promulgated the State Gazette No. 73 of 20 August 2004.

[8] Regulation on radiation protection during activities with source of ionizing radiation, promulgated the State Gazette No. 74 of 24 August 2004.

[9] INTERNATIONAL ATOMIC ENERGY AGENCY, Radiological Characterization of Shut Down Nuclear Reactors for Decommissioning Purposes, Technical Reports Series No. 389, IAEA, Vienna (1998).

[10] INTERNATIONAL ATOMIC ENERGY AGENCY, Decommissioning of Nuclear Power Plants and Research Reactors, Safety Guide No. WS-G-2.1, IAEA, Vienna (1999).

[11] INTERNATIONAL ATOMIC ENERGY AGENCY, Legal and Governmental Infrastructure for Nuclear, Radiation, Radioactive Waste and Transport Safety, Safety Standard Series No. GS-R-1, IAEA, Vienna (2000).

[12] INTERNATIONAL ATOMIC ENERGY AGENCY, Safe Enclosure of Nuclear Facilities During Deferred Dismantling, Safety Reports Series No. 26, IAEA, Vienna (2002).

[13] INTERNATIONAL ATOMIC ENERGY AGENCY, Decommissioning of Nuclear Facilities, Draft No. DS333, IAEA, Vienna (2004).

[14] INTERNATIONAL ATOMIC ENERGY AGENCY, Format and Content of the Safety Analysis Report for Nuclear Power Plants, Safety Standard Series No. GS-G-4.1, IAEA Vienna (2004).

[15] INTERNATIONAL ATOMIC ENERGY AGENCY, Standard Format and Content of the Safety Related Decommissioning Documents, Safety Report Series No. 45, IAEA, Vienna (2005).

[16] INTERNATIONAL ATOMIC ENERGY AGENCY, Decommissioning of Facilities Using Radioactive Material, Safety Series No. WS-R-5, IAEA, Vienna (2006).

[17] INTERNATIONAL ATOMIC ENERGY AGENCY, Decommissioning Strategies for Facilities Using Radioactive Material, Safety Reports Series No. 50, IAEA, Vienna (2007).

[18] PHARE Project No. PHARE/BG/TSO/VVER/04 “Assistance to BNRA in the Development of Requirements and Procedures for Decommissioning of Kozloduy NPP Units 1 and 2.

5. DEFINITIONS

"Accident" is an extraordinary event that leads or may lead to exceeding the limits or to violating the conditions of radiological impact upon man and environment set in the norms and regulations for nuclear safety and radiation protection.

"Stage" is a period of time, which is planned and during which a certain set of activities related to the NF DECO is performed.

"Decontamination" is a complete or partial removal of the radioactive contamination from surfaces or media (liquid, solid, gaseous) through physical or chemical processes.

"Applicant" is a person who has submitted or on whose behalf an application has been submitted under the Regulation on the Procedure for Issuing Licenses and Permits for Safe Use of Nuclear Energy for issuing, modification, renewal or termination of a license or permit under ASUNE as well as:
a) the parties to the transaction in case of submitted application for issuing of a permit for a transaction with a NF;
b) the NF licensee in case of submitted application for import or export of nuclear material under Article 40, Paragraph 1 from ASUNE or sole proprietor or legal entity, which intends to perform import or export under Article 40, Paragraph 2 from ASUNE.

"Decommissioning" are all administrative and technical activities performed in order to release the NF from regulation under ASUNE, including closure of a nuclear waste disposal facility or spent nuclear fuel. These measures also include the decontamination and dismantling processes.

"Structures, systems and components" are all components of the nuclear plant except the human factor. The structures are passive elements, such as buildings, containers and screens. The system is composed of several components assembled so as to perform a specific (active) function.

"Licensee" is a person to whom under the ASUNE and the Regulation on the Procedure for Issuing Licenses and Permits for Safe Use of Nuclear Energy a license has been issued which has come into force and has not been terminated.
"Monitoring" is measurement of radiation or other parameters for assessment or control of the radiation exposure, as well as interpretation of the results.

"Levels of protection" are the organizational and technical measures for defense in depth, providing the radiation protection and the safety during the NF DECO activities, including: conservative projects, quality assurance and safety culture, prevention of violations and detection of failures, availability of safety and protection systems, management of possible accidents, off-site accident control measures.

"**Safety assessment"** is review of all aspects of the design and operation of a NF or any other source of ionizing radiation related to its safety and the protection of the people, including analysis of the measures for nuclear safety and radiation protection and of the risks under normal conditions and during accidents.

"Decommissioning plan" is the description and justification of the adopted concept, the planned activities and the administrative, organizational and technical measures for safety and radiation protection during NF decommissioning.

"Radioactive waste" is any radioactive substance in gaseous, liquid or solid form which is not intended for further use by the licensee or the permit holder and which is under the control of the agency as radioactive waste under ASUNE, including radioactive source for which the period of safe operation has ended according to the manufacturing documentation

"Radiation protection" is a complex of organizational and technical measures intended to protect people from ionizing radiation exposure, including ensuring the safety of ionizing radiation sources and the activities with them. This means ensuring minimal risk of undue exposure, minimal number of exposed persons, minimal exposure of people without exceeding the established dose limits, prevention of radiation accidents and limiting of their consequences.

"Permit holder" is a person to whom a permit has been issued under the ASUNE and the Regulation on the Procedure for Issuing Licenses and Permits for Safe Use of Nuclear Energy, which has come into force and has not been terminated.

"Physical barriers" are the boundaries of the NF, of the Primary circuit and/or of the localizing systems for safety of nuclear reactors. During the NF DECO period the physical barriers perform in full their assigned functions for radiation protection and safety for the reported initial events and for the independent from the initial event failures, determined based on adequate analyses and justifications.

"Physical protection" is a combination of technical and organizational requirements, measures, means and methods designed to effectively prevent illegal impacts and violations of the nuclear material, nuclear facilities and radioactive substances (theft, unauthorized intrusion on the territory of the nuclear facility, unauthorized access to areas of particular importance for the safety of the nuclear facility, sabotage, terrorist acts), their timely identification and prevention and retrieval of illegally acquired nuclear material.

"Nuclear facility" is a facility, including the belonging land, buildings and equipment, which yields, produces, processes, uses, handles, stores and disposes of nuclear material in such amounts that nuclear safety and radiation protection need to be considered. "Nuclear facility" is also any facility for radioactive waste management.

ANNEX I – SUMMARY STRUCTURE AND CONTENT OF THE NUCLEAR FACILITY DECOMMISSIONING PLAN

Chapter 1 "Introduction"

Chapter 2 "Brief description of the key elements of the Decommissioning Plan"

Chapter 3 "Description of the facility, the facility site, the special statute areas and the emergency planning areas"

3.1. Description of the facility
- 3.1.1. Main buildings and systems of the facility
- 3.1.2. Structural characteristics of the buildings
- 3.1.3. Main components
- 3.1.4. Auxiliary and support systems
- 3.1.5. Radiological status

3.2. Description of the facility site
- 3.2.1. Master plan of the site and plan of the area
- 3.2.2. Geographical location
- 3.2.3. Topography of the area
- 3.2.4. Geological, engineering, hydrological and seismotectonic conditions
- 3.2.5. Meteorological conditions
- 3.2.6. Demographics
- 3.2.7. Information on presence of military, industrial, sports and other facilities close to the Nuclear Facility site
- 3.2.8. Information about the infrastructure and the access to the facility
- 3.2.9. Information about the physical separation of the facility from other existing Nuclear Facility on the site

3.3. Description of the special statute areas and the emergency reaction areas

Chapter 4 "Description of the circumstances and events related to the decommissioning which have occurred during the operation of the facility"

4.1. Detailed description of the operational history
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