Annex 10 of Government Decree No. 118/2011 (VII. 11).

Nuclear Safety Code

Volume 10

Nuclear Safety Code definitions

1. Active system component

A system component performing a safety function by means of its moving components or by changing its shape or characteristics.

2. Active core

That volume of the nuclear reactor where the controlled chain reaction takes place.

3. Current licensing basis

A set of documents that contains standard requirements currently in force which are relevant for the safety of the given nuclear facility and the demonstration of compliance with the aforementioned requirements, particularly the following documents:

a) legislations in force;

b) applied requirements of repealed legislations;

c) guidelines issued by the Hungarian Atomic Energy Authority;

d) standards and other reference documents considered during the evaluation of nuclear safety licenses;

e) decisions and statements of the nuclear safety authority, as well as requirements and conditions defined by the nuclear safety authority as a co-authority when partaking in the procedures of other authorities;

f) obligations undertaken by the licensee toward the nuclear safety authority;

g) internal documents of the licensee that ensure in practice the enforcement of the above listed items;

h) specified, valid documentation demonstrating fulfilment and enforcement of instructions and requirements as defined in the above documents, in particular safety reports, analyses, engineering design documentation, certificates;

i) valid documentation produced during the fulfilment of the above stipulations.

4. Fundamental safety functions

4.1. The following safety functions are applicable for the safe operation of a nuclear facility and related actions:

a) control of reactivity;

b) heat removal from the irradiated fuel;

c) confinement of radioactive materials.

5. ALARA-principle

In the case of any application that uses radiation sources, with the exemption of medical therapy exposure, protection and safety shall be optimized in order to keep individual doses, number of exposed people, and the likelihood of radiation exposure as low as reasonably achievable considering economic and social factors within personal dose limits, while source specific dose constraints are acknowledged.

6. „0" state

The full set of characteristics that describes the state of safety classified system components before operation; it is documented and comparable with the results of in-service inspections performed during operation.

7. Modification

Alterations during the commissioning and operation lifecycle phases of the nuclear facility:

a) beyond the concept of repair of the nuclear facility, its systems, structures, components, buildings and building structures;

b) organizational structure of the licensee;

c) management system of the licensee; as well as

d) documents submitted as annexes of the nuclear facility's operating license application which are unrelated to *a)-c)*.

8. Evaluation of the safety impact of modifications

An evaluation which includes one or more of calculations, engineering considerations, deterministic and probabilistic analyses. It allows for conclusions to be drawn regarding safety, thus the safety impact of activities related to the modification can be estimated.

9. Stages of modification

A Modification consists of preparation, implementation, and assessment following the implementation:

a) preparation: determination of the purpose and concept of modification, planning and substantiation of the whole process as well as the stages of modification, its technical and organizational contents, and completion of trainings required for modification. In the case of a technical modification, it shall mean production, procurement, import, as well as installation and completion of individual tests while the operation mode preceding the modification is sustainable or re-startable in each operating condition. In the case of modification of the organizational structure, management system, and documents that are independent of those aforementioned, it shall mean the development of the prepared proposals and approval by the licensee.

b) implementation: in the case of a technical modification, it shall mean those stages of installation, individual tests, commissioning, and test operation after which the termination of the changes becomes necessary to restart or preserve the unchanged operation mode preceding the modification. In the case of modification of the organizational structure, management system and documents that are independent of the aforementioned, it shall mean the adaptation and application of the documents.

c) assessment of modification: after implementation, the evaluation of suitability, appropriateness and effectiveness of all previous steps.

During the commissioning phase of the life cycle of the facility, the operation mode preceding the modification shall mean together the commissioning programme and design operation mode meant for the whole facility.

10. Comprehensive review

A comprehensive review is a documented review performed based on approved programmes by the licensee in order to substantiate that for the operation beyond design service lifetime the degradation processes needing ageing management of system components that are in the scope of licensing of the nuclear power plant unit operation beyond design service lifetime, have been properly identified and managed during the extended service lifetime to ensure that the ageing effects do not compromise the functionality of these system components.

11. Nuclear power plant unit

A nuclear reactor that converts nuclear energy into thermal energy and all its joint systems, structures and system components which are required for the safe production of electricity.

12. Identical part, structural element, system component

A part, structural element, or system component that is identical to the original in its material, geometry, function, environmental resistance, reliability, fabrication technology, and type.

13. Accident

In the case of a research reactor and a nuclear facility for the interim storage of spent fuel, an event beyond the design basis during which radioactive materials exceeding the limits set by the effective regulation may be released into the environment.

14. Accident management

Measures taken by the operator during conditions exceeding the design basis that aims to:

a) the prevention of increment in severity of the event

b) the achievement of long-term safe and stable conditions; and

c) the mitigation of the consequences.

15. Set value

A value of predetermined physical and chemical parameters which, when reached, induces actuation of the designed protective or locking functions of systems and system components with simultaneous indication of light, sound, etc.

16. Internal regulation

A set of procedures, regulations, management orders, instructions, strategies, and policies regulating the activity of a given organization.

17. Supplier

A supplier is a natural or legal person, or a business enterprise without legal entity that provides such goods or services for the licensee that directly or indirectly influence safety.

18. Biological protection

A physical barrier that shields or reduces radiation in order to decrease the radiation exposure of those who are in the vicinity of radiation sources.

19. Job position important to safety

A job position having executive or decision-making power in issues influencing safety of the nuclear facility, whose job description contains activities or related tasks qualified as important to safety.

20. Job position essential to safety

At the nuclear power plant a job position important to safety, which has direct influence on the performance of the safety functions of the nuclear facility.

21.

22. Safety analysis

A part of the safety case, which is performed through calculations or engineering considerations. It demonstrates that the nuclear facility, any of its systems, structures or system components fulfils the predetermined physical or probabilistic safety criteria within design basis and the design extension.

23. Safety case

An assessment made by or for the licensee to evaluate all aspects of safety or protection that are related to site selection, design, operation, and decommissioning of a nuclear facility, which aims to reviewing if all relevant safety requirements are fulfilled during the planned or actual construction, modifications, procedures and operational practices to be implemented or altered, and the ageing of systems, structures and system components.

24. Safety earthquake

The greatest earthquake within the design basis; for the effects of which the load-bearing capacity, integrity and stability of the nuclear facility as well as the operability of the components are qualified to ensure the performance of the fundamental safety functions.

25. Safety function

Functions intended to prevent the occurrence of anticipated operational occurrences, incidents or accidents or, in the case of nuclear power plants, severe accidents or to mitigate their consequences, which may or do contribute to the performance of fundamental safety functions.

26. Safety limit value

A value of a physical parameter or a combination of such parameters which, if exceeded in a defined direction, then an automation controlling the safety system actuates the safety system providing an active function. These parameter values are defined by the licensee in the Final Safety Analysis Report based on the principle that there shall be sufficient margin between the values meaning real danger and the safety limit values.

27. Safety report

A document that summarizes and evaluates safety related facts, considerations and information that are required for licensing of construction, commissioning, operation, final shutdown and decommissioning of a nuclear facility.

28. Safety requirements

Requirements needed to achieve the expected level of safety of the nuclear facility, its systems, structures and system components.

29. Safety culture

Assembly of characteristics and attitudes of organizations and individuals, which establishes that, as an overriding priority, safety issues receive the attention warranted by their significance.

30. Safety policy

A safety policy is a documented, continuously reviewed and updated commitment of the licensee to achieve high level of nuclear safety performance. It is supported by clear, understandably defined safety goals and the provision of resources to achieve the set goals.

31. Safety system

Those systems of the safety important systems of the nuclear facility which have been exclusively designed and installed to partially or fully provide such functions that are only needed following certain initiating events and aim to maintain or restore safety, and to mitigate the consequences of undesirable processes.

32. Safety shutdown condition

A state of the nuclear power plant unit following DBC2-4 and DEC1 when the unit is brought into a subcritical state by active or passive safety systems or operator intervention, and the control of reactivity, heat removal from the active core and the spent fuel pool, keeping of release limits as well as load parameters within permitted values are ensured.

33. Personnel necessary and sufficient for safe operation

The assembly and number of employees having defined and certified qualification and practice, who are necessary and sufficient for the safe operation of nuclear facility, and the prevention of transient and accident situations.

34. Safety related event

34.1. An event adversely affecting nuclear safety that occurs in the nuclear facility, in an equipment or during an activity using radioactive materials, which might result

in unplanned radiation exposure to people as well as in unplanned release of radioactive materials into the environment.

35. Safety protection equipment

Procedures, administrative tools, and redundant passive or active systems, whose availability is regulated by the operational limits and conditions.

36. Unit control room

The room for operative personnel from where all such actions can be performed which maintain the safe condition of the unit or return the unit to safe conditions under every operating state within the design basis.

37. Enveloping principle

The selection and analysis of the least preferable event from a specific group of initiating events for which it is verified that all of its consequences cover all events of the group that shall be analysed.

38. Replacement

Repair using an identical part.

39. Degradation

Immediate or gradual deterioration of characteristics of a system, structure or component that may hinder the performance of the system, structure or component function within the acceptance criteria.

40. Decontamination

Partial or total removal of radioactive contamination by physical, chemical or biological processes.

41. Deterministic safety assessment

A safety assessment including calculations based on engineering considerations or physical models based on pre-determined initial and boundary conditions.

42. Diversity

Application of systems, structures or components that perform the same function but, from this point of view, differ in one important parameter, especially such as operating principle, design, construction or manufacturer, thus decreasing the probability of common cause or common mode failures.

43.

44. Single failure criterion

When a function is performed by redundant systems or redundant system components within a system, this function is still achievable, if a single failure occurs in a redundant system or in the case of inner redundancy of the system in one of its system components,. Additional failures resulting from the single failure shall be treated as part of the single failure.

45. Single failure

A failure of a system or system component resulting from a random single failure that results in partial or total loss of the function of the given system component, the system itself or both. Additional failures resulting from the failure shall be treated as part of the single failure.

46. Lifetime

A value of the usability of a system, structure and component defined as duration, number of actuations or number of stress cycles when the fulfilment of the safety functions is ensured and the increased risk of losing the safety functions resulting in ageing is still not significant compared to the total risk.

47. Controlled state

A state of the nuclear power plant unit following DBC2-4 and DEC1 when the control of reactivity, heat removal from the active core and the spent fuel pool, and adherence to discharge limits are ensured by active or passive safety systems or operator interventions until the nuclear power plant unit is safely shut down.

48. Controlled zone

An area under the effect of special regulations including radiation protection specifications due to potential irradiation or contamination by radioactive material. Entering or exiting the area shall be monitored.

49. Preliminary safety analysis report

A summary and evaluation document of facts, considerations, and information considered and to be considered during the design and construction of nuclear facilities; it contains statements from the safety assessment as well as their substantiation.

50. Primary system component

A system component of a system whose malfunction results in inoperability of the whole system.

51. Building-assembly-

The building-assembly phase of the nuclear power plant construction contains several periods being different in type and responsibility circumstances as follows:

a) exclusively building works before and after assembly of the technological equipment, when the building organization is responsible for the work area,

b) delivery of large technology equipment before building the ceilings, when the work area shall be handed over to the assembly organization, and taken back by the building organization after the delivery,

c) period of basic assembly, when the work area falls under the responsibility of the assembly organization, the building organization works only based on work permits on the necessary supplementary works,

d) "clean assembly" period, when the work is performed under special circumstances, the order of the work area is supervised by the assembly organization,

e) period of individual commissioning tests, when the order of the work area falls unders the responsibility of the commissioning organization; it provides the work permits for the necessary assembly activities, and

f) period of finishing building works, when the work area is supervised by the commissioning or operating organization.

52. Building structures

The following structures of the buildings:

a) structures related to ground works;

b) moisture insulation structures;

c) foundation;

d) concrete and reinforced concrete structures, machine bases;

e) load bearing wall structures not made of concrete;

f) steel structures, operator's platforms, and steel structures supporting mechanical, electrical and instrumentation and control equipment that modify the supporting structure system of the building or the platform;

g) structures preventing the spreading of fire, especially doors and windows and fire barriers;

h) decontaminable, fire resistant coating and steel claddings on building structures, as well as the boundary structures of the hermetic zone;

i) steel structures and fasteners supporting electrical and instrumentation and control equipment and cables, and fasteners of steel structures supporting

mechanical equipment, pipelines which do not modify the supporting structure system of the building or the platform; and

j) other unique structures of the nuclear facility as a specific building.

53. Stakeholder

Such a person or group, that has an interest in the performance of an organisation, such as customers, owners, operators, personnel, suppliers, unions, representatives of the industry or professions, academic boards, authorities and governmental offices responsible for nuclear energy, media, public individuals, communities and interest groups, other countries, especially those neighbouring countries that have a bilateral agreement to provide information in case of possible cross-border effects, or those who participate in the export or import of certain technologies or materials.

54. Resource

Individuals, infrastructure, work environment, information and knowledge, suppliers as well as all the assets and financial resources.

55. Valid documentation

All the documents approved according to a defined procedure, which describe and are consistent with the designed and actual conditions (at a specific time) of the nuclear facility, as well as the activities carried out at the facility.

56. Event

All such interventions, occurrences or lack of them, after which as a consequence there is a deviation from the presumed, designed conditions, as well as an effect or potential effect on the operations or safety of the nuclear facility.

57. Causes of an event

a) Root cause: the cause out of all the causes of the event, which, if revised or eliminated, the repeated occurrence of the same or similar events may be avoided.

b) Contributory cause: the cause which contributes to the occurrence of the event, but by itself would not necessarily evoke or result in the event.

c) Direct or triggering cause: the cause or circumstance that directly results in the deviation between the expected and the actual activity or situation, or that directly results in the event.

58. Reasonably achievable

Such a degree of actions that considers the present standards of science and technology, while graded to the severity of the different risks and undesirable

consequences, which is determined by the authority based on the proposal of the licensee.

59.

60. Top management

A person or group of people who or which directs, controls and evaluates the organisation and the nuclear facility at the highest level.

61. Postulated initiating event

An internal or external event with its initial and boundary conditions, which was considered in the design and in the performed safety analyses, and leads or may lead to DBC2-4 or DEC1-2 .

62. Physical separation

The separation of systems, structures and components by appropriate geometry, distance, orientation, and suitable barriers or a combination thereof.

63. Main overhaul

In the case of a nuclear unit the time period when planned maintenance and repair works are performed while scheduled refuelling also takes place.

64. Fresh fuel

Fuel element that has not yet been irradiated, including fuel elements containing such nuclear fuel that had been reprocessed from previously irradiated fuel elements.

65. Functional separation

Such arrangement of two interconnecting systems or system parts, which provides that the failure of one system cannot spread over the other system.

66. Independent review

The review of design, analysis and investigation results independently of the person, group or organisation who were involved in the design, analysis or investigation in order to ascertain that the design, analysis or investigation fulfils the authority requirements, selected standards or other enlisted directives.

67.

68. Fuel element

A structural element that contains nuclear fuel together with its fuel cladding.

69. Fuel cladding

A cover that separates the nuclear fuel from the coolant, while also prevents the release of fission products thereto.

70. Fuel assembly

A smallest assembled unit of fuel elements that can be moved and handled together during normal operating conditions.

70a. Damage to fuel elements

Damage to fuel elements, which does not result in fuel melting.

71. General organisational plan

A part of the construction plan which determines the use of the site and coordinates the activities performed on the site. It includes the following parts: technical specifications, general organisational sitemap, management and coordination schedule, condition and phase plans, general organisation of engineering services.

72. General designer

In any life cycle phase of the facility, the accountable design organisation that coordinates the design process and the work of the participating institutes and companies, which also ascertains that the appropriate technical and safety requirements are taken into consideration.

72a. Inspection at the manufacturer

72a.1. Inspection at the manufacturer is a summarising name of pre-manufacturing, manufacturing and final acceptance inspections of the system components of the nuclear facility and their materials performed at the manufacturer for the demonstration of the fulfilment of the technical and quality requirements.

73. Similar part, structure, system component

A part, structure, system component that is equivalent with the original as verified by a safety analysis approved by the authority.

74. Failure

74.1. A greater than allowed deviation from the operating condition of a system, structure or component that can be characterised with parameters. The deviation presents itself due to inaccurate design or construction of the system, structure or system component, an external or internal cause during operation or to a false operator action. One failure does not necessarily influence the ability to provide the designed function.

74a. Long lead items

Long lead items are those components, about which it can be concluded already during the preparation of the construction, based on the features of the manufacturing technology that due to the length of their manufacturing and transportation time, may have direct impact on the duration of construction.

75. Long-lived system components

Those system components that will not be replaced in a predetermined way during their qualified lifetime or due to other circumstances in a period shorter than the design lifetime of the nuclear power plant unit.

76. Temporary modification

The generation of a condition deviating from the valid realization plan, the parameters, switch values or switch statuses defined in the effective operative documentation, due to the failure of a system, structure or component, or other unpredictable and unplanned compelling reasons.

77. Undue delay

The discrepancies, deviations are not identified, repaired or verified acceptably, or their acceptable identification, repair or verification require longer time than what their safety significance or complexity makes necessary because the licensee failed to apply measures, or applied incorrect measures for the aforementioned actions, or the appropriate and submitted processes have not been applied or applied correctly, especially if the necessary number of staff, financial and intellectual resources have not been supplied, or predetermined deadlines have not been adhered to.

78. INES-classification

The categorisation of events according to the International Nuclear Event Scale composed by the International Atomic Energy Agency. The objective of the categorisation is to facilitate communication between the professional organisations and the public by indicating the safety significance of the event in a form agreed on by the licensee and the nuclear safety authority.

79. Management system

A system created to define the management policy and management objectives and to attain the approved objectives effectively and sufficiently. The collection of interdependent or interacting elements, thus the management system integrates all elements of a given organisation into a coherent system in order to fulfil all of the objectives of the organisation. These elements include the structure, the resources and the procedures. The personnel, equipment and organisational culture, as well as the documented professional policies and processes are also part of the management system.

80. Repair

Activity to restore the condition of systems and components, with the exemption of software of programmable equipment and computers, as well as buildings and building structures of the nuclear facility to the condition defined during design and described in the effective documentation.

81. Reportable event

Event to be reported to the nuclear safety authority based on a regulatory requirement or specific authority decree.

82. Measurement with legal consequence

Measurements demonstrating the compliance with the Operational Limits and Conditions, as well as measurements verifying the correct operation of a system, structure or component during the conduct of a test or maintenance procedure defined for systems, structures and components important to nuclear safety.

83. Licensed work position

Job positions essential to safety with mandatory licensing exams as required by the Nuclear Safety Code or other authority regulation and by the training documentation of the licensee.

84. Maintenance

Preservation of the condition of the systems, structures and system components of the nuclear facility by performing preventive and corrective activities and condition inspections in accordance with the ageing management programme.

85. Maintenance programme

Long-term schedule of maintenance works on each system, structure and component.

86. Adverse safety condition

Such a decrease of nuclear safety or condition deficiency in the nuclear facility which does not require immediate and direct intervention but shall be terminated.

87. Questioning attitude

The pursuit of a person to comprehend its tasks, responsibilities, and how these are related to nuclear safety, the estimation whether the acquired knowledge is sufficient, the interest in the responsibilities of its colleagues, the recognition of unusual circumstances and need for assistance, the contemplation of possible failures, failure consequences and possible actions to prevent or terminate these failures.

88. Commercial product

A product or system component that may be commercially obtained, is mass produced by the same process, possesses several references, is accepted by a recognized organisation, its characteristics are defined in technical specifications, and has assuredly consistent quality. A product or system component is not a commercial product if its design and production process requires in-fabrication special inspection in order to identify and eliminate non-compliances of characteristics critical for performing a safety function.

89. Manual fire-fighting tasks

All tasks related to fire-fighting and fire damage control that are not performed by installed fire extinguisher equipment but by fire-fighter equipment or the fire extinguishers located on the site, indifferent to whether the intervention is performed by the fire brigade staff or plant or contractor personnel working on the site.

90. Release

Planned and monitored release of usually airborne or liquid radioactive materials to the environment in compliance with regulatory requirements.

90a. Major radiation hazardous work (KISUM)

90a.1. Major radiation hazardous work is when the workers may receive significant radiation exposure.

91. Acceptance criteria for spent fuel assembly

Acceptance criteria for spent fuel assembly are a sum of quantity and quality requirements determined for the spent fuel assemblies and their container.

92. Spent fuel package

92.1 Spent fuel package is a product resulting by conditioning of the spent fuel elements in compliance with the provisions for management, transportation, interim storage or final disposal, which contains the spent fuel assemblies, the packaging and internal barriers (such as absorbing materials and insert pipes) .

93. Storage of spent fuel or radioactive waste

The preservation of spent fuel or radioactive waste isolated from the environment in a facility with the intent of retrieval.

94. Risk

Common measure, mathematical product of possible unfavourable digitized consequences of a potentially dangerous action or happening, and the frequency of their occurrence.

94a. Complex accident (DEC1)

94a.1. In the case of a new nuclear power plant unit, the condition that falls beyond anticipated operational occurrences and design basis accidents, which may have consequences that are more severe than design basis conditions and may cause damage to fuel elements without fuel melting. In the case of an existing nuclear facility, it corresponds to a beyond design basis accident.

95. Configuration management system

The process of identifying and documenting the characteristics of a facility's structures, systems and components including its supporting computer systems and software, of containing their physical, functional, operational and graphical data and the respective documentation, and of ensuring that changes to these data and documents are carried out in a controlled manner in the frame of change management.

96. Containment

Pressure resistant hermetical set of building structures that contains the nuclear reactor and its directly connecting systems, structures and components. Its function is to prevent or limit the release of radioactive materials into the environment during normal operation, anticipated operational occurrences and design basis accidents.

97. Conservative analysis

97.1. Such a method of deterministic analyses when uncertainties and inaccuracies exist in both the model and input data and such assumptions taken in the input data, conditions and in the model, which may modify the results to become less advantageous in regard to the criteria to be demonstrated.

97a. Early release

Radioactive release in the case of which urgent precautionary measures are required off the site but no sufficient time is available for their introduction.

98. Time-limited ageing analyses

Such analyses that are used to substantiate the suitability of systems, structures and components in the scope of licensing the extension of design service life of the nuclear facility. These analyses consider the ageing processes of the systems, structures and components and take as an analysis basis the design lifetime of the nuclear power plant and the loads of anticipated operating conditions.

99. Criteria for limited environmental impact

Such requirements in which the weighted linear combinations of the released reference isotopes are compared with predefined numerical values. The criteria for limited environmental impact mean the four release target values defined by the reference isotopes for design extension conditions.

100. Environmental qualification

Evidence that system components of the nuclear facility important to nuclear safety are capable of performing their designed safety functions throughout their lifetimes, while the ageing effects caused by environmental resistance and operational circumstances are also considered.

101. Common-cause failure

The failure of two or more systems or system components as a result of a single event or cause.

102. Critical system

Zero-power nuclear reactor – equipment containing fission material –, in which controlled self-sustaining chain reaction develops under specific circumstances. Its characteristics: low power (N≤100W) and flexible construction.

102a. Criticality

102a.1. Criticality is the condition when the chain reaction is just self-sustaining.

103. Research reactor

A nuclear reactor used for basic and applied research.

104. Best estimate method

Best estimate method is such a deterministic analysis when the initial and boundary conditions are defined in a way that conforms to the worst but still realistic scenario possible in regard to the evaluated criterion.

105. Decommissioning

Administrative and technical actions performed in order to partially or fully terminate the authority supervision of a nuclear facility.

106. Decommissioning plan

A preliminary or final document which contains information on the concept and schedule of activities aimed at decommissioning of the nuclear facility, the information is as detailed as required by the given life-cycle stage of the nuclear facility.

107. Residual heat

The thermal energy generated after the termination of the chain reaction as the result of the radioactive decay in the irradiated fuel element.

108. Peak ground acceleration

The maximum acceleration on the ground level during an earthquake.

109. Failure

The change of a nuclear facility system component due to an external or internal reason, which results in the partial or complete loss, or unfavourable fulfilment of the intended function.

110. Fail-safe

Fail-safe is a property of systems, structures and components which ensures that after a failure or abnormal operation, they reach automatically such a condition or position in which they cannot aggravate but change towards a safer direction the processes influenced by them.

110a. Customer

Any natural person or business organisation defined in the Civil Proceedings Act, who or which orders a product or activity affecting nuclear safety.

111. Defence In Depth

Multi-level defence, which is a hierarchically structured system of engineering solutions, nuclear safety principles and measures which guarantee the expected level of nuclear safety. On the physical level an important part of this system is the system of multiple barriers.

112. Qualified lifetime

112.1. Qualified lifetime is that demonstrated lifetime of the components, during which they are capable of fully performing their intended functions.

113. Qualification

The assessment of the suitability of organisations, persons, equipment, materials, manufacturing methods, technologies, systems, structures and components, tests or procedures in relation to the safety of the nuclear facility or to substantiate decisions on the approval of the fulfilment of positions.

114. Module

114.1. The storage unit of the interim storage facility of spent fuel assemblies, which may be a container, a storage shaft or other structural unit.

115. Employee

Personnel of the licensee and its suppliers who perform activities on the site of the nuclear facility.

116. Technical background

The complex of engineering activities and services necessary for the operation of a nuclear facility.

117.

117a. Large release

A radioactive release where off-site protective measures cannot be limited in space and time in a planned manner.

117b. Very severe accident

117b.1. In the case of new nuclear power plants a very severe accident takes place, if an accident being more severe than the accidents within design extension conditions occurs, which shall be taken into account in the analysis for emergency preparedness.

118. Near miss

A potential significant event that would have occurred as the consequence of a sequence of actual occurrences and that may have resulted in unfavourable consequences for nuclear safety, but did not occur owing to the plant conditions prevailing at the time.

119. Non-compliance

The observation of one or more unfulfilled requirements that records the deviation or absence of one or more quality attributes, or management system or system component from the defined requirements.

120. International good practice

An effective practical solution described in the documents of international professional organisations, acknowledged as a good practice by the expert and review teams of these organisations.

121. Normal operation

121.1. In normal operation the nuclear facility operates according to the Operational Limits and Conditions approved by the nuclear safety authority; in the

case of a nuclear reactor and nuclear power plant it includes load adjustments, shutdown, startup, refuelling, maintenance, tests and other scheduled operations.

122. Nuclear emergency response

The execution of such measures that mitigate the consequences of a nuclear emergency situation, which endangers the health, safety, and life quality of the people, property and the environment.

123. Nuclear emergency preparedness

A unified group of infrastructural and administrative elements that ensure the ability to effectively perform the assigned nuclear emergency response functions and tasks. Such elements include appropriate competence, responsibility, organisation, coordination, personnel, plans, procedures, facilities, tools, exercises and trainings.

124. Systems, structures and components important to nuclear safety

124.1. Systems, structures and components important to nuclear safety are those

a) which, if operating incorrectly or failing, may cause unacceptable radiation exposure to the population or on-site personnel of the nuclear facility, or

b) which performs accident prevention or consequence mitigation functions and its failure has a significant effect on nuclear safety as the occurrence of the failure initiates processes that impair nuclear safety or as the failure reduces the ability to perform the planned management of an abnormal process.

125. Life cycle of a nuclear facility

The collection of all the time periods of siting, construction, commissioning, operation, final shutdown and decommissioning.

126. Termination of a nuclear facility

The process that includes the final decommissioning and dismantling of a nuclear facility, as a result of which the nuclear safety authority supervision can be partially or fully terminated by the decision of the nuclear safety authority due to the diminished nuclear safety risks.

127. Pressure-retaining equipment and pipelines

All those pressure retaining vessels, tanks, pipelines, safety valves and appliances exposed to pressure which belong to any of the safety classes. The elements directly connected to the pressurised parts such as the flanges, nozzles, connecting elements, supports and hoisting eyes are also part of the pressure retaining equipment.

128. Training reactor

A research reactor used primarily for educational purposes.

129. Self assessment

A continuous and routine process carried out by the top management and management to evaluate the effectiveness of performance for all the fields under their supervision.

130. Ageing

Such a process during which the material, physical characteristics of a system, structure or component change with time due to use and accompanying wear, environmental effects or cyclic, fatigue loads by the usage.

131. Ageing processes

131.1. Such physical and chemical processes which with the passing of time or during usage gradually change the characteristics of a structure or component.

132. Ageing management

Engineering, operational and maintenance measures to keep the ageing degradation of systems and system components within acceptance limits. Acceptance limits are interpreted by maintaining the minimum required safety margins.133. Ageing management programme

An integrated procedure to identify the degradation effects of systems and system components, to analyse and monitor the ageing processes, and to define and document corrective actions.

134. Passive safety system

134.1. A passive safety system consist of passive system components and uses passive design solutions, and may need external control for its operation.

134a.1. Passive design solution

134a.1. By a passive design solution the intervention or the process does not require external power source or control to operate, their functions are executed by simple physical processes.

135. Passive system component

Those system components that provide their functions without moving parts, or the change of their shape or characteristics.

135a. Passivation

The development of such a resistant layer well adhering to, and uniformly covering a metal surface, which protects the surface against the corrosive effects of the medium coming into contact with the surface of the metal.

136. Radioactive waste package

A product of radioactive waste conditioning, which contains the waste, the packaging and internal barriers (such as absorbing materials and insert pipes) as required by the provisions for management, transportation, interim storage or final disposal.

137. Radioactive waste management

Operations to obtain safety or economic advantages by changing the characteristics of the radioactive waste.

138. Redundancy

138.1. The use of more than one alternative systems, structures or components with similar or diverse operating principles and structures to perform the same function in order to ensure the performance of the function in the case of an assumed single failure.

139. Extraordinary operation state

An operation state announced in an accident situation or when an accident situation is imminent, when the interventions to prevent an extraordinary event, to respond to an event occurred, or to prevent the development of a nuclear emergency situation can be executed without observing the legal requirements.

140. Reliability of a system or system component

The probability that a system or component will meet its minimum performance requirements when called upon to do so

141. Independence of systems and system components

The status or property of systems and system components when their ability to perform the required function, their states or prosperities are unaffected by the operation or failure of other systems or components.

142.

143. Auxiliary system

The system that has no individual function from the aspect of the operation of the nuclear facility or the performance of safety functions, but which shall be available for the operation of other systems or components so that they can perform their functions.

144. Special research reactor

A nuclear facility which can be characterised with at least one of the following attributes:

a) fast neutron system;

b) the thermal power of the nuclear reactor exceeds 10 MW;

c) the thermal power of the nuclear reactor exceeds 1 MW and nuclear fuel tests are performed in the nuclear reactor in a closed cooling loop;

d) the thermal power of the nuclear reactor exceeds 1 MW and the nuclear reactor is used to test liquid nuclear fuel;

e) the thermal power of the nuclear reactor exceeds 1 MW and in the nuclear reactor the cross-section of the test equipment under pressure is over 0,1 m^2.

145. Severe accident

145.1. In the case of severe accident a fuel melt occurs at the nuclear power plant and a condition develops that has off-site consequences more severe than for DEC1.

146. Post accident safe conditions

The state of a nuclear unit following DEC2 when the following conditions are provided:

a) the core debris is solidified and its temperature is stable or decreasing,

b) the heat from the core debris can be transferred into an external heat sink,

c) in the configuration of the core debris $k_{eff} << 1$,

d) the pressure in the containment is so low that if opened the criteria for limited environmental impact is fulfilled, and

e) the accumulation of fission products ended in the containment.

146a. Cliff edge effect

In the case of a nuclear power plant, a highly abnormal process when as a result of a small change in the parameters, the condition of the power plant adversely and suddenly changes to a great extent.

147. Dry storage

The interim storage of spent fuel in gaseous media.

148. Subcritical state

148.1. In subcritical state nuclear chain reaction can sustain only in the presence of an external neutron source.

149. Vicinity of the site

The area surrounding the site within which the effect of the nuclear facility on the environment or the effect of the environment on the nuclear facility shall be considered.

150. Site assessment

An assessment which is performed to select the appropriate site from the aspect of nuclear safety of the nuclear facility and to define the design basis data. The assessment includes the events and circumstances of natural or human origin that potentially endanger the nuclear facility, as well as the circumstances that influence the effect of the nuclear facility on the environment.

150a. Loss of off-site power (LOOP)

150a.1. Failure of AC voltage supplied from a source outside the unit. The nuclear power plant unit can operate in island mode, under idle load.

150b. Station blackout (SBO)

Failure of AC safety power supply along with a loss of off-site power.

151. Full-scope simulator

A computer-supported equipment that models the operation and the main control room of the nuclear power plant. Its control room accurately copies the control room of the nuclear power plant and the models running on the computer ensure that the behaviour of signals and measurements are the closest to the real technologies in both normal operation and design basis conditions.

152. Product

The outcome or output of a process.

152a. Inappropriate product

152a.1. The inappropriate product, unintentionally or intentionally, does not meet the requirements, and its use directly or indirectly endangers nuclear safety.

152b. Counterfeit product

152b.1. The counterfeit product is such an inappropriate product that was produced as a copy of the original product with the intention to sell or use as the original.

152c. Fraudulent product

152c.1. The fraudulent product is such a product, which are supplied with counterfeit or false product certificate documentation with the intention to fraud.

153. Design lifetime

The time period for which it can be demonstrated that the system components are able to perform their functions even if the ageing effects induced by the loads caused by normal operational parameters, anticipated operational occurrences, and environmental conditions of design basis accidents.

154. Design service lifetime

The time period considered during the design of the nuclear facility for which it is demonstrated in the safety analysis report of the nuclear facility that based on the design of systems and components the nuclear facility can be safely operated.

155.

156. Design basis

The characteristics of the nuclear facility and its systems, structures and components as well as the functions required to be fulfilled by the systems, structures and components, the existence of which are necessary for the controlled management of postulated initiating events in addition to meeting specific radiation protection requirements. It shall comprise the following:

a) the requirements coming from the analysis of the effect of such postulated initiating events against which the systems, structures and components performing the functions have been designed,

b) information, limits or limit values identifying parameter values or value ranges, which represent the validity limits of the design,

c) anticipated operational occurrences, postulated initiating events and accident conditions caused by them, with major assumptions and special analytical methods, which, according to the current state of science, are generally accepted for the performance of the safety functions, and

d) anticipated operational occurrences during which a safety protection operation does not actuate.

157. Design extension condition (DEC)

In the case of operational nuclear power plants, the design extension conditions include the conditions arising as a result of events or event combinations that were not taken into account in the original design basis, but according to more recent requirements, they need to be dealt with. In the case of new nuclear power plants,

events or event combinations causing DECs shall be taken into consideration already during the design phase.

158. Design manual

A document developed by observing the Hungarian laws and nuclear safety authority regulations as part of the management system of the licensee, which describes the responsibilities and competences of those partaking in the design and which regulates the design process.

158a. Design specification

158a.1. The design specification is a document summarizing the requirements for the design of systems, structures and components, which contains the technical attributes, normative documents and the general technical requirements.

159. Design basis accident

A condition initiated by an event postulated in the design basis, analysed according to the single failure criterion and covered by these analyses, which is improbable to occur during the service lifetime of the nuclear facility and which cause only such type and extent of damage to the fuel elements which is allowed in the design.

160. System of multiple physical barriers

160.1. A multi-layer system of barriers to isolate the irradiated fuel as the main source of danger in the case of nuclear facilities from the environment. Significant discharge can only occur if all the layers become damaged.

160.2. In pressurized water reactors the multiple physical barrier consists of the following four layers: the fuel matrix, the cladding of the fuel elements, the pressure boundary elements of the main circulation loop and the containment.

161. New nuclear power plant unit

A nuclear power plant unit constructed after 1 April 2012.

162. New nuclear facility

A nuclear facility constructed after April 1, 2012.

162a. Fuel melting

The partial or complete meltdown of fuel including the degradation of the cladding in the active core of the reactor or the storage or transport equipment.

163. Plant states

163.1 In the case of an operating nuclear power plant unit:

a) design basis conditions

aa) normal operating condition (DBC1);

ab) anticipated operational occurrences (DBC2);

ac) design basis accidents (DBC4);

b) design extension conditions;

ba) beyond design basis accidents (complex accidents) (DEC1);

bb) severe accidents (DEC2).

163.2. Overview table of plant states in the case of operational nuclear power plant units:

	A	B	C	D	E
1.	Design basis conditions			Design extension conditions	
2.	Normal operation	Anticipated operational occurrences	Design basis accidents	Beyond design basis accidents (complex accidents)	Severe accidents
3.	DBC1	DBC2	DBC4	DEC1	DEC2

163.3 Conditions in the case of a new nuclear power plant unit:

a) Design basis conditions

aa) normal operating condition (DBC1);

ab) anticipated operational occurrences (DBC2);

ac) low frequency design basis accidents (DBC3); and

ad) very low frequency design basis accidents (DBC4);

b) design basis extension conditions;

ba) complex accidents (DEC1);

bb) severe accidents (DEC2).

163.4. Overview table of plant states in the case of a new nuclear power plant unit:

	A	B	C	D	E	F
1.	Design basis conditions				Design extension conditions	

2.	Normal operation	Anticipated operational occurrences	Low frequency design basis accidents	Very low frequency design basis accidents	Complex accidents	Severe accidents
3.	DBC1	DBC2	DBC3	DBC4	DEC1	DEC2

163.5 In case of conditions of a research reactor and a nuclear facility for the interim storage of spent fuel:

a) design basis conditions;

aa) normal operating condition;

ab) anticipated operational occurrences;

ac) design basis accidents;

b) accidents.

164. Commissioning

Activities following the construction works of the nuclear facility during which it is demonstrated by measurements and tests that all systems of the nuclear facility adhere to the design, comply with the relevant safety requirements and that the nuclear facility can be safely operated in adherence to the Operational Limits and Conditions.

165. Operating nuclear power plant unit

A nuclear power plant unit having an operating license valid on April 1, 2012.

166. Operating nuclear facility

A nuclear facility having an operating license valid on April 1, 2012.

167. Operation

The complex of activities to operate the nuclear facility in accordance with its license including operation, maintenance, technical support and surveillance.

168. Operational Limits and Conditions

Parameter limits as well as functional capabilities and performance levels for systems, structures, components and personnel, confirmed by analyses and measurements in order to safely operate a licensed nuclear facility, and a collection of other rules defined in order to safely operate a licensed nuclear facility. All these limits, levels and rules shall be included in a written document.

169. Technical documents supporting operations

169.1. Documents required for operation:

a) operating instruction of systems and system components;

b) emergency operating procedure;

c) testing instruction, operating instruction;

d) operating programme;

e) route-setting instruction;

f) equipment exclusion instruction;

g) execution order or procedure;

h) workplace radiation protection rules;

i) severe accident management guideline.

170. Operator

One or more organisational units within the organisation of the licensee in possession of rights, obligations, competences and responsibilities established for operation of the facility.

171. Operational event

An event occurring during operation, the consequences of which are limited by the operation of the nuclear facility systems in such a way that the Operational Limits and Conditions, as well as the conditions for normal operation can be fulfilled.

172. Operation-base earthquake

An earthquake during and after which the nuclear facility operates without problems or shuts down, in the interim spent fuel storage facility the spent fuel assembly or container manipulations, maintenance and inspections are suspended but after or without performing the appropriate examinations each suspended activity can be continued.

173. Operational system

A system designed for the operation of a nuclear facility under normal operating conditions.

174. Operational area

The area where the operating personnel has permission to stay. Such areas where radioactive contamination or the dose rate level require special supervision are not part of the operational area.

174a. Operability

The system, structure or component or auxiliary system is capable of performing its expected function as planned and with the planned reliability.

175. Operation

Operating activities during the operation of systems, structures and components in order to fulfil the primary operating objective of the nuclear facility during normal operation, anticipated operational occurrences and design basis accidents.

176. Validation

The assessment to check whether the system, structure or component, service, method, calculation tool, and computer program fulfils the functional, performance and interface criteria based on predefined and written conditions.

177. Probabilistic safety analysis

Complex and structured analysis method to identify the failure event sequences which, by applying the appropriate conceptual and mathematical set of tools, allows for the numerical estimation of the risk or the probability of occurrence of a specific consequence.

In the nuclear industry the level 1 probabilistic safety analysis means an analysis where the assessed consequence is the damage to the reactor core; the level 2 probabilistic safety analysis is an analysis where the assessed consequence is radioactive release endangering the population and the environment.

178. Operation shift management scheme

A scheme showing the hierarchy and the required number of functional personnel for the operating positions for each shift of the nuclear power plant or of a nuclear unit if the nuclear facility has more nuclear reactors.

179. Anticipated operational occurrences

A process initiated by an event postulated in the design basis, analysed according to the single failure principle and covered by these analyses, which is likely to occur during the service lifetime of the nuclear facility.

180. Final state

Pre-defined criterion for a specific task or process that aids the decision on completion of fulfilment.

181. Final Safety Analysis Report

A harmonised safety document or a unified collection of documents that consists of facts, considerations and information considered and to be considered during commissioning, operation, modification and decommissioning of nuclear facilities, which serves as a base for the licensing of the nuclear facility and which is kept up-to-date under the supervision of the nuclear safety authority.

182. Final disposal

Final, planned and licensed emplacement of spent nuclear fuel or radioactive waste with no intention of retrieval.

183.

183a. Ultimate heat sink

A medium that is capable of receiving the residual heat. Its types are:

a) Primary ultimate heat sink: it is used during normal operation; if available, it can be used without any time limit.

b) Secondary ultimate heat sink: it can be used in an emergency if the primary ultimate heat sink is lost.

184. Verification

An inspection process during which it is checked whether the system, structure or component, service, method, calculation tool, computer program, and the product of every phase of development and production fulfils all of the requirements defined in the previous phase.

184a. Hazard factor

184a.1. The hazard factor is such an effect of external or internal origin that may trigger an initiating event.

185. Emergency command centre

185.1. The emergency command centre is a central command facility ensuring protected rooms equipped with appropriate infrastructure for the work of organizations performing management and coordination of emergencies.

186. Emergency classification

186.1. Emergency classification is a scale used for the qualification of the severity of a nuclear emergency, which is based on the circumstances and conditions of the nuclear emergency, which pose approximately the same level of risk, and after its declaration the interventions for response are initiated according to the given emergency class.

187. Threat categories

Following the recommendations of the International Atomic Energy Agency in order to assist the nuclear emergency planning and standardisation, the facilities and activities are categorised into five threat categories based on the level and evolution of risks. The detailed definitions of the threat categories are described in the National Nuclear Emergency Response Plan.

188. Management

Those members of the organisation who perform managerial functions.

189. Reaction-free

A system or component due to its operation mode or failure does not influence the operation or condition of another system or component.

190. Arrest point

A point in the process of an activity beyond which the activity can only be continued with the approval of a designated organisation.

191. Recurrence time

Average time interval between two consecutive events. AT recurrence time is the inverse of 1/T with p annual exceedance probability (1/year).

192. Site assessment area

An area included in the site characterisation, where the assessment required for the definition of specific site characteristics are performed.

193.

194.