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Annex 4 of Govt. Decree No. 118/2011 (VII. 11.)

Nuclear Safety Code

Volume 4

Operation of nuclear power plants

4.1. INTRODUCTION

4.1.1. Objective and scope of the regulation

4.1.1.0100. The objective of the present regulation is to define the nuclear safety requirements relevant for the commissioning, operation, condition maintenance, modifications and reviews of nuclear power plants and their systems and system components important to nuclear safety as well as for nuclear emergency response activities and for those who perform these activities.

4.1.1.0200. The requirements of the present regulation shall apply to every nuclear power plant operating in the territory of Hungary.

4.2. OPERATIONAL LIMITS AND CONDITIONS

4.2.0.0100. The licensee shall prepare and maintain such operational documents, the adherence to which ensures the meeting of the operational limits and conditions in accordance with Annex 3, in the case of new nuclear power plants in accordance with Annex 3/A.

4.2.0.0200. In order to allow the identification of the individual systems, structures and components throughout their lifetime, the identifier specified in Section 3.2.1.2300 of Annex 3 and Section 3a.2.1.2500 of Annex 3/A shall be shown also on the spot.

4.2.0.0300. The operational limits and conditions shall be kept up-to-date, reviewed and if necessary modified based on the experience gained, on the development of science and technology, and in every case when modifications on the nuclear power plant or changes in safety analyses warrant it.

4.2.0.0400.

4.2.0.0500. The control room personnel shall have immediate access to the document describing the operational limits and conditions.

4.2.0.0600. The control room personnel shall have extensive knowledge of the operational limits and conditions and their technical basis. Operating personnel

with leadership tasks shall be aware of their significance regarding nuclear safety of the nuclear power plant.

4.2.0.0700.

4.2.0.0800. The actions to be taken to bring the nuclear power plant unit to a more safe condition shall be specified in the document containing the operating limits and conditions, and the time allowed to perform these actions shall be specified for such cases when the operational limits and conditions cannot be met.

4.2.0.0900. The necessary number and tasks of the operating personnel on duty shall be specified in the document containing the operational limits and conditions, while taking into account that they shall also be able to perform the measures necessary under DBC1-4.

4.2.0.1000. If the operating personnel cannot ascertain that the nuclear unit operates within the operational limits and conditions, or if the nuclear unit presents unexpected behaviour, then actions shall be performed without delay in order to bring the nuclear power plant to a safe and stable state.

4.2.0.1100. The nuclear unit that had been shut down in an unplanned manner shall not be restarted, if its safe accomplishment is not justified.

4.2.0.1200. In order to fulfil the operational limits and conditions the licensee shall develop and implement a surveillance programme. The results of the programme shall be evaluated and recorded.

4.2.0.1300. If the operational limits and conditions are violated, then immediate corrective actions shall be accomplished to recurrently fulfil the requirements of the operational conditions and limits.

4.2.0.1400. The violation of operational conditions and limits shall be investigated, and corrective actions shall be defined to prevent the recurrence of such violations.

4.2.0.1500. If the actions that are intended to eliminate deviations from the operational limits and conditions are not appropriate, including those cases when the actions cannot be carried out in the outage timeframe specified in the document of Operational Limits and Conditions, then the nuclear power plant unit shall managed as it is not operating according to the operational limits and conditions.

4.3. COMMISSIONING

4.3.1. The objective of commissioning

4.3.1.0300. Following the construction or a technical modification of the nuclear power plant commissioning of the relevant systems shall be mandatory, during

which it shall be ascertained that the design goals are met, and the nuclear power plant and its systems and system components are capable to operate safely.

4.3.1.0400. During commissioning the preliminary operational limits and conditions shall be justified and then finalised based on commissioning measurements and test results.

4.3.2. Organization and execution of commissioning

4.3.2.0100. In order to meet the objectives described in Section 4.3.1, the organization responsible for commissioning with the cooperation of the designer shall develop or have developed a detailed programme which logically compiles the activities from the start of specific tests to the execution of the test operation.

4.3.2.0200. The commissioning organization shall develop a commissioning plan which regulates the activities, responsibilities and relations of all organizations participating in the activities from the preparatory work for commissioning to the completion of the test operation.

4.3.2.0300. During the first commissioning of the nuclear facility the future, while during commissioning works following modifications the actual operating and maintenance personnel shall be present in order to ascertain that the commissioning process is an important practical step in their preparation for operation.

4.3.2.0400. Commissioning activities shall be carried out according to work programmes prepared by the commissioning organization.

4.3.2.0500. Before the commissioning of the nuclear power plant at least the work programmes of the following activities shall be made available:

- a) preliminary tests,
- b) official tests,
- c) programmable equipment providing safety functions,
- d) commissioning of mechanical engineering technology systems,
- e) circulation washing,
- f) operation at hot zero power,
- g) physical startup,
- h) energetic startup, and
- i) test operation.

4.3.2.0600. During the commissioning activity subsequent to modification of systems or system components the irrelevant work programmes from the list of Section 4.3.2.0500 e) to i) may be left out depending on the extent of the modification.

4.3.2.0700. The work programmes shall include at least the following:

a) the description of the task to be executed and the initial conditions of execution, the inspections to be performed during the execution of the programmes, their expected values, acceptance criteria of the results, and their relation to designed operational parameters,

b) arrest points,

c) the methods and sequential order of inspections,

d) organisational issues and responsibilities,

e) the minimum number of personnel required for the work, and their necessary qualifications,

f) fire and labour safety requirements, and radiation protection requirements, which shall be followed during radiation hazardous activities, and

g) management of non-compliances between the parameters defined in the work programme and the actual parameters observed during execution.

4.3.2.0800. The execution of commissioning work programmes and the authenticity of the collected information shall be verified by the responsible personnel participating in the works.

4.3.2.0900. During commissioning Inspections shall be performed and documented to assess and verify „0“ state of systems and system components important to nuclear safety importance in the required scope, in order to identify changes occurring during operation .

4.3.2.1000. The experience gained during commissioning and the data specified for the nuclear power plant shall be included in the Final Safety Analysis Report.

4.3.2.1100. During the commissioning of a new nuclear power plant unit, the internal surfaces of the primary circuit shall be passivated prior to the first criticality. The successfulness of passivation shall be demonstrated by means of appropriate material samples.

4.4. THE ORGANIZATION OF THE LICENSEE

4.4.0.0100. The top management of the licensee shall guarantee the safe operation of the nuclear power plant in compliance with all the relevant legislative and authority requirements.

4.4.0.0110. The managers assuming decision responsibilities in the commissioning and operation of the nuclear power plant, in relation to safety issues, and in ensuring resources shall have at least three years of experience obtained in the nuclear sector and shall know the nuclear safety requirements.

4.4.0.0200. The primary aspect in setting up the organization is to safely operate the nuclear power plant in every operating state within the design basis, to ensure

that the necessary functions required for safe operations are available and perform correctly, and emergency situations can be appropriately managed. It shall be verified and documented that the organizational structure is suitable for this aspect before commissioning or any organizational modification takes place. During the implementation, development and operation of the organizational structure, the following functions shall be separated:

- a) management and planning functions,
- b) execution functions for operation,
- c) independent review functions,
- d) support functions for operation.

4.4.0.0300. The licensee may involve a supplier into the operation of the nuclear facility with the following restrictions:

a) the licensee shall always have its own resources and personnel in the minimum required number and with qualifications to know and understand the design basis, the actual arrangement, the operation and service of the nuclear power plant in every operating condition;

b) the licensee shall always have its own resources and personnel in the minimum required number and with qualifications to be able to define the requirements for suppliers, to manage, evaluate and supervise the work carried out by suppliers;

c) the licensee shall ensure that the necessary engineering and technical background support is available throughout the whole lifetime of the nuclear facility in every area of nuclear safety;

d) the services provided by suppliers shall not include the planning, management, and monitoring functions of operation;

e) the suppliers may be involved for those operational activities, that are not connected in any way to the basic process of energy production or nuclear safety; administrative regulations shall ensure that the hierarchy according to the operation crew scheme is valid for the personnel of involved suppliers;

f) operation shall be supervised by an organization that is independent of operation; the inspection shall be planned and the results shall be approved by the supervisor organization of the licensee,

g) the licensee shall assess the nuclear safety relevant risks originating from the use of contractors and shall have appropriate processes to manage them, if justified by ensuring a substitute for the contractor; furthermore

h) the licensee shall have such processes that are suitable to manage a loss of contractor that has a significant influence on nuclear safety.

4.4.0.0400. The inspection of systems and system components important to nuclear safety shall be entrusted to an organization unit having appropriate competencies.

4.4.0.0500. The employees of suppliers may only carry out work on the systems and system components important to nuclear safety if an employee of the licensee having the required qualifications for the specific task approves and supervises the work.

4.4.0.0600. The licensee is responsible for providing the operating personnel with the equipment and work conditions necessary for safe work.

4.4.0.0700. In order to maintain nuclear safety and to improve it if necessary, the licensee shall continuously monitor the safety performance by an appropriate supervision system.

4.4.0.0800. With appropriate regulation of operation processes it shall be ensured that safety related decisions are made in time based on sufficient and reliable information. During the decision making process risk aspects shall be considered. Appropriate analysis and independent safety review shall be performed before any decisions are made that are related to nuclear safety.

4.4.0.0900. The responsibilities, rights, superior/subordinate relationships and communication routes shall be clearly defined and documented for the personnel.

4.4.0.1000. The organizational and operational rules of the licensee shall include the requirements for job descriptions. The rights, obligations, responsibilities, necessary competencies and hierarchy relations shall be clearly defined within the organization of the licensee from the individuals to the different level organizational units. The knowledge and conditions required for the specific job position shall be included in the job descriptions.

4.4.0.1100. It shall be ensured that during the operation of the nuclear unit no one is able to perform any modification in operating modes of the nuclear unit apart from the personnel having appropriate qualifications who are assigned to the operational tasks.

4.4.1. Requirements for employees

4.4.1.0100. The necessary number and knowledge of personnel that is required for safe operation shall be analysed systemically, as specified in documents.

4.4.1.0200. The number of operating personnel that is necessary and sufficient for safe operation, as well as their qualification and suitability for safe work shall be confirmed in a regulated manner and shall be presented in the Final Safety Analysis Report.

4.4.1.0300. The licensee shall ensure the availability of the necessary and sufficient personnel required for safe operation.

4.4.1.0400. The licensee shall have a long-term work force management plan for activities important to nuclear safety.

4.4.1.0500. During the compilation of operating personnel, human relationships shall be taken into account, primarily the relations of hierarchy and the effects of cooperation and communication.

4.4.1.0600. The operating personnel shall at all times fulfil the requirements of numbers, qualifications, training, experience, commitment toward nuclear safety, health status, physical and psychological suitability, which are defined in writing for each given task. The aforementioned shall ensure that the operating personnel are able to perform their duties even in the case of DBC2-4 and DEC1-2. The fulfilment of requirements shall be documented.

4.4.1.0700. The physical and psychological suitability of employees working in positions important to nuclear safety shall be ascertained with medical examination; the medical examinations shall be repeated periodically.

4.4.1.0800. The requirements for work performance and workers shall be the same, and independent of whether the work is carried out by an employee of the licensee or of a supplier.

4.4.1.0900. Employees working at the nuclear power plant shall be verified based on their work ability, health, physical and psychological condition, qualification and professional experience, and for that an appropriate verification system and tools shall be provided.

4.4.1.1000. In accordance with the comprehensive training policy of the licensee, the programme for the professional preparation of the operating personnel, verification of preparation, regular refresher trainings, and periodical checks of preparedness shall be recorded in writing and periodically reviewed.

4.4.1.1100. The training and refresher training programme, the managerial behaviour, leading by example, support and expectation shall ensure that the operating personnel at every level of the organization comprehend the primary importance of nuclear safety, and are able to properly fulfil their duty in the case of DBC1-4 and DEC1-2, in accordance with written operating and emergency operating instructions and accident management guidelines.

4.4.1.1200. The training and refresher training programme shall include both theoretical and practical training, specifically on the simulator and at the work location.

4.4.1.1300. The applied simulator shall ensure the efficient practice of the use of normal operating and emergency operating instructions, severe accident management guidelines and the cooperation of operating personnel.

4.4.1.1400. The refresher training shall include operational experience and modifications.

4.4.1.1500. The annual refresher training of operating personnel who temporarily or permanently work in the control room shall include at least five days of simulator training.

4.4.1.1600. The maintenance and technical support personnel shall receive training for activities that are to be performed by them and which are critical to nuclear safety.

4.4.1.1700. In the training programme, special attention shall be paid to measures to be executed under DBC3-4 and DEC1-2. The following shall be included in the training programme:

a) training for the inspections required after a service level earthquake and the action plan for a safety earthquake, as well as the periodical practice of the execution of the action plan, and

b) practice of transferring from emergency operating instructions to accident management guidelines and practice of severe accident management.

4.4.1.1800. For job positions important to safety

a) appropriate specific training programmes shall be developed based on the continuous survey of training needs;

b) the training organization shall possess the necessary resources, tools and facilities;

c) trainings shall be performed by instructors having appropriate knowledge, and the performance of the instructors shall be checked;

d) the efficiency of training shall be regularly measured; and

e) the suitability of operating personnel shall be continuously verified and the experience gained during inspections shall be considered during the composition of refresher trainings.

4.4.1.1900. A systematic approach shall be applied to training. The composition of a training programme shall include the following development phases for different job positions:

a) analysis: defining the training needs that are based on the knowledge requirements necessary to fulfil the specific job position;

b) planning: defining the training objectives that ensure the acquirement of knowledge;

c) development: preparation of training materials necessary to fulfil the training objectives;

d) implementation: systematic education of training materials;

e) evaluation: the data process of all previous phases in order to improve and correct the training programme.

4.4.1.2000. The training documentation shall include the data relevant for the training programme and the performance of instructors. The efficiency of trainings shall be measured, and the management shall be regularly informed thereabout.

4.4.1.2100. The training programme shall include the management, operating personnel, trainers and instructors who shall also be aware and comprehend the authority requirements in order to fulfil regulations in a timely manner with appropriate measures.

4.4.1.2200. The licensee shall develop and continuously update an individual registry which contains the training, the results of knowledge assessment, and required exams for personnel employed in work positions important to safety.

4.4.1.2300. The personnel employed in work positions essential to safety shall have a valid license for that work position as defined in Section 1.8 of Annex 1. The licensee shall develop a procedure on how to obtain and renew a specified licence. Documented criteria shall be applied to determine whether the given employee has the knowledge and suitability to be granted that licence.

4.4.1.2400. Operating personnel shall possess basic knowledge on nuclear safety, radiation protection, labour safety and fire protection, on-site nuclear emergency response and industrial safety.

4.4.1.2500. It shall be ensured that the tools used for training reflect the current plant conditions and operation.

4.4.1.2600. Beyond the training requirements stipulated by the government decree on the protection against ionizing radiation and the corresponding licensing, reporting (notification) and inspection system, information on the special attributes of the nuclear facility shall be provided in the frame of the radiation protection training.

4.5. OPERATIVE CONTROL ROOMS OF OPERATION, TECHNICAL AND ADMINISTRATIVE DOCUMENTS SUPPORTING OPERATION

4.5.1. General requirements

4.5.1.0100. The main control room and the backup control room shall be maintained in line with current level of technical development and ergonomic needs throughout the whole lifetime of the nuclear facility.

4.5.1.0200.

4.5.1.0300. The continuous, uninterruptible power supply designed for the systems and system components of the unit control room shall be operable to the

extent specified in the operational documentation in every designed operational state of the nuclear unit.

4.5.1.0400. Appropriate working conditions shall be continuously ensured in the unit control room. Additionally, measures shall be taken to protect the personnel of the control room, in order to ensure the accessibility of the control room and keep the radiation exposure to the personnel below accepted limit values in the case of DBC2-4.

4.5.1.0500. In the unit control room the visual and sound signals that provide information shall be continuously operable to the extent defined in the operational documentations.

4.5.1.0600. The functionality of the backup control room shall be continuously maintained and regularly checked.

4.5.1.0700. It shall be ensured that operating personnel are familiar in every detail with the technical documents that support operations, all modifications included.

4.5.1.0800. The current versions of technical documents supporting operation shall be made available to the operating personnel in the unit control room and in the operational staff rooms.

4.5.1.0900. The operational documents that manage DBC2-4 shall be referenced in the specific technical documents that support normal operation.

4.5.2. DBC2-4

4.5.2.0100. The documentation of parameters shall be regulated in the execution instructions and procedures, for instances when operational and environmental parameters deviate from acceptable limits. The organizational and administrative frame shall be specified in the procedures in which the necessary corrective actions shall be identified, and impact analyses and evaluations shall be performed.

4.5.2.0200. The processes of modifications related to operational documents, temporary modifications, the actions, inspections or experiments that exceed the limits of normal operations, as well as the development of temporary operating procedures ordered based on technical necessity shall be regulated. In the approval process of these documents an organisation responsible for nuclear safety that is independent from operation shall also be involved.

4.5.2.0300. The actions, inspections, experiments that exceed the limits of normal operations, as well as the temporary modifications ordered based on technical necessity shall only be started when the documents developed and approved according to the regulation are available.

4.5.2.0400. All temporary modifications shall be clearly identified at the location of the modification, at the controllers of each affected system or system component and at the related administrative and technical support work places. The operating personnel shall be accurately informed about the temporary modifications and their effect on the operation of the nuclear power plant.

4.5.2.0500. The systems and system components of the nuclear unit shall not even temporarily be deviated from the contents of valid operational documentation, procedures and execution instruction, including instructions of temporary modifications.

4.5.2.0600. The number of simultaneously effective temporary modifications shall be kept to a minimum and their validity shall be limited. Deviations treated as temporary modifications shall be terminated at the first technically appropriate time by eliminating the compelling reason, and the pre-existent design basis condition shall be restored, or the temporary modification shall be dealt with as a temporary or permanent modification.

4.5.2.0700. Emergency operating procedures shall be available for the management of possible DBC2-4 that were analysed in the safety assessment report of the nuclear facility or identified at a later time. The emergency operating procedures shall contain the measures that are required to return the nuclear unit to safe conditions.

4.5.2.0800. Operational and testing instructions shall contain those actions, which shall be performed at the event of the occurrence of DBC2-4 in order to return the nuclear unit to safe conditions.

4.5.2.0900. Emergency operating procedures shall be developed and substantiated with analyses. The emergency operating procedures shall be consistent with other operating instructions, for example with instructions to be executed if protection alarms go off and accident management guidelines.

4.5.2.1000. The emergency operating procedures shall ensure that the control room personnel promptly recognise those situations for which the instruction is applicable. For that reason the input and output conditions of the instructions shall be determined, based on which the control room personnel shall be able to select the appropriate procedure, to navigate, and to move from the procedures to accident management guidelines.

4.5.2.1100. Following a DBC, the nuclear unit shall be restarted according to the relevant operation manuals, procedures and execution orders.

4.5.2.1200. The emergency operating instructions applicable to DBC2-4 shall be symptom-oriented instructions or a combination of symptom-oriented and event-oriented instructions and shall be based on appropriately qualified system components and measurements.

4.5.3. Management of DEC1-2

4.5.3.0100. The emergency operating instructions and accident management guidelines shall be available. All possible initial operating conditions shall be covered in the guidelines.

4.5.3.0110. In the case of a nuclear power plant having more than one unit, the emergency operating instructions, accident management guidelines and the emergency response plan shall also take into account the simultaneous accident or severe accident condition of more than one reactor and spent fuel pool, and the resources required for their implementation shall be determined by considering thereof, including external assistance to be used. Special attention shall be paid to potential interactions between the reactor and the spent fuel pool during such accident situations.

4.5.3.0200. Emergency operating procedures shall be provided for the management of beyond design basis accidents up to the point of fuel melting, in order to restore or substitute lost safety functions and prevent fuel melting.

4.5.3.0300. Accident management guidelines shall be provided in order to mitigate the consequences of severe accidents for those instances when measures applied to restore or substitute lost safety functions could not successfully prevent fuel melting.

4.5.3.0400. Instructions for DEC1 may be only symptom-oriented.

4.5.3.0410. Those measures shall be laid down in the emergency operating instructions and accident management guidelines by which it can be ensured to the extent reasonably achievable, in the case of a nuclear power plant having more than one unit, that one unit can support the other, in order to minimise the consequences.

4.5.3.0420. Environmental conditions expected in connection with the events, in particular, environmental radiological conditions and a condition caused by an initiating event or hazard factors triggering the situation to be handled shall be taken into account in the emergency operating instructions and accident management guidelines,.

4.5.3.0430. The emergency operating instructions and accident management guidelines applicable to DEC shall be primarily based on appropriately qualified system components and measurements.

4.5.3.0500. The accident management guidelines shall be developed systematically using a nuclear power plant specific approach. The accident management guidelines shall contain such strategies which allow for the management of series of events identified in the analyses of severe accidents. The analyses shall aim at the identification of nuclear power plant vulnerability

towards DEC2, the evaluation of nuclear power plant capabilities and the development of accident management measures.

4.5.3.0600. The emergency operating procedures and accident management guidelines shall be verified and validated in the form in which they will be used in order to ensure administrative and technical correctness for the benefit of the nuclear power plant and the compatibility with the available human resources and the environment in which they will be applied.

4.5.3.0700. The approach used for the nuclear power plant specific validation and verification shall be documented. During the validation of procedures and guidelines it shall be examined how effectively were the technical aspects of human factors taken into consideration. The validation of emergency operating procedures shall be based on representative simulation, with the use of a simulator where possible.

4.5.3.0800. Emergency operating procedures and accident management guidelines shall be kept updated.

4.5.3.0810. The personnel shall be prepared for carrying out accident management activities affecting more than one unit.

4.5.3.0900. The personnel shall receive training and shall participate in exercises at regular intervals in the role they should fulfil as determined in the emergency operating procedures and severe accident management guidelines. Full-scale simulator exercises shall be organised for the application of emergency operating instructions, while simulator practices shall be organised for conditions covered by accident management guidelines.

4.5.3.1000. During the preparation for the management of severe accidents, the transition from emergency operating instructions to accident management guidelines shall be practised.

4.5.3.1100. The interventions required by the emergency operating instructions and accident management guidelines, which are essential to restore the necessary safety functions, including the use of mobile and off-site equipment, shall be planned and regularly exercised. Furthermore, preparations shall be made for the failure of the electric power supply, the loss of measuring instruments and lighting, and the use of individual protective equipment.

4.5.3.1200.

4.5.3.1300. Technical support shall be provided for personnel operatively participating in accident management. The accident management and emergency response activities shall be coordinated.

4.6. MAINTAINING THE TECHNICAL CONDITION OF SYSTEMS AND SYSTEM COMPONENTS

4.6.0.0100. According to the regulations used for the basis of the operation licence the licensee shall verify the ability to perform the required safety functions, including expected performance parameters by the harmonised use of one or more of the enlisted methods:

- a) safety analyses,
- b) environmental qualification and its preservation,
- c) operation of ageing management programmes,
- d) monitoring maintenance effectiveness.

4.6.0.0200. The licensee shall decide which one to use of the verification methods listed under Section 4.6.0.0100, with the following restrictions

a) environmental qualification is required for electrical and instrumentation system components which operate in a harsh environment while performing a safety function,

b) ageing management is provided for the components and their support structures of the main cooling system, in the case of a new nuclear power plant unit for the spent fuel pool and its cooling loops, for the identified ageing areas and degradation mechanisms,

c) the inspections of the in-service inspection programme shall be performed based on an approved programme while taking into consideration the content of Section 4.6.4.0500.

4.6.1. Maintenance, testing and oversight programme

Object and scope of the maintenance, testing and oversight programme

4.6.1.0100. The licensee shall prepare and apply a documented maintenance, testing and oversight programme for systems and system components important to nuclear safety in order to ensure their reliable operation throughout the whole service life of the nuclear unit.

4.6.1.0200. The scope of the maintenance, testing and oversight programme shall cover:

a) activities of planning, execution and evaluation of inspections during operation and during outages, repair and replacement of parts, revision and general maintenance, replacements, adjustment after maintenance and requalification, as well as the validation of measurements with legal consequences;

b) the regular inspection and testing of systems and system components in order to verify their reliability, and to determine whether they are suitable for the continuous operation of the nuclear unit, or if corrective actions required; also

c) the monitoring, analysis and evaluation of ageing of systems and system components due to effects induced by operation.

4.6.1.0300. The scope of the maintenance, testing and oversight programme of the integrity of the hermetical zone shall cover:

a) leakage inspections;

b) the inspection of sealing of penetrations and closing fittings, of airlocks or valves on the boundaries, in order to verify that they are leak-tight and, if necessary, operable; also

c) inspection of structural integrity.

Preparation and review of the programme

4.6.1.0400. The maintenance, testing and oversight programmes of systems and system components important to nuclear safety shall be determined based on the following:

a) safety classification,

b) inherent reliability,

c) sensitivity to deterioration,

d) operational and other experience, and the results of ageing management programmes,

e) probabilistic safety assessment, and

f) designer, manufacturer recommendations and provisions.

4.6.1.0500. The acceptance criteria for the maintenance, testing and oversight programmes shall be defined with consideration of design regulations and authoritative technical standards.

4.6.1.0600. The operational limits and conditions shall be considered in the maintenance, testing and oversight programmes.

4.6.1.0700. The scope of the review shall include the following:

a) ageing processes identified on system components,

b) inspection results,

c) actual technical condition of system components, also

d) the availability of safety margins requested by design regulations or authoritative technical standards.

4.6.1.0800. The data generated during the execution of maintenance, testing and oversight programmes shall be collected, stored and analysed.

4.6.1.0900. The documentation of the maintenance, testing and oversight programmes of systems and system components important to nuclear safety shall be available throughout their lifetime.

4.6.1.1000. Data shall be evaluated to discover the signs of developing and recurring failures in order to initiate corrective maintenance, and based on the findings the preventive maintenance, testing and oversight programmes can appropriately be modified.

4.6.1.1100. The maintenance, testing and oversight programme shall be periodically reviewed based on operational experience, and all proposed modifications in the programme shall be evaluated by taking into account the objectives of system, component reliability, nuclear unit safety and adherence to the applicable regulations.

4.6.1.1200. The potential effect of the applied maintenance, testing and oversight programme on the safety of the nuclear unit shall be evaluated.

4.6.1.1300. During the development of maintenance, testing and oversight programme an optimal balance shall be found between the increase of reliability by performing the programme and the risk increase of inoperability due to maintenance. If such programmes are implemented that deviate from the maintenance schedule of valid maintenance programmes, their impact on risk shall be evaluated.

4.6.1.1400. The licensee may carry out the maintenance, testing and oversight programmes with the complete or partial involvement of suppliers, but it shall remain fully responsible for all assigned tasks. The licensee shall responsibly coordinate all administrative, technical and supervision activities with special regard to the following:

a) the operability of systems, which need to operate even when the nuclear unit is in shut down state, shall be maintained,

b) maintenance activities shall be organized in a way that presents the lowest reasonably achievable level of radiation, also

c) the persons present at the site of the nuclear power plant and the population of the surrounding area shall be protected against all unacceptable radiation.

The execution of the maintenance, testing and oversight programme

4.6.1.1500. The organising of maintenance, testing and oversight programme shall not pose unreasonable risk for the workers and shall not significantly decrease the availability of systems.

4.6.1.1600. Procedures shall be developed for the performance of maintenance, testing and oversight programme which shall be periodically reviewed and validated.

4.6.1.1700. Comprehensive work planning and management system shall be developed to ensure that the maintenance, testing and oversight programme is approved and executed in accordance with the procedures, in a documented and safe manner.

4.6.1.1800. The scheduling of maintenance works shall ensure that if the nuclear facility shuts down for any reason technical maintenance and oversight activities having effect on nuclear safety can be executed if required.

4.6.1.1900. The licensee shall be prepared for being able to execute the approved maintenance, testing and oversight programme even if cooperating suppliers cannot fulfil the tasks they were assigned.

4.6.1.2000. Before a system or system component is removed from or put back into operation, the planned technology, electrical or instrumentation changes affecting the given system or system component shall be checked and approved; what shall be followed by documented verification of the executed change and functional testing, where appropriate.

4.6.1.2100. Systems and system components shall be inspected, tested and brought to operating condition according to operating instructions by authorised personnel.

4.6.1.2200. In order to maintain the general working order the following shall be executed:

- a) heat insulations shall be inspected and restored,
- b) tools not required for operation shall be removed or deposed and appropriately secured,
- c) earthquake protection equipment shall be restored to their design conditions, and
- d) removal of foreign materials causing safety problems on the site.

4.6.1.2300. The required maintenance, testing and oversight measures shall be defined in procedures and execution documents for cases when acceptance criteria are not fulfilled.

4.6.1.2400. The appropriateness, effectiveness of the maintenance, testing and oversight programme, as well as the fulfilment of its objectives shall be continuously monitored, its results shall be evaluated. Analysis results and lessons learned from international practice shall be taken into account during the periodical review of the maintenance, testing and oversight programme.

4.6.1.2500. The repair of systems and system components shall be scheduled and executed without undue delay in compliance with the operational limits and conditions. The priorities shall be defined based primarily on the safety significance of the failed systems or system components.

4.6.1.2600. Following any irregular event the licensee shall repeatedly verify the safety functions and functional integrity of the affected systems and system components and shall perform the necessary corrective actions, including oversight, testing and maintenance included.

4.6.1.2700. The measuring and inspection devices used for inspections and testing shall be validated or calibrated together with all their elements and components; what shall be checked before use. All devices shall be clearly identified in the calibration or validation report. The licensee shall periodically check the validation and calibration activities in compliance with its quality control system.

4.6.1.2800. It shall be ensured that the maintenance works during operation at rated power are implemented with due defence-in-depth.

4.6.1.2900. Appropriate coordination shall be provided between the maintenance groups performing works in various technical areas, and between the groups and the operating personnel.

4.6.1.3000. Comprehensive and systematic approach shall be used to identify failures to ensure adequate direction of the maintenance activities.

4.6.1.3100. New approaches resulting in significant changes of the current maintenance, testing, supervision and inspection strategies shall be applied with due consideration of the impact on safety and, if necessary, after the execution of the appropriate process of entering them into force.

4.6.2.0100. The licensee shall prepare a comprehensive ageing management programme that:

a) identifies all potential ageing mechanisms for systems and system components important to nuclear safety,

b) defines the possible consequences of potential ageing processes,

c) determines and executes the activities required to prevent the development of ageing mechanisms, to mitigate consequences, to monitor deterioration in order to ensure the availability and reliability of systems and system components important to nuclear safety to ensure the ability to perform safety functions under conditions defined in the design basis throughout the whole service life of the nuclear power plant.

4.6.2.0200. The comprehensive ageing management programme shall be operated throughout the whole service life of the nuclear unit, and it shall be harmonised with the operational, maintenance, testing and oversight activities, as well as with the qualification procedures of system components.

4.6.2.0300. During the development and operation of the comprehensive ageing management programme the licensee shall take into account the environmental

circumstances, the conditions of processes, operation cycles, maintenance plans, designed service lifetime, the scheduling of tests and the spare parts strategy.

4.6.2.0400. The licensee shall evaluate the ageing effects by such monitoring, testing, sampling and inspection activities that ensure the timely identification of unexpected operational processes or degradations, as well as the execution of necessary preventive or corrective measures.

4.6.2.0500. For the effective execution of the comprehensive ageing management programme, the licensee shall operate a database that is suitable for the collection, storage and analysis of information related to systems and system components and supports the determination, optimization and execution coordination of the required activities.

4.6.2.0600. The plant level ageing management programme shall be annually reviewed and updated.

4.6.2.0700. During the periodic safety review of the nuclear unit required by law, the licensee shall investigate and verify that the ageing and degradation mechanisms had been considered and all unexpected problems caused by ageing had been discovered.

4.6.3. Maintaining the qualified state of system components

4.6.3.0100. For system components important to nuclear safety, the initial qualified state specified under Section 3.3.5 of Annex 3 shall be maintained during operation.

4.6.3.0200. The qualified state shall be maintained by actions selected during the design or based on operational experience. In order to maintain the qualified state, such a programme shall be developed and implemented, which includes procedures to monitor the qualified status of system components.

4.6.3.0300. During the execution of the programme for maintaining the qualified state, system components shall be considered to be able to perform their expected functions during their qualified lifetime under the conditions defined in the designs.

4.6.3.0400. For those system components which have an incomplete qualification, it shall be analysed which of their functions and under which conditions may be questionable. The priority of actions regarding the completion of qualification shall be defined based on the severity of consequences due to the loss of such functions.

4.6.3.0500. The planned lifetime and the expected residual lifetime of system components determined during environmental qualification procedures shall be compared based on operational experience and the analysis of safety indicators and trends, and the findings shall be taken into account during the planning of in-service inspections, replacements, and reconstructions.

4.6.3.0600. Such a procedure shall be available for the environmental qualification of system components, which can substantiate the values of the residual lifetimes of system components even if these values had not been or had otherwise been qualified according to the requirements valid at the time of construction.

4.6.3.0700. The qualification loses its validity if the parameter limits of the initial qualification are violated due to the degradation of environmental circumstances for any reason, or if a degradation appears that had not been considered during qualification or had been considered a slow process but accelerated under the new circumstances.

4.6.3.0800. Those system components shall be replaced which already operated during an event entailing such harsh conditions, when ageing factors significant to them were at present.

4.6.3.0900. A system component may be technically reasonably replaceable if the replacement can be attained with assembly works. The electrical, instrumentation and control system component shall be replaced with a qualified one if

- a) it cannot be qualified,
- b) its qualification loses its validity, or
- c) it reached the end of its qualified lifetime which had been defined during the qualification as the result of a series of sequential tests.

4.6.4. Performing in-service inspections

The objective and scope of the in-service inspection programme

4.6.4.0100. The licensee shall prepare and execute a documented in-service inspection programme for systems and system components important to nuclear safety, and for pressure retaining equipment and pipelines under authority supervision, in order to verify the integrity of these systems and system components, and to substantiate the measures necessary to sustain their safe condition throughout the whole lifetime of the nuclear unit.

4.6.4.0200. The in-service inspection programme shall cover in proportion to the safety significance of pressure retaining equipment and pipelines the non-destructive material tests during operation and outages, their requirements, the execution of repeated examinations following replacements and repairs and the evaluation of the results.

4.6.4.0300. The in-service inspection programme shall include the periodical inspection, examination of systems and system components important to nuclear safety and pressurized equipment and pipelines under authority supervision, in

order to determine whether they are suitable for the continuous safe operation of the nuclear unit or corrective actions are required.

The preparation and review of the programme

4.6.4.0400. The in-service inspection programme shall be prepared and reviewed similarly to the maintenance, testing and oversight programme.

4.6.4.0500. The extent, scheduling, criteria and execution methods of non-destructive material testing at the nuclear power plant shall be defined by the licensee, then the nuclear safety authority approves them based on Section 18(4). The cycle time of non-destructive material tests shall so be determined with conservative estimations to allow for detection of any degradation before failure even in the case of system components exposed to the greatest loads.

4.6.4.0600. The inspections defined in the in-service inspection programme shall be executed to the specified extent at least once within the defined cycle time. The licensee shall annually prepare and present the programme of inspections scheduled for the given year to the nuclear safety authority.

4.6.4.0700. The material testing reports and data produced during the in-service inspection programme shall be collected, stored and evaluated.

4.6.4.0800. The licensee may involve another organisational unit or a supplier for the complete or partial execution of the in-service inspection programme but the licensee shall be fully responsible for all assigned tasks. The licensee shall coordinate the administrative, technical and checking activities.

The implementation of the programme

4.6.4.0900. Procedures shall be developed and regularly reviewed for the implementation of the in-service inspection programme.

4.6.4.1000. During the implementation of the in-service inspection programme, the systems and system components shall be examined, inspected and tested by authorized employees.

4.6.4.1100. Following all irregular events the licensee shall repeatedly verify the functional integrity of the systems and system components affected by the event and execute the necessary corrective actions, including inspections and tests.

4.6.4.1200. If such an event entailing the shutdown of the reactor occurred which may have impeded the hermetical condition, then the pressure boundaries of the coolant system of the nuclear reactor shall be tested for leakages before commencing operations.

4.6.4.1300. To effectively perform periodical non-destructive tests, the conditions of systems and system components before commissioning shall be recorded and their comparison to the periodical testing results shall be consequently ensured.

4.6.4.1400. The in-service material testing provisions of systems and system components shall be qualified, to be able to verify that the examination system (i.e. examination equipment, examination technology and examiners) is suitable to fulfil requirements under real examination conditions.

4.6.4.1500. If a failure exceeding the acceptance criteria is detected during an examination, then further examinations shall be performed on system components having identical function and design to detect other possible failures. The scope of further inspections shall be defined with consideration of the nature of the failure and safety consequences.

4.6.4.1600. The pressure retaining equipment and pipelines of the nuclear facility that are under authority supervision shall be periodically examined according to approved programmes. The precondition of commissioning and operation of pressure retaining equipment and pipelines is to go through valid and successful in-service inspections. Pressure retaining equipment and pipelines shall not be commissioned and operated if their repair, modification and additional examination were not performed according to plans.

4.6.4.1700. Leakage test of the pressure boundary of the coolant system of the nuclear reactor shall be performed following refuelling before restarting the reactor, and its strength pressure test shall be executed at the end of the in-service inspection cycle.

4.6.4.1800. The in-service inspections of pressure retaining equipment and pipelines for keeping them in operation shall be executed:

a) in the year when the validity of the license expires, before the nuclear reactor first reaches critical conditions following a main overhaul, if the examination can only be performed during the outage of the nuclear unit,

b) in the year when the validity of the license expires, if the examination need not to be performed during the outage of the nuclear unit.

4.6.4.1900. If the in-service inspection of the pressure retaining equipment or pipeline is unsuccessful, then it can only be operated if the cause for unsuccessfulness is eliminated and the inspection was repeated with successful results.

4.6.4.2000. The nuclear safety authority shall be regularly notified of the unsuccessful inspection of pressure retaining equipment and pipeline being subject to authority licensing process, the reason for unsuccessfulness, and the executed measures to ensure future operability.

4.6.4.2100. Pressure retaining equipment and pipelines being subject to authority licensing procedure shall possess two copies of equipment passport. One of them is the licensee's, the other is the authority's copy. For pressure retaining equipment and pipeline being subject to authority supervision that does

not belong to the previous category, the documents containing relevant technical and administrative data and information and the verification of safe operability shall exist and be available.

4.6.4.2200. The initial, in-service inspection of pressure retaining equipment and pipelines being subject to authority oversight as well as modifications and repairs shall be noted by the licensee in the equipment passport specified in Section 4.6.4.2100. The licensee shall maintain the register of in-service and extraordinary inspections in its up-to-date electronic register that is made accessible for the authority. Entries and registry regarding the modification, repair and method and cycle time of the initial and extraordinary in-service inspection of pressure retaining equipment and pipelines being subject to authority licensing procedure shall be made based on the related guideline.

4.6.4.2300. In the case of new pressure retaining equipment and pipeline being subject to authority licensing procedure the equipment passport shall be presented for authority inspection at least two days prior to commissioning.

4.6.4.2400. The operator's and authority's copies of the equipment passport shall be updated by the licensee within 60 days following a repair or modification of pressure retaining equipment and pipeline being subject to authority licensing procedure. If the repair or modification was executed during the main overhaul of the nuclear unit, then these dates shall be calculated from the first criticality of the nuclear reactor. In-service and extraordinary inspections performed on the basis of the in-service inspection programme shall be entered into the electronic register within 60 days. The identifier of the inspection records demonstrating the effectiveness of the performed inspections shall be entered into the electronic register.

4.6.4.2500. The licensee shall ensure the personal, material, technical and industrial safety conditions for the uninterrupted, safe, professional and correct execution of the in-service inspection of pressure retaining equipment and pipelines and the representative of the licensee shall participate in the inspection.

4.6.5. Performing repairs and replacements

4.6.5.0100. The repair of a system component shall not decrease the safety of the nuclear unit.

4.6.5.0110. A system component may be repaired:

a) without the use of a spare part or structural element, especially with cleaning, elimination of a contact fault, machining according to an approved technology especially material reduction, or with material addition especially rated welding, or

b) by replacement of a similar or identical spare part or structural element, or

c) the combination of the previous options.

4.6.5.0120. In the case of welding required for the manufacturing and assembly of new system components installed during repair or replacement, in particular, pressure retaining equipment and pipelines, as a special process that can be corrected to a limited extent, special attention shall be paid to providing the following conditions:

- a)* qualification of the manufacturers of welded structures,
- b)* qualification of personnel (in particular, welding foremen, welders and material testers),
- c)* raw and welding materials and their certification,
- d)* satisfactory condition of welding equipment,
- e)* rating of welding technologies and welding instructions,
- f)* technology tests and their documentation,
- g)* compliance of work tests, and
- h)* compliance of the welding method statement used, including:
 - ha)* the weld bead shape applied,
 - hb)* application of temporary fasteners,
 - hc)* allowable edge offset,
 - hd)* inspections before, during and after welding,
 - he)* pre-heating and heat treatment,
 - hf)* conditions of repair, and
 - hg)* requirements for registration and delivery documentation.

4.6.5.0200. Following the repair of a system component important to nuclear safety, the technical and quality control requirements related to the system component and the installation position shall be demonstrated as a condition of putting it into operation.

4.6.5.0300. The repair of system components important to nuclear safety shall be performed by the implementation of programmes approved in line with internal procedures. Repair experience shall be evaluated based on the suitability of

- a)* the applied repair technology,
- b)* the technical condition of the repaired system components, and
- c)* the capability to perform the safety function and the reliability of the repaired system component.

4.6.5.0400. The repair of system components important to nuclear safety and the evaluation of repair experience shall be documented.

4.6.5.0500. Repair technologies developed based on designer and manufacturing regulations shall be reviewed periodically or when necessary in order to update them with experience and to apply more advance repair technologies.

4.6.5.0600. As a part of the preparation for repair of system components important to nuclear safety, with the consideration of designer and manufacturing regulations as well as operational, inspection and maintenance experience, the amount of necessary spare parts shall be determined, and reserve system component shall be provided.

4.6.5.0700. Activities related to provision of reserve system components shall be executed according to approved regulations and the management system of the licensee.

4.6.5.0800. The licensee shall continuously monitor the availability of spare parts and shall operate a procedure which ensures the maintenance of appropriate component condition and storage conditions, prevention and monitoring of potential ageing processes on reserve system components.

4.6.5.0900. Only appropriately stored, inspected and documented spare parts may be installed, which shall fulfil the requirements of the original part.

4.7. NUCLEAR FUEL MANAGEMENT

4.7.0.0100. The fuel loading plan of the active core shall be substantiated with detailed physical calculations and shall be approved in order to verify that the relevant operational conditions and limits are fulfilled.

4.7.0.0200. The licensee shall determine and approve all activities related to nuclear fuel according to its relevant procedure. The requirements, regulations and procedures shall be developed with special regard at least to the following:

- a) purchase of nuclear fuel,
- b) transport of nuclear fuel into the site of the nuclear facility,
- c) transport of fresh nuclear fuel within the site of the nuclear facility,
- d) inspection of receipt,
- e) storage of fresh nuclear fuel,
- f) loading of the fresh nuclear fuel,
- g) operation of the nuclear fuel,
- h) periodical refuelling of the partially spent nuclear fuel,
- i) transport of spent nuclear fuel within the site of the nuclear facility,
- j) storage of spent nuclear fuel, and
- k) transport of spent nuclear fuel out from the site of the nuclear facility.

4.7.0.0300. The handling of damaged (irradiated and unirradiated) nuclear fuel shall be regulated with special care to details, including the justification of detection criteria for nuclear fuel damage.

4.7.0.0400. The licensee shall possess a programme that is valid for the computer applications of online and offline core calculations, and ensures that information can be regained, and verified in parallel with independent calculation tools.

4.7.0.0500. The programme defined under Section 4.7.0.0400 shall ensure that the calculation models and tools used for fuel load design are validated and continuously maintained. The design of extraordinary fuel loads shall be checked by independent tools and models and a technical expert independent of the operator. The qualification of those models which cover larger burnouts, new materials, design modifications and power increase shall receive special attention.

4.7.0.0600. A monitoring system shall be developed for monitoring the parameters of the active core, which shall provide change management and evaluation, in order to ensure that any abnormal behaviour can be detected, the fulfilment of core design requirements can be checked, and the values of significant parameters can be recorded and retained in a logical, consistent form.

4.7.0.0700. The licensee shall possess an effective programme that ensures the integrity of nuclear fuel, which shall include:

- a) the monitoring of the operation parameters of the nuclear fuel,
- b) the application of introductory test fuel assemblies,
- c) the inspections of irradiated nuclear fuel, and
- d) laboratory inspection options in special cases.

4.7.0.0800. Appropriate procedures and technical solutions shall be applied in the programme defined under Section 4.7.0.0700 in order to

- a) minimize the failure of nuclear fuel by operation strategies;
- b) ensure systematic analysis of radiochemistry data describing the conditions of the nuclear fuel in order to detect changes and failures; furthermore
- c) obtain an effective action plan for the management of damaged nuclear fuel and the determination of the cause of the damage.

4.7.0.0900. The conditions for core unload in a design basis event shall continuously be ensured to the extent justified in the safety report.

4.7.0.1000. The licensee shall operate a complete record and inspection system which demonstrates the compliance with nuclear fuel related international instruments and national legislation.

4.7.0.1100. The load sequence, the supervision of the correct sequence of actions and the inspection of the developed core configuration by physical measurements shall be regulated in written and approved documentation.

4.7.0.1200. The historical data of fuel assemblies, namely the behaviour of the fuel assemblies in transport devices, in storage facilities, in the active core, the operational parameters of the period spent in the active core and other information related to nuclear safety shall be recorded and evaluated from the time of transport to the nuclear facility to the time of transport out of the facility.

4.8. THE EXECUTION OF MODIFICATIONS, TEMPORARY MODIFICATIONS

4.8.1. Types of modifications, application of differentiated approach

4.8.1.0100. The intended change of the physical condition of the nuclear unit, the organizational structure or management system of the licensee, as well as of the technical and regulating documents is considered a temporary modification, if the change is temporary and as a modification if the change is permanent.

4.8.1.0200. Among temporary modifications, the temporary alterations may be a separate group, for which the requirements are defined in Section 4.5; the requirements of Sections 4.8.2 to 4.8.5. shall not be applied.

4.8.1.0300. Temporary modifications shall also be categorized according to Section 4.8.2.0800. If the temporary modification belongs to Category 1 or 2, then the general requirements shall be followed in every aspect. Separate, simplified requirements shall be applied to temporary modifications that belong to Category 3., which shall be defined by the licensee within its internal regulations pursuant to Sections 4.8.2.0500 and 4.8.2.0600.

4.8.2. Internal regulation of modifications, general requirements

4.8.2.0100. The licensee shall possess a change management policy, which shall ensure the priority of nuclear safety and shall be in harmony with the long term strategy and objectives of the licensee.

4.8.2.0200. The licensee shall have a change management procedure which is systematic, transparent, accurate, and applicable for every type of change. This procedure shall include the identification of the compelling internal or external reason for the change, as well as the evaluation, design, execution and continuous supervision of steps related to the change.

4.8.2.0300. The change management process shall be applied to all modifications.

4.8.2.0400. The modification shall not decrease the level of nuclear safety.

4.8.2.0500. Activities connected to modifications shall be performed and supervised by the licensee according to the regulations of its management system. The technical and safety suitability of modifications and the system of regulations

that ensure the fulfilment of nuclear safety requirements shall be developed with consideration to the life cycle of the modifications and its significant phases.

4.8.2.0600. The licensee shall ensure the technical and safety suitability of modifications and the fulfilment of nuclear safety requirements with the application of the procedure of differentiated regulations based on modification categories. The regulation shall contain how the deterministic or probabilistic safety analyses applied or ones comprising a combination of such analyses shall be used both for determining whether the modifications are necessary and for evaluating their suitability.

4.8.2.0700. The modifications and the enforcement of specific authority requirements shall be supervised by the appointed independent organisational unit of the licensee. Those employees who participated in the initiation, design, preparation or execution of the modification shall not be appointed for supervision or internal independent review tasks.

4.8.2.0800. In order to enforce the differentiated approach, the modifications shall be categorized according to their safety significance as regulated in the management system of the licensee:

a) those modifications shall belong to Category 1, which may be characterised with at least one of the following attributes:

aa) the modification has a significant effect on the radiation risk of the population and the persons present at the site of the nuclear power plant,

ab) the modification changes those principles and conclusions that were used for the design and licensing basis of the nuclear power plant,

ac) the modification changes the scope of postulated initiating events or the way they take place,

ad) the modification modifies such technical solutions that are necessary for the fulfilment of safety objectives defined in the Nuclear Safety Code,

ae) the modification may lead to the change of the fundamental operational regulations of the nuclear facility .

b) those modifications shall belong to Category 2, which shall not be categorised into either the Category 1 or 3.

c) the modifications that may be characterised with at least one of the following three attributes may be included in Category 3:

ca) the modification shall not have a safety consequence,

cb) the system components within the scope of the modification shall not belong to the system components important to nuclear safety, shall not cause a decrease of safety functionality and individual authority regulations shall not contain requirements for them ,

cc) even failure in the design or the execution of the modification shall not significantly increase the frequency of fuel melting or the radiation exposure of the population and the persons present on the site.

4.8.2.0900. The licensee shall possess all necessary resources for all modifications and for the preparation, execution and operation of all approved modifications.

4.8.2.1000. A unified record system shall be designed and used for the planning and provision of necessary resources and for the controlled preparation, execution and supervision of modification, which allows for the determination of the actual status and the schedule of further preparations and execution for all modifications that possess an approved Modification Form as defined under Par 4.8.3.0300.

4.8.2.1100. The licensee shall regularly evaluate the respective effect of each modification as well as the collective effect of all modifications, and the achieved improvements. If no improvements were achieved, then the reasons of failure shall be identified and further actions shall be defined.

4.8.3. Preparation, execution, review and documentation of modifications

4.8.3.0100. The licensee shall execute the modifications based on the analysis of safety requirements and the verification that the reviewed and documented relevant requirements have been fulfilled.

4.8.3.0200. For the stability of operation the licensee shall aim at allowing change in its organisational and management system only when utmost necessity warrants it.

4.8.3.0300. The licensee being aware of the purpose, scope and the requirements related to the modification, after the examination of the safety consequences of the modification, shall prepare a preliminary safety assessment then based on the assessment shall categorize the modification. Based on the preliminary safety assessment performed on the basis of the Final Safety Analysis Report and the determined Category, the Modification Form shall be filled out. An authority guideline contains the recommendations on the form and content of the Modification Form. The hereby defined preparatory activities shall be subjected to a documented internal independent review. As part of this review the evaluation of the preparation for modification shall also be documented.

4.8.3.0400. The further preparation and execution of the modification shall be based on the preliminarily determined and a nuclear safety authority approved categorization.

4.8.3.0500. The Modification Supporting Documentation shall be prepared based on:

a) in the case of a technical modification of systems and system components the plans providing background to the detailed construction design,

b) in the case of a modification of technical and regulatory documents submitted as an annex to the operation license application of the nuclear facility, which are not connected to individual technical modifications, the preparation of the modified version and the definition of circumstances under which they can be applied, and

c) in the case of a modification of the organisational structure and management system the preparation of new and modified internal regulations and the definition of implementation conditions and processes.

4.8.3.0600. For all modifications classified to Category 1 and 2, for the substantiation of the Modification Supporting Documentation a comprehensive safety evaluation shall also be prepared that relates to the type of the modification and has differentiated content. In all cases for the preparation of Modification Supporting Documentation all safety effects of the modification shall be considered which will manifest during and following the implementation of the modification. The Modification Supporting Documentation shall verify that the concept of modification is consistent with legislation requirements, furthermore if internal regulations of the nuclear facility are completely fulfilled the implementation of the modification, and the operation of the modified system, system component or organisation and the application of the modified document or management system is safe. A manual shall contain the recommendations for the structure and contents of the Modification Supporting Documentation.

4.8.3.0700. For all alterations rated to Category 1 and 2, the Modification Supporting Documentation and the substantiating documentation shall be subjected to a documented independent technical expert review.

4.8.3.0800. The Modification Supporting Documentation, the substantiating documents and the documents of the independent technical expert review shall be approved by the organisation unit of the licensee that supervises modifications.

4.8.3.0900. During modifications the appropriate requirements of earthquake safety and safety classification shall be adhered to, which shall be ensured by the configuration management system of the licensee. In case of replacements and reconstructions, products qualified for earthquake resistance shall be installed.

4.8.3.1000. Following the completion of the installation design of all technical modifications the licensee shall review, in a documented manner, the preliminary categorization of the modification. If the result is different from the preliminary categorisation results an altered Modification Form shall be filled out.

4.8.3.1100. If information from previous documents or substantiating information changes during the preparation or implementation of the

modification, then all affected modification documentation shall be reissued according to the valid internal regulation regarding documentation management.

4.8.3.1200. In the case of technical modifications before the commissioning of modified systems and system components, the relevant training programme shall be implemented and operation documents shall be updated. If the modification affects the contents of the Final Safety Analysis Report, then the Report shall be appropriately updated. During the training of operating personnel practical tools shall be applied to the most possible extent.

4.8.3.1300. The suitability of the modified system, structure or system component and the safe operability of the nuclear power plant unit with the modified system, structure and system component shall also be demonstrated with practical examinations and tests or the evaluation of operating experience in addition to analyses.

4.8.3.1400. The precondition of modification on the organisational structure, management system and technical and regulating documents is that the current versions of documents regulating the operation of the nuclear facility in general and in detail shall be available and employees shall be familiar with the changes in regulation due to the organisational modification.

4.8.3.1500. Following the implementation of the technical modification, except for the commissioning and test run or, if no commissioning takes place, prior to the events specified in the modification licence in accordance with Section 1.4 of Annex 1, the licensee shall prepare the Documentation Supporting the Commencement of Operation Following a Modification, in which the full compliance of the modification with the technical and quality regulations shall be demonstrated. A manual shall contain the recommendations of the structure and contents of the Documentation Supporting the Commencement of Operation Following a Modification.

4.8.3.1600. In the case of a modification of the organisational structure, management system or technical and regulating documents, the licensee shall present in a summary the executed preparatory activities and their suitability to requirements prior to the commencement of the modification. A guideline describes the recommendations for the structure and contents of the summary.

4.8.3.1700. For all modifications in Category 1, a documented independent technical expert review shall be performed on the Documentation Supporting the Commencement of Operation Following a Modification, as well as on the summary description and all substantiating documents.

4.8.3.1800. The Documentation Supporting the Commencement of Operation Following a Modification, as well as the summary description and all substantiating documents, and the documents of the independent technical expert review shall

be approved by the organisation unit of the licensee that supervises the modifications.

4.8.3.1900.

4.8.4. Completion of modifications and documentation of experience

4.8.4.0100. Following the completion of a modification after 3 months or at a time specified by the nuclear safety authority a Modification Evaluation Report shall be prepared in which the licensee presents and evaluates the design, purchase, installation, training, commissioning and the initial operational, etc. experience of the preparation and execution of the modification, as well as the complete process. A regulatory guideline contains recommendations for the structure and content of the Alteration Evaluation Report.

4.8.4.0200. For modifications in Category 1, parallel to the Modification Evaluation Report, the documentation supporting the modification request of the operation license of the nuclear unit shall be prepared with consideration to Section 1.2.5 of Annex 1.

4.8.4.0300. Continuous communication shall be ensured between employees and management in order to familiarise implemented modifications and for feedback of experience. If necessary the simulator shall also be updated based on the modification. Associated external organisations shall also be involved in this process.

4.8.5. General requirements for temporary modifications and the simplified requirements for temporary modifications of Category 3

4.8.5.0100. The number of temporary modifications in place shall be kept as low as possible and their validity shall be restricted. Temporary modifications shall not be in place for over one year as a temporary alteration, for that reason the licensee shall review them every 6 months. If the temporary modifications is required to remain in place for over one year it shall be classified as a modification and the remaining, unfulfilled requirements listed under Section 4.8.3 and 4.8.4 shall be realized without delay.

4.8.5.0200. All temporary modifications shall be clearly identified at their location, at all the control panels of the modified system or system component, and at related administrative or technical support work places.

4.8.5.0300. Operational and technical support personnel shall be accurately and timely informed of the temporary modifications and their effects on the operation of the nuclear power plant.

4.8.5.0400. The regulation regarding temporary modifications in Category 3 shall be prepared by the licensee with consideration of Sections 4.8.5.0100 to 4.8.5.0300. The simplified regulation may deviate from the requirements enlisted

under Sections 4.8.3 and 4.8.4, but shall contain the rules for the preparation and approval of mandatory analyses and evaluations.

4.9. APPLICATION OF PROBABILISTIC SAFETY ANALYSIS

4.9.0.0100. A probabilistic safety analysis shall be used to support safety management and its role shall be defined in the decision-making process.

4.9.0.0200. In order to reduce the risk of the nuclear power plant probabilistic safety analysis shall be utilized for the identification whether modifications of the unit or procedures are necessary, including severe accident management guidelines.

4.9.0.0300.

4.9.0.0400. The probabilistic safety analysis shall be used for the evaluation of significance of operational occurrences and if the planned modification of a unit or the Operational Limits and Conditions or of plant procedures is correct.

4.9.0.0500. The results of the probabilistic safety analysis shall be used for the safety-related training programmes of the licensee, especially for the development and validation of simulator training of control room personnel.

4.9.0.0600. The results of the probabilistic safety analysis shall be used to ensure that verification and testing programmes contain those aspects that are significant contributors to the risk.

4.9.0.0700. The limitations of the probabilistic safety analysis shall be recognised, comprehended and considered in all its applications. The suitability of the application of a probabilistic safety analysis shall always be evaluated by taking its limitations into account.

4.9.0.0800. When a probabilistic safety analysis is used for substantiating or changing the requirements for the frequency of the periodic tests of a system or system component or for the allowed out-of-service time, then all important factors, including the operating conditions of the systems, structures and system components and all safety functions in which they have a role, shall be considered in the probabilistic safety analysis.

4.9.0.0900. The operability of those system components shall be ensured that have been identified important to nuclear safety. The role of these components shall be recorded in the Final Safety Analysis Report.

4.10. RADIATION PROTECTION

4.10.0.0100. The licensee shall regulate its radiation protection activities by adhering to the effective national regulations. The radiation protection regulations shall include those activities and responsibilities which ensure that:

a) the justification of activities under radiation exposure can be verified,

b) the radiation exposure of the operating personnel, the amount of radioactive materials released from the nuclear facility into the environment and the excess radiation exposure of the population due to operation can be maintained below the regulatory limits, and

c) the radiation exposure of operating personnel, persons at the site of the nuclear power plant and the population as well as radioactive releases can be kept as low as reasonably achievable.

4.10.0.0200. In order to ensure compliance with radiation protection regulations, based on written and approved rules the following shall be ensured:

a) personal radiation monitoring,

b) radiation monitoring of the site and specified surroundings of the nuclear facility,

c) continuous and reliable monitoring of radioactive releases, and

d) documentation of these activities.

4.10.0.0300. Such warning limits shall be defined in the radiation monitoring system that:

a) help to prevent exceeding regulatory limits, and

b) timely indicate the deterioration of processes or system components or the increase of radiation due to unexpected events.

4.10.0.0400. The documentation regulating radiation protection shall include such developed and approved procedures and technologies which allow for execution of corrective actions based on the monitoring results.

4.10.0.0500. The licensee shall entrust the execution of radiation protection activities to an organisational unit that employs qualified professionals who are familiar with the nuclear facility, is independent of the operational, maintenance and construction organisations, and whose leader is capable of and obligated to represent radiation protection issues in front of the top management of the licensee.

4.1.1. Radiation protection programme

4.10.1.0100. In addition to the provisions of the government decree on the protection against ionizing radiation and the corresponding licensing, reporting (notification) and inspection system (hereinafter referred to as: government decree on radiation protections), the radiation protection programme of the licensee shall take into account the provisions of this Code.

4.10.1.0200. The operating organization shall ensure the correct implementation of and compliance with the radiation protection programme by

supervision and inspection of the fulfilment of the radiation protection methods and procedures.

4.10.1.0300. The radiation protection programme shall ensure that in each operating condition the dose from ionizing radiation and all planned radioactive discharges in the facility are kept below the permitted limits and as low as reasonably achievable.

4.10.1.0400. Within the operating organization, the radiation protection programme shall receive sufficient independence and resources for the enforcement of the radiation protection prescriptions, standards, procedures and of safe working methods and for development of proposals based on them.

4.10.1.0500. Beyond the requirements of the government decree on radiation protection, the employees shall be aware of the obligations relevant for them from the radiation protection programme and their personal responsibilities in its practical realization.

4.10.1.0600. The radiation protection programme shall contain the health examination to justify applicability of the employee exposed to radiation and the advice to be provided in the case of an emergency exposure situation.

4.10.1.0700. Dose rates shall be monitored based on the radiation protection programme at the locations where systems, structures and components may emit radiation, especially during inspection, maintenance and fuel handling activities. The radiation protection programme shall cover the exposure during activities performed in the facility with chemical liquids, coolant medium and liquids of the auxiliary systems. The radiation protection programme shall contain provisions that ensure compliance of the above exposure situations with ALARA principle.

4.10.1.0800. The licensee shall develop the Workplace Radiation Protection Rules (hereinafter referred to as: WPRPR) within the radiation protection programme.

The WRPR shall contain as a minimum:

- a) description and operation of the radiation protection organization, within that
 - aa) the name of the radiation protection officer and his/her deputy, his/her job position, required professional education and radiation protection education;
 - ab) structure and tasks of the radiation protection organization, tasks of the radiation protection officer(s);
 - ac) radiation protection related tasks of the licensee and description of radiation protection related tasks (obligations) of the management of the operator of the facility;
 - ad) list of the responsibilities;
 - ae) determination of frequency of necessary review of the WPRPR;

af) name and address of the occupational health service contracted by the licensee, order of radiation health examinations (i.e. frequency, mode of organization, management of inhibitions);

b) provisions for the employees, within that

ba) requirements for internal and external radiation exposure monitoring of employees, its frequency and mode;

bb) if the personal radiation exposure is estimated based on measurement results performed on other employees, description of the calculation methods used for the estimation;

bc) list of radiation protection rights and responsibilities of the employees working at radiation hazardous workplaces;

bd) description of radiation hazardous work areas and jobs, radiation protection classification of the employees;

be) professional and radiation protection education requirements of the employees working at a radiation hazardous workplace, the order of internal and external radiation protection trainings;

c) provisions for supervision of a radiation protection workplace, within that

ca) determination of controlled and supervised areas, system of requirements (measures to access control), measure to supervise for radiation protection of particular areas;

cb) order of control and elimination of surface contamination;

cc) mode of collection and management and order of registration of radioactive waste at workplaces and the facility;

cd) description of radiation protection monitoring systems, description of personal protective equipment, provisions for their use, description of radiation protection devices and dosimeters, provisions for their use, management, maintenance, calibration;

ce) radiation protection organization measures necessary at particular workplaces;

cf) regulation of radiation protection supervision tasks, with special attention to the monitoring and measurement of ionizing radiation;

cg) all those radiation protection knowledge, that shall be known for safe work performance;

d) management of registers, reports, and events, within that

da) order of keeping radiation protection registers (personal dose measurement, training, medical examinations, radiation protection monitoring

and assessment, accountancy of radioactive sources and wastes) and retention of certificates, order of compliance with authority reporting obligations;

db) tasks to be performed in case of abnormal events;

e) management of sealed radioactive sources, within that

ea) in the case of use of Category 1, 2 and 3 radioactive sources the WPRPR contains the rules for their use, storage and accountancy;

eb) action plan to search for and recovery of missing radioactive or nuclear material.

4.1.2. Radiation protection service

4.10.2.0100. The tasks of the radiation protection officer shall be performed by the facility radiation protection organization established within the licensee's organization. The organization shall consist of professionally educated employees of the licensee who are well aware of the current licensing document and the radiation protection implications of hazards imposed by the operation and the activities carried out in the facility.

4.10.2.0200. The management of the radiation protection organization shall directly report to the senior management of the licensee.

4.10.2.0300. The radiation protection officer and his/her deputy shall hold a license to conduct radiation protection expert activity.

4.1.3. Classification of workplaces

4.10.3.0100. The area of the facility shall be divided to controlled, supervised and free areas taking into account the anticipated and measured dose rates, radioactive contamination and the anticipated doses.

4.10.3.0200. The classification of workplaces and rooms within the controlled areas, and the work conditions shall be reviewed regularly and in the case of changes related to radiation protection.

4.10.3.0300. The potentially contaminated areas and the areas imposing radiation exposure risk shall be identified and indicated such a way that the persons entering and staying in the area are aware the radiation conditions and their effects.

4.10.3.0400. In the case of facility areas, where a radiation exposure can be anticipated up to a significant portion of the limits specified either in the laws, regulatory resolutions or internal regulation documents, technical solutions and administrative measures shall be applied to control, regulate and limit the access

and stay. The control, regulation and limitation shall be proportional to the risk of radiation exposure.

4.10.3.0500. Spread of radioactive contamination shall be monitored, regulated and kept as low as reasonably achievable.

4.1.4. Optimization of radiation hazardous works

4.10.4.0100. During the optimization of radiation protection, the type of the facility, design aspects and those operational changes, events, modifications shall be considered that may influence the radiation protection arrangements.

4.10.4.0200. All radiation exposure shall be kept as low as achievable considering the aspects of the radiation protection requirements and the environmental conditions.

4.10.4/A. Dose constraint

4.10.4.0300. Beyond the provisions of the government decree on radiation protections, reference levels shall be used for the employees for the optimization of radiation protection.

4.10.4.0400. The occupational dose constraint shall be determined for employees exposed to occupational radiation and used as a planning value for personal dose received during an appropriately determined length of time from a given facility or activity, and shall be specified as personal effective or equivalent dose.

4.10.4.0500. The occupational dose constraint shall be determined for employees exposed to occupational radiation and used as a planning value for personal dose received during an appropriately determined length of time from a given facility or activity and shall be specified as personal effective or equivalent dose. The dose constraint shall be determined according to the following aspects:

- a) type and nature of radiation and the equipment used for its prevention,
- b) regional factors,
- c) consideration of the expected benefits.

4.10.4.0600. Considering the ALARA principle, to comply with the relevant dose limits and dose constraints, the licensee shall determine dosimetry and technology investigation levels under the permitted limits. These alarm levels shall be specified in the WPRPR. The licensee shall investigate the exceedance of the investigation level and shall determine and implement corrective actions accordingly.

4.10.4.0700. Technological investigation levels shall be defined to timely indicate the deterioration of the processes, state of components or increase of radiation hazard due to unexpected events.

4.10.4.0800. Investigation levels shall be applied for external and internal hazards based on individual dose, and for work place monitoring systems for quantities determined based on dose rates, contamination or operating experience.

4.10.4/B. Shielding

4.10.4.0900. The reasonably achievable level of radiation shielding shall be provided to decrease doses.

4.10.4.1000. The licensee shall ensure shielding devices of different type and material, which are to be used as temporary shielding for various special works.

4.10.4/C. Personal protective equipment

4.10.4.1100. The licensee shall check and regulate the use of protective equipment, take care of their appropriate condition, and ensure that the users are aware of their intended use.

4.10.4/D. Dose planning

4.10.4.1200. Dose planning shall be performed to optimize occupational radiation exposure from work processes significant from radiation protection aspects.

4.10.4/E. Limiting of radioactive materials and sources

4.10.4.1300. Unnecessary radioactive materials shall be removed from the workplaces to optimize radiation protection.

4.1.5. Significant radiation hazardous work

4.10.5.0100. Those rooms, tools and equipment of the nuclear power plant shall be identified, where the work is, occasionally or always, qualified as significant radiation hazardous work . The classification shall be regularly reviewed and updated.

4.10.5.0200. Those significant radiation hazardous works (hereinafter referred to as: KISUM), the performance of which is repeated under the same technical and personal conditions, typically under the same circumstances, can be managed as permanent KISUMs. In this case, a permanent KISUM work programme can be used to perform the work, if it can be justified according to the safety aspects.

4.1.6. Personal dosimetry monitoring

4.10.6.0100. The licensee shall ensure that personal radiation protection monitoring of the individuals within the controlled area takes place by passive and continuously readable, electronic dosimeters and, as needed, by beta and neutron dosimeters, and by accredited procedures for internal radiation exposure.

4.10.6.0200. The licensee shall ensure equivalent protection for the contractors and the authorities during their work at radiation hazardous workplaces with that ensured for its own employees.

4.10.6.0300. The personal radiation protection monitoring results:

a) shall be made available for the authority and the employer of external employees;

b) shall be made available for the employees of the facility;

c) shall be handed over to the occupational health service for evaluation.

4.10.6.0400. The personal dosimeters shall be worn by the employees within the radiation hazardous workplaces.

4.10.6.0500. The licensee shall provide an appropriately trained employee with due skill in the local radiation protection rules to accompany the visitors of the facility. The accompanying employee shall inform the visitors about the appropriate conduct and provide them with appropriate protective equipment.

4.1.7. Discharge monitoring

4.10.7.0100. The licensee shall develop and operate a programme to monitor discharges and the environmental radiation. The objective of the programme is to ensure the compliance with the regulatory requirements, including the conditions that existed during the derivation of the discharge limits. The environmental monitoring programme shall be suitable, with due reliability, to determine the radiation exposure of the critical group.

4.10.7.0200. The discharge and environmental monitoring system shall be designed to be able to detect, in near real time, any significant increase of discharge. The system shall provide a near real time notification of the detection.

4.10.7.0300. The radiation protection and the environmental monitoring systems shall be designed that the loss of one of their components shall not influence the operability of other components of the system.

4.10.7.0400. Before commissioning, the facility radiation protection and the environmental monitoring systems shall be tested via a test programme, which shall be as close as possible to the real situation. Meanwhile, consequences of

accident situations shall be simulated, including failures and environmental conditions (temperature, overpressure, humidity, vibration, radiation).

4.10.7.0500. Effectiveness and efficiency coefficient of the filter equipment used during the operation of systems and components shall be regularly inspected and maintained.

4.1.8. Decontamination

4.10.8.0100. The potential for decontamination shall be provided at all locations, where radiation exposure of the personnel can be reasonably decreased. The need for decontamination shall be minimized by preventing leakages of radioactive media, and closed design of the discharge, deaeration and overflow lines.

4.10.8.0200. Remotely operated decontamination devices shall be provided where necessary.

4.10.8.0300. The monitoring and, if necessary, the decontamination of controlled areas, individuals entering and leaving the areas, protective clothes, and the objects taken in and out shall be provided.

4.10.8.0400. The area and resource needs of decontamination shall not decrease the level of nuclear safety.

4.10.8.0500. During decontamination, the initial and final states to be achieved shall be determined and the actual final state shall be documented.

4.10.8.0600. The decontamination process shall be optimized, at least, as follows:

- a) amount of generated secondary wastes;
- b) personal radiation exposure;
- c) effectiveness of decontamination.

4.10.8.0700. An appropriate room shall be provided for the equipment and tools that can be safely transported, , where the decontamination can be performed without influencing nuclear safety.

4.10.8.0800. Appropriately trained personnel shall be ensured for conducting decontamination including a professional to direct the task, who is skilled in decontamination.

4.11. MANAGEMENT OF RADIOACTIVE WASTE

4.11.1. General requirements

4.11.1.0100. The licensee shall develop and maintain a process which ensures that all modifications related to radioactive waste management go through an inspection in accordance with their safety significance to ensure that the specific

and general consequences of the modification are analysed as defined by the decree.

4.11.1.0200. The licensee shall provide and maintain reserve storage capacity at the interim storage facility for retrieved radioactive waste packages.

4.11.1.0300. The licensee shall maintain the quantity of radioactive wastes produced at the lowest reasonably achievable level and shall minimise the quantity of radioactive wastes to be finally disposed of by appropriate waste processing.

4.11.1.0400. The licensee shall carry out waste management in a planned manner; as part of that, it shall determine:

a) the types and expected quantities of wastes produced during the normal operation of the nuclear power plant,

b) a list of, and reasoning for, the technical, administrative and other solutions by which the waste minimisation requirement is to be fulfilled, and

c) a performance measurement system suitable for the evaluation of the efficiency of waste management.

4.11.1.0500. The waste management practices under Section 4.11.1.0400 shall be regularly reviewed and the modern scientific and technological results shall be integrated if it can be reasonably implemented.

4.11.1.0600. In order to maintain the safe condition of radioactive wastes, the operating limits and conditions applicable to storage shall be specified.

4.11.1.0700. The activities related to management of radioactive wastes shall be implemented in accordance with the parliament resolution on the national policy for spent fuel and radioactive waste management and the government resolution on the national programme for spent fuel and radioactive waste management, considering the plans regarding the future off-site management of the waste.

4.11.2. Regulation of radioactive waste management

4.11.2.0100. The licensee shall develop and approve a complex documentation regarding the management of radioactive waste. The complex documentation shall include the following activities that ensure the fulfilment of the following main requirements:

a) the amount and activity of radioactive waste generated during operation shall be optimised;

b) radioactive waste shall be collected and stored selectively according to activity concentration and states of matter;

c) pieces with high activity shall be handled as far as possible with remote controlled equipment;

d) highly contaminated pieces shall be handled under circumstances that prevent the spreading of contamination;

e) spreading of contamination shall be prevented;

f) all waste generated during operation shall be managed as radioactive waste until the opposite is verified by documented measurements;

g) radioactive waste may be exempted according to valid legislations and authority regulations;

h) in the nuclear facility activities related to radioactive waste shall be consistent with the national programme of radioactive waste management; furthermore

i) the generation of such radioactive waste shall be avoided which is incompatible with the available storage and process technologies and the requirements for final repository.

4.11.2.0200. The licensee shall develop and operate a programme to verify that radioactive waste packages in interim storage fulfil the restricting conditions defined in the safety assessment report throughout the storage period.

4.11.2.0300. In order to fulfil the requirements written and approved regulations shall provide :

a) monitoring of generation of radioactive wastes,

b) collection, classification, and storage of radioactive wastes and supervision of these activities,

c) transportation of radioactive wastes and the supervision of transportation in the controlled area,

d) transportation of solid radioactive wastes and the supervision of transportation outside the controlled area,

e) management of solid radioactive wastes,

f) classification of radioactive waste packages with low and intermediate activity to be transported off the site of the nuclear facility,

g) documentation of the above activities, appropriate instrumentation and resources, and

h) existence of the necessary procedures, technologies and requirements.

4.11.2.0400. The licensee shall develop and operate a register which contains the position and attributes, including the owner, of all radioactive waste packages at the on-site storage facility. The labelling system shall allow for individual identification of all radioactive waste packages throughout the interim storage period.

4.11.2.0500. The licensee shall prepare plans for the management of non-compliances that exceed storage limits due to integrity loss or degradation of radioactive waste packages.

4.11.2.0600. The licensee shall prepare for appropriate measures for the management of radioactive waste packages that cannot be retrieved with conventional measures.

4.11.2.0700. The licensee shall develop an appropriate process to audit, inspect and test the radioactive waste packages to verify that they fulfil the acceptance requirements of the interim storage facility at the time of acceptance.

4.11.2.0800. Larger accumulation of radioactive wastes waiting for management or conditioning shall be avoided as justified.

4.11.2.0900. Isolation of radioactive wastes from the environment shall be ensured by the container types used for interim storage and final disposal of radioactive wastes for the determined storage duration.

4.11.2.1000. In the annual report, the amount of radioactive wastes generated in and transported from the facility during the year, and the amount of the radioactive waste stored in the facility at the beginning and end of the subject half year shall be reported by waste types.

4.11.2./A. Airborne radioactive wastes

4.11.2.1100. An appropriate procedure shall be developed for the operation of the systems, structures and components suitable to manage airborne radioactive wastes to comply with the relevant limits and to minimize the discharges. Those parameters that are critical to the effective operation of the system, shall be regularly monitored.

4.11.2.1200. Volatile radioactive materials shall be removed from the gaseous radioactive wastes to the extent reasonably achievable.

4.11.2./B. Liquid radioactive wastes

4.11.2.1300. During the operation of the liquid waste processing systems, the composition and properties of the liquid shall be taken into account.

4.11.2.1400. The different types of wastes shall be separated and the most effective processing shall be applied considering the principle of justification.

4.11.2.1500. The barrel or container suitable for conditioning the waste shall be filled, closed and labelled in a way that the packages be suitable for further management, transportation and disposal.

4.11.2./C. Solid radioactive wastes

4.11.2.1600. In the case of solid radioactive wastes, effort shall be made to provide representative sampling because of unhomogeneity, when justifying the compatibility of the planned process.

4.11.2.1700. If mobile conditioning equipment is in use, then measures shall be taken to prevent spread of contamination.

4.11.3. Classification of radioactive waste

4.11.3.0100. With the application of relevant standards classification guidelines shall be developed in order to fulfil the requirements of radioactive waste management with special regard to radiation protection requirements.

4.11.3.0200. During the development of radiation protection aspects the following shall be taken into account:

- a) activity,
- b) activity concentration,
- c) surface dose rate, also
- d) half-life and the type of radioisotope.

4.11.3.0300.

4.11.3.0400. Radioactive materials shall be classified before every waste handling operation regardless of whether or not the activity changes the classification.

4.12. NUCLEAR EMERGENCY PREPAREDNESS AND RESPONSE

4.12.1. On-site nuclear emergency preparedness

4.12.1.0100. The nuclear emergency preparedness of the nuclear facility shall ensure that during a nuclear emergency situation affecting the site, the necessary conditions for the coordinated and effective response are fulfilled at the appropriate place and in a timely manner, with appropriate management and control, and the licensee shall be able to utilize the available resources in a trained and practiced manner.

4.12.1.0200. The licensee together with the cooperating central, regional and local organisations participating in nuclear emergency response prepares for the elimination of nuclear emergencies or accidents resulting in significant radioactive release and the mitigation of the consequences thereof. To achieve this objective the licensee shall:

- a) establish an organisational unit with due responsibilities and authorities that organizes and manages nuclear emergency preparedness;
- b) establish an organisational unit with due responsibilities and authorities that is prepared to activate in emergency situations and is capable of fulfilling its tasks

from decision making to operative activities in all phases of the emergency situation;

c) shall develop and continuously update the on-site Nuclear Emergency Response Plan of the facility while ensuring consistency with legislations, national, regional and local nuclear emergency plans and ones applicable to nuclear facilities in the vicinity, international recommendations and other non-nuclear emergency preparedness and management plans of the nuclear facility,

d) shall appoint personnel authorized to perform the action functions determined in the Nuclear Emergency Response Plan;

e) shall provide appropriate groups and technical support to the operating personnel to manage and mitigate the consequences of the nuclear emergency situation;

f) shall define the number of staff for the emergency response organization and the number of employees available for specific tasks in order to ensure that there is always a sufficient number of trained personnel available for the operation of the organization over the whole period when the nuclear emergency exists;

g) shall ensure the necessary technical conditions for the operation of the emergency response organization and the preparedness management organization and the execution of the Nuclear Emergency Response Plan;

h) preparations shall be made for the extension of the Nuclear Emergency Response Plan in the case of the possible adverse evolution of the given situation.

4.12.1.0300. The Nuclear Emergency Preparedness and Response Plan shall regulate all tasks within the licensee's scope of responsibility that ensure the elimination and the mitigation of consequences of all the nuclear emergency situations resulting in the release of radioactive materials or radiation exposure that had been identified in the design.

4.12.1.0310. The responsibilities, tasks and activities relating to emergency waste management shall be specified in the Nuclear Emergency Response Plan.

4.12.1.0320. The plans of the emergency waste management solutions shall be reviewed at least every 10 years by taking into account the current results of science and technology.

4.12.1.0400. The licensee shall be prepared to identify nuclear emergency situations and promptly initiate the nuclear emergency response activities. An emergency classification system shall be developed to support the identification. A regulatory guideline is to be issued to describe recommendations on the development of the emergency classification system. The licensee shall provide the conditions for the prompt notification of the nuclear emergency response organization personnel and the off-site organizations.

4.12.1.0500. On the site of the nuclear facility there shall always be present a person with the authority to classify the nuclear emergency situation, to declare the nuclear emergency situation or its termination, to initiate nuclear emergency response actions and to notify the off-site organizations. This persons shall also be responsible for the prompt fulfilment of these tasks, shall have the necessary information and, regarding the tools necessary for the execution of aforementioned tasks, authority to effectively act.

4.12.1.0600. The licensee shall prepare to:

- a) alert the population,
- b) inform and provide professional support for the involved county and local emergency committees, also
- c) provide recommendations on urgent protective actions for the central organizations of the national nuclear emergency response system and the involved county and local emergency committees until the central organizations of the National Nuclear Emergency Response System activates.

4.12.1.0700. The licensee shall prepare for the counting and identifying of persons present on the site, the protection of these persons, shall provide the necessary protective equipment and iodine tablets for the protective actions to be implemented in the nuclear facility, personal protection and dosimetry of the personnel involved in nuclear emergency response, and the urgent treatment of injuries contaminated by or exposed to radiation during the emergency situation.

4.12.1.0800. The licensee shall prepare for the technological and radiological analysis of the emergency situation, the estimation of the occurred or expected releases, the forecast of release consequences and the monitoring of releases.

4.12.1.0900. The licensee shall prepare for recording the event of the emergency situation, the executed measures and the contents of emergency situation communications and it shall inform the public and the media as required by legislation. Preparations shall be made to provide an up-to-date register of the emergency environmental monitoring results, the properties of the generated radioactive wastes and the dose estimation of the employees.

4.12.1.0910. The licensee is responsible for the maintenance of tools, facilities and documentation necessary for emergency response activities, and the regular inspection of their suitability, the planning and execution of emergency trainings and drills, as well as for communication with external institutions during the nuclear emergency preparedness period. The mobile devices, their connection points and the connected cables shall be regularly maintained, and the possibility of connection shall be inspected and tested.

4.12.1.0920. The necessary tools for the execution of nuclear emergency response activities shall be placed at the location of their expected use in a way that ensures their efficient deployment under the anticipated conditions.

4.12.1.1000. For the personnel performing tasks in the emergency response organization basic training, refresher training at predetermined intervals and practical training shall be organised in order to become familiar with and practice the tasks assigned to them in the emergency response organization.

4.12.1.1010. It shall be ensured that the employees determined in the Nuclear Emergency Response Plan receive appropriate and regularly updated information about the health risks of their interventions, and about the protective actions to be taken in such a case. The information shall cover the full scale of potential emergencies and the type of interventions. When an emergency occurs, the information shall immediately and appropriately be updated considering the circumstances of the given special case.

4.12.1.1020. The licensee shall provide for the emergency training of the employees, which shall contain practical training, as appropriate.

4.12.1.1100. Periodic or at least annual exercises shall be organized to verify that the accident management organization is able to fulfil its emergency response tasks. During the exercises the participation of organizations responsible for the off-site elimination of nuclear emergency situations shall be made possible. Long-term and annual plans shall be prepared for emergency response trainings and drills. Emergency response exercises shall be systematically evaluated and the results of the evaluation shall be fed back to the planning process.

4.12.1.1200. The licensee shall provide nuclear emergency training for all persons who are authorized to stay on the site of the nuclear facility without supervision; their training shall provide instructions for emergency situations.

4.12.1.1300. The emergency response organisation of the licensee shall be able to perform its tasks for the determined duration even if the infrastructure on the site and in its vicinity has been seriously damaged.

4.12.1.1400. The licensee shall provide conditions for the external support of on-site activities even if the surrounding infrastructure has been severely damaged due to external hazard sources.

4.12.1.1500. In the case of a nuclear power plant having more than one unit, the handling of situations when several units are involved in the event shall also be practised during the emergency response exercise prescribed in Section 4.12.1.1100. The installation and use of mobile devices shall also be practised.

4.12.1.1600. It shall be shown that the systems, structures and system components used for the prevention of DEC or the mitigation of their consequences, including mobile devices and their connection points as well as the

auxiliary functions and measuring instruments of the system, structures and system component, are suitable for performing their functions, are appropriately qualified, and are able to operate for the determined duration.

4.12.1.1700. Shared services and stocks used by more than one unit shall be reviewed methodologically. It shall be ensured that human, technical and other resources in common use, which are required during emergency response, have appropriate efficiency and are available in sufficient quantities for all units also during concurrent accidents. If connection and support are required between the units for the management of DEC, it shall be demonstrated that they do not have negative effect on the safety of any of the units and in any of the operating conditions.

4.12.2. Implementation of nuclear emergency response

4.12.2.0100. Nuclear emergency response activities shall aim to terminate, mitigate the consequences of the developed emergency situation.

4.12.2.0200. The licensee shall ensure the management of the nuclear power plant and elimination of damage even in a nuclear emergency situation. The nuclear emergency response activities shall be carried out as laid down in the Nuclear Emergency Response Plan.

4.12.2.0300. The emergency preparedness organization of the licensee shall immediately commence its activities after the nuclear emergency situation is declared and its activities shall be so organised and managed to avoid hindering or endangering the performance of safety functions and the operational activities required to bring the nuclear unit to safe conditions.

4.12.2.0400. The emergency classification of the event shall immediately be followed by the necessary on-site protective actions.

4.12.2.0500. The licensee shall provide appropriate and consistent information to the public throughout the response process of the nuclear emergency situation.

4.13. FIRE PROTECTION

4.13.0.0100. During the operation of nuclear power plants in addition to the regulations of the decree on the specific requirements of fire protection related to the use of atomic energy and their method of enforcement by the authorities the following provisions shall also be complied with.

4.13.0.0200. To ensure fire protection of the operating nuclear power plant defence in depth shall be applied to provide the following tasks:

- a) prevention of fire;
- b) prompt detection and quick extinguishing of fires already developed in order to mitigate damages; also

c) prevention of the spread of fires, thereby minimising their effects that jeopardise safety functions.

4.13.0.0300. To prevent fires the amount of flammable materials shall be minimized. To ensure the fulfilment of fire protection measures an internal regulation shall be developed and implemented. The regulating documents shall include the inspection, maintenance and testing of fire barriers, fire alarm and fire suppression systems.

4.13.0.0310. A fire risk analysis shall be carried out and updated in order to demonstrate that:

- a) the fire safety goals are met,
- b) the fire safety planning principles are fulfilled, and
- c) the planning of fire protection measures is satisfactory, and all required administrative measures have been properly identified.

4.13.0.0320. The fire risk analysis shall be carried out on a deterministic basis, during which at least the following shall be taken into account:

- a) the start of a single fire in every normal operating and shutdown condition and its spread to places where the presence of any flammable material is possible for a long time or temporarily,
- b) plausible combinations of fire and postulated initiating events occurring independently of any fire.

4.13.0.0330. It shall be shown in the fire risk analysis how the effect of the possible consequences of a fire and the operation of firefighting systems have been taken into account.

4.13.0.0340. The safety impact of fires shall be evaluated also with level 1 probabilistic safety analysis. The analysis shall examine the contribution of accidental fires on the site and within the rooms of the nuclear power plant to core damage frequency.

4.13.0.0400. The licensee shall implement the measures identified in fire risk analyses to regulate and ensure fire protection.

4.13.0.0500. The licensee shall prepare for protection against fires, fire suppression and technical damage control in cooperation with the competent national, regional and local organizations and shall:

- a) establish a fire protection organization with the necessary competencies and staff,
- b) establish a facility fire brigade,
- c) ensure the administrative and financial operating conditions of the facility fire brigade, furthermore

d) develop and continuously maintain a fire safety code.

4.13.0.0600. An internal regulation shall be developed and continuously updated that clearly defines the responsibilities of personnel working independently on the site of the nuclear power plant, and the required actions in order to protect the nuclear power plant against fires.

4.13.0.0610. Access and escape routes shall be available for the employees.

4.13.0.0700. The organizational responsibilities and tasks shall be defined in the field of fire protection and these shall be reflected in the organizational structure and the related job descriptions.

4.13.0.0800. If fire extinguishing tasks are provided by an external organization then coordination shall be facilitated between the external response organization and the fire protection personnel of the licensee in order to ensure that the external organization is aware of the dangers of the nuclear power plant.

4.13.0.0900. If operating personnel are required to participate in fire fighting then the training and requirements related to the organization, minimum number of staff, equipment and physical condition shall be documented. Their suitability for the tasks shall be justified by a person with appropriate qualifications.

4.13.0.1000. Internal regulating documents related to fire protection shall contain the specific requirements for the storage, transport and use of flammable materials.

4.13.0.1100. Fire protection tasks related to the shutdown condition of the nuclear reactor shall be evaluated based on the following altered operating conditions:

- a) the nuclear reactor is not operating,
- b) additional flammable materials are present or their location is also changing,
- c) additional ignition sources develop during repair works, also
- d) additional staff is present during reviews and repairs.

4.13.0.1200. The operability of installed fire alarm and fire extinguisher systems shall be continuously ensured. In case of inoperability, appropriate measures shall be taken to maintain fire safety. Exceptions are those cases when the operability of the in-built fire protection systems is not required, especially if the protected system is emptied from the flammable material or if the technology containing the flammable material is temporary dismantled.

4.13.0.1300. Regarding fire extinguishing measures, special attention shall be paid to those cases, when the risk of radioactive release occurs as a consequence of a fire. Appropriate measures shall be taken to protect the personnel fighting against the fire and to manage the radioactive releases to the environment.

4.14. OPERATING EXPERIENCE

4.14.1. Collecting experience from nuclear power plants

4.14.1.0100. The licensee shall develop and implement a systematic programme for the regular and continuous collection, screening, analysis and documentation of operational data, experience and operational events of the nuclear facility throughout the commissioning, operating and termination life cycle phases of the nuclear facility. Operating experience and operational events reported by other operators and relevant to the facility shall also be considered.

4.14.1.0200. The operating experience of the nuclear power plant and other operators shall be evaluated whether all hidden failures related to nuclear safety and potential precursor events are identified and to detect any tendencies showing decrease of safety performance or safety margins.

4.14.1.0300. During the analysis and evaluation of operating experience special attention shall be paid to investigate the safety related nonconformities and events experienced during operation including maintenance, repair, inspections and reviews-, to evaluate the severity of their actual and possible consequences and to define the necessary measures to avoid any similar nonconformities.

4.14.1.0400. The changes in external effects and site characteristics, especially the fairly quick changes in human activities and related parameters, such as the demographic distribution, built environment and industrial activities, shall be monitored throughout the lifetime of the nuclear facility and shall be regularly evaluated in order to prevent the increase of risks.

4.14.1.0500. The licensee shall appoint suitable personnel to execute programmes according to Section 4.14.1.0100, to distribute new information of nuclear safety importance and if possible for the development of action recommendations. The most significant observations and trends shall be reported to the top management of the licensee.

4.14.1.0600. The organization responsible for the evaluation of operating experience and investigation of events shall receive appropriate training and resources. Their work shall be supported by the management.

4.14.1.0700. The licensee shall ensure that the results are produced, the conclusions are deducted, the measures are implemented, good practices are contemplated and appropriate and timely corrective actions are executed to prevent recurring problems and developments that are unfavourable to nuclear safety.

4.14.1.0800. The licensee shall regulate the content, extent and methodology requirements of the collection, analysis and documentation of operational data and experience. Investigation methods shall contain analysis methods of human factors.

4.14.1.0900. Information shall be stored in a way that the appointed personnel can easily access, systematically search, filter and evaluate the information.

4.14.1.1000. The list of identified safety issues shall be continuously updated together with solution methods and planned measures.

4.14.1.1100. The list and deadlines of planned measures shall be continuously monitored by the management of the licensee. These measures shall be updated with current experience to the necessary extent.

4.14.1.1200. Information regarding operating experience shall be made available to the relevant personnel and shared with the competent national and international organizations.

4.14.1.1300. The licensee shall keep contact to the necessary and possible extent with the organizations that participated in the design, construction, commissioning and that participate in or support the operation in order to provide operating experience feedback and request advice if necessary.

4.14.1.1400. Operating personnel shall report events of nuclear safety significance, reportable events and near miss situations related to the nuclear safety of the nuclear facility according to the relevant regulatory documents.

4.14.1.1500. The licensee shall provide investigation and analysis tasks required for event assessment and event report preparation.

4.14.1.1600. In case of events of nuclear safety importance a preliminary investigation shall be carried out without delay, but within 5 days, at the latest, to determine whether immediate actions are required.

4.14.1.1700. The scheduling of event investigation shall be in compliance with the significance of the event.

The investigation shall:

- a) determine the sequence of events,
- b) include the comparison of the event to other previous, similar, national and international events,
- c) evaluate its effect on safety, the actual and potential consequences,
- d) evaluate the activities of the personnel and management, the suitability of regulated processes and procedures,
- e) define discrepancies,
- f) include the definition of the direct, contributory and root cause, also
- g) define corrective actions in order to restore nuclear safety, to prevent the recurrence of the event and where necessary to improve nuclear safety.

4.14.2. Utilization of operational data and experience

4.14.2.0100. Such a process shall be developed, which ensures that the operating experience related to events at the nuclear facility and other nuclear facilities are utilized in the training programme of the employees.

4.14.2.0200. The determination, execution and follow-up of corrective actions that prevent the recurrence of the same and similar events shall be regulated.

4.14.2.0300. New data, scientific achievements, and reports of operating experience of other nuclear facilities shall be evaluated and utilized throughout the life-cycle of the nuclear facility.

4.14.2.0400. The collection of operating experience and analysis of safety indicators and trends shall be performed in a way that the resulting data can be utilized for the planning of in-service inspections, replacements and reconstructions of systems, structures and components important to nuclear safety while taking into consideration their designed and expected remaining lifetime.

4.14.2.0500. Operating experience shall be considered to better specify the input data for the probabilistic nuclear safety analysis.

4.14.2.0600. Safety indicators of the operation of the nuclear facility shall be regularly evaluated and if required corrective actions shall be defined.

4.14.2.0700. Operating experience shall be considered for the reviews of the operational documentation.

4.14.2.0800. The effectiveness of the operating experience feedback process shall be regularly reviewed based on performance criteria and documented within the self-assessment programme of the licensee or as an assigned independent review.

4.15. PREPARATION FOR OPERATION BEYOND THE DESIGN LIFETIME

4.15.0.0100. If the licensee wishes to operate the nuclear power plant unit beyond the designed lifetime, the necessary preparations shall be initiated in due time. To operate the nuclear unit beyond the design lifetime, the licensee shall comply with the following conditions:

a) activities that are meant to maintain the technical conditions of systems, structures and components important to nuclear safety, as specified under clause 4.6. and are necessary to provide the availability of safety functions, shall be continuously performed during the designed lifetime and these activities shall be systematically verified and evaluated, furthermore

b) the safety improvement measures that may be derived from current international requirements and realized with reasonable efforts for the specific nuclear unit shall be identified within the Periodical Safety Review and executed by deadline.

Definition of the licensing scope of service life extension

4.15.0.0200. The following shall be in the licensing scope of operation beyond the design lifetime:

- a) systems, structures and components important to nuclear safety,
- b) those system components that do not belong to point a), but the failure of which may hinder the systems, structures or components important to nuclear safety to perform their functions, and
- c) systems, structures and components included in the scope by specific authority decisions.

4.15.0.0300. Those relevant safety functions of systems, structures and components shall be identified which were the cause for including the specific system, structure or component into the scope of licensing for operation beyond the design lifetime.

4.15.0.0400. The scope definition of operation beyond the design lifetime shall be consistent with the actual licensing base of the nuclear facility.

Comprehensive review

4.15.0.0500. To obtain the licence for operation beyond the design lifetime the licensee shall perform a comprehensive review in order to demonstrate that the ageing processes that require ageing management have been identified, and are appropriately managed during the extended lifetime, so the aging processes do not endanger the ability of system components to function.

4.15.0.0600. Comprehensive review shall be performed on the passive and long-lived systems, structures and system components out of those belonging to the scope of Section 4.15.0.0200.

4.15.0.0700. Based on the results of the comprehensive review the licensee shall identify whether new ageing management programmes shall be developed and implemented, or if any of the available programmes shall be modified.

The review of time limited ageing analyses

4.15.0.0800. The licensee shall identify those time limited ageing analyses of that substantiate the suitability of system components that belong to the licensing scope of operation beyond the design lifetime for the nuclear unit, furthermore it shall demonstrate that the analyses remain valid throughout the extended service life of the nuclear unit.

4.15.0.0900. The validity of time limited ageing analyses shall be extended with the justified decrease of conservatisms used in the calculation methods and/or with the modification of analysis data, but in such instances the programme of necessary measures shall be presented and their effectiveness and the possible extent of analysis data modification shall be verified.

4.15.0.1000. The updating of time limited ageing analyses and the actions justified by them shall be scheduled to allow for accomplishment before the license of operation beyond the design lifetime is granted.

4.15.0.1100. If the results of a time limited ageing analysis it can be demonstrated that a system component can be safely operated beyond the designed lifetime but not as long as the extended lifetime then a new deadline may be initiated to be determined to allow for the update of the analysis and the execution of necessary measures which complies with the analysis results but still ensures the required safety margins.

4.15.0.1200. To license the operation of a nuclear unit beyond the design lifetime it shall be investigated whether such exemptions from authority regulations exist that are valid for a limited time period or that are based on such analyses in regard to the operation licence of the nuclear unit. If such an exemption is identified its sustainment for the period of the service life extension licence shall be substantiated.

Update of the Final Safety Analysis Report

4.15.0.1300. The necessary modifications in the Final Safety Analysis Report due to planned operation beyond the designed lifetime shall be identified. The updated version of the Final Safety Analysis Report shall be prepared.

Modification of Operational Limits and Conditions

4.15.0.1400. The necessary modifications in the Operational Limits and Conditions shall be identified and the updated version shall be prepared.

Modifications of additional documents that provide the basis of the operating license

4.15.0.1500. The necessary modifications of

a) the documents of maintenance, testing and surveillance programmes,

b) symptom-based emergency operating procedures,

c) accident management procedures,

d) the Nuclear Emergency Preparedness and Response Plan of the facility

shall be identified and the draft of modifications shall be prepared.

4.16. MANAGEMENT OF OPERATIONAL DOCUMENTATION

4.16.0.0100. The management of operational documentation for the whole lifetime of systems, structures and components important to nuclear safety shall be regulated in a written and authorized procedure by the licensee, which covers the following:

a) technical scope: the list of systems, structures and components and activities which are regulated in the procedure,

b) documentation scope: the list and definition of documents included in the procedure,

c) regulation of development, review, approval and issuing,

d) regulation of modifications and withdrawal,

e) regulation of usage and archiving, and

f) regulation of periodical reviews of the documentation.

4.16.0.0200. If the operational documentation is developed, used and archived by several different organizations, the consistency of the documentation of each organization shall be ensured, and the handover of documentation to another organization shall be regulated.

4.16.0.0300. The documented information shall at all times conform to the physical configuration of systems, structures and components of the nuclear facility and both shall comply with the design requirements. The conformity shall be ensured during the whole life cycle.

4.16.0.0310. The configuration management system established according to the provision of Section 4.16.0.0300 shall ensure the identification and planning of modification of safety important systems and components, their evaluation and implementation, and their registration in the system. Internal regulations shall ensure that the system manages the state after maintenance actions, tests, repairs, renewals and modifications.

4.16.0.0320. The configuration management system shall be part of the quality assurance programme of design, construction, commissioning, operation and decommissioning. The elements of the programme shall be as follows:

a) technical database and its IT background,

b) documentation management system,

c) change management,

d) training of the operation of the configuration management system, and

e) supervision and review of the configuration management system.

4.16.0.0400. The licensee shall provide all the actual, up-to-date and correct information which are in compliance with the actual physical conditions and operational characteristics of the nuclear facility thus ensuring substantiated and safe decision-making.

4.16.0.0500. The requirements of Annex 2 shall be taken into account to full extent during the management of operational documentation.