

APPROVED BY
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The Head of State Nuclear Power
Safety Inspectorate,
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Inspectorate,
of 15 March 2015)

**NUCLEAR SAFETY REQUIREMENTS
BSR-1.8.2-2015**

**NUCLEAR SAFETY REQUIREMENTS BSR-1.8.2-2015 “CATEGORIES OF
MODIFICATIONS OF NUCLEAR FACILITY AND PROCEDURE OF PERFORMING
THE MODIFICATIONS”**

**CHAPTER I
GENERAL PROVISIONS**

1. Nuclear Safety Requirements BSR-1.8.2-2015 “Categories of Modifications of Nuclear Facility and Procedure of Performing the Modifications” (“Requirements”) set the modification categories of a nuclear facility (hereinafter – NF) and the modification procedure.

2. The Requirements are obligatory to the persons who have the licences indicated in the Article 22 Paragraph 1 sub-paragraphs 1–5 of the Law on Nuclear Safety of the Republic of Lithuania and issued in accordance with the procedure laid down by the legal acts (hereinafter – licence holder) and also the persons related to the modification implementation works.

3. The nuclear safety, physical security and radiation protection of the NF (hereinafter – safety of the NF) must be ensured by successive implementation of the defence in depth principle. In the case of nuclear safety and radiation protection, the defence in depth principle shall be based on the system of radionuclide isolating barriers and/or ionising radiation confinement barriers (“a system of physical safety barriers”) that limit and/or prevent ionising radiation and radioactive materials from spreading into the environment and, with the use of a system of technical and organisational measures, protect and maintain the efficiency of such barriers. In the case of physical security, the defence in depth principle shall be interpreted as defined by Nuclear Safety Requirements BSR-1.6.1-2012 “Physical Security of Nuclear Facilities, Nuclear Material And Nuclear Fuel Cycle Material” approved by Order No. 22.3-37 of the Head of State Nuclear Power Safety Inspectorate (“VATESI”) of 4 April 2012 “On the Approval of Nuclear Safety Requirements BSR-1.6.1-2012 “Physical Security of Nuclear Facilities, Nuclear Material And Nuclear Fuel Cycle Material”.

4. Prior to making decisions to modify the composition and (or) characteristics of structures, systems and components important to safety of the nuclear facility, the operational limits and conditions defined in the nuclear facility design and technical specification, the radiation control system and components, the physical security systems and components, to dismantle uncontaminated by radionuclides structures, systems and components that are not included in the decontamination and (or) dismantling work procedures or decommissioning projects (for example, to isolate structures, systems or components which do not perform safety functions) during the final shutdown and decommissioning of the nuclear facility, as well as prior to making decisions to amend the organisational structure when such changes could influence safety of the NF, a licence holder shall justify such decisions and them agree with VATESI in the manner laid down in these Requirements.”

5. The licence holder shall carry out the works indicated in decommissioning projects following the Requirements for Nuclear Facility Decommissioning approved by Order No. 22.3-39 of the Head of VATESI of 9 April 2009 “On the Approval of the Requirements for Nuclear Facility Decommissioning” (hereinafter –Requirements for NF decommissioning). All new decisions relating to carrying out of the NF decommissioning project, changes of the operational limits and conditions shall be done following the Requirements for NF decommissioning.

6. The licence holder is responsible for the implementation of a planned modification in the NF. Depending on the category and complexity of the NF modification, the process may consist of the following phases of modification implementation: planning, designing, procurement, installation, software installation, inspections and testing, personnel training, incorporation of changes into the existing documentation and (or) development of new documentation, commissioning of the modified structures, systems and components important to safety, preparation of documentation.

7. Modifications shall be carried out in order to improve the reliability of structures, systems and components important to safety, eliminate the failures detected during the operation or maintenance, if it is impossible or inappropriate to achieve this using the existing measures, reduce possibilities for mistakes, make structures, systems and components more convenient for maintenance, install structures, systems and components that are not provided for in the NF design, dismantle the structures, systems and components that are no longer necessary, prepare for the works that are carried out during the final shutdown of the NF and the decommissioning of the NF, adapt the organisational structure so that it would ensure the safety of the NF during a certain lifetime stage.

8. The basis for carrying out the modifications may be an operation experience analysis of a certain NF or other NFs, additionally performed nuclear safety analysis and justification (hereinafter – safety justification), results of a periodic safety analysis and justification and as well as investigations related to the safety assurance of the NF, requirements of State regulation and supervision institutions to improve safety of the NF after the amendment or issue of new nuclear safety requirements, rules and other legal acts, changes of NF lifetime stages and/or their separate phases (for example, transition from the operation to the final shutdown or decommissioning).

9. The Head of VATESI or the Head of Surveillance Division of VATESI makes a positive decision on coordination of the documents indicated in the items 10, 11, and 12 if the documents comply with the legal acts regulating the safety and construction of the NF, the requirements of nuclear safety normative technical documentation and actual characteristics.

10. The documents of modification implementation (the technical decision on Categories 1 and 2 modification indicated in item **Error! Reference source not found.**, the technical specification of Categories 1 and 2 modification indicated in item 50, the reports on realisation of each category modification indicated in items 30, 67, 68 and 72) shall be reviewed and evaluated by VATESI and, depending on to the authority with whom the documents of modification implementation shall be coordinated with according to the Requirements, the Head of VATESI or the Head of Surveillance Division of VATESI shall make a decision on coordination of these documents in accordance with the procedure and terms laid down by Paragraph 2 of the Article 34 of the Law on Nuclear Safety.

11. The safety justification documentation of modifications (the technical decision of modifications Categories 3 and 4 (see item 16.4.2) indicated in item 43, the safety justification documents of modification Category 4 (see item 16.4.1) indicated in items **Error! Reference source not found.** and 44, the safety justification documents of Categories 1 and 2 modification indicated in item 54, the safety justification documentation of Category 5 modification, indicated in item 69, the safety justification documents of each category modification during the construction and commissioning stages of an NF, indicated in the item 38, the safety justification documentation of a temporary modification of each category, indicated in item 28) shall be reviewed and evaluated by VATESI and, depending on to the authority with whom the safety justification documentation of modifications shall be coordinated with according to these Requirements, the Head of VATESI or

the Head of Surveillance Division of VATESI shall make a decision on coordination of the these documents in accordance with the procedure and terms laid down by Article 32 Paragraph 16 of the Law on Nuclear Safety. The modifications of the structures, systems and components of Category 4 (see item 16.4.3) that do not influence the safety of the NF shall not be coordinated with VATESI.

12. The safety justification documentation of temporary modifications shall be reviewed and evaluated by VATESI and, depending on whom the safety justification of temporary modifications must be coordinated with according to these Requirements, the Head of VATESI or the Head of Surveillance Division of VATESI shall make a decision on coordination of the these documents not later than 10 working days following the date of the receipt of all properly executed safety justification of temporary modifications.

13. Coordination of the safety justification documentation of modifications, indicated in item 11, shall be charged with the stamp duty indicated in the List of Specific Stamp Duty Rates approved by Resolution No. 1458 of the Government of the Republic of Lithuania of 15 December 2000, "On the Approval of the List of Specific Stamp Duty Rates and the Ruled for Stamp Duty Payment And Repayment". The stamp duty shall be paid after VATESI reviews and evaluates all the safety justification documentation, indicated in item 11, and notifies the licence holder in writing about the adopted decision on the approval possibility. The written notification must also indicate that the decision on the approval of safety justification documentation shall be sent as a separate letter after the stamp duty is paid in accordance with the procedure laid down by the legal acts. VATESI shall provide in writing the positive decision on the approval of the safety justification documentation for the licence holder after VATESI convinced that the stamp duty is paid.

CHAPTER II DEFINITIONS

14. The following definitions are used in these Requirements:

14.1. **Operational limits and conditions** – the set of rules that establish the operation modes and the limiting values of the operation parameters of the NF and its structures, systems and components as well as the lowest number of operational staff and their actions, and the following of which ensures safe operation of the NF;

14.2. **Testing of structures, systems or components of the NF** – verification of the operation of structures, systems or components of the NF in order to identify their compliance with the design and the requirements of nuclear safety normative technical documentation;

14.3. **Temporary modification of the NF (hereinafter – temporary modification)** – means the NF modification that is implemented for a limited period of time in order to extend the operation of structures, systems or components after identifying their nonconformity to the requirements. A temporary modification may also be the intermediate stage in making a permanent modification.

15. The other definitions used in these Requirements shall be understood as defined by other legal acts of the Republic of Lithuania that regulate the safety of an NF and the construction of an NF.

CHAPTER III MODIFICATION CATEGORIES

16. The following modification categories, including temporary modifications, are established:

16.1. Category 1 includes the changes of the composition and (or) characteristics of structures, systems and components important to safety of Safety Class 1 or of the related operational limits and conditions defined in the NF design and/or the operational technological regulation.

16.2. Category 2 includes:

16.2.1. Changes in composition and (or) characteristics of structures, systems and components important to safety of Safety Class 2 or in the related operational limits and conditions defined in the NF design and/or the operational technological regulation;

16.2.2. Changes in the composition and (or) characteristics of structures, systems and components important to safety of the Safety Class 3, including software, that require a change in the operational limits and conditions indicated in the NF design and/or the operational technological documentation.

16.3. Category 3 includes:

16.3.1. Changes in structures, systems and components important to safety of Safety Class 2, including software, that do not change the composition and (or) characteristics of the said structures, systems and components and that do not require a change in the operational limits and conditions indicated in the NF design and/or the operational technological regulation;

16.3.2. Changes in the composition and (or) characteristics of structures, systems and components important to safety of the Safety Class 3, including software, that do not require a change in the operational limits and conditions indicated in the NF design and (or) the operational technological documentation;

16.3.3. Modifications to the radiation control system and components;

16.3.4. Modifications to physical security systems and components.

16.4. Category 4 includes:

16.4.1. Modifications relating to the dismantling of uncontaminated by radionuclides structures, systems and components that are not included in the procedures documents of decontamination and/or dismantling works performed during the final shutdown of the NF or the decommissioning projects (hereinafter – dismantling modifications);

16.4.2. Modifications relating to the implementation of the preparatory activities of the decommissioning project during the shutdown and decommissioning stages of the NF (hereinafter – modifications of the preparatory activities);

16.4.3. Modifications to structures, systems and components that have no influence on the safety of the NF.

16.5. Category 5 includes modifications relating to changes in the organisational structure.

CHAPTER IV IMPLEMENTATION OF MODIFICATION

SECTION ONE REQUIREMENTS FOR A LICENCE HOLDER AND ITS MANAGEMENT SYSTEM DURING IMPLEMENTATION OF MODIFICATIONS

17. All stages of preparation, safety justification and implementation of modifications, including purchase, installation, inspections and testing of safety related structures, systems and components, products and services, personnel training, update of current design, safety justification (e.g. safety analysis reports), update of the operation and maintenance documentation and/or creation of new documentation, shall be carried out by the licence holder following the nuclear safety requirements and rules, other legal acts and in accordance with its approved management system documentation.

18. The licence holder must have and apply the management system documentation related to the preparation, safety justification and implementation of modifications. The licence holder must coordinate with VATESI the management system documentation and the planned changes of this documentation, providing their justification.

19. The licence holder must assign a competent employee responsible for the implementation of each modification.

20. The licence holder must assign persons responsible for the configuration of structures, systems and components important to safety. Implementation of the modifications of structures, systems and components important to safety is forbidden without a written agreement with these persons. The manner for written agreement must be established in the management system documentation of the licence holder.

21. The licence holder must perform an independent assessment for the results of analysis of the documents related to the planned modification, technical specifications of Categories 1 and 2 modifications, safety justification of Categories 1 and 2 modifications and safety justification of Category 5 modification, indicated in the item 69.2 of the Requirements.

22. The licence holder's management system documentation shall include a procedure by which the independent assessment shall be conducted. Competent persons not related to the modification implementation shall carry out the independent assessment. The requirements for the competence shall be established by the management system documentation of the licence holder, comply with the nature of the work and be not less demanding compared to the requirements set for the persons responsible for the modification implementation.

SECTION TWO

TEMPORARY MODIFICATIONS IMPLEMENTATION PROCEDURE

23. The licence holder must prepare and approve the management system document for temporary modifications indicating the following:

23.1. The personnel who are allowed to initiate, implement, perform, remove or approve the temporary modifications;

23.2. Requirements for the safety justification. The safety justification of the temporary modifications shall be carried out until the installation of the temporary modifications;

23.3. Requirements for the independent assessment of the safety justification of the temporary modifications;

23.4. Control of the management system documentation (such as repair, operation, and emergency operation instructions and procedures, etc.) related to temporary modifications in order to ensure the safety of the NF during the implementation of modifications.

23.5. Registration and marking of the temporary modification.

23.6. Information of the personnel on temporary modifications, control of the temporary modifications by the operators of the main control room.

23.7. Duration of temporary modifications and procedure for their extension or cancellation.

23.8. Checking of temporary modification cancellation and provision of information of the personnel on the cancellation of the temporary modification.

23.9. The rights and responsibilities of the persons implementing temporary modifications.

24. Following Section 3 of this Chapter, the licence holder shall analyse the influence of the planned temporary modifications on the safety of the NF and attribute them to a appropriate modification category. In the course of this analysis, it shall also be proven that the planned temporary modifications will comply with the operational limits and conditions and will not cause an incident or an accident. The analysis of the documents related to the temporary modifications must also evaluate any existing temporary modifications that influence structures, systems and components important to safety or the safety of the NF.

25. The licence holder must strive that the number of temporary modifications should be kept to a minimum and that their duration should be as short as possible.

26. The licence holder must periodically review the temporary modifications in order to evaluate their further necessity.

27. The licence holder must inform VATESI once a quarter on all valid, extended and cancelled temporary modifications of structures, systems and components important to safety and the temporary modifications that influence the safety of the NF.

28. Prior implementation of temporary modifications, the licence holder shall prepare the safety justification documentation of the temporary modification and agree it with the Head of VATESI or the Head of Surveillance Division of VATESI following the provisions of items 40 and 41.

29. After the review and assessment, the Head of VATESI or the Head of Surveillance Division of VATESI shall make a decision on coordination of the safety justification documentation of the temporary modification and shall submit it to the licence holder in a written form.

30. After implementation of a temporary modification, the licence holder must submit the report on realisation of temporary modification for information to the Head of VATESI or the Head of Surveillance Division of VATESI, depending on to the authority with whom the safety justification documentation of the temporary modification was coordinated.

SECTION THREE

ANALYSIS OF DOCUMENTATION RELATED TO THE PLANNED MODIFICATION

31. In order to estimate whether the planned modification will conform to the requirements of nuclear safety normative technical documentation and will not have negative influence on the safety of the NF, the licence holder must perform an analysis of the documentation related to the planned modification and document the results of such analysis. During the analysis, the licence holder shall evaluate the following:

31.1. Assurance of the effectiveness of physical safety barriers during normal operation, anticipated operational events and design basis accidents;

31.2. Assurance of possibility to control structures, systems and components important to safety, and assurance of implementation of reservation, independency and diversity principles;

31.3. The internal and external hazards;

31.4. Performance of the safety functions of structures, systems and components important to safety;

31.5. Assurance of the normal operational limits and conditions ;

31.6. protection against possible failures, a single failure and failures due to a common cause;

31.7. Protection against personnel errors (the human factor);

31.8. Chemical regime and fire safety of structures, systems and components important to safety;

31.9. Whether the planned modification will have no negative influence on the assurance of the radiation protection and whether it will conform to the ALARA principle;

31.10. Whether the planned modification will have no negative influence on the assurance of the physical security of nuclear material and/or nuclear fuel cycle material and/or the NF;

31.11. Whether the planned changes of the organisational structure will not influence the safety of the NF.

32. During the analysis of the documentation related to the planned modification, the influence of the modification on the safety of the NF shall be evaluated during the stages of installation and preparation for the operation, in performing the tests of the modified safety related structure, system and components as well as their commissioning, maintenance and operation. In the course of such analysis, a possible influence on other structures, systems and components important to safety shall be estimated and the experience of similar modifications in other NFs shall be evaluated.

33. It is assumed that the planned modification have the influence the safety of the NF if the planned modification has influence on at least one of the aspects named in item 31.

34. If NF design is changed during the construction, commissioning, operation, decommissioning stages of the NF or during the supervision of the closed radioactive waste repository, it is necessary to follow these Requirements, the provisions of the Law on Nuclear Energy of the Republic of Lithuania, the Law on Construction of the Republic of Lithuania and the

provisions of the Rules for Issuing Permissions to Construct, Reconstruct, capital Repair or Demolish NF Buildings, approved by Order No. 1165 of the Republic of Lithuania of 19 July 2002.

35. The analysis of the documentation related to the planned modification and the safety justification of the compliance with operational limits and conditions shall be based by conservative approach.

36. If, according to the performed analysis, the conclusion that the planned modification does not have negative influence on the safety of the NF cannot be made, the licence holder shall perform an additional safety analysis, including the probabilistic assessment. The scope and particularity of the probabilistic assessment shall depend on the potential influence of the planned modification of the safety of the NF.

37. In the course of the analysis of the documentation related to the planned modification, modification must be attributed to a category following the provisions of Chapter III, assessing the purpose, complexity of the modification, its influence on the safety of the NF as well as the functions performed by the structures, systems and components that are planned to be modified.

SECTION FOUR PROCEDURE FOR IMPLEMENTATION OF MODIFICATIONS DURING CONSTRUCTION AND COMMISSIONING STAGES OF THE NF

38. If modifications are planned to be carried out during the construction or commissioning stages of the NF, the licence holder, following Section Three of this Chapter, shall analyse the influence of the planned modification on the safety of the NF, categorise the modification and document such analysis. If planned modifications influence the safety of the NF, the licence holder shall prepare the safety justification and agree it with the Head of VATESI or the Head of Surveillance Division of VATESI following the provisions of items 40 and 41. The safety justification shall contain the following information:

38.1. The purpose and a short description of the planned modification, including the main reasons for the modification;

38.2. The category of the planned modification;

38.3. The conclusion by the licence holder that the planned modification meets the requirements of the nuclear safety normative technical documentation.

38.4. Safety justification and the documentation of the NF design changes prepared and approved by the licence holder;

38.5. A report of the independent assessment of the documentation of the NF design change and safety justification, describing the process and results of the independent assessment, if planned modification is attribute to Category 1, 2, 3, and 5.

39. The licence holder may carry out the planned modifications only after the respective approval is received.

SECTION FIVE PROCEDURE FOR IMPLEMENTATION OF MODIFICATIONS DURING OPERATION, DECOMMISSIONING OF THE NF AND SUPERVISION OF THE CLOSED RADIOACTIVE WASTE REPOSITORY

40. Modifications of Categories 1 and 2, Category 3 modifications of the radiation control system and components, physical security systems and components, including temporary modifications of these categories, may be carried out only after the modification safety justification documentation are coordinated with the Head of VATESI in the manner laid down in items 11, 12 and 13.

41. Category 3 modifications (except for modifications of the radiation control system and components as well as physical security systems and components) and Category 4 modifications of

dismantling and preparatory activities, including the temporary modifications of these categories, may be carried out only after the modification safety justification documentation are coordinated with the Head of Surveillance Division of VATESI in the manner laid down in items 11, 12 and 13.

42. Prior implementation of the planned modifications of any category, the licence holder, following the procedure established in the management system documentation of the licence holder, shall at first prepare a technical decision and coordinate it with the Head of VATESI or the Head of Surveillance Division of VATESI taking into consideration the provisions of items 40 and 41.

43. The technical decision and the related documents must include the following information:

43.1. The purpose and a short description of the planned modification, including the main stages of the modification implementation;

43.2. The category of the planned modification;

43.3. Analysis of the documentation related to the planned modification and the conclusion by the licence holder that the planned modification meets the nuclear safety requirements and will not have negative influence on the safety of the NF;

43.4. The independent assessment report on analysis results of the documents related to the planned modification, describing the process and results of the independent assessment;

43.5. Preliminary plans of implementation and quality assurance of the planned modification.

44. Before carrying out the planned dismantling modifications indicated in the item 16.4.1 of these Requirements, the licence holder must assess whether the structures, systems and components planned to be dismantled are attributed to dual-use nuclear goods. If it is determined that the structures, systems and components planned to be dismantled are attributed to dual-use nuclear goods, a list of such goods shall be submitted together with the technical decision indicated in the item 43. Otherwise, if it is determined that the structures, systems and components planned to be dismantled are not attributed to dual-use nuclear goods, a free-form declaration on absence of such goods shall be submitted together with the technical decision.

45. VATESI, during the course of the review of the technical decision, taking to the purpose and scope, complexity and impact of the planned modification or to the safety functions of planned modified structure, system and component, may require that the licence holder would attribute the planned modification to another category.

46. After the review and assessment of the technical decision, the Head of VATESI or the Head of Surveillance Division of VATESI following the provisions of items 40 and 41 shall be made a decision on agreement of the technical decision. .

47. After the coordination of the technical decision with the Head of VATESI, the licence holder must prepare a technical specification for Category 1 and 2 modifications, approve it and submit for coordination with the Head of VATESI. Together with the technical specification, the licence holder shall submit the report of its independent assessment describing the process and results of the independent assessment.

48. The licence holder shall prepare the technical specification pursuant to legal acts of the Republic of Lithuania and taking into account to the International Atomic Energy Agency recommendations.

49. Technical specification is the main document establishing the requirements and procedure according to which safety justification, preparation of the design documentation, commissioning, operation or decommissioning of the modified structures, systems, and components important to safety shall be carried out.

50. The requirements included into the technical specification shall comply with the level of the state of the art and technology. The following information shall be provided in the technical specification of the planned modification:

50.1. The objective and purpose of the planned modification;

50.2. The estimated influence of the planned modification on the safety of the NF;

50.3. The requirements for safety justification;

- 50.4. The management system documents following which the modification shall be carried out;
- 50.5. The requirements for personnel training programmes;
- 50.6. The requirements for diagnostic measures;
- 50.7. The requirements for the evaluation of internal and external hazards;
- 50.8. Description of the modified structures, systems and components, analysis of their compatibility with existing structures, systems and components;
- 50.9. Composition and substance of the implementation works of the planned modification (for preparation of the main stages and the technical requirements, development and testing as well as programme description of the commissioning of structures, systems and components important to safety);
- 50.10. The requirements for quality assurance;
- 50.11. The requirements for construction, installation, inspections and testing, including, but not limited to, acceptance criteria, equipment qualification, its protection as well as maintenance during operation;
- 50.12. The requirements for documentation (a list of document types and sets, the number of copies, preparation method for reporting documents, making of appropriate changes);
- 50.13. The list of the licence holder's normative technical documentation based on which the design documentation will be prepared (if the design documentation is prepared according to international standards or standards of other countries, a comparative analysis of such standards and of the legal acts of the Republic of Lithuania shall be performed demonstrating that the used requirements provided in the standards comply with the requirements set by the legal acts of the Republic of Lithuania or are stricter);
- 50.14. The requirements for independent assessment (including the evaluation of the influence on radiation protection, compliance with the ALARA principle, fire safety of structures, systems and components important to safety, water chemical regime and the environment);
- 50.15. The requirements for validation and verification of the software;
- 50.16. The qualification requirements for the organisations that participate in the process of modification implementation;
- 50.17. The requirements for the management of the radioactive waste that could be produced during the implementation of a modification.
51. After the review and assessment, the Head of VATESI shall make a decision on coordination of the technical specification.
52. Before submitting the safety justification of Category 1 and 2 modifications, which was prepared following the technical specification, to the Head of VATESI, the licence holder must ensure an independent assessment of such documents. During the course of the independent assessment, all possible effects of the planned modification on the operation and decommissioning of the NF as well as necessary changes of the internal management system documents shall be analysed.
53. The licence holder is responsible for preparation of the safety justification of Category 1 and 2 modifications and for all other stages of the modification implementation, including purchase of goods and services, installation, inspections and testing, personnel training, preparation of changes of appropriate documents and their involvement to operational and maintenance documentation. This shall be done according to the legal acts regulating the nuclear safety in and licence holder's management system documentation.
54. The licence holder shall submit the safety justification of Category 1 and 2 modifications, which is prepared according to the technical specification, for coordination to the Head of VATESI and, if necessary, considering the provisions of item 34 of these Requirements, to other State authority and supervision institutions. The safety justification of Category 1 and 2 modifications must include the following:
- 54.1. Design documentation and safety justification;

54.2. A report of the independent assessment describing the process and results of the independent assessment;

54.3. The personnel training programme.

55. The licence holder must install the modified structures, systems and components important to safety following the safety justification of modifications, the management system documentation, the requirements of normative technical documentation of nuclear safety and other legal acts regulating the safety of the NF.

56. During the course of the implementation of modifications, the licence holder must control the supply of safety related products as set forth in the Nuclear Safety Requirements BSR-1.4.1-2010 “Management System Requirements”.

57. If during the course of installation of the modified structures, systems and components important to safety there are violations that cause danger to personnel, residents, environment or normal operation of the structures, systems and components, the licence holder must immediately terminate the modification works and take measures to ensure the safety of the NF. The detected violations must be analysed, their causes identified and corrective measures implemented. The licence holder must immediately inform the Head of VATESI on the detected violations as well as on the prepared and implemented corrective measures.

58. The licence holder must test the installed modified structures, systems and components important to safety and provide documentation that these structures, systems and components meet the legal acts regulating the nuclear safety and the licence holder’s management system documentation .

59. Modified software related to Category 1, 2 and 3 modifications must be tested before putting it into operation.

60. Commissioning of the modified structures, systems and components is the last stage of the implementation of the modification. The modified structures, systems and components shall be prepared for operation following the commissioning programme and corresponding management system documentation regulating the modification process.

61. In the course of implementation of Category 1 and 2 modifications, the licence holder must prepare and approve a commissioning programme of the modified structures, systems and components important to safety. The objective of this programme – to confirm that the installed modified structures, systems and components comply with the safety justification of the modification and the requirements of the nuclear safety normative technical documentation. The programme has to establish the criteria that confirm of structures, systems and components important to safety conformity with the safety justification.

62. The licence holder must ensure that the equipment for measurements and testing is suitable and of appropriate quality, the sensitivity of the devices and the accuracy class will meet the requirements of the licence holder’s normative technical documentation and legal acts.

63. The licence holder shall analyse the testing results of structures, systems and components. According to the testing results, reporting documents on the state of the modified structures, systems and components important to safety shall be prepared. The licence holder shall approve the report on realisation of the modification. Compliance with the requirements of safety justification and the testing results confirming the compliance with the requirements shall be the basis to start operation of the modified structures, systems and components important to safety.

64. The modified software related to Category 1, 2 and 3 modifications may be used only after the performance of the whole software test in an indicative regime before it is put on-line. In order to confirm that the software conforms to the design and working conditions, it is recommended to run the software in parallel with the operating software for a certain time, which is determined in the safety justification of Category 1, 2 and 3 modifications, until the start of its operation, but could not activate executive equipment.

65. The licence holder must evaluate the influence of Category 1 and 2 modifications on the safety of the NF with a simulator and associated software. The changes of structures, systems and components important to safety shall be included into appropriate simulator process and management

system documents and into the technological process models of the simulator as well as the associated software and hardware.

66. The modification shall be considered implemented when all works related to the modification are completed, all tests of structures, systems and components are executed and acceptable results are obtained, all documentation changes related to the modification are made, all necessary records are approved, and personnel are trained.

67. After implementation of Category 1 and 2 modifications, a Category 3 modification of the radiation control system and components, a modification of physical security systems and components, the licence holder shall submit the report on realisation of the modification (testing reports, etc.) to the Head of VATESI. After the Head of VATESI coordinates the report on realisation of the modification, the licence holder may start industrial operation of the modified structures, systems and components important to safety.

68. After implementation of the Category 3 modification (except the modification of the radiation control system and components as well as the modification of physical security systems and components) and the Category 4 modification of dismantling and preparatory activities, the licence holder shall submit the report on realisation of the modification to the Head of Surveillance Division of VATESI. After the Head of Surveillance Division of VATESI coordinates the reporting documentation of the modification implementation, the licence holder may start industrial operation of the modified structures, systems and components important to safety, and in the case of the Category 4 modification – may proceed the activity if the dismantling works have been carried out properly or preparatory activities of the dismantling project have been implemented.

SECTION SIX CHANGES IN ORGANIZATIONAL STRUCTURE

69. In order to ensure the safety of the NF in every stage of its lifetime, the licence holder shall develop, approve, implement and change, if necessary, the organizational structure. If there is a necessity to make changes to the organizational structure that may influence the safety of the NF (perform a Category 5 modification) the licence holder, in order to justify such decision, shall prepare and submit to the Head of VATESI for coordination the following safety justification documentation:

69.1. A technical decision that shall include the information indicated in item 43;

69.2. A detailed description of the new organizational structure, its safety justification as well as the plan of the measures ensuring a fluent transition to the new organizational structure without negative influence on the safety of the NF;

69.3. Report of an independent assessment of the documentation indicated in item 69.2 describing the process and the results of the independent assessment.

70. Pursuant to Section 3 of this Chapter, the licence holder must analyse the influence of the planned changes of the organizational structure on the safety of the NF. The planned changes of the organizational structure may influence the safety of the NF if the planned changes of organizational structure have influence on subordination, communication, authorisations, responsibilities, functions, competence requirements of the personnel, whose job is related to the safety of the NF and assurance of nuclear materials' accounting and control, or the number of such personnel in the organisation.

71. Category 5 modifications that could influence the NF safety may be implemented only after the modification safety justification documentation is coordinated with the Head of VATESI in the manner prescribed in items 11 and 13.

72. After implementation of the Category 5 modification, the licence holder must submit the report on realisation of the modification to the Head of VATESI. The licence holder may proceed to the new organisational structure after the Head of VATESI coordinates the report on realisation of the modification and when the organisational structure changes have been implemented properly.

SECTION SEVEN
CHANGE OF THE LICENCE, PERMIT OR THEIR VALIDITY TERMS AFTER
MODIFICATIONS TO THE NF

73. If after the modifications there is a necessity to change the licence, permit or their validity terms, the licence holder shall follow activity licence and permit issuance rules in the nuclear power activities approved by Order No. 772 of the Government of the Republic of Lithuania of 20 June 2012 “On the Approval of Rules of Procedure for Issuing Licenses and Permits in the Field of Nuclear Power and the repeal of the Resolution No. 103 of the Government of the Republic of Lithuania, of 27 January 1998 “On the Approval of Regulations of Licensing of Nuclear Power Related Activities and its amendment”.

CHAPTER V
PERSONNEL TRAINING

74. „, the licence holder shall foresee the measures that ensure personnel training and/or the preparation to carry out certain works of the modification implementation following Nuclear Safety Requirements BSR-1.4.1-2010 “Management System Requirements”.

CHAPTER VI
MANAGEMENT OF DOCUMENTATION

75. The licence holder shall manage the documentation prepared in the course of the modification implementation following the Nuclear Safety Requirements BSR-1.4.1-2010 “The Management System Requirements”.

CHAPTER VII
FINAL PROVISIONS

76. The licence holder shall be responsible for the implementation of modifications as well as for their possible influence on NF safety. The responsibility of the licence holder shall not be reduced by the organisations providing services (design, supply, construction, coordination works, and repair, etc.), goods or carrying out works as well as of the activities by State authority and supervision institutions.

77. The licence holder may purchase goods, services and (or) works from other organisations to implement modifications; however, the licence holder remains responsible for the quality of the modification implementation and the safety of the NF.

78. The personnel of the licence holder and other organisations who participated during the modification implementation shall have competence, and their qualification must meet the requirements of the legal acts regulating the safety of the NF.

79. The licence holder and other organisations participating during the modification implementation shall be responsible for quality execution of works following the management system requirements and normative technical documentation of the licence holder.

80. A person who violates the Requirements shall be held liable in accordance with the procedure established by the legal acts of the Republic of Lithuania.
