
Licensing Documentation and Licensing Process for Dismantling and Decontamination projects in Lithuania

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ABSTRACT:

One of the main tasks of any decommissioning project is the licensing process which allows implementation of developed strategies in real NPP. The Lithuanian laws on nuclear energy and on radioactive waste management require that the dismantling and decontamination (D&D) projects shall be licensed by the Lithuanian State Nuclear Power Safety Inspectorate (VATESI) and other Authorities. Licensing is an inseparable part of the Lithuania regulatory and supervisory system for safety of nuclear facilities. The licensing process starts when NPP submits the first licensing document(s) to the Authorities. It is completed when all the licensing documents are approved by the Authorities and authorization to start D&D works is received by NPP.

Current paper will discuss one of the main steps in D&D projects implementation process – Licensing and will provide information about D&D licensing approach used in Lithuania.

1 INTRODUCTION

Authorizing specific activities and/or nuclear installations or parts of them, through a process of licensing, is one of the principal functions of a regulatory body. This licensing process may result in the granting of one or more licences during the lifetime of the nuclear installation, depending on national regulations and laws.

A licence is a legal document issued by the regulatory body granting authorization to create a nuclear installation and/or to perform specified activities such as decommissioning, or more specifically as it is discussed in this paper - to perform dismantling and decontamination of NPP equipment. The regulatory body is an authority or a system of authorities designated by the government as having legal authority for conducting the regulatory process, including issuing authorizations [1]. A licence is a product of an authorization process generally covering a particular stage of the lifetime of a nuclear installation. The term 'licensing process' is often used for nuclear installations; it includes all licensing and/or authorization processes for a nuclear installation and its activities. Authorization may take different forms, such as certification, granting of a permit, agreement, consent, regulatory approval or granting of another similar regulatory instrument, depending on the governmental and regulatory framework.

The licensing process should be understood by concerned parties and should be predictable (i.e. well-defined, clear, transparent and traceable). Usually the licensing process is established in a systemic way to facilitate efficient progression of regulatory activities. The steps in the licensing process are discrete and follow a logical order..

Paper discusses main steps of licensing process applied to authorised activities under separate dismantling and decontamination (D&D) projects at Ignalina NPP. The licensing process starts when NPP submits the first licensing document(s) to the Authorities. It is completed when all the licensing documents are approved by the Authorities and authorization to start D&D works is received by NPP.

2 OVERVIEW OF ACTIVITIES RELATED WITH LICENSING PROCESS OF D&D PROJECTS AT IGNALINA NPP

Ignalina Nuclear Power Plant (INPP) was an important part of Lithuania's Energy Sector since 1983 (Unit 1 - 1983, Unit 2 – 1987, design lifetime was projected out to 2013 and 2017 respectively). As a result of the political dialogue leading up to EU enlargement, Lithuania agreed to the early decommissioning of its reactors: Unit 1 shutdown – 2004 and Unit 2 shutdown – 2009. The INPP issued Preliminary Decommissioning Plan (PDP) in 2000. After that in 2001 the report "Selection of the Decommissioning Strategy for INPP" was issued. And in November 2002 the Decree of the Lithuanian Government consider previous comparison integrated in the global Lithuanian socio-economic and political frame select Immediate Dismantling option to prevent heavy long-term social, economical, financial and environmental consequences. According to the INPP Final Decommissioning Plan the INPP decommissioning process is split into several dismantling and decontamination (D&D) projects. Each of these D&D projects covers a particular field of activity for example initial primary circuit decontamination or dismantling of equipment using "room by room" or "system by system" approach. Paper discusses licensing process applied at Ignalina NPP for the first two D&D projects. Each of the discussed D&D projects includes development of a set of documentation needed for licensing process and implementation of D&D works. The licensing process used in Lithuania usually covers approval by the Authorities following documents – D&D Basic Design, D&D Safety Justification Report, D&D Environmental Impact Assessment Report, General Data Set on radioactive waste disposal plan and Design for Construction Works. The D&D documents such as Strategy, Detail Design including D&D working procedures, Operational and Maintenance Manual and Training programs may be inspected by the Authorities but not require approval from them.

At the time of the current projects development there was no precedent for the licensing (authorisation) process of the Decontamination and Dismantling activities in a nuclear facility in Lithuania (it was the first D&D projects in Lithuania) and the legal framework does not define this process clearly. All activities related to the decommissioning project licensing used in Lithuania presented on the Figure 1. As it is shown in the Figure 1 the Ignalina NPP decommissioning projects development was divided into three Sections. Section 1 mainly covers development of all required documents such as Basic Design or Safety Justification report and ect.. As well during Section 1, based on the proposed Strategy, the decision about type of Civil Design (i.e. Design for construction works) is taken. This have big influence further during licensing phase, because Integrated and Technical civil design requires much more detail evaluation by the authorised experts comparing to the Simplified design. As well Section 1 includes first discussion with the in depended expert team from NPP and with authorities about the content and further results of developed documentation. This is done trough so called Knowledge transfer sessions. Knowledge transfer sessions allow put together developers ideas and view on the final reports and reviewers expectations. This further leads to the speed up of review process.

Section 2 presents licensing phase of the developed D&D documentation. The licensing process applied in Lithuania involves different authorities and expert teams (See Table 1). As is shown on the Figure 1 not all documents developed during decommissioning project is subjected for the authority approval. Usually Detail Design documents which includes detailed working procedures and work schedule does not require approval from authority but can be submitted to them for information according to request. Similar situation is with the Safety Justification report supporting documents such as hazards identification reports. Hazards identification process is applied to identify possible hazards arising during implementation of different D&D Strategies. The results of this process are used for Strategies comparison and fault schedule development. Further in Safety Justification report identified faults or accidents are analyzed in more detail way. As it shown in the Figure 1, after receiving of all authorisations from the authorities the authorisation to start D&D works is issued. With this authorization starts Section 3 – i.e, D&D works implementation phase. Table 1 summarises lthe icensing actions and lists authorities involved in each step of licensing process.

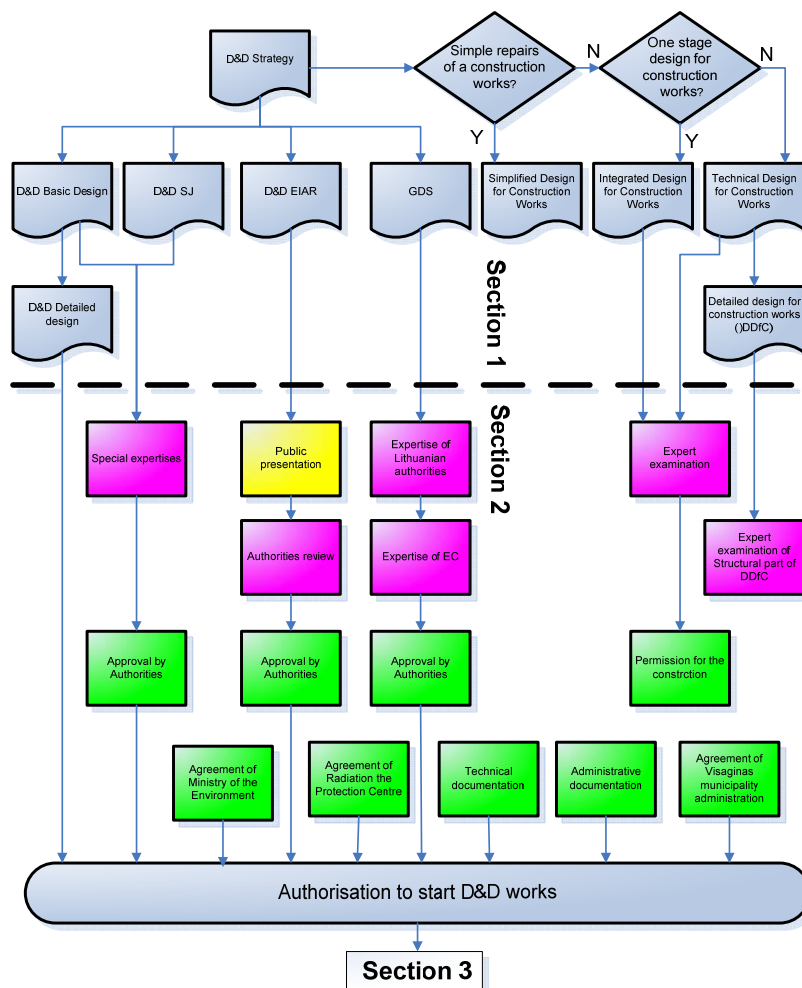


Figure 1. Schematic of activities related with licensing process of D&D

Table 1. Licensing actions and involved Authority

ID	Licensing action	Involved authority
1	EIA process	Ministry of Environment
1.1	EIA Report public presentation, registration and evaluation of motivated proposals	General public
1.2	Conclusions of the EIA subjects regarding the EIA Report and the possibilities to carry out the proposed economic activity	1. VATESI; 2. Ministry of Health; 3. Fire and rescue department; 4. Utena region environmental protection department; 5. Cultural Heritage department; 6. Utena region administration; 7. Visaginas municipal administration;
1.3	Justified decision if the proposed economic activity by virtue of its nature and environmental impacts may be carried out in the chosen site	Responsible institution (Ministry of Environment)
1.4	Public information about decision of Responsible institution	General public
2	Expertise of the D&D Basic Design and D&D SJ	1. VATESI; 2. Ministry of Environment; 3. Ministry of Health (RPC); 4. Visaginas municipal administration.
3	Expertise of the Design for construction works, when needed	Ministry of Environment
3.1	Special expertise: Architectural structural;	Ministry of Environment

ID	Licensing action	Involved authority
3.2	General expertise	Ministry of Environment
3.3	Expertise of Structural part of Detailed design	Certified expertise company
4	Permission for construction (civil works), when needed	Government or an institution authorised by it
4.1	Permission for construction	Government or an institution authorised by it
5	General data set on Radioactive waste disposal (Article 37 of Euratom Treaty)	VATESI
5.1	Co-ordination of General data set on Radioactive waste disposal	1. Ministry of Environment; 2. VATESI; 3. Radiation Protection Centre; 4. Fire and Rescue Department of Ministry of the Interior.
5.2	GDS submission to the European Commission	VATESI
5.3	Examination of General data set on Radioactive waste disposal	European Commission
6	Authorisation to start D&D works	VATESI, Ministry of the Environment or an institution authorised by it, Radiation Protection Centre, Visaginas municipality

The following sections of this paper summarise the main requirements of Lithuanian legislation for all the main steps of the applied licensing process.

3 LICENSING PROCESS OF ENVIRONMENTAL IMPACT ASSESSMENT REPORT

The licensing process of the Environmental Impact Assessment Report is regulated in Lithuania by the Lithuanian Law on the EIA [2] and Regulation [3]. In the Law [2] the following participants of the EIA process are defined:

- 1) Responsible institution: Ministry of Environment or other authorized by government institution;
- 2) Subjects of environmental impact assessment of proposed economic activity: state institutions responsible for public health, fire safety, protection of cultural heritage, institutions of district and municipality;
- 3) Undertaker (client) of proposed economic activities;
- 4) Developer of documentation on environmental impact assessment;
- 5) Public.

The subjects of the environmental impact assessment can include other state institutions which are not specified in item 2 above if they are invited to participate by the responsible institution or if these institutions are interested in participating in the process of environmental impact assessment.

EIAR licensing process consists of the several steps such as Public presentation, Experts review, Decision of the Responsible Institution and Public Information about Decision. Further are discussed main aspects for each of the main steps of EIAR licensing process.

3.1 Environmental Impact Assessment Report Public Presentation

EIAR public presentation is regulated by Regulation [3]. In accordance with this Regulation, within 10 working days prior to the public presentation of EIA report all information concerning the proposed activity and contractors is provided in the national and local press, on the Ignalina NPP and EBRD web-sites, as well on billboards in the Visaginas municipality.

This step gives an opportunity to the public to familiarize themselves with the report and provide suggestions to the developers within 10 working days prior to the planned meeting with the public. Additionally the public has another possibility to provide their feed back or suggestions on EIAR during 10 working days after the EIA public presentation. All suggestions received prior to public presentation, during the presentation and after are assessed and written answers to questions raised by interested members of the public, explaining how their suggestions are implemented, is prepared.

3.2 Conclusion of the EIA subjects

Second step after public presentation is review of EIA report by state institutions responsible for public health, fire safety, protection of cultural heritage, institutions of district and municipality. Based on the Law [2], all above mention institutions have 20 working days to provide the reasoned conclusions concerning the EIA report. After that the Ignalina NPP or contractor experts supplement or correct the report as required and resubmit it to the above mentioned institutions for the second review round which usually take 10 working days. After that period the involved institutions issue reasoned conclusion. After collecting of the public suggestions and conclusion from involved institution the EIA report is issued to the Ministry of Environment.

3.3 Decision of the Ministry of Environment

When the conclusions from the EIA subjects are received EIA documentation is submitted to responsible institution (the Ministry of Environment). The responsible institution has the right to demand a repeat of the organization of the EIAR public presentation if this report is changed, corrected or supplemented in essence after the first public presentation ([2]).

The responsible institution, after receipt of the EIA report immediately organizes an announcement on the web page of the Ministry of Environment concerning the proposed activity. Interested members of the public have the right to submit in writing reasoned questions concerning the EIA to the responsible institution and to the subjects of the EIA ([3]).

The responsible institution after the analysis of the report, the conclusions of the EIA subjects about the report and the possibility of proposed economic activity as well as the assessment of suggestions from interested members of the public and the reasoned requests in written form from interested members of the public within 25 working days upon receiving the report perform following actions:

- 1) submit reasoned requirements to correct or supplement the report, or
- 2) accept the reasoned decision whether the proposed economic activity is allowable in the selected area taking into account corresponding laws and other legal acts, policy and (or) environmental impact ([2]).

3.4 Public Information about Decision of Responsible institution

The responsible institution within 10 working days from the acceptance of decision about the acceptability of the proposed economic activity, announce that information on its own web page and on the web page of the Ministry of Environment ([3]).

Ignalina NPP after receipt of the decision from the responsible institution concerning the acceptability of the proposed economic activity in the selected area, within 10 working days provide information to the public through the national and local press, as well as on billboards in the municipality of proposed economic activity, about the decision concerning the acceptability of the proposed economic activity in the selected area ([3]). At that point the complex review process of EIA report is finished.

4 EXPERTISE OF THE D&D BASIC DESIGN AND D&D SAFETY JUSTIFICATION

In the Law on Nuclear Energy [4] it is defined that without a licence issued by the Government of the Republic of Lithuania in a prescribed manner, it shall be prohibited (among others):

- 1) To design, construct and reconstruct nuclear facilities, installations and equipment;
- 2) To operate nuclear facilities;
- 3) To store nuclear and radioactive materials and their waste;
- 4) To **retire** a nuclear facility from service;
- 5) To bury nuclear and radioactive materials and their waste;

Licences for the activities listed above shall be issued by VATESI after co-ordination with the Ministry of the Environment (or an institution authorised by it), the Radiation Protection Centre and the director of administration of the municipality whose territory or its part is within the sanitary protection zone of a nuclear facility [4].

In Lithuania it was agreed by representatives of Ignalina NPP, VATESI, the Radiation Protection Centre, the Ministry of the Environment, the Ministry of Economy, and the Institution of State supervision of requirements that the D&D Basic Design (or D&D Technological project) and D&D Safety Justification developed for D&D works shall be licensed according to requirements of Law on Nuclear Energy [4].

For the licensing the D&D Basic Design and D&D Safety Justification documents are issued together as documents which support each other. Usually Basic Design document present technology proposed for the indicated D&D activities and Safety Justification report justify that proposed technologies can be applied in safe way. Due to that one of main part for the review is fault schedule and accident analysis sections of Safety Justification report. It shall be justified for the reviewers that all worst emergency cases raised by the proposal D&D technology are identified and possible consequences are analysed. Analysis of the possible hazards, raised by the proposed D&D technology, starts before Safety Justification report development. Already during development of the Strategy report first analysis of the possible hazards is applied. The Hazards and Operability Assessment (HAZOP) procedure was applied for this propose in the Ignalina NPP D&D projects (Figure 2). At that stage main purpose of such analysis is mostly related to comparisons off several D&D technologies between each other. After that, during development of D&D Basic design, we provide second hazards analysis session to identify main hazards for more deep analysis during development of Safety justification Report. The radiation protection issues such as accumulated dose is always considered as one of the main factor describing safe implementation of D&D works.

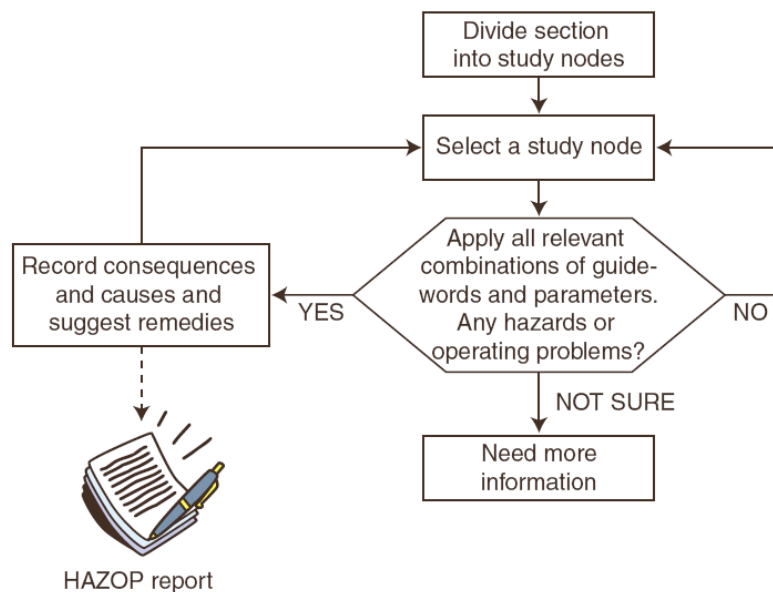


Figure 2. Illustration of the Hazards and Operability Assessment (HAZOP) procedure

It is well known that D&D works, especially with the clean or very low contaminated equipment, mostly generate industrial hazards such as heavy load drops or workers injuries. Usually any dismantling activity covers a lot of different operations related to cutting and lifting of different pieces of equipment. Dismantled equipment parts are lifted by a crane to transfer to storage or decontamination area. The consequences of an unlikely drop event shall be evaluated in the D&D safety justification report. In the case of Ignalina NPP B9-0 project (devoted to the D&D of Emergency Core Cooling System (ECCS) tanks and connected systems in Building 117/1) as an bounding heavy load drop event the drop of one-piece ring of ECCS vessel was investigated in details. In the structural integrity analysis of this event the impact load was calculated from conservative assumption that one-piece ring of ECCS vessel (mass of dropped part 3200 kg (weight of removed part of vessel, which height is 0.86 m)) is dropped from height 14 m. The simplified model (Figure 3) of drop was created using ABAQUS/Explicit. Symmetry conditions are used and only a quarter of ring was modeled. Deformable ring of ECCS hits rigid surface. Initial velocity vector of ring is assumed to be perpendicular to the rigid surface. The friction between ring and rigid surface is assumed to be small. The impact load is obtained as reaction force of rigid surface. Impact force obtained from calculation is assumed $5E+06$ N. The maximum stresses in the supporting columns of the slab at level 0.00 m are located near the impacted area of the slab with a maximum value of 14 MPa. The maximum stresses in I-beam are located near impacted area with maximum value of 85 MPa. The received stresses are below that yield stresses of I-beam steel which is 353 MPa.

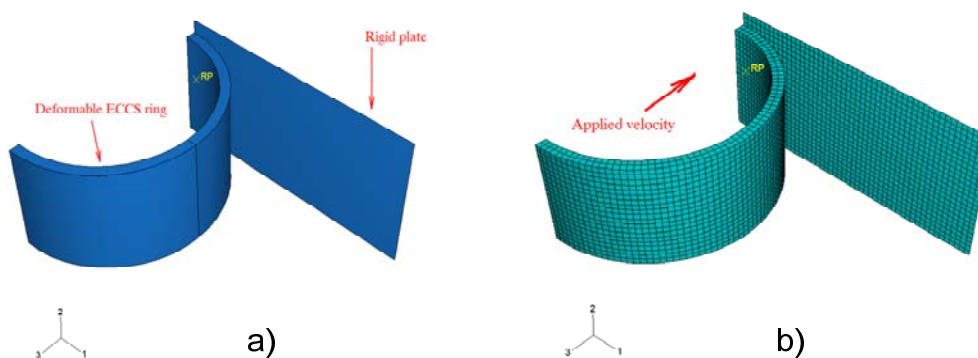


Figure 3. Simplified model for drop load calculation a) Finite element model parts b) Meshed finite element model and applied velocity

The analysis results shows that the impacted reinforced concrete slab at bottom level of the ECCS building will experience scabbing of concrete in impact place. Damaged area of slab at bottom level is local and the structural integrity of the slab will be maintained in the case of drop of a cut ECCS pressure vessel ring. Such damage is acceptable because the impacted slab does not perform function of confinement; therefore the detailed analysis of slab damage level is not needed. The analysis results show that the structural integrity of the building and supporting columns of building structures will be maintained, it will not collapse and it will not influence to the performance of dismantling and decontamination activities in the building.

Besides structural integrity assessment, the radiological consequences of the drop of one-piece ring of ECCS vessel were evaluated. The results of demonstrated that radiological doses are well below allowed limits in the case of this event.

Another example is investigation of the mishandling with loads during transportation of one-piece ring of ECCS vessel. The consequences of mishandling of 3.2 t load, velocity 0.4m/s in directions X and Y were evaluated.

For the current analysis finite elements model (see Figure 4) was created. The part of the ECCS vessel support was included in the model for structural integrity analysis of the structures in case of dropping or mishandling heavy loads.

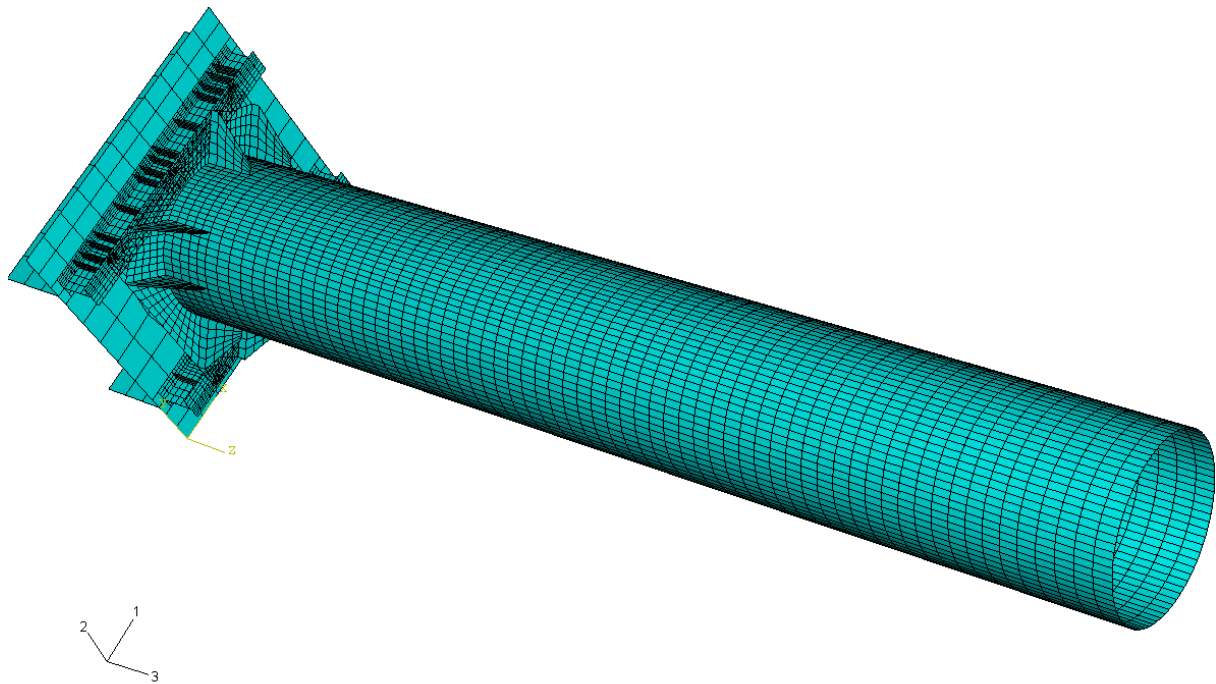


Figure 4. The model for finite element analysis of the ECCS vessel support

In the model applied loads are:

- Dead weight of modelled parts;
- Concentrated forces of mishandling of 3.2t load, velocity 0.4m/s in direction X.
- Concentrated forces of mishandling of 3.2t load, velocity 0.4m/s in direction Y.

The results (see Figure 5 and Figure 6) of the above presented analysis shows that maximum stresses are located in the boundary conditions apply area with a maximum value of 7 MPa (during mishandling of load in direction X) or 7,9 MPa (during mishandling of load in direction Y). The static compressive strength limit for concrete is 17 MPa and for tension is 1.5 MPa.

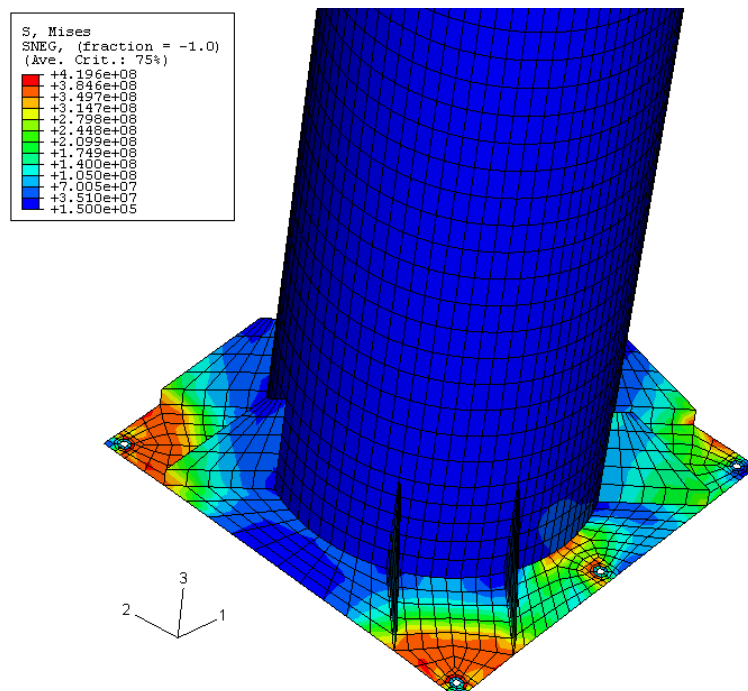


Figure 5. The von Mises stress (Pa) distribution in the model

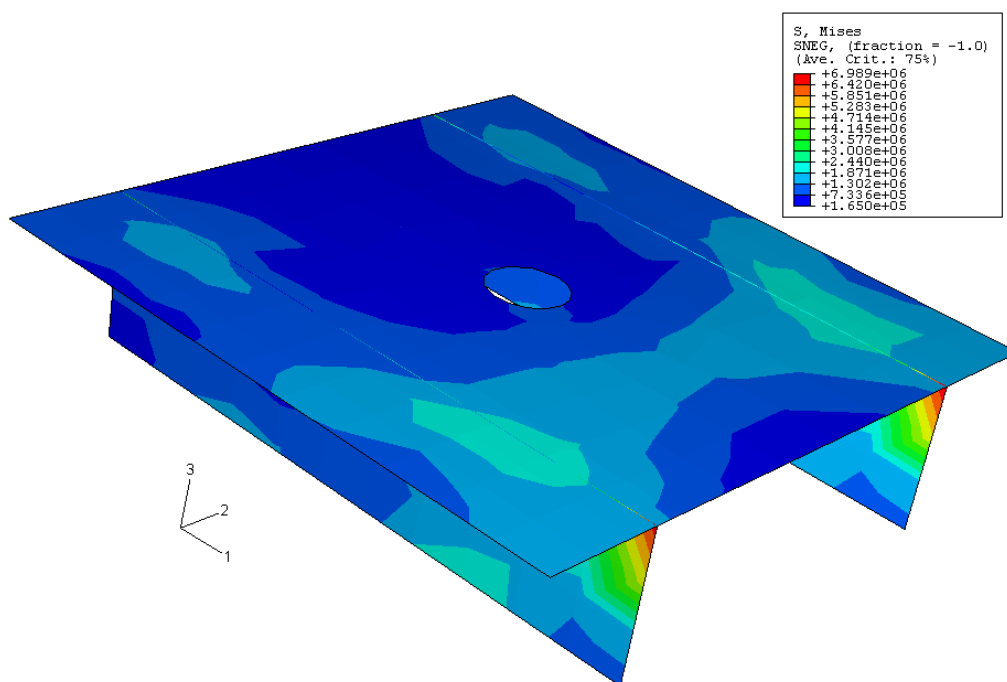


Figure 6. The von Mises stress (Pa) distribution in the slab at bottom level of ECCS building

The compressive strength limit of concrete wasn't reached in girder and slab. According to these results it is possible to conclude that the impacted reinforced concrete girder at bottom level of ECCS building experience cracking of concrete in tension layers, but the structural integrity of these slab and girder will be maintained during mishandling of load in both directions - X and Y. All concrete structures are modelled without reinforcing rebar. According this assumption this analysis is conservative. The maximum stresses are located in inner webbing and flanges of I-beam near vessel support plate contact with maximum value of 395 MPa.

As it was already mentioned together with the industrial hazards all radiation protection issues raised during D&D work implementation were analysed in the Safety Justification Report. All work implemented during D&D shall comply with ALARA (As Low As Reasonably Achievable) objectives.

The performed analysis demonstrated that all individual and collective doses are below established radiation safety limit for individual dose – 16 mSv per year and 20 mSv per year (taking into account that effective dose limit for workers is 100 mSv in a consecutive 5 year period). This shows that developed technology fully ensure safe implementation of D&D activities in Ignalina NPP for the presented D&D projects. Additionally it need to be mentioned that presented projects was successfully implemented at Ignalina NPP.

5 EXPERTISE OF DESIGN FOR CONSTRUCTION WORKS

In accordance with the Law on Construction [5] Expert examination of design documentation of a construction works of exceptional significance (nuclear facilities belong to this category) are mandatory. However, same Law [5] clarifies that Expert examination of design documentation of the construction works shall be carried out in the cases of construction of new construction works, reconstruction of construction works and major repairs.

Therefore in the case of simple repairs of a construction works, Expert examination of design documentation of the construction works is not required. Simple repairs in Law on Construction [5] are defined as repairs of a construction works without changing and reinforcing of load-bearing structures of the construction. Therefore, the Expert examination of design documentation of the construction works is not needed if implementation of the

proposed D&D Strategy does not require the changing and reinforcing of load-bearing structures of the construction works.

After the D&D Strategy development, when the scope and implications of the design for construction works are defined, the decision should be taken on the following:

- the composition of Design for Construction (Basic and Detail Designs, or the Integrated Design, or the Simplified Design for Construction (Civil) Works);
- the necessity of Permission for the construction;
- the necessity of Expert examination.

In order to reduce the overall duration of project implementation and to optimize the documentation development and licensing process, the Ignalina NPP proposes to apply the simplified design approach in the case of simple construction works and/or simple repairs (see **Klaida! Nerastas nuorodos šaltinis.**). This usually allows considerable reduce the overall duration of the project. It would be unreasonable in the case of simple repairs (i.e. for activities without changing load-bearing structures, etc.) to apply the full sequence of licensing activities as for construction of a new nuclear facility.

If considerable modifications of building constructions is required (i.e. not satisfying the definition of simple repairs), the expert evaluation of Design for Construction is required as well. In accordance with Law on Construction [5], the types of expert examination of design documentation of a construction works, and the procedure for carrying out it shall be laid down by an institution authorised by the Government [5]. The Law on Nuclear Energy specifies that Designs for the construction or reconstruction, upgrading, expansion, dismantling and decommissioning of nuclear facilities is subject to a comprehensive state expert evaluation. The expert evaluation is organised by the Ministry of the Environment upon receiving the design submitted by the client. The same requirements are included also in STR 1.06.03:2002 [6].

The comprehensive state expert evaluation of nuclear energy objects includes the specialized and general expert evaluations.

The specialized expert evaluations are organized (choosing the contractor of expert evaluation), by the several institutions [6]. The institutions listed below are only those special expertises from [6] which are relevant for this D&D project:

- Technological and Nuclear Safety – Ministry of Economy and State Nuclear Power Safety Inspectorate (VATESI);
- Environmental safety – Ministry of the Environment;
- Health safety (hygiene) – Ministry of Health;
- Architectural structural - Ministry of the Environment.

Taking into account that technological, nuclear safety and health aspects (radiation protection) are addressed in the D&D Basic design (i.e. Technological project), the remaining architectural structural expertise is organized by the Ministry of the Environment.

In all cases when specialized expert evaluation of designs is carried out, it is performed before the general expert evaluation and its conclusions presented to the Ignalina NPP together with the design documentation [6]. The results of design expert evaluation are introduced in the act of expert evaluation.

Additionally, in accordance with [6], the expertise of the structural part of detailed design is obligatory in the case of a building of exceptional significance (nuclear facilities belong to this category in accordance with STR 1.01.06:2002 [7]).

6 PERMISSIONS FOR CONSTRUCTION (CIVIL WORKS)

A permit for the construction of a construction works is not required in the following cases (see [5] and [8]):

- Construction of simple construction works. The list of simple construction works shall be approved by an institution authorised by the Government;

- Simple repairs of a construction works (definition of simple repairs presented above in current paper).

7 GENERAL DATA SET ON RADIOACTIVE WASTE DISPOSAL

Article 37 of the Euratom Treaty requires that each Member State is to provide the Commission with the General data set relating to any plan for the disposal of radioactive waste in whatever form as will make it possible to determine whether the implementation of such plan is liable to result in the radioactive contamination of the water, soil or airspace of another Member State. The Commission is to deliver its opinion within six months, after consulting the group of experts.

In accordance with [9] the General data set on radioactive waste disposal shall be agreed with the Ministry of the Environment, the Fire and Rescue Department under the Ministry of the Interior of the Republic of Lithuania, the Radiation Protection Centre and the State Nuclear Power Safety Inspectorate. These institutions (Authorities) within 25 working days of receiving the data set should analyze the information according their competence to coordinate and present their remarks.

After receiving comments from the Authorities, the NPP within 25 working days (if State Nuclear Power Safety Inspectorate does not define any other term) consider all comments and present the updated General data set to the Authorities for reassessment. The Authorities, within 25 working days of receiving the updated data set analyze and, according their competence, approve it or present comments on it [9].

Upon receiving the approved General data set and approval letters from the Authorities, the NPP submit this information to the State Nuclear Power Safety Inspectorate [9].

The State Nuclear Power Safety Inspectorate submits the approved General data set to the European Commission. This shall be presented to the Commission within 6 months prior to the issue of licence for performance of activity, the beginning of equipment operation (when a licence is not necessary) or the beginning of dismantling of the equipment [9].

The Commission recommends that the 'general data' be submitted to the Commission whenever possible within one year but not less than six months before any authorisation for the disposal of radioactive waste is granted by competent authorities or before start-up of those operations for which no disposal authorisation is foreseen [10]. Taking into account that the General data sheet usually is available in English and that this activity is on the critical path, a six month period is planned for the Commission's review.

8 AUTHORISATION TO START D&D WORKS

In accordance with the Final Decommissioning Plan [11], D&D activities starts under the license for Unit 1 extended operation. The authorization for D&D activities will be issued by VATESI after co-ordination with the Ministry of the Environment or an institution authorised by it, the Radiation Protection Centre and the director of Visaginas municipality administration licensing regulations [12].

The application for the authorization to start D&D works will be provided to VATESI when all D&D documentation is ready and approved by the authorities as identified in the previous sections. Usually together with the application for the authorization to start D&D works the following documents are provided to the Authorities:

- conclusions of expert evaluation of D& D Basic design and SJR,
- conclusions of EIA process,
- conclusions of GDS process,
- agreement of the Ministry of the Environment for D&D works authorization,
- agreement of the Radiation Protection Centre for D&D works authorization,
- agreement of Visaginas municipality administration for D&D works authorisation,
- other technical and administrative documents as indicated [12].

The documentation provided along with application for the authorization will be agreed with VATESI. The period of this process in Lithuania is not established by the regulations, but based on the own practice it is recommended to take up 20 days in the Project Overall Schedule for planning purposes. As it was mentioned already the agreement of the detailed design documentation with the Authorities is not required (it may be inspected by VATESI). If Detail design documentation is developed by the Contractor of Ignalina NPP then its agreement with the Ignalina NPP is one of prerequisites to start D&D works and therefore is reflected in the schematic presented in **Klaida! Nerastas nuorodos šaltinis..**

9 CONCLUSIONS

Analysis of decommissioning projects licensing shows that this is complex process which requires participation of many different authorities and experts. Due to that, to avoid influence of the licensing process to the overall project schedule, the detail planning of overall licensing process in the beginning of any project is necessary.

Lithuanian experience shows that early involvement of the authorities and review experts in the document development process, using Knowledge transfer sessions and different formal and informal discussion, allow speeding up further review process and leads to low amount of possible comments or suggestions on authorised documentation.

The key document considered in the licensing process is the D&D Safety Justification Report. It is extremely important to apply a systematic approach in the safety analysis – starting from hazards identification in the early phase of project up to detailed consequences analysis of all bounding initiating events, including heavy load drop events, operator errors, equipment failures, etc. For some of initiating events (heavy load drop) both – structural integrity and radiological consequences analysis is required in order to demonstrate the compliance with acceptance criteria.

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