Nuclear Reactor Regulation
Rantamäki Karin

December 17, 2020

Reactor Safety Committee Meeting 2/2020

Date October 8, 2020, 10:00-15:34

Place Skype

Participant	Timo Vanttola	Chair
	Sylvie Cadet-Mercier	Member
	Lennart Carlsson	Member
	Richard Donderer	Member
	Ralph Schulz	Member
	Kirsi Alm-Lytz	Permanent expert member
	Karin Rantamäki	Secretary
	Petteri Tiippana	STUK
	Jussi Heinonen	STUK (items 3-5)
	Tomi Routamo	STUK
	Tapani Virolainen	STUK
	Nina Lahtinen	STUK
	Johanna Marttila	STUK (items 4-8)
	Minna Tuomainen	STUK
	Lasse Reiman	NSAC
Absent	Zdeněk Tipek	Member

1 Opening and adoption of agenda

Timo Vanttola opened the meeting at 10:03 and welcomed everyone. A short round-table introduction was performed.

The agenda was approved and can be found in Appendix 1

2 Approval of the minutes of the previous RSC meeting (1/2020)

The minutes of the previous meeting were approved.

3 Brief update of current topics in the Finnish nuclear field

Kirsi Alm-Lytz gave a brief update on the current topics in the nuclear field. She started with the large oversight projects at the nuclear facilities. On the regulations side STUK is currently finalising the update of the YVL-guides and has started the implementation phase. She continued with discussing issues related to STUK's strategy.

She finished with discussing the Covid-19 pandemic and its effect on the nuclear safety in Finland. The NPPs as well as STUK have taken various actions to minimise the risk of spreading of the virus. STUK has put special attention on organisational factors and developed guidance for the inspectors.

The presentation slides can be found in Appendix 2.

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4 Follow-up on Design maturity in the construction licence phase

Tomi Routamo gave a follow-up report on the topic of the previous meeting. STUK has a lot of information for future processing of the topic. He started with the areas STUK considers essential during the review of the construction license. These shall be carried throughout the evaluation. He then discussed the approach based on analyses and STUK's expectations for the analyses. He used two examples to demonstrate in more detail what information STUK thinks is needed to support the analyses.

This was a general overview of the approach. It will be further developed in the future.

The presentation slides can be found in Appendix 3.

5 Renewal of STUK's Regulations and YVL Guides

Minna Tuomainen presented the preliminary study and motivation for the renewal of the nuclear safety regulations and guides. She started with the reasons that would support the renewal. Such issues are e.g. STUK's strategy, the renewal of the Nuclear Energy Act and Nuclear Energy Decree by MEE and the emerging new technologies. She also gave examples of weak points in the current regulations and guides. For example, the detailed binding requirements may obscure the licensees' responsibility and prevent the searching for the optimal solution as they may consider alternative solutions to cause a lot of work with an uncertain result.

She then described briefly the current legislation structure. The top level is the Nuclear Energy Act with fundamental principles like "nuclear energy utilisation shall be safe". The next level is the Nuclear Energy Decree followed by the STUK regulations. The STUK regulations are mandatory requirements for safety, emergency preparedness, nuclear security, nuclear waste management, and safety of mining and milling. The lowest level is the YVL guides which also are binding but preserve the licensee's right to propose an alternative solution.

Minna Tuomainen then moved to the renewal proposal. She first discussed the preparatory work carried out to help the decision making on whether a renewal is necessary. This phase contained various options for the depth of the renewal. The current proposal is that the binding requirements would be presented in the Nuclear Energy Act, the Nuclear Energy Decree and STUK's regulations. The binding requirements would be goal setting. The status of YVL guides would change and they would no longer be binding to the licensees. The role and content of the YVL-guides is still open and under discussion. She used as an example YVL-guide requirements related to the competence of the personnel.

During the preliminary work on the renewal, some concerns and questions have risen. She discussed these questions in detail. The major concern is how to write the requirements in such a way that there is no need for deviation. Another widely risen question relates to the resources needed for the renewal.

She then continued with the next steps in the project. STUK has identified case studies that might be useful. Discussions and studies are planned with the identified

parties including the licensees. Discussions are also needed with the ministry on how to carry out the renewal of the various levels in a coordinated and synchronised way.

The presentation slides can be found in Appendix 4.

Sylvie Cadet-Mercier presented the French view. The French regulation was revised in 2006. She described this revised system as well as some additions made to it after its implementation e.g.an order was created in 2012. She continued with the experience ASN had on the process. The renewal process took more time than expected. Another lesson learnt is that the stakeholders should be involved in the very early phase of the process. The experience in France was that the renewal needs experienced staff that is dedicated to the work for a given period. She also discussed the French approach for coordination and harmonisation of the process as well as the appropriation of the new system. She then presented her comments and questions on STUK's presentation/plans. She also gave some advice concerning the content of the YVL guides. One suggestion was to pilot the new guides with STUK's own inspections.

The presentation slides can be found in Appendix 5.

Lennart Carlsson presented his opinions on STUK's plans. In his opinion it is very good and important to put a lot of time and effort in the preparatory work phase. It needs a lot of mind setting and work to adapt to the new system and to reduce subjectivity. However, subjectivity cannot be fully removed. The lawyers have an important role in this and, in his opinion, they were the critical path in Sweden. For every formulation the lawyers had to see that it is written in an acceptable way. Also in Sweden, the renewal has taken a lot of time and still it is not adaptable for, e.g. SMRs. The dialog with the utilities is very important. A lot of work is needed within STUK in order to train both your own people and the utilities, as well as to reduce internal frustration. The supporting documents need to stay supporting and not become binding. This is especially important if/when the YVL- guides are kept but their status is changed. He mentioned that the Swedish utilities have commented that the Canadians did very well in their renewal.

The presentation slides can be found in Appendix 6.

Richard Donderer presented his views. Germany has also had a renewal, and it also took quite a long time mainly due to long hearing processes. He recommended to have a glossary that covers all the terms used and not clearly stated elsewhere. It is very important and useful to document what was done and what not, to understand where various solutions originate from and also what happened to the old ones.

He too agreed that it is good to do the renewal. In Germany, the opinion of the renewal has changed from "do not change a well working system" to the new requirements bringing benefits. Germany kept the lower level safety standards put down as KTA rules mostly untouched. He would not recommend giving up guides with accepted technical solutions. Undermining acceptable solutions is not good.

Subjectivity cannot be removed completely but it should be minimised. He summarised his presentation by giving some recommendation and good practices

from the German renewal. A good and well working project structure with subgroups, steering committees etc. is essential for a successful work.

The presentation slides can be found in Appendix 7.

STUK noted, that it is already sharing information on acceptable solution between both STUKs inspectors and the various licensees. Also, the use of industrial standards is advanced in Finland. The KTA standards system in Germany is regarded as a very good one and considered as a good example. However, the meeting discussed the status of such (similar ones exist also elsewhere) standards and stated that they are good but not necessary enough.

Ralph Schulz presented his views. STUKs considerations are clear and complete. He stated three benefits of the renewal:

- a good opportunity to improve the regulations
- Goal setting instead of detailed requirements appear to be appropriate and will probably strengthen the licensee's responsibility
- separation of the regulatory requirements and the description of STUK's oversight process.

He also discussed the risks or unintended consequences of the renewal. These included e.g. that the licensees still follow the non-binding YVL guides, the subjectivity issue and the resource issue at STUK. He also noted that harmonisation with prescriptive WENRA SRLs and IAEA requirements may be difficult.

The presentation slides can be found in Appendix 8.

STUK commented on the resources. STUK sees a problem in that it has developed for itself so much work to be done that it doesn't have the time for more important things. This is an important reason also behind the renewal considerations.

STUK's summary: Minna Tuomainen presented a summary of what STUK had heard and learned from this meeting. The renewal was regarded positively. However, RSC had noted that it will be a large cultural change which might be difficult to accept by the personnel. She listed some advice STUK received from the RSC on how to facilitate the acceptance of the change. The methods to mitigate the subjectivity were appreciated as well as the discussion on presenting acceptable solutions in the guidance. From the discussions and presentation, it was also clear that extensive renewals often take more time and resources than anticipated. The regulatory renewal in Canada was new to STUK and very much appreciated as an additional candidate for benchmarking.

The summary slides can be found in Appendix 9

Additional remarks of the discussion

The timeline was discussed. The RSC wished to know about the extent and the time frame of the renewals. At the moment STUK doesn't have a time plan. The renewal of the Nuclear Energy Act and Decree will also take several years. The renewal of the decree and act are the duty of the ministry. STUK needs to start the discussion with

them and work in parallel with that process. The decision whether the renewal of the act and decree will start has not been made yet. However, there are strong indication that it would be needed. STUK thinks that a stepwise renewal is very complicated because there are so many interfaces and interactions between the various levels.

Recommendations:

The committee considered that STUK's summary covers well the main recommendations of the committee. It was additionally pointed out that

- The real question is why you want to have guides. Having the documentation explaining the requirements and their background is important. Documents without spending too much time on the wording are also important.
- It is very good to have a good and extensive documentation on 'why', and what is the rationale behind the paragraph or requirement.
  Make sure to propose what is moved to act or regulations and justify the decisions. This is very important.

6 Any other business

No other business.

7 Next meeting

The next meeting will be in March-April. A proposal for the date will be sent by e-mail.

8 Closing of the meeting

The chair thanked the participants for their active participation and closed the meeting at 15:34.

Distribution: RSC members, NSAC members
PT, KiA, JHe, ToR, TV, NL, JmR, MTu, MiV

Appendices

1. RSC meeting 1/2020 agenda
2. RSC Meeting October 2020 Kia, presentation slide by Kirsi Alm-Lytz
3. 20201008 - RSC - Design maturity in the CL - Follow-up,
   presentation slides by Tomi Routamo
4. SÄPPI-esitys RSCIle 8 lokakuuta 2020, presentation slides by STUK
5. RSC_octobre_2020_regulation renewal ASN,
   presentation slides by Sylvie Cadet-Mercier
6. RSC meeting 2020 October_Lennart, presentation slides by Lennart Carlsson
7. RSC October 2020 Donderer, presentation slides by Richard Donderer
8. Renewal of STUK Regulation_ENSI_20-10-07,
   presentation slides by Ralph Schulz
9. STUK's Summary RSC2020, presentation slides by STUK