

Convention on Nuclear Safety
 Questions Posted To Netherlands in 2014

Q.No	Country	Article	Ref. in National Report
1	Belgium	General	Summary

Question/ -
 Comment Is it the intention to integrate the results of the IRRS in the setup of the ANVS? If so, is it foreseen that the IRRS reviews any preliminary ideas on the structure of this organisation?

Answer Answer No.1.
 Yes. In the preparation of the IRRS a preliminary self assessment was one of the triggers to start the set up of the ANVS. We have requested the IAEA to assess two variants in relation to the creation of an Authority for Nuclear Safety and Radiation Protection in the Netherlands. The IAEA mentions in its advice that the conduct of an IRRS mission at the end of 2014 will constitute a good opportunity to further analyse the compliance of the Netherlands' existing nuclear regulatory framework with the IAEA Safety Standards. We fully agree with this point of view.

Q.No	Country	Article	Ref. in National Report
2	Belgium	General	Appendix 2

Question/ Risk informed regulation
 Comment Last sentence provides several reasons why the development of RiR regulation has not yet been succesfull (e.g. capacity, priorities, loss of knowledge). How did/do these aspects influence the activities of the RB in other fields? Are plans available/activities undertaken to stimulate the development of RiR regulation?

Answer Answer No.2.
 Part 1: in the past ten years quite a number of experienced people of the RB (partly KFD) retired. However, the RB has been successful in recruiting new staff to replace them. In addition, in the past four years the two main parts of the RB (NIV and KFD) each were allowed to hire 10 extra staff. For the new staff, a basic training program has been developed which is conducted from 2012 through 2015. Fields of expertise initially affected by retirements included PSA and electrical engineering. For electrical engineering, an experienced engineer was contracted. To compensate for the knowledge loss in PSA, KFD decided to have an IAEA IPSART mission at the Borssele NPP in 2010 and a follow up mission in 2013. Currently, training of the RB staff on PSA is ongoing. The missing expertise has been compensated for by enhanced reliance on a foreign TSO (i.e. GRS).
 Part 2: Activities undertaken to stimulate the development of RiR regulation include several contracted studies. To date, these have not led to new RiR regulation.

Q.No	Country	Article	Ref. in National Report
3	Ireland	General	General

Question/ Ireland thanks the Kingdom of the Netherlands for its comprehensive report.
 Comment

Answer Answer No.3.
 Thank you !

Q.No	Country	Article	Ref. in National Report
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4	Sweden	General	p.177
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Question/ Comment The simplicity of the modelling particularly of human reliability is listed as an issue with the PSA. What measures has been taken/are planned by the licensee and/or the regulatory body to address these issues ?

Answer Answer No.4.
 As part of the post-IPSART project (2011-2013) all HEPs are quantified with the CBDTM (Cognition Based Decision Tree Method). The EPRI HRA calculator was used to support this task. The required input was obtained from detailed analysis of the Emergency Operating Procedures, observations of control room crew during their training on the process simulator and interviews with shift personnel.
 The HRA analysis has resulted in a detailed modeling and extensive documentation of the HEP's. The IAEA has been asked by the KFD to assess the modifications of the HEPs as part of the IPSART Follow-up mission.

Q.No	Country	Article	Ref. in National Report
5	Switzerland	General	Summary

Question/ Comment The report contains a list of post-Fukushima Daiichi actions. Many of the deadlines refer to 2013. Could all actions and activities which were planned for 2013, be finished? Are the deadlines for the actions in 2014 still up to date? If not please identify these actions. Some of these actions involve studies, assessments and evaluations. Have actions been derived from these clarifications already? If so, please specify these follow up actions and give information on the planned finalization.

Answer Answer No.5.
 Most of the actions that were due by the end of 2013 were finished on time. The following measures that were planned to be ready for the end of 2013 have not been finished completely yet:
 Actions #1 #2 #3 are interlinked "Hazard resistant ERC and storage facilities". End date for the ERC and the storage facility for portable equipment is 2014. In the first phase backup locations for the ERO and portable equipment have been completed as planned. This serves as a short term solution. In the second phase the ERO will get locations that are at least as robust as the plant itself. In the beginning, two years ago, it was thought to be possible to use an existing building. Although the earthquake data is not available yet, it became clear that the construction of a new ERC and storage location will meet the requirements best. However, this will not be finished in 2014. The current target is 2016, but the licensing process could extend this to 2018. The sub-action of #1 #2 #3 (dose evaluation for severe accident conditions) was realized in time and possible measures will be defined in the first half of 2014.

Action #7: "Additional possibilities for refilling the spent fuel Pool". A new possibility has been studied and proposed by the OEM (Original Equipment Manufacturer). It will be implemented as part of the measures that resulted from study S1 "Reserve spent fuel pool cooling system". In the process of defining measures of the PSR, measures to improve the robustness of the SFP-cooling will be defined en realized before the end of 2016.

Action #9: This measure has been partly been finished. The LH has procured its own truck, stationed on-site. The mobile EDG can be in place within half an hour

and is now independent from external support. Design and fabrication of the connection equipment were finished after the 2013 outage. It will be installed in the 2014 outage (planned May-June).

Action #19: Measure P1 “EDMGs and additional equipment”. A study has been performed by the OEM to determine what additional equipment, connection points and procedures could enhance the robustness of the plant. This study was finalized by the end of 2013. The results of this study will be used to procure additional equipment and to write and train additional procedures.

Action #22: Procedures to cope with an SBO under mid-loop conditions are in place and their adequacy has been demonstrated in exercises. The study into the possibility to use remote controlled valves has been completed as part of an overall study contracted to the OEM (see also #7 #19 and others) end of 2013 (one year delay).

Based on the advice of the OEM a plan to ensure that the valves of the buffer tank in case of SBO are remotely operable will be implemented.

Action #23: Procedures for (anticipated) extreme external events, such as plant walk-downs, are in place. Plant walk-down checklists are scheduled for 2014, as these depend on the SMA, which was finished in 2013.

Actions #24 #26: SAMG’s: Westinghouse is in the process of delivering a new revision set of the generic SAMG’s, based on the insights of Fukushima, in the beginning of 2014. EPZ has decided to adopt this revision and will start their implementation once the new version is released. This version includes most if not all what EPZ intended in its EDMG’s.

Other actions were performed on schedule or are to be realized on schedule. It needs to be stated that KFD still has to review the assessment and analyses reports and the realization of certain measures.

All required studies (S1 – S7) have been performed and reported to the regulator (with proposed measures) by the end of 2013. These studies are part of the ongoing PSR. All PSR measures, including the ones that were derived from the post-Fukushima studies, are due by the end 2016 and are planned accordingly.

Q.No	Country	Article	Ref. in National Report
6	Switzerland	General	Summary, p. 33

Question/
Comment

Prepare and validate capabilities to cope with SBO during mid-loop operation.

What is the effect of an SBO at mid-loop?

Answer

Answer No.6.

The effect of an SBO at mid-loop is that the reactor can start to boil and eventually overheat in a relatively short time. During mid-loop the water inventory in the primary system is reduced while the decay heat production is still high. When SBO occurs in this situation all active cooling stops and the reactor starts to heat up the reduced primary water inventory. Evaporation of this water can eventually lead to the point that the fuel elements in the reactor are no longer submerged and start to overheat. Strategies to cope with an SBO during mid-loop

are based on passive systems like accumulator and gravitational feeding or the use of mobile pumps. Procedures are in place and adequacy has been demonstrated in exercises.

Q.No 7	Country Switzerland	Article General	Ref. in National Report Summary, p. 35
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Question/ Comment Study more extensive use of steam for powering an emergency feed water pump includes studies and when needed implementation.

Such a steam-powered pump is standard on french PWR pre-EPR (suppressed on the EPR). Has any attempt been made to gain experience form this design?

Answer

Answer No.7.

The French design has steam turbine driven auxiliary feed water pumps. Borssele NPP has three auxiliary feed water pumps of which one is steam turbine driven. This means that this part of the French design is already incorporated in the Borssele NPP. The Borssele NPP is in this respect an exception to the related German NPPs that do not have steam driven pumps. The OEM performed a study to investigate additional possibilities to use steam to cool the reactor. These are: a steam turbine driven secondary makeup water pump able to inject large quantities of demin water into the steam generators and a steam turbine driven emergency generator as a new and independent power source.

Q.No 8	Country Switzerland	Article General	Ref. in National Report Summary, Results of international peer r
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Question/ Comment We want to pay tribute to the considerable number of international peer review missions conducted in the Netherlands since 2005, especially when taking into consideration that there is only one single NPP. This is an example of good practice.

Answer

Answer No.8.
Thank you.

Q.No 9	Country Switzerland	Article General	Ref. in National Report Results of international peer review mis
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Question/ Comment We could not find the Netherland's national report for the Second Extraordinary Meeting in 2012 on the corresponding IAEA website (see <http://www-ns.iaea.org/conventions/nuclear-safety.asp#1>), but on the www.rijksoverheid.nl website. Probably this is only an error.

Answer

Answer No.9.

In response to your question, we have provided the CNS secretariat with a link to our report, to share it on the CNS website.

Q.No 10	Country Switzerland	Article Article 6	Ref. in National Report p. 41ff
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Question/ Comment What will be the overall safety benefit for the Borssele NPP (e.g. core damage frequency, large release frequency) after implementation of all requested safety improvements?

Answer

Answer No.10.

The post-Fukushima measures have the objective to enlarge margins for specific

extreme events with an extremely low probability (zero, for all practical purposes including PSA). Consequently these enlargements will have no effect on the results of the PSA. Benefits due to positive side effects are expected to be less than 10%. These benefits could be gained by: backup emergency power for the bunkered systems, primary feed and bleed control from the bunkered area and enhancement of the SFP cooling system.

Also note that measures targeted to extend durations, such as plant autonomy time, cannot fully be evaluated by the PSA model as these models in general only consider success factors for the first 24 hours. The Borssele NPP was already modified based on findings after expanding the PSA in 2003 with success factors for 72 hours.

In vessel retention, enhanced robustness (seismic) of the containment vent system and optimization of the hydrogen control (position of the PARs) could reduce the large release frequency. The benefits of these proposed measures have not been quantified yet.

Q.No 11	Country United States of America	Article Article 6	Ref. in National Report ARTICLES 6 AND 11
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Question/
Comment
SECTIONS 6.2.a and 11.2.a
The one operating reactor (Borssele) is considering introducing digital I&C into the plant. In light of recent staffing concerns at the regulatory body:

(1) how will the regulatory body ensure it has the appropriate level of expertise in the area of digital I&C?

Further, the simulator dates back to 1996 and reflects “the then state-of-the-art in nuclear training simulators.”

(2) Will the simulator be updated to include digital I&C?

(3) If yes, will that update be made prior to the update at Borssele (thus providing a training opportunity before full unveil at Borssele)?

Answer

Answer No.11

(1). There is quite some expertise at the RB. Throughout the years KFD has followed the international developments in this area. Some years ago introduction of Digital I&C at Borssele NPP was anticipated, and KFD started to intensify its preparations for it. First of all by learning from German experience (via TSO GRS), but also by becoming a member of CLC/TC45AX, following the developments with the EPR and recently also learning from Swiss experience through the KWUREG club. In the coming years GRS (TSO) and ENSI will support KFD. At the moment 2 KFD staff are involved. At the RB-branche NIV, 2 staff members currently receive training on digital I&C.

(2) In the current plans the control room will not be changed to digital. Therefore the replica of the control room (of the simulator) will not need to be updated with respect to I&C.

(3) Refer to our answer to part (2) of the question.

Q.No 12	Country Argentina	Article Article 7.1	Ref. in National Report Article 7; Section 2(B).7.1.b; page 50
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Question/
Comment
It is said in the Report that the Nuclear Energy Act has been evaluated in the context of the associated legal and regulatory framework on nuclear safety and

radiation protection, and it has been decided to have a major update of this Act and some other elements in the hierarchy of the legal framework (Article 7; Section 2(B).7.1.b; page 50). The comprehensive revision of the regulatory framework is underway. Could you provide information about the characteristics of the planned major update of the Nuclear Energy Act, apart from any elements in the hierarchy of the legal framework in the country?

Answer Answer No.12.

There are some recent developments on this subject. See also the answer to question 22 (of the Q&A list of the Netherlands) on the structure of the Regulatory Body.

These developments mean that priority will be given to the legislation by which the independent authority will be established. The comprehensive review of the Nuclear Energy Act will be realized at a later date. Thereby also the lessons learned from the IRRS mission in November 2014 will be a part of the expected proposals to change the legislation. The review of the legislation primarily is meant to increase its clarity. For example, at the point of laying down principles of justification, optimization and dose limitation, to enhance clarity, these principles should be in the act itself, and not in a decree based on this act (the Nuclear Energy Act). Because of the developments mentioned above, there is no exact schedule for the more comprehensive review of the legislation.

Q.No	Country	Article	Ref. in National Report
13	France	Article 7.1	Section 7.1.b Page 50

Question/ Comment In the report, Netherlands present their intention to upgrade significantly the Nuclear Energy Act. Could you provide more details on the expected upgrades (Fukushima Daiichi NPP accident lessons learned, etc.) and when the new Act will be implemented?

Answer Answer No.13.

Refer to the answer to question 12 on Article 7.1 by Argentina. In the development of safety regulations and in licensing procedures, the post-Fukushima lessons learned are already taken into account.

As an example of new legislation being developed by the RB, the Dutch Safety requirements (DSR) for new power and research reactors should be mentioned. Here reference is made to Appendix 1 of our national report for details on the DSR. In the DSR post-Fukushima lessons-learnt are incorporated as far as possible.

Q.No	Country	Article	Ref. in National Report
14	Germany	Article 7.1	7.1.c, page 53

Question/ Comment The Directive 2009/71/EURATOM prescribes the systematic evaluation and investigation of the nuclear safety of nuclear installations during their operating life possibly leading to changes in the installation ('continuous improvement'). Also, the regulation prescribes inter alia that:

- LHs should give sufficient priority to nuclear safety systems;
- LHs must provide adequate human and financial resources to meet the obligations on the nuclear safety of a nuclear installation;
- All parties, including the LH, are required to provide a mechanism for educating and training their staff responsible for the safety of nuclear plants to meet the expertise and competence in the field of nuclear safety to be maintained and developed.

The Netherlands have implemented the European Council Directive

2009/71/EURATOM. Whereas some topics like “priority to safety”, “provision of adequate human and financial resources”, “educating and training of staff” are explicitly mentioned, further important topics of the directive like

- the responsibility of the licensee for nuclear safety,
- the implementation of management systems or
- the periodic review of safety

are not addressed in the report.

Please explain where those topics are implemented in the legally binding part of the nuclear framework.

Answer

Answer No.14.

1.) The responsibility of the licensee for nuclear safety:

Though not explicitly mentioned in the Regulation that implements the Euratom Directive, this responsibility stems from the systematic of the legal system (Nuclear Energy Act) for license duties etc. (Article 70 Nuclear Energy Act: licence is not transferable without permission of the Minister).

NUCLEAR ENERGY ACT

The Nuclear Energy Act contains a number of articles, which deal with criteria, interests and conditions under which a licence can be awarded. The explanatory memorandum on Article 70, which states that a licence is to be awarded to a corporate body (legal person), refers to guarantees of necessary expertise and trustworthiness in relation to safety. Trustworthiness in relation to safety can amongst other things also be associated with financial solvability.

Article 70 of the Nuclear Energy Act: a licence issued pursuant to this Act is personal to the holder. As such this person is responsible for the safety of the installation. This responsibility can be transferred to another person only under approval of the Minister of Economic Affairs (the licensing authority). The license holder can transfer all or part of the licence to a third party, provided he has approval to do so from Our Minister of Economic Affairs. Conditions may be attached to such approval. This allows the Minister to assess whether a potential License Holder (LH) can offer the same standard of expertise, safety, security etc. as the previous one. The Minister will refuse to issue a license to a potential LH where a change in ownership alters certain circumstances that are of vital importance from a licensing point of view, including adequacy of financial provisions.

RADIATION PROTECTION DECREE

Further elaboration can be found in the Radiation Protection Decree (Besluit stralingsbescherming; Bs) especially the duty of care provisions of Article 5. There are many provisions in the Radiation Protection Decree that prescribe "The licensee creates". The provisions are also applicable to nuclear installations. Furthermore in the Radiation Protection Decree there are competence Requirements.

2.) The implementation of management systems:

On the basis of article 5 of the Regulation implementing the Directive 2009/71/EURATOM, a licensee has the obligation to have management systems with sufficient priority to nuclear safety. Also the licenses specify this obligations.

3.) The periodic review of safety:

The Regulation implementing the Directive 2009/71/EURATOM prescribes the systematic evaluation and investigation of the nuclear safety of nuclear installations during their operating life possibly leading to changes in the installation ('continuous improvement'). The Minister has the power to respond to any incidents and developments in the field of nuclear safety of nuclear installations. He has the power to order the licensee to make an interim report on the safety of the nuclear installation.

If the examinations and assessments warrant it, the licensee has the obligation, to take measures to improve nuclear safety.

Q.No	Country	Article	Ref. in National Report
15	Germany	Article 7.1	page 53/55

Question/ Comment One requirement is that the Borssele NPP keeps belonging to the top-25% in safety of the fleet of water-cooled and water moderated reactors in the European Union, Canada and the USA. To assess whether Borssele NPP meets this requirement, the Borssele Benchmark Committee (BBC) has been established. The regulatory body has signed an agreement (Borssele Covenant) with the owner of the Borssele NPP (KCB), which allow its operation until 2033. One requirement is, that KCB belongs to the "top-25% in safety of the fleet of water-cooled and water moderated reactors in the European Union, Canada and the USA". A Benchmark Committee has been established by the operating organisation.

Please provide details on the criteria used to identify, that KCB belongs to the "top-25%" of the safest reactors.

Will the regulatory body assess and approve the results of the Borssele Benchmark Committee?

Answer

Answer No.15.

As agreed in the Covenant, the committee of independent international experts to review compliance with the safety benchmark (Borssele Benchmark Committee) has been established in 2008 by all of the covenant parties, that means by the Government and the owners of the Borssele plant. They are selected on the basis of their knowledge and experience. In 2013 for the first time the Committee issued a report with the conclusion that the Borssele nuclear power station belongs to the 25% safest nuclear power plants of a similar type in the EU, U.S. and Canada, and thus complies with the safety requirement of the covenant.

It was the first time that such an international comparison of the safety of about 250 nuclear power plants has been carried out. The Committee developed its own methodology and described it in the report.

The Committee feels confident that it developed a meaningful methodology on the basis of all available information that could be used to compare the safety of the 250 plants to assess. The methodology contains a separate safety assessment of (i) reactor design and (ii) reactor operations (covering operation, maintenance, safety management and ageing).

During the Dutch presentation at the review meeting more details will given on the methodology developed by the Committee.

The Borssele Benchmark Committee operates independently. The results of the Committee are not assessed nor approved by the regulatory body.

The report of the Committee can be downloaded from:
<http://www.rijksoverheid.nl/onderwerpen/kernenergie/documenten-en-publicaties/rapporten/2013/09/09/the-safety-of-borssele-nuclear-power-station.html>

Q.No 16	Country Italy	Article Article 7.2.1	Ref. in National Report 7.1.b, page 51
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Question/ Comment With regard to the involvement of the public and interested parties within the Contracting Party, the use of EIA is reported as a tool to allow the public and interest groups involvement in commenting and raising objections to decisions on nuclear activities.
 Please provide more details on how such public objections can affect the decision process. Please provide more information about the referred public consultation during the licensing process.

Answer Answer No.16.
 In the applicable laws and regulations the stages of the licensing process for nuclear installations are defined and are laid down in general rules for licensing. These general rules are embodied in the general administrative law act (Algemene wet bestuursrecht), division 3.4.

In case of construction of a nuclear installation, or under certain circumstances of a modification of the installation there also is an obligation to conduct an Environmental Impact Assessment (EIA) according to art. C 22.4, D 22.5 annex EIA Decree.

Procedure EIA (chapter 7 of the Environmental Management Act) :

- the initiator notifies the competent authority of his intention.
- The public can express its view on the scope of the envisaged EIA.
- An independent external committee advises on the content of the EIA for the initiative, taking into account the views of the public.
- The competent authority draws up a memorandum on the scope and the level of detail to be developed in the EIA, taking into account the views of the public.
- The initiator draws up the EIA.
- The independent external committee advises on the environmental report in relation to the memorandum on the scope and level of detail and the views of the public.

Prior to the application, the competent authority and the initiator enter into a stage of informal dialogue. During this stage, the concept for the application, the EIA if applicable, and the safety assessment report are reviewed.

The initiator submits the application and the documents (including the EIA if applicable) and information pertaining to it. The competent authority assesses the application and draws up a draft decision. The public can express its views on the draft, and if applicable the EIA. Subsequently the competent authority draws up the final decision taking into account the submitted views. Finally, interested

parties can lodge an appeal at the Administrative Law Judicial Division of the Council of State.

The response by the RB to the views is elaborated to some detail below.

The RB will consider all views expressed by the public. When appropriate, it will group the views into a number of unique topics/views. The RB then will respond to all unique views and all responses are recorded with the documentation of the definite licence. Common responses of the RB include elaborations on policies, (assessment) techniques or other issues that need clarification.

In the case of the LTO licence several hundreds of views were received. These were grouped like described above. The licence conditions of the LTO licence did not change in response to the views expressed. However the RB's decisions were substantiated further and the structure of the licence documentation was improved.

Q.No 17	Country Ireland	Article Article 7.2.2	Ref. in National Report page 60
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Question/
Comment “These procedures allow for public involvement in the licensing process. Any stakeholder is entitled to express his views regarding a proposed activity. The Regulatory Body shall take notice of all views expressed and respond to them with careful reasoning.”

What level of engagement of the public/stakeholders has been experienced by the Netherlands with respect to the licensing process? Are the views expressed and the response of the Regulatory Body made available publicly?

Answer

Answer No.17.

The level of engagement is mainly dependent on the nature of the licence application. In licensing procedure for the Borssele NPP, such as for the application of the use of MOX fuel or for the application for Long Term Operation, more than 3000 people and organisations expressed their view, although the main part of these views where statements with a list of signatures. In total the number of different views amount up to hundred. The views include a variety of topics; from general statements against nuclear energy and the procedure followed to very detailed technical issues.

All views, including their response, are taken on board in the final licence and are therefore publicly available. Other licensing procedures do not cover that amount of views.

Q.No 18	Country France	Article Article 7.2.3	Ref. in National Report Section 7.2 (iii) page 62-63
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Question/
Comment Does the inspectorate branch of the Regulatory Body schedules unannounced inspections?

Answer

Answer No.18.

Yes. Several times a year.

Q.No 19	Country Argentina	Article Article 8.1	Ref. in National Report Article 8; Section 8.1.i; page 70
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Question/ Comment In the report is mentioned that for the education and training in radiation protection a national system exists with four levels of education (Article 8; Section 8.1.i; page 70). Could you please define those four levels of education and their scope, and explain in which way they are related to the requirements on regulatory staff qualifications?

Answer Answer No.19.
Yes there are four levels in a national system: 2, 3, 4 and 5 (level 1 does not exist for historic reasons).

The system for the teaching and training in radiation protection in The Netherlands exhibits four levels of education. This is based on the guideline for the recognition of the education of experts on radioactive substances and devices (Richtlijn voor de erkenning van opleiding deskundigen radioactieve stoffen en toestellen, Staatscourant, 1984; 227). The topics that need to be covered in these courses are depicted in this guideline.

Level 2 is required for Radiation protection experts (RPE) in large laboratories, academic hospitals, and nuclear installations.

Level 3 is required for RPEs, managers of employees working with sealed and open sources.

Level 4 is required for Radiation Protection Officers (RPOs).

Level 5 is also required for RPOs, controlling lower risks than level 4 RPOs.

The scope of these four levels of education is described to some detail in the table in the answer support file.

The teaching and training system in the Netherlands is currently undergoing a transition to better meet the criteria laid down in the Basic safety standards (2013/59/Euratom). For the level two and three this is already regulated in the Radiation Protection Decree 2013 and in the Regulation Implementing the Radiation Protection Decree 2013 (MR EZ).

The internal policy of the Dutch RB is that the regulatory staff of the Nuclear Installations and Nuclear Safety Directorate (pdNIV), the Nuclear Inspectorate (KFD) and the Netherlands Enterprise Agency (RVO) should be similarly qualified as required for licensees or as laid down in the legislation. In practice this means for example that RB staff involved in licensing of the use of radioactive sources and substances, devices and transport should be trained at least at the level of the Radiation Protection Expert (level 3) or the Radiation Protection Officer (level 4/5). Staff involved in radiation protection legislation should be trained at a level appropriate for the task at hand.

For inspection and enforcement staff (all KFD staff), except those solely involved in security & safeguards, level 3 as a basic education is required. This requirement is part of the internal policy. Furthermore, for at least 2 KFD staff, Level 2 (Radiation Protection Expert) is required.

Support Documents » Table with Radiation Protection Education Levels

Q.No	Country	Article	Ref. in National Report
20	France	Article 8.1	Section 8.1.i Page 69-70

Question/
Comment Some concerns are expressed regarding the loss of operating experience in Germany (GRS is the main TSO for Netherlands Regulatory Body). Besides, the other TSO (NRG), even though a Chinese wall procedures have been implemented, is also working for industry. Is it intended to include the TSO or to create a strong and independent TSO as part of the establishment of ANVS?

Answer Answer No.20.
In the short term there will be no problems regarding potential future loss of experience in Germany. During the establishment of the new organisation of the RB (the ANVS) the future position of the TSOs and their support will be considered.

Q.No	Country	Article	Ref. in National Report
21	Italy	Article 8.1	8.1.a & 8.1.d, pages 66 & 68

Question/
Comment Concerning the Agentschap - team Radiation Protection & Society - within the EZ , charged by pdNIV - N.I. & N.S. Directorate - with radiation protection licensing activities, it seems that it is a agency providing services to various governmental organizations among which the pdNIV.
How the Agentschap engagement with pdNIV is regulated in terms of legal basis, involvement of human resources and priority reserved to pdNIV urgent duties?
Does the referred amount of 14 FTE mean that the Agentschap ensures their engagement exclusively to pdNIV?

Answer Formally the Agency is provided tasks under the responsibility of the minister of Economic Affairs. The policy-responsibility can belong to several Ministers. The Minister of Economic Affairs is responsible for the funding. Currently there is a framework contract, governing the services (a section of) AgentschapNL (AgNL) provides to pdNIV and the mandate of AgNL to perform certain tasks. The 14 FTE referred to, formally only works for pdNIV. With the establishment of the new RB (ANVS), knowledgeable staff of AgNL will join the ANVS.

Q.No	Country	Article	Ref. in National Report
22	Sweden	Article 8.1	p.65

Question/
Comment Could you please clarify the structure of the regulatory body, how many people within the regulatory body, as well as expertise represented within the organisation?

Answer Answer No.22.
The current situation of the RB is described under Article 8 of our national report, including the support provided by among others TSO-type organisations.

There are some recent developments on this subject. The Dutch Council of Ministers decided on January 24, 2014 that the RB's expertise in the area of nuclear safety will be brought together in a single independent organisation in the Netherlands. The reorganisation will make it possible to increase the RB's efficiency in using available (budget and human) resources.

The Authority for Nuclear Safety and Radiation Protection (Dutch: 'Autoriteit Nucleaire Veiligheid en Stralingsbescherming', or ANVS) will be responsible for regulating the nuclear sector and radiation protection. The new organisation will optimally unite and utilise the expertise and experience available within the various entities that currently constitute the RB, and exercise all of its regulatory functions. As an Independent Administrative Authority (in Dutch a ZBO), after its

formation in the coming years the ANVS will fall under the responsibility of the Minister of Infrastructure and the Environment.

Through the establishment of the ANVS, in the near future 150 staff members will be part of a single independent organisation. It will meet international standards, including those imposed by the International Atomic Energy Agency. The new authority will draft legislation, develop safety requirements, issue permits, carry out inspections and provide information. The ANVS will also be jointly responsible for radiation protection and emergency preparedness in the event of accidents which could result in the release of radiation. More about this will be presented at the upcoming Review Meeting.

Q.No 23	Country Switzerland	Article Article 8.1	Ref. in National Report p. 70
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Question/
Comment "The Netherlands states that the resources at the RB currently are adequate, in terms of Human Resources (number of staff and expertise) and financing."

Are there any instruments in use to determine the necessary resources and to evaluate if the current situation is sufficient?

Answer Answer No.23.
The RB has a regular planning and control cycle. In it we balance the tasks at hand with the available (human) resources, setting priorities where and when necessary. The resources are quantified on the basis of our own experience in previous years and international information. In the last couple of years the RB staff has increased with about 20 fte. Since publication of the CNS report, the adequacy of resources has been evaluated once more during the self assessment in preparation for the IRRS mission, that will take place in November 2014.

Q.No 24	Country Switzerland	Article Article 8.1	Ref. in National Report p. 71
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Question/
Comment A resolution requesting such a development of the RB into one entity was accepted almost unanimously in Parliament on March 12, 2013

What is the current status regarding the efforts to establish one single national Authority for Nuclear Safety and Radiation Protection (ANVS)

Answer Answer No.24.
Refer to our answer on question 12 (of our Q&A list) about Article 7.1 and revision of the regulatory framework and the new RB. At the upcoming Review Meeting, we will present more details about the establishment of the ANVS.

Q.No 25	Country Switzerland	Article Article 8.1	Ref. in National Report p. 69
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Question/
Comment The RB currently has adequate resources to perform its tasks. In the future the RB may be faced with challenges in terms of assuring sufficient resources.

Answer No question asked.

Q.No 26	Country United States of America	Article Article 8.1	Ref. in National Report 8.1.j and 8.2.b
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Question/
Comment (1) Please describe how the effort to reorganize multiple organizations into one Regulatory Body is being balanced with the challenges of Borssele entering its

Long-Term Operation (LTO) License in 2013.

(2) Also, please explain whether the establishment of a full-time Advisory Committee is being considered in light of the new challenges that LTO may present.

Answer

Answer No.26.

(1): Additional and different people deal with the decision making process of the integration into one RB and the people that deal with the licensing and supervision of the LTO. In the meantime in 2013 a license has been given for the LTO. Since 2006 the RB has dealt with the LTO-programme. To be on the safe side it has been decided in 2008 to accompany the decision making process with IAEA SALTO missions (2009, 2012). In February 2014 a follow up mission has taken place. The coming years (2014-2020) substantial supervision activities will take place.

(2) A full-time Advisory Committee is not considered necessary because the RB takes part in several international fora like NEA/IAGE, IGALL and there is a broad interest in the LTO programme of the Dutch NPP. This results in many international expert missions to the NPP (WANO, IAEA/SALTO etcetera). It should be noted that NPP staff also participates in SALTO missions to other NPPs.

Q.No	Country	Article	Ref. in National Report
27	France	Article 8.2	Section 8.2.b Page 71-72

Question/
Comment In the report it is mentioned that a single national Authority for Nuclear Safety and Radiation Protection (ANVS) will be established. When does this competent and independent authority will be put in place? How the independence of the regulatory body in making its safety-related decisions will be ensured?

Answer

Answer No.27.

Refer to our answer on question 12 about Article 7.1 and revision of the regulatory framework and the new RB. At the upcoming Review Meeting, we will present more details about the establishment of the ANVS.

Q.No	Country	Article	Ref. in National Report
28	Germany	Article 8.2	Summary, page 24

Question/
Comment Various organisational options are being evaluated that may strengthen the RB. Currently there are various organisations that together constitute the RB. A resolution requesting the development of the RB into one entity was accepted almost unanimously in Parliament on March 2013. The minister of Economic Affairs has endorsed the resolution. A proposal to establish one single national Authority for Nuclear Safety and Radiation Protection (ANVS14) is now being prepared, with a legal analysis of the possibilities. The proposal will satisfy international requirements. Various ministries are involved in the preparations that will establish ANVS as a competent and independent body for the regulation of nuclear safety, nuclear security, radiation protection, and waste management. Currently, the regulatory body consists of several entities which are part of several ministries. E.g. the licensing branch is part of the Ministry for economic affairs and the inspection branch is part of the inspectorate ILENT, which belongs to the ministry of environment. In the summary of the Dutch CNS report it is stated, that parliament decided to form a single entity under the auspices of the minister of economic affairs.

A presentation during the upcoming review meeting of the new regulatory body called ANVS, its structure and independence from economic policy in the

Netherlands would be appreciated.

Answer

Answer No.28.

At the upcoming Review Meeting, we will present more details about the establishment of the ANVS. In the meantime, refer to our answer on question 12 about Article 7.1 and revision of the regulatory framework and the new RB.

Q.No	Country	Article	Ref. in National Report
29	Luxembourg	Article 8.2	page 72

Question/
Comment The RB reports to the minister of Economic Affairs (EZ), who is also the responsible energy policy maker in the Netherlands. In a country that uses nuclear power, energy policy makers will inevitably need to take decisions related to the part nuclear energy plays in the energy mix and thus indirectly promotes nuclear energy. For this reason we think that the sentence on page 72 "The RB is not in any way involved in energy policies" • seems not fully accurate. On the other hand the report also refers to preparations that will establish ANVS as a competent and independent body for the regulation of nuclear safety, security, radiation protection, transport safety and waste management. This is a very positive development in order to increase the effectiveness of the RB as stated in the report, but also to achieve clarity with regards to its effective separation.

Answer

Answer No.29.

Thank you for your comments.

Q.No	Country	Article	Ref. in National Report
30	Sweden	Article 9	p.73

Question/
Comment It is stated in the report that "With the Covenant of 2006, the LH of the NPP Borssele has agreed to comply with the obligation to remain within the class of 25% of safest reactors in the Western world for its lifetime until 2034." Considering that the NPP Borssele will be approx 60 year old in the years 2025-2030, perhaps these goals should be expressed in qualitative numbers instead of a fleet comparison. What will be the consequence if this target is not met?

Answer

Answer No.30.

If the safety target agreed upon in the covenant (belong to 25% safest reactors in the western world) will not be met, EPZ will be not be compliant with the Covenant. As a consequence the other Covenant parties can take action, go to court and request compliance with the Covenant.

The Covenant agreements are in addition to the safety requirements from regulations and the license. Therefore non compliance with the Covenant will not have automatic consequences for the license.

Safety assessments and compliance with safety regulations and license requirements are performed by the regulatory body (the inspectorate KFD) outside of the Covenant agreements.

Q.No	Country	Article	Ref. in National Report
31	Sweden	Article 10	77

Question/
Comment In assessments: does the licensee evaluate the influence of organizational factors as the root cause of events or is this only evaluated by ARN-analysts?

Answer

Answer No.31.

The licensee does evaluate the influence of organizational factors as a possible root cause of events. Internal events are analysed and evaluated by the licensee by use of the Human Performance Enhancement System (HPES). This root cause analysis (RCA) method enables the investigation of events with technical, human

and organizational factors. This method is used for every individual internal event that is being analysed. The outcome of the internal events is also periodically evaluated to check whether a pattern or common root cause exists that drives the individual events. An organizational factor could for instance be the root cause for several technical or human factors causing different events.

The inspection branch of the regulatory body (KFD) generally reviews the process of the licensee and the outcomes, because it is considered the responsibility of the licensee to do the RCA. On the other hand KFD does not exclude that it will do its own independent RCA in very specific cases (and this also has happened), but resources are too limited at the moment to employ this activity on a larger scale, as might be considered usual internationally. At the moment two staff members of KFD are trained, through an RCA course organized by the European Clearinghouse. More staff might follow. KFD is evaluating its current approach as part of the IRRS self-assessment (IRRS will be in November 2014).

Q.No 32	Country United States of America	Article Article 10	Ref. in National Report PG 73
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Question/
Comment The license holder of the NPP Borssele has agreed to comply with the obligation to remain in the top 25% of safest reactors in the Western World, through its remaining life (i.e., 2034). The Borssele Benchmark Committee was established to conclude whether Borssele NPP satisfies this requirement.

(1) Please explain how that top 25% is determined.

The report also states that it is expected the Committee will report its findings in September 2013.

(2) Can you share the findings of the Committee?

Answer

Answer No.30.

If the safety target agreed upon in the covenant (belong to 25% safest reactors in the western world) will not be met, EPZ will be not be compliant with the Covenant. As a consequence the other Covenant parties can take action, go to court and request compliance with the Covenant.

The Covenant agreements are in addition to the safety requirements from regulations and the license. Therefore non compliance with the Covenant will not have automatic consequences for the license.

Safety assessments and compliance with safety regulations and license requirements are performed by the regulatory body (the inspectorate KFD) outside of the Covenant agreements.

Q.No 33	Country Sweden	Article Article 11.2	Ref. in National Report 88
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Question/
Comment Is there any regulation regarding the accepted ratio between own personnel (employed by the licensee) and contractors during normal operations and during a "standard" outage.

Answer

Answer No.33.
No.

Q.No 34	Country Sweden	Article Article 12	Ref. in National Report 89
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Question/ Comment In "12.1 Introduction" both external and internal factors are mentioned. It is stated that external factors are emphasized in the design of man-machine interface. From the introduction we got the impression that the human factors work mainly focuses om man-machine interface and external factors:

* Does this mean that the human factors work mainly focus on man machine interface and that the rest of chapter 12 should be read with this as a starting point?)?

* Has there been any work performed by licensee or regulatory body regarding the internal factors mentioned in the introduction? If yes: what kind of work?

Answer Answer No.34.

The internal aspects of human factors are also part of the regulation and inspections. According to the IAEA requirement the Senior management of the NPP must determine the competence requirements for individuals at all levels and provide training or take other actions to achieve the required level of competence. The practical implementation of this requirement has its implications on the internal factors such as talent, competence, professional, skills, motivation, stress resistance and situational flexibility.

By example: during the simulator training of operators several competences and skills (like stress resistance and communication skills) are trained, observed and judged by the management of the NPP. Some examinations of NPP personal are also observed by an inspector. The progress of the human performance and safety culture (HP&SC) program of the NPP is also part of the inspection program. For already more than six years we have a yearly management (NPP and regulator) meeting focused on 'Human performance and safety culture'. The NPP informs the regulator during this meeting about progress and project in the near future. On the working level the inspectors are aware of these HP&SC aspects and do correct the NPP personal if necessary. By example: if NPP personal doesn't organize a correct pre-job briefing.

Q.No	Country	Article	Ref. in National Report
35	Sweden	Article 12	p.89

Question/ Comment In "12.1 Introduction" human factors and design is mentioned. It is of great importance that the design of and processes used in a NNP take account of human capabilities and their limits. How is this regulated (is there any specific requirement regulating this?) and how does the regulatory body verify that this is the case (e.g. NUREG-0711 or similar)?

Answer Answer No.35.

In the licence conditions, Dutch Nuclear Safety Rules are referred to that are adaptations of IAEA guides. These Rules are called NVRs, refer to page 58 of our national report. Examples are NVR NS-R-1 (Design Safety Requirements), and NVR NS-R-2 (Operation Safety Requirements). Human capabilities and their limits are addressed in these NVRs on design and operation. This helps to promote the development of clear operating procedures that minimize the risk of errors. The design should also have as an objective the limitation of the potential for human error. An analysis of possible operator errors should be conducted, the consequences of such errors should be considered in the design and, where practicable, interlocks and other checks should be provided to prevent their

occurrence.

The operating organization should arrange for the availability of competent personnel to assist in design studies and development work for modifications on plant items important to safety. The operating organization should ensure that the appropriate revisions to plant procedures, personnel training and plant simulators necessitated by the modifications are implemented in a complete, correct and timely manner as part of the implementation process. The operating organization should take into account the feedback from experience gained in making a modification at a plant for the first time, prior to making the modification in other parts of the plant or at other plants.

The practical implementation of the regulators verification process is not always easy. We have limited personal capacity, related to human factors, available for the assessment of modifications. We try to optimize the use of this capacity as much as possible and where and when needed contract TSO-support.

Q.No 36	Country Italy	Article Article 13	Ref. in National Report 15.1, page 103
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Question/
Comment It is reported that art. 31 of Bkse states that a license must contain requirements aimed at – as far as possible – preventing the exposure and contamination of people, animals, plants and property. Please provide more information on specific requirements set up for animal and plant protection.

Answer Answer No.36.
No specific requirements apply. In our policy it is assumed that protection of the people will sufficiently protect plants, animals and environment.

Q.No 37	Country Argentina	Article Article 14.1	Ref. in National Report Article 14; Section 14 (i) and appendix
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Question/
Comment Please could you inform how the concepts mentioned in these items can be made compatibles with those contained in IAEA documents -e.g.: INSAG 10 (paragraphs 3.1, 3.2, 30 and 39), INSAG 12 (paragraphs 99 to 102) and guide SSG3 (paragraphs 2.25 to 2.28, 5.13 (e), 5.19, 5.24 (f), etc.-, in which it states that deterministic and probabilistic analyses are studies that complements each other? (Article 14; Section 14 (i) and appendix 1; pages 95 / 137)

Answer Answer No.37.
In Dutch safety cases, both deterministic and probabilistic analyses are required. This is based on regulatory requirements. Decree Bkse specifies the dose and risk criteria that need to be met, and this is explained in section 7 and Appendix 1. On page 136, deterministic analyses are mentioned (Design Basis Accidents, with dose criteria) and PSA (with risk criteria). Furthermore, section 14(i) refers to Appendix 4, which lists the adapted or adopted IAEA guides that are referred to in the licence conditions of the NPP. Among others SSG-3 (Level-1 PSA) and SSG-4 (Level-2) are referred to.

The deterministic approach is and remains the basis of the design and safety evaluations. The PSA is used to improve the design. When the NPP was built 40 years ago there was no PSA available. The PSA was introduced 20 years later with the first Periodic Safety Review (PSR). With the introduction of PSA it became possible to optimize/improve safety by looking for weak points in the

installation. This started already 25 years ago and is repeated with every PSR. Also the introduction of an improved defense in depth system and the continuous improvement of the PSA-model (pushed by regular IPSART-missions) in the past were – and still are – important drivers for further safety improvements. The complementing deterministic and probabilistic approaches are also practiced with the safety monitor, a version of the PSA.

Q.No 38	Country Czech Republic	Article Article 14.1	Ref. in National Report Page 99
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Question/
Comment How highly enriched (fissionable material - 235U, 239Pu) MOX fuel do you intend to use?

Will mixed zones with MOX fuel contain original fuel with an enrichment of 3.3% 235U or new fuel with a higher enrichment of 4% 235U?

Answer

Answer No.38.

MOX fuel will be introduced with on average per fuel bundle maximum 5,41% fissile Pu (Pu239+Pu241). Within the fuel bundles the Pu-fissile content in the individual fuel rods varies between 2,6 and 6,4 %. The U235-content in the MOX-fuel is 0,25%.

The mixed core will have a maximum of 40% fuel bundles containing MOX fuel. The remaining positions are bundles with a fissile U-content of 4 and 4.4%.

Q.No 39	Country Germany	Article Article 14.1	Ref. in National Report page 96/99
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Question/
Comment Page 96:
Review by the Regulatory Body

The RB (mainly the inspection branch, the KFD) studies the SAR in depth. The underlying and supporting documents are also reviewed in depth to ensure that the regulations have been met. In the review process, selected items are analysed with computer codes other than have been used for the original analyses provided by the LH. Often, assessments of similar power plants performed by a foreign regulatory body are also considered.

Page 99:

Review by the Regulatory Body

The licensing branch of RB studies the SAR in depth. The underlying and supporting documents are also reviewed in depth to ensure that the regulations have been met. In the review process, selected items are analysed with computer codes other than have been used for the original analyses provided by the LH. Often, assessments of similar power plants performed by a foreign regulatory body are also considered. Once the reviews and regulatory assessments have been completed and it has been established that the applicant is acting in accordance with the rules, regulations and radiological safety objectives, the licence can be granted. The main elements of the assessment are documented, as required by the RB's internal QA process.

On page 96 of the Dutch CNS report it is written, that the inspection branch (KFD) is mainly responsible for the assessment of the safety analysis report submitted by the applicant. On page 99 it was said, that the licensing branch has the responsibility for reviewing the safety analysis report.

Please resolve this contradiction and explain in more detail, how documents submitted to the regulatory body will be assessed and who has the lead for the assessments to ensure an adequate review process.

Answer

Answer No.39.

These sections indeed need clarification. In fact the licensing branch (NIV) is responsible for handling the licence applications and performing related review and assessment. KFD is responsible for review and assessment activities in relation with its oversight activities. Both NIV and KFD may seek expertise by contracting expertise from TSO and other expert organisations, the latter being a common practice.

Q.No 40	Country Germany	Article Article 14.1	Ref. in National Report page 96
Question/ Comment	Often, assessments of similar power plants performed by a foreign regulatory body are also considered. While reviewing the safety analysis report, the regulator considers also assessments from foreign regulatory bodies assessing similar power plants. As such an approach can lead to a less stringent review of the regulatory body, procedures have to be in place to ensure, that adequate regulatory decisions will be made. Are there processes planned which ensure, that those assessments from foreign regulatory bodies will be considered in the review process of the Dutch regulatory body?		
Answer	Answer No.40. The consideration of foreign regulatory experience (where applicable) is not required by the legislation, but is current practice. For example, in the case of Urenco Netherlands, a similar installation is located in Germany. So there is regular exchange of information. Other issues where such foreign experiences were useful, were the LTO and the MOX licenses of Borssele NPP.		

Q.No 41	Country Germany	Article Article 14.1	Ref. in National Report p. 98
Question/ Comment	Shutdown of the emergency oilpump from the turbine to improve the battery capacity; it is clear now that within about an hour after the turbine trip due to emergency power the oilpump can be shutoff; the increase of battery time is 3 hours (from 2,8 to 5,8 hours); other improvements will increase the battery time 1,9 hours more (from 5,8 to 7,7 hours). One post Fukushima measure is the increase of the battery time. Here, the way of reducing the number of consumers has been chosen, which consequently will lead to a prolonged battery time. Please comment on the other improvements in the national report. Are manual actions necessary to perform the described accident management procedures and how demanding are those procedures during an accident condition? Are there also ideas to increase the capacity of the batteries itself or to recharge the batteries?		
Answer	Answer No.41. Switching of the emergency oil pump after the turbine has come to a full stop, about 1 hour after the start of the event, will not damage the turbine. This action is prescribed in the existing EOP procedure which will be used during an SBO and it can be done from the main control room or from a panel in the vicinity of the turbine. As this oil pump has a strong motor, shutting it off as soon as it can be missed increases the battery time significantly. The second improvement is the use of a battery set that is intended as a backup for the control rod drives. After a scram these batteries have lost their intended function and they will be connected		

automatically to the DC busbar enhancing the battery capacity of this busbar with another 1.9 hours. So an increase of the original battery capacity is made by using spare capacity that was there from the beginning but not counted for as it formally has another function. Further load reduction could be done when also smaller equipment with no direct safety relevance is switched off but the oil pump is the main contributor. This would require extra procedural guidance and field actions but it could be directly linked to the mentioned EOP procedure. There is no intention to increase the battery discharge time even further, although simple additional measures are not ruled out. There is an idea to introduce a small dedicated battery pack that can be used to control a small number of essential valves. This battery pack can be combined with a converter that converts DC power into 3 phase AC power that is needed to control the valves. The intended valves are needed to isolate the primary and secondary systems and to reduce the primary and secondary pressure in order to cool down and to make low pressure feeding with mobile pumps possible. Another idea is to provide two additional connection points for a small diesel generator to supply the emergency buses and for potential reloading of empty batteries.

Q.No	Country	Article	Ref. in National Report
42	Pakistan	Article 14.1	14(i) Page 96
Question/ Comment	Netherlands may like to elaborate the scope for the 2-yearly safety review.		
Answer	Answer No.42. The biannual safety review is an evaluation of the NPP activities and achievements in relation to the existing license requirements. So it encompasses all safety relevant processes and activities.		
Q.No	Country	Article	Ref. in National Report
43	Switzerland	Article 14.2	p. 98
Question/ Comment	At Borssele NPP, the battery capacity was substantially improved from about 2,8 hours to about 7,7 hours, mainly because of the shutoff of the emergency oil pumps of the turbine. By shutting off this pump early, an improvement of 3 hours could be achieved, while other measures contribute to a further improvement of 1,9 hours. Could you please elaborate on these other measures to enhance battery capacity?		
Answer	Answer No.43. See our answer to question no.41 of our Q&A list.		
Q.No	Country	Article	Ref. in National Report
44	Switzerland	Article 14.2	p. 98
Question/ Comment	One of the measures after Fukushima is the installation of seismic acceleration detectors provided with uninterrupted power supply systems. Do you consider to use the signals generated from the acceleration detectors as an input for the reactor protection system (automatic seismic scram) or just as an information on the intensity of an earthquake?		
Answer	Answer No.44. The installation of seismic acceleration detectors has been initiated after the 2007 Kashiwazaki earthquake. Its intended purpose was to guide control rounds in case of an earthquake near the Borssele power plants. After Fukushima the intended design has been upgraded to comply with the requirements for formal NPP equipment. There is no intention to connect the seismic acceleration detectors to		

the scram system of the reactor. The License Holder has defined a so called Safe Shutdown Earthquake level (SSE). After the occurrence of an earthquake the seismic acceleration detectors are used to check whether the SSE threshold has been passed. If this is the case and the reactor has not scrambled automatically during the earthquake, then the NPP will be brought to cold shutdown in a controlled manner (without manual scram). An automatic reactor scram will only be initiated on process parameters. When an earthquake does not lead to adverse trends in these process parameters there is no need to scram the reactor automatically or manually. After an earthquake above the SSE level the plant must be inspected because the event was beyond the design of the plant.

Q.No 45	Country Argentina	Article Article 15	Ref. in National Report Article 15; appendix 5 f; page 159 -refe
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Question/
Comment Are the discharge limits, listed in this page, established for the dose limit of 0,1 mSv/year? In that case, is this dose limit defined on a hypothetical representative person? (Article 15; appendix 5 f; page 159 -referenced in pag. 105-)

Answer Answer No.45.

No, the discharge limits are based on the optimisation principle. This means that discharges and emissions shall be as low as reasonably achievable. The discharge limits have been set by the RB in the licence conditions. Nevertheless, based on the regulation, the doses to members of the public (attributable to the plant, and based on hypothetical most exposed person) never may exceed the dose limit of 0.1 mSv/year.

Q.No 46	Country Sweden	Article Article 15	Ref. in National Report p.105
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Question/
Comment The first part states that "Another example of a 'radiation protection'-related requirement in the licence is the LH's obligation to monitor and record the radiation levels and levels of contamination at those locations where workers may receive an effective dose of 5 microSv/h or more".

Considering that a dose rate close to 5 microSv/h in areas where workers spent a substantial time (200 h) results in a annual dose above 1 mSv without notice, is there any follow up or control of this?

Answer Answer No.46.

This example regards the radiation protection within a nuclear installation. This criterion means that the LH has to take all the necessary measures to protect the workers and to monitor and register the doses. The LH also has to report the doses of external workers that meet this criterion every three months to the RB

Q.No 47	Country Sweden	Article Article 15	Ref. in National Report p.105
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Question/
Comment Why does the Netherlands consider monitoring once per year to be sufficient? Is there any requirements regarding follow up on personell that are suspected to be internally contaminated?

Answer Answer No.47.

This criterion is the minimum monitoring frequency in Nuclear Installations. The Radiation Protection Decree obliges that the monitoring will be done whenever there is a suspicion of the potential for internal contamination. The supporting radiation doctor decides or advises about necessary follow up.

Q.No 48	Country Sweden	Article Article 15	Ref. in National Report p.106
Question/ Comment	How often is the licencees obliged to report data on releases to the environment and results of environmental monitoring?		
Answer	Answer No.48. The licence dictates how often a licensee is obliged to report data on releases to the environment. The licensees are also obliged to make an annual report on the impact of their activities on the environment.		
Q.No 49	Country Sweden	Article Article 15	Ref. in National Report p.106
Question/ Comment	Are there any requirements for the licencees to demonstrate the application of BAT (Best Available Technology) on the release limiting systems?		
Answer	Answer No.49. In the Dutch regulations and the licenses there are requirements for the licensee to demonstrate the application of the ALARA principle and implementation of a continuous improvement process. The scope of this includes releases. The licensees have to demonstrate that discharges and emissions are kept ALARA and are not exceeding dose limits. They must use state of the art technology, and seek continuous improvement.		
Q.No 50	Country Sweden	Article Article 15	Ref. in National Report p.106
Question/ Comment	How does the regulatory body ensure the efficiency and function of reelease monitoring and reelease-limiting systems?		
Answer	Answer No.50. The requirements in the license oblige the LH to do the release monitoring and to operate release-limiting systems. The inspectorate KFD, in cooperation with the Environmental laboratory RIVM, does regular inspections on the systems and the quality of the sampling system		
Q.No 51	Country Sweden	Article Article 15	Ref. in National Report 105
Question/ Comment	The 3:th "paragraph" indicates that doses above 1 mSv/y can occure without notice the regulatory body from the license holder. How is this controlled by the license holder?		
Answer	Answer No.51. Refer to the answer to question 46 in the Q&A list of the Netherlands.		
Q.No 52	Country Argentina	Article Article 16.1	Ref. in National Report Article 16; Section 16.1.a; page 108/110
Question/ Comment	The report states (Article 16; Section 16.1.a; page 108/110) that: 1) SAM strategy at the LH. SAMGs; “Severe Accident Management Guidelines (SAMGs) have been in operation at Borssele NPP since 2000 as an outcome from the PSR at the plant in 1993. Their scope was expanded following the 2003 PSR to include shutdown conditions. The SAMGs are based on the generic SAMGs produced by the Westinghouse Owners Group and were considered state of the art in 2003. They are intended to address scenarios deriving from severe external hazards, such as earthquakes and floods, where there is the imminent potential for core melt”.		

2) Evaluation of SAM capability and (potential) safety improvements; “The LH is currently in the process of developing further a set of Extensive Damage Mitigation Guidelines (EDMGs). They address gross infrastructure problems deriving from a major incident, e.g. blocked roads, or doors no longer amenable for access”.

Could you provide information how this two guidelines will be included in the organizational frame of the license holder?

Answer

Answer No.52.

In the latest version (#3) of the generic Westinghouse SAMGs insights and lessons learned from the Fukushima accident were incorporated. Part of the new features in version 3 are the prioritization of actions, dedication of scarce equipment and personnel, monitoring of plant behaviour and execution of actions under the adverse conditions of an extreme external event. An upgrade to the new generic SAMGs version 3 would be a way to implement the Fukushima lessons in the Borssele SAMGs. In this framework the strategies and alternatives to deal with gross infrastructural problems (Extensive Damage Mitigation Guidelines) will be integrated

Q.No	Country	Article	Ref. in National Report
53	Ireland	Article 16.1	page 109

Question/
Comment “Though bunkered (like the ECR), it is not designed to to withstand severe events such as a major earthquake, flood or aircraft crash. If damaged, ERO has to use another room, but consequently lose some of the dedicated ERO facilities”
Could the Netherlands expand on the ERO facilities that would be lost and how this would impact on the ERO’s ability to respond? Is there a back-up plan in place?

Answer

Answer No.53.

The current ERC consists of a bunkered area located in the basement of an office building about 20 meters away from the reactor building. This is the main ERC location with work and meeting room facilities, communication means, a backup laboratory, Safety Parameter Display, small equipment and protective clothing. The License Holder has made a backup ERC facility (on two locations) at the other side of the plant and copied the inventory of the ERC in the basement except for the laboratory. The laboratory in the basement is already a backup of the two laboratories in the plant. The backup ERC facility is located high enough to withstand floods. The License Holder is studying the possibility of a new ERC building that will be available after all foreseeable hazards. In the mean time the current backup facility reduces the risk of having no ERC when needed.

Q.No	Country	Article	Ref. in National Report
54	Ireland	Article 16.1	page 112

Question/
Comment “The intervention level for the protection of the public varies widely from one country to the next. While awaiting harmonisation directives from the European Commission in this respect, arrangements have been made with neighbouring countries to introduce matching measures in border areas, regardless of any differences in national intervention levels.
Could the Netherlands provide additional information on how the matching measures in border areas were agreed with neighbouring countries and outline the differences between those and the national levels? What steps have been taken to ensure the appropriate measures are clearly communicated and understood in an emergency?”

Answer

Answer No.54.

We are still in the process of establishing a new policy to harmonize protective actions in the early phase of (possible) accidents in the NPPs in the border area with Belgium and Germany. In a series of bi-and trilateral meetings the possibility of harmonization of intervention levels was discussed with our neighbouring countries Germany and Belgium. As an outcome of regular meetings on the national level with Belgium and Germany, a new mechanism for intervention levels has been developed, that the Netherlands very recently decided to use.

To meet the various intervention levels (e.g. differences in NL, DE and BE), for protecting the public, the new NL mechanism (2014) is based on ranges of values to meet the different values in the bordering counties as much as possible. The harmonization the standards of protection of the public is based on a default intervention level (to be used as a starting value in case of an incident in the Netherlands), which is combined with an intervention range. This intervention range encompasses the respective interventions levels of Germany and Belgium and results in harmonized intervention levels. The decision made by the authorities in the accident-country will be accepted by the country on the other side of the border. When an incident occurs in e.g. Belgium we select the Belgian intervention level from the range to match the intervention level used by the Belgian authorities.

In regular meetings with the bordering countries (based on formal Memoranda of Understanding) the exchange of information and assessment results and the approach for decisions for protective actions for the public is discussed regularly. This is an ongoing process.

The local emergency response organizations were involved, and have been kept informed, on this approach. Further implementation will take place by revising the NPK (National Nuclear Emergency Plan)-response plan and by specific training for the policy makers.

The actual intervention levels are reproduced in the table in the answer support document "InterventionLevel.pdf".

Support Documents » Intervention_levels

Q.No	Country	Article	Ref. in National Report
55	Luxembourg	Article 16.1	page 115

Question/ Comment The report states that Memoranda of Understanding (MoU) that have been signed with bordering countries on the exchange of technical data (such as monitoring results and modelling-assessments). It says further that the same approach is in preparation with Belgium. Related to this we would like to ask the following questions:

1. Please clarify the situation with Belgium. Is the MoU with Belgium updated or established for the first time?
2. Do those MoU allow exchanging early information concerning the assessment of the situation at the reactor and linked prognosis on a potential off-site radiological impact?
3. Do those bilateral MoU also contain provisions for coordination between the responsible authorities on recommendations or decisions for protective actions in

case of a cross border impact? If not, would the Netherlands be in favour to establish such mechanisms?

Answer

Answer No.55.

1.) The MoU of NL with BE was signed in 1999. In 2006 an MoU with Be, NL and Lux was established. Arrangements for the exchange of information in case of accidents in nuclear installations in the bordering areas are based on these existing MoUs.

2.) Yes.

3.) Yes (MoU 2006, “samenwerking op het terrein van de beheersing van crisissen met mogelijke grensoverschrijdende gevolgen”). The MoU gives a general framework for cooperation, but no operational provisions for coordination between the responsible authorities on recommendations or decisions for protective actions in case of cross border impact. There are existing mechanisms for cross border coordination with local or regional authorities and for coordination on national level, the generic mechanisms for coordination on decision making are valid.

Q.No	Country	Article	Ref. in National Report
56	Slovenia	Article 16.1	111

Question/
Comment Is your organization for nuclear emergency preparedness events independent or part of the regulatory body, and how many people it have available and how many people are activated in case of an emergency ?. How many people are members of dedicated information unit, the ‘EPAn?

Answer

Answer No.56.

Yes, the organization for nuclear emergency preparedness (EPAn) is independent in assessing the radiological risks and the necessary off-site measures.

Decision making (in the end) is a responsibility for the Minister and therefore not politically independent.

The EPAn Back-Offices (2x) and Front-Office, has three full shifts available for the response phase. Its staffing is flexible, i.e. it can be adapted to the situation at hand. In total approximately 100 persons are available.

Q.No	Country	Article	Ref. in National Report
57	Switzerland	Article 16.1	p. 112

Question/
Comment The report describes intervention levels and measures for the case of an accident. The decision-making process, whether a measure should be implemented according to defined intervention levels, has to be based on (numerical) prognosis, if dose and dose rate measurements are not available. How is the source term estimation and the atmospheric dispersion calculation performed and implemented in the emergency organization of the Netherlands?

How is the source term estimation and the atmospheric dispersion calculation performed and implemented in the emergency organization of the Netherlands?

Answer

Answer No.57.

Assuming an accident at the nuclear power plant in Borssele, source term information in the absence of dose and dose and dose rate measurements is based on:

1. Readings of the stack monitor system present in the venting system of the facility. The system provides estimates for noble gases, radio-iodine and particulates before being piped to the stack.
2. The operator internal emergency procedures for rapid accident management and source term estimation.
3. For severe accidents, a simplified release scheme consisting of 16 reference source terms from the PSA-2 study, involving core damage or core melt are available to assist in the source term selection, based on critical source term parameters (plant condition, release path).
4. These reference source terms are also the basis for a Bayesian belief network (SPRINT). SPRINT (System for Probabilistic Interference of Nuclear Power Plant Transients) uses the plant status deduced from observations to calculate the probability for certain source terms. The SPRINT in Borssele nuclear power plant is a Dutch implementation of a system developed under the EU FP5 STERPS program.
5. If stack readings and dose or dose rate measurements are not available, source term estimation is ultimately a matter of expert judgement. Source term estimates from the operator are validated by the regulator (KFD) and used as input for air dispersion calculations. For this the European JRODOS system is implemented and operational at the Back Office Radiological Information at RIVM Bilthoven. The system provides projections on concentration and doses and can be compared to Dutch intervention levels. The Dutch early phase emergency management in the absence of radiological measurements depends heavily on projected dose calculations by the system.

Q.No 58	Country Switzerland	Article Article 16.1	Ref. in National Report p. 113
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Question/
Comment The report states in table 3 that the intervention levels for the measures "late evacuation" and "relocation" are defined by a bandwidth ranging from 50 to 250 mSv. In the decision making process of the emergency management, how do you deal with the uncertainty of the radiological assessment within the framework of these bandwidths?

In the decision making process of the emergency management, how do you deal with the uncertainty of the radiological assessment within the framework of these bandwidths?

Answer Answer No.58.
There is no specific consideration of the uncertainty of dose assessment for the measures "late evacuation" and "relocation". An assessment of uncertainty is standard in the decision making process. The main reason that a bandwidth is used is that many other factors influence the effectiveness and desirability of these two protective actions, so a more tailor made decision can be taken within the intervention range framework. Our experience from exercises is that this range is used conservatively. However, the range gives the possibility to take into account other relevant parameters as extreme weather conditions or the possibility to evacuate people.

Q.No 59	Country United States of America	Article Article 16.1	Ref. in National Report 16.1.1
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Question/
Comment The Borssele NPP implemented SAMGs in 2000, and the current SAMGs are based on the generic SAMGs produced by the Westinghouse Owners Group,

which were considered state-of-the-art in 2003. Please describe the plans (if any) to update the SAMGs in light of the incident at Fukushima.

Answer

Answer No.59.

In 2013 a SAMG for the SFP was written by the License Holder in close cooperation with Westinghouse. This additional SAMG SAG-7 has been integrated in the existing plant specific SAMG package. After deliberation with Westinghouse it was decided that this was a feasible first step to incorporate lessons learnt from Fukushima in the Borssele SAMGs. The next step would be an upgrade of the existing plant specific SAMGs, that are based on the 2003 generic procedures, to the post Fukushima version 3 which wouldn't be ready before 2014. The current plan is to carry out this upgrade in the coming years

Q.No 60	Country Ireland	Article Article 16.2	Ref. in National Report page 115
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Question/
Comment

“To learn more about national nuclear emergency plans and the approaches for decision making, arrangements are made to exchange observers from bordering countries in case of relevant exercises with NPPs in border areas.”

Could the Netherlands provide more information on the exercises it participated in with border countries and how the lessons learned from these exercises informed emergency planning procedures/arrangements in the Netherlands?

Answer

Answer No.60.

Participation of the Netherlands was focused on observer and liaison level in national exercises in Belgium (Doel 2009) and information exchange in the NL national exercise Indian Summer (2011). With Germany the existing bilateral protocol for information exchange was tested several times.

The outcome of the bilateral participation in national exercises was mainly focused on the need to develop arrangements for information exchange with similar organizations (e.g. RIVM and FANC in BE) for technical information and data, and on Ministerial level (exchange of alerts etcetera BE and GE) and RIVM, and BfS and Messzentral (DE) for the exchange of technical data.

It is planned to organize bilateral exercises in border areas with shared objectives in the coming years. These exercises have to be fit in the existing national exercise planning.

Q.No 61	Country Italy	Article Article 16.2	Ref. in National Report 16.1.b, page 111
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Question/
Comment

Which are the national capabilities for the radiological characterization of the environment in case of a radioactive fallout affecting a wide area?

Answer

Answ.61:

National capabilities for the characterization of radioactivity in the environment exists for compartments air, ground, soil, food and (surface) water and drinking water. Measurements are realised by fixed networks, mobile capacities and environmental sampling teams from several (mostly national) institutes. Mapping of a contaminated environment is facilitated by:

1.) The National Monitoring network (NMR). The NMR is a fixed radiological monitoring network consisting of about 165 gamma dose rate meters, 14 stations measuring total-alpha and beta in air. In Bilthoven an automated setup for nuclide specific measurements, including iodine and a high volume sampler (HVS) complements the NMR network. This fixed network is maintained by the

National Institute for Public Health and the Environment (RIVM). The network is part of the EURDEP measuring network and serves also as a warning network for nuclear accidents.

2.) Nuclide specific measurements in air and wet deposition is determined at nine location distributed over the country. These measurements are performed on demand during a response of an accident.

3.) Mobile measurements teams further assist in the mapping of a contaminated territory. Two mobile measurement vehicles from the National Institute of Public Health and the Environment (RIVM) are equipped for the detection of gamma dose rate, airborne activity, ground contamination and the measurement of noble gasses. Additional mobile vehicles come from the Dutch defense organisation; three specialised mobile measuring teams and six NBC reconnaissance vehicles (spurfuchses) can be used for mapping the environment.

4.) During the response phase of a nuclear or radiological accident mobile measurements teams from RIVM and MoD are further extended with mobile monitoring teams from the fire brigade.

5. Laboratory facilities at RIVM for measuring contaminated samples and objects.

Contamination in the compartments food and water is mapped using:

1.) The radiological monitoring network for food, maintained by the Institute of Food Safety (RIKILT). This network consists of fixed measurement locations and a countrywide organisation to activate mobile sampling teams for food and feed products.

2.) A surface water measuring network under the coordination of the the Ministry of Infrastructure and the Environment.

3.) A network of specialized laboratories for the monitoring of drinking water under the coordination of the KWR Watercycle research Institute.

The Netherlands currently has no aerial capabilities (like planes with measurement devices) to map radioactivity in the environment.

During the response to a nuclear accident the measurement programs are coordinated by the Back Office Radiological Information (BORI). All measurements are entered in the BORI database and processed in the European JRODOS Decision Support System for further analysis or they are processed in a standard Geographic Information System for generating maps.

Under normal (non-accident) conditions part of the facilities are used to map radioactivity in the environment and food according to the Euratom treaty of 1957.

Q.No	Country	Article	Ref. in National Report
62	Argentina	Article 17.1	Article 17; Section 17(i); page 117
Question/ Comment	The report states (Article 17; Section 17(i); page 117); “The safety case of Borssele evaluates the human induced threats. These may generally result from an		

accident in the industrial environment, from pipelines or from an accident on a nearby road or railway or the river. The resulting risks for these events have been evaluated in the PSA for external events and were found to be very low. The dyke offers protection, and the calculated pressure waves will not harm the installation. To counter delayed ignition of a vapour cloud, an automatic detection and ignition system has been installed on the seaward side of the dyke.”

Could you clarify the meaning of the phrase “the dyke offer protection... harm the installation”? What kind of analyses supports this expression?

Answer

Answer No.62.

Recently a study of the protection of the NPP against flooding has been performed by the licensee.

The study shows the maximum water level to be expected at the site and the possible failure mechanisms of the dyke in front of the NPP. From the study it can be concluded that maximum water level in case of failure of the dyke does not affect the safety of the power plant. The design level of the NPP is sufficient for the maximum to be expected water level.

The report was reviewed and accepted by the KFD (inspectorate of RB)

Q.No 63	Country Switzerland	Article Article 17.1	Ref. in National Report p. 118
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Question/
Comment Did Netherlands follow the ENSREG recommendation of using a 1E-04 per annum return frequency for natural hazards? And if so, was a percentil or the mean of the 1E-04 exceedance frequency used?

Answer

Answer No.63.

Currently, The Netherlands is working on the compilation of a new set of safety requirements. It is considered to include the 1E-04 per annum return frequency for natural hazards in either the requirements or in guidance. A decision still has to be taken. Specific guidance on how to come up with this return frequency and how to use it will be compiled following the finalization of the requirements.

Q.No 64	Country Argentina	Article Article 17.3	Ref. in National Report Article 17; Section 17(iii); page 118
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Question/
Comment It is mentioned that earthquakes with magnitudes of very low probability have been considered (Article 17; Section 17(iii); page 118). Please, could you clarify which value of exceedance frequency is considered after lessons learned from Fukushima? Which is the basis for the determination of the Review Level Earthquake? Which is the methodology used for the safety margin assessment?

Answer

Answer No.64.

As outcome of the stress test and as part of the Periodic Safety Review the licensee is carrying out a Seismic Margin Assessment (SMA). This is done with the use of the EPRI SMA-method (6041). As part of the SMA the seismic hazard for the site is re-evaluated. Exceedance frequencies of 1E-04 and 1E-05 are taken into account.. The re-evaluation is ongoing.

For the performance of the SMA a Review Level Earthquake (RLE) has to be chosen. The value for the RLE will be chosen based upon the actual seismic hazard and will be higher. No decision is made so far on the definition of the RLE value.

Q.No 65	Country Germany	Article Article 18.1	Ref. in National Report page 122
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Question/ Comment One of the requirements issued by Regulatory Body (RB) has a relation with defence in depth: the License Holder (LH) has to evaluate and improve the survivability of equipment (SSCs) that may be of high value during severe accidents (thus at the level 4). This is sometimes called the “hardened core”. The Dutch regulator has asked the license holder of the NPP at Borssele to evaluate and improve the survivability of equipment (SSCs) that may be of high value during severe accidents (thus at the level 4). A presentation during the next review meeting on the concept of the “hardened core” would be appreciated.

Answer Answer No.65.
 The Borssele NPP already has bunkered backup systems consisting of: feedwater pumps, primary makeup water pumps, emergency diesels and measuring and sampling provisions. These systems can be considered as the “hardened core” of the plant. Upon request from the KFD, the License Holder studied whether the robustness of components dedicated to SAM purposes should be enhanced. According to the License Holder the outcome of this study was that only the level measurement of the SFP should be exchanged. Equipment that is used during a severe accident is already qualified for earthquakes and LOCA conditions and is partly situated in the mentioned bunkered area. As the severity of the LOCA conditions is limited by the amount of water, heat and radioactivity that is in plant systems, environmental conditions cannot be worse during the first phases of a severe accident as long as the fuel elements are intact. Equipment qualified for LOCA conditions or situated in the bunkered area will therefore survive long enough to be used for SAM purposes during a severe accident. This is still valid if radiation levels increase above the levels that are assumed in the LOCA analysis until the point is reached where the cumulative dose on the equipment gets too high. The only exception to this is the level measurement in the SFP as it is the main instrument to determine that the fuel in the pool is still cooled. This instrument is located in the containment and it is needed long after the situation in the reactor core has been stabilized. The outcome of the study is still under review by the RB.
 During the CNS6 RM we will give more information.

Q.No	Country	Article	Ref. in National Report
66	Sweden	Article 18.1	p.123

Question/ Comment When using standards from different “standard-families” for Electrical Systems versus I&C systems (IEEE versus IEC), how should “conflicts” between different concepts be handled (1E/2E versus category A/B/C)?

Answer Answer No.66.
 The inspectorate of the Regulatory Body (KFD) agreed to classify all Electrical Systems and I&C systems and components into three safety classes:

- Class 1E: function with respect to nuclear safety;
- Class 1A: important safety function for operation;
- Class 0E: no function with regard to nuclear safety or important safety function for operation.

In the Netherlands when the licensee plans a modifications which has no influence on the license, the licensee proposes the list of standards which is assessed by the inspectorate of the Regulatory Body (KFD). Now, the trend is that for classification the IEC 61226 is followed when a modification is proposed.

There are no big issues (known) between the safety classes used in the Netherlands and the safety classification of the IEC 61226. If a conflict arises in case of a plant modification, the KFD approach is to solve this by making an agreement with the Licensee in the early phase of the modification project. In this agreement also the concept of the classification is given.

Q.No	Country	Article	Ref. in National Report
67	Sweden	Article 18.1	p.124

Question/ Comment What is the origin of the "90 postulated initiating events" and how is the regular ongoing assessment interlinked to reevaluating (as well as expanding or expunging from) to these events?

Answer Answer No.67.

The postulated initiating events of KCB are originating from the 1992 PIE-list and different international references (WENRA, KTA, NRC, BMU and PIE-list of the EPR). In the frame of the periodic safety review (PSR) it was checked by the licensee in 2013 if the existing PIE-list provided a sufficient envelope taking into account the actual design of the plant including modifications, the usage of MOX-elements and the recent state of the art. Several PIE's were added to the PIE-list. The supervisor KFD has started the assessment of the PSR-documents. The final result will be available in the second half of 2014. In the frame of the MOX-project, relevant safety analyses were already updated in 2012. These were subject to ongoing assessment by the regulator and linked to the re-evaluation of the safety analyses in the ongoing PSR by reviewing the state of the art of the modified MOX-analyses. After finishing the PSR there will be another interlink between the PSR and regular ongoing assessment activity, because based on the results from the PSR, the safety analysis report (SAR) of KCB will be updated in the frame of a licensing project. KFD has assigned GRS with review of PSR documents and with programming a simulator program in order to perform independent second opinion calculations. First calculations were performed by GRS on behalf of KFD in end 2013. This will be continued in 2014 in the frame of the supervisory assessment of the PSR.

Q.No	Country	Article	Ref. in National Report
68	Switzerland	Article 19.1	p. 127ff

Question/ Comment Roughly how many inspections have been performed by the Regulatory Body in the Borssele NPP in respect to the national investigations and actions taken in the light of the Fukushima Daiichi Accident?

Answer Answer No.68.

The first inspections were already performed in April 2011 based on the WANO-SOER methodology. These inspections were not performed by the Regulatory Body (RB) but closely monitored by the RB in order to ensure that appropriate actions were taken based on these inspections. Next step was the EU/ENSREG stress test. The stress test was assessed by the RB and the corrective and preventive actions were enforced and monitored by the RB. Special attention was given to the (state owned) dyke protecting the Borssele NPP from the sea. In order to get as soon as possible more knowledge for doing "post-Fukushima-related" inspections, the RB has also participated in this kind of inspections performed in Belgium.

Not all required actions are finalized yet. Currently the RB is performing inspections to monitor the progress made by the NPP. In 2013 five inspections

were done for this purpose.

Q.No	Country	Article	Ref. in National Report
69	Switzerland	Article 19.1	p. 127ff

Question/
Comment Is there a Regulatory Body requirement/regulation for assistance to an accidently affected NPP site/area from outside the affected area? Would such assistance from other parts of the country cover hardware and personal? Is air-borne assistance arranged?

Answer Answer No.69.
There is no specific regulation requiring this type of assistance from outside the affected area. However there are arrangements between the NPP and the armed forces and commercial parties for various types of assistance. In addition there are the local arrangements with the Safety Region. The details of the arrangements are listed below.

In The Netherlands, there is only one Nuclear Power Plant (NPP Borssele). There are arrangements with the Safety Region to assist the internal emergency organization in industrial as well as nuclear installations, tailored to the specific facilities. E.g. assistance in case of fires (Fire brigade) and medical services. Every year the NPP has 6 to 7 'full scope' emergency exercises, in most cases with involvement of the Safety Region.

The Safety Region has also access to national facilities. That allows for large scale and specialist operational assistance and services in potential crisis situations. Heavy equipment, specialist manpower and (land, water and airborne) transport services are available from the Ministry of Defense. There are yearly support exercises with the NPP since 2011.

For technical (nuclear) assistance EPZ has a contract with the vendor of the plant (now named Areva) to assist the plant's Emergency Response Organisation (ERO) with calculations and technical support in case of an emergency. This assistance is given by the so called 'Krisenstab' (crisis staff) which is a group of engineers who will assist when requested by the power plant. The 'Krisenstab' has an online data connection with the process parameter system (PPS) of the plant, providing all relevant process data in real time. This connection on stand-by during normal operation, it is switched on by the plant personnel for periodic tests, exercises and in emergency situations.

Also the ERO has a direct telephone line to the combined call centre for the police, fire department and ambulance in Middelburg. The shift supervisor or SED can ask directly for assistance when needed.

The License Holder also has a Coal Fired Plant (the CCB) at the same site, that can give assistance (means and personnel). In addition the two 6 kV emergency diesel generators at CCB can both deliver up to 1 MW to supply essential bus bars of the NPP.

For external hardware basically arrangements are made for:

- connection of mobile diesel generators; one 1 MW mobile diesel generator is

always on-site, more are available from regional suppliers (transport to KCB and installation of an extra external diesel generator located near Rotterdam takes approximately 8 hours);

- heavy equipment such as bulldozers are available from the CCB;
- supply of diesel.

Q.No	Country	Article	Ref. in National Report
70	Italy	Article 19.3	19.(iii), page 130

Question/ Comment With reference to the programmed LTO of BORSSELE NPP, please provide more details about process and requirements for performing the plant ageing management review.

Answer Answ.70:
 Requirements and process: the whole LTO project approach was based on a combination of several IAEA references: the IAEA Salto document SR57 (2008), which is the IAEA-safety guide on Ageing Management. The basis for the requirements for the LTO evaluation, was extended with the IAEA-safety guide on Periodic Safety Review (NS-G-2.10) for the safety factors 10, 'Management & Organisation' and 15, 'Human Factors' which are not covered by SR57. The process was accompanied by a series of IAEA SALTO missions in 2009 (mainly aimed at the scope of the LTO-program) and 2012 (Full scope mission) and followed up in February 2014 by another IAEA mission.

In chapter 5 of SR 57 detailed information is provided on Ageing Management Review(AMR) for long term operation.

The contractor (AREVA) of the licensee has developed an AMR methodology including scoping and grouping of the structures and components to be reviewed and a description of the standard content of the AMR reports. Requirements for the review are based on the design basis of the plant.

AREVA and other contractors have produced on behalf of the licensee a series of well documented AMR reports covering all in-scope structures and components. The licensing authority has reviewed those documents in cooperation with a TSO (GRS). The general conclusion of the safety review is that the plant still meets the requirements of the design basis. Some improvements in plant programmes and ageing management were proposed to control ageing in the period of LTO. Those improvements were included as licence conditions in the licence for the continued operation of the Borssele NPP.