

**NL - Netherlands**

**RAPPORTEURS' REPORT THE NETHERLANDS**  
**ENSREG NATIONAL ACTION PLANS WORKSHOP**

1.0 ASSESSMENT OF THE STRUCTURE OF NATIONAL ACTION PLAN

1.1 Compliance of the national action plan with the ENSREG Action Plan:

The National Action Plan for the follow-up of post Fukushima Daiichi related activities (NACP) contains a compilation of all the major conclusions and recommendations contained in the 'Netherlands' National Report on the Post-Fukushima Stress Test for the Borssele Nuclear Power Plant', observations from the peer review process by the ENSREG group, also taking into account the Final Summary Report of the 2nd Extraordinary Meeting of the Contracting Parties to the Convention on Nuclear safety.

2015 Update:

The Plan is still structured along the six main topics identified by ENSREG and the Contracting Parties to the Convention on Nuclear Safety. Thus the compliance is maintained.

1.2 Adequacy of the information supplied, taking into account the guidance provided by ENSREG.

The Netherlands' NACP has four main parts, in compliance with ENSREG-guidance. The first two parts present the national (Dutch) positions on international post-Fukushima observations collected by ENSREG and/or CNS.

The third part presents actions that are specific for The Netherlands and that have not been inventoried by ENSREG and/or CNS, in particular a decision that all licensees with nuclear installations have undertaken a Complementary Safety Assessment (stress test) to assess the robustness of their facilities. This applies to waste management facilities, research reactors, nuclear research laboratories, and the enrichment plant. The fourth part presents details about all post-Fukushima actions and their planning in the Netherlands.

In the presentation at the Workshop, it was shown that a number of relevant measures, in particular regarding bunkered safety systems and severe accident management, had already been taken in the last decades, beginning in the 80s.

2015 Update:

The second edition of Netherlands' NACP has been updated in a clear manner. For each topic it presents an update and the status of the analyses conducted, activities performed by the operator and those performed by the regulator. Tables were extended by a new column containing description of the current status of the implementation of planned measures. The description is brief but provides information on whether the measure has been implemented/completed or is still in progress.

2.0 ASSESSMENT OF THE CONTENT OF NATIONAL ACTION PLAN

2.1 How has the country addressed the recommendations of the ENSREG Action Plan?

Proposed measures addressing site of Borssele Nuclear Power Plant are being implemented by the EPZ N.V. Elektriciteits-Produktiemaatschappij Zuid-Nederland EPZ – licensee of the Borssele NPP. Measures of general nature, such as the amendment of the nuclear legislation, off-site emergency preparedness, international cooperation, etc. will be implemented by the state administration, especially Dutch RB.

The Netherlands' NAcP is written as a "stand alone" document and information contained is presented for maximum clarity in the form of tables.

ENSREG recommendations as well as the recommendations from the Peer Review Country Report of The Netherlands are well covered in the NAcP, although regarding the latter, there is a small number of cases where this does not become fully clear from the NAcP alone (for example, regarding the review of the maintenance schedule for equipment related to AM (Peer Review Country Report 4.3). However, these points were clarified during the workshop.

2015 Update:

The content of the Plan has been preserved and satisfactorily corresponds to the recommendations of the ENSREG Action Plan. In addition the Netherlands added in the Plan section 8.2 "Quick scan of compliance with recently updated WENRA RLs" presenting a first verification of the status of implementation in Dutch regulations and at the NPP Borssele of the recently published WENRA RLs for existing reactors (Fukushima related changes). The Plan also contains a new Appendix A "Implementation of IAEA Action Plan as of October 2014".

## 2.2. Schedule of the implementation of the NAcP

The implementation of improvement measures identified on European and National level in the aftermath of Fukushima is clearly scheduled. A number of measures are already implemented whereas all other measures will be completed by 2016.

Any problems that may affect implementation of the Action Plan will be considered case by case between the license holder and regulatory authority. If the measure included in the Action Plan is to perform study or analysis, new measures may be identified based on its results.

2015 Update:

The revised NAcP informs that the majority of measures to improve nuclear safety planned by the end of 2014 have been done, remaining measures are in progress. There is certain delay for some measures due to objective reasons (e.g. a decision to build a new ECR) which have led to rescheduling. During the workshop the Netherlands has informed that the new schedule proposed by the operator has been accepted by the RB.

## 2.3 Transparency of the NAcP and of the process of the implementation of the tasks identified within it

The Netherlands' NAcP informs comprehensively on enhancement of nuclear safety in the Netherlands, in particular on the NPP Borssele.

The Plan has been made available to the general public and the Parliament in English, together with a summary in Dutch. The Parliament and the public will be regularly (at least once per year) informed on progress made in NAcP implementation also in future.

## 2015 Update:

The revised NAcP have been made available to the general public and was also sent to the Dutch Parliament. The issue of transparency has been addressed during the workshop. It is commendable that the revised NAcP is compiled as a stand-alone document.

## 2.4 Commendable aspects (good practices, experiences, interesting approaches) and challenges

The NAcP describes specifically the status of identified issues and the proposed actions. Some of the measures are already implemented since they were proposed before the Fukushima events on the basis of Periodic Safety Review results, e.g. bunkered safety systems, alternative UHS, filtered venting system, PARs, or SAMGs for all operational regimes including shutdown conditions use of Probabilistic Safety Assessments in NPP operation as a risk monitor.

The specified timeframe to implement all the improvement measures until end of 2016 is ambitious and commendable. The license holder will report in three month intervals on the progress of NAcP implementation.

The regular and comprehensive information of the parliament can be seen as a good practice, as well as the inclusion of other nuclear facilities than NPPs in the national stress test.

Within the frame of the ongoing PSR and NAcP also the possibilities for in-vessel retention of molten core are investigated. Finding a solution constitutes a challenge, in view of the design characteristics of the Borssele NPP. It is suggested that NL takes note of progress made in this area in other countries and solutions already adopted.

## 2015 Update:

It is commendable that most of the activities in the NAcP have been completed according to the planned schedule, or are proceeding according to plan.

It is appreciated that the anew authority for nuclear safety and radiation protection (Autoriteit Nucleaire Veiligheid en Stralingsbescherming - or ANVS), has started operations on 1 January 2015, under the Ministry of Infrastructure and the Environment. The required legislation which will establish it as an independent administrative body is expected to be in force at the beginning of 2016.

The alignment of implementation of post-Fukushima measures with activities in the framework of PSR is a good practice.

In addition following commendable practices have been identified since 2013:

- the planned implementation of measures needed for in vessel retention for molten corium and following actions (first KWU-plant)
- building an alternative emergency management building on-site (capable to withstand extreme events).

The definition of a Reference Level Earthquake for the low-seismicity region of the Borssele plant is a challenge. The ongoing discussion causes delay in the implementation of some RLE dependent measures, in particular the construction of a new ERC building, protected against all extreme events. The regulator has stated during the meeting that a deadline has been set at June 2015 for the LH to deliver a justified proposal for an RLE. If the deadline is not met, the RLE value will be decided by the RB.

## 2.5 Technical basis related to main changes and relevant outcomes of studies and analysis

Generally most of the work has followed the schedules envisaged in the 2013 Workshop. There were a few exceptions which are caused by the following reasons:

- new insights; initial planning appeared not feasible due to the complexity of the measures involved (e.g. ERC)
- alignment with other activities: some measures can only be performed during a long outage of the NPP or in combination with measures associated with the 10-yearly PSR
- third parties: for some actions information is needed provided by third parties, which is delayed (e.g. improving Westinghouse based EOP/SAMGs waits for Westinghouse generic post-Fukushima EOP/SAMGs).

During the review meeting results of performed studies have been presented. Some examples are:

- Seismic Margin Assessment (SMA) leading to improvement of the fire suppression systems
- SMA showed that containment venting system remains available at 0,15g
- assessment of need to upgrade equipment and/or instrumentation dedicated to SAM purposes showed that only SFP level measurement needs enhancement
- study on strengthening off-site power supply resulted in decision on new house load transformer with connection to separate 380kV grid
- study about feasibility of IVR lead to a proposal for a modification.

The results of these studies are presently under review.

In addition to the original NAcP measures, the following relevant measures have been defined:

- Additional option for SFP cooling and make up
- Additional hookup points for mobile systems.

## 3.0 PEER-REVIEW CONCLUSIONS

The second edition of the Netherland's NAcP is maintaining its structure according to the ENSREG recommendation. The content of the Plan has been preserved and satisfactorily corresponds to the recommendations of the ENSREG Action Plan. The update has been made in a clear manner. Tables listing all measures were extended by a new column containing description of the current status of implementation of planned measures. The description is brief but provides information on whether the measure has been implemented/completed or it is still in progress.

The revised NAcP informs that the majority of measures to improve nuclear safety planned by the end of 2014 have been done, remaining measures are in progress. There is certain delay for some measures due to objective reasons – see para 2.5 (e.g. a decision to build a new ECR). During the workshop the Netherlands has informed that the new schedule proposed by the operator has been accepted by the RB.

The revised NAcP contains a new section 8.2 "Quick scan of compliance with recently updated WENRA RLs" with a first verification of the status of implementation in Dutch regulations and at the NPP Borssele of the recently published WENRA RLs for existing reactors (Fukushima related changes). The preliminary conclusion is that after publication of the new guidance (Dutch Safety Requirements) and the implementation of the CSA and PSR measures The Netherlands will largely comply with the new RLs. The Plan also contains a new Appendix A "Implementation of IAEA Action Plan as of October 2014".

The decision of the Dutch Government to create one single independent administrative regulatory authority for nuclear safety and radiation protection has been appreciated. The new organization (Autoriteit Nucleaire Veiligheid en Stralingsbescherming - or ANVS) started operation on January 1<sup>st</sup> 2015 and will be formally installed as an independent administrative body at the beginning of 2016. The new RB better complies with international requirements for RB (e.g. the IAEA safety guides).

Among good practices a long term practice of Periodic Safety Reviews and a comprehensive practical use of Probabilistic Safety Assessments (since 80-ties) are in place.

In addition following commendable practices have been identified since 2013:

- the alignment of implementation of post-Fukushima measures with activities in the framework of PSR
- the planned implementation of measures needed for in vessel retention for molten corium and following actions (first KWU-plant)
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The definition of a Reference Level Earthquake for the low-seismicity region of the Borssele plant is a challenge. The ongoing discussion causes delay in the implementation of some RLE dependent measures, in particular the construction of a new ERC building, protected against all extreme events. The regulator has stated during the meeting that a deadline has been set at June 2015 for the LH to deliver a justified proposal for an RLE. If the deadline is not met, the RLE value will be decided by the RB.

The Netherland's delegation received 49 questions from participating countries and rapporteurs. The questions were satisfactorily answered in writing prior to the workshop and briefly commented during presentation and following discussion. Written answers will be made available on the ANVS webpage.