

RAPPORTEUR'S REPORT - BELGIUM
ENSREG NATIONAL ACTION PLANS REVIEW 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 Belgian Report followed the logic outlined in the ENSREG Action Plan, but did not follow closely the numbering of topics depicted in the “ENSREG compilation of recommendations” as suggested in the “National Action Plan (NACp) Guidance as directed within the ENSREG Stress test Action Plan”. Instead the actions are categorized according to “family” (7 of them, e.g. external hazards), “sub-family” (30 of them, e.g. extreme weather) and “sub-sub-family” (60 in total, e.g. heavy rain). However, the structure of the report is clear and easy to follow.

The topics in the “ENSREG compilation of recommendations” and of the recommendations of the EO CNS Review meeting are addressed in the Datasheet “Topics 1 to 3” (48 items), without direct reference to the exact place in the sources. The comments and recommendations formulated by the Peer Review team in the Peer Review country report, which are primarily aimed at the licensees and addressed in the Datasheet “Additional topics” (55 such items). Here the exact references to the country peer review report are given.

The datasheet “Implementation of activities” is directly derived from the licensees’ action plans. It contains all the elementary actions (318 of them, though the ID numbers of the actions go up to 634). It provides the target plant, the topic category, the short description of the action, reference to the other two data sheets, the action status and the target date of completion.

2015 update: The “National progress report on the stress tests of nuclear power plants” (issued December 2014) does not contain the same structure or elements of the original Action Plan, it outlines by qualitative means the progress of the actions since the last review meeting. It does not include an updated list of actions (in the form of a datasheet) supplemented with the actual status of each action nor the reasons for changes in schedule or content of individual actions.

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

The NACp of Belgium doesn’t follow the ENSREG national action plan guidance closely; however the required contents are covered in the report. The textual part of the NACp consists of 3 effective chapters: Introduction, Stress test national action plan (covering topics 1 to 3), Convention on Nuclear Safety (covering topics 4 to 6), which are complemented with: References, Conclusion and Acronyms.

The Appendix depicts the stress test national action plan in three “Datasheets”, as outlined above. The first datasheet lists all the issues listed in the document “Compilation of Recommendations” for Topic 1 to 3 and also refers to the CNS Extraordinary meeting, where applicable. Whenever one or more elementary actions are related to the issue, the ID numbers of the elementary actions are given, corresponding to the 3rd Datasheet.

The second Datasheet, under the headline “Additional topics” lists the issues identified in the country peer review report and in the inspections carried out by the national Regulator. These issues provide the reference to the source of the issue and also refer to the IDs of elementary actions as listed in the 3rd Datasheet.

During the discussions three specific actions were discussed: the habitability of the Main Control Room during a severe accident (related to special exercise about malevolent human actions), and the drainage capacity of the sites relative to extreme precipitation (improvement from 10⁻²/y to at least 10⁻³/y precipitation frequency), and the capability of the new Emergency Control Centre at Tihange to handle multiunit accidents (specific organizational arrangements to handle different emergency categories).

Update 2015: The progress report covers all main areas in relation to the topics 1-3 of the ENSREG action plan. It also gives an overview on the reasoning behind the changes relative to the original action plan. The progress and status of the major actions are described in the text. However, it doesn't provide detailed information on the situation related to each specific action. In addition some graphs show the evolution of the status of implementation for the main topics of the action plan.

2.0 ASSESSMENT OF THE CONTENT OF NATIONAL ACTION PLAN

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

The NAcP addresses the findings described the National stress test report of Belgium, 45 such issues are listed in the 2nd Datasheet with references to the subchapters of “7.2 Synthesis of the assessment ...” chapter of the national report.

The country has established appropriate actions addressing the 10 recommendations from the Belgium stress tests peer-review, which are covered in the second Datasheet.

The action plan has been elaborated by the licensee and approved by the regulator, though this approval doesn't result in any legal obligation for the licensee. However, the implementation of the actions is being carried out in a close and flexible co-operation between the regulator, its TSO and the licensee.

As mentioned earlier, aspects of the CNS are covered in the 1st Datasheet, without exact references. The aspects of the ENSREG compilation of recommendations and suggestions are explicitly listed without references to its numbering, but since the sequence follows strictly the source, the issues are easy to identify.

All the issues put forward in the above source documents are addressed in the NAcP.

2015: No new actions or measures are reported. The latest NAcP contains no tables showing the individual actions. The "BEST-Progress Report 2014" actually describes the progresses made during the year of 2014, not as compared to the report prepared for the 2013 ENSREG review workshop. 2.2.

Schedule of the implementation of the NAcP

The National Action Plan of Belgium provides the schedule of implementation of the elementary actions in the 3rd Datasheet: "Implementation of activities". All planned actions will be implemented by the end of 2017.

Over all planned actions, some 88 them are scheduled for the end of 2012 (are assumed to be completed), a majority are planned for 2013, and only 26 of the 318 elementary activities are scheduled to be completed by the end of 2014. 3 actions (filtered venting for the reactor building at 4 units) are scheduled for the end of 2017, which are marked by "?" mark, signifying some uncertainty.

3 actions are marked as "On hold till results of discussion with Safety Authority", without fixed target date, so far. The related analyses are not closed, so far.

7 actions are marked in the schedule column as "LTO" without explicit information on the schedule. As clarified during the discussions, these actions were initially planned for the Long Term Operation of the units Doel 1&2 and Tihange 1. The timeframe of these particular actions are defined as part of the LTO design upgrade programme.

The majority of the components "bunkered and hardened systems" for accident management is already completed, several of them before the stress test.

2015 update: The progress report doesn't contain detailed tables on the status of the individual actions; the quantitative progress status is only given in graphical form. These figures show that about 2/3rd of the actions have been completed, though for about a half of them the regulatory approval is still outstanding. Many actions pertaining to Doel 1&2 are shown as finished and closed by the regulator (in green), but are, in effect, just cancelled. During the presentation, Belgium explained that there are now 366 action points, of which only 40 are delayed. However, the number of completed actions at the end of 2014 is reported to be 253.

According to the original ambitious time schedules less than 10% of the actions were scheduled after 2013. The delays were justified in the workshop presentation partly by the changing political decisions about Doel 1&2 and also by the situation of the RPV flaws at Doel 3 and Tihange 2. The main reasons for delays was a too optimistic timing in the original action plan of the licensee. In 2013 a more realistic time schedule was agreed upon between the licensee of the regulator for the completion of all the actions.

The total number of actions has grown from 318 in 2012 to 366 in 2014 as a result of the additional actions as a result of the stress test of the WAB waste management facility and additional actions as a follow-up from the results of previous defined actions (for example implementation actions which were the result of an action for a feasibility study)

It is also notable that for the majority of the actions which are already completed by the licensee, the regulatory approval is still pending. The fraction of the completed and approved actions is about 30-40%.

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

The NAcP of Belgium is accessible through the WEB page of FANC, along with all documents related to the European stress test. The public is encouraged to interact with the FANC about the stress tests national action plan, and more generally for all nuclear safety related matters. Questions can be put to the authority through various channels and are answered within 14 days.

2015 update: The progress report is also accessible in English language on the French/Dutch WEB pages of FANC, but no updated tables with the status of the individual actions are provided.

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

The Regulator and the nuclear operators elaborated a very detailed programme to address the national and international findings and recommendations in relation to the European stress test. The result of this work is the list of 318 elementary activities. It is a good practice that the majority of these actions are to be completed by the end of 2013 and only a handful of them remains for a longer schedule.

The protection measures against the reevaluated design basis flood for the Tihange site are an important element of the action plan.

The installation of a new on-site emergency center at Tihange NPP, which is going to be resistant at least to the reevaluated design basis flood and the design basis earthquake, is a commendable issue.

Belgium has extended the stress test exercise to other nuclear installations than NPP which is considered as good practice.

Regarding the filtered containment venting, the detailed design still needs to be defined. This could challenge the target date for implementation.

2015 update: Several major achievements are completed, especially in the context of external hazards. The most important measures to be mentioned here are flood protection arrangements at both sites: all the Doel actions are completed, while the much more extensive peripheral protection works at Tihange are also almost completed by the time of the workshop. The extension of the stress test to man-made actions (either malevolent or not) is also judged as a commendable additional good practice.

The largest fraction of outstanding actions were reported in the field of the actions related to loss of cooling capacity and/or electric supply, including loss of primary and secondary heat sink. The scheduling and completion of these actions has proven to be a major challenge. Seemingly, the unexpected technical and political difficulties in other fields played an important role in these delays.

Note that the design of the containment filtered venting is completed and will be installed in 2016 or 2017, corresponding to the original schedule.

2.5 Technical basis related to main changes and relevant outcomes of studies and analysis (2015 addition)

Earthquake analysis has confirmed the original design basis for the Doel site, while for Tihange site the assessment resulted in a greater peak ground acceleration (“PGA”) than it was presumed in the original design. The assessments carried out during the stress test have shown that the robustness of the majority of the SSCs is satisfactory for surviving the DBE strains. The necessary modifications for the outstanding SSCs were completed by the end of 2012. Based on the suggestion of the Royal Observatory of Belgium, the Regulatory Body requested the licensee to carry out a more elaborate study – as well as international experts review – of the seismic hazard of the Doel and Tihange sites. This re-evaluation programme is still in progress and the results are expected to be delivered by early 2015. These results may interfere with other activities, including the design of the new Emergency Management Centre (COS) at Tihange.

A revised flooding study showed the need to improve the flooding protection around Tihange; these comprehensive protection measures are almost completed. These activities have been prioritized before the implementation of measures against Complete Station Black Out at Tihange, causing some delays. Note that some mobile pumps and generators with some prepared connection points are already available, including mobile systems to secure alternative cooling of the spent fuel ponds.

Although according to the licensee analyses have shown that no significant hydrogen concentration is expected in the room of spent fuel ponds, the regulator still requires the installation of PARs in that space.

3.0 PEER-REVIEW CONCLUSIONS

Belgium gave comprehensive and understandable information in its National Action Plan (NAcP) prepared for the 2013 ENSREG review workshop. The NAcP is in compliance with the national stress tests, the results of the country visit within the ENSREG Peer Review, the recommendations and suggestions of ENSREG and to those of the extraordinary meeting of CNS.

The NAcP doesn't closely follow the structure proposed by ENSREG, though it covers all the required sources and the issues identified.

The transparency policy expected by ENSREG is satisfied by publishing all stress test related information on the webpage of the regulatory body.

Although the action plan of Belgium is being carried out without legally binding ordinances from the national regulator, the actions were completed mainly as scheduled prior to the 2013 review workshop.

The majority of planned actions were originally to be implemented by the end of 2013, only 3 of them were planned to 2017 and the deadlines of a handful of actions were not fixed yet. After the 2013 ENSREG workshop some substantial and unexpected political and technical complications emerged in unrelated fields, causing significant delays relative to the original plans. Still the progress with the completion of the action plan was substantial during the past two years. The main priority was given to the protection against external natural hazards, causing some delays in the completion of CSBO related actions.

In spite of the political uncertainties with regard to the future of Doel 1&2, the regulator made clear that it is the precondition of an LTO approval that all the related NAcP actions are to be reinitiated.

Belgium has extended the stress test exercise to other nuclear installations than nuclear power plants which is considered as a good practice. *2015 update: A Stress Test covering man made events has also been performed in Belgium, another good practice.*

By the 2015 review workshop the detailed design for the filtered containment venting is completed, making the completion of the installation by the planned schedule (2017) realistically achievable.

Belgium has elaborated a very detailed action plan in order to further improve the safety of its nuclear power plants. The implementation of this plan is closely monitored by the regulatory body; *the analysis results are reviewed and the modifications are approved as applicable and the progress of the programme is inspected regularly.*