ENSREG
European Nuclear Safety Regulators Group

2nd NAcP Workshop
ENSREG / WG1

Conclusions and Findings

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2nd NAcP Workshop (1/3)

- NAcPs describe the actions, identified following the Fukushima Dai-ichi accident, that were taken, planned or implemented and their schedule to improve the safety of nuclear power plants (NPPs)

- The main workshop objective was to peer review the contents and status of implementation of the NAcPs via a common discussion.

- The workshop supported the consistency of NAcP, as well as promoted sharing of commendable practices, experiences and challenges within European countries.

- The discussion took place in a very open and constructive atmosphere. Transparency on the implementation of lessons learned from the Fukushima Dai-ichi accident was also considered

- 110 experts from 20 European Union member states, Switzerland and the Ukraine, the European Commission, as well as observers from four additional countries (Armenia, Norway, Taiwan and USA) participated.

2nd NAcP Workshop (2/3)

- The workshop identified a real commitment of all MS with the NAcP
- All regulatory authorities oversight the status of NAcP implementation of the actions
- Challenges and commendable practices during the implementation process were identified.
- Main changes in the NAcP from 2013 workshop, include:
  - additional measures
  - changes in the schedule
- Technical basis for the main changes were also identified (when applicable)

2nd NAcP Workshop (3/3)

- The NAcP Workshop 2015 recognized again the importance of the Stress Tests peer review recommendations, and particularly the Periodic Safety Review process which is recognized as a powerful tool for continuous improvement of nuclear power plants.

- Relevant outcomes of studies and analyses identified in the 2012 NAcPs, have been mostly completed.

- The WENRA SRLs recently approved (in 2014) are implemented in a few cases and are under implementation in all the MS

Findings – Commendable practices (1/2)

- Relying more on fixed equipment instead of mobile equipment in particular during the initial phase of the accident.
- Protecting additional fixed safety equipment against external hazards (bunkered systems). In some cases, safety functions were required to be available in case of external events with frequencies well below 10^{-4}/yr.
- Increase the autarchy/capacity of bunkered systems.
- Building an alternative emergency management building on-site (capable to withstand extreme events).
- Centralized emergency support centre have been installed in several countries for rapid intervention.
- Provisions for the management of large volume of contaminated water

Findings – Commendable practices (2/2)

- Mitigation of the consequences of loss of control of large areas of the facility caused by fires or explosions.
- Transboundary working groups and cooperation for off-site emergency response.
- Implementation of measures needed for in vessel retention for molten corium in smaller reactors.
- Emergency exercises dealing with multi-unit accident scenarios and the use of full-scope simulators for severe accident.
- The general implementation and continued review of SAMG, including the adequate training process.
- Extension of the stress test review on nuclear installations other than NPPs

Findings – Challenges (1/2)

- In some countries complex safety related actions are delayed from the initial schedule (FCV, PAR´s, emergency management building, hardened safety core, etc.), but the delay is not very significant and rely on the license process by the regulatory authority.

- Detailed schedules for specific measures resulting from analyses and studies are yet to be compiled for some countries.

- Some countries reported difficulties with the implementation of actions due to financial constraints, which would require a regulatory position.

- Availability of dedicated instrumentation and control required for accident management and guarantee its operability under severe accident conditions and extreme hazards.

- Hydrogen management outside the containment.

Findings – Challenges (2/2)

- Integration of concurrent safety related improvements, such as the implementation of the NAcPs, updated WENRA Safety Reference Levels and the findings from the Periodic Safety Reviews.

- Containment integrity in severe accident conditions and heat removal from the containment with independent qualified systems and selection of the strategy for the molten corium retention.

- Accident conditions starting from reactor shutdown with no containment integrity.

- Reviewing extreme natural hazards (in particular seismic) and relevant plant provisions according ENSREG recommendations.

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Follow-up from the Workshop

- Follow-up on the implementation of the pending actions and the results from studies and assessments is necessary.

- Consideration should be given to the final implementation of the actions contained in the NAcPs. This follow-up could take advantage of (1) updated NAcPs to be prepared and published under the framework of ENSREG every two years and (2) the second national report on the revised Directive for Nuclear Safety in 2020.

- The ENSREG Working Group Nuclear Safety (WG1) should propose the appropriate reporting process.

2015 NAcP Workshop: Material produced

- Updated National Action Plans (NAcP) – reports and presentations
- Summary report
- President statement
- Rapporteurs' reports
- Questions and answers