Post-Fukushima WANO changes

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Post-Fukushima WANO changes

1979: TMI → INPO

1986: Chernobyl → WANO

2011: Fukushima → ????
Fukushima Lessons Learned

INPO 11-005 Addendum  August 2012
“Lessons Learned from the Nuclear Accident at the Fukushima Daiichi Nuclear Power Station”

Lessons were identified in the following areas:

• Prepare for the Unexpected
• Operational Response
• Accident Response
• Design and Equipment
• Procedures
• Knowledge and Skills
• Operating Experience
• Nuclear Safety Culture
The WANO Post-Fukushima Commission established in April 2011 in response to the Fukushima event was charged with determining the changes WANO should implement based on the lessons learned from the event to help prevent or mitigate a similar occurrence in the future, and to close the gaps in WANO performance.

Mr. Mitchell, Chairman of the Post-Fukushima Commission,
Ontario Power CNO
2011 BGM
nuclear industry had changed unalterably, and to go forward, WANO must be much stronger and have “teeth” with its members. ... if this could not be accomplished, WANO should close its doors and relinquish the role of champion and proponent of international nuclear safety.
WANO Post-Fukushima Commission formulated 5 recommendations

1. To extend the scope of WANO to design and accident management
2. To set up an event response strategy
3. To increase WANO credibility (stronger internal control)
4. To increase WANO transparency (WANO regular reports accessible to public)
5. To increase internal consistency between the 4 Regional Centers
WANO Post-Fukushima Commission recommendations

WANO Post-Fukushima Commission projects to respond to post-Fukushima actions:

<table>
<thead>
<tr>
<th>Project</th>
<th>STATUS</th>
</tr>
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<tbody>
<tr>
<td>1. Self-assessment (LO)</td>
<td>Completed*</td>
</tr>
<tr>
<td>2. Emergency planning (AC)</td>
<td>Completed</td>
</tr>
<tr>
<td>3. Severe accident management (MC)</td>
<td>Completed</td>
</tr>
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<td>4. On-site fuel storage (TC)</td>
<td>Completed**</td>
</tr>
<tr>
<td>5. Emergency response planning (LO)</td>
<td>In progress</td>
</tr>
<tr>
<td>6. Design bases (PC)</td>
<td>In progress</td>
</tr>
<tr>
<td>7. Corporate peer reviews (LO)</td>
<td>Completed</td>
</tr>
<tr>
<td>8. Equivalency of other organizations’ peer reviews (LO)</td>
<td>Completed</td>
</tr>
<tr>
<td>9. Early notification strategy (LO)</td>
<td>Completed</td>
</tr>
<tr>
<td>10. Visibility and transparency (LO)</td>
<td>In progress</td>
</tr>
<tr>
<td>11. Increasing frequency of WANO peer reviews (LO)</td>
<td>Completed</td>
</tr>
<tr>
<td>12. Assessment process (LO)</td>
<td>In progress</td>
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</tbody>
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*Self-assessment is completed, follow-up self-assessment is under way

**SOER is developed, implementation of recommendations is initiated
WANO-MC support

• Dissemination of OE materials, including SER, SOER, JIT
• Familiarization with good practices of other plants
• Dissemination of WANO guidelines
• Technical support missions
• Benchmarking visits
• Topical workshops, meetings and training courses
• Requests for additional information to address problematic areas to other plants and Regional Centers
• Participation in plant self-assessments
• Assist visits
WANO has established its representative offices practically at all WANO-MC sites.

WANO-MC on-site representative

Five interaction categories (A B C D and E) have been proposed
On-site Representative Offices. 09. 2012
On-site Representative Offices. 2014
WANO Post-Fukushima Commission:

The full focus of WANO since its formation has been **accident prevention**, and no procedures were in place to address nuclear response or mitigation.

Therefore, WANO should both focus on accident prevention and mitigation, and should not confine itself with the accident prevention only.
One of the Post-Fukushima Commission recommendations was to extend the scope of WANO programs, including, inter-alia, severe accident management (SAM).

WANO-MC assumed overall responsibility for the SAM project to complete the project on December 26, 2012.
It is recommended that all plants should undertake a SAM self-assessment by late 2015.

PO&C in SAM and “How to review SAM” guideline which WANO developed and submitted to the utilities/plants make up the basis for the self-assessment.
Another WANO Post-Fukushima Commission recommendation is to: Develop an international event response strategy

On August 30, 2011, the WANO-MC plant stress test workshop decided to establish a VVER Regional Crisis Center (RCC) to render assistance in the decision making process in case of severe accidents.
RCC tasks and objectives

- Support to affected plants
- Dissemination of information on plant safety significant events among the RCC members
- Establishment of the single information and expert space
RCC operating principles

Principle 1: Continuous readiness
Principle 2: Optimization of information flows
Principle 3: Early notification
Principle 4: Confidentiality
Principle 5: Expert support
Principle 6: Logistical support
Principle 7: Use of accumulated knowledge
Principle 8: Exercises and drills
Principle 9: Voluntariness
RCC participation levels

Participants: all 11 WANO-MC operating organizations

Level 1  Finland, Czech Republic, Slovakia, Hungary, Ukraine, Bulgaria

Level 2  Iran, China

Level 3  Russia, Armenia
RCC started on 14 March 2013.
RCC agreements were concluded with nine WANO-MC utilities.
RCC regulations... were approved by the WANO-MC Governing Board in October 2012.
RCC regulations on information exchange between the RCC and VVER RCC members and procedure for RCC operation were developed.
RCC participated in the international integrated emergency exercises with a simulated initiating event at:
- Loviisa NPP on 14 March 2013 (Finland)
- Kalinin NPP on 18-20 September 2013
- Mochovce NPP on 15 May 2014
- Kola NPP on 27-28 August 2014
RCC plans

- RCC participation in emergency exercise at Kozloduy NPP 17-20 November 2014.
- Conclusion of RCC agreements with Slovenske Elektrarne (Slovakia) and Kudankulam NPP (India).
- Accumulation of RCC operating experience and increase of OO/NPP participation level in the RCC.
- Sharing information within the RCC framework per RCC regulations and information exchange regulations.
- Other efforts per RCC 2014 Action Plan.
Thank You for Your Attention!