# MDEP
# ABWRWG
# Programme Plan
# 2017-2018

Related to: ABWR Working Group Activities

**Programme Plan for 2017 and 2018**

**(Revised May 2017)**

*Multi-National Design Evaluation Programme*

*ABWR Working Group (ABWRWG)*

## 1) Long-Term Goals

- Leverage national regulatory resources by sharing information and experience on the regulatory safety design reviews of the ABWR with the purposes of enhancing the safety of the design and enabling regulators to make timely licensing decisions to ensure safe designs through:
    - Exchanging experience on licensing process and design reviews, lessons learned, and design-related construction, commissioning, and operating experience;
    - Working to understand the differences in regulatory safety review approaches in each country to support potential use of other regulators safety design evaluations, where appropriate;
    - Looking for opportunities to provide input to issue-specific working groups on potential topics of significant interest.
- Promote safety and standardisation of designs through MDEP cooperation (consideration should be given to promoting harmonisation of regulatory practices where there may be a safety benefit) through:
    - Identifying and understanding key design differences including those originating from regulatory requirements and then documenting the reasons for differences in regulatory requirements;
    - Documenting common MDEP positions on aspects of the review to enhance safety and standardisation of designs;
    - Communicating and coordinate communications on MDEP views and common positions to vendor and operators regarding the basis of safety evaluations and standardisation;
    - Using experience gained in learning about similarities and differences in licensing frameworks to identify potential paths forward to harmonise licensing approaches and practices when there is a safety benefit.

## 2) Intermediate Objectives

- Share information including evaluations among ABWRWG members to leverage resources and focus design reviews on safety issues in areas that are critical to take licensing decisions including Fukushima Daiichi NPP Accident-related issues;
- Encourage harmonisation of designs through design safety review cooperation when there is a clear safety benefit. The ABWRWG recognises existing conceptual design differences among the various ABWR designs that are currently being reviewed by member regulators;
- Document the activities of the Severe Accident technical expert subgroup through technical reports and common positions.

## 3) 2017-2018 MDEP ABWRWG Work Plan

- Continue to communicate timelines for sharing regulatory evaluations of the ABWR among all ABWRWG member regulators. Cover key areas of interest (e.g. PSA, seismic evaluation);
- Discuss Fukushima Daiichi NPP Accident-related issues within the ABWRWG and with the vendors and licensees/operators/applicants to ensure follow-up on safety issues;
- Consider operation-phase design-related issues;
- Continue, where considered appropriate, the work of the technical expert subgroup for design related issues of interest to the members[1]:
    - Severe accident mitigation and prevention (formed in 2015); – 2017-18 project plan approved

  This group should perform the following:
    - Meet as needed to exchange information on relevant aspects of the design review status;
    - Develop and follow the work plan agreed with the ABRWG[2] (including description and scope of issues to be addressed) and report on the status at every ABWRWG meeting;
    - Share relevant evaluations when they become available;
    - Produce MDEP ABWRWG common positions, especially on important safety evaluation findings;
    - Post evaluations, positions, reports, etc. in the MDEP library;
    - Consider Fukushima Daiichi NPP Accident-related issues in subgroup activities to determine their potential safety impact on the designs;
    - Produce technical expert subgroup technical reports on subject that the subgroup deems important to safety to identify and document similarities and differences among designs, regulatory safety review approaches and resulting evaluations;
    - Particularly, produce a draft technical report on regulatory differences in Severe Accidents, by October 2017.
- Provide recommendations, when appropriate, to the STC for considering possible items as topics to address generically;
- Provide recommendations, when appropriate, to issue-specific working groups and other design-specific working groups regarding addressing important issues relevant to design safety reviews.

## 4) Outputs of the ABWRWG during 2017-2018

- Establish a work plan of SA technical expert subgroup with timeframe to take lead and coordinate with ABWRWG – January 2017 (Now Appendix A)
- Creation of a restricted library of the findings from the evaluations on the ABWR designs (including for e.g. ONR GDA ROs and RIs, NRA progress of review of KK 6 and 7) – December 2017
- Comparison table that identifies similarities and differences among designs – May 2017
- Produce MDEP Paper on design differences for Approval by STC – November 2017

[1] The Instrument and control TESG was formed in 2015 and following Working Group review in May 2017 it was disbanded as no further collaborative work was identified that was of use to the members.

[2] Appendix A

- Produce ABWR WG Internal Paper on design comparisons (including strictly confidential material) for internal approval – Spring 2018
- Confirm and detail potential activities of common interest that are related to the ABWR designs. E.g. suppression pool suction strainer, diversity of liquid level measurement within Reactor Pressure Vessel - October 2017
- Annexes to Fukushima Daiichi NPP Accident Common Position if appropriate – 2017-2018
- Recommendations and inputs to other MDEP working groups regarding potential generic issues and harmonisation opportunities (coordination with Issues-Specific Working Groups and other Design-Specific Working Groups) if identified – 2017-2018

**5) Key Stakeholders with whom the ABWRWG members will interact**

- DICWG;
- Other non-ABWRWG regulators when appropriate (care taken to NOT share proprietary or sensitive info inappropriately);
- Non-MDEP regulators, as appropriate;
- CNRA (WGRNR);
- Vendors (GE-Hitachi, Hitachi-GE, Toshiba), utilities and licensees (TVO, Horizon, Nuclear Innovation North America, TEPCO, Vattenfall) and other applicants/licensees/operators, as applicable;
- Other groups as appropriate to further MDEP goals.

**Appendix A**

Multinational Design Evaluation Programme
ABWR Severe Accidents Technical Expert Subgroup

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# Project Plan

**Version 1.0:** May 2017
**Prepared by:** Neil Blundell, Chair, ABWR WG

# Project Plan

## Purpose

The purpose of this plan is to outline the Multinational Design Evaluation Program (MDEP) Advanced Boiling Water Reactor (ABWR) Working Group – Severe Accidents (SA) Technical Expert Subgroup (TESG) member's strategy to address the ABWR Working Group Requirements. This plan identifies:

- Key goals and outcomes of the TESG
- Information that the members plan to provide to the various stakeholders
- Schedules and responsibilities of members

## ABWR SA TESG Goals and Objectives

The MDEP Design-Specific Working Groups (DSWGs) are to share information and cooperate on specific reactor design evaluations with the goal of maximizing interactions and cooperation on design reviews in order to make the technical analysis more robust and to optimize the resources needed to perform national assessments. The subgroups are to resolve specific issues in-depth and report back to the working group.

The ABWR Working Group formed the ABWR SA TESG to address specific SA issues. The goals of the ABWR I&C TESG are to:

- Share technical review information to avoid the duplication of effort and gain efficiency and effectiveness
- Gain insights from other members
- Communicate insights to and coordinate with future multinational coordination efforts, and other stakeholders
- Accumulate, organize, and share information by all members through where possible an electronic library

The primary goal of the ABWR SA TESG is to identify areas where technical review information may be shared to gain efficiency and effectiveness of the overall review effort for the members. Challenges to reaching this goal include (1) differing regulatory frameworks and guidance, and (2) differences in ABWR designs among the member countries. Therefore, it is important for the members to understand the regulatory background and the technical input for technical evaluations that are shared.

A secondary goal of the ABWR SA TESG is to gain insights from other members that may include (1) technical concerns and their resolution and (2) regulatory similarities and differences. While the insights gained may not directly reduce the duplication of review effort (among member countries) for the ABWR, it would point the subsequent members

to technical areas for additional focus or provide considerations when modifying regulatory structure or guidance. Such insights would also benefit the DSWG Severe Accident joint workshop activities, in particular efforts to understand and explore design differences and regulatory positions on severe accidents for different reactor types. The insights would also benefit future design-specific working groups and future members to the ABWR Working Group.

The ABWR SA TESG will work through electronic transmittals and routine meetings as necessary.

## Expected Products

The following specific product from the ABWR SA TESG's efforts will promote achieving the goals and objectives listed above. The products will be deposited in the MDEP library.

1. The SA TESG has already developed a draft comparison table of key severe accident design features. This has undergone a number of revisions and members have contributed further refinements since the September 2016 meeting. This will be reviewed and finalised at the May 2017 meeting. This deliverable will document differences in provision of severe accident measure in key categories:
   - Alternative RPV high pressure injection
   - RPV Depressurization
   - Alternative RPV low pressure injection & containment spray
   - Cavity injection
   - Cavity construction
   - Primary Containment hydrogen control
   - Containment vent
   - Alternative suppression pool cooling
   - Spent fuel pool spray
   - Reactor building hydrogen control
   - Instrumentation for use in a severe accident

2. The proposal is for members to supplement the comparison table by providing a short commentary against each of the table categories. For each design, this should explain the basis of the current regulatory positions for each of the categories. For example, this might refer to:
   - country regulatory reviews and resulting policies
   - review of requirements/analyses by operator
   - post-Fukushima expectations, OPEX etc

   The intention is that this will help stakeholders to understand the regulatory reasons for the differences in approaches (where they exist). Information will be collated (as a draft) at the May 2017 meeting, with finalisation at the meeting at the end of 2017. This will take the form of a short technical report.

The risk significance of differences could also be considered, but this is likely to be more involved and could only be considered in later years (2018 onwards). The possibilities for this task will be discussed at the May 2017 meeting.

3. The SA TESG will continue discussions on the differing aspects of SA measures, strategies and modelling relevant to the ABWR. Where possible, consideration will be given to the development of possible advice for future design or design modifications (recognising restrictions of national requirements and maturity of design). This is expected to cover topics such as:
    - Understanding of relevant SA phenomena
    - Approaches to SA modelling
    - Strategies for coping with SA
    - Risk significance

4. Sharing of presentations and supporting documents which draw together the discussions and common positions or otherwise of 3.
5. Shared technical evaluation documents from members
6. Shared inspection observations

## Stakeholders

- MDEP ABWR Working Group
- MDEP ABWRWG Severe Accident TESG
- MDEP DSWG Severe Accident Joint Workshop
- MDEP Steering Technical Committee (STC)
- NEA Secretariat

## Project Communication

| Communication | Recipients | Responsibilities | Update frequency |
|---|---|---|---|
| **ABWR Working Group – Meeting Summary and Status Update** | ABWR Working Group | Chair | 6 Months |
| **Project plan** | ABWR SA | Chair | Annually |
| **Proposed meeting agenda** | ABWR SA | Chair/Secretariat | 1 Month prior to meeting |
| **Meeting minutes** | ABWR SA | Chair/Secretariat | 2 Weeks after meeting |
| **Members' Home Organisation Interface** | Member Organisations | Members | As needed |
| **MDEP Library** | Members | Members | As needed |

## Roles and Responsibilities

Each member country is to:

1. Provide technical evaluation information to other members for each area.

2. Provide a summary of the technical evaluation (by slide presentation or written summary) to include:
   a. Regulatory criteria used in the evaluation,
   b. Overview of design information provided by Vendors, and
   c. Overview of technical evaluation, basis, and resolution

3. Provide relevant country input to the common positions and technical report.

4. Identify and observe inspection and audit opportunities as possible and necessary.

5. Send at least one cognizant technical expert that is able to participate in the TESG meeting discussions.

The chairperson is to:

1. Coordinate and schedule TESG meetings through the NEA secretariat with input from the TESG members.

2. Develop the meeting minutes and provide a status to the ABWR Working Group.

3. Update the project plan with input from the TESG members.

4. Coordinate the development of common positions and the technical report.

## Schedule of Work Products

| Work Product | Status |
|---|---|
| New Reactor Design Comparison | Draft already exists, final review May 2017 |
| Short technical report describing the regulatory positions on SA design measures | Draft summer 2017 (after May 2017 meeting)<br>Issue end 2017 (after October 2017 meeting) |
| Technical report describing the regulatory positions on SA design measures – extension to consider risk significance of design differences | Viability of this task would need to be subject to further discussion within the TESG. If agreed, would be considered for 2018/19. |
| Shared Technical Documents | On-going. Letters and documents pertaining to regulator evaluations and applicant submittals are regularly shared via the ABWR WG |
| Shared Observations | On-going. |