



# 4<sup>th</sup> MDEP Conference

## Session 5 Commissioning Activities MDEP Activities in Support of New Reactor Commissioning

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# MDEP Activities in Support of New Reactor Commissioning BACKGROUND

MDEP provides framework for Working Groups to:

- adopt common approaches to the more challenging design specific commissioning issues
- share the more significant design specific lessons from lead plants
- enhance effectiveness and efficiency of the regulatory process
- complement WGRNR work on generic commissioning issues

## MDEP Activities in Support of New Reactor Commissioning GENERIC COMMISSIONING ACTIVITIES (1/2)

Preparation of Common Position Paper (CP-STC-01) addressing First Plant Only Tests (FPOT):

- FPOTs proposed by reactor vendors
- Performed on very first reactor of specific design
- Results credited for subsequent units of similar design subject to regulatory acceptance
- Paper sets out Regulators pre-conditions for accepting FPOT results including #4.3 *'Regulators shall be provided with possibility to witness the FPOT.'*

# MDEP Activities in Support of New Reactor Commissioning

## GENERIC COMMISSIONING ACTIVITIES (2/2)

Joint WGRNR\_MDEP workshop on 'Regulatory Oversight of the Commissioning Phase of New Reactors' hosted by Korean regulator in March 2016

- Open issues for MDEP
  - Enhance exchange of information between regulator and licensee
  - Develop library for quick sharing of commissioning experience
- Open issues for industry
  - Commissioning tests planning to be shared but early communication of potential issues is key
  - Good configuration control (plant/ safety case)
  - Management of unexpected occurrences during commissioning
  - Handover between construction, commissioning and operation phases
- Report to be submitted to WGRNR in December 2017 for approval

# MDEP Activities in Support of New Reactor Commissioning

## WORKING GROUP ACTIVITIES (1/3)

### AP1000

- Commissioning discussed since 2012, sub-group established early 2016
- 5<sup>th</sup> meeting scheduled for October 2017, topics include
  - status of commissioning activities at Sanmen, Haiyang, and Vogtle
  - inspection of digital instrumentation and control during commissioning
  - inspection of First Plant Only Tests (FPOT) and First 3 Plant Only Tests (F3POT) during hot functional test phase, and
  - changes to the Vogtle commissioning plans based on lessons learned in China

## MDEP Activities in Support of New Reactor Commissioning WORKING GROUP ACTIVITIES (2/3)

### EPR

- EPR workshop, China 2013
  - attended by regulators (ASN, NNSA, NRC, ONR & STUK) and OOG (Areva, EDF, NNBB GenCo, TNP\_JVC & TVO)
  - increased awareness of preparatory activities by the vendor, licensees and regulators in support of EPR commissioning
  - raised need for FPOT Common Position Paper
- Sub-group established early 2016, 6<sup>th</sup> meeting held in August
  - ASN, ISRN, NNSA, [NRC], ONR, STUK
- Focus to date on regulators observing FPOT for recording vibrations on Reactor Pressure Vessel Internals (RPVI)
  - lead EPR > Taishan unit 1

## MDEP Activities in Support of New Reactor Commissioning WORKING GROUP ACTIVITIES (3/3)

### VVER

- Commissioning status and any safety related events presented by the utilities and regulators at Working Group meetings.
- Technical tours to the new VVER sites under construction/ commissioning are regularly arranged for the WG members (e.g. Leningrad NPP-2 and Novovoronezh NPP-2 in Russia and the Tianwan NPP in China).

### ABWR

- Only the UK has an active new build programme within the ABWR Working Group, as such there are no plans to examine or pursue commissioning activities with new reactors.

## MDEP Activities in Support of New Reactor Commissioning OBSERVING EPR RPVI FPOT (1/3)

- EPR sub-group started discussions in June 2016 to observe RPVI FPOT on Taishan unit 1
  - challenging due to programme uncertainty
- RPVI FPOT observed March 2017
  - Regulators: ASN, ONR, STUK
  - EPR OOG: EDF, NNB GenCo, TVO
- Objectives:
  - Gain confidence in the manner in which the tests are performed and quality assurance/control arrangements
  - NOT looking to review technical adequacy of tests nor the resulting data



## MDEP Activities in Support of New Reactor Commissioning OBSERVING EPR RPVI FPOT (2/3)

- Outcomes:
  - TNP\_JVC/ NNSA/ Areva very supportive before and during the visit
  - Evidence of adequate quality control arrangements for FPOT
  - Confidence gained in the manner in which the tests were performed
  - No reasons identified for not crediting TSN1 FPOT results at this stage
  - Individual regulators will follow up points of detail with respective licensees
  - *Positive example of MDEP supporting regulators to work together*

## MDEP Activities in Support of New Reactor Commissioning OBSERVING EPR RPVI FPOT (3/3)

- Way forward following visit:
  - TNP\_JVC to complete RPVI FPOT  
*Complete*
  - Areva to assess data and report adequacy of results  
*Ongoing*
  - Follow on licensees to submit case to respective regulators for crediting TSN1 RPVI FPOT results as appropriate
    - FA3: EDF planning to credit FPOT results; discussing with ASN*
    - OL3: TVO not crediting FPOT results*
    - HPC: NNB GenCo planning to credit FPOT results*

## **MDEP Activities in Support of New Reactor Commissioning**

**THANK YOU**