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MULTINATIONAL DESIGN EVALUATION PROGRAMME

NEA
NUCLEAR ENERGY AGENCY

MDEP Activities and Accomplishments

APR1400

Design Specific Working Group

Activities of APR1400 Working Group

- APR1400 WG started in 2012 by Four Members
  - Finland, Korea, UAE and US
  - Finland left the APR1400 MDEP DSWG in 2015
  - Currently, Korea, UAE and USA are reviewing APR1400 Design and sharing information on the Design Assessment, Construction and Commissioning Issues

Activities of APR1400 Working Group

- APR1400 WG Activities are mainly focused on
  - APR1400 Design Evaluation
    - Discuss Safety Issues and Exchange experiences of Safety Evaluation
  - Comparison of National Regulation and Practice
    - Learn the differences and put efforts to harmonize with International Practice
  - Sharing of Information on Construction and Commissioning

Activities of APR1400 Working Group

- APR1400 Design Evaluation
  - Two Technical Expert Sub-Groups (TESG)
    - Accident & Transient TESG, Severe Accident TESG
  - Major Issues in Accident & Transient Area
    - Fuel Thermal Conductivity Degradation
    - Fuel Seismic Performance
    - Boron Dilution and Precipitation

Activities of APR1400 Working Group

- Major Issues in Accident & Transient Area
  - Post LOCA Debris In-Vessel Downstream Effect
  - Core Cooling During SB-LOCA with Deep Loop Seal
  - “KCE-1” CHF Correlation for PLUS7 Fuel
  - Safety Injection Tank with Fluidic Device

Activities of APR1400 Working Group

- Major Issues in Severe Accident Area
  - Equipment Survivability during Severe Accident
  - Molten Core Concrete Interaction (MCCI)
  - Accident Management Program
  - Hydrogen Control
  - Containment Pressure Control and Integrity

Activities of APR1400 Working Group

- Information Exchange on Construction and Commissioning of APR1400
  - Important Findings and Corrective Actions are shared by members
    - Major Repairs (POSRV, Safety Injection Pump, etc.)
  - Events during Commissioning
    - Reactor Trips during Start up
    - Major malfunctions (Feed Water Flow Measurement, etc.)

Activities of APR1400 Working Group

- APR1400 WG Produced Common Position Papers and Technical Reports
  - Fukushima-Related Issues Common Position
  - Debris In-vessel Down Stream Effect Common Position
  - APR1400 Design Description and Comparison Technical Report

Activities of APR1400 Working Group

- Ongoing Position Papers and Technical Reports
  - Fuel Thermal Conductivity Degradation (TCD) effect Common Position
  - Fuel Seismic Performance Common Position
  - Molten Core Concrete Interaction (MCCI) Technical Report
  - Comparison of Prevention and Mitigation Measures against Severe Accident Technical Report

Thank you for your attention