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**First Meeting of the Technical Working Group on Small
and Medium Sized or Modular Reactor (TWG-SMR):
Development of 4-year Work Plan for Topical Panel-B on:
Research, Technology Development and Innovation;
Codes and Standards**

Presenter: Timothy BEVILLE

France: Mr Jacques CHENAIS

Indonesia: Mr Djarot Sulistio WISNUBROTO

Italy: Mr Marco Enrico RICOTTI

Republic of Korea: Mr Manwoong KIM

Russian Federation: Mr Sergey SINEGRIBOV

United States of America: Mr Timothy BEVILLE

European Commission: Mr Foivos MARIAS

1. Outline

- **Objective**

- To provide recommendations and suggestions to formulate programmatic guidance on research, technology development and Innovation, codes and standards for the IAEA's SMRs activities and planning.

- **Topics for Discussion**

1. Design, Manufacturing Process and Technology Qualification of Novel Components for SMRs – their Impact to Safety, Security and Economy
2. CRP on Design and performance assessment of passive engineered safety features
3. CRP on Development of Approaches, Methodologies and Criteria for Determining the Technical Basis for Emergency Planning Zone (EPZ)

- **Participants**

- France: Mr Jacques CHENAIS
- Indonesia: Mr Djarot Sulistio WISNUBROTO
- Italy: Mr Marco Enrico RICOTTI
- Republic of Korea: Mr Manwoong KIM
- Russian Federation: Mr Sergey SINEGRIBOV
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2. Summary

1) Recommendations & Suggestions for 2018-2019 Activities for current LWR-SMRs (Project 1.1.5.2)

Relevant Task	Recommendations & Suggestions
1.1.5.2 (2) Design, Manufacturing Process and Technology Qualification of Novel Components for Integral PWR type Small Modular Reactors	• Structure, system and component (SSCs) test programme sequence • How to demonstrate techniques of modular construction by phased deployment on same site • Design philosophies (approaches) for safety of multi-unit plants to avoid common cause failure
1.1.5.2 (5) Design and performance assessment of passive engineered safety features in advanced SMRs, implemented as CRP I32010	• To identify code and standard for manufacturing safety related components • To cover computer code benchmark for SMR safety strategy • To cover how to address severe accident management (e.g. in-vessel and ex-vessel core retention strategies) • To consider expansion or additional countries to CRP related to safety system testing

2. Summary (cont'd)

1) Recommendations & Suggestions for 2018-2019 Activities for current LWR-SMRs (Project 1.1.5.2)

Relevant Task	Recommendations & Suggestions
1.1.5.2 (8) Development of Approaches, Methodologies and Criteria for Determining the Technical Basis for Emergency Planning Zone (EPZ) for SMR Deployment, implemented as CRP I31029 (NS and NE)	• To ask CRP to be addressed multi-unit common cause failures and impact on emergency planning zone (EPZ) and Emergency Preparedness and Response (EPR) • To consider including EPRI Aerosol deposition study on iPWR configuration and impact on source term evaluation

2. Summary (cont'd)

2) Recommendations & Suggestions for 2020-2021 Activities for advanced SMRs

Relevant Task	Recommendations & Suggestions
(2) Design, Manufacturing Process and Technology Qualification of Novel Components for Integral PWR type Small Modular Reactors	- To support pre-licensing vendor design review expert mission (service) - To address basic R&D for materials important to each type of advanced design being pursued
(5) Design and performance assessment of passive engineered safety features in advanced SMRs	- CRP to assess passive safety features for advanced reactor designs (non-water-cooled) - To consider gap analysis for IAEA Specific Safety Requirement for Design (SSR 2/1) with advanced non-water-cooled SMR designs
(8) Development of Approaches, Methodologies and Criteria for Determining the Technical Basis for Emergency Planning Zone (EPZ) for SMR Deployment	To assure applicability of LWR EPZ methodology to advanced reactor designs

2. Summary (cont'd)

3) Other Possible Tasks

Recommendations & Suggestions

- To identify specific requirements for project management for SMR development (cross-cutting with other sections/divisions/departments)
- To identify specific security features required for physical protection (cross-cutting with other sections/divisions/departments)
- To address waste management and decommissioning issued at early stage of all SMRs (cross-cutting with other sections/divisions/departments)
- All the relevant tasks shall cover all types and categories of SMRs, i.e. not limited only to integral-PWR type.



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Thank you!

