

# **AERB NRC Discussion Meet on Safety of NPPs**

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**ATOMIC ENERGY REGULATORY BOARD  
INDIA**



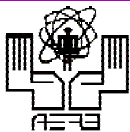
# Status of Various NPP Projects

- TAPP-4 (540 MW PHWR) : Commissioning to start soon, TAPP-3 : Construction in progress
- KK (2 x 1000 MW VVER) , Kaiga 3&4 and RAPP 5&6 (4 x 220 MW PHWR) : Civil construction in progress
- PFBR (500 MW) : Excavation completed



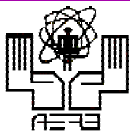
## Status of Various Operating NPPs

- Restart of MAPS-2 after En-Masse Coolant Channel Replacement (EMCCR) and safety upgradation
- MAPS- 1 shutdown for EMCCR/Safety upgradation
- Restart of RAPS-1 after safety upgradation and ageing management
- Reauthorisation of NAPS after PSR
- PSR for KAPS & MAPS under regulatory review
- Preparation begins for major upgradation of TAPS



# Other Highlights

- AERB infrastructure augmentation is in progress
- Atomic Energy Act under revision



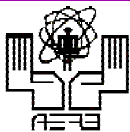
# Revisit of Three Technical Meetings

| Meeting 1<br>March 2003, India                          | Meeting 2<br>September 2003, USA                      | Meeting 3<br>February 2004, India |
|---|---|-----------------------------------|
| <b>Fire safety</b>                                      | <b>Fire safety</b>                                    | <b>Fire risk analysis</b>         |
| <b>License renewal and Periodic Safety Review (PSR)</b> | <b>License renewal and PSR</b>                        | <b>License renewal process</b>    |
| <b>Risk informed performance based regulation</b>       | <b>Ageing Management</b>                              | <b>Ageing management</b>          |
| <b>Symptom based emergency procedures</b>               | <b>Emergency Operating Procedures</b>                 |                                   |
| <b>Design modifications and Retrofitting of NPPs</b>    | <b>Design modifications and Plant retrofits</b>       |                                   |
| Visit to TAPS at Tarapur, India                         | Visit to NIST/ University of Maryland / Surry NPP, US | Visit to MAPS at Kalpakkam, India |



# Highlights of Third Meeting

- US NRC was interested in safety insight gained by AERB from safety review and operating experience with PHWRs.
- AERB offered to share such experiences and also PHWR relevant safety documents.
- It was suggested to include more topics on safety
- AERB proposed for joint benchmark exercises on standard problems
- AERB suggested to explore the possibility of young scientists from India to spend longer periods in US institutions for work in specific areas and also welcomed young scientists from US to work in India.



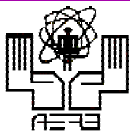
## Fourth meeting will cover

- Licence requirements for new designs
- Emergency Preparedness Issues
- Operational Safety Issues
- PHWR safety review experience
- License Renewal and Non Destructive Examination
- Regulatory inspection methods and experiences
- Updates on Fire Risk and PRA technology



# AERB Presentations

- New NPP Designs and Licensing – S.K. Gupta, S.A. Bhardwaj
- Emergency Preparedness and Exclusion Zone Requirements – S.S. Bajaj
- PHWR Safety Review Experience – R.I. Gujrathi
- Operational Safety Issues – S.K. Chande, S.S. Bajaj
- Use of PRA in LBB analysis – H.S. Kushwaha
- Aging Management Program and In-service Inspection – S.A. Bhardwaj





# Suggested Areas for Future Collaboration

- Material Degradation
- PRA methods
- Severe accident analysis
- Licensing of software based systems
- Computer codes for safety analysis (Inter-comparison of results)

