



Chapter 6

REGULATORY SAFETY DOCUMENTS

AERB develops and lays down safety requirements and guidance for utilities and users in the form of Regulatory Safety Documents (REGDOCs). These REGDOCs are issued under provisions of Atomic Energy (Radiation Protection) Rules, 2004. The REGDOCs are developed with a view to cover the entire spectrum of regulated Nuclear and Radiation facilities and activities, as applicable, with graded approach.

AERB has established the process for Revision/Development of REGDOCs. During the preparation, REGDOCs undergoes multi-tier review system. The experts from Technical Support Organisations (TSO), National R&D Centres, Industries, Academic Institutes and other Government Organisations are involved in the process. Apart from these experts, retired employees having experience in the related fields are also involved as appropriate.

Following aspects are taken into account during preparation of REGDOCs:

- Outcome of discussions/Safety Reviews
- Requirements identified during Consenting process or Enforcement of Regulations
- New regulatory and technological developments relevant to AERB
- International practices
- Specific aspects of recommended/accepted practices
- Experience/Feedback from Nuclear and Radiation Facilities

The REGDOCs issued by AERB are categorised in the following hierarchy:

- (a) Safety Codes
- (b) Safety Standards
- (c) Safety Guidelines
- (d) Safety Guides
- (e) Safety Manuals
- (f) Technical Documents

The requirements covered in Safety Codes, Safety Standards and Safety Guidelines are mandatory in nature. Safety Guide is a document containing detailed guidance and methodologies that are acceptable to AERB to implement the specific parts of a Safety Code/Safety Standard. Safety Guides are recommendatory in nature.

6.1 REGULATORY SAFETY DOCUMENT DEVELOPMENT PROCESS

AERB has established a process for Revision/Development of REGDOCs for use in regulation of Nuclear, Fuel Cycle and Radiation Facilities. Experts, utility and stakeholders are involved in the development of the regulations and guides by direct involvement as well as through comments and feedback throughout the development process.

The Safety Document Development Proposal (SDDP) is prepared by AERB as required for either Development or Revision of the REGDOC. The SDDP is reviewed by Advisory Committee on Nuclear and Radiation Safety (ACNRS) which is an Apex Committee for providing advice on the REGDOCs. Based on the recommendation of ACNRS, SDDP is approved by Chairman, AERB.

The initial draft of REGDOC is prepared based on the SDDP within AERB/ by Consultant. The flow chart depicting this process is given below:

The initial draft is reviewed by a Task Force (TF) duly constituted for the purpose and then by ACNRS. Revised draft is circulated among the domain experts, both within and outside DAE for obtaining their review comments. The resulting draft is sent for approval of Chairman, AERB. In case of Safety Codes, the draft is put up on

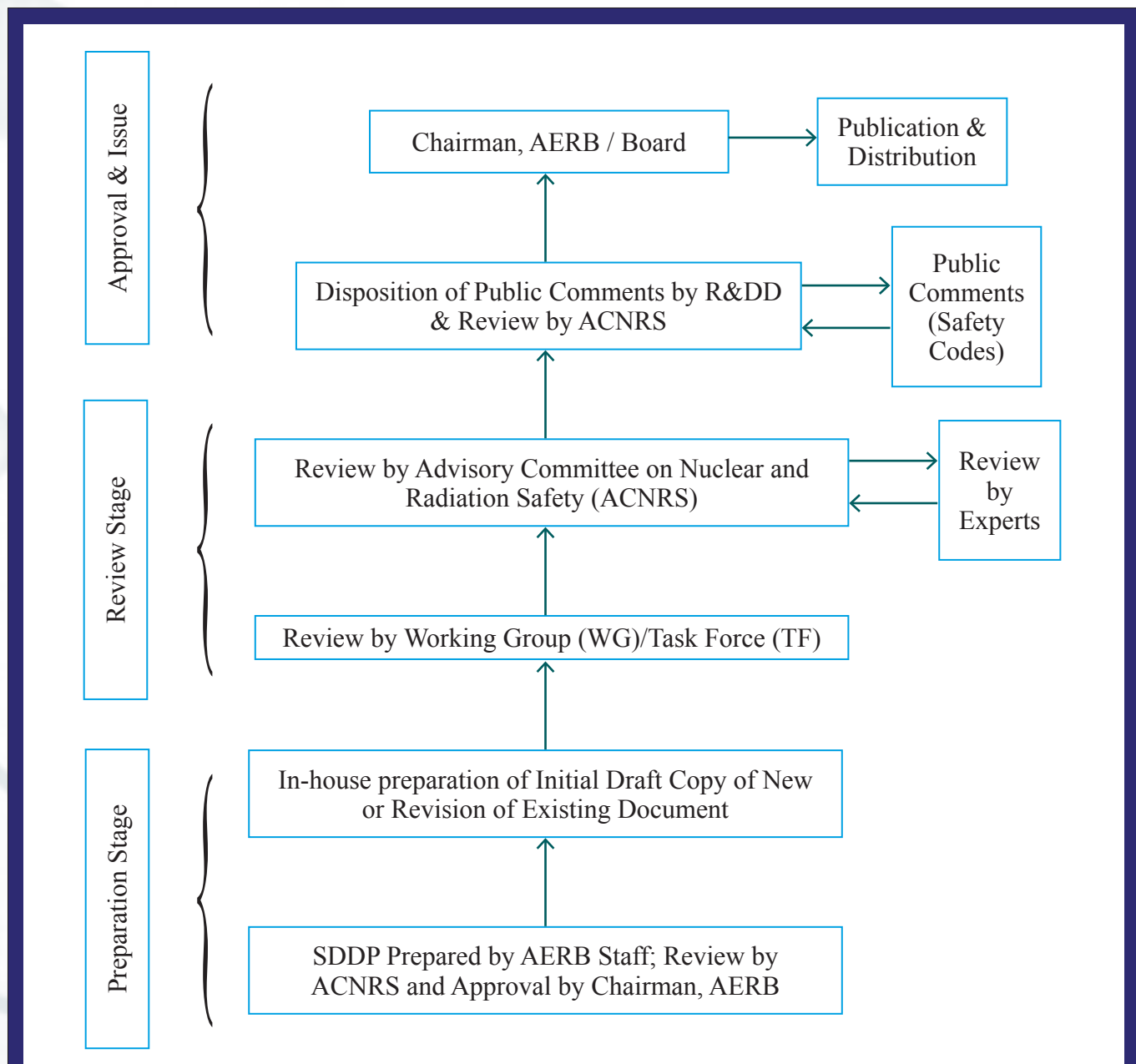


Fig. 6.1: AERB Regulatory Safety Document Development Process

AERB external website for public comments (for a specified time period). The disposition of public comments is submitted to ACNRS before placing it to Board for approval/publication.

AERB has published 166 regulatory safety documents. These REGDOCs, provide adequate coverage commensurate with the radiation risks associated with the facilities and activities, following a graded approach.

6.2 REGULATORY SAFETY DOCUMENTS DEVELOPED/AMENDED

This year one Safety Guide was issued and uploaded on AERB website.

1) Safety Guide on ‘Deterministic Safety Analysis for PHWRs’ [AERB/SG/D-19]

This Safety Guide is based on the current designs of 220 MWe, 540 MWe and 700 MWe PHWRs. This Safety Guide details how to establish and confirm design bases by carrying out Safety Analysis of the plant design, applying deterministic methods, for the items important to safety and to demonstrate that the overall plant design ensures that radiation doses and releases are within the prescribed limits for operational states and acceptable limits for accident conditions. It provides guidance for the process of selection of postulated initiating events for the analyses, and acceptance criteria, performance of accident analysis, documentation and review.

6.3 SAFETY DOCUMENTS UNDER REVISION/DEVELOPMENT

6.3.1 The initial drafts of the following REGDOCs, either new or revision of existing ones, were prepared:

- 1) AERB Safety Guide titled ‘Safety Classification and Seismic Categorisation for SSCs of NPPs’ (AERB/SG/D-1 (Rev. 1))
- 2) AERB Safety Guide titled ‘Design of Fuel Handling and Storage Systems for NPPs’ (AERB/SG/D-24 (Rev.1))

- 3) AERB Safety Guide titled ‘Qualification and Training Aspects of Personnel in Radiation Facilities and Their Approval/Licensing Process’ (AERB/RF-RQTL/SG-1, New)
- 4) AERB Safety Guide titled ‘Deterministic Safety Analysis for Water Cooled Reactors’ (AERB/SG/D-19A, New)
- 5) AERB Safety Code titled ‘Leadership and Management for Safety in Nuclear Facilities’ (AERB/SC/LMS, New) – Revision of earlier Safety Code on ‘QA for NPPs’ (AERB/SC/QA (Rev.1))
- 6) AERB Safety Guide titled ‘Management of Nuclear & Radiation Emergencies at Nuclear Facilities’ (AERB/SG/NRE-1, New)
- 7) AERB Safety Guide titled ‘Criticality Safety Fissile Material Handling Facilities’ (AERB/BE-FCF/SG-3, New)

6.3.2 Following draft REGDOCs are under advance stages of review:

- 1) AERB Safety Guide on ‘Consenting Process for Nuclear Power Plants’ (AERB/SG/G-1 (Rev.1))
- 2) AERB Safety Code on ‘Design of Pressurised Heavy Water Based Nuclear Power Plant’ (AERB/NPP-PHWR/SC/D (Rev.2))
- 3) AERB Safety Guide on ‘Periodic Safety Review (PSR) of Nuclear Power Plants’ (AERB/SG/O-12 (Rev.1))
- 4) AERB Safety Standard on ‘Civil Engineering Structures Important to Safety of NFs’ (AERB/SS/CSE (Rev.1))
- 5) AERB Safety Guide on ‘Seismic Studies and Design Basis Ground Motion for NF Sites’ (AERB/SG/S-11 (Rev.1))
- 6) AERB Safety Code on ‘Design of Fast Breeder Based Nuclear Power Plant’ (AERB/NPP-FBR/SC/D, New).

- 7) AERB Safety Guide on 'Design Basis Events (DBE) for NPPs' (AERB/SG/D-5 (Rev.1))
- 8) AERB Safety Guide on 'Design of Electrical Power Systems of Nuclear Power Plants' (AERB/SG/D-11 (Rev.1))
- 9) AERB Safety Code on 'Regulation of Nuclear and Radiation Facilities' (AERB/SC/G (Rev.1))
- 10) AERB Safety Code on 'Management of Nuclear & Radiological Emergencies' (AERB/SC/NRE, New)
- 11) AERB Safety Guide on 'Regulatory Control of Radioactive Discharges and Disposal of Solid Wastes' (AERB/SG/RW-9, New)
- 12) AERB Safety Guide on 'Monitoring and Assessment of Occupational Exposure Due to Intake of Radionuclides' (AERB/SG/RP-1, New)
- 13) AERB Safety Guide on 'Accident Management Programme for Water Cooled NPPs' (AERB/SG/D-26, New)

6.4 REVIEW OF IAEA DRAFT SAFETY STANDARDS

AERB reviews draft IAEA documents as well as draft document preparation profiles (DPP) of IAEA and provides comments. The following IAEA safety standards/DPPs were reviewed during the period:

6.4.1 IAEA Draft Safety Requirement Documents

- 1) Preparation, Conduct and Evaluation of Exercises for Detection of and Response to Acts Involving Nuclear and Other Radioactive Material out of Regulatory Control (NST050)
- 2) Nuclear Security Threat Assessment, Design Basis Threats and Representative Threat Statements (NST058)
- 3) Schedules of Provisions of the IAEA Regulations for the Safe Transport of Radioactive Material (DS506)

6.4.2 IAEA Draft Document Preparation Profiles (DPPs)

- 1) Design of the Reactor Coolant System and Associated Systems for Nuclear Power Plants (DS 481)
- 2) Accident Management Programmes for Nuclear Power Plants (DS 483)
- 3) Site Evaluation for Nuclear Installations (DS 484)
- 4) Establishing the Safety Infrastructure for a Nuclear Power Programme (DS 486)
- 5) Design of the Reactor Core for Nuclear Power Plants (DS 488)
- 6) Human Factors Engineering in the Design of Nuclear Power Plants (DS 492)
- 7) Qualification of Items Important to Safety in Nuclear Installations (DPP DS514)