

## Chapter 3: Development of safety policy, standards, codes and guides

**Audit Objective: Whether AERB, keeping in view international recommendations and local requirements, has been able to develop safety policies in nuclear, radiological and industrial safety areas and safety codes, guides and standards for siting, designing, constructing, commissioning, operating and decommissioning different types of nuclear and radiation facilities**

### 3.1 National Safety Policy

The IAEA Safety Standards stress the importance of establishing a national policy for safety by means of different instruments, statutes and laws. They specify that the regulatory body, as designated by the Government, has to be assigned with the implementation of the safety policy by means of a regulatory programme and a strategy set forth in its regulations or in the national standards.

As per the Constitution Order 1983, AERB was specifically entrusted with the function of developing safety policies in both radiation and industrial safety areas. It was expected to develop a radiation safety policy under this responsibility, along with next level safety documents in the form of codes, standards, guides and manuals.

While the radiation protection rules had been put in place, AERB had not prepared a radiation safety policy, even after nearly three decades of its existence.

DAE accepted (February 2012) the audit observation. It assured that AERB would initiate the process of consolidating the documents pertaining to its mission, objectives and principles brought out in various policy statements, codes and guides as a separate policy document.

**AERB failed to prepare a nuclear and radiation safety policy for the country in spite of a specific mandate in its Constitution Order of 1983. The absence of such a policy at a macro-level can hamper micro-level planning of radiation safety in the country.**

## 3.2 Safety standards, codes and guides

Codes and standards are meant to spell out in detail, the safety requirements to be complied with by consentees at all stages of activity of nuclear facilities, with a view to ensure the safety of the plants, operating personnel, the public and the environment.

IAEA General Safety Requirements stipulate that a regulatory body should establish or adopt regulations and guides to specify the principles, requirements and associated criteria for safety, upon which its regulatory judgments, decisions and actions are based.

AERB has been mandated to develop standards<sup>6</sup>, safety codes<sup>7</sup>, guides<sup>8</sup> and manuals<sup>9</sup> for siting, designing, constructing, commissioning, operating and decommissioning different types of nuclear and radiation facilities, in line with international recommendations and local requirements. Rule 16 under RPR 2004 provides that AERB (competent authority) may issue safety codes and safety standards, from time to time, prescribing the requirements for various nuclear and radiation installations. The licencees should ensure compliance with the same. In this context, we examined the status of development of codes and guides by AERB and our observations are given in the succeeding paragraphs.

### 3.2.1 Non-development of radiation safety codes, guides and standards

We observed that AERB, after 18 years of its existence, had brought out a Safety Guide in 2001, specifying a provisional list of safety documents which comprised codes, standards and guides to be prepared by it. AERB identified 148 codes, standards, and guides for development under various thematic areas. On a subsequent re-assessment, it deleted 25 safety documents and added another 45 safety documents in the provisional list, for development. We observed that out of 168 safety documents, 51 were issued before release of the Safety Guide in 2001 and 90 were issued during the period 2001 to 2012 as per the following table:

<sup>6</sup> Safety standards contain internationally accepted safety criteria for design, construction and operation of specific equipment, systems, structures and components of nuclear and radiation facilities.

<sup>7</sup> Safety codes are intended to establish objectives and to set minimum requirements to be fulfilled to provide adequate assurance for safety in nuclear and radiation facilities.

<sup>8</sup> Safety guides provide guidelines and make available the methods for implementing the specific requirements prescribed in line with the relevant Safety codes.

<sup>9</sup> Safety manuals are intended to elaborate specific aspects and may contain detailed technical information and/or procedures.

**Table – 1**  
**Codes, standards, guides developed as of February 2012**

Thematic Area of Code development	Number of Safety Documents					
	Identified in 2001	Identified subsequently	Assessed subsequently as not required	Total codes identified for development	Developed as of February 2012	Not developed as of February 2012
Safety Codes/Standards for Nuclear Facilities	9	1	1	9	9	-
Safety Codes/Standards for Radiation Facilities	33	2	13	22	14	8
Safety Guides for Regulation of Nuclear & Radiation Facilities	8	3	-	11	11	-
Safety Guides for Nuclear Power Plants	68	11	5	74	66	8
Safety Guides for Nuclear Fuel Cycle Facilities other than Nuclear Power Plants	4	7	1	10	7	3
Safety Guides for Radiation Facilities	22	5	4	23	18	5
Safety Guides for Radioactive Waste Management	4	5	1	8	7	1
Safety Manual for Nuclear Power Plants	-	5	-	5	4	1
Safety Manual for Nuclear Fuel Cycle facilities	-	3	-	3	3	-
Safety Manual for Radiation Facilities	-	1	-	1	0	1
AERB Technical Document for Nuclear Power Plants	-	2	-	2	2	-
<b>Total</b>	<b>148</b>	<b>45</b>	<b>25</b>	<b>168</b>	<b>141</b>	<b>1</b>

The table indicates that AERB had developed 141 of the 168 safety documents that it was expected to develop. We observed that the Meckoni Committee in 1987 and the Raja Ramanna Committee in 1997 had stressed upon the need for hastening the process of development of codes and guides. As seen from the table, 27 safety documents relating to safety codes, standards and guides were still to be developed by AERB.

DAE stated (February 2012) that most of the documents that were being developed in AERB dealt with complex, high-end and evolving technology areas as well as related management and regulatory processes. AERB, as a matter of principle, ensured that the views of the relevant stakeholders, experts and the regulators were appropriately considered during the development of regulatory documents. While in most of the cases, the issues or comments were easily resolved, there had been some instances where resolution of contradictory views from the experts and stakeholders on critical issues had taken substantial time, requiring extensive consultations, analytical work and procedural changes in the relevant management and regulatory areas.

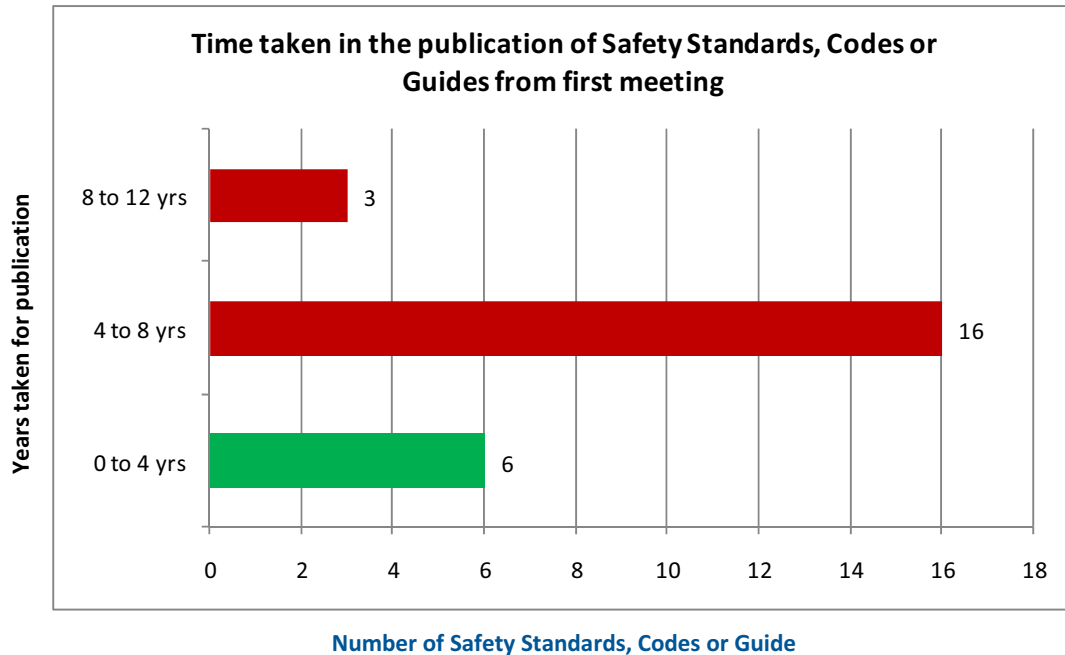
**AERB had not brought out 27 required codes and guides relating to nuclear and radiation safety as of March 2012.**

### **3.2.2 Delay in development of safety codes, standards and guides**

We reviewed the timeframe within which the codes, standards and guides were developed by AERB in 25 cases. The time taken is depicted in Graph-1.

Graph – 1

Time taken in publication of Safety Standards, Codes or Guide from first meeting



\*Cases where time taken to publish safety standards, codes or guides was more than the average period specified are indicated in red, while cases where the time taken was within the prescribed period are indicated in green.

While the average period of development of the documents was stated to be three to four years, the above graph indicates that only six of the 25 cases were developed within that time frame. Three documents took between eight to 12 years to develop.

AERB stated (October 2010) that the delays were due to various factors such as non-availability of expertise, need for consensus among stakeholders, multiple technical support organisations involved, limited operating experience, feedback from experts, national and international developments etc. The reply of AERB regarding the average time of three to four years taken for development of safety documents needs to be viewed in light of the fact that out of the 25 cases reviewed by us, only six codes, standards and guides had been developed in four years' time.

The Raja Ramanna Committee had recommended (1997) that all codes and guides need not be prepared by AERB and that these could be prepared by other competent agencies and duly approved and adopted by AERB.

DAE stated (February 2012) that the process of document preparation, review and incorporation/disposition of stakeholder views were done through a multi-tier system of expert committees, comprising members drawn from various areas of expertise. Most of the AERB documents were performance based and dealt with very specialised and advanced technology areas which had limited number of individual experts in the related areas.

The fact remains that AERB, even after 15 years of the recommendations of the Raja Ramanna Committee, had not been able to identify external agencies for development of codes and guides.

### **Recommendations**

3. A nuclear and radiation safety policy may be framed in a time-bound manner.
4. The 27 codes and guides required for nuclear and radiation safety, out of which 11 were identified in 2001, may be developed expeditiously.