



GOVERNMENT OF INDIA

Policies Governing Regulation of Nuclear and Radiation Safety



ATOMIC ENERGY REGULATORY BOARD

July 2014

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‘This Document is adopted by the Board of AERB in its meeting no. 112 held on July 8, 2014 and contains the policies for regulation of nuclear and radiation safety being practiced in India’

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1. INTRODUCTION:

The Atomic Energy Act, 1962 (33 of 1962) articulates India's resolve to pursue the development, control and use of atomic energy¹ for the welfare of the people of India and for other peaceful purposes and for matters connected therewith. This Act confers on the Government of India, the powers and responsibilities for framing of Rules and issuance of notifications for implementing the provisions of the Act.

The powers and responsibilities include those for (i) production, development, use and disposal of atomic energy / radioactive substances; (ii) control over radioactive substances or radiation generating plants in order to prevent radiation hazards, secure public safety and safety of persons handling radioactive substances or radiation generating plant and ensure safe disposal of radioactive wastes.

The Act has special provisions related to safety in the activities related to use of atomic energy, in Section 17. The Act also gives powers to the Central Government to enter and inspect the premises and to take penal actions against any party contravening the provisions of the Act.

In accordance with these mandates, the Central Government has promulgated the Atomic Energy (Radiation Protection) Rules, 2004, the Atomic Energy (Working of the Mines Minerals and Handling of the Prescribed Substances) Rules, 1984, the Atomic Energy (Safe Disposal of Radioactive Wastes) Rules, 1987, the Atomic Energy (Factories) Rules, 1996 and the Atomic Energy (Radiation Processing of Food and Allied Products) Rules, 2012 that formulate the policy and regulatory framework for control of activities and for ensuring safety in the activities relating to use of atomic energy.

The Act has also empowered the Central Government to delegate any power conferred or duty imposed on it under the Act to a subordinate authority or officer of the Central or the State Governments. Exercising this power, the Central Government established the Atomic Energy Regulatory Board (AERB) to carry out certain regulatory and safety functions envisaged under Section 16, 17 and 23 of the Act. Section 16 and 17 of the Act pertain to control of radioactive substances and special provisions with regard to safety in production, handling, use and disposal of radiation / radioactive substances respectively in the country. Section 23 of the Act deals with administration of the Factories Act, 1948, in the factories owned by the Central Government or any authority or corporation established by it or a Government Company and engaged in the use of atomic energy. The Central Government has appointed AERB as the Competent Authority to enforce the safety related rules under the Act.

AERB has also been empowered to perform the functions under the Sections 10(1) (Powers of entry) and 11(1) (Powers to take samples) of Environmental Protection Act, 1986 and Rule 12 (Agency to which information on excess discharge of pollutants to be given) under the Environmental Protection (Amendment) Rules 1987. Further, Rules 2(b) and 3 of the Manufacture, Storage and Import of Hazardous Chemicals Rules 1989 under the Environmental Protection Act 1986 has notified AERB as the authority to enforce directions and procedures as per the Atomic Energy Act 1962. Under the Civil Liability for Nuclear Damage Act, 2010 and the Civil Liability for Nuclear Damage Rules, 2011, AERB also has the responsibility of notifying the occurrence of any nuclear incident.

¹ "atomic energy" means energy released from atomic nuclei as a result of any process, including the fission and fusion processes.

The constitution of AERB together with the Atomic Energy (Radiation Protection) Rules, 2004, has mandated AERB to develop and issue safety codes and standards and to develop safety policies in radiation and industrial safety areas.

In accordance with these, AERB has issued a number of Safety Codes and Standards, wherein the policy objectives and the safety requirements applicable to the respective areas are established. AERB has a mission statement that defines its highest level objectives with respect to safety. The Safety Codes and Standards of AERB cover the areas of regulation of nuclear and radiation facilities as well as the safety requirements applicable to the specific facilities and activities that it regulates. In formulating the safety requirements specified in these codes and standards AERB takes account of the current scientific and technological capabilities, operating experience and the applicable international standards and practices. The process of development of Codes and Standard also provides for obtaining the views of the stakeholders. While the policy level principles and objectives in these Codes and Standards seldom undergo change, the specified requirements and criteria for fulfilling these principles and objectives do evolve according to the change in state of art.

AERB has issued a Code of Ethics (2008) which states its Mission and brings out the guiding principles and the core values to be upheld in its regulatory activities.

The overall policy objectives for radiation safety and industrial safety in relation to the nuclear and radiation facilities in India are embedded in the Atomic Energy Act, 1962, the Atomic Energy (Radiation Protection) Rules, 2004, the Atomic Energy (Safe Disposal of Radioactive Wastes) Rules, 1987, the Atomic Energy (Factories), Rules, 1996, AERB's Mission Statement, the Safety Codes, Standards and the Code of Ethics issued by AERB. These policies will be pursued in the regulation of nuclear and radiation safety in the facilities and activities coming in the jurisdiction of AERB.

These policies and requirements for nuclear and radiation safety are generally in line with the requirements of the International Atomic Energy Agency's (IAEA) standards on 'Governmental, Legal and Regulatory Framework for Safety, (IAEA GSR Part – 1) and the IAEA standard 'Fundamental Safety Principles (IAEA-SF-1).

2. OBJECTIVE:

This document aims to consolidate the safety policy objectives that are stated in the Atomic Energy Act, 1962, the Rules and the Codes and Standards of AERB, which form the framework for regulation of safety, into a single document.

Such a policy document as a single reference is intended to enhance openness in the conduct of regulatory activities and to reduce communication gaps while interacting with its stakeholders as well as outside agencies.

The principles / objectives constituting the Policies governing nuclear and radiation safety in India are given in section 3.0.

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3.0 POLICIES GOVERNING NUCLEAR AND RADIATION SAFETY

- (1) *Fundamental objective of AERB is to ensure that the use of ionising radiation and nuclear energy in India does not cause undue risk to health of people and the environment. Towards this, the activities related to nuclear and radiation facilities shall be regulated through a system of regulatory consents that allows activities with stipulated conditions.*
- (2) *AERB shall be responsible for ensuring through safety reviews and inspections that the consented activities of the nuclear and/or radiation facility comply with the safety requirements and conditions of consent. This however does not diminish the responsibility of the consentee for safety, who shall be solely responsible for ensuring safety of the nuclear and/or radiation facility / activity and shall demonstrate that safety is ensured at all times.*
- (3) *The regulatory processes for nuclear and radiation facilities shall have the objectives to ensure that:*
 - (a) *Only such practices are permitted which are justified in terms of their societal and/or individual benefits,*
 - (b) *Radiation protection is duly optimised in all nuclear/radiation facilities,*
 - (c) *Radiation doses to the personnel in these facilities, and to the members of the public in their vicinity, do not exceed the prescribed limits, and*
 - (d) *The potential for accidental exposures from the facilities remains acceptably low.*
- (4) *Decisions related to regulatory consent for the facilities / activities shall be based on review and assessment by the Regulatory Body of the demonstration of compliance to the regulatory requirements by the applicant for consent. The consent issued by the regulatory body shall have a validity period. The regulatory process shall have provision for periodic renewal of consent, for which the review and assessment should ensure that safety of the facility / activity is judged after comparison with the current safety standards and practices.*
- (5) *The regulatory process shall provide for review and assessment, including conduct of inspections, of the consented facilities and activities on a continuing basis to ensure that the facility / activity is being done with due regard to safety and in compliance to the regulatory requirements and the conditions laid down in the consent.*
- (6) *The regulatory control over the nuclear and radiation facilities shall follow a graded approach, based on the radiological hazard potential.*
- (7) *All activities pertaining to nuclear and radiation facilities shall be in accordance with requisite Quality Assurance Programmes, establishing the goals, strategies, plans and objectives as well as identifying the organisational and individual responsibilities towards safety. The overall responsibility for establishment, implementation, assessment and continual improvement of the programme shall be with the consentee.*
- (8) *All nuclear and radiation facilities shall implement appropriate radiation protection programmes, to ensure safety of occupational personnel, the public and the environment. The programmes should provide for monitoring of radiation exposures as well as for environmental surveillance, as necessary.*

- (9) *The radioactive waste generated during operation, maintenance and decommissioning of nuclear and radiation facilities shall be managed in a safe manner to ensure protection of human health and the environment from the undue effects of ionising radiation in the present and in the future, without imposing undue burden on future generations.*
- (10) *All nuclear and radiation facilities / activities shall have arrangements for development of adequate plans and preparedness for responding to emergency situations, for protection of the occupational personnel, the public and the environment, in accordance with the hazard potential of the facility / activity.*
- (11) *When a nuclear / radiation facility or radiation generating equipment ceases to be in use, it shall be ensured that it undergoes safe decommissioning. Remediation of a contaminated site shall be carried out if the radionuclide concentration exceeds the reference levels specified by the Regulatory Body.*
- (12) *The Regulatory Body may resort to enforcement actions on the consentee for securing timely compliance to the regulatory requirements and conditions of consent or corrective actions, based on review and assessments of the submissions from the consentee and/or findings during review or inspection. The enforcement options should follow graded approach, taking account of aspects such as safety significance of the deficiency, seriousness of violations, the repetitive nature and/or deliberate nature of the violations. The enforcement actions may include initiation of penal provisions as provided under section 17 of the Atomic Energy Act, 1962.*
- (13) *Radiation exposures resulting from naturally occurring radionuclides present in the human body, cosmic radiation at the earth surface, unmodified concentrations of radionuclides in raw materials, except the radioactive materials / waste generated from operation of uranium and thorium mining and milling facilities, are excluded from regulatory control.*
- The regulatory body may ‘exempt’ certain sources or practices involving artificial radionuclides from regulatory control, the radiation exposure from which is too small to warrant such control. Also certain radioactive materials or radioactive objects arising from / within the consented practices may be considered for clearance from any further regulatory control, provided that the continued regulatory control of which would yield no net benefit in terms of reduction of individual doses or of health risks. The decisions with respect to exemption and clearance shall be based on the prescribed criteria.*
- (14) *On the issues of Safety, Health and Environment at work place, in relation to the factories owned by the Central Government and engaged in carrying out the purposes of the Atomic Energy Act, 1962, the objectives of the “National Policy on safety, health and environment at work place” issued by the Ministry of Labour and Employment, Government of India and the provisions of the Atomic Energy (Factories) Rules, 1996 shall prevail.*
- (15) *The Regulatory Body shall take steps as necessary, to keep the public informed on safety issues of radiological safety significance. It shall also be responsible for notifying to the public, the ‘extraordinary nuclear events’, occurring in the nuclear facilities in India, as mandated by the Civil Liability for Nuclear Damage Act, 2010.*

- (16) *In the conduct of regulatory activities, the Regulatory Body shall be governed by the provisions of the 'Right to Information Act, 2005, as applicable to the 'public authority'.*

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