

OVERVIEW OF REGULATION ON SAFETY OF RESEARCH REACTORS IN INDONESIA



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NUCLEAR ENERGY REGULATORY AGENCY
(BAPETEN)
2007

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- Regulation on Research Reactor
- Regulatory Authority
- Nuclear Emergency Response
- Decommissioning
- Regulatory Inspection
- Assessment and Verification of Safety

REGULATION ON RESEARCH REACTOR

Basic Law

Act No. 10/1997: Nuclear Energy

Government Regulation

- No. 63/2000: Safety and Health for the Utilization of Ionizing Radiation
- No. 64/2000: Licensing of Nuclear Energy Utilization
- No. 43/2006: Licensing of Nuclear Reactors

BAPETEN's Chairman Decree

Reactor

- No. 01-P/1999: Siting of Nuclear Reactors
- No. 05/1999: Design of Research Reactors
- No. 06/1999: Construction and Operation of Nuclear Reactors
- No.10/1999: Safety of the Operation of Research Reactors
- No. 06-P/2000: Guidelines in Preparing Safety Analysis Report of Research Reactors (mainly discusses the recommended content of SAR)

Safeguards

No. 02-P/2005: Safeguards and Control of Nuclear Materials

Radiation Protection

No. 01/1999: Safety of Radiation Workers

Working Permit and Training for Reactor and Radiation Personnel

- No. 17/2001: Requirements to Obtain Working Permit for Nuclear Installations' Personnel and other Installations Utilizing Ionizing Radiation
- No. 04-P/2003: Guidelines for Training of Nuclear Reactors' Operators and Supervisors

Emergency Preparedness

No. 05P/2003: Guidelines for Emergency Response Plan

Quality Assurance

No. 07/1999: Quality Assurance for Nuclear Installations

REGULATORY AUTHORITY

- Based on Nuclear Energy Act (Act No. 10/1997), the utilization on nuclear energy is controlled by Government.
- In doing this, the Government establishes a Regulatory Body, which is under and directly responsible to the President. The Regulatory Body shall have the task to control any activity that uses nuclear energy.
- To accomplish its task, the Regulatory Body establishes regulations and conducts licensing processes and inspections.

Establishment of Regulatory Body

Upon the directive of the Nuclear Energy Act, the Government established Nuclear Energy Regulatory Agency (BAPETEN) by Presidential Decree No. 76/1998.

Duties of Regulatory Body

According to Article 3 of this Decree, BAPETEN has the functions to:

- Formulate the national policy in the control of nuclear energy utilization
- Formulate the national planning and program on the control of nuclear energy utilization
- Direct and formulate the rules in and to assess nuclear safety, radiation safety, and nuclear material protection
- Implement licensing and inspection of the construction and the operation of nuclear reactors, nuclear installations, nuclear material facilities, and radiation sources, and to develop the nuclear preparedness
- Implement the cooperation with the Government Agencies and other organizations, both domestic and foreign, in the field related to the control of nuclear energy utilization

- Implement safeguards and SSAC (State's system of accounting for and control of nuclear material)
- Implement guidance and counseling in respect of safety and health of the worker, the people and the environmental protection
- Implement the human resource development within BAPETEN
- Implement control and steering of the administration of BAPETEN

NUCLEAR EMERGENCY RESPONSE

Nuclear emergency response is stipulated in the following:

- Government Regulation No. 63/2000: Safety and Health for the Utilization of Ionizing Radiation
- Government Regulation No. 43/2006: Licensing of Nuclear Reactors
- BAPETEN's Chairman Decree No. 05P/2003: Guidelines for Emergency Response Plan

Preparation for Government Regulation on National Nuclear Emergency Preparedness is now under progress

GR on Licensing of Nuclear Reactor

In this regulation, nuclear emergency response is stipulated in several phases of licensing process, i.e. during the application of Construction, Commissioning, and Decommissioning Permits.

As mentioned in the elucidation section of the Regulation, the nuclear emergency response program shall contain at least the following items:

- Organization of nuclear emergency response
- Provision of equipment, including communication equipment, and coordination with other institutions having responsibility in emergency response
- Training program
- Procedures of coping with accidents at the time of accident and the recovery in the aftermath
- Accident management

Chairman Decree on Guidelines for Emergency Response Plan

- This Decree is intended to provide guidelines to the applicants or license holder in preparing document on nuclear emergency response plan.
- Every items related to the nuclear emergency response should be included in the document. It may be arranged in the following structure:
 - Table of content
 - Definition
 - Introduction
 - Types of radiation sources
 - Radiation hazard potentials
 - Classification of accidents
 - Accident reporting
 - Infrastructure of emergency response plan
 - Response functions

DECOMMISSIONING

- Decommissioning of reactors is stipulated in the Government Regulation No. 43/2006: Licensing of Nuclear Reactors
- The stipulation includes, among other:
 - Condition in which decommissioning activity needs to be accomplished
 - Supporting documents required in the submittal of decommissioning permit
 - Administrative and technical evaluation by BAPETEN on the supporting documents of decommissioning
 - Commencement and performance of decommissioning activities
 - Termination of decommissioning activities and submittal documents in order to obtain Clearance Statement
 - Administrative and technical evaluation by BAPETEN on the documents supporting the application and the grant of Clearance Statement

REGULATORY INSPECTION

- ✓ Nuclear Energy Act states that inspection to the nuclear installations and installations that use ionizing radiation shall be performed by the Regulatory Body in order to ensure that the licensing requirements and nuclear safety regulations are complied with.
- ✓ Further directives on the conduct of inspection are stipulated in the GR on Licensing of Nuclear Reactors and GR on Licensing of Nuclear Energy Utilization that can be summarized as follows:
 - Inspection is conducted by Nuclear Safety Inspectors assigned by the Chairman of BAPETEN
 - Inspection may be conducted periodically or accidentally, with or without prior notification.

- Nuclear Safety Inspectors have duties and authorization to:
 - Access to the site and nuclear reactors during construction, operation, and decommissioning of nuclear reactors
 - Demand the operator to take actions deemed necessary in order to protect safety and security of workers, public, and environment
 - During urgent situation, give order to temporarily halt the activities on construction, operation, or decommissioning of nuclear reactors that put safety of workers, public, and environment in danger, after consulting with the Chairman of BAPATEN.

ASSESSMENT AND VERIFICATION OF SAFETY

The assessment and verification of safety is stipulated in:

- Government Regulation No. 43/2006: Licensing of Nuclear Reactors
- BAPETEN's Chairman Decree No. 06/1999: Construction and Operation of Nuclear Reactors
- BAPETEN's Chairman Decree No. 10/1999: Safety Guide in the Operation of Research Reactors
- BAPETEN's Chairman Decree No. 06P/2000: Guidelines in Preparing Safety Analysis Report of Research Reactors (mainly discusses the recommended content of SAR)

- Based on GR on Licensing of Nuclear Reactors, Safety Analysis Report (SAR) is required to be submitted to BAPETEN during the application of Construction and Operation Permits and the renewal of Operation Permit.
- The SAR is evaluated by BAPETEN. The permit will be issued when it meets the established administrative and technical requirements.
- Submission of Safety Analysis Report is also required for modification of reactors.

The evaluation of SAR performed by BAPETEN in recent years are for modification and renewal of operating permit.

SELF-ASSESSMENT OF APPLICATION OF THE CODE OF CONDUCT ON SAFETY OF RESEARCH REACTORS IN INDONESIA



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- Role of State
- Role of Regulatory Body

ROLE OF STATE

No.	Item	Lvl 0	Lvl 1	Lvl 2	Lvl 3
1.	Laws and regulations (Code paragraph 9)			√	
2.	Regulatory authority (Code paragraph 10, 11)				√
3.	Resources for safe operation (Code paragraph 13)				√
4.	Governmental emergency response (Code paragraph 14)			√	
5.	Legal and infrastructure arrangements for decommissioning (Code paragraph 15)			√	
6.	Safety on RR in extended shutdown, if applicable (Code paragraph 16, 17)	√			
7.	Informing Neighbor States, if applicable (Code paragraph 18)			√	

ROLE OF THE REGULATORY BODY

No.	Item	Lvl 0	Lvl 1	Lvl 2	Lvl 3
1.	Implementation of the regulatory process (Code paragraph 19)				√
2.	Conduct regulatory inspections and evaluations (Code paragraph 19 c)				√
3.	Assessment and verification of safety (Code paragraph 20 b, c)				√

No.	Item	Lvl 0	Lvl 1	Lvl 2	Lvl 3
4.	Requirement for safety management (Code paragraph 20 a)				√
5.	Requirement for training of personnel (Code paragraph 20 e)				√
6.	Requirement for a quality assurance program (Code paragraph 20 f)				√
7.	Requirement to take human factors into account (Code paragraph 20 g)		√		
8.	Requirement for radiation protection (Code paragraph 20 h)				√
9.	Requirements related to design, construction, and commissioning (Code paragraph 20 l, m, n)				√
10.	Requirements related to operation, maintenance, modifications, and utilization (Code paragraph 20 o, p, q, r, s)				√
11.	Requirement for adequate emergency plan (Code paragraph 20 j)				√
12.	Criteria for intervention in emergencies (Code paragraph 20 j)	√			
13.	Criteria for siting research reactors (Code paragraph 20 k)		√		
14.	Criteria for safety of research reactors in extended shutdown (Code paragraph 20 t)	√			
15.	Criteria for release from regulatory control of decommissioned reactors (Code paragraph 20 u)		√		