REGULATION OF THE HEAD OF THE NUCLEAR POWER SUPERVISORY AGENCY

NUMBER 1 OF 2010

ABOUT

NUCLEAR EMERGENCY PREPAREDNESS AND MANAGEMENT

BY THE GRACE OF GOD ALMIGHTY

HEAD OF THE NUCLEAR ENERGY SUPERVISORY AGENCY,

Considering: that to implement the provisions of Article 15 paragraph (4) of the Regulation Government Number 43 of 2006 concerning Nuclear Reactor Licensing, it is necessary to stipulate Regulations on the Head of the Nuclear Energy Supervisory Agency regarding Nuclear Emergency Preparedness and Management;

Remembering: 1. Law Number 10 of 1997 concerning Nuclear Energy (State Gazette of the Republic of Indonesia 1997 Number 23, Supplement to State Gazette Number 3676);

2. Government Regulation Number 26 of 2002 concerning Safety Transport of Radioactive Substances (State Gazette of the Republic Indonesia Year 2002 Number 51, Supplement to the State Gazette Number 4201);

3. Government Regulation Number 33 of 2007 concerning Safety Ionizing Radiation and Safety of Radioactive Sources (Plate Republic of Indonesia Year 2007 Number 74, Supplement State Gazette Number 4730);

4. Government Regulation Number 29 of 2008 concerning Licensing for the Use of Ionizing Radiation Sources and Nuclear Materials (State Gazette of the Republic of Indonesia of 2008 Number 54, Supplement to State Gazette Number 4839);

5. Regulations…

5. Government Regulation Number 43 of 2006 concerning Nuclear Reactor Licensing (State Gazette of the Republic of Indonesia of 2006 Number 106, Supplement to State Gazette Number 4668);

DECIDE:

To stipulate: REGULATIONS ON THE HEAD OF THE NUCLEAR ENERGY SUPERVISORY AGENCY CONCERNING PREPAREDNESS AND RESPONSE NUCLEAR EMERGENCY.

PIG

GENERAL REQUIREMENTS

article 1

In this Regulation of the Head of the Nuclear Energy Supervisory Agency that meant by:

1. Nuclear installations are:
   a. nuclear reactor;
   b. facilities used for refining, conversion, enrichment of nuclear materials, nuclear fuel fabrication and/or reprocessing of spent nuclear fuel; and/or
   c. facilities used to store fuel nuclear and spent nuclear fuel.
2. The installation site is a location on land below control of the permit holder used for development, operation, and decommissioning or closure, of installations nuclear and/or radioactive waste management installations.
3. Radiation accidents are unplanned events, including operational errors, equipment damage or failure, or other events that lead to radiation impacts,

conditions of radiation exposure and/or contamination that exceed the limits as stipulated in regulatory provisions legislation.

4. A nuclear accident is any event or series of events which causes nuclear losses.

5. Nuclear losses are any losses that can take the form of death, disability, injury or illness, property damage, pollution and environmental damage caused by radiation or a combination of radiation with toxic properties, easy properties explosive, or other hazardous properties as a result of the criticality of the material nuclear fuel in a nuclear installation or during transportation, including losses as a result of preventive actions and loss as a result or action for recovery environment.

6. A nuclear emergency is a situation of imminent danger human safety, property loss or environmental damage, arising as a result of a nuclear accident or radiation accidents.

7. Nuclear preparedness is a series of systematic and planned activities carried out to anticipate nuclear emergencies through the provision of infrastructure elements and countermeasure function capabilities to carry out nuclear emergency response quickly, precisely, effectively and efficiently.

8. Nuclear emergency management is a series of activities carried out immediately when an emergency occurs nuclear weapons to reduce the serious impacts they cause to people, property or the environment.

9. The nuclear emergency zone is the area around the facility or installations in which there are precautionary action zones

(precautionary action zone, PAZ), planning zone *(urgent protective action planning zone, UPZ),* and material control zone food *(food restriction planning radius).*

10. Preventive action zone is an area used for implement immediate protective measures in order prevention before or immediately after the release of radioactive substances with the aim of preventing or reducing deterministic effects critical.
11. The planning zone is the preparation area for the premises temporary shelter *(sheltering),* environmental monitoring and immediate implementation of protective measures based on monitoring results for several hours after release.
12. National Disaster Management Agency, next abbreviated as BNPB, is a non-departmental government agency in accordance with the provisions of statutory regulations.
13. Regional Disaster Management Agency, hereinafter abbreviated as BPBD, is a regional government agency that carries out disaster management in the region.
14. The Nuclear Energy Supervisory Agency, hereinafter referred to as BAPETEN, is the agency tasked with carrying out supervision through regulations, permits and inspections of all nuclear energy utilization activities.
15. A permit holder is a person or entity that has received a permit utilization of nuclear power from BAPETEN.
16. The central government, hereinafter referred to as the Government, is The President of the Republic of Indonesia holds power government of the Unitary State of the Republic of Indonesia as referred to in the Constitution of the Republic of Indonesia Indonesia in 1945.

17. Government…

17. Regional government is the governor, regent/mayor, or regional apparatus as an element of government administration area.
18. Immediate protective action is a must carried out immediately to avoid or reduce doses to the public in a nuclear emergency to provide effective results.
19. Mitigation actions are actions to limit and reduce radiation exposure if a potential event occurs cause or increase radiation exposure.
20. Nuclear emergency response officer, next called a response officer, is an officer on duty carry out efforts to overcome nuclear emergencies in within the site, precautionary zone, or planning zone for immediate protective action.
21. *First responders* are response officers who are not from radiation facilities or nuclear installations, who first come to the scene of a nuclear emergency to carry out response measures.
22. *The Marshall Yard* is a gathering place for supporting resources during the nuclear emergency response process and a place to store supporting resources that can no longer be used.
23. *Triage* is a place where victims gather for examination and grouping based on severity of condition victims for the purpose of immediate and further medical treatment.

Section 2 ...

Section 2

This BAPETEN Head Regulation aims to provide provisions for implementing preparedness and response nuclear emergency.

Article 3

(1) This regulation regulates preparedness and dealing with nuclear emergencies.
(2) Preparedness and response to nuclear emergencies as intended in paragraph (1) is implemented in accordance with nuclear preparedness program.

Article 4

(1) The permit holder must establish a nuclear preparedness program based on the results of a study of potential radiological hazards in accordance with the radiological hazard category.
(2) The radiological hazard categories as intended in paragraph (1) are listed in Appendix I which is an inseparable part of this BAPETEN Head Regulation.

Article 5

Nuclear preparedness programs should be reviewed periodically at least once in 2 (two) years.

Article 6

In carrying out a study of potential radiological hazards, the permit holder should consider at least:
a. conditions inside and/or outside the site that could have an impact

regarding the implementation of nuclear emergency response, which includes:

i. population demographics;

ii. site meteorological data; And

iii. land use and spatial planning;

b. the type of emergency event expected to arise at the facility or installation;

c. Other non-radiological dangers contained include:

at least explosive, flammable, and poisonous properties; And

d. nuclear emergency response mechanism.

Article 7

(1) Holders of installation permits with radiological hazard category I or II must establish a nuclear emergency zone according to the results of the study potential radiological hazards as intended in Article 6.

(2) The area covered by the nuclear emergency zone is listed in the inseparable Appendix II Regulations of the Head of BAPETEN.

Article 8

(1) Nuclear preparedness program as referred to in Article 3 contains:

a. infrastructure; And

b. countermeasure function.

(2) Infrastructure as intended in paragraph (1) letter a consists of on elements:

a. organization;

b. coordination;

c. facilities ...

c. facilities and equipment;

d. mitigation procedures; and/or

e. nuclear emergency training and/or rehearsals.

(3) The countermeasure function as intended in paragraph (1) letter b consists of the following elements:

a. Identification; and reporting and activation;

b. mitigation measures;

c. immediate protective measures;

d. protective measures for response officers, workers and society; and/or

e. providing information and instructions to the community.

(4) Infrastructure must be fulfilled by the permit holder to ensure fulfillment of the countermeasures function.

(5) The format and content of the nuclear preparedness program as follows referred to in paragraph (1) must be in accordance with Attachment III is an inseparable part of the Head Regulations BAPETEN.

CHAPTER II
NUCLEAR PREPAREDNESS

Article 9

Nuclear preparedness aims to ensure the availability of nuclear emergency response readiness and capabilities to deal with nuclear emergencies in a timely, manageable, controlled and coordinated.

Part One …

Part One
Organization

Article 10

(1) Permit holders are required to form a response organization
A nuclear emergency consisting of at least:
a. chairman of nuclear emergency response;
b. operations controller;
c. operations executor; And
d. radiology examiner.

(2) Permit holders are required to determine each person's duties and responsibilities
organizational elements as intended in paragraph (1).

Article 11

(1) The permit holder acts as head of countermeasures
nuclear emergencies who are responsible for implementation
overall emergency response.

(2) The head of nuclear emergency management has the following duties:
a. report the occurrence of anticipated operational incidents and/or accidents and efforts to overcome them to BAPETEN; b. set priorities and protection for the community and response officers; c. ensure that all countermeasures are carried out in accordance with procedures and communication with field officers runs optimally;

d. provide information to the public, mass media and relevant agencies; And
e. cooperate with operations controllers in operations countermeasures.

(3) Chairman...

(3) The chairman of nuclear emergency management can appoint someone as a spokesperson who officially provides information information as intended in paragraph (2) letter d.

Article 12

(1) The permit holder can appoint a radiation protection officer or other officers as operations controllers.

(2) Operation controller as intended in paragraph (1) responsible for controlling countermeasures operations nuclear emergency.

(3) In carrying out the responsibilities as intended In paragraph (2), the operations controller has the following duties:

a. collect initial information regarding accidents that occur;

b. report initial information to the head of countermeasures nuclear emergency;

c. coordinating implementing units in the field implementation of initial recovery, cleanup operations, protection of response officers and other protective measures;

d. provide input and recommendations in emergency management to the head of response nuclear emergency; And

e. Supervise and coordinate internal operations do his job.

Article 13

(1) The permit holder can appoint a radiation worker as executor operations responsible for carrying out countermeasures nuclear emergency.

(2) Operations implementers at least include:

a. radiation protection team;

b. medical team;

c. firefighting team; And

d. security unit.

(3) In carrying out the responsibilities as intended
In paragraph (1), the operations implementer has duties in accordance with responsibilities of the team or unit as referred to in paragraph (2).

Article 14

(1) The radiology reviewer leads the radiology team at the location accidents and is responsible for assessing radiological hazards, providing radiation protection support for operations implementers and provide recommendations for protective actions to operations controller.

(2) In carrying out the responsibilities as intended
In paragraph (1), radiology reviewers have the following duties: a. carry out field surveys at the accident site; b. controlling contamination;
c. formulate recommendations for protective measures; d. carry out coordination in handling source recovery, decontamination and handling of radioactive waste; And
e. estimate and record the dose received by community and/or response officers.

The second part …

The second part
Response Coordination

Article 15

(1) The permit holder is obliged to coordinate with other agencies that related to the implementation of preparedness and response nuclear emergency if the impact of the emergency is widespread until outside the installation.

(2) Other related agencies as intended in paragraph (1) includes, among others:

a. regional government and BPBD;

b. police;

c. fire Department; And

d. hospital.

Part Three
Facilities and Equipment

Article 16

(1) The permit holder is obliged to provide facilities and equipment, including supporting facilities, to carry out the response function.

(2) Facilities and equipment as intended in paragraph (1) must:

a. operate in all conditions that may be encountered in emergency response; and/or

b. in accordance with the procedures or equipment used in countermeasures owned by the response organization other emergencies.

Article 17…

Article 17

(1) The equipment as intended in Article 16 paragraph (1) must be placed or provided so that it can be used regularly effective in emergency conditions that are expected to arise.

(2) Equipment includes at least:

a. early detection and alarm equipment;

b. radiology monitoring equipment;

c. decontamination equipment;

d. emergency medical equipment;

e. fire fighting equipment;

f. protective equipment for response officers and other workers;

g. communications equipment; and/or

h. radioactive waste handling equipment.

Article 18

(1) License holders who have installations with radiological hazard categories I or II must provide early detection and alarm equipment as intended in Article 17 paragraph (2) letter a within the installation and at the site boundary.

(2) The number and placement of early detection and alarm equipment at the site boundary as intended in paragraph (1) must be at least in accordance with the eight cardinal directions.

(3) License holders who have installations with radiological hazard category III must provide early detection and alarm equipment as intended in Article 17 paragraph (2) letter a inside installation.

Article 19…

Article 19

Permit holders who have installations in the hazard category radiology I or II, other than the equipment referred to in Article 17 paragraph (2), must have protective equipment and supplies iodine *(thyroid agent blocking)* tablets for community members in in the site.

Article 20

(1) Permit holders who have facilities or installations with radiological hazard categories I, II or III must provide facilities in the form of:

a. communication systems that must remain functional when they occur emergency;

b. clearly marked escape routes and equipped with lighting, ventilation and building facilities other; And

c. a gathering place *(assembly point)* for everyone inside footprint.

(2) The location of the gathering place as intended in paragraph (1) letter c must be easily accessible, provide temporary shelter from the release of radioactive substances or exposure to radiation and always be monitored.

Article 21

(1) Permit holders who have facilities or installations with radiological hazard category I or II, in addition to providing facilities as intended in Article 20, is obliged to provide facilities to carry out activities:

a. coordination of countermeasures inside and outside footprint;

b. coordinating information to the public; And

c. coordination of off-site monitoring and assessment.

(2) The facilities as intended in paragraph (1) must be placed and/or protected so as to control exposure radiation handling officers in accordance with the provisions legislation.

(3) Facilities as intended in paragraph (1) include:

a. evacuation places and infrastructure;

b. emergency response control center; and/or

c. snapshot analysis facility.

Article 22

(1) Emergency response control center as referred to in Article 21 paragraph (3) letter b must be separated from the main control room, and placed inside the site and outside the site.

(2) Emergency response control center as intended in paragraph (1) must:

a. serves as a meeting place for officers countermeasures in the event of an emergency;

b. provide information regarding important installation parameters and radiological conditions at the installation and in the area around the site;

c. providing means of communication with the main control room, with additional control rooms and other key points in the installation, and with the response organization in inside and outside the site; And

d. provide …

d. providing emergency ventilation with its own air supply, logistics and other service facilities for needs for a minimum of 3 (three) days.

Article 23

(1) The permit holder must appoint an accredited laboratory to carry out analysis of radiology footage and environment as well as measuring internal contamination.
(2) The permit holder must ensure that the laboratory as intended in paragraph (1) is capable of functioning at any time a nuclear emergency occurs.

Part Four
Mitigation Procedures

Article 24

(1) The permit holder must establish countermeasure procedures so that the countermeasure function can be carried out effectively.
(2) For facilities or installations with radiological hazard categories I or II, the permit holder, in addition to establishing the procedures as intended in paragraph (1), must provide:
a. analysis tools and computer programs; and b. community protection and evacuation measures.
(3) Procedures, analysis tools and computer programs as intended in paragraph (1) and paragraph (2) must be validated before used and should be tested by simulating emergencies in field.

Article 25 …

Article 25

Accident response procedures must be developed based on the description of potential radiation hazards provided with work instructions about:

a. identification;

b. reporting and activation;

c. mitigation measures;

d. provision of temporary shelter, evacuation, and administration of iodine tablets;

e. protection of response officers;

f. providing information and instructions to the public;

g. radiation surveying and monitoring;

h. fire fighting;

i. first aid and rescue of victims;

j. decontamination of victims, workers, response officers, equipment, evacuation routes, provision of temporary shelter, *marshall yard,* and *triage.*

k. radioactive waste handling and source recovery; l. statement of emergency and statement of circumstances the emergency is over; And

m. evaluation and analysis of the causes of accidents.

Part Five
Nuclear Emergency Training and Rehearsals

Article 26

(1) The permit holder must carry out training and/or rehearsals nuclear emergency at a facility or installation at least once in 1 (one) year.

(2) Training…

(2) Nuclear emergency training and/or rehearsals as referred to in paragraph (1) must involve all infrastructure and its coping function.

(3) Plans, implementation and results of training and/or rehearsals Nuclear emergencies must be conveyed to the Head of BAPETEN.

Article 27

(1) Permit holders who have facilities or installations with radiological hazard category I or II requires training and/or an off-site nuclear emergency rehearsal at least once within 2 (two) years by involving other related agencies as intended in Article 15 paragraph (2).

(2) Permit holders who have facilities or installations with radiological hazard category I or II requires training and/or a nuclear emergency rehearsal at the national level at least once in 4 (four) years by involving BNPB and other related agencies as intended in Article 15 paragraph (2).

CHAPTER III

NUCLEAR EMERGENCY MANAGEMENT

Article 28

Nuclear emergency management is carried out for the purposes of: a. control the situation;

b. prevent or mitigate consequences at the site or source incident;

c. prevent deterministic effects on health workers and society;

d. perform first aid and administer treatment

radiation injury victims;

e. prevent stochastic effects on the population;

f. prevent non-radiological effects on individuals and population; And

g. protect property and the environment.

Article 29

Permit holders are obliged to implement countermeasures when they occur nuclear emergency as soon as possible to achieve the goal countermeasures as intended in Article 28.

Part One

Identification, and Reporting and Activation

Article 30

(1) The permit holder must immediately identify the emergency nuclear and determine the appropriate level of appropriate countermeasures with the classification of a nuclear emergency.

(2) For installations or facilities that have categories I, II or III, the nuclear emergency classification as intended in paragraph (1) includes the following classes: a. alert *(alert)* on facilities or installations in radiological hazard categories I, II or III that impact the building facilities or installations;

b. site area emergencies *(site emergencies)* in facilities or installations with radiological hazard categories I or II impacts within the site; And

c. general emergency *at* a facility or installations with radiological hazard category I or II impacts beyond the site.

Article 31 ...

Article 31

(1) Identification as intended in Article 30 paragraph (1) includes:

a. accident detection;

b. clarifying the level of emergency in accordance with emergency level classification as referred to in Article 30 paragraph (2); And

c. selection of equipment used.

(2) Identification as intended in paragraph (1) is carried out For:

a. carry out predictions or initial studies regarding the area and the magnitude of the release of radioactive substances into the environment;

b. carry out further studies regarding nuclear emergencies during an emergency; And

c. determine appropriate actions for protection towards workers and society.

Article 32

(1) License holders are required to report to the Head of BAPETEN in the event of a nuclear emergency.

(2) The report as intended in paragraph (1) must be submitted no later than 1 (one) hour by telephone, facsimile or electronic mail, and in writing no later than 2 (two) days after an accident occurred.

(3) Written report as intended in paragraph (2) use the reporting form listed in the Appendix IV which is inseparable from this BAPETEN Head Regulation.

Article 33 …

Article 33

(1) The permit holder must activate the officer countermeasures and coordination steps to implement nuclear emergency response, mitigation measures, and immediate protective action.

(2) Coordination steps as intended in paragraph (1) must be able to inform immediately, effectively and actively between countermeasure elements and/or other related agencies in carry out nuclear emergency response tasks.

The second part
Mitigation Actions

Article 34

(1) The permit holder must take mitigation measures to:

a. prevent escalation of radiological hazards; b. restore facilities or installations to a safe condition and stable;

c. reduces the potential for release of radioactive substances or exposure radiation; And

d. mitigate the impact of radioactive substance releases or exposure radiation.

(2) In implementing mitigation measures as intended in paragraph (1), the permit holder must consider the following aspects: the following emergency management aspects:

a. necessary facility or installation operations;

b. information needs about facility or installation operations;

c. workload and conditions of facility or installation operating staff;

d. necessary countermeasures by officers

facilities or installations;

e. conditions in the facility or installation that require it actions of response officers; And

f. response of personnel, instrumentation and systems at the facility or installation in emergency conditions.

Article 35

(1) Permit holders may request technical assistance from other agencies related to mitigation measures.

(2) In requesting technical assistance as intended in paragraph (1), the permit holder must:

a. providing immediate access to facilities or installations and information about conditions on the site and actions necessary protection to first responders;

b. provide and prepare response officers; And

c. provide immediate support to first responders.

Article 36

(1) License holders for the use of industrial radiography and radiotherapy must take mitigation measures in the event of an emergency related to radioactive sources.

(2) Mitigation measures as intended in paragraph (1) must include immediate access to radiology assessors or radiation protection officers who have been trained and qualified to assess emergencies and mitigate any impacts of accidents.

(3) In the event of loss or unauthorized transfer radioactive source, the permit holder must conduct a search immediately radioactive sources to protect the public and environment.

Article 37

(1) The permit holder must take mitigation measures in case an emergency occurs during the transport of radioactive substances.

(2) Mitigation measures as intended in paragraph (1) include:

a. initial action by initial responders;

b. providing instructions via telephone *(on-call advice)* to early responders in terms of early responders are able tackling nuclear emergencies;

c. dispatch of response officers to the scene nuclear emergency if necessary.

Part Three
Immediate Protective Action

Article 38

(1) Permit holders who have facilities or installations that those in radiological hazard category I or II are required to implement immediate protective measures to ensure the safety of workers and the public.

(2) Immediate protective measures as intended in paragraph (1) include evacuation measures, provision of temporary shelter, and provision of iodine tablets.

(3) In implementing immediate protective measures, the permit holder must prioritize human safety.

Article 39

(1) In the event of an emergency which is included in the class public emergency, the installation or facility permit holder must:

a. immediately take immediate protective measures for workers

And ...

and communities within the prevention action zone; b. immediately carry out radiological monitoring within the zone preventive measures, and monitoring within the zone planning and monitoring zones for foodstuffs;

c. instruct the public in the planning zone to Stay indoors or take shelter while for further instructions;

d. provide instructions for immediate protective action for communities within the planning zone;

e. provide recommendations regarding food restrictions potentially contaminated areas within a specified radius as a food control zone;

f. restrict access to prevention zones; And

g. carry out radiological monitoring of people who evacuated to determine decontamination measures or necessary medical care.

(2) In the event of an emergency that is included in the site area emergency class, the holder of the installation or facility permit must:

a. immediately take immediate protective action within the zone preventive measure;

b. make preparations and coordinate the implementation of actions as mentioned in paragraph (1) letters b to letter g for implementing the actions immediate protection.

Article 40 …

Article 40

(1) Permit holders carry out immediate protective measures must make effective use of internal public facilities precautionary action zone and planning zone for limit the occurrence of severe deterministic effects and to minimize the receipt of doses to the public.

(2) Public facilities as intended in paragraph (1) can be in the form of: buildings, transportation networks, and/or related facilities.

Part Four
Protective Measures for Response Officers, Workers, and the Community

Article 41

Permit holders must protect the safety of response officers, workers and the public.

Article 42

(1) The permit holder is responsible for providing information to initial responders regarding the risk of radiation exposure, and the meaning of the signs and radiation labels.

(2) Initial responders as intended in paragraph (1) include at least:

a. emergency ambulance;

b. police; And

c. fire Department.

Article 43

The permit holder is responsible for managing, controlling and record the doses received by response officers.

Article 44

The permit holder is responsible for ensuring the radiation dose against response officers do not exceed the guideline dose for officers countermeasures listed in Appendix V that are not inseparable from this BAPETEN Head Regulation.

Article 45

(1) The permit holder is responsible for providing recommendations or protection for response officers.

(2) Recommendations or protection as referred to in paragraph (1) is in the form of:

a. continuous assessment and recording of doses received by the response officer;

b. assurance that the dose received and contamination can be controlled in accordance with Appendix V; And

c. provision of appropriate special protective equipment in conditions of danger that are expected to occur.

(3) In the event that the emergency has ended, the permit holder is responsible for providing information regarding the dose received and the health risk consequences to the response officer.

Article 46

(1) The permit holder is responsible for handling contaminated workers and community members or exposed to excess exposure.

(2) Handling as intended in paragraph (1) includes first aid, dose estimation, provision of transport services and initial medical treatment at a local medical facility

workers and members of the public who are contaminated or exposed to high levels of radiation.

Part Five
Providing Information and Instruction to the Community

Article 47

Permit holders who have facilities or installations with radiological hazard category I or II is required to provide information and instructions to the public regarding the existence of a nuclear emergency.

Article 48

The permit holder during a nuclear emergency is responsible for:

a. provide useful, timely, correct and information consistent with the community;

b. responding to misinformation and rumours; And

c. responding to requests for information from the public, or the media printed or electronic information.

CHAPTER IV
TRANSITIONAL PROVISIONS

Article 49

For nuclear installations that are already operating at the time this BAPETEN Head Regulation comes into force, permit holders must adapt to the provisions of this regulation no later than 1 (one) year from the date this regulation is promulgated.

CHAPTER V

CLOSING

Article 50

When this regulation comes into effect, the Decree of the Head of BAPETEN No. 05-P/Ka-BAPETEN/I-03 concerning Planning Guidelines Emergency Management is revoked and declared no applies.

Article 51

This BAPETEN Head Regulation comes into force on the date set.

Set in Jakarta

On April 18, 2010

HEAD OF THE NUCLEAR ENERGY SUPERVISORY AGENCY,

signed

AS NATIO LASMAN

APPENDIX I

REGULATION OF THE HEAD OF THE NUCLEAR POWER SUPERVISORY AGENCY

NUMBER 1 OF 2010

ABOUT

NUCLEAR EMERGENCY PREPAREDNESS AND MANAGEMENT

TABLE OF RADIOLOGICAL HAZARD CATEGORIES

Category	Radiological Hazards	Radiation Facilities / Installations Nuclear
I	Installations or facilities with potential very big danger that can be produces radioactive releases gives severe deterministic effects in outside the site	• reactors with more power greater than 100 MWt (example: reactor Power, reactor powerless) • pool type used fuel storage facilities that have a potential hazard value equivalent to the reactor core for power greater than or equal to 3000 MWt • inventory of radioactive substances with a greater value or equals 10000 times A/D2 according to calculations in attachment I children. (example: recycling materials used burnt)
II	Installations or facilities with potential hazards that result in release radioactive at doses above the value which is permitted but does not provide severe deterministic effects outside the site	• reactors with power greater than or equal to 2 MWt but smaller than or equal to 100 MWt. (example: power reactor and non-powered reactor) • material storage facilities

		burn used pool type has potential danger value equivalent to a reactor core for power greater than 10 and less than 3000 MWt • inventory of radioactive substances with a greater value or equals 10 times and smaller than 10000 times A/D2 in accordance with calculations in children Appendix I
III	Installations or facilities with potential the danger has no impact on outside footprint but potential provide a deterministic effect in deep on the site.	• reactors with more power smaller than 2 MWt • material storage facilities dry burnt • radioisotope production facilities • category IV irradiator facilities with substances radioactive wrapped • radiotherapy facilities • industrial radiography of facilities closed • fuel fabrication facilities nuclear • inventory of radioactive substances with a greater value or

		is equal to 0.01 times and smaller than 10 times A/D2 according to calculations in attachment I children (example: installation radio metallurgy, element installation experimental burn)
IV	**Activities that can cause nuclear emergency at that location unpredictable, incl transportation and activities involves moving radioactive substances *(mobile)***	**• industrial radiography of facilities open** **• *well logging*** **• industrial *gauging*** facilities **move *(mobile)* with substances high activity radioactive** **• Type B package transportation** **• package transport Type C** **• transportation of the package contains nuclear material** **• transportation package with special settings** **• dangerous sources that lost or stolen** **• nuclear powered ships**

V	Activities that do not involve resources ionizing radiation, but produces products that may be contaminated as a result of an accident that occurred on installations or facilities by category radiological hazards I or II, both within and outside national borders.	• contamination from the area border with the country other • import ingredients contaminated

HEAD OF THE NUCLEAR ENERGY SUPERVISORY AGENCY,

signed

AS NATIO LASMAN

APPENDIX II

REGULATION OF THE HEAD OF THE NUCLEAR POWER SUPERVISORY AGENCY

NUMBER 1 OF 2010

ABOUT

NUCLEAR EMERGENCY PREPAREDNESS AND MANAGEMENT

EMERGENCY ZONES AND RADIUS DEFINED FOR EACH

RADIOLOGICAL HAZARD CATEGORIES

Radius Zone installation/facilities Action Prevention		Zone Radius Planning	Radius Material Control Food
Installations/facilities with radiological hazard category I			
Reactor >1000 MWt	3-5km	25 km	300 km
Reactor >100-1000 MWt	0.5-3 km	5–25 km	50–300 km
A/D2 from attachment 8 ÿ 105	3-5km	25 km	300 km
A/D2 from attachment 8 ÿ 104 - 105	0.5-3 km	5–25 km	50–300 km
Installations/facilities with radiological hazard category II			
Reactor 10-100 MWt	at least a wall outermost building	0.5–5 km	5–50 km
Reactor 2-10 MWt	at least a wall outermost building	0.5km	2–5 km
A/D2 from attachment 8 ÿ 103 - 104	at least the outer wall of the building	0.5–5 km	5–50 km
A/D2 from attachment 8 ÿ 102 -103	at least a wall outermost building	0.5km	2–5 km

Precautions zone

Precaution zones are applied to facilities or installations by category radiological hazards I or II and is where protective measures are taken immediately before or immediately after an intended release of a serious radioactive substance prevent or reduce the occurrence of severe deterministic effects.

Planning zone

Protective action planning zones are immediately applied to the facility or installation with category I or II and is a place prepared for place take shelter, carry out environmental monitoring and carry out actions immediate protection based on monitoring results within hours of the event release.

Food control zone

This area is prepared for the implementation of effective protective measures in reducing the risk of stochastic effects due to consuming local food. Protective measures such as relocation, food restrictions and measures Management of agricultural products is usually based on monitoring environment and food sampling.

HEAD OF THE NUCLEAR ENERGY SUPERVISORY AGENCY,

signed

AS NATIO LASMAN

APPENDIX III

REGULATION OF THE HEAD OF THE NUCLEAR POWER SUPERVISORY AGENCY

NUMBER 1 OF 2010

ABOUT

NUCLEAR EMERGENCY PREPAREDNESS AND MANAGEMENT

FORMAT AND CONTENTS

NUCLEAR PREPAREDNESS PROGRAM

This annex is a guide for installation or facility permit holders with radiological hazard categories I, II or III in preparing a nuclear preparedness program.

A. Nuclear Preparedness Program Format Framework

TITLE PAGE

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CHAPTER II INFRASTRUCTURE

CHAPTER III CORPORATION FUNCTIONS

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LIST OF ABBREVIATIONS

B. Nuclear Preparedness Program Content Framework

TITLE PAGE (COVER)

This section contains the document title, date, number, signature, and endorsement.

LIST OF CONTENTS

The table of contents contains a complete list of the entire contents of the program document nuclear preparedness to facilitate use and evaluation.

I. Introduction

This section contains general information regarding preparedness program documents nuclear in general, including: aims and objectives; program level nuclear preparedness based on radiological hazard categories; and factors environment equipped with site meteorological data, population demographics, and Latest land use and spatial planning.

Objective

This section outlines the objectives of the nuclear preparedness program, for example: “Program This nuclear preparedness provides the basis for (facility name) to carry out nuclear emergency response."

Organizations involved

This section contains a list of all organizations involved in the program nuclear preparedness.

Scope

This section describes the scope of the nuclear preparedness program for anticipate nuclear emergencies on site.

In the event of an escalation of a nuclear emergency outside the site, this document becomes an integral part of regional nuclear preparedness programs.

Legal basis

This section mentions laws and regulations as the basis for preparing a nuclear preparedness program.

Codes and Standards

This section states the codes and standards referred to, namely the Indonesian National Standards or other traceable standards. Example: codes and standards for buildings or buildings.

Radiation source

This section contains information about all types, quantities and activities and forms physical radiation sources used and/or stored in the installation nuclear or radiation facilities.

Radiological hazard category

This section contains a description of determining radiological hazard categories in accordance with table in Appendix I.

Results of the study of potential radiological hazards

This section describes the results of the radiological hazard potential study carried out based on radiological hazard categories. The results of this study of the potential dangers of radiology is the basis for determining preventive action zones, planning zones, and food control zones which must also be described in this section.

Definition

This section contains definitions that are used consistently in other documents and procedures.

II. INFRASTRUCTURE

This section describes the elements in the infrastructure that include organization, coordination, facilities and equipment, response procedures, and nuclear emergency training and/or rehearsals.

2.1 Organization

This section describes the structure and organizational diagram for nuclear emergency response; authority and responsibility of each element of the organization; duties and responsibilities of personnel in each position; relations and cooperation with other related organizations; concept of operations and coordination with other organizations' emergency programs.

2.2. Coordination

This section describes:

a. a system of relationships between organizations related in function countermeasures;

b. coordination procedures with other related organizations (example: notification and requests for assistance); And

c. written agreements or documents with organizations or related parties others to implement countermeasures.

2.3. Facilities and equipment

This section contains a general description of the nuclear installation or radiation facility, equipped with a map or plan of the site area and a map of precautionary action zones and planning zone for immediate protective measures, within which including determining the gathering place *(assembly point),* providing a place temporary shelter, evacuation route, monitoring/sampling location, *marshall yard, triage,* and response post.

This section describes countermeasures facilities and equipment including facilities support that will be used during the response.

This section also lists other institutions, such as universities, that can be requested assistance in obtaining additional equipment

2.4. Countermeasure procedures

This section contains a list of procedures and work instructions required to carry out the countermeasure function. The procedures outlined are given in separate document.

2.5. Nuclear emergency training and/or rehearsals

This section contains a comprehensive and periodic nuclear emergency training and/or rehearsal program and the development of a test and evaluation system to maintain and improve personnel capabilities, equipment readiness and accuracy in implementing procedures.

III. RESPONSE FUNCTION

This section explains each element of the coping function. This part too explains that the countermeasures functions to be implemented have been guaranteed and in accordance with the adequacy of infrastructure and mitigation procedures has been prepared.

3.1. Identification, reporting and activation

This section mentions the ability to be able to immediately identify an initial accident and initiate coordinated action, including accident detection, determination of emergency class and appropriate actions will be implemented to overcome it, the necessary procedures, and Identify the equipment to be used.

This section also describes notification execution capabilities, initial reporting, activation of implementing units, and coordination steps for inform immediately, effectively, actively and coordinated among groups and agencies involved in carrying out countermeasures tasks emergency.

3.2. Mitigation measures

This section states the ability to provide appropriate immediate action and follow-up to reduce escalation and risk of accidents through identification of impacts and potential accidents, countermeasures operations, evacuation steps, decontamination and medical assistance, surveys and monitoring.

3.3. Immediate protective action

This section states the ability to evacuate, provide temporary shelter, and provide iodine tablets. This part too mentions the ability to ensure the safety of community members in on site in the event of a nuclear emergency.

This section states the ability to effectively utilize facilities general within the precautionary action zone and the planning zone for

Immediate protective measures to limit the occurrence of severe deterministic effects and to minimize dose exposure to the public.

3.4. Protective measures for response officers, workers, and public

This section states the ability to ensure worker safety, community, response officers, and first responders during carry out his duties.

This section also describes monitoring of worker cumulative doses, community, response officers, and first responders according to values limits set by the Head of BAPETEN, along with follow-up steps for those exposed to excessive exposure.

3.5. Providing information and instructions to the public

This section mentions the ability to provide appropriate information and efficient to the surrounding community.

REFERENCE

This section contains a list of documents referred to in preparing a nuclear preparedness program.

LIST OF ABBREVIATIONS

This section contains a list of abbreviations used in the preparation of nuclear preparedness programs.

HEAD OF THE NUCLEAR ENERGY SUPERVISORY AGENCY,

signed

AS NATIO LASMAN

APPENDIX IV

REGULATION OF THE HEAD OF THE NUCLEAR POWER SUPERVISORY AGENCY

NUMBER 1 OF 2010

ABOUT

NUCLEAR EMERGENCY PREPAREDNESS AND MANAGEMENT

NUCLEAR EMERGENCY MANAGEMENT REPORTING FORM

Date	:	
O'clock	:	
Institution	:	
Address	:	
Location	:	

Reporting Name:		
Position	:	
Work unit	:	
Tel	:	
Fax	:	
E-mail	:	

Category	**I**	**II**	**III**	**IV**
Facility / Installation	**Power Reactor** **Reactor Helpless** **Power:** **Type:** **Etc** **……..** **Emergency class** **Alert** **Site area emergencies** **Emergency general**	**Power Reactor** **Reactor Helpless** **Power:** **Type:** **Etc** **……..** **Emergency class** **Alert** **Site area emergencies** **Emergency general**	**Reactor < 2 MWt** **Facility** **dry used fuel storage** **Radioisotope production facilities** **Etc** **……**	**Industrial** **radiography of open facilities** ***Well logging*** ***Gauging*** **facilities industry** **Etc** **……**

Radiation sources involved: solid	
Physical form	**liquid** **gas**
Types of Isotopes	
Activity	

Radiation Exposure					
Distance	1	10	25	50	…….
(meters) mRem/hour					
Contamination					
Floor/Room	Bq/cm2				
Air	Bq/liter				

Number of Victims	
Name	Information
Countermeasures that have been taken	
Expected help	

....., ...

Reporter

Full name

HEAD OF THE NUCLEAR ENERGY SUPERVISORY AGENCY,

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AS NATIO LASMAN

APPENDIX V

REGULATION OF THE HEAD OF THE NUCLEAR POWER SUPERVISORY AGENCY

NUMBER 1 OF 2010

ABOUT

NUCLEAR EMERGENCY PREPAREDNESS AND MANAGEMENT

DOSAGE GUIDE FOR COMMAND OFFICERS

Task	Levels (mSv)
Life-saving measures, such as: **1. assistance against life threats; And** **2. prevention or mitigation of conditions that cause it general emergencies in installations or facilities with radiological hazard category I.**	**>500**
Potential life-saving measures, such as: **1. Immediate implementation of protective measures on the site for installations or facilities with radiological hazard categories I, II or III; 2. prevention or mitigation of life-threatening conditions (example: fire);** **3. environmental monitoring in public places within the nuclear emergency zone to identify the need for immediate protective measures; And** **4. implementation of immediate protective measures outside the installation site or facilities with radiological hazard categories I or II.** **Actions to prevent the development of catastrophic conditions, such as: prevention or mitigation of conditions resulting in an alert class or higher class for facilities or installations with categories facility II or III; or alert class or site area emergency class for facilities or installations with radiological hazard category I.**	**500**
Actions to prevent serious injuries, such as: **1. assistance against potential threats or serious injuries;** **2. immediate treatment of serious injuries; And** **3. human decontamination.**	**100**

Measures to avoid large collective doses, such as: **1. environmental monitoring in public places to identify the need for protective measures or food restrictions; And** **2. implementation of protective measures and restrictions on outside food footprint.**	
Other emergency stage interventions, such as: 1. **long-term treatment for people exposed to radiation or contaminated;** 2. **collection and analysis of footage;** **3. short-term recovery operations;** **4. local decontamination; And** **5. providing information to the public.**	**50**
Recovery operations, such as: **1. repair of facilities that are not related to safety;** **2. large-scale decontamination;** **3. waste disposal ; And** **4. long-term medical treatment.**	**mark limit dose**

HEAD OF THE NUCLEAR ENERGY SUPERVISORY AGENCY,

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AS NATIO LASMAN

CHILDREN APPENDIX I

REGULATION OF THE HEAD OF THE NUCLEAR POWER SUPERVISORY AGENCY

NUMBER 1 OF 2010

ABOUT

NUCLEAR EMERGENCY PREPAREDNESS AND MANAGEMENT

CALCULATIONS TO DETERMINE THE AMOUNT OF INVENTORY

RADIOACTIVE SUBSTANCES

GENERAL

This appendix provides guidance regarding determining the amount of radioactive substances that are considered dangerous.

DETERMINING THE AMOUNT OF RADIOACTIVE SOURCES OR SUBSTANCES (D VALUE)

An uncontrolled radioactive source or substance should be categorized as dangerous sources as described below, with some exceptions as follows:

1. **This guidance does not apply to irradiated fuels (e.g. fuel former reactor). In this case, Appendix I should be used to determine radiological hazard category.**
2. **Radioactive substances transported are based on the requirements in the Regulations Government No. 26 of 2002 concerning the Safety of Transporting Radioactive Substances does not need to be considered a hazardous source as long as the substance is radioactive These are monitored and may only be removed from the package after compliance specified requirements. However, if the radioactive substance disappears, stolen or moved unlawfully, this guide applies to determine the danger category of the radioactive substance.**

For all types of radioactive substances, the calculation is as follows:

$$AID_{,1} = \ddot{y}i \frac{A_i}{D_{,1i}}$$

Where

Ai **is the activity (TBq) of each uncontrolled** radionuclide ***i*** in a **emergency or incident;**

$D_{,1\,i}$ **for each radionuclide *i* taken from Table 1.**

For radioactive substances that can be spread,1the calculation is as follows:

$$A/D_{,2} = \ddot{y}_i \frac{A_i}{D_{,2i}}$$

Where

Ai **is the activity (TBq) of each radionuclide *i* in its available form scattered and unsupervised in an emergency or incident; for each radionuclide *i* taken from Table 1.**

$D_{,2i}$

A source or radioactive substance that can move *(mobile)* must be categorized as a dangerous source if each calculation of the A/D value above is more than greater than 1.2

TABLE 1. D VALUE (TBq)

Source or Radioactive Substance		
Radionuclides	**D1 b**	**D2 c**
H-3	**ULd**	**2.E+03e**
C-14	**2.E+05**	**5.E+01**
P-32	**1.E+01**	**2.E+01**
S-35	**4.E+04**	**6.E+01**
Cl-36	**3.E+02**	**2.E+01f**
Cr-51	**2.E+00**	**5.E+03**

1 Powders, liquids and gases, and in particular volatile, flammable, water-soluble and pyrophoric materials, should be considered to pose a risk of dispersion.

2 There is a possibility, although very small, that amounts smaller than this value could cause injury. However, a resource of this value is considered dangerous enough that extraordinary measures need to be taken (search, notification to the public) to secure the resource if control over the resource is lost (for example because the source is lost or stolen) and if the resource is in a public area.

Fe-55	ULd	8.E+02
Co-57	7.E–01	4.E+02
Co-60	3.E–02	3.E+01
Ni-63	ULd	6.E+01
Zn-65	1.E–01	3.E+02
Ge-68	7.E–02	2.E+01
Se-75	2.E–01	2.E+02
Kr-85	3.E+01	2.E+03
Sr-89	2.E+01	2.E+01
Sr-90(Y-90)g	4.E+00	1.E+00
Y-90	5.E+00	1.E+01h
Y-91	8.E+00	2.E+01
Zr-95 (Nb-95m/Nb-95)g	4.E–02	1.E+01
Nb-95	9.E–02	6.E+01
Mo-99 (Tc-99m)g	3.E–01	2.E+01
Tc-99mh	7.E–01	7.E+02
Ru-103(Rh-103m)g	1.E–01	3.E+01
Ru-106(Rh-106)g	3.E–01	1.E+01
Pd-103 (Rh-103m)g	9.E+01	1.E+02
Cd-109	2.E+01	3.E+01
Te-132 (I-132)g	3.E–02	8.E–01 p
I-125	1.E+01	2.E–01
I-129	ULd	ULd,f
I-131	2.E–01	2.E–01 h
Cs-134	4.E–02	3.E+01
Cs-137(Ba-137m) g	1.E–01	2.E+01
Ba-133	2.E–01	7.E+01
Ce-141	1.E+00	2.E+01

Ce-144(Pr-144m, Pr-144)g	9.E–01	9.E+00
Pm-147	8.E+03	4.E+01
Eu-152	6.E–02	3.E+01
Eu-154	6.E–02	2.E+01
Gd-153	1.E+00	8.E+01
Tm-170	2.E+01	2.E+01
Yb-169	3.E–01	3.E+01
Re-188	1.E+00	3.E+01
Ir-192	8.E–02	2.E+01
Au-198	2.E–01	3.E+01
Hg-203	3.E–01	2.E+00
Tl-204	7.E+01	2.E+01
Po-210	8.E+03	6.E–02
Ra-226 (progeny)g	4.E–02	7.E–02
Th-230	9.E+02	7.E–02f
Th-232	ULd	ULd,f
U-232	7.E–02	6.E–02f
U-235 (Th-231)g	8.E–05	8E–05i
U-238	ULd	ULd,f
U nature	ULd	ULd,f
U depletion	ULd	ULd,f
U enriched > 20%	8E–05i	8E–05i
U enriched > 10%	8E–04i	8E–04i
Np-237 (Pa-233)g	3.E–01h	7.E–02
Pu-238	3.E+02i	6.E–02
Pu-239	1.E+00i	6.E–02
Pu-239/Defender	1.E+00i	6.E–02

Pu-240	4.E+00i	6.E–02
Pu-241 (Am-241)g	2.E+03i	3.E+00
Pu-242	7.E–02i	7.E–02f
Am-241	8.E+00	6.E–02
Am-241/Defender	1.E+00	6.E–02
Cm-242	2.E+03	4.E–02
Cm-244	1.E+04	5.E–02
Cf-252	2.E–02	1.E–01

a The amount of radioactive substances in a public area, if not under supervision (because without shielding or due to spread due to accidents or criminal acts), which can increase the dose resulting in permanent injury thereby reducing the quality of life. b D1 is for external exposure and
applies to scattered and radioactive substances
not scattered.

c D2 is for scattered radioactive substances. Airborne spread through fire or explosion, ingestion and intentional contamination of water are also considered. d
UL is unlimited quantity. Nuclear preparedness program for
coping with radiological consequences is not recommended.e It is assumed that
The skin absorption dose is twice the dose absorbed through inhalation.
f Emergencies related to the amount of concentration of this radionuclide can cause
the occurrence of excessive concentrations of chemical toxins in the air, causing danger
immediate danger to life and health *(immediate danger to life or health,*
IDLH), and procedures to address the risks that arise need to be established.
g The D value is calculated taking into account the parent and product radionuclides
the important decays (radionuclides in brackets), which appear
over a period of ten years. Decay products with less half-life

from one year can be assumed to be in equilibrium with the parent radionuclide. h radionuclides that have a short half-life and within one month or less radiological hazards are greatly reduced.

i There is no immediate radiation hazard but the D value is determined based on the hazard criticality.

j The D value represents radiological hazard and criticality.

k Neutron generator.

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