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DEPARTMENT OF MINERAL RESOURCES AND ENERGY

NO. R. 407 **7 May 2021**

NUCLEAR ENERGY ACT, 1999 (ACT NO. 46 OF 1999)

DRAFT REGULATIONS REGARDING PHYSICAL PROTECTIVE MEASURES FOR NUCLEAR MATERIAL

I, Mr Samson Gwede Mantashe, Minister of Mineral Resources and Energy, in terms of section 54(1) read with section 33(3)*(g)* of the Nuclear Energy Act, 1999 (Act No. 46 of 1999), intend to make the Regulations in the Schedule.

Interested persons and organisations are hereby invited to submit written comments on the proposed Regulations, within **60** days of the date of publication of this Notice, to the Director-General: Department of Mineral Resources and Energy, (for attention: Deputy Director-General: Nuclear Energy) by –

(a) post to: Department of Mineral Resources and Energy, Private Bag X 96, Pretoria, 0001;

(b) hand to: Matimba Building, 192 Visagie Street, corner Paul Kruger and Visagie Streets, Pretoria, 0001; or

(c) Email to: nonproliferation@dmre.gov.za .

Kindly provide the name, address, telephone number, fax number and email address of the person or organisation submitting the comments. Comments received after the closing date may not be considered.

S G MANTASHE, MP
MINISTER OF MINERAL RESEOURCES AND ENERGY
DATE: 24/03/2021

SCHEDULE

Arrangement of Regulations

Definitions

1. In these Regulations a word or expression to which a meaning has been assigned in the Act bears the meaning so assigned and, unless the context otherwise indicates –

"associated activity" means the possession, production, use, handling, storage, disposal or transport of nuclear material or other radioactive material;

"associated facility" means a facility in which nuclear material or other radioactive material is produced, processed, used, handled, stored or disposed of and for which an authorisation is required in terms section 34 of the Act;

"authorisation" means the granting of written permission by Minister of Mineral Resources and Energy to possess, use, handle or process nuclear material in terms of section 34 of the Act;

"authorisation holder" means a person who is granted an authorisation;

"contingency plan" means predefined sets of actions to respond and counter acts and attempts of unauthorised removal or sabotage, including threats;

"Department" means the Department of Mineral Resources and Energy;

"detection" means a process in a physical protection system that begins with sensing a potentially malicious or otherwise unauthorised act and that is completed with the assessment of the cause of the alarm;

"design basis threat" means attributes and characteristics of potential insider or external adversaries, who might attempt unauthorised removal or sabotage, against which the physical protection system is designed and evaluated;

"inner area" means an area with additional protection measures inside a protected area, where nuclear material categorised as Category I in Annex 1 is used or stored;

"limited access area" means a designated area containing a nuclear facility and nuclear material to which access is limited and controlled for physical protection purposes;

"malicious act" means an act or attempt of unauthorised removal or sabotage of nuclear material;

"nuclear facility" means a facility, including associated buildings and equipment, in which nuclear material is produced, processed, used, handled, stored or disposed of and for which an authorisation or licence is required;

"nuclear response force" means any persons, on-site or off-site, who are armed and appropriately equipped and trained to counter a malicious act;

"nuclear security event" means an event that has potential or actual implications for nuclear security that must be addressed;

"nuclear security plan" means a document prepared by the authorisation holder and reviewed by the Department that presents a detailed description of the security arrangements in place for nuclear material;

"physical protective measures" means the personnel, procedures, and equipment that constitute a physical protection system;

"physical protection system" means an integrated set of physical protective measures intended to prevent the completion of a malicious act;

"protected area" means area inside a limited access area containing nuclear material categorised as Category I or II in Annex 1 or sabotage targets surrounded by a physical barrier with additional physical protective measures;

"Security Control Centre" means an installation, which provides for the complete and continuous alarm monitoring, assessment and communication with guards, facility management and nuclear response forces;

"security officer" means a person who is entrusted with responsibility for patrolling, monitoring, assessing, escorting individuals or transport, controlling access and/or providing initial response;

"surveillance" means an activity performed directly by personnel performing physical protection, or through photo-electric, television, sound detecting, electronic, photographic or other means, targeted to detect and register unauthorised access into the protected areas;

"the Act" means the Nuclear Energy Act, 1999 (Act No. 46 of 1999);

"threat" means a person or group of persons with motivation, intention and capability to commit a malicious act;

"transport" means international or domestic carriage of nuclear material by any means of transportation, beginning with the departure from a nuclear facility of the shipper (consignor)and ending with the arrival at a facility of the receiver (consignee);

"unauthorised removal" means the theft or other unlawful taking of nuclear material; and

"vital area" means an area inside a protected area containing equipment, systems or devices, or nuclear material, the sabotage of which could directly or indirectly lead to high radiological consequences.

Purpose of Regulations

2. The purpose of these Regulations is to prescribe the physical protective measures to be implemented and maintained by an authorisation holder in respect of nuclear material in possession, use, handling or processing, to guard against unauthorised removal.

Scope of Regulations

3. These Regulations apply to –

(a) authorisation holders as authorised by the Minister of Mineral Resources and Energy in terms of section 34 of the Act; and

(b) the management of all nuclear material categorised as Category I , II or III in Annex 1 within the Republic of South Africa.

Responsibilities of authorisation holders

4. (1) An authorisation holder is responsible for establishing and implementing the physical protective measures in these Regulations in respect of the nuclear material for which that authorisation holder has been granted an authorisation.

(2) An authorisation holder must –

(a) develop and implement the necessary physical protective measures against the design basis threat provided by the Department , including those relating to security systems, nuclear material control and emergency preparedness;

(b) on an annual basis conduct a threat and risk assessment at a facility to determine the adequacy of its physical protection system;

(c) make modifications to its physical protection system, as necessary, to counter any credible threat identified;

(d) notify the Department within 6 months of its intention to introduce any modification to an associated activity affecting the physical protection of nuclear material for which it holds an authorisation;

(e) keep records of each threat and risk assessment conducted for the period of 5 years;

(f) submit a copy of the threat and risk assessment referred to in paragraph (b), together with a statement of actions taken as a result of that assessment, to the Department within 30 days upon completion thereof.

Integrated management system for protection of nuclear material

5. An authorisation holder must establish an integrated management system, corresponding with the authorisation, which must ensure that –

(a) policies and procedures are established that identify physical protective measures of nuclear material as an important priority;

(b) risks affecting physical protective measures for nuclear material are promptly identified and corrected in a manner commensurate with their importance;

(c) the responsibilities of each individual for physical protective measures of nuclear material are clearly identified and each individual is suitably trained and qualified;

(d) training programmes are periodically evaluated and updated as necessary;

(e) clear lines of authority for decisions on physical protective measures of nuclear material are defined;

(f) organisational arrangements and lines of communication are established that result in an appropriate flow of information on physical protective measures of nuclear material at and between the various levels in the entire organization of the authorisation holder; and

(g) all personnel responsible for the physical protective measures for nuclear material holds a security clearance from the State Security Agency and have South African citizenship.

Reporting of events

6. (1) If an authorisation holder fails to comply with these Regulations, that authorisation holder must –

(a) report such non-compliance to the Department within 24 hours of becoming aware thereof;

(b) take appropriate remedial actions to prevent a recurrence thereof; and

(c) provide the Department with a report on the nature and causes of the non-compliance, the consequences of the non-compliance, and corrective or preventive actions taken or to be taken.

(2) In case of a nuclear security event, the authorisation holder must –

(a) inform the Department within 24 hours of the event;

(b) take appropriate remedial action and further actions to prevent a recurrence of similar situations;

(c) investigate the event and its causes, circumstances and consequences;

(d) within 10 working days provide the Department with a report on the outcome of the investigation contemplated in (c) and on the corrective or preventive actions taken or to be taken.

Requirements for security officer

7. (1) An authorisation holder must at all times have available at a facility at which it carries on authorised activities, a sufficient number of security officers to enable the authorisation holder to -

(a) control the movement of persons, materials and land vehicles;

(b) conduct searches of persons, materials and land vehicles for contrabands and removal of unauthorised material;

(c) detect security breaches and vulnerabilities, conduct foot and land vehicle patrols of the facility and the perimeter of the protected area;

(d) respond to and assess alarm incidents;

(e) apprehend and detain intruders;

(f) observe and report on the movements of intruders; and

(g) operate security equipment.

(2) An authorisation holder must at all times maintain an on-site nuclear response force that is capable of making an effective intervention in case of emergency situation.

(3) An authorisation holder must train each of its security officers in respect of the relevant and current security duties and responsibilities.

Protection Arrangement with off-site nuclear response force

8. (1) An authorisation holder must have a written arrangement with an off-site nuclear response force to provide for the protection of a facility at which it carries on authorised activities; and the off-site nuclear response force must -

(a) have two way communication between itself and the Security Control Centre;

(b) be trained to support the guards and on-site nuclear response force in responding to an event when required;

(c) be acquainted with the site and nuclear material locations to conduct necessary response actions;

(d) maintain interagency coordination with the authorisation holder to respond and support the authorisation holder during a nuclear security event or incident.

(2) An authorisation holder must, in cooperation with off-site nuclear response force, conduct at least one security exercise annually at an associated facility to test the effectiveness of the contingency plan and of the physical protection system.

Security Control Centre

9. (1) An authorisation holder must have a permanently staffed Security Control Center for monitoring and assessment of alarms, initiation of response, and communication with the guards, nuclear response forces, and facility management.

(2) An authorisation holder must ensure that-

(a) information acquired at the Security Control Centre is stored in a secure manner;

(b) the Security Control Centre is located in a protected area and must have an uninterrupted and tamper proof power supply, such that it will continue to function in the event of a threat;

(c) access to the Security Control Centre is strictly controlled.

Nuclear Security Plan

10. (1) An authorisation holder must prepare and submit the security plan that describes nuclear security measures to prevent unauthorized removal or sabotage.

(2) The nuclear security plan must be aligned with threat assessment or security risk assessment addressing the nature, likelihood or acts or events, consequences of acts or events that may expose controlled or classified information to non-State actors or criminal elements.

Contingency Plans

11. (1) An authorisation holder must develop a contingency plan to describe the response to unauthorised acts indicative of attempted unauthorised removal or sabotage;

(2) An authorisation holder must submit a contingency plan to the Department for approval;

(3) An authorisation holder must conduct a security drill or exercises at least once in 60 days to test the effectiveness of the contingency plan and the readiness of its security officer or nuclear response force.

Record Keeping

12. An authorisation holder must in respect of an associated facility –

(a) keep records of all persons with access to or possession of keys, key cards and other systems;

(b) maintain records of all devices, including keys and locks, whether electronic or manual, used to control access to a protected area, inner area or vital area; and

(c) keep records of the personnel authorised to enter a protected area or an inner area.

Site Plan

13. An authorisation holder must maintain a site plan that indicates the location of the facility and includes a description of the following:

(a) the perimeters and physical barriers of the facility;

(b) the protected areas; and

(c) the structure of the barrier enclosing every inner area.

Additional protective measures to prevent unauthorised removal of nuclear material categorised in Annex 1

14. (1) The nuclear material listed in column 1 in Annex 1 has been categorised based on its form, characteristics and risk, as Categories I, II or III.

(2) An authorisation holder who holds an authorisation for nuclear material in the form categorised in Annex 1 as Categories I, II and III must comply with the following additional measures:

(a) Nuclear material must at least be possessed, used, handled or processed within a limited access area;

(b) provision must be made for detecting unauthorised intrusion and for appropriate action by sufficient security officers/ or response forces to address nuclear security event;

(c) technical means and procedures for access control such as keys and computerised access lists should be protected against compromise;

(d) contingency plans must be prepared to counter malicious acts effectively and to provide for appropriate response by security officer or nuclear response force;

(e) persons authorised unescorted access to the protected area and inner area should be limited to persons whose trustworthiness has been determined;

(f) temporary workers and visitors should be escorted by a person with authorised access; and

(g) the identity of all persons entering protected areas should be verified and they should be issued with appropriately registered passes or badges.

(3) An authorisation holder who holds an authorisation for nuclear material in the form categorised in Annex 1 as Category III, must comply with the following additional measures:

(a) For movements of Category III nuclear material within a limited access area, the authorisation holder should apply prudent and necessary physical protective measures;

(b) If the nuclear material is processed, used and stored in an area referred to in sub-regulation (2)(a), an authorisation holder shall ensure that the area is equipped with devices that –

(i) detect any intrusion into that area;

(ii) detect any unauthorised removal such nuclear material;

(iii) detect any tampering that may cause any of the devices to malfunction or cease to function; and

(c) Provision must be made for appropriate action by security officers or response forces to attempted intrusions.

(4) An authorisation holder who holds an authorisation for nuclear material in the form categorised in Annex 1 as Category II, must comply with the following additional measures:

(a) Nuclear material must at least be possessed, used, handled or processed within a protected area;

(b) vehicles, persons and packages entering or leaving the protected areas must be subject to search;

(c) entry of private vehicles into the protected area must be minimized and limited to designated parking areas;

(d) a record must be kept of all persons having access to or possession of keys or key-cards concerned with the containment or storage of nuclear material;

(e) all prudent and necessary protective measures must be applied in the protected area; and

(5) An authorisation holder who holds an authorisation for nuclear material in the form categorised in Annex 1 as Category I must comply with the following additional measures:

(a) Nuclear material must at least be used or stored within an inner area;

(b) all persons and packages entering or leaving the inner area should be searched to prevent unauthorised removal of nuclear material, and

equipment for the detection of nuclear material and metals may be used for such searches;

(c) whenever persons are present in the inner area, that area should be under constant surveillance;

(d) a record should be kept of all persons having access to or possession of keys or key-cards concerned with the containment or storage of nuclear material; and

(e) all prudent and necessary physical protective measures must be applied to the movements of nuclear material within the inner area and protected area all.

Annex 1: Categorisation of nuclear material

NUCLEAR MATERIAL	FORM	CATEGORY		
1. Plutonium[a]	Unirradiated[b]	2kg or more	Less than 2kg but more than 500 g	500 g or less but more than 15 g
2. Uranium-235	Unirradiated[b] -uranium enriched to 20% ^{235}U or more	5 kg or more	Less than 5 kg but more than 1 kg	1 kg or less but more than 15 g
	-uranium enriched to 10% but less than 20% ^{235}U		10 kg or more	Less than 10 kg but more than 1 kg
	-uranium enriched above natural, but less than 10% ^{235}U			10 kg or more
3. Uranium-233	Unirradiated[b]	2 kg or more	Less than 2 kg but more than 500 g	500 g or less but more than 15 g
4. Irradiated Fuel			Low enriched fuel (less than 10 % fissile content)	Uranium oxide (U_3O_8) Depleted uranium, natural uranium or thorium oxide (ThO_2)

a. All plutonium except that with isotopic concentration exceeding 80% in plutonium-238
b. Material not irradiated in a reactor or material irradiated in a reactor with a radiation level equal to or less than 1 Gy/hr