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Government Notice

MINISTRY OF HEALTH AND SOCIAL SERVICES

No. 80

2025

REGULATIONS FOR DECOMMISSIONING OF FACILITIES: ATOMIC ENERGY AND RADIATION PROTECTION ACT, 2005

Under section 43 of the Atomic Energy and Radiation Protection Act, 2005 (Act No. 5 of 2005), on the recommendation of the Atomic Energy Board, I have made the regulations set out in the Schedule.

DR. K. SHANGULA
MINISTER OF HEALTH AND SOCIAL SERVICES

Windhoek, 21 January 2025

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PART 1
PRELIMINARY

Definitions

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

“assessment” means the process and results of analysing systematically and evaluating the hazards associated with sources and practices and associated protection and safety measures;

“decommissioning” means administrative and technical actions taken to remove some or all of the regulatory controls from a facility;

“decommissioning actions” means the procedures, processes and work activities such as decontamination or removal of structures, systems and components as described in the decommissioning plan, which are carried out to achieve a progressive and systematic reduction in radiological hazards now and in the future without imposing undue burdens on future generations;

“decommissioning plan” means a plan approved by the Authority which contains detailed information on the proposed decommissioning of a facility, which plan includes a description of actions to be taken in carrying out procedures, processes and work activities for the purposes of decommissioning;

“discharge” means a planned and controlled release to the environment of liquid or gaseous radioactive material that originates from regulated facilities during operation;

“disposal” means the emplacement of radioactive waste in a facility without the intention of retrieval of such waste;

“end state” –

- (a) in relation to radioactive waste management, means the state of radioactive waste in the final stage of radioactive waste management in which the waste is passively safe and does not depend on institutional control; or
- (b) in relation to decommissioning actions, means a predetermined criterion defining the point at which a specific task or process is to be considered complete;

“facility” means a building and its associated land and equipment in which radioactive material was or is still produced, processed, used, handled or stored on a scale with such a degree of hazard and risk that require consideration for protection and safety;

“graded approach” means -

- (a) an application of safety requirements that is commensurate with the characteristics of the practice or source and with the magnitude and likelihood of the exposures; and
- (b) in relation to a system of control, a process or method in which the stringency of the control measures and conditions applied is commensurate, to the extent practicable, with the likelihood and possible consequences of a loss of control and the level of risk associated with a loss of control;

“land” includes the surface, subsurface soil horizons and any surface or subsurface water or aquifers potentially affected by radioactive material;

“licence” means a licence issued to a licensee under section 21 of the Act;

“licensee” means –

- (a) the holder of a licence; or
- (b) the holder of a registration;

“management system” means a set of interrelated or interacting elements for establishing policies and objectives and enables the objectives to be achieved in an efficient and effective manner;

“NORM” means radioactive material containing no significant amount of radionuclides other than the naturally occurring radionuclides, including material in which the activity concentration of the naturally occurring radionuclides has been changed by a process;

“permanent shutdown” means the state of a facility at which its intended operation has ceased and will not be recommenced;

“phased approach” means a strategy for implementing decommission in phases;

“protection and safety” means the protection of people against exposure to ionising radiation or radioactive material, and the safety includes the means for achieving the protection and safety, preventing of accidents and mitigating the consequence of the accidents if the accidents occur;

“Radiation Protection and Waste Disposal Regulations” means the Radiation Protection and Waste Disposal Regulations published under Government Notice No. 221 of 18 November 2011;

“registration” means registration referred to in section 18 of the Act;

“regulatory control” means a form of control or regulation applied to a facility or an activity by the Authority for reasons related to radiation protection or the safety of radiation sources;

“safety assessment” means an assessment of all aspects of a practice that are relevant to the protection and safety for a facility authorised by the Authority, including the siting, designing and operating of the facility;

“safety function” means a specific purpose that must be accomplished by a licensee for safety of a facility or an activity to prevent or mitigate radiological consequences of normal operation, anticipated operation occurrence and accident conditions;

“shutdown” means the cessation of operation of a facility;

“storage” means the holding of radioactive sources, spent fuel or radioactive waste in a facility that provides for the containment of the source, fuel or waste with the intention of retrieval;

“system of control” includes a regulatory system and safety system; and

“the Act” means the Atomic Energy and Radiation Protection Act, 2005 (Act No. 5 of 2005).

Purpose of regulations

2. (1) The purpose of these regulations is to establish the safety requirements applicable to the decommissioning of facilities, including the planning, conduct and completion of decommissioning actions and the termination of the authorisation for the actions.

(2) These regulations specify the minimum requirements for the safety and protection requirements applicable to decommissioning and do not prevent a licensee or any other person from taking additional actions as may be appropriate and reasonably necessary to protect the environment, health and safety of people.

Application of regulations

3. (1) These regulations apply to –

- (a) facilities involving NORM, including facilities for the mining and processing of radioactive ore;
- (b) medical, industrial and research facilities in which radioactive materials and sources are produced, received, used and stored;
- (c) facilities for predisposal radioactive waste management such as treatment, conditioning and storage facilities, and other supporting facilities associated with radioactive waste management; and
- (d) the control of radiological hazards and risks resulting from decommissioning.

(2) Despite subregulation (1), these regulations do not apply to –

- (a) radioactive waste disposal facilities, including engineered NORM waste containments, but apply to the decommissioning of supporting buildings and services of such facilities;
- (b) remediation of areas contaminated by residual radioactive material arising from past activities that were –
 - (i) not subject to regulatory control; or
 - (ii) subject to regulatory control in a manner that is not in accordance with the Act; or
- (c) remediation of areas affected by a nuclear or radiological emergency, after the emergency has been declared over.

PART 2
PROTECTION OF PEOPLE AND ENVIRONMENT

Protection and safety

4. (1) Exposure during decommissioning is considered as a planned exposure and these regulations and the Radiation Protection and Waste Disposal Regulations must be complied with during the decommissioning actions.

(2) The licensee must ensure that the –

- (a) relevant dose limits for exposure of workers and members of the public; and
- (b) relevant dose or risk constraints for occupational exposure and public exposure,

as set out in the Radiation Protection and Waste Disposal Regulations are applied during decommissioning.

(3) For occupational and public exposure, the licensee must ensure that protection and safety are optimised and relevant factors are taken into account in a manner that contributes to achieving the following –

- (a) to establish measures for protection and safety that are optimised for the prevailing circumstances taking into account the available options for protection and safety as well as the nature, likelihood and magnitude of exposure; and
- (b) to establish criteria, based on the results of the optimisation, for the restriction of the likelihood and magnitude of exposure by means of measures for preventing accidents and mitigating the consequence of accidents that occur.

(4) During decommissioning the licensee must make provisions for protection against exposure to radiation or radioactive material by preventing or reducing the likelihood of incidents that could lead to exposure.

Graded approach

5. (1) The licensee must apply a graded approach to all aspects of the decommissioning process which is consistent with the magnitude of the possible radiation risks arising from decommissioning.

(2) The licensee must keep record of the way in which the graded approach is implemented to ensure that the level of analysis, documents and actions implemented to comply with the requirements for protection and safety are commensurate with.

(3) Without limiting the provisions of subregulation (2), the records or documents that must be kept under that subregulation (2) includes –

- (a) the type and purpose of the facility, such as the complexity of the facility, the products or process involved;
- (b) the particular characteristics of the facility;
- (c) the stage of the facility within its lifetime, such as the age, status and condition;
- (d) the relative importance to safety, safeguards and security and the magnitude of any hazards involved;

- (e) the relative importance of radiological and non-radiological hazards; and
 - (f) any other relevant factors.
- (4) The licensee must re-assess the application of the graded approach during the –
- (a) planning of the decommissioning plan, as the development of the decommissioning plan progresses; and
 - (b) implementation of the decommissioning plan, as the decommissioning actions progress,

depending on factors such as the complexity of the facility and the hazards involved in the decommissioning actions.

(5) When applying the graded approach, the licensee must ensure that the decommissioning plan, including the safety assessment carried out in or for any facility or activity is consistent with the magnitude of the possible radiation risks arising from the facility or activity.

(6) The licensee must plan, organise, apply, audit and review the safety assessment referred to in regulation 6 in a way that is in accordance with the graded approach.

(7) When a phased approach is applied to a decommissioning project, the licensee must apply a graded approach to identify –

- (a) the nature and extent of phases in terms of complexity and duration;
- (b) the work to be performed and related techniques in each phase;
- (c) the hazards and risks related to each phase;
- (d) interdependencies between phases; and
- (e) any milestones of the registration or licensing process and the periodic update of the decommissioning plan and supporting documents.

Assessment of safety

6. (1) The licensee must assess the safety of decommissioning actions for all facilities for which decommissioning is planned or ongoing.

(2) The decommissioning plan must be supported by a safety assessment addressing the planned decommissioning actions and any incidents associated with such actions, including any accident that may occur or a situation that may arise during decommissioning.

(3) The licensee must ensure that the safety assessment demonstrates that the planned decommissioning actions meet all applicable safety requirements.

(4) The licensee must consult with the Authority before commencing with the safety assessment to establish the scope and level of detail of the safety assessment for the facility or activity and the resources that need to be directed to the safety assessment.

- (5) The licensee must prepare the safety assessment so as –

- (a) to identify the ways in which exposure may be incurred, taking into account the effect of external events as well as of events directly involving the decommissioning actions;
 - (b) to determine the expected magnitudes and likelihood of exposure in a normal situation during decommissioning and, to the extent reasonable and practicable, make an assessment of potential exposure; and
 - (c) to assess the adequacy of the provisions for protection of workers and members of the public and the provisions for safety, including licensee response to incident and accident.
- (6) In developing the safety assessment, the licensee must –
- (a) record how the required legal requirements and safety criteria are met to support the authorisation of the proposed decommissioning actions;
 - (b) include a systematic evaluation of the nature, magnitude and likelihood of hazards and their radiological consequences for workers, the public and the environment for planned activities and for accident conditions;
 - (c) quantify the systematic and progressive reduction in radiological hazards to be achieved through the conduct of the decommissioning actions;
 - (d) identify the safety measures, limit controls and conditions that will need to be applied to the decommissioning actions to ensure that the relevant safety requirements and criteria are met and maintained throughout the decommissioning;
 - (e) demonstrate that the institutional controls applied after decommissioning will not impose an undue burden on future generations, where relevant;
 - (f) provide input to on-site and off-site emergency planning, where applicable, and to safety management arrangements;
 - (g) identify training needs for decommissioning and competences for staff performing decommissioning actions; and
 - (h) demonstrate the competence of the staff for the planned actions.
- (7) The licensee must periodically review the safety of the facility being decommissioned at frequencies specified by the Authority and the licensee must take into account –
- (a) any changes that may significantly affect the safety of the facility or decommissioning actions;
 - (b) significant developments in knowledge and understanding, including developments arising from research or decommissioning experience;
 - (c) emerging safety issues raised by the Authority or a significant incident; and
 - (d) changes in the input data used in the safety analysis that may have significant implication for safety.
- (8) A licensee must appoint a qualified expert to conduct an independent verification of the safety assessment on behalf of the licensee prior to finalising the safety assessment and before submitting it to the Authority for review.

(9) The qualified expert referred to in subregulation (8) must undertake the verification in a systematic manner and must record the approach, findings and recommendations, and the licensee must, if requested, submit the verification to the Authority.

(10) The qualified expert referred to in subregulation (8) must ensure that –

- (a) the input data and assumptions used are valid;
- (b) the assessment accurately reflects the actual state of the facility and the decommissioning actions;
- (c) the safety measures derived from the safety assessment are adequate for the decommissioning actions; and
- (d) the safety assessment is kept updated to reflect changes to the facility and the development of knowledge and understanding about it.

(11) Where a phased approach to decommissioning is used, an independent verification must be performed by a qualified expert referred to in subregulation (8) to ensure that the safety assessment for each phase is consistent with the overall safety assessment, and prior to commencing a new phase of decommissioning, an independent verification must be performed to ensure that the safety assessment has been appropriately updated.

(12) The development, verification and internal approval of the safety assessment for decommissioning as part of the decommissioning plan must be part of the management system of the facility.

Planned discharges

7. (1) The licensee must, in the decommissioning plan –

- (a) declare its intention to manage discharges during the decommissioning;
 - (b) assess radiological consequences of discharges; and
 - (c) commit to manage the discharges in accordance with the Radiation Protection and Waste Disposal Regulations.
- (2) The licensee must –
- (a) obtain authorisation from the Authority for any discharge of radioactive material into the environment during the decommissioning action;
 - (b) determine the characteristics of the discharge and the possible location and method of discharge;
 - (c) determine all significant exposure pathways by which discharged radionuclides could give rise to exposure of members of the public;
 - (d) assess the doses to the representative person due to the planned discharge;
 - (e) assess radiological impacts on the environment in a manner that is integrated with the features of the system of protection and safety; and
 - (f) promptly report to the Authority any unplanned discharge or discharge exceeding the approved discharge limit, in the manner specified in the conditions of authorisation.

Clearance of material from regulatory control

8. (1) The licensee must in the decommissioning plan –
- (a) declare any intention to clear material from regulatory control in accordance with the Radiation Protection and Waste Disposal Regulations.
 - (b) describe the methodology to be used for clearing the material referred to in paragraph (a), including any decontamination process involved; and
 - (c) set out a formal mechanism, including rigorous control measures to ensure that radioactive material to be cleared complies with the relevant clearance criteria or clearance levels approved by the Authority.

(2) The licensee must record in the management system relevant information on material that has been cleared and must report this information to the Authority.

On-site and off-site monitoring

9. (1) The licensee must apply, review and modify as necessary its on-site and off-site monitoring programme, as described in the decommissioning plan or its supporting documents, to ensure that changes to the facility, specific hazards and effluents associated with decommissioning are monitored and addressed appropriately.

(2) In the case of deferred dismantling, the licensee must ensure that a programme for monitoring and surveillance is in place throughout the period of deferral.

(3) If the approved decommissioning end state involves ongoing restrictions on the future use of the site, the licensee must establish and maintain appropriate controls and programmes for monitoring and surveillance for the optimisation of protection and safety, and protection of the environment.

(4) The Authority must approve controls and programmes for monitoring and surveillance referred to subregulation (3).

(5) The licensee must assign clear responsibilities for implementing and maintaining the controls and programmes for monitoring and surveillance referred to in subregulation (3) to ensure compliance with the restrictions on the future use of the site.

PART 3
MANAGEMENT OF DECOMMISSIONING

Responsibilities of licensees

10. (1) The licensee is responsible for all aspects of protection and safety during decommissioning and the licensee may not delegate the protection and safety responsibilities.

(2) The licensee must, in addition to the requirements imposed by these regulations, comply with requirements imposed by the Authority as conditions of authorisation or as an order given by the Authority.

(3) The licensee must plan for decommissioning and conduct the decommissioning actions in compliance with the authorisation for decommissioning and other applicable laws.

- (4) The licensee must identify any other persons that have specified roles and responsibilities in terms of these regulations to ensure that decommissioning is properly managed.
- (5) The responsibility of the licensee includes –
- (a) establishing protection and safety objectives;
 - (b) selecting a decommissioning strategy as the basis for preparing, maintaining and updating the decommissioning plan throughout the lifetime of the facility;
 - (c) preparing and submitting an initial decommissioning plan and subsequent updates of the decommissioning plan for review by the Authority;
 - (d) establishing, implementing and maintaining the technical and organisational measures that are needed to ensure protection and safety during the decommissioning actions and for compliance with these regulations;
 - (e) establishing, implementing and maintaining a management system;
 - (f) estimating the cost of decommissioning actions and providing financial assurances and resources to cover the costs associated with safe decommissioning, including management of the resulting radioactive material and radioactive waste;
 - (g) notifying the Authority or other relevant authority prior to permanent shutdown of the facility;
 - (h) managing the decommissioning project, conducting decommissioning actions and ensuring oversight of the actions conducted by contractors;
 - (i) ensuring the safe management and control of any remaining operational waste from the facility and all waste from decommissioning, and disposing of such waste in accordance with the Radiation Protection and Waste Disposal Regulations;
 - (j) ensuring that the facility is maintained in a safe configuration during any period of transition from permanent shutdown to the start of decommissioning actions;
 - (k) developing, implementing and documenting a protection and safety programme commensurate with the radiation risks associated with the exposure situation and sufficient to ensure compliance with the requirements of these regulations;
 - (l) performing safety assessments and environmental impact assessments in support of decommissioning actions in accordance with the requirements of these regulations;
 - (m) preparing and implementing appropriate safety procedures, including emergency plans, where appropriate;
 - (n) ensuring that properly trained, qualified and competent staff are available for the decommissioning project;
 - (o) performing radiological surveys in support of decommissioning;
 - (p) verifying that the approved end state criteria have been met by performing a final radiological survey;
 - (q) preparing and submitting a final decommissioning report to the Authority; and

- (r) keeping records and submitting reports on decommissioning as required by the Authority.

(6) If the performance of specific tasks is to be delegated to a contractor, the licensee must appropriately control the work of the contractor to ensure that the work is conducted safely and complies with these regulations and the Radiation Protection and Waste Disposal Regulations and ensure that –

- (a) the authorities and responsibilities for the specific task is clearly defined; and
- (b) interface and communication route are clearly defined.

Management system

11. (1) The licensee must ensure that protection and safety is effectively integrated into the management system of its organisation for all aspects of decommissioning.

(2) The licensee must demonstrate commitment to protection and safety at the highest levels within its organisation.

(3) A management system must provide a single framework for the arrangements and processes necessary to address all aspects relevant to decommissioning.

(4) The management system must enable the planning and implementation of decommissioning actions to ensure that decommissioning is conducted safely.

(5) When the licensee delegates the performance of a defined task to a contractor, the management system must contain provisions to ensure that the work of the contractor is appropriately specified and controlled by the licensee and is conducted safely.

(6) The licensee must ensure that –

- (a) individuals performing the safety assessment and decommissioning are properly trained and have the necessary skills and expertise in safety assessment and decommissioning;
- (b) institutional knowledge about the facility being decommissioned is preserved and accessible; and
- (c) key staff members of the licensee involved in the facility being decommissioned are retained as far as possible.

(7) The licensee must ensure that –

- (a) persons performing decommissioning actions are aware of their responsibilities, including informing the management of the licensee of any concerns about protection and safety; and
- (b) processes are in place to grant the necessary levels of authority and support to the individuals if the individuals decide to suspend decommissioning actions for reasons of protection and safety.

(8) The licensee must control the decommissioning process using written procedures and such procedures are subject to review and approval by the responsible protection and safety personnel of the licensee, and the licensee must establish procedures for issuing, modifying and terminating work.

(9) If the licensee changes during the lifetime of the facility, the process of transferring responsibility for protection and safety must be such as to ensure that responsibility for protection and safety during the decommissioning phase remains clearly defined.

(10) The licensee must ensure that the management system is designed and implemented in a manner that enhances protection and safety by –

- (a) applying the requirements for protection and safety consistently with the Radiation Protection and Waste Disposal Regulations;
- (b) ensuring that protection and safety is not compromised by other requirements;
- (c) providing for the regular assessment of performance for protection and safety and the application of lessons learned from experience; and
- (d) promoting the necessary safety culture.

(11) The licensee must ensure that protection and safety elements of the management system are commensurate with the complexity and the radiation risks associated with the decommissioning actions.

(12) The licensee must demonstrate the effective fulfilment of the requirements for protection and safety in the management system to ensure that health, environmental, security, quality and economic requirements are not considered separately from safety requirements, in order to preclude the possible negative impact on safety.

(13) The licensee must implement within the management system a decision-making process to address any modification to technique and tools during the conduct of decommissioning actions and determines if the modification needs any additional review and approval by the Authority.

(14) The licensee must in the decommissioning plan record the scope, roles and rules of the decision-making process and the key experts involved in the process, and records of the decision must be kept and made available to the Authority on request.

Safety culture

12. The licensee must promote and maintain a safety culture by –

- (a) promoting individual and collective commitment to protection and safety at all levels of its organisation;
- (b) ensuring that there is a common understanding of the key aspects of safety culture within its organisation;
- (c) providing the means by which the organisation supports individuals and teams in carrying out their tasks safely and successfully, taking into account the interactions between individuals, technology and the organisation;
- (d) encouraging the participation of workers and their representatives and other relevant persons in the development and implementation of policies, rules and procedures dealing with protection and safety;
- (e) ensuring accountability of the organisation and individuals at all levels for protection and safety;

- (f) encouraging open communication regarding protection and safety within the organisation and with relevant parties, as appropriate;
- (g) encouraging a questioning and learning attitude and discouraging complacency regarding protection and safety; and
- (h) providing means by which the organisation continually seeks to develop and strengthen its safety culture, including appropriate training.

Human factors

13. (1) The licensee must develop, implement and maintain a human factors programme to ensure that –

- (a) new equipment and the development of procedures facilitate safe decommissioning and use of equipment minimise the possibility that human errors will lead to accidents, and reduce the possibility that indication of normal conditions and abnormal conditions will be misinterpreted; and
- (b) appropriate systems, structures, components and procedures are in place to –
 - (i) reduce, as far as practicable, the possibility that human error or inadvertent action may give rise to accidents or other incidents leading to the exposure of any person;
 - (ii) provide means for detecting, correcting and compensating for human errors; and
 - (iii) facilitate protective and corrective actions in the event of failures of safety systems or protective measures.

(2) The licensee must each year inform its employees of the importance of effective safety measures and be trained in the implementation of such safety measures as appropriate.

(3) The licensee must develop the training programme, evaluate it periodically and updated it as may be necessary.

Inventory and records

14. (1) The licensee must establish, maintain, archive and maintain accessible key records relevant to the development of the decommissioning plan, updates on the decommissioning plan and the final decommissioning report.

(2) The licensee must maintain up to date records of the materials and waste generated, stored in the facility or transferred to another facility authorised by the Authority, specifying the quantities, characteristics, treatment methods and destination of waste.

Involvement of interested parties

15. (1) The person applying for an authorisation for decommissioning must provide interested parties with an opportunity to comment on the decommissioning plan before submitting the application to the Authority.

(2) For the purposes of subregulation (1), the person referred to in that subregulation must hold public consultations, publish the decommissioning plan in the media, share the plan with interested persons or use any other method that the person considers it necessary and appropriate.

(3) The licensee must inform interested parties of any site restrictions, and the results of monitoring and surveillance.

(4) The licensee must address inputs from the public before requesting for termination of the authorisation for decommissioning.

Requirements for reporting to Authority

16. (1) The licensee must –

(a) submit a report to the Authority at intervals approved by the Authority on –

(i) the progress of the decommissioning actions, including a summary of the monitoring results for workers and members of the public; and

(ii) discharges to the environment and promptly report any discharges exceeding the authorised limits;

(b) notify the Authority as soon as practicable, but not later than 24 hours after the discovery of any incident or accident;

(c) submit to the Authority, within 30 days after discovery of the incident or accident, a written report stating the cause of the incident or accident, including details of exposures, corrective measures and any other relevant information; and

(d) promptly inform the Authority of any abnormal situation which lead or may lead to an increase of public exposure.

(2) The licensee must inform the Authority of any non-compliance with these regulations with significant implications for safety within 24 hours.

(3) The licensee must submit to the Authority reports on any radioactive waste generated during decommissioning in accordance with the Radiation Protection and Waste Disposal Regulations.

(4) The licensee must ensure that information on normal decommissioning performance as well as abnormal conditions and events significant to protection and safety is disseminated or made available to the Authority and other interested parties as specified by the Authority.

PART 4 DECOMMISSIONING STRATEGY

Selecting decommissioning strategy

17. (1) The licensee is responsible for selecting a decommissioning strategy for its facility, and the decommissioning strategy must be consistent with the national strategy on radioactive waste management and the Radiation Protection and Waste Disposal Regulations.

(2) The decommissioning strategy must contain detailed particulars of the strategy, including a description of the options, the overall timescales for the decommissioning of the facility and the end state after completion of all decommissioning actions, and the licensee must indicate the reasons for choosing the preferred option for decommissioning.

(3) For the strategy selected, the licensee must demonstrate that the facility is to be maintained in a safe configuration at all phases of decommissioning and is to reach the specified

decommissioning end state as defined in the approved decommissioning plan, and that undue burden is not to be imposed on future generation.

(4) If the shutdown of a facility is sudden, the decommissioning strategy must be reviewed based on the situation that initiated the sudden shutdown of the facility to determine whether revision of the strategy is required, and if the shutdown is caused by an accident, the facility must be brought to a safe configuration before the decommissioning plan is implemented.

(5) For a site with more than one facility, the licensee must develop a site strategy for decommissioning to ensure that interdependences between the facilities are taken into account in the individual decommissioning plan for each facility, and the licensee must submit to the Authority the site strategy.

PART 5 FINANCING OF DECOMMISSIONING

Financing of decommissioning

18. (1) The licensee is responsible for all costs involved in decommissioning and the responsibilities of the licensee include –

- (a) estimating the cost of the decommissioning actions, including management cost of radioactive waste; and
- (b) providing financial assurance and resources to cover the costs associated with safe decommissioning, including management cost of radioactive waste.

(2) The licensee must periodically update cost estimates for the decommissioning actions to be consistent with the most recent update of the decommissioning plan.

(3) The licensee must ensure that the amount of financial assurance is consistent with the most recent cost estimate for the decommissioning actions, and the necessary financial resource for providing the financial assurance is in place as soon as possible in a manner approved by the Authority.

(4) In the event of a sudden shutdown of the facility, the licensee must put in place measures to enable the accumulated financial resources to be used for decommissioning when they are needed.

(5) If the decommissioned facility is to be released with restrictions on the future use of the site, the licensee must make available financial assurance for ongoing monitoring, surveillance and control of the site throughout the period specified by the Authority.

PART 6 PLANNING OF DECOMMISSIONING

Planning of decommissioning

19. (1) The licensee must take decommissioning into account when siting, designing, constructing, commissioning, operating and modifying the facility in order to –

- (a) facilitate decommissioning and record keeping; and
- (b) minimise contamination, activation or the accumulation of waste.

(2) At the siting stage and during the establishment of a new facility, the licensee must perform a background survey of the site, including obtaining information on radiological conditions, and the baseline data obtained must be updated prior to the commissioning of the facility.

(3) In the case of an existing facility for which no such background survey has been made, the licensee must use data from analogous and undisturbed area with similar characteristics.

(4) In a case of a new facility, planning for decommissioning must begin early in the siting or design stage and must continue throughout the lifetime of the facility up to and including the decommissioning stage.

(5) Based on the established decommissioning strategy, the licensee must establish an initial decommissioning plan for the facility and must submit the plan to the Authority together with the application for a licence to construct, commission and operate the facility.

(6) The initial decommissioning plan must –

- (a) identify decommissioning options to demonstrate the feasibility of decommissioning;
- (b) confirm that sufficient financial resources will be available for decommissioning;
- (c) identify categories and estimate quantities of waste that is to be generated during decommissioning;
- (d) confirm that decommissioning can be safely conducted using techniques that are proven or under development; and
- (e) cover environmental aspects of the decommissioning, such as the management of waste.

(7) The initial decommissioning plan must identify –

- (a) major existing structures, systems and components that may be used during decommissioning;
- (b) changes or replacements of the structures, systems and components;
- (c) the need for new structures, systems and components performing specific safety functions during decommissioning; and
- (d) the need for existing and new facilities to carry out decommissioning and waste management.

(8) The initial decommissioning plan must be supported by an appropriate safety assessment for the decommissioning actions, the details of which are commensurate with the characteristics and status of the facility consistent with a graded approach.

(9) During the operation of the facility, the licensee must update the decommissioning plan and related safety assessment at least every five years or as otherwise specified by the Authority.

(10) When updating the decommissioning plan, the licensee must consider –

- (a) the operational experience gained;
- (b) the lessons learned from the decommissioning of similar facilities;

- (c) new or revised safety requirements;
 - (d) advance in technological development relevant to the selected decommissioning strategy;
 - (e) the occurrence of incident or situation giving rise to consequences relevant to decommissioning;
 - (f) any change to the decommissioning strategy; and
 - (g) any significant deviation from the cost estimate and the scheduled programme of decommissioning.
- (11) For existing facilities where there is no initial decommissioning plan, the licensee must –
- (a) prepare a suitable plan for decommissioning reflecting the operational status of the installation; and
 - (b) review and update the plan referred to in paragraph (a) every five years or as may be specified by the Authority.
- (12) If a facility is permanently shut down or is no longer used for its intended purpose, the licensee must submit the final decommissioning plan for approval by the Authority within a period of one year of permanent shutdown.

Transition from operation to decommissioning

20. (1) The licensee must ensure that the facility is maintained in a safe configuration during any period of transition following permanent shutdown and until the approval of the final decommissioning plan.

(2) The licensee must remove operational radioactive waste or nuclear material in the facility prior to the conduct of decommissioning actions and must transport such material to a facility authorised by the Authority, and if such removal is not possible during the period of transition, the licensee must address the removal of such materials as part of the decommissioning plan.

(3) The licensee must notify the Authority as soon as the licensee has made a decision to permanently shut down the facility.

Final update of decommissioning plan

21. (1) Within a period determined by the Authority, the licensee must prepare and submit a final update of the decommissioning plan and supporting documents for review and approval by the Authority before the Authority grants the authorisation to conduct the decommissioning actions.

(2) During preparation of the final decommissioning plan, the licensee must examine the facility and determine the quantity and type of radioactive and other hazardous material at the facility, such as the activated and contaminated structures, systems and components, to ensure that the final decommissioning plan and the associated safety assessment reflect the real conditions of the facility.

(3) Where contamination including contamination in subsurface soil and groundwater or radioactive waste from the operation remains at the facility after permanent shutdown, the licensee

must in the detailed characterisation survey state that such contamination or waste remains at the facility.

(4) As part of the preparation of the final decommissioning plan, the licensee must check and update the relevant facility drawings and other documents to reflect the changes that have been made during the operational period or the transition period.

- (5) The final decommissioning plan and supporting documents must cover –
- (a) the selected decommissioning strategy;
 - (b) the schedule, type and sequence of decommissioning actions;
 - (c) the waste management strategy applied, including clearance, the proposed end state and how the licensee will demonstrate that the end state criteria have been met;
 - (d) the storage and disposal of the waste from decommissioning;
 - (e) the timeframe for decommissioning; and
 - (f) financing for the completion of decommissioning.

Documents in support of decommissioning plan

22. (1) If requested by the Authority, the licensee must submit supporting documents supplementing individual parts of the decommissioning plan to provide more detailed information that will facilitate the approval process.

(2) The licensee must submit to the Authority for approval the emergency preparedness and response plan during decommissioning reflecting the emergency arrangements and any updates.

(3) The licensee must adopt appropriate measures to ensure physical protection and security at the facility undergoing decommissioning in order to prevent unauthorised access of individuals and unauthorised removal of radioactive material, and the licensee must implement these requirements in such a way as not to compromise the safety of the facility.

Other requirements

23. (1) The licensee transporting radioactive material generated during the decommissioning of a facility must comply with the requirements of the Radiation Protection and Waste Disposal Regulations.

(2) If safeguarded nuclear material is present during the decommissioning, the licensee must comply with the applicable nuclear safeguards requirements consistent with the Agreement Between the Republic of Namibia and the International Atomic Energy Agency for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons, signed on 19 March 1998, and the licensee must implement the requirements in such a way as not to compromise the safety of the facility.

Deferred dismantling

24. In the case of deferred dismantling, the licensee must, in addition to complying with the requirements of regulation 21, demonstrate in the decommissioning plan that –

- (a) the care and maintenance programme will ensure safety during the deferral period and will not impair future decommissioning; and
- (b) the financial resources for the deferral period and the following period of dismantling are ensured.

PART 7 CONDUCT OF DECOMMISSIONING

Commencement of decommissioning actions

25. (1) The licensee may not commence decommissioning actions until the authorisation for decommissioning has been granted by the Authority.

(2) The licensee may not commence any additional or altered decommissioning actions until the decommissioning plan has been updated and the updated version has been approved by the Authority.

Phased approach

26. (1) When the licensee implements a phased approach to conduct decommissioning actions, the licensee must describe in the decommissioning plan and supporting documents all phases necessary to reach the final end state.

(2) In addition to the requirements of subregulation (1), the licensee must in the decommissioning plan –

- (a) provide an overview of the decommissioning of the facility;
- (b) describe the content, schedule and timeframe of each phase;
- (c) make provision for an overarching safety assessment;
- (d) specify the end state criteria of each phase; and
- (e) demonstrate that earlier phases do not jeopardise the conduct of any later phase.

(3) The licensee must at least for the first phase, develop a detailed safety assessment as part of the decommissioning plan.

(4) The licensee must develop detailed safety assessments for each phase gradually and consistently with the progressive implementation of the decommissioning process.

Management of structures, systems and components

27. (1) The licensee must determine whether the structures, systems and components identified for decommissioning actions fulfil the safety functions.

(2) The licensee must identify and classify the structures, systems and components, and must reclassify the structures, systems and components as the importance for safety changes during the course of the decommissioning actions, and the licensee must reflect the classification or reclassification in the decommissioning plan and supporting documents.

(3) The licensee must maintain and update the list of structures, systems and components important to safety, and existing structures, systems and components may be reclassified and

progressively removed from service and dismantled as the decommissioning progresses, and the inspection and maintenance programme for the facility must be updated accordingly.

(4) When inspecting compliance with the decommissioning plan, the Authority must ensure that installation and use of new structures, systems and components are consistent with the decommissioning plan.

(5) The licensee must address the ageing of structures, systems and components and other equipment significant to safety by establishing, if necessary, provisions for the maintenance, testing and inspection of such structures, systems and components and other equipment.

(6) The licensee must record, store, analyse and review data on maintenance, testing, surveillance and inspection of structures, systems and components and other equipment relevant to safety.

Feedback of decommissioning experience

28. (1) The licensee must establish and implement arrangements for the feedback of decommissioning experience through the collection, screening, analysis and documentation of experience and events at the facility in a systematic way and in a manner that improves and ensures safe decommissioning.

(2) For the purposes of subregulation (1), the Authority must consider relevant experience and information on events related to safety, radiation protection and waste management gained from similar national and international decommissioning projects.

Radioactive waste management

29. (1) In the frame of its radioactive waste management programme, the licensee must manage all waste streams, including disused radioactive sources, in accordance with the Radiation Protection and Waste Disposal Regulations.

(2) Before embarking on decommissioning actions, the licensee must ensure the availability of adequate processing and storage capabilities and transport packages for radioactive waste generated by the decommissioning.

(3) The licensee must make arrangements for the disposal of radioactive waste arising from operational activities that remains at the facility and radioactive waste that is to be generated during decommissioning.

(4) If sufficient disposal capacity is not available at the time of decommissioning, the licensee must store the radioactive waste safely in accordance with the Radiation Protection and Waste Disposal Regulations.

(5) The licensee must develop, document and implement arrangements for characterisation, segregation, volume reduction and further management of the particularly large quantities and different types of radioactive waste and other residues generated during decommissioning, including remediation of contaminated areas in accordance with the Radiation Protection and Waste Disposal Regulations and with the national strategy for the management of radioactive waste.

(6) The licensee must maintain up to date records of the radioactive waste that is generated, stored at the facility or transferred to another facility authorised by the Authority, specifying its quantities, characteristics, treatment methods and destination, including any radioactive waste and materials that are released from regulatory control.

Management of facility during period of deferral

- 30.** (1) Before the start of the period of deferral, the licensee must –
- (a) demonstrate that the facility complies with the conditions for the period of deferral as described in the decommissioning plan;
 - (b) implement care and maintenance programme developed as part of the decommissioning plan, the implementation of which ensures safety and does not impair future decommissioning phases.
- (2) The licensee must review periodically the care and maintenance programme for its appropriateness during the period of deferral focusing on the ageing of the structures, systems and components.

PART 8**COMPLETION OF DECOMMISSIONING ACTIONS AND TERMINATION OF AUTHORISATION FOR DECOMMISSIONING****Completion of decommissioning actions**

31. (1) On completion of the decommissioning actions, the licensee must prepare all relevant records concerning the former presence of the facility on the site and the nature of the activities conducted at that facility for the benefit of future users of the site after its release from regulatory control.

(2) Based on the records referred to in subregulation (1), the licensee must prepare a final decommissioning report and submit it to the Authority for review and approval to demonstrate that the end state of the facility as specified in the decommissioning plan has been reached.

(3) For the purposes of these regulations, decommissioning actions are considered completed when the end state criteria set by the Authority have been met by the licensee.

(4) Where the future use of the site is restricted, the licensee must specify in the final decommissioning report any ongoing controls, monitoring and surveillance programme needed for the site.

Termination of decommissioning authorisation

32. (1) The licensee must demonstrate that the end state specified in the final decommissioning plan has been reached and is consistent with the requirements and criteria established by the Authority.

(2) The licensee must address any inputs from the public before the termination of decommissioning authorisation.

(3) The licensee must apply for the termination of the decommissioning authorisation after achieving the proposed end state as described in the final decommissioning plan.

(4) Where the licensee makes an application for the release of some parts of the facility from regulatory control, the remainder of the facility remains subject to regulatory control.

(5) Where a site is released with restrictions on use, the licensee must –

- (a) ensure that financial resources are available for monitoring, surveillance and control of the facility throughout the necessary period;

- (b) document the restrictions within the final decommissioning report;
 - (c) establish and ensure that controls and programmes for monitoring and surveillance can be maintained;
 - (d) address any inputs from the public.
- (6) Any ongoing controls and programmes regarding a site referred to in subregulation (5) must be approved by the Authority.

On-site storage of radioactive material

33. If the remaining radioactive material, including any radioactive waste, is to be stored on the site after completion of the decommissioning actions, the licensee must obtain from the Authority a revised or new authorisation for the storage facility, and the authorisation must include requirements for the decommissioning of that storage facility.
