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DEPARTMENT OF ENVIRONMENTAL AFFAIRS

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**NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008
(ACT NO. 59 OF 2008)**

**REGULATIONS REGARDING THE PLANNING AND MANAGEMENT OF RESIDUE STOCKPILES
AND RESIDUE DEPOSITS FROM A PROSPECTING, MINING, EXPLORATION OR PRODUCTION
OPERATION**

I, Bomo Edith Edna Molewa, Minister of Environmental Affairs, make regulations regarding the planning and management of residue stockpiles and residue deposits from a prospecting, mining, exploration or production operation, under section 69(1)(iA) of the National Environmental Management: Waste Act, 2008 as set out in the Schedule hereto.



**BOMO EDITH EDNA MOLEWA
MINISTER OF ENVIRONMENTAL AFFAIRS**

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CHAPTER 1

DEFINITIONS AND PURPOSE OF REGULATIONS

Definitions

1. In this Schedule any word or expression to which a meaning has been assigned in the Act shall have that meaning, unless the context indicates otherwise—

“competent person” means a person who—

- (i) is qualified by virtue of his or her knowledge, expertise, qualifications, skills and experience; and
- (ii) is knowledgeable with the provisions of the National Environmental Management Act, 1998 (Act No. 107 of 1998), National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), Mineral and Petroleum Resources Development Act, 2002 and other related legislation;
- (iii) has been trained to recognise any potential or actual problem in the performance of the work; and
- (iv) is registered with the legislated regulatory body for the natural scientific profession or an appropriate legislated professional body.

“classification” means classification as provided for in regulation 5 of these Regulations;

“exploration” has the meaning assigned to it in section 1 of the Mineral and Petroleum Resources Development Act, 2002;

“Mineral and Petroleum Resources Development Act, 2002” means the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002);

“Mineral and Petroleum Resources Development Regulations, 2004” as contemplated in the transitional arrangements means the Mineral and Petroleum Resources Development Regulations published in terms of section 107(1) of the Mineral and Petroleum Resources Development Act, 2002 under Government Notice R527 in *Government Gazette* 26275 of 23 April 2004 and as amended by Government Notice R1288 in *Government Gazette* 26942 of 29 October 2004 and Government Notice R1203 in *Government Gazette* 29431 of 30 November 2006;

“production operation” has the same meaning assigned in the Mineral and Petroleum Resources Development Act, 2002;

“prospecting” has the meaning assigned to it in section 1 of the Mineral and Petroleum Resources Development Act, 2002; and

“the Act” means the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008).

Purpose

2. The purpose of these Regulations is to regulate the planning and management of residue stockpiles and residue deposits from a prospecting, mining, exploration or production operation.

CHAPTER 2**PLANNING, MANAGEMENT AND REPORTING OF RESIDUE STOCKPILES AND RESIDUE DEPOSITS****The assessment of impacts and analyses of risks relating to the management of residue stockpiles and residue deposits**

3. (1) The identification and assessment of environmental impacts arising from residue stockpiles and residue deposits must be done as part of the environmental impact assessment conducted in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), if required.
- (2) The management of residue stockpiles and residue deposits must be in accordance with any conditions set out and any identified measures in the environmental authorisation issued in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), an environmental management programme and a waste management licence issued in terms of the Act.
- (3) A risk analysis based on the characteristics and the classification set out in regulation 4 and 5 must be used to determine the appropriate mitigation and management measures.
- (4) The pollution control barrier system shall be defined by the—
 - (a) National Norms and Standards for the Assessment of Waste for Landfill Disposal, 2013; and
 - (b) National Norms and Standards for Disposal of Waste to Landfill, 2013.

Characterisation of residue stockpiles and residue deposits

4. (1) Residue stockpile and residue deposit must be characterised to identify any potential risk to health or safety hazard and environmental impact that may be associated with the residue when stockpiled or deposited at the site on a prospecting, mining, exploration or production operation.
- (2) Residue stockpile and residue deposit must be characterised in terms of its—
 - (a) physical characteristics, that must include—
 - (i) the size distribution of the principal constituents;
 - (ii) the permeability of the material;
 - (iii) void ratios of the material;

- (iv) the consolidation or settling characteristics of the material under its own weight and that of any overburden;
 - (v) the strength of material;
 - (vi) the specific gravity of the solid constituents;
 - (vii) the water content of the material at the time of deposition, and at other phases in the life of the deposit; and
 - (viii) the change in the above properties with time.
- (b) chemical characteristics, that must include—
 - (i) the toxicity;
 - (ii) the propensity to oxidize and decompose;
 - (iii) the propensity to undergo spontaneous combustion;
 - (iv) the pH and chemical composition of the water separated from the solids;
 - (v) stability and reactivity and the rate thereof;
 - (vi) acid generating and neutralising potential; and
 - (vii) the concentration of the volatile organic compounds.
- (c) mineral content that may include the specific gravity of the residue particles and its impact on particle segregation and consolidation.

Classification of residue stockpiles and residue deposits

5. (1) Residue stockpile and residue deposit must be classified by a competent person.
- (2) A risk analysis must be conducted and documented on all residue stockpiles and residue deposits.
- (3) The classification of residue stockpile and residue deposit must be undertaken on the basis of the—
 - (a) characteristics of the residue;
 - (b) location and dimensions of the deposit (height, surface area);
 - (c) importance and vulnerability of the environmental components that are at risk;
 - (d) spatial extent, duration and intensity of potential impacts; and

- (e) pollution control barrier system compliant with the commensurate norms and standards for disposal of waste to landfill.

Investigation and site selection for residue stockpiling and deposit

- 6. (1) The process of investigation and selection of a site for residue stockpiling and residue deposit must entail—
 - (a) the identification of a sufficient number of possible candidate sites.
 - (b) qualitative evaluation and ranking of all alternative sites;
 - (c) qualitative investigation of the top ranking sites to review the ranking done in terms of paragraph (b);
 - (d) a feasibility study on the highest ranking site or sites, involving—
 - (i) a preliminary health and safety classification;
 - (ii) an environmental classification;
 - (iii) geotechnical investigations; and
 - (iv) hydrological investigations.
- (2) A geotechnical investigation must include the—
 - (a) characterisation of the soil and rock profiles over the entire area to be covered by the residue stockpile facility and associated infrastructure to define the spatial extent and depth of the different soil horizons; and
 - (b) characterisation of the relevant engineering properties of foundations soils and the assessment of strength and drainage characteristics.
- (3) A hydrological investigation must include the—
 - (a) geohydrological properties of the strata within the zone that could potentially be affected by the quality of seepage;
 - (b) vulnerability and existing potential use of the groundwater resource within the zone that could potentially be affected by the residue facility; and
 - (c) potential rate of seepage from the facility and the quality of the seepage.
- (4) A preferred site must be identified based on the investigations contemplated in sub-regulations (1), (2) and (3).
- (5) Further investigation on the preferred site, must include—
 - (a) land use;

- (b) topography and surface drainage;
 - (c) infrastructure and man-made features;
 - (d) climate;
 - (e) flora and fauna;
 - (f) soils;
 - (g) ground water morphology, flow, quality and usage; and
 - (h) surface water.
- (6) The investigations, laboratory test work, interpretation of data and recommendations for the identification and selection of the most appropriate and suitable site for the disposal of all residue that has the potential to generate leachate that could have a significant impact on the environment and groundwater must be conducted by a competent person.

Design of the residue stockpile and residue deposit

7. (1) The design of a residue stockpile and residue deposit must be undertaken by a registered Professional civil or mining, registered under the Engineering Profession of South Africa Act, 1990 (Act No.114 of 1990).
- (2) An assessment of the typical soil profile on the site is required for all residue stockpile and residue deposit.
- (3) The design of a residue stockpile and residue deposit must take into account all phases of the life cycle of the residue stockpile and residue deposit, from construction through to post closure and must include the—
- (a) characteristics of the residue;
 - (b) characteristics of the site and the receiving environment;
 - (c) general layout of the residue stockpile or residue deposit, whether it is a natural valley, ring dyke, impoundment or a combination thereof and its three-dimensional geometry at appropriate intervals throughout the planned incremental growth of the residue stockpile or residue deposit;
 - (d) type of deposition method used;
 - (e) rate of rise of the stockpile or deposit; and
 - (f) design of the pollution control barrier system.
- (4) Other design considerations, as appropriate to the particular type of the residue stockpile and residue deposit that must be incorporated include—

- (a) the control of storm water on and around the residue stockpile or deposit taking into account the requirements of the National Water Act, 1998 (Act No. 36 of 1998);
 - (b) a capping layer for residue stockpiles in order to prevent the generation and mobilisation of contaminants of concern;
 - (c) the provision, throughout the clean and dirty water systems making up the control measures, of a freeboard of at least 0.5 m above the expected maximum water level to prevent overtopping;
 - (d) keeping the pool away at least 50 meters from the walls and a factor of safety not less than 1,5; where there are valid technical reasons for deviating from this, adequate motivation must be provided and the design must be reviewed by a competent person;
 - (e) the control of decanting of excess water under normal and storm conditions, including—
 - (i) the retention of polluted water in terms of the General and Special Standards, requirements for the purification of waste water or effluent, published under Government Notice or Regulation No. 991 of 18 May 1984, where measures may be required to prevent water from the residue deposit from leaving the residue management system;
 - (ii) the design of the penstock, outfall pipe, under-drainage system and return water dams;
 - (iii) the height of the phreatic surface, slope angles and method of construction of the outer walls and their effects on shear stability;
 - (iv) the erosion of slopes by wind and water, and its control by vegetation, berms or catchment paddocks; and
 - (v) the potential for pollution.
- (5) A design report and operating manual must be signed off by a registered professional civil or mining engineer.

Impact Management

8. The owner of the mine must determine and manage the impacts of the residue management practices and facilities in the following manner—
- (a) Identify all residue materials and residue management practices with a potential to contaminate water;
 - (b) Conduct statistical defensible and representative characterisation programme of relevant materials; and
 - (c) Conduct an impact prediction study to assess the potential impacts of such actions or activities on the water resource over the full life cycle of the mining operations and until the impact from

the operation is acceptable, which includes a monitoring programme and an evaluation of the effect of the mitigatory measures to demonstrate acceptable levels of impact.

Duties of the holder of right or permit

9. (1) The holder of any right or permit in terms of the Mineral and Petroleum Resources Development Act, 2002 must ensure that—

- (a) a residue stockpile and residue deposit, including any surrounding catchment paddocks, are constructed and operated in accordance with the approved environmental management programme;
- (b) the design of a residue stockpile and residue deposit is followed implicitly throughout the construction and operation thereof, and that any deviations from the design are approved by the delegated official within the Department responsible for mineral resources and that the environmental management programme is amended accordingly;
- (c) as part of the monitoring system, measurements of all residues transported to the site and of all surplus water removed from the site are recorded;
- (d) appropriate security measures are implemented to limit unauthorised access to all residues;
- (e) preventative or remedial action is taken in respect of any sign of pollution;
- (f) adequate measures are implemented to control dust pollution and erosion of the slopes at all residues; and
- (g) details of rehabilitation of all residues are provided in the environmental management programme.

(2) A system of routine maintenance and repair in respect of all residues must be implemented to ensure the control of pollution and the integrity of rehabilitation.

Monitoring and reporting system for residue stockpiles and residue deposits

10. (1) A monitoring system for a residue stockpile and residue deposit with respect to potentially significant impacts as identified in the environmental impact assessment must be included in the environmental authorisation issued in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), if an environmental authorisation is required or a waste management licence issued in terms of the Act.

(2) In the design of a monitoring system for a residue stockpile or residue deposit, consideration must be given to—

- (a) baseline and background conditions with regard to air, surface and groundwater quality;
- (b) the air, surface and groundwater quality objectives;

- (c) residue characteristics;
- (d) the degree and nature of residue containment;
- (e) the receiving environment and specifically the climatic, local geological, hydrogeological and geochemical conditions;
- (f) potential migration pathways;
- (g) potential impacts of leachate;
- (h) the location of monitoring points and the monitoring protocols; and
- (i) the reporting frequency and procedures.

Dust management and control

11. Dust at residue stockpiles and residue deposits must be managed in accordance with the requirements on dust control as regulated by Mine Health and Safety Act, 1996 (Act No. 29 of 1996) and in terms of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004).

Decommissioning, closure and post closure management of residue stockpiles and residue deposits

12. The decommissioning, closure and post closure management of a residue stockpile and residue deposit must be done in accordance with—
 - (a) the relevant provisions in the environmental authorisation, if it was issued;
 - (b) an environmental management programme; and
 - (c) any other applicable legislation.

CHAPTER 3

GENERAL MATTERS

Transitional arrangements

13. (1) Anything done in terms of regulation 73 of the Mineral and Petroleum Resources Development Regulations, 2004 relating to the management of residue stockpiles and residues deposits which can be done in terms of a provision of these Regulations must be regarded as having been done in terms of the provision of these Regulations.
- (2) Management measures of residue stockpiles and residue deposits approved in terms of the Mineral and Petroleum Resources Development Regulations, 2004, at the time of the coming into operation of these Regulations, must be regarded as having been approved in terms of these Regulations.

- (3) A holder of a right or permit in terms of the Mineral and Petroleum Resources Development Act, 2002 must continue the management of the residue stockpiles and residue deposits in accordance with the approved management measures.

Offences and penalties

14. (1) A person commits an offence if that person contravenes or fails to comply with regulations 3, 4, 5, 6, 7, 8, 9, 10 or 11 of these Regulations.
- (2) A person convicted of an offence contemplated in sub-regulation (1) is liable on conviction to—
- (a) imprisonment for a period not exceeding 15 years;
 - (b) an appropriate fine; or
 - (c) both a fine and imprisonment.

Short title and commencement

15. These Regulations are called the Regulations regarding the Planning and Management of Residue Stockpiles and Residue Deposits, 2015 and come into operation on the date of publication.