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## ACHIEVING RADIATION SAFETY AND ENSURING SUSTAINABILITY: The South African Regulatory Framework for Decommissioning and Post-Mine Transition

The decommissioning phase in mining and mineral processing industry involves permanent discontinuation of all operations, dismantling and demolition of existing structures and removing all equipment and facilities that are not intended to remain in place for future use. The post-mine transition phase includes remediation of the contaminated land and the release of such land from regulatory control. Due to various forms of radioactive waste generated during the mining stage, safety considerations must be consistent with principles of sustainability to ensure that the environment and people are protected against radiation risk, post-mining land use. This paper examines the South African regulatory framework relating to decommissioning of authorised facilities, remediation, and the clearing of such land from regulatory control. This is achieved through the assessment of regulatory requirements and associated documents such as policies, standards, guides, procedures, and information documents that support and provide further information on the legally enforceable instruments. Regulation requirements limitations are addressed by ensuring that all nuclear authorisation holders oblige with other relevant South African Acts or Laws in accordance with the established cooperative governance agreements. The key finding is that the safe and sustainable decommissioning and post-mine transition phase cannot be achieved through an improved regulatory system alone but effective implementation of the following processes:

- Comprehensive review practices prior to authorisation and periodically during the operation of the facility and action to ascertain whether the nuclear authorisation applicant or holder's submission demonstrates compliance to the regulatory safety objectives, legal requirements, and stipulated regulations throughout the lifetime of the facility and action.
- Compliance assurance activities to assess and verify authorisation holder compliance with the National Nuclear Regulator (NNR) Act, the associated Regulations and Safety Practices and conditions of authorisation.
- Enforcement actions by implementing a graded approach to enforce compliance with the NNR regulatory requirements and deter future non-compliance.

**Primary author:** Mr RASMENI, Sonwabile (National Nuclear Regulator)

**Co-author:** Mr LEKOTA, Makgaba (National Nuclear Regulator)

**Presenter:** Mr RASMENI, Sonwabile (National Nuclear Regulator)

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