

DEVELOPMENT OF
VOLUME 3, 4 AND 5 OF THE
SOUTH AFRICAN SLUDGE GUIDELINES

LEGAL REVIEW

by

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EXECUTIVE SUMMARY

Volumes 3, 4 and 5 of the Sludge Guidelines Series aim to provide some options and opportunities for this innovation and where the wastewater sludge cannot be used as a resource, provide for their disposal in a responsible manner.

With this wider range of management options that the guidelines provide, an increased level of responsibility and onus is also placed on the shoulders of wastewater sludge producer and user, in terms of the national, provincial and local environmental legislation and policies that govern waste management and the protection of the ecological environment. The respective regulatory authorities implement these legislative requirements in terms of their mandates and obligations in an effort to achieve a balance between resource use and development and protection of the environment.

The various legislative and regulatory requirements that need to be met for the range of options presented for the management of wastewater sludge in Volumes 3, 4 and 5 of the Sludge Guidelines Series are discussed in this document.

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LIST OF ABBREVIATIONS AND ACRONYMS

BPEO	Best Practicable Environmental Option
CARA	Conservation of Agricultural Resources Act
DEAT	Department of Environmental Affairs and Tourism
DME	Department of Minerals and Energy
DoA	Department of Agriculture
ECA	Environment Conservation Act
EIA	Environmental Impact Assessment
ELU	Existing Lawful Water use
EMP	Environmental Management Plan
GA	General Authorisation
HSA	Health and Safety Act
IP&WMP	Integrated Pollution and Waste Management Policy
MEC	Member of Executive Council
MLRA	Marine Living Resource Act
MPRDA	Mineral and Petroleum Resources Development Act
NEM:AQA	National Environmental Management: Air Quality Act
NEMA	National Environmental Management Act
NHA	National Health Act
NWA	National Water Act
NWMS	National Waste Management System
NWRS	National Water Resource Strategy
OHS	Occupational Health and Safety
OHSA	Occupational Health and Safety Act
UNCED	United Nations Conference on Environment and Development
WDCS	Waste Discharge Charge System
WRC	Water Research Commission
WSA	Water Services Act
WSDP	Water Services Development Plan

1 INTRODUCTION

Sustainable development implies a broad view of human welfare, a long term perspective about the consequences of today's activities, and global co-operation to reach viable solutions. Sustainable development is probably the greatest challenge that is facing South Africa today, as it struggles to achieve an integration of social, economic and environmental aspects in an attempt to secure a “better quality of life for all South Africans.”

Sustainable development has become a fundamental underlying principle in South African society today and has been entrenched in all levels and aspects of governance at either national, regional or local spheres. As such the integration of social, economic and ecological factors into planning, implementation and decision-making to ensure that development serves present and future generations has also become central to environmental management in South Africa.

The government has incorporated this principle as the fundamental basis to several legal instruments that govern the environmental media (water, air and land) in South Africa today. Traditional waste disposal practices are now being reassessed in an attempt to seek out more sustainable solutions that do not only meet the regulatory requirements but also that benefit the society at large. The management of wastewater sludge presents such an opportunity for sustainable solutions, provided that it is managed within the legislative environment that governs it.

2 WASTEWATER SLUDGE MANAGEMENT IN SOUTH AFRICA

“Any waste is a resource wasted” – so can be said for wastewater sludge in South Africa.

Traditional management practices related to wastewater sludge include dedicated land disposal, stockpiling, landfills and to a lesser degree use in agricultural practices. Due to the strict regulatory requirements for its agricultural use and for off-site disposal at landfill sites, as well as the economic implications thereof, dedicated land disposal, on-site disposal and stockpiling have become the standard management option for many wastewater treatment plants in South Africa today. Innovative solutions need to be sought to create opportunities that provide a wider spectrum of options to the management of wastewater sludge.

Seeking these “innovative solutions” requires a paradigm shift in our perception and understanding of wastewater sludge from a waste product to one of a resource. Such a shift creates an opportunity for local authorities and municipalities to generate a range of economic and social spin-offs to the benefit of their local communities thereby taking a small step towards achieving the goal of sustainable development.

Volumes 3, 4 and 5 of the Sludge Guidelines Series aim to provide some options and opportunities for this innovation and where the wastewater sludge cannot be used as a resource, provide for their disposal in a responsible manner.

This wider range of management options that the guidelines provide, an increased level of responsibility and onus is also placed on the shoulders of wastewater sludge producer and user, in terms of the national, provincial and local environmental legislation and policies that govern waste management and the protection of the ecological environment. The respective regulatory authorities implement these legislative requirements in terms of their mandates and obligations in an effort to achieve a balance between resource use and development and protection of the environment.

The various legislative and regulatory requirements that need to be met for the range of options presented for the management of wastewater sludge in Volumes 3, 4 and 5 of the Sludge Guidelines Series are discussed in this document.

3 THE SOUTH AFRICAN LEGISLATIVE ENVIRONMENT

Numerous environmental management related policies and law reform programmes have been introduced in South Africa over the last few years. This renewal process was spearheaded by the South African Constitution of the Republic of South Africa which laid the foundation for a democratic and open society in which government is based on the will of the people. The Constitution promotes equity, protects the rights of access to resources and also stipulates fundamental environmental rights in the “Bill Rights” which aim to improve the quality of life of all citizens. These Constitutional environmental rights were enacted through a framework statute, the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), which can be described as South Africa’s “primary” or “parent” environmental statute as it gives guidance to all environmental management related legislation.

The law reform process, has been a key focus of the government for a number of years now, and seen the promulgation of a number of statutes related to environment and the management of natural resources. Amongst these are the National Water Act (Act No. 36 of 1998) (NWA), the Water Services Act (Act No. 108 of 1997) (WSA), the Minerals and Petroleum Resources Development Act (Act No. 28 of 2002) (MPRDA), the Marine Living Resources Act (Act No. 18 of 1998) (MLRA) and the National Environment Management: Air Quality Act (Act No. 39 of 2004) (NEM:AQA). However there is also a multitude of older legislation which directly or indirectly manages the environment and impacts on it such as the Environment Conservation Act (Act No. 73 of 1989) (ECA) and the Hazardous Substances Act (Act No. 15 of 1973) (HSA).

Collectively a hierarchy of policies and legislation, which includes South Africa’s international commitments, the Constitution, applicable Acts of Parliament, Provincial Legislation and Local Government Bylaws, govern environmental management in South Africa. Amongst these the NEMA, NWA and ECA serve as the primary legislation that guide waste management and pollution control. These statutes together with other media specific environmental legislation all reflect and pursue the common goal of sustainable development. The ‘sustainable development hierarchy’ in terms of South African legislative context is depicted in **Figure 1**(WRC, 2001 *adapted*).

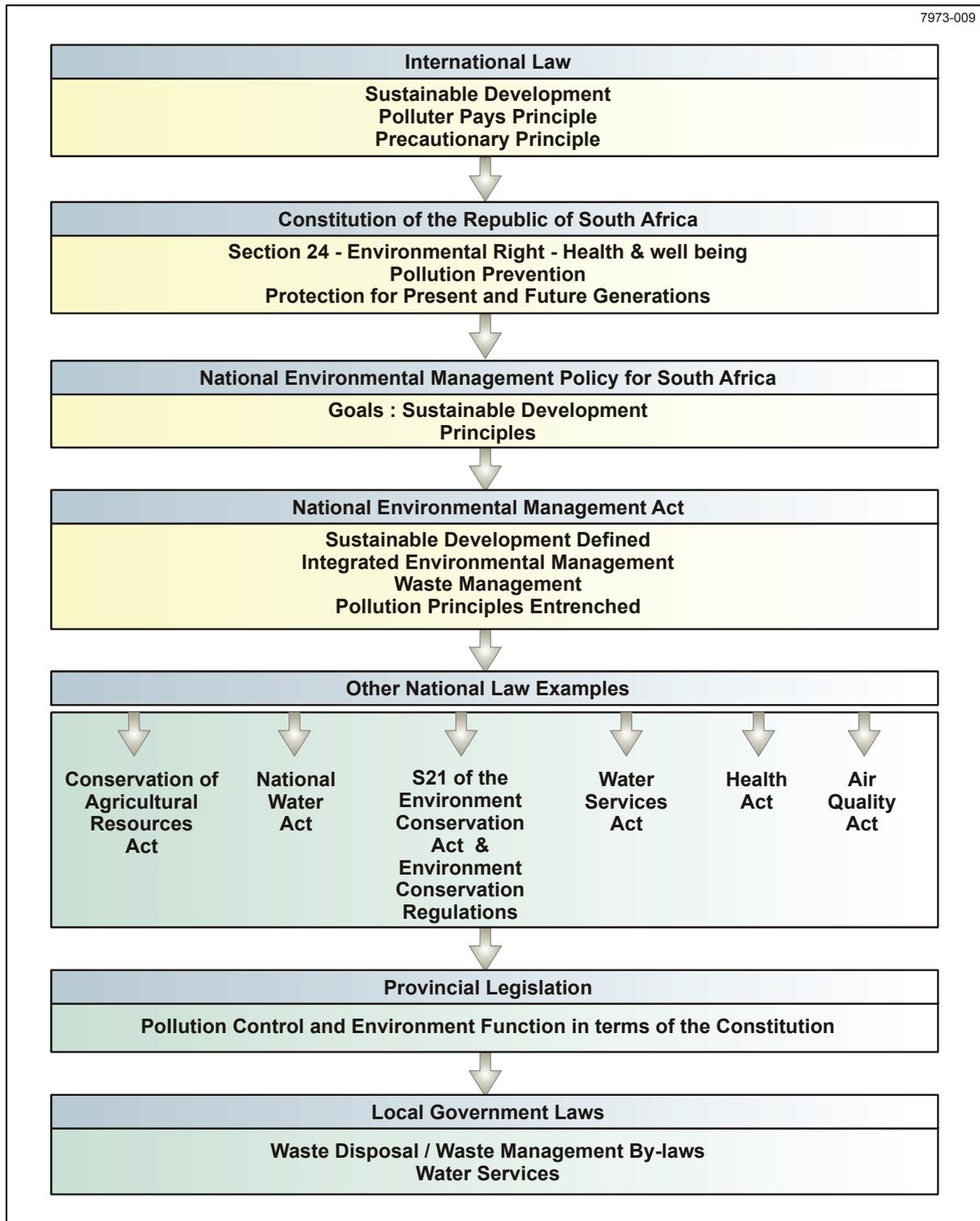


Figure 1: Sustainable development hierarchy (WRC, 2001 adapted)

The legislative framework of governance consists of several levels (DWAF, 2004), as depicted in **Figure 2** below.

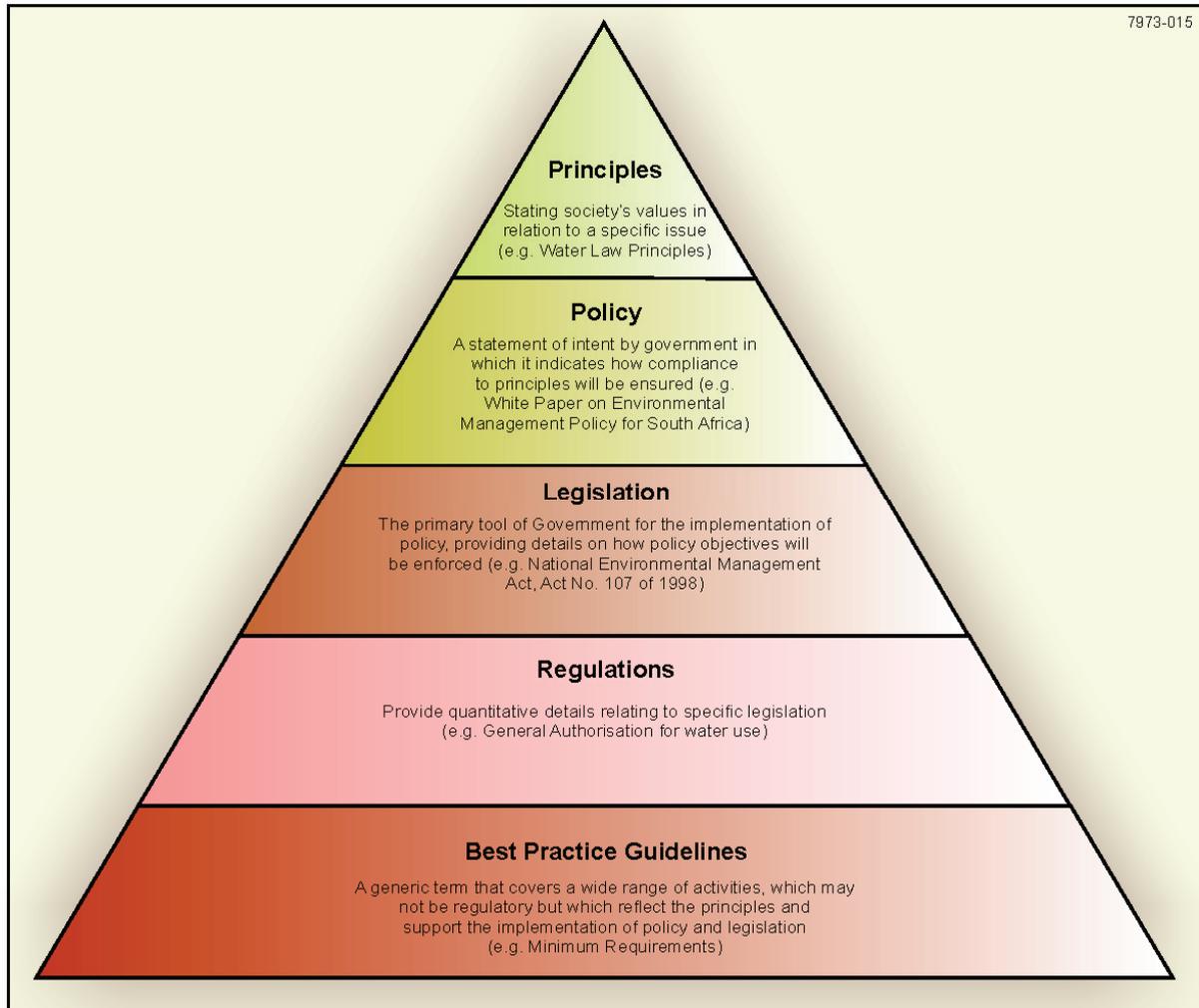


Figure 2: The hierarchy of the legislative framework in South Africa (DWAF, 2004)

The South African Sludge Guidelines series can be categorised as a Best Practice Guideline. However the guidelines can be considered regulatory if contained within in water use authorisation.

The existing legislative framework within South Africa now promotes more environmental responsibility and duty, while at the same time supporting much needed social and economic growth. Due to the diverse and fragmented nature of environmental law, pollution laws in South Africa arise from various sources, from the pure environmental to safety and health, planning, nature and conservation and natural resources, to name but a few.

4 REGULATORY FRAMEWORK GOVERNING WASTEWATER SLUDGE MANAGEMENT

4.1 International Law

South Africa's participation in international environmental law has increased over the last decade. There are many conventions relevant to the environment to which South Africa is already a party. Several important legal instruments oblige our government to actively pursue and participate in international agreements and conventions.

The Rio Declaration on Environment and Development, Agenda 21 and the Statement of Principles for the Sustainable Management of Forests were adopted by more than 178 governments at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil in 1992. Together they constitute a comprehensive plan of action to be taken globally, nationally and locally by organisations of the United Nations, governments, and major groups in every area in which humans impact on the environment.

Chapter 21 of Agenda 21 (UNCED, 1992) deals with environmentally sound management of solid wastes and sewage related issues. This chapter provides a framework for action with regard to environmentally sound management of wastes, as this has been recognised as one of the major environmental issues of concern in maintaining the quality of the Earth's environment and in countries achieving environmentally sound and sustainable development.

Chapter 21 defines a hierarchy of objectives and focuses on the four major waste related programme areas: minimizing wastes, maximizing environmentally sound waste reuse and recycling; promoting environmentally sound waste disposal and treatment and extending waste service coverage.

The Rio Declaration also recognises that for sustainable development to have effect it requires national laws and principles, and calls upon countries to introduce effective environmental laws, including the precautionary principle and develop the "polluter pays" principle.

International environmental developments subsequent to 1992 have been substantially influenced by these documents produced at the Rio Earth Summit. Agenda 21 and the Rio Declaration as a global initiative thus inform South Africa's own approach. Chapter 21 of Agenda 21 has specific relevance to the South African approach to wastewater sludge management.

To date approximately 19 international agreements (conventions, treaties, protocols) pertaining to integrated pollution and waste management have been acceded to or ratified by South Africa (DEAT, 2000). Of specific relevance to the Sludge Guidelines are the following examples:

- **Convention for the prevention of Marine Pollution from Land Based Sources (1974):** This convention is relevant to the pollution of coastal waters from land based sources. South Africa has not yet acceded to it, but it is monitoring developments in this regard and may accede to it in due course.
- **Multilateral Agreement on the Control of Pollution of Water resources in the South African Region, 21 November 1985:** This agreement imposes general obligations on the parties to cooperate with each other regarding access to and pollution of water resources which are common to two or more parties. There is no specific domestic legislation on this treaty.
- **Convention on the control of transboundary movements of Hazardous Wastes and their Disposal, 22 March 1989 (Basel):** This convention regulates the transboundary movement of hazardous wastes. This convention has been acceded to. No domestic legislation has been passed in this regard.
- **United Nations Framework Convention on Climate Change, 9 May 1992:** The convention requires, *inter alia*, that developed countries formulate and implement programmes which mitigate the adverse effects of climate change and facilitate adaptation to it. South Africa ratified this convention in August 1997.

4.2 The Constitution

The Constitution (Act No. 108 of 1996) of South Africa laid the foundation for a democratic society for the people of South Africa. This foundation provides the basic principles on which all other policies and legislation are based, and is considered to be the supreme law in South Africa.

The environmental rights of the people of South Africa are specified in Section 24 of the Constitution, which guarantees everyone the right to an environment that is not harmful to their health or well-being, and also recognises and entrenches the notion of sustainable development and its supporting principles. As such everyone in South Africa, in terms of Section 24 (b) also has right to have the environment protected for the benefit of present and future generations, through reasonable legislation and other measures that promote conservation, prevent pollution and ecological degradation. This section therefore includes the most significant aspects related to wastewater sludge management, which emphasises the need for sustainable management options to be sought that promote social and economic development, while at the same time ensuring protection of the environment.

These statements echo the principles outlined in Agenda 21 and set the scene for the development of policies and legislation that are socially and economically enabling, while also ensuring sustainability.

The Constitution contains many other rights of relevance to the environment, such as Section 27 – the right to sufficient water and food. Also of relevance to the environment with respect waste

management and pollution control, is the issue of the enforcement of legislation, which the Constitution entrenches through the principle of co-operative governance between the national, provincial and local tiers of government. The Constitution does set out in Schedules 4 and 5 precisely what the functions of each tier of government are, which includes the responsibilities with regard to waste management and pollution control. For example, pollution control and environment are functional areas of concurrent National and Provincial Legislative competence, with air pollution, water services (supply and wastewater management) and waste disposal being Local Government functional competencies that are regulated by Provincial Government.

4.3 The White Paper on Environmental Management Policy for South Africa

The White Paper on Environmental Management Policy for South Africa (Government Gazette 18894, Notice 749 of 15 May 1998) is an overarching framework policy which seeks to give effect to the rights in the Constitution, that relate to the environment. The overarching principle of the policy is that of sustainable development.

The policy encompasses a range of principles, identifies strategic goals and objectives and the governance related to these. The aspects that are of importance and of relevance to wastewater sludge management are the captured below.

A number of **objectives** for pollution and waste management, which include the following:

- To promote cleaner production and establish mechanisms to ensure *continuous improvements in best practice* in all areas of environmental management.
- To *prevent, reduce and manage pollution* of any part of the environment due to all forms of human activity, and in particular from *radioactive, toxic and other hazardous substances*.
- To set targets to *minimise waste generation and pollution* at source and promote a hierarchy of waste management practices, namely *reduction of waste at source, reuse and recycling with safe disposal* as the last resort.
- To ensure the *protection and proactive management of human health problems* related to the environment in all forms of economic activity.

Examples of **principles** that are important in the context of the Sludge Guidelines:

- “**Cradle to grave**” – Responsibility for the environmental, health and safety consequences of a policy, programme, project, *product, process, service* or *activity* exists throughout its life cycle. It starts with conceptualisation and planning and runs through all stages of implementation to *reuse, recycling* and *ultimate disposal* of *products* and *waste* or decommissioning of installations.
- “**Precaution**” – Government will apply a *risk and cautious approach* that recognises the *limits of current knowledge* about the *environmental consequences* of decisions or actions.

This approach includes the identification of:

- the nature, source and scope of potentially significant impact on the environment and on people’s environmental rights, and
- the potential risks arising from uncertainty.

Where there is uncertainty, action should be taken to *limit the risk*. This should include consideration of the ‘*no go*’ option.

- “**Polluter pays**” – those responsible for *environmental damage* must pay the *repair costs* both to the environment and human health, and the *costs of preventive measures* to *reduce* or *prevent* further *pollution* and environmental damage.
- “**Waste Avoidance and Minimisation**” – Waste management must *minimise* and *avoid creation* of *waste* at source, especially in the case of toxic and *hazardous wastes*. Government must encourage *waste recycling, separation at source* and *safe disposal* of unavoidable waste.

Three of the seven **Strategic Goals** identified in the policy have bearing on the Sludge Guidelines. Each of these goals is supported by a range of objectives:

- **Effective Institutional Framework and Legislation (Goal 1):** The aim of this strategic goal is to create an effective and harmonised institutional framework and an integrated legislative system. In addition it is also aimed at building institutional capacity in all spheres of government to ensure the effective implementation of environmental policy.
- **Sustainable Resource Use and Impact Management (Goal 2):** The aim of this goal is to integrate environmental impact management with all economic activities and development activities to achieve development with the emphasis on satisfying basic needs and ensuring environmental sustainability. Integrated pollution and waste management is a supporting objective of this goal.
- **Environmental Education and Empowerment (Goal 5):** The aim of this goal is to promote environmental literacy, education and empowerment. It also aims to achieve an increase in the awareness of and concern for environmental issues, and assist in developing the knowledge, skills and values and commitment necessary to achieve sustainable development.

4.4 The National Waste Management Strategy

The National Waste Management Strategy (NWMS), adopted by Government in October 1999, seeks to form the basis for the implementation of the goals and objectives of the White Paper on Environmental Management Policy for South Africa. The overarching objective of the strategy is to reduce the generation of waste and environmental impact of all forms of waste. This is aimed at ensuring socio-economic development of South Africa and the health of the people and the quality of its environmental resources, while at the same time preventing uncontrolled and uncoordinated waste management.

The NWMS has been developed along with short term priority action plans for the following key elements of the strategy:

- Integrated Waste Management Planning
- Waste Information Systems
- General Waste Collection
- Waste Minimisation and Recycling
- Waste Treatment and Disposal
- Capacity Building, Education, Awareness and Communication.

The NWMS has set out a plan for legislative and regulatory changes to pollution and waste management for South Africa. Each action plan is comprehensive. Some of the key issues of note relevant to wastewater sludge management include the following:

- The NWMS follows the internationally accepted waste hierarchical approach to integrated waste management *viz.*
 - Cleaner production through waste prevention and *minimisation*;
 - Recycling through *reuse*, recovery and *composting*; and
 - Treatment through physical, chemical and *destruction*; and *disposal* through *landfilling*.
- The NWMS defines the categorisation of waste into general or hazardous. The general waste stream includes paper, metals, glass, plastic, organic and inerts. Hazardous wastes are classified according to the nine classes and four hazard ratings set out in the Department of Water Affairs and Forestry (DWAF) Minimum Requirements Series. In terms of this categorisation domestic wastewater sludge is considered to be a *hazardous waste*.
- A blueprint timetable to implement various aspects of the strategy has also been formulated. For example, with regard to the reuse, treatment and disposal of wastes (includes sewage sludge) a variety of regulations were to be promulgated largely through Section 24 of the ECA and also through NEMA. Some of these have been implemented while others are underway (e.g. air

emission standards; standards on hazardous waste treatment, phasing out of co-disposal of hazardous waste with general waste, review of the DWAF minimum requirements).

The NWMS has identified many provisions and guidelines for integrated pollution and waste management – some of which have materialised and others that are still to be implemented. Many of intended goals and provisions of the NWMS have and will continue to create a multitude of obligations which wastewater sludge producers and users will be obliged to fulfil.

4.5 The White Paper on Integrated Pollution and Waste Management Policy for South Africa

The Integrated Pollution and Waste Management Policy (IP&WM) for South Africa (May 2000) is a subsidiary policy of the overarching environmental management policy as set out in the White Paper on Environmental Management Policy for South Africa, and further supported by the NEMA. The policy details government's approach on pollution and waste minimisation. The overarching goal of the IP&WM policy is to move away from a previously fragmented situation of uncoordinated waste management to a system of integrated waste management for South Africa.

The IP&WM policy applies to all government institutions, society at large, and to all activities that impact on pollution and waste management. One of the fundamental approaches of this policy is prevent pollution, minimise waste, and to control and remediate impacts. The policy also defines government's "*cradle to grave*" approach to the management of waste.

The IP&WM policy within the framework of the overarching goal includes seven strategic goals and supporting objectives in its drive to achieve and ensure integrated pollution and waste management. The goals are very much aligned to those outlined in the White Paper on Environmental Management Policy for South Africa. The IP&WM policy sets out various mechanisms that will ensure a shift towards pollution prevention. These include the traditional "command and control" approach through enforcing regulatory instruments such as standards, permits, licences and land use controls. It also introduces more innovative market based instruments such as tax incentives for cleaner production and lower waste streams, pollutant charges for discharges of pollutants to the environment and even considers voluntary agreements entered into between industry and authority.

Thus in the development and implementation of the Sludge Guidelines the principles, goals and objectives of the IP&WM policy should be considered in all dimensions of sludge management, to ensure integrated sustainable solutions and compliance to the regulatory framework.

4.6 National Environmental Management Act (Act No. 107 of 1998)

The National Environmental Management Act (Act No. 107 of 1998) (NEMA) serves as the guiding framework legislation for environmental management in South Africa. It can be described as South Africa's "parent" environmental statute and guides decision-making in all legislation concerned with the environment.

The NEMA reiterates the provisions of Section 24 of the Constitution and entrenches the internationally accepted principle of sustainable development. The NEMA includes in Chapter 2, a

set of fundamental guiding principles which governs the actions of organs of state that may significantly affect the environment. These principles include amongst others, the “polluter pays”, “cradle to grave”, “precaution” and “waste avoidance and minimisation”. It is a legal requirement that these principles must be taken into consideration in all decisions that may affect the environment. NEMA also emphasises the need for integration and harmonisation of policies, legislation and actions relating to the environment.

While the Sludge Guidelines should be guided by all the principles of Chapter 2 of NEMA, of specific relevance to the development of the management options are the following:

- Sustainable development requires that a risk averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions.
- Environmental management must be integrated, acknowledging that all elements of the environment are interlinked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option (BPEO). (NEMA defines best practicable environmental option as ‘the option that provides the most benefit or causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as short term).
- NEMA also imposes a duty on everyone who causes, has caused or may cause significant pollution or degradation of the environment to take reasonable measures to prevent it occurring, continuing or recurring. Where harm to the environment is authorised by law or cannot reasonably be avoided or stopped, a duty exists to minimise and rectify the harm. Although everyone has this duty, the Act singles out the owner of the land or premises, a person in control or a person who has the right to use land or premises on which the activity or process is or was performed or undertaken, or any other situation exists, which causes, has caused, or is likely to cause significant pollution or degradation of the environment, to take reasonable measures.

4.7 The National Water Act (Act No. 36 of 1998)

The National Water Act (Act No. 36 of 1998) (NWA) in 1998 manages the water resources in South Africa and has as its fundamental principles sustainability and equity which serve central guiding principles in the protection, use, development, conservation, control and management of water resources. The National Water Act identifies as its purpose, amongst others, the need for promoting efficient, sustainable and beneficial use of water in the public interest, facilitating social and economic development, and while concomitantly reducing and preventing pollution and degradation of water resources.

To give effect to the interrelated objectives of sustainability and equity an approach to managing water resources has been adopted that introduces measures to protect water resources by setting objectives for the desired conditions of resources, and simultaneously putting measures in place to control water use and limit impacts to acceptable levels (DWAF, 2004). The NWA also introduces several new important concepts, the following which are relevant to the sludge management in terms of the water use and the water use authorisation process (DWAF, 2000):

-
- The scientific indivisibility of water as part of the hydrological cycle is recognised and the *water resource* is defined to be all water found in various phases of the hydrological cycle, including the water found *underground*.
 - To achieve effective resource protection, two distinct but integrated sets of measures are introduced, namely *resource directed* and *source directed* measures. Resource directed measures set clear *objectives* for the desired level of *protection* for resource quality based *inter alia* on the resource classification system, user requirements, etc.; and source directed measures aim to control the *source of potential impacts* on the water resource (e.g. water use authorisations, best management practices – such as the sludge guidelines, etc.).
 - In terms of the NWA, use of water is no longer limited to consumptive uses such as abstraction of water, but also includes non-consumptive use, such as wastewater discharge and recreation. The NWA identifies *11 water uses* in terms of section 21 (**Table 1**), which are regulated by a range of regulatory instruments (licences, Schedule 1, is an existing lawful use, or is permissible under a general authorisation). With regard sludge management, *sections 21(e), (f) and 21(g)* of NWA are of specific relevance, as most sludge producers and/or users would require a water use authorisation in terms of these sections of the NWA.
 - The NWA furthermore recognises water as a valuable commodity (an “economic good”), since all authorised use of water will be charged for through a pricing strategy for water use charges in terms of Section 56 of the NWA. In this regard waste discharge charges, are being developed under section 56 (5) of the NWA for uses that may impact on the water resource, in the fulfilment of the principles of *pollution prevention* and the *polluter pays*. In terms of this waste discharge charge system that is currently under development, a section 21 (e), (f) or (g) water use is subject to the system of waste discharge charges.
 - The concept of the “Reserve” which comprises that quantity and quality of water required to satisfy basic human needs and to protect aquatic ecosystems, in order to ensure *ecologically sustainable development* and is introduced. This concept is based on sections 24 and 27 of the Constitution.
 - The NWA also defines, in Chapter 16 of the Act, acts and omissions which are considered *offences*, and are bound by associated penalties. Of specific relevance to the management of sludge the following offences should be noted:
 - Failing to comply with any condition attached to a permitted water use under the NWA;
 - Failing or refusing to give data or information, or give false or misleading data or information when required to do so in terms of the NWA;
 - Unlawfully and intentionally or negligently committing any act or omission which pollutes or is likely to pollute a water resource; and
 - Unlawfully and intentionally or negligently committing any act or omission which detrimentally affects or is likely to affect a water resource.

Table 1: Water uses as defined in Section 21 of the NWA

Section	Water Uses
21 (a)	taking water from a water resource
21 (b)	storing water
21 (c)	impeding or diverting the flow of water in a watercourse
21 (d)	engaging in a streamflow reduction activity (currently only commercial afforestation)
21 (e)	Engaging in a controlled activity – activities which impact detrimentally on a water resource (identified in section 37 (1) or declared as such under section 38 (1) <i>viz.</i> : <ul style="list-style-type: none"> • Irrigation of any land with waste or water containing waste which is generated through an industrial activity or a waterwork; • An activity aimed at the modification of atmospheric pollution; • A power generation activity which alters the flow regime of a water resource; and • Intentional recharging of an aquifer with any waste or water containing waste.
21 (f)	discharging waste or water containing waste into a water resource through a pipe canal, sewer, sea outfall or other conduit
21 (g)	disposing of waste in a manner which may detrimentally impact on a water resource
21 (h)	disposing in any manner water which contains waste from, or which has been heated in, any industrial or power generation process
21 (i)	altering the bed, banks, course or characteristics of a watercourse
21 (j)	removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people
21 (k)	using water for recreational purposes

4.7.1 Regulation of water use

In terms of section 4 of the NWA, a person is entitled to a water use if it is a Schedule 1 water use, a continuation of an existing lawful water use, or authorised in terms of a general authorisation or licence. These regulatory instruments involve different levels of regulatory control, and the specific circumstances determine the type of water use authorisation that is applicable (**Figure 3**). A water use is not permitted unless it is authorised by one of these authorisations. The NWA's provisions in respect of Schedule 1 use and general authorisations are primarily intended to reduce the administrative load of authorising every use in the country.

Section 41 of the NWA also specifies that in application for a licence a responsible authority (e.g. DWAF Regional Office) may require an impact assessment that must comply with the EIA regulations promulgated under section 26 of the Environment Conservation Act (Act No. 73 of 1989). This is of specific relevance to Volume 3 of the Sludge Guidelines, as the selected disposal option may require such an assessment if it is required to be authorised in terms of section 21 (g) of the NWA.

Types of Water use Authorisations and situations that determine the required type

Schedule 1 uses: Includes water uses that involve small quantities of water, mainly for domestic use (including non-commercial livestock and stock watering, and water for use in emergency situations and certain recreational use) and where the responsibility for waste and wastewater management lies with another person authorised to do so. Water use is also subject to any other relevant laws, ordinances, bylaws and regulations. There is no formal requirement for users to register a Schedule 1 use.

Existing lawful use: A transitional measure that the Act permits for those water uses that were lawfully exercised under any law preceding the promulgation of the NWA that had taken place between 1 October 1996 and 31 September 1998.

General Authorisations: Water use is permissible without a licence provided that it is compliant to the conditions of the General Authorisation. General authorisations allow a limited, but conditional water use without a licence. Limits are placed on water use under the general authorisation depending on the nature of the use and the capacity of the resource to accommodate the use without significant degradation.

Water Use Licence: Water uses that exceed Schedule 1 use, are not covered by or exceed the limits imposed under a general authorisation and is not regarded or declared as an existing lawful use, require an authorisation by a water use licence.

Water Use Authorisations through any **other statutory authorisation** when DWAF has dispensed with the requirement in terms of Section 22 (3) of the NWA.

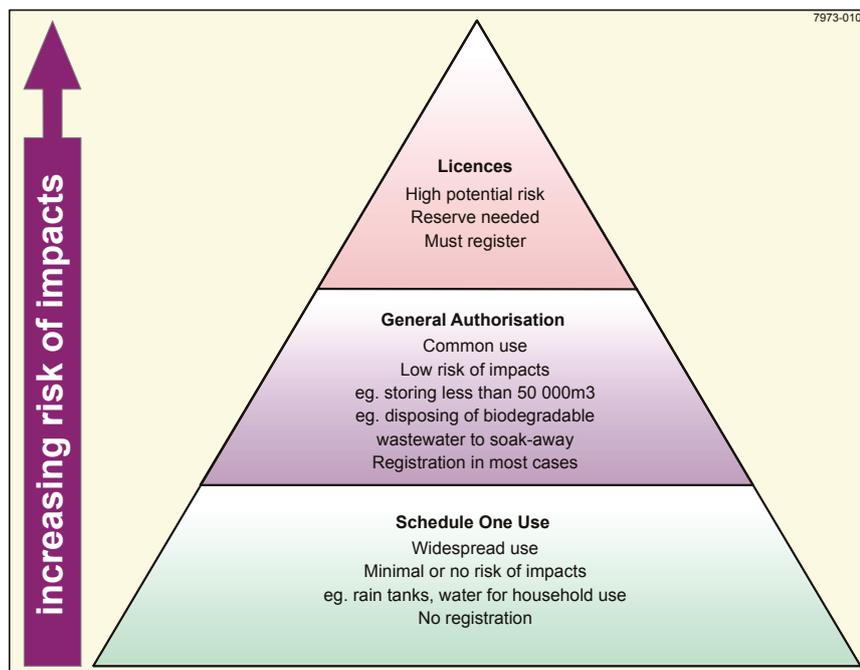


Figure 3: The regulatory control governing water use based on potential degree of impact on the water resource (DWAF, 2003)

According to DWAF, the process to authorise use of water under section 21 of the NWA consists of three integrated components (DWAF, 2000)(**Figure 4**), namely:

- A procedure to generate sufficient information regarding the *assessment* of the potential impacts in terms of the quantity and quality that would facilitate the *estimation* of potential impacts of the use against the resource (key to this component is the technical assessment);
- A procedure for the evaluation of the application in order to reach a *decision* regarding whether to authorise the water use or not, and
- A procedure for the *administration* of the application for a licence to use water.

In terms of the above the sludge producer and/or user need to be clear as to what their responsibilities and the requirements are in terms of a licence application should it be required. The water use authorisation process is outlined in **Figure 5**.

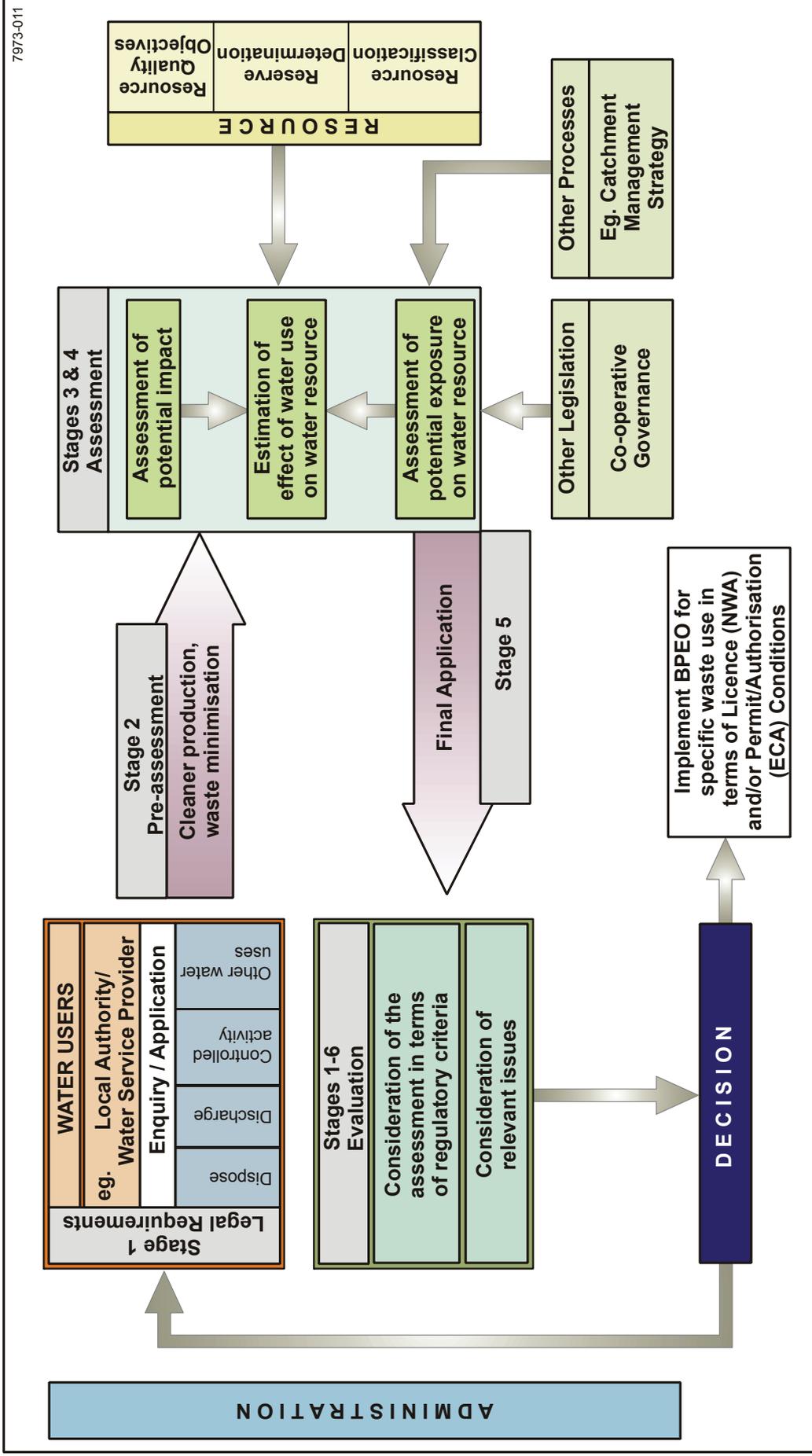


Figure 4: Conceptual Assessment and Decision Making Framework for Water Use Authorisation (adapted, DWAF, 2000)

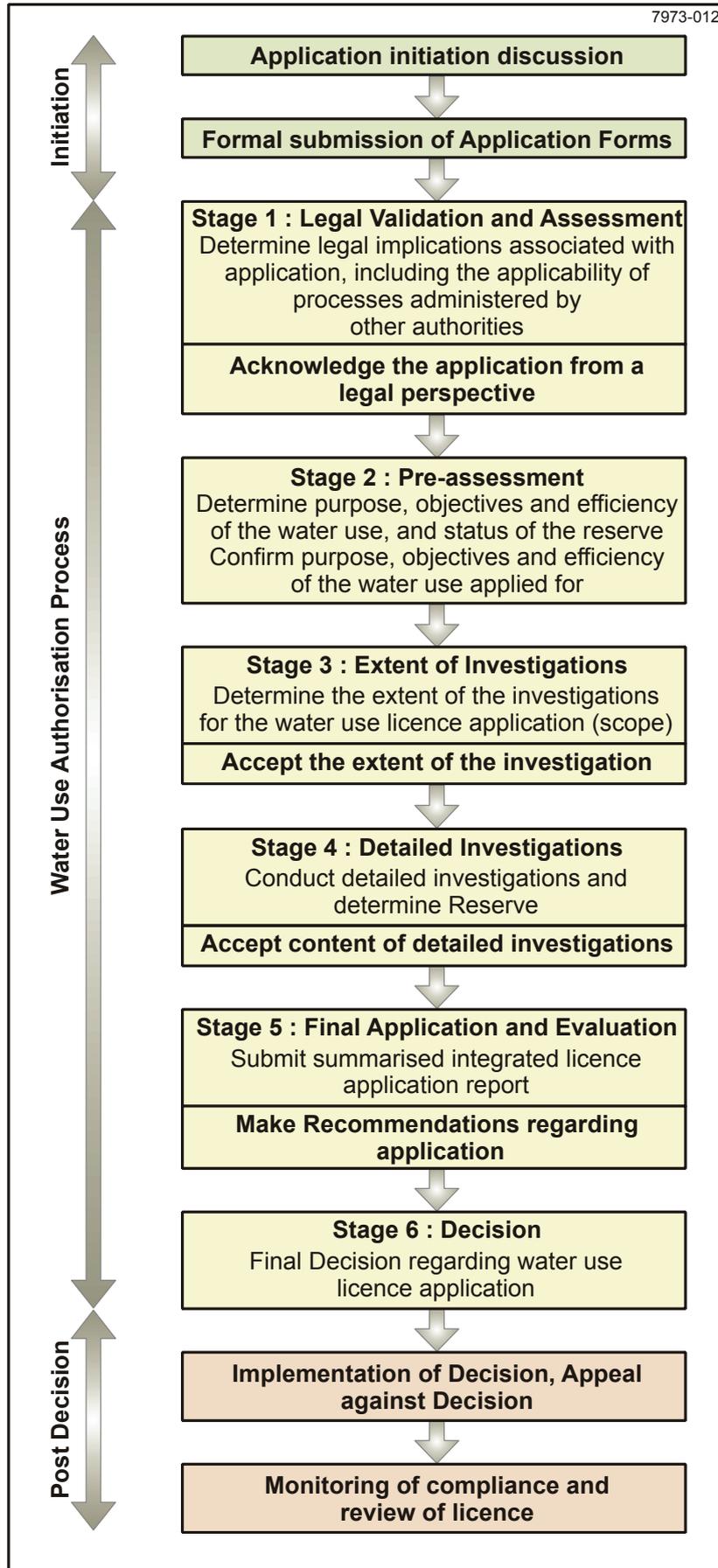


Figure 5: Linear progression of stages in water use authorisation process (DWAf, 2000)

Definitions contained in the NWA that have a bearing on the regulatory control governing the management of sludge:

Waste: “Any *solid material* or material that is suspended, dissolved or transported in water (including sediment) and which is spilled or *deposited on land* or into a water resource in such volume, composition or manner as to cause or to be *reasonably likely to cause*, the water resource to be *polluted*”.

Pollution: “the direct or indirect *alteration* of the physical, chemical or biological *properties of water* resources so as to make it –

- *Less fit* for any beneficial purpose for which it may reasonably be expected to be used; or
- *Harmful or potential harmful* –
 - To the welfare, health or safety of human beings;
 - To any aquatic or non-aquatic organisms;
 - To the resource quality; or
 - To property.

Water Resource: “includes a watercourse, *surface water, estuary or aquifer*”.

Regulation/Notices in terms of the NWA relevant to SA Sludge Guidelines:

- Regulations requiring that a water use be registered (Government Notice Regulation 1352, Government Gazette No. 20606 of 12 November 1999)
- Establishment of a Pricing Strategy for Water Use Charges in terms of section 56 (1) of the National Water Act (Government Notice Regulation 1353, Government Gazette No. 20615 of 12 November 1999)
- Revision of General Authorisations in terms of Section 39 of the National Water Act, 1998 (Act No. 36 of 1998) (Government Notice Regulation 399, Government Gazette No. 26187 of 26 March 2004)
- General Notice – Preface to the proposed Pricing Strategy for Raw Water (Notice 1045, Government Gazette No. 27732 of 1 July 2005)

4.7.2 Policies / Strategies in terms of the NWA of relevance to the SA Sludge Guidelines

National Water Resource Strategy

The National Water Resource Strategy (NWRS) established in terms of section 5(3) of the NWA, describes how water resources of South Africa will be used, protected, developed, managed, conserved and controlled. The central objective is to ensure that water is used to support equitable and social and economic development. The NWRS serves to:

- Provide a national framework for managing water resources;
- Provide a framework for the preparation of catchment management strategies;
- Provide information; and
- Identify development opportunities and constraints.

The NWRS includes nine strategies for water resource management, of which the strategy on Water Use forms part of (part 2, chapter 3). The Water Use strategy includes the management strategy for water quality. In terms of waste management, the impact on water quality is a key consideration, and thus the aspects outlined in the NWRS is thus of relevance in terms of sludge management as well.

Issues relating to water quality that are of relevance to the management of waste:

- Pollution minimisation and prevention approach will continue to be used for hazardous substances.
- For non-hazardous substances the risk based resource water quality objectives approach will apply.
- Best management practices and introduction of cleaner technologies, recycling or re-use of waste, waste recovery, detoxification, neutralisation and treatment may be applied to the prevention and minimisation of pollution, as part of source directed controls.
- The disposal of waste or the discharge of waste will be subject to the applicable minimum requirement or standard.
- The Minimum Requirements for Waste Disposal will continue to apply until new standards are developed and implemented.
- In situations where the applicable minimum requirements or standards are insufficient to ensure suitable water quality, standards stricter than the minimum requirements or standards will be prescribed.
- Deviation from the minimum requirements or standards or from specific source directed controls will receive consideration if the enforcement of these could have significant notable social or economic impairment which outweighs the protection objectives.
- Remediation strategies will in future address the improvement of impaired, degraded and contaminated land and water resources. Clean-up levels and targets, remediation approaches and measures and the prioritisation of the remediation focus and effort will be dictated primarily by appropriate risk based approaches. Until the remediation strategy has been developed by DWAF, current regulatory instruments will apply where necessary.

The Source Management Strategy

In 2003 DWAF developed the First Edition Source Management Strategy. This strategy is aimed at providing the direction to the addressing the many issues related to the management of water quality in South Africa. This strategy contains the first approach to manage the sources of pollution in such way to limit their impact on the resource and to achieve optimal water resource management (DWAF, 2003). The strategic objectives of the Strategy are as follows:

- to reduce/limit the deterioration of the water quality of the country's water resources,
- to improve, through an integrated and cost-effective manner, the water quality of the country's water resources, and
- to affect water use authorisation coverage of priority sources throughout the country in the shortest possible time.

In terms of the Strategy, DWAF identified the following operational objectives:

- Ensure that all water users adopt and apply Best Practice as a minimum requirement in the management of sources of pollution;
- Implement approaches to source management that are appropriate to the nature and severity of the threat to the water resource in such a manner as to reduce risk to an acceptable level;
- Implement a comprehensive water use authorisation process, including a management information system for data capture, data management and licence tracking;
- Provide for effective enforcement of the requirements of the NWA through a hierarchical approach and to define the operational procedures for such enforcement, and
- Define the relationship with the various government department concerned with source management in order to facilitate efficient co-governance.

The strategy also includes practical principles relevant to source management. These are of relevance to the management of sludge.

- **Best practice:** Best practice will be developed by a regulator and must be implemented by the regulated community as a minimum for responsible source management and to protect the water resource from unnecessary threat.
- **Consistent Performance:** All water users/impactors within the regulated community are required to ensure and strive for the same water quality goals at the same risks levels.
- **Flexibility in approach:** The regulator, in undertaking the task of implementing the Source Management Strategy, has the flexibility to consider the application of different alternatives and

approaches, provided each of these is capable of meeting the desired objectives and requirements of the strategy.

- **Precautionary approach:** The regulatory system adopts a risk-averse and cautious approach that recognises that the water resource is vulnerable to threats from pollution sources and that there are certain limitations on the current knowledge base. The precautionary approach is followed in the water use authorisation and enforcement process unless the risks involved can be demonstrated to be within acceptable levels.
- **Continuous improvement (Systematic movement of the “goal posts”):** The strategy focuses on encouraging continual improvement in the actions and practices of both government and the regulated community.
- **Thinking strategically whilst implementing locally:** The Department focuses on placing responsibility for achieving source management at the lowest (most local) level possible while maintaining effective performance.

The Waste Discharge Charge System

The Waste Discharge Charge System (WDCS) is being developed by DWAF to promote waste reduction and water conservation. It forms part of the Pricing Strategy, which is being established in terms of chapter 5 of the NWA, 1998.

The development of the WDCS has followed three phases:

- Phase 1: Formulation of a Framework Document.
- Phase 2: Development of a draft WDCS strategy.
- Phase 3: Establishment of the final strategy and implementable system.

Phase 2 concluded with the publication of a document entitled *Towards a Strategy for a Waste Discharge Charge System*, which described the principles on which the proposed system would be based and the tiers of charges. During the Phase 3, the strategy is being developed into a workable and implementable system that can be operated at a practical level, while ensuring that there will be sufficient resources, capacity and supporting systems to put it into practice.

The WDCS consists of two distinct water use charges, the incentive charge and the mitigation charge, either or both of which may be applied in a specific catchment. The WDCS is based on the polluter-pays principle and at this stage is applicable to sections 21(f), (g) and (e) of the NWA. The WDCS is also applicable to marine outfalls. The calculation of charges will be based on the registered waste discharge load of salinity and phosphorus as representing the two most wide spread water quality problems in South Africa.

As these are sections that also govern some of the sludge management options, the WDCS will on its implementation impact on the sludge producers and users, as impactors, in terms of charges that may be implemented.

The WDCS has as its aims the following:

- Promote the sustainable development and efficient use of water resources. Promote the internationalisation of environmental costs by impactors.
- Recover some of the costs of managing water quality.
- Create financial incentives for dischargers to reduce waste and use of water resources in a more optimal way.

The WDCS also includes the following supporting and additional objectives:

- To encourage efficient resource utilisation (incentive objective).
- To recover costs of activities aimed at pollution abatement and damage caused by pollution (financial objective).
- To discourage excessive pollution (deterrent objective).
- To promote sustainable water use (social objective).
- Abatement – pollution can be reduced through charges in the way water is used in various processes, the materials used in the process, the process itself, of treatment before discharge.
- Recycling – industries should also be encouraged to recycle water containing waste through industrial processes.
- Re-use of waste – industries should be encouraged to extract waste from water, in order that the water can be used for other purposes.
- Water conservation – the recycling of water will have the effect of reducing the need for abstraction.
- Return of water to source – users should be encouraged to return as much of the abstracted water as possible to the source from which it came, which could be either surface water or ground water in the same catchment.

The current Pricing of Strategy of November 1999 is being revised. The updates to the strategy which included the introduction of the WDCS were published on 1 July 2005 in Government Gazette No. 27732, General Notice 1045 of 2005 for public comment. The closing date for comments was 30 September 2005. The updated Pricing Strategy is still to be published.

Operational Policy for the Disposal of Land-derived water containing waste to the Marine Environment of South Africa

In 2004, the Operational Policy for the Disposal of Land-derived Water Containing Waste to the Marine Environment of South Africa was published by DWAF. This policy supports all the relevant international and national principles, policies and legislation, and has been developed by DWAF to meet its legal obligation in terms of the management and control of land derived wastewater under section 21 of the NWA. Section 21 of the NWA specifies land derived waste discharges and water containing waste discharges as water uses for which a water use authorisation must be obtained from DWAF. The operational policy thus supports sections 21(f) and 21(h) of the NWA, in providing the guidelines to the discharge to the marine environment.

Section 21(f) of the NWA governs discharges to estuaries. Although section 21(f) is defined as discharging of waste or water containing waste into a **water resource** through a pipe canal, sewer, **sea outfall** or other conduit, this creates legal problems since the “sea” (surf zone and offshore marine environment) is not defined as a water resource in terms of the NWA. DWAF is however in the process of amending the NWA to rectify this inconsistency. Discharge of land derived wastewater from industrial concerns (including stormwater runoff from industrial premises) to the marine environment is currently governed under section 21(h) of the NWA (DWAF, 2004).

In terms of the policy, an application to dispose of wastewater to the environment must demonstrate that all reasonable efforts have been made, firstly to prevent waste, and secondly to minimise it. Only thereafter will minimum wastewater standards or standards based on the Resource Water Quality Objectives, whichever is strictest be considered. Alternative options of managing wastewater must therefore be investigated. Disposal to the marine environment is not the default option in coastal areas.

It is important to clarify the following terms: waste, wastewater, water containing waste, preliminary treatment and primary treatment, in terms of the policy.

Waste: *Any solid material or material that is suspended, dissolved or transported in water (including sediment) in such volumes, composition or manner that if spilled or deposited in the natural environment, will cause, or is reasonably likely to cause, a negative impact.*

Water containing waste: *Water containing any solid material or material that is suspended, dissolved or transported in water (including sediment) in such volumes, composition or manner that if spilled or deposited in the natural environment, will cause, or is reasonably likely to cause, a negative impact.*

Wastewater: *defined as water containing waste*

Preliminary treatment: *Involves the removal from wastewater of ‘litter’ and solids by coarse and/or fine screens as well as the removal of ‘grit’ (particles sizes > 0.2 mm and with a specific gravity >*

2.6) by settling or separation. The effect on the suspended solid concentrations and the biological oxygen demand in sewage is insignificant.

Primary treatment: *Involves the removal from wastewater of settleable organic and inorganic solids by sedimentation tanks. The solids, which settle as sludge, have to be disposed of or treated. Fats (oil and grease) are also skimmed from the top of the settling tank. During primary treatment > 40% of suspended solids and 20% biological oxygen demand are removed.*

In terms of the operational policy, land-derived wastewater discharges to the marine environment include point source discharges and non-point source (diffuse) discharges. Both types of discharges are assessed for any wastewater discharge to the marine environment. Point source discharges of land-derived wastewater can broadly be divided into municipal wastewater and industrial wastewater discharges. Industrial wastewater includes discharging seawater that is used for industrial purposes on land, as well as contaminated stormwater runoff from an industrial premises. Municipal wastewater includes domestic wastewater or the mixture of domestic wastewater with industrial wastewater and/or urban stormwater runoff.

Land based treatment options to manage and control wastewater (*i.e.* treatment at source) are not specified in the policy, however treatment requirements for marine disposal of municipal wastewater discharges are specified. These requirements have a direct relevance to the disposal of sludge to the marine environment, as a proposed management option (DWAF, 2004).

In this regard the requirements related to municipal wastewater discharges are listed below (DWAF, 2004):

- South Africa is a water scarce country. Marine disposal of land-derived municipal wastewater (particularly fresh water) will therefore only be considered where it has been evaluated in terms of the **Water Services Development Plan** for a particular municipal area (required under the water Service Act 108 of 1997, which, in turn, forms part of the Integrated Development Plans required in terms of the Local Government Transition Act 209 of 1993). This requirement supports the concept of a ‘Master Plan for water supply/demand and wastewater treatment’.
- Municipal wastewater treatment works receiving industrial effluent (also referred to as trade effluent) will be subject to the Ground Rules for Industrial Wastewater. Service providers or Local Authorities operating such treatment works will be required to prepare industrial wastewater management plans (as part of the ‘Master Plan’). It is also the responsibility of the Service provider or Local Authority to investigate possible synergistic/and or cumulative effects which may occur as a result of the interaction between different (industrial) wastewater inputs.
- In support of (i) DWAF’s strategic view of ‘enforcing source controls to get as close as possible to a situation in which there is no discharge of pollutants into water resources’, ii) the hierarchy of decision-making and iii) international practice, **primary treatment** will be required as a minimum for disposal of municipal wastewater to the offshore marine environment. This minimum requirement will apply to all marine outfalls to be authorised after 31 May 2004. For marine outfalls that were already authorised by 31 May 2004, **preliminary treatment** will be

accepted as a minimum requirement, provided that the receiving environment is suitable for this marine disposal and that the environmental (or resource) quality objectives are met. However, future expansions or upgrade to such existing marine outfalls will require **primary treatment** of the wastewater prior to discharge unless it can be proven that the key socio-economic factors require otherwise. Nevertheless, environmental (or resource) quality objectives must still be met. As a minimum **secondary treatment with disinfection** will be required for disposal to the surf zone and estuaries. This applies to wastewater discharges to the surf zone and estuaries that existed as on 31 May 2004 and those to be authorised thereafter.

NOTE: the above set **minimum requirements**. Where such levels of treatment still do not meet the requirement of the receiving environment, as defined in terms of the **environmental** (or resource) **quality objectives**, higher levels of treatment will be required.

- The disposal of **sludge** arising from wastewater treatment facilities (e.g. primary, secondary and tertiary) must be in accordance with the **Minimum Requirements** for Waste Disposal by Landfill (DWAF, 1998) and the ‘**Sludge Guidelines**’ (1998 as amended in 2002) of DWAF or any future updates of such policies or guidelines (in future this would be the Sludge Guideline Series).

4.8 Water Services Act (Act No. 108 of 1997)

The Water Service Act (Act No 108 of 1997) (WSA) is founded on the basis that everyone has the right of access to basic water supply and sanitation, and provides a framework for this specific purpose, in an efficient, equitable and sustainable manner. The provision of basic water supply and sanitation should be undertaken in a manner consistent with the broader goals of water resource management.

The Act also requires in terms of Section 12, the preparation and adoption of Water Services Development Plans (WSDP) by water services authorities (municipalities), as part of Integrated Development Plans (IDPs) in terms of the Local Government Transition Act (Act 209 of 1993). WSDP are strategic and business plans for water services within a specific area of jurisdiction. Water services incorporate sanitation services which includes the treatment and disposal of domestic sewage and wastewater. This is thus important in terms of the SA Sludge Guidelines as the management option selected by a municipality (sludge producer) for the handling of its sludge needs to be captured in the WSDP in terms of Section 13 of the WSA. This relates both to existing practices as well as future practices.

Section 12: Water Services Development Plan

1. Every **water services authority** must, within one year after the commencement of this Act-
 - (a) as part of the process of preparing any integrated development plan in terms of the Local Government Transition Act, 1993 (Act No. 209 of 1993); or
 - (b) separately, if no process contemplated in paragraph (a) has been initiated, prepare-
 - (i) **a draft water services development plan for its area of jurisdiction;** and
 - (ii) a summary of that plan.
2. The Minister may extend the one-year period in respect authority in consultation with the Minister for Provincial Affairs and Constitutional Development and the relevant Province.

Section 13: Content of draft Water Services Development Plan

Every **draft water services development plan** must contain details-

- (a) of the physical attributes of the area to which it applies;
- (b) of the size and distribution of the population within the area;
- (c) of a time frame for the plan, including the implementation programme for the following five years;
- (d) **of existing water services**;
- (e) of existing industrial water use within the area of jurisdiction of the relevant water services authority;
- (f) of existing industrial effluent disposed of within the area of jurisdiction of the relevant water services authority;
- (g) of the number and location of persons within the area who are not being provided with a basic water supply and basic authority;
- (h) **regarding the future provision of water services** and water for industrial use and the future disposal of industrial effluent, including-
 - (i) the water services providers which provide those water services;
 - (ii) the contractors and proposed contracts with those water service providers;
 - (iii) the proposed infrastructure necessary;
 - (iv) the water sources to be used and the quantity of water to be obtained from and discharged into each source;
 - (v) the estimated capital and operating costs of those water service and the financial arrangements for funding those water services, including the tariff structures;
 - (vi) any water services institution that will assist the water services authority;
 - (vii) the operation, maintenance, repair and replacement of existing and future infrastructure;
- (i) of the number and location of persons to whom water services cannot be provided within the next five years; setting out-
 - (i) the reasons therefore; and
 - (ii) the time frame within which it may reasonably be expected that a basic sanitation will be provided to those persons; and
- (j) of existing and proposed water conservation, recycling and environment protection measures.

4.9 Environment Conservation Act (Act No. 73 of 1989)

Although NEMA has repealed many of the provisions of the Environment Conservation Act (Act No. 73 of 1989) (ECA), the Environmental Impact Assessment (EIA) regulations in terms of ECA still remain in force until they are replaced with new regulations under the NEMA (currently in draft format – Government Regulation Number 764 of 25 June 2004). The regulations, (Government Regulation Number 1182 of 5 September 1997), are made in terms of section 26 of ECA, and relate to EIAs provided for in sections 21 and 22 of the ECA, and the provisions dealing with waste management under section 20. Policies published in terms of the ECA also promote the principle of sustainable development and the polluter pays.

4.9.1 Environmental Impact Assessment Regulations

The regulations promulgated in terms of Section 26 of the ECA, aim to control activities, as listed in Sections 21 and 22 that have a detrimental effect on the environment.

The objectives of these sections are to:

- Ensure that the environmental effects of activities are taken into consideration before decisions in this regard are taken;
- Promote sustainable development, thereby supporting Section 24 of the Constitution;
- Ensure activities undertaken do not have a substantial detrimental effect on the environment, and to prohibit those activities that will;
- Ensure public participation in the undertaking of activities, and
- Regulate the process and reports required to enable the Minister or the designated competent authority to make informed decisions on activities.

The regulations describe the list of activities that which are considered to pose a potential detrimental effect on the environment in terms of section 21 of the ECA, and stipulate the requirements of the EIA required in terms of Section 22 of the ECA, for these identified activities. The EIA process must be conducted and an EIA report must be submitted in order to obtain an authorisation for a particular activity. In terms of sludge management and its beneficial use, the activities listed in Schedule 1 of these regulations that are of relevance are contained in **Table 2** below. These activities must undertake an EIA before an authorisation is issued, which will take the form of a record of decision (ROD). The authorisation process that must be followed is depicted in **Figure 6**. This process maybe required for any of the sludge management options selected. The delegated authority responsible for the issuing of these authorisations is the Provincial Departments of Environmental Affairs and Tourism.

However the depending on the specific situation the detail and extent of the EIA will vary. This can vary from a full EIA to a scoping level assessment. If the situation permits it, for example the construction and upgrading of sewage treatment plant infrastructure, an exemption to the EIA can be applied for.

Table 2: Activities identified in terms of Section 21 of the ECA that are of relevance to the management of wastewater sludge

SCHEDULE 1
1. The construction or upgrading of: (c) transportation routes and structures, and manufacturing, storage and handling or processing facilities for any substance which is dangerous or hazardous and is controlled by national legislation. (n) sewage treatment plants and associated infrastructure.
2. The change of land use from: (c) agricultural or undetermined use to any other land use.
8. The disposal of waste in terms of section 20 of the ECA, 1989.
9. Scheduled processes listed in the Second Schedule to the Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965) (This schedule is still applicable in terms of section 62 of the National Environmental Management: Air Quality Act, Act 39 of 2004).

In terms of further regulations, Section 3 of the Environmental Conservation Amendment Act, (Act No. 50 of 2003) (ECAA) could in future have an impact on the SA Sludge Guidelines, specifically Volumes 4 and 5. In terms of Section 3, a further section, section 24B has now been inserted into the ECA. Section 24B states: “**Regulations regarding products** – *The Minister may make regulations with regard to the prohibition, control, sale, distribution, import or export of products that may have a substantial detrimental effect on the environment or on human health*”.

It must be noted that an authorisation granted by Minister of Environmental Affairs and Tourism or his delegated authority, does not necessarily exempt that activity from water use authorisation issued by DWAF in terms of the NWA. However since the authorisations required by both authorities, require similar investigations and processes, they are usually conducted concurrently in the spirit of co-operative governance and harmonised decision-making (Section 22 (4) of the NWA, 1998).

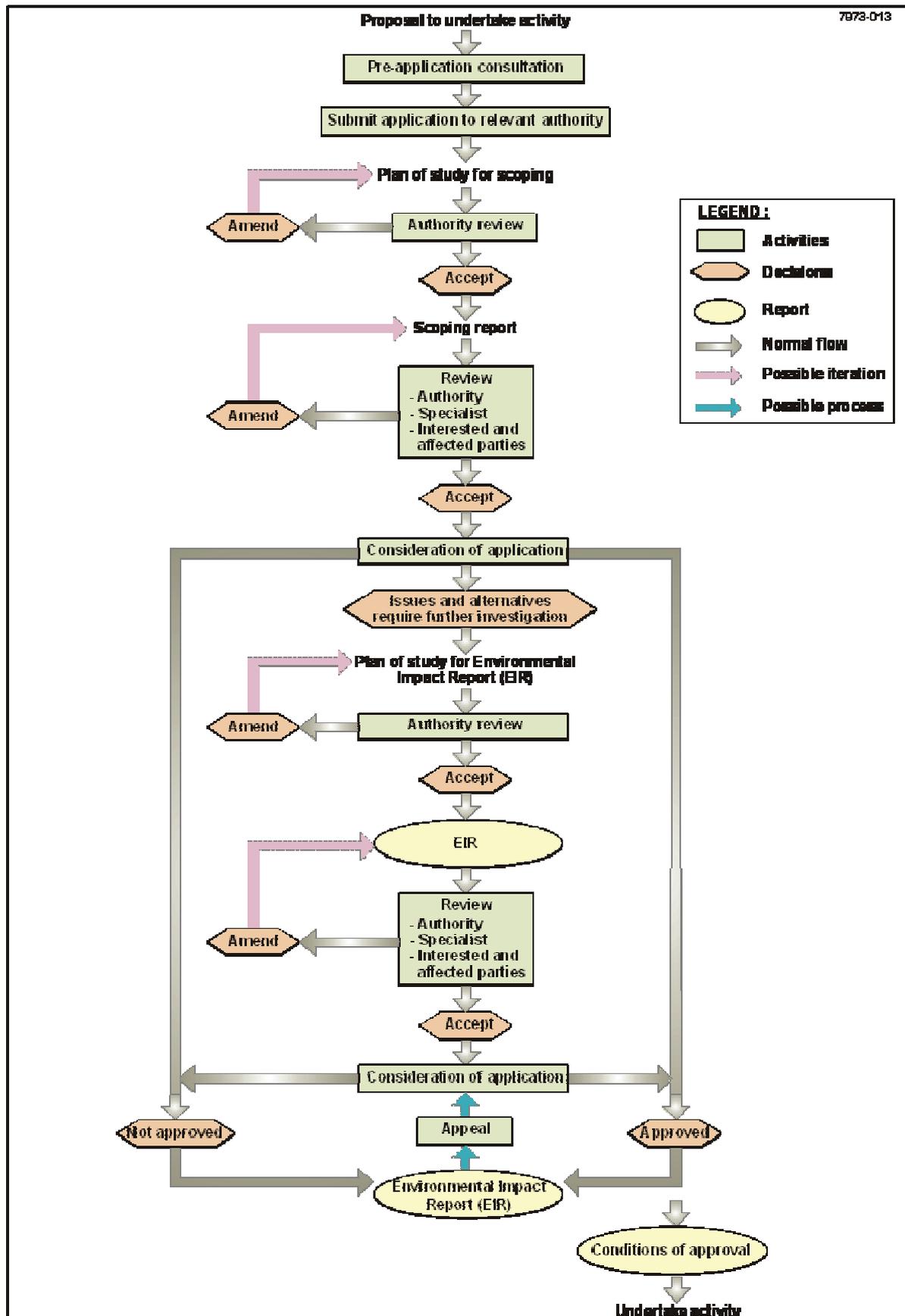


Figure 6: EIA Process (DEAT, 1998)

4.9.2 Waste Management

In terms of section 20(1) of the ECA, no person may, establish, provide or operate a disposal site without a permit issued by the Minister of Water Affairs and Forestry. This was considered the appropriate regulatory authority as the longer term impact resulting from the disposal of waste on land is on the water environment, particularly the groundwater environment, which could pose as a severe threat on groundwater quality, with irreversible impacts. However, since 1989, there have been significant policy changes, legislative and technological developments in the area of environmental management as a whole and waste management in particular. These developments have included amongst others:

- The adoption of a Integrated Waste Management Approach and Waste Management Hierarchy; and
- Disposal technologies now pose threats to all environmental media, not just water.

In this regard the **DEAT**, together with the provincial environmental departments, are seen as the most appropriate integrated waste management authority to assume responsibility for the entire pollution and waste management cycle. This will provide the required waste management co-ordination, coherence and consistency. To this end, the authority for the administration of waste disposal sites has now been transferred to the Minister of Environmental Affairs and Tourism in terms of Section 1 of the Environmental Conservation Amendment Act, (Act No. 50 of 2003). Section 1 of the Environment Conservation Amendment Act however was commenced through a Presidential Proclamation on 3 January 2006. On this date, the Section 20 ECA disposal site permit function and competency was transferred from DWAF to DEAT.

Assignment to Provincial Departments of Environmental Affairs and Tourism

The intent is to selectively assign the DEAT national permit function to the Provincial Departments of Environmental Affairs and Tourism as from 1 April 2006. The processing of new disposal site applications by the Provincial Departments of Environmental Affairs and Tourism will be consistent with the EIA process already being undertaken.

In addition to the above, in terms of Proclamation R43 published in *Government Gazette* 17354 of 8 August 1996, the powers in respect of a number of sections under the ECA were assigned to the Provinces. Of relevance to the handover of the ECA Section 20 function, the following waste management related powers have been assigned to the provinces:

- The submission, subject to the provisions of Section 3(3) of the Statistics Act 66 of 1976, of statistics on the quantity and types of waste produced (Section 24(b))*;

* Notwithstanding this assignment to the provinces, the Minister of Environmental Affairs and Tourism may exercise any power under the said sections concurrently with the competent authority.

-
- The classification of different types of waste and the handling, storage, transport and disposal of such waste (Section 24(c) *);
 - The location, planning and design of disposal sites, installations and equipment used for waste disposal (Section 24(f));
 - Control over the management of sites, installations and equipment used for waste disposal (Section 24(g));
 - The administrative arrangements for the effective disposal of waste (Section 24(h));
 - The dissemination of information to the public on effective waste disposal (Section 24(i)); and
 - Any other matter which the Minister or Member of Executive Council (MEC) may deem necessary or expedient in connection with the effective disposal of waste for the protection of the environment (Section 24(k)).

Section 20 Requirements

In terms of section 20 (6) of the ECA, “No person shall discard waste or dispose of waste in any other manner, except (a) at a disposal site for which a permit has been issued in terms of section 20 (1); or (b) in a manner or by a means of a facility or method and subject to such conditions as the Minister may prescribe. This legal requirement has specific bearing on the sludge management especially in terms of dedicated land disposal, as well as to marine disposal.

In the context of the above it is therefore important to understand the legal definitions of **disposal site** and **waste** in terms of the ECA, 1989.

Disposal site: “means a site used for the accumulation of waste with the purpose of disposing or treatment of such waste”. This implies that a person treating waste for re-use or any other purpose may only do so after approval has been obtained from the Minister of Environmental Affairs and Tourism. It is also important to note that in obtaining a permit in terms of Section 20 (1) of the ECA, 1989, the EIA regulations promulgated for implementation of Sections 21, 22 and 26, must be complied with.

Waste: “means any matter, whether gaseous, liquid or solid or by any combination thereof, which is from time to time designated by the Minister of Environmental Affairs and Tourism by Notice in the Gazette, as an undesirable or superfluous by-product, emission, residue or remainder of any process or activity”. In this regard, Government Notice 1986 in Government Gazette 12703 of 24 August

* Notwithstanding this assignment to the provinces, the Minister of Environmental Affairs and Tourism may exercise any power under the said sections concurrently with the competent authority.

1990 describes what is meant by ‘waste’ in the context of the ECA definition. In relation to sludge, it is considered a waste in terms of this notice (see below), and thus its management has to satisfy the requirements of Section 20 of the ECA, 1989.

However a number of waste products, including potentially hazardous wastes escaped this regulation due to this definition, and this has resulted in a potential threat to the environment. This definition in terms of the ECA, 1989, also does not apply in all instances and situations for waste disposal on land in a manner that may detrimentally impact on a water resource. In these situations, these activities may be regulated in terms of the NWA, 1998, through a licence, general authorisation or a directive in terms of section 19, as they identified as a waste in terms of the NWA (see section 4.7.1).

This scenario may hold true for many sludge disposal sites for example, (1) instances where the sludge disposal sites ceased to operate prior to 1990, and are still causing deterioration of water resource quality; (2) instances where the activity cannot be regulated by the ECA, such as the irrigation of land with waste; and (3) instances where the water resource is under threat, and holder of permits under the ECA, and also required to apply for water use licences.

**NOTICE 1986
24 August 1990**

**IDENTIFICATION OF MATTER AS WASTE –
ENVIRONMENT CONSERVATION ACT, 1989**

For the purposes of the definition of ‘waste’ in section 1 of the Environment Conservation Act, 1989 (Act No 73 of 1989), the Minister of Environment Affairs identify as an undesirable or superfluous by-product, emission, residue or remainder of any process or activity, any matter, gaseous, liquid or solid or any combination thereof, originating from any residential, commercial or industrial area, which -

- a) is discarded by any person; or
- b) **is accumulated and stored by any person with the purpose of eventually discarding it with or without prior treatment connected with the discarding thereof;** or
- c) building rubble used for filling or levelling purposes; or
- d) **is stored by any person with the purpose of recycling, re-using or extracting a usable product from such matter,** excluding -
 - (i) water used for industrial purposes or any effluent produced by or resulting from such use which is discharged in compliance with the provisions of section 21 (1) of the Water Act, 1956 (Act No 54 of 1956) or on the authority of an exemption granted under section 21 (4) of the said Act;
 - (ii) any matter discharged into a septic tank or french drain sewerage system and any water or effluent contemplated by section 21 (2) of the Water Act, 1956;
 - (iii) any radio-active substance discarded in compliance with the provisions of the Nuclear Energy Act, 1982 (Act No. 92 of 1982);
 - (iv) any minerals, tailings, waste-rock or slimes produced by or resulting from activities at a mine or works as defined in section 1 of the Mines and Works Act, 1956 (Act No. 27 of 1956); and
 - (v) ash produced by or resulting from activities at an undertaking for the generation of electricity under the provisions of the Electricity Act, 1987 (Act No 41 of 1987).

The above highlights the close relationships between the authorisation processes of DWAF and DEAT regarding waste management and water uses. This integration and alignment of the regulatory processes are important in order to ensure compatibility and to support streamlined and effective decision-making. This proposed alignment depicted in **Figure 7** below provides guidance with regard to when the NWA, 1998 or the ECA, 1989, is applicable to the disposal of sludge in terms of dedicated land disposal. However while Figure 7 highlights a comprehensive process, the requirement for each situation may vary depending on the unique circumstances that exist.

The DWAF guideline – Water Use Authorisation Process for Individual Applications (Edition 1), 2000, provides some guidance with regard to when the NWA or the ECA is applicable to an activity that entails waste disposal on land. **Table 3** includes an abridged version of this guiding information, which includes only those wastes and related activities that are of relevance to the wastewater sludge disposal.

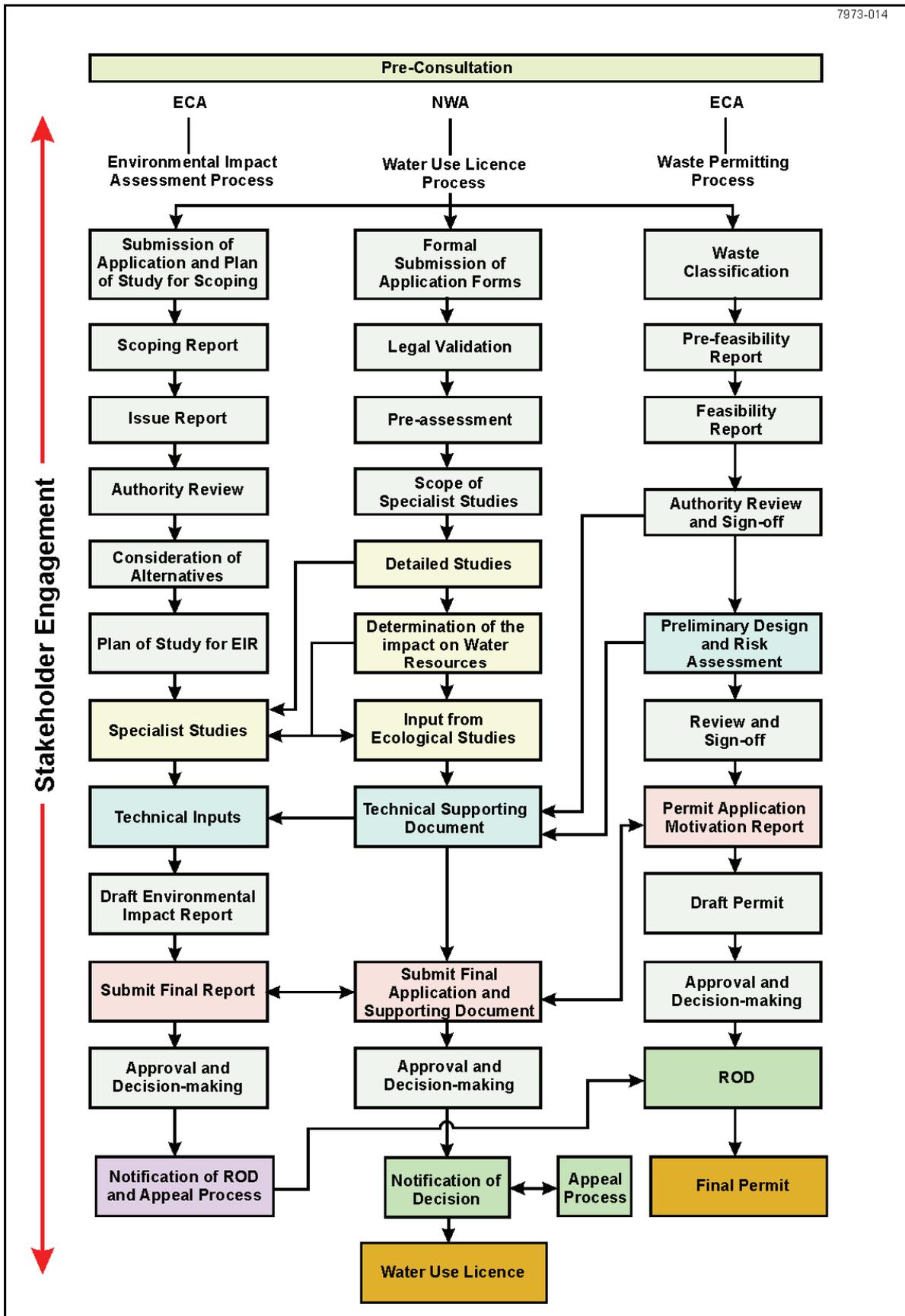


Figure 7: Alignment between regulatory processes of the ECA and NWA regarding the management of waste

Table 3: Guideline to determine the applicable legislation relevant to sludge disposal on land (*adapted DWAF, 2000*)

WASTE SECTOR ORIGIN	COMPOSITION (approximate liquid content)	COMMONLY USED DESCRIPTION	MANNER OF DISPOSAL	PREFERRED APPLICABLE LEGISLATION	ADDITIONAL ACTION REQUIRED IN TERMS OF OTHER APPLICABLE LEGISLATION
Domestic (90% or more domestic content)	> 90%	Domestic waste water	Oxidation ponds/waste water ponds	Existing Lawful Use/NWA GA / NWA section 21(g) licence	
			On-site disposal system (French drains, septic tanks, conservancy tanks, soak aways, pit latrines)	NWA GA / NWA section 21(g) licence	
	50-90%	Domestic sludge waste	Sludge ponds/Sludge drying beds	Existing Lawful Use / NWA GA / NWA section 21(g) licence	NWA section 22 (3) dispense with licence requirement
			Commercial landfill sites	ECA Section 20 permit	NWA section 22 (3) dispense with licence requirement
	10-50%	Domestic waste	Domestic landfill sites	ECA Section 20 permit	NWA section 22 (3) dispense with licence requirement
			Domestic landfill sites	ECA Section 20 permit	NWA section 22 (3) dispense with licence requirement
	< 10%	Domestic dry waste	Domestic landfill sites	ECA Section 20 permit	NWA section 22 (3) dispense with licence requirement
			Commercial landfill sites	ECA Section 20 permit	NWA section 22 (3) dispense with licence requirement

Minimum Requirements

The Minimum Requirements (1998) are a series of documents developed as part of the waste management series by DWAF. As DWAF has until recently been mandated through Section 20 of the ECA to ensure the correct management of waste in South Africa, it developed a regulatory system to protect the environment and the public from the harmful effects of bad waste disposal practices. This 'regulatory system' took the form of the Minimum Requirements, which were published in 1998 (second edition), and included the minimum procedures, actions and information that was required from a permit applicant who required a waste disposal site permit. The Minimum Requirements provide the applicable waste management standards or specifications that must be met in the absence of any valid motivation to the contrary. These documents also provide a point of departure against which environmentally acceptable waste disposal practices can be distinguished from those that are environmentally unacceptable. The definition of waste in terms of the Minimum Requirements is as per the ECA, 1989 specified in Government Notice 1986 in Government Gazette 12703 of 24 August 1990. In terms of this definition sewage sludge that **is defined as a waste**. In addition, the Minimum Requirements, also identifies sewage sludge as a hazardous waste, which requires it be classified to determine its hazard rating. The rating would then determine the minimum requirements for disposal, which could include its delisting.

The Minimum Requirements is enforceable through the Section 20(6) of ECA, 1989 and Section 22 of NWA, 1998. Conformance to the Minimum Requirements means conformance to its objectives which include prevention of water pollution, and the protection of human health and the environment. These objectives support the Constitution in terms of Section 24 in the Bill of Rights.

The Minimum Requirements is currently under a review process, with a third edition to be published in the near future. The proposed changes and updates to the third edition, September 2005 are now open to public comment. The third edition of the Minimum Requirements is of relevance to the SA Sludge Guidelines Series as it includes the aspect of 'co-disposal' of sewage sludge at General Waste Sites. In addition sewage sludge is now defined as a waste, if it is to be disposed of at a site other than the sewage works itself.

The Minimum Requirements (Second Edition, 1998) produced as part of the Waste Management Series, by DWAF, comprises the following:

- **Document 1:** *Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste*
- **Document 2:** *Minimum Requirements for Waste Disposal by Landfill*
- **Document 3:** *Minimum Requirements for the Monitoring of Water Quality at Waste Management Facilities*

4.10 National Health Act (Act No 61 of 2003)

The National Health Act (Act No 61 of 2003), which was enacted on 2 May 2005, is aimed at regulating national health and providing uniformity in respect of health services across South Africa. This is to be achieved by amongst others, by protecting, respecting, promoting and fulfilling the rights of the people of South Africa *to an environment that is not harmful to their health or well-being*. This specific objective is aligned to the Constitution in terms of Section 24 in the Bill of Rights., and it is the responsibility of the Minister of Health to determine policies and measures to ensure this right is fulfilled.

Although the Act is administered by the National Department of Health whose responsibility it is to ensure implementation of the national health policy and develop guidelines for its implementation, most of the functions and health service responsibilities have been delegated to provincial departments and metropolitan and district local municipalities.

In terms of the Act, the provincial departments of health are responsible for the provision of environmental pollution control services (Section 25(2)(u)), and municipalities are responsible for municipal health services (Section 32(1)) which includes waste management and environmental pollution control.

According to Section 21(2)(b) the Department of Health in accordance with national health policy must issue and promote adherence to, norms and standards on health matters including *environmental conditions that constitute a health hazard*. In addition, the Minister must determine the policies and measures to protect, promote, improve and maintain the *health and well-being* of the population (Section 3(1)(c)).

This provides the Department of Health with the authority to intervene in situations where pollution or waste disposal poses a risk to human health.

In terms of Section 90(n), the Minister of Health may make regulations regarding *health nuisances*. In terms of the Act, a health nuisance is defined as *a situation*, or state of affairs that *endangers* life or *health* or *adversely affects the well-being* of a person or a community.

Thus, in terms of sludge management, the options selected must ensure that all precautions are undertaken and requirements adhered to, to ensure that no health hazards or health nuisances are posed.

4.11 National Environment Management: Air Quality Act (Act No. 39 of 2004)

The National Environment Management: Air Quality Act (Act No. 39 of 2004) (NEM:AQA), was enacted on 9 September 2005, in terms of Government Notice 28016, Government Regulation No, 898. This Act replaces the Atmospheric Pollution Prevention Act, (Act No. 45 of 1965) (APPA), which was the primary legislation regulating air pollution.

The objective of the Air Quality Act is *generally to give effect to Section 24(b) of the Constitution in order to enhance the quality of ambient air for the sake of securing an environment that is not harmful to the health and well-being of people. This in effect includes protection of the environment by the prevention of air pollution and ecological degradation.* This Act is guided by the national environmental management principles set out in Section 2 of NEMA, 1998, which serves as the ‘parent’ legislation’.

The DEAT, as National Government is responsible for establishing a national framework:

- for regulating air quality;
- which provides national norms and standards regulating air quality monitoring, management and control by all spheres of government;
- for specific air quality measures and
- for matters related to the above,

which amongst others is aimed at the prevention of pollution and degradation of air quality and the reduction of discharges likely to impair air quality, including the reduction of air pollution at source.

This national framework is binding to all organs of state in all spheres of government and different organs of states, but does allow for delineation of responsibilities for implementation of the Act to different organs of states and different spheres of government. This is aligned to responsibilities of air pollution management as defined by the competencies set out in the Constitution.

The Air Quality Act also allows for the identification of national, provincial and local ambient air quality and emission standards for substances or mixtures of substances that may present a threat to health, well-being or the environment. In this regard, if national standards have been set for a particular substance or mixture of substance, then provincial standards may not alter such standards, except to make them stricter. Similarly, in the establishment of local standards for emission from point, non-point or mobile sources, a municipality may not alter a national or provincial standard except to make them stricter. Thus the standards for ambient air quality and emission standards for different substances will vary throughout the different areas of South Africa, and thus the regulatory control thereof.

In terms of Section 21(1) of the Act, the Minister or the MEC, may:

- (a) *publish a list of activities which result in atmospheric emissions and which the Minister or MEC reasonably believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions or cultural heritage.*

The lists apply nationally published by the Minister and provincially if published by the MEC. In terms of Section 62, pending the listing of activities by the Minister in terms of Section 21, of the Air Quality Act, the processes identified in the Second Schedule of the Atmospheric Pollution Prevention Act, still apply. In terms of this Schedule, waste incineration processes are considered to be a listed activity. Thus the thermal sludge management option would be considered as such a listed activity due to potential to give rise to noxious or offensive gases.

4.11.1 Regulation of activities

In terms of Section 22, such listed activities may not be conducted without a provisional atmospheric emission licence or an atmospheric emission licence. The thermal sludge management options would require such a licence. The licensing authority is the metropolitan or district municipalities, or a provincial organ of state where this function has been delegated. Where a municipality applies for an atmospheric emission licence, a provincial organ of state designated by the MEC is the licensing authority. An application for such a licence would also require an EIA to be conducted to assess the potential impacts and mitigation measures.

The provisional atmospheric emission licence, takes the form of an atmospheric emission licence, only when the commissioned facility has been in full compliance with the conditions and requirements of the provisional atmospheric emission licence for a period of at least six months. The provisional atmospheric emission licence or the atmospheric emission licence lists the conditions and requirement under which the activity may be undertaken.

In addition to the licence, pollution prevention plans and atmospheric impacts reports may have to be submitted if required to do so.

Section 18 (1) of the Act allows the Minister or MEC, to declare a priority area if the ambient air quality standards are being exceeded in the area, or any other situation exists which is causing or may cause a significant negative impact on air quality in the area, and where the area requires a specific air quality management action to rectify the situation. In this regard, Government Gazette 28132, Government Notice No. 1007 of 4 October 2005, was published notifying the intention of the Minister of Environmental Affairs and Tourism to declare the Vaal Triangle Air-shed Priority Area in terms of section 18(1). This authority could prove to have an impact on thermal sludge management options, as the location of the activity may have an influence, even if the option is feasible.

4.12 Occupational Health and Safety Act (Act No. 85 of 1993)

One of the objectives of the Occupational Health and Safety Act, (Act No. 85 of 1993), (OHS Act) is to provide for the health and safety of persons at work. The Act is administered by the Department of Labour and contains the statutory requirements that enforce a working environment that is safe and without risk to the health of the employees, and to persons other than employees who may be directly affected by activities in the working environment. In this Act, human health and safety is the focus rather than environmental health.

The aim is to limit the hazards that employees and affected persons may be exposed to. In this regard important concepts of relevance to sludge management contained in the Act include:

‘**Hazard**’ is defined as source of or exposure to danger.

‘**Danger**’ is defined as anything which may cause injury or damage to persons or property.

‘**Risk**’ means the probability that injury or damage will occur.

‘**Substance**’ includes any solid, liquid, vapour, gas or aerosol, or combination thereof.

In terms of Section 8 of the Act;

- 8(1) Every employer shall provide and maintain, as far as *reasonably practicable*, a working environment that is safe and without risk to the health of his employees.
- 8(2) Without derogating from the generality of an employer’s duties under subsection (1), the matters to which those duties include in particular-
 - (c) making arrangements for ensuring, as far as is reasonable practicable, the safety and *absence of risks* to health in connection with the *production, processing, use, handling, storage or transport* of articles or *substances*.

and

In terms of Section 9(1) of the Act;

- Every employer shall conduct his undertaking in such a manner as to ensure, as far as *reasonably practicable*, that persons other than those in his employment who may be directly affected by his activities are not thereby exposed to hazards to their health or safety.

With regard to the above “reasonably practicable” means practicable having regard to:

- (a) the severity and scope of the hazard or risk concerned;
- (b) the state of knowledge reasonably available concerning that hazard or risk and of any means of removing or mitigating that hazard risk;
- (c) the availability and suitability of means to remove or mitigate that hazard or risk; and
- (d) the cost of removing that hazard or risk in relation to the benefits derived there from.

Of note Section 10(3), could also have bearing on the sludge management options with regard to the duty of the sludge producer:

10(3) Any person who manufactures, imports, sells or supplies any substance for use at work shall-

- (a) Ensure, as far as is reasonably practicable, that the **substance is safe and without risks to the health** when properly used, and
- (b) take necessary steps as may be necessary to **ensure that the information is available with regard to the use of the substance at work, the risks to health and safety associated with such substance, the conditions necessary to ensure that the substance will be safe and**

without any risks to health when properly used and the procedures to be followed in this case of the accident involving such substance.

- 10 (4) **Where a person** designs, manufactures, imports, **sells or supplies** an article or **substance for or to another person** and that **other person undertakes in writing to take specified steps sufficient to ensure, as far as reasonably practicable, that the article or substance will comply with all prescribed requirements and will be safe and without risks** when properly used, the undertaking shall have the effect of **relieving the first-mentioned person from the duty imposed upon him** by this section to such an extent as may be reasonable having regard to the terms of the undertaking.

Regulations in terms of the OHS Act (Section 43) that should be taken note of with regard to occupational exposure limits (control limits and precautionary actions for hazardous chemicals and biological agents):

- Hazardous Biological Agents Regulations (Government Notice R. 1390 of 27 December 2001)
- Hazardous Chemical Substances Regulations (Government Notice R. 1179 of 25 August 1995)

4.13 Conservation of Agricultural Resources Act (Act No. 43 of 1983)

The purpose of the Conservation of Agricultural Resources Act (Act No. 43 of 1983) (CARA) is amongst others to provide for the conservation of the natural agricultural resources of South Africa by the maintenance of the production potential of land, by the combating and prevention of erosion. The Act is administered by the Department of Agriculture, and governs the rehabilitation of land.

In terms of the act the following definitions apply:

- **Conservation:** in relation to the natural agricultural resources, includes the protection, recovery and reclamation of those resources.
- **Natural Agricultural Resources:** means the soil, the water sources and the vegetation, excluding weeds and invader plants.

In terms of Section 6 of the Act:

6(1) In order to achieve the objects of this Act the Minister may prescribe control measures which shall be complied with by land users to whom they apply.

6(2) Such control measures may relate to:

(m) the restoration or reclamation of eroded land or land which is otherwise disturbed or denuded.

In regard to the above, Regulation 1048, of 25 May 1984, in terms of the section 29 of the Act has relevance. Part 1, Sections 13 and 14 of the said regulations stipulates the control measures for the restoration and reclamation of eroded land and restoration and reclamation of disturbed or denuded land.

4.14 Hazardous Substances Act (Act No. 15 of 1973)

The Hazardous Substances Act (Act No. 15 of 1973) (HSA) is primarily concerned with human health than environmental health, and is administered by the Department of Health. The purpose of the Act is to amongst others:

- Provide for the control of substances which may cause injury or ill health to or death of human beings by reason of their **toxic**, corrosive, irritant, strongly sensitizing, or flammable nature;
- Provide for the division of such substances or products into groups in relation to the degree of danger, and to
- Provide for the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances and products.

In terms of Section 2(1), the Minister may, subject to the provisions of subsections (2) and (3), by notice in the Gazette, declare –

- a. any substance or mixture of substances which, in the course of customary reasonable handling or use, including ingestion might, by reason of its toxic, corrosive, irritant, strongly sensitizing, or flammable nature or because it generates pressure through decomposition, heat or other means, cause injury, ill health or death to human beings, to be a Group 1 or Group II hazardous waste.*

In terms of the Act, a sludge that is toxic is considered to be a part of Group 11 hazardous substances, under the provisions of the Act that came into operation on 12 August 1994. However the schedule does not specify any further detail.

Sewage sludge is considered to be a hazardous waste due to its toxic and infectious characteristics based on its pathogenic properties and metal content. Its management and control is regulated through a waste permit or water use authorisation which is based on best practices specified in the Minimum Requirements.

Section 29(1) stipulates that the Minister make regulations, amongst others –

- a. authorising, regulating, controlling, restricting or prohibiting the:
 - i. manufacture;
 - ii. modification;
 - iii. importation;
 - iv. storage;
 - v. transportation; or
 - vi. dumping and other disposal,of any grouped hazardous substance or class of grouped hazardous substances;
- b. regulating, controlling, restricting or prohibiting the application of a grouped hazardous substance for any specific purpose;
- e. prescribing the precautions to be taken for the protection from injury, ill health or death of person in control of or employed or engaged in the manufacture, operation, application or use of the grouped hazardous substances or of any other persons who is likely to or may be exposed to grouped hazardous substances as a result of the manufacture, operation, use, disposal or dumping thereof;
- g. Prescribing, prohibiting, restricting or otherwise regulating-
 - (i) the packing of any Group 1 or any Group II hazardous substance or the packing of any such substance in a specified manner or in a manner other than a specified manner, or
 - (ii) the use for the packing of any group 1 or any group II hazardous substance, or any package of a specified condition, form or nature or made from or treated with any specified material or substance;
- h. exempting any Group 1 or Group II hazardous substance or any such substance of a specified nature or class from the requirements of this Act relating to labelling, and prescribing the collections (if any) subject to which such exemption shall apply and the prerequisites to be observed before it shall apply;
- i. prescribing the addition to a Group 1 or a Group II hazardous substance of specified additives, in order to render such substances easily distinguishable as such a substance;
- j. prescribing the manner in which any Group 1 or any Group II hazardous substance or its package, or the bulk stock from which it is taken for sale, shall be labelled, the nature of the information to be reflected on the label, the manner or form in which such information be so reflected or shall be arranged on the label, or prohibiting the reflecting of information of a specified nature on the label;
- l. prohibiting or regulating the application or other use of any group 1 or group II hazardous substances for gain;
- m. providing for the notification of cases or suspected cases of poisoning, intoxication, illness or death of persons who have been exposed to grouped hazardous substances.

4.15 The Marine Living Resources Act – Act 18 of 1998

The Marine Living Resources Act (Act No. 18 of 1998) (MLRA) is administered by the DEAT, and has amongst its objectives:

- the need to minimise marine pollution;
- the need to apply precautionary approaches in respect of the management of marine living resources, and
- the need to protect the ecosystem as a whole.

In support of these objections Section 43 gives the Minister of Environmental Affairs and Tourism the mandate to declare marine protected areas. Section 43 also prohibits the discharge or deposit of any waste or other polluting matter that may in any way disturb, alter or destroy the natural environment in such a protected area.

Section 43: The Marine Living Resources Act

43. (1) The Minister may, by notice published in the Gazette, declare an area to be a marine protected area-

- (a) for the protection of fauna and flora or a particular species of fauna or flora and physical features on which they depend;
- (b) to facilitate fishery management by protecting spawning stock, allowing stock recovery, enhancing stock abundance in adjacent areas, and providing pristine communities for research; or
- (c) to diminish any conflict that may arise from competing uses in that area.

(2) No person shall in any marine protected area, without permission in terms of subsection (3) –

- (a) fish or attempt to fish;
- (b) take or destroy any fauna and flora other than fish;
- (c) dredge, extract sand or gravel, **discharge or deposit waste or other polluting matter, or in any way disturb, alter or destroy the natural environment;**
- (d) construct or erect any building or other structure on or over any land or water within such a marine protected area; or
- (e) carry on an activity which may adversely impact on the ecosystem of that area.

(3) The Minister may after consultation with the Forum, give permission in writing that any activity prohibited in terms of this section may be undertaken, where such activity is required for the proper management of the marine protected area.

4.16 Minerals and Petroleum Resources Development Act (Act No. 28 of 2002)

The Minerals and Petroleum Resources Development Act, 2002, (MPRDA) which was enacted in May 2004 regulates the prospecting for, optimal exploration, processing and utilisation of minerals, provides for safety and health in the mining industry, and controls the rehabilitation of land disturbed by exploration and mining.

The Act supports the principle of pollution prevention indirectly by promoting the goal of sustainable development in the development of mineral and petroleum resources. The Act specifically states that “any prospecting or mining operation must be conducted in accordance with generally acceptable principles of sustainable development by integrating social, economic and environmental factors in the planning and implementation of prospecting and mining project, in order to ensure that exploration of mineral resources serves present and future generations”.

The Act contains the statutory requirements that enforce environmental protection, the management of pollution impacts of mining and the responsibility to remediate these. In terms of the Act, all mining activities will comply with the principles of integrated environmental management, as set out in Chapter of the NEMA, 1998. In support of these principles, all mines will be expected to promote the reduction, re-use and recycling of waste, limit pollution and will be subject to the polluter pays principle.

In terms of Section 39 of the Act an Environmental Management Programme (EMP) must be prepared in which a mine’s impact on the environment area identified and in which a clear programme of implementation is provided on how these will be managed based on an Environmental Impact Assessment (EIA). This implementation plan must describe intentions *to modify, remedy, control or stop activities or processes causing pollution or environmental degradation, contain or remedy the cause or pollution or degradation and migration of pollutants, and comply with any prescribed waste standard or management standards or practices*. Section 39 also stipulates that consultation shall take place with each State Department charged with the administration of any law that relates to any matter affecting the environment before an EMP may be approved.

In regard to the above, the use of sludge for the rehabilitation of mine tailings would therefore form part of the EMP.

4.17 Provincial Legislation

In terms of Schedule 4 of the Constitution, environment and pollution control, and regulation of air pollution and water and sanitation services matters have been designated as areas of concurrent national and provincial legislative competence. As such each province has the power under prescribed circumstances to pass legislation for the province for any matter within these listed functional areas. Therefore sludge producers and users must be aware of any such provincial acts, ordinances or regulations that could relate to the sludge management options, e.g. air pollution emission standards.

4.18 Local Bylaws

All municipalities have the authority to stipulate bylaws regarding air pollution, water and sanitation services and municipal health services (includes waste management) within their areas of jurisdiction. These bylaws can relate to pollution control. All future bylaws relevant to pollution control can be expected to take cognisance of the constitutional legislative duty to pursue the principle of sustainable development.

5 GOVERNANCE

The Constitution, 1996, requires that the legislative and executive authority of different spheres of government operate within a framework of co-operative governance. National and provincial governments have some concurrent and some exclusive powers for managing the environment. The Constitution also defines the regulatory role of national and provincial government over certain local government environmental functions.

Of relevance to the SA Sludge Guidelines, the functional areas of concurrent national and legislative competence regarding integrated pollution control and waste management include:

- Environment;
- Pollution control, and
- Soil conservation,

and with regard to the following local government aspects, the regulation thereof:

- Air pollution;
- Water and sanitation services limited to potable water supply systems and domestic waste water and sewage disposal systems.

The White Paper on Environmental Policy for South Africa identifies the DEAT, as the lead agent for the environment and this mandate is affected through the NEMA, 1998.

5.1 National Government Responsibility

The DEAT is the lead agent for the environment, while DWAF is the lead agent for water resource management (water quality and quantity). The role of the DEAT is to provide leadership and guidance to enable other national departments, provincial environmental departments and municipalities to meet their executive obligations in respect of the environment, including integrated pollution and waste management. In performing these functions the lead agent will act in accordance with the requirements of co-operative government (DEAT, 2000). The DEAT will in addition establish guidelines, mechanisms and structures which will ensure that activities undertaken by other Departments are coordinated, uniform and effective.

In South Africa, the waste related responsibilities, in terms of current legislation are currently spread over a range of national government departments. Apart from the DEAT, the following Departments are considered the principally affected:

- The Department of Water Affairs and Forestry – is responsible for water quantity and quality aspects of pollution and waste management in terms of the NWA, 1998, and until recently, had to meet the obligations of Section (20) of the ECA, 1989.

- The Department of Mineral and Energy – is responsible in consultation with DEAT, for setting regulations, standards and guidelines for mining and the management of environmental impacts.
- The Department of Health – is responsible for setting regulations and guidelines that promote adherence to, norms and standards on environmental conditions that constitute a health hazard.

5.2 Provincial and local government responsibility

Provincial government and local government play a crucial role in implementing national strategies pertaining to pollution control and waste management. Where appropriate they will develop their own legislation and strategies within the framework of broader policy objectives to meet their specific local needs.

6 OVERVIEW OF LEGISLATIVE FRAMEWORK GOVERNING THE SLUDGE MANAGEMENT OPTIONS

Based on the discussions in Chapters 4 and 5 the principal legal instruments and tools which may to different extents govern the practice of the various management options identified in Volumes 3, 4 and 5 of the Sludge Guidelines Series are listed below as an overview, along with the responsible regulating authority. Although not included in the tables below, the Constitution (Act No. 108 of 1996) of the Republic of South Africa which specifies the environmental rights of the people of South Africa and entrenches the principle of sustainable development underpins all the options and the other key legislations listed, as the supreme law.

The detailed regulatory requirements are captured in Chapter 7.

Volume 3: Requirements for the on-site and off-site disposal of sludge		
Management Option	Relevant Legislation governing practice	Responsible Authority
Managing existing on site mono-disposal	National Water Act, (Act No. 36 of 1998)	Dept. of Water Affairs and Forestry
	Environment Conservation Act, (Act No. 73 of 1989)	Dept. of Environmental Affairs and Tourism
	National Environmental Management Act, Act No. 107 of 1998)	Dept. of Environmental Affairs and Tourism
	Water Services Act, (Act 108 of 1997) (Specifically Section 12 & 13 related to Water Services Development Plans)	Department of Water Affairs and Forestry
	National Health Act, (Act No. 61 of 2003)	Dept. of Health
Operating existing dedicated land disposal sites	National Water Act, (Act No. 36 of 1998)	Department of Water Affairs and Forestry
	Waste Discharge Charge System, in terms of the National Water Act, 1998	Department of Water Affairs and Forestry
	Environment Conservation Act, (Act No. 73 of 1989)	Dept. of Environmental Affairs and Tourism
	National Environmental Management Act, (Act No. 107 of 1998)	Dept. of Environmental Affairs and Tourism
	National Health Act, (Act No. 61 of 2003)	Dept. of Health
Rehabilitation and phasing out of dedicated land disposal sites	National Water Act, (Act No. 36 of 1998)	Dept. of Water Affairs and Forestry
	Environment Conservation Act, (Act No. 73 of 1989)	Dept. of Environmental Affairs and Tourism
	National Environmental Management Act, (Act No. 107 of 1998)	Dept. of Environmental Affairs and Tourism

Off-site disposal of sludge in a general or hazardous landfill site	National Environmental Management Act, (Act No. 107 of 1998)	Dept. of Environmental Affairs and Tourism
	Environment Conservation Act, (Act No. 73 of 1989)	Dept. of Environmental Affairs and Tourism
	Minimum Requirements, 1998, Waste Management Series	Dept. of Environmental Affairs and Tourism
On-site disposal of sludge in a mono disposal landfill or lagoon	National Water Act, (Act No. 36 of 1998)	Dept. of Water Affairs and Forestry
	Waste Discharge Charge System, in terms of the National Water Act, 1998	Department of Water Affairs and Forestry
	Environment Conservation Act, (Act No. 73 of 1989)	Dept. of Environmental Affairs and Tourism
	National Environmental Management Act, (Act No. 107 of 1998)	Dept. of Environmental Affairs and Tourism
	Minimum Requirements, 1998, Waste Management Series	Dept. of Environmental Affairs and Tourism
	National Health Act, (Act No. 61 of 2003)	Dept. of Health
Disposal of sludge to the marine environment	National Water Act, (Act No. 36 of 1998)	Dept. of Water Affairs and Forestry
	Waste Discharge Charge System, in terms of the National Water Act, 1998	Department of Water Affairs and Forestry
	Operational Policy for the Disposal of Land-derived Water Containing Waste to the Marine Environment, 2004	Dept. of Water Affairs and Forestry
	South African Water Quality Guidelines for Coastal Marine Waters, 1995	Dept. of Water Affairs and Forestry
	Marine Living Resources Act, (Act No. 18 of 1998)	Dept. of Environmental Affairs and Tourism
	Environment Conservation Act, (Act No. 73 of 1989)	Dept. of Environmental Affairs and Tourism
	National Environmental Management Act, (Act No. 107 of 1998)	Dept. of Environmental Affairs and Tourism

Volume 4: Requirements for the beneficial use of sludge		
Management Option	Relevant Legislation	Responsible Authority
Rehabilitation of mine tailings	National Water Act, (Act No. 36 of 1998)	Dept. of Water Affairs and Forestry
	Waste Discharge Charge System, in terms of the National Water Act, 1998	Department of Water Affairs and Forestry
	Environment Conservation Act, (Act No. 73 of 1989)	Dept. of Environmental Affairs and Tourism
	Minimum Requirements, 1998, Waste Management Series	Dept. of Environmental Affairs and Tourism
	Minerals and Petroleum Resources Development Act (Act No. 28 of 2002)	Dept. Minerals and Energy
	National Environmental Management Act, (Act No. 107 of 1998)	Dept. of Environmental Affairs and Tourism
Using sludge to aid remediation of contaminated/degraded soil	National Water Act, (Act No. 36 of 1998)	Dept. of Water Affairs and Forestry
	Environment Conservation Act, (Act No. 73 of 1989)	Dept. of Environmental Affairs and Tourism
	Minimum Requirements, 1998, Waste Management Series	Dept. of Environmental Affairs and Tourism
	Conservation of Agricultural Resources Act (Act No. 43 of 1983)	Department of Agriculture
	National Environmental Management Act, (Act No. 107 of 1998)	Dept. of Environmental Affairs and Tourism
	National Health Act, (Act No. 61 of 2003)	Dept. of Health
	Hazardous Substances Act (Act No. 15 of 1973)	Dept. of Health
	Occupational Health and Safety Act (Act No. 85 of 1993)	Dept. of Labour
	Different Provincial Legislation	Provincial
	Local By-laws, e.g. public health bylaws	Local Government
Using sludge as a plant growth medium	Environment Conservation Act, (Act No. 73 of 1989)	Dept. of Environmental Affairs and Tourism
	Minimum Requirements, 1998, Waste Management Series	Dept. of Environmental Affairs and Tourism
	Hazardous Substances Act (Act No. 15 of 1973)	Dept. of Health
	Occupational Health and Safety Act (Act No. 85 of 1993)	Dept. of Labour

Using sludge in municipal parks and other public areas	Environment Conservation Act, (Act No. 73 of 1989)	Dept. of Environmental Affairs and Tourism
	Minimum Requirements, 1998, Waste Management Series	Dept. of Environmental Affairs and Tourism
	National Water Act, (Act No. 36 of 1998)	Dept. of Water Affairs and Forestry
	National Health Act, (Act No 61 of 2003)	Dept. of Health
	Hazardous Substances Act (Act No. 15 of 1973)	Dept. of Health
	Occupational Health and Safety Act (Act No. 85 of 1993)	Dept. of Labour
	National Environmental Management Act, (Act No. 107 of 1998)	Dept. of Environmental Affairs and Tourism
	Different Provincial Legislation	Provincial
	Local By-laws, e.g. public health bylaws, nuisance bylaws	Local Government
Once-off high rate application	Environment Conservation Act, (Act No. 73 of 1989)	Dept. of Environmental Affairs and Tourism
	Minimum Requirements, 1998, Waste Management Series	Dept. of Environmental Affairs and Tourism
	National Water Act, (Act No. 36 of 1998)	Dept. of Water Affairs and Forestry
	National Health Act, (Act No 61 of 2003)	Dept. of Health
	Hazardous Substances Act (Act No. 15 of 1973)	Dept. of Health
	Occupational Health and Safety Act (Act No. 85 of 1993)	Dept. of Labour
	National Environmental Management Act, (Act No. 107 of 1998)	Dept. of Environmental Affairs and Tourism
	Different Provincial Legislation	Provincial
	Local By-laws, e.g. public health bylaws	Local Government
Covering of landfills	Environment Conservation Act, (Act No. 73 of 1989)	Dept. of Environmental Affairs and Tourism
	Minimum Requirements, 1998, Waste Management Series	Dept. of Environmental Affairs and Tourism
	National Environmental Management Act, (Act No. 107 of 1998)	Dept. of Environmental Affairs and Tourism
	National Water Act, (Act No. 36 of 1998)	Dept. of Water Affairs and Forestry

Beneficial land application at high loading rates	National Water Act, (Act No. 36 of 1998)	Dept. of Water Affairs and Forestry
	Waste Discharge Charge System, in terms of the National Water Act, 1998	Department of Water Affairs and Forestry
	National Environmental Management Act, (Act No. 107 of 1998)	Dept. of Environmental Affairs and Tourism
	Environment Conservation Act, (Act No. 73 of 1989)	Dept. of Environmental Affairs and Tourism
	Minimum Requirements, 1998, Waste Management Series	Dept. of Environmental Affairs and Tourism
	National Health Act, (Act No 61 of 2003)	Dept. of Health
	Hazardous Substances Act (Act No. 15 of 1973)	Dept. of Health
	Occupational Health and Safety Act (Act No. 85 of 1993)	Dept. of Labour
	Conservation of Agricultural Resources Act (Act No. 43 of 1983)	Department of Agriculture
	Different Provincial Legislation	Provincial
	Local By-laws, e.g. public health bylaws, nuisance bylaws	Local Government

Volume 5: Requirements for thermal sludge management and for commercial products containing sludge		
Management Option	Relevant Legislation	Responsible Authority
Incineration in dedicated incinerators.	National Environmental Management : Air Quality Act (Act No. 39 of 2004)	Dept. of Environmental Affairs and Tourism
	Environment Conservation Act, (Act No. 73 of 1989)	Dept. of Environmental Affairs and Tourism
	Minimum Requirements, 1998, Waste Management Series	Dept. of Environmental Affairs and Tourism
	Hazardous Substances Act (Act No. 15 of 1973)	Dept. of Health
	Different Provincial Legislation	Provincial
	Local By-laws, e.g. emission standards from point sources	Local Government
Incineration in furnaces, cement kilns	National Environmental Management : Air Quality Act (Act No. 39 of 2004)	Dept. of Environmental Affairs and Tourism
	Environment Conservation Act, (Act No. 73 of 1989)	Dept. of Environmental Affairs and Tourism
	Hazardous Substances Act (Act No. 15 of 1973)	Dept. of Health
	Minimum Requirements, 1998, Waste Management Series	Dept. of Environmental Affairs and Tourism
	Different Provincial Legislation	Provincial
	Local By-laws, e.g. emission standards from point sources	Local Government
Manufacturing pellets/ commercial fertilizer from sludge	National Health Act, (Act No. 61 of 2003)	Dept. of Environmental Affairs and Tourism
	Hazardous Substances Act (Act No. 15 of 1973)	Dept. of Health
	Occupational Health and Safety Act (Act No. 85 of 1993)	Dept. of Labour
	Different Provincial Legislation	Provincial
	Local By-laws, e.g. public health bylaw	Local Government
Manufacturing bricks, paving, artificial rocks and other products	National Health Act, (Act No. 61 of 2003)	Dept. of Health
	Hazardous Substances Act (Act No. 15 of 1973)	Dept. of Health
	Occupational Health and Safety Act (Act No. 85 of 1993)	Dept. of Labour
	Different Provincial Legislation	Provincial
	Local By-laws, e.g. public health bylaws	Local Government

7 REGULATORY REQUIREMENTS APPLICABLE TO THE MANAGEMENT OPTIONS IDENTIFIED IN VOLUMES 3, 4 AND 5 OF THE SOUTH AFRICAN SLUDGE GUIDELINES SERIES

7.1 Volume 3: Requirements for the On-site and Off-site Disposal of Sludge

For the disposal of sludge either at the wastewater treatment plant or at an off-site disposal site, there are a number of legal requirements that must be complied with, in terms of the South African legislative framework discussed in the previous chapters.

MANAGEMENT OPTION	LEGISLATION THAT MAY APPLY	POSSIBLE REQUIREMENTS FOR SLUDGE PRODUCER	WHEN REQUIREMENTS MAY APPLY	RESPONSIBLE AUTHORITY
Managing existing on site mono disposal	NWA: Sections 19, 20, 22, 40, 41	<ol style="list-style-type: none"> Compliance to directives issued or conditions stipulated related to pollution prevention or control of emergency incidents Application for a Water Use Licence Activity is authorised in terms of any other water use authorisation (e.g. GA) 	<ol style="list-style-type: none"> To remedy the impacts of pollution if it has occurred (as and when) or to prevent pollution Control of emergency incidents related to the prevailing situation (as and when it requires) If it is defined as a section 21 water use, and/or it is permissible in terms of Section 22 (need to consult with relevant authority) 	DWAF
	ECA: Sections 20 & 22	<ol style="list-style-type: none"> Application for a Waste Disposal Site Permit Application for an EIA Authorisation 	<ol style="list-style-type: none"> If the management solution is to establish and operate a waste disposal site (need to consult with relevant authority) If the management option is considered to be an activity that has a detrimental effect on the environment (need to consult with relevant authority) 	DEAT or Provincial Department
	NEMA: Section 28	<ol style="list-style-type: none"> Compliance to a directive issued 	<ol style="list-style-type: none"> If it is determined that sludge producer must meet the duty of care obligation and remediate environmental damage and pollution caused 	DEAT or Provincial Department
	WSA: Sections 12 & 13	<ol style="list-style-type: none"> Detail activity in Water Services Development Plan (WSDP) 	<ol style="list-style-type: none"> Regarded as part of water services provision and thus the proposed management options must be submitted as part of the WSDP 	DWAFF
	NHA: Section 83	<ol style="list-style-type: none"> Comply to compliance notice issued by health officer 	<ol style="list-style-type: none"> If situation is likely to cause a health nuisance, constitutes a health notice or constitutes pollution detrimental to health. 	Provincial and local departments of Health
	<p>Note:</p> <p>(1) An EIA must be performed in accordance with the EIA regulations under the ECA.</p> <p>(2) It must also be noted that an authorisation granted by Minister of Environmental Affairs and Tourism or his delegated authority, does not necessarily exempt that activity from water use authorisation issued by DWAF in terms of the NWA. However since the authorisations required by both authorities, require similar investigations and processes, these processes can be aligned and conducted concurrently to avoid overlap. DWAF does however need the Record of Decision issued by DEAT to issue a water use licence.</p> <p>(3) DWAF may dispense with the licence requirement in terms of Section 22 (3) if it is satisfied that the authorisation issued under the ECA satisfies the purposes of the NWA.</p>			

MANAGEMENT OPTION	LEGISLATION THAT MAY APPLY	POSSIBLE REQUIREMENTS FOR SLUDGE PRODUCER	WHEN REQUIREMENTS MAY APPLY	RESPONSIBLE AUTHORITY
<p align="center">Operating existing dedicated land disposal sites</p>	<p>NWA: Sections 19, 20, 40, 41, 56</p>	<ol style="list-style-type: none"> Compliance to directives issued or conditions stipulated related to pollution prevention or control of emergency incidents Application for a Water Use Licence Waste discharge charges Activity is authorised in terms of any other water use authorisation (e.g. GA) 	<ol style="list-style-type: none"> To remedy the impacts of pollution if it has occurred (as and when) or to prevent pollution Control of emergency incidents that may result due to daily operations (as and when) If it is defined as a section 21 water use and/or it is permissible in terms of Section 22 (need to consult with relevant authority) If it is determined that there is a need to recover costs of activities for measures aimed at pollution abatement and damaged caused by pollution and to discourage excessive pollution. 	<p align="center">DWAF</p>
	<p>ECA: Sections 20 & 22</p>	<ol style="list-style-type: none"> Application for a Waste Disposal Site Permit Application for an EIA Authorisation Compliance to the Minimum Requirements 	<ol style="list-style-type: none"> If the operation of the waste disposal site is not currently permitted (need to consult with relevant authority) If the management option is considered to be an activity that has a detrimental effect on the environment (need to consult with relevant authority) 	<p align="center">DEAT or Provincial Department</p>
	<p>NEMA: Section 28</p>	<ol style="list-style-type: none"> Compliance to a directive issued 	<ol style="list-style-type: none"> If it is determined that sludge producer must meet the duty of care obligation and remediate environmental damage and pollution caused 	<p align="center">DEAT or Provincial Department</p>
	<p>WSA: Sections 12 & 13</p>	<ol style="list-style-type: none"> Detail operations in Water Services Development Plan (WSDP) 	<ol style="list-style-type: none"> Regarded as part of water services provision and thus the management activities must be submitted as part of the WSDP 	<p align="center">DWAF</p>
	<p>NHA: Section 83</p>	<ol style="list-style-type: none"> Comply to compliance notice issued by health officer 	<ol style="list-style-type: none"> If situation is likely to cause a health nuisance, constitutes a health notice or constitutes pollution detrimental to health. 	<p align="center">Provincial and local departments of Health</p>
	<p>Note:</p> <p>(1) An EIA must be performed in accordance with the EIA regulations under the ECA.</p> <p>(2) It must also be noted that an authorisation granted by Minister of Environmental Affairs and Tourism or his delegated authority, does not necessarily exempt that activity from water use authorisation issued by DWAF in terms of the NWA. However since the authorisations required by both authorities, require similar investigations and processes, these processes can be aligned and conducted concurrently to avoid overlap. DWAF does however need the Record of Decision issued by DEAT to issue a water use licence.</p> <p>(3) DWAF may dispense with the licence requirement in terms of Section 22 (3) if it is satisfied that the authorisation issued under the ECA satisfies the purposes of the NWA.</p> <p>(4) The Third Edition of the Minimum Requirements (draft version) defines sewage sludge as a waste in terms of the ECA if it is disposed off at a site other than that of the sewage works itself. This applies to any piece of land beyond the sewage works boundary. If the sludge remains within sewage works site its disposal is still required to be authorised as part of the water use authorisation.</p> <p>(5) Where an exemption permit has expired and a licence application has been issued to DWAF, the disposal will still be seen as an existing lawful use, provided that the conditions of the expired permit are complied with.</p> <p>(6) Only registered waste discharge related water use in terms of Sections 21 (e), (f) and (g) of the NWA will be liable for waste discharges charges. The charges in terms of the current version of the WDCS will only be based on direct or indirect impacts on surface water resources.</p>			

MANAGEMENT OPTION	LEGISLATION THAT MAY APPLY	POSSIBLE REQUIREMENTS FOR SLUDGE PRODUCER	WHEN REQUIREMENTS MAY APPLY	RESPONSIBLE AUTHORITY
Rehabilitation and phasing out of dedicated land disposal sites	NWA: Sections 19, 20, 40, 41, 56	<ol style="list-style-type: none"> Compliance to directives issued or conditions stipulated related to pollution prevention or control of emergency incidents Application for a Water Use Licence Waste discharge charges Activity is authorised in terms of any other water use authorisation (e.g. GA) 	<ol style="list-style-type: none"> To remedy the impacts of pollution if it has occurred (as and when) or to prevent pollution Control of emergency incidents that may result due to 'rehabilitation activities' (as and when) If it is defined as a section 21 water use and/or it is permissible in terms of Section 22 (need to consult with relevant authority) If it is determined that there is a need to recover costs of activities for measures aimed at pollution abatement and damaged caused by pollution and to discourage excessive pollution. 	DWAF
	ECA: Sections 20 & 22	<ol style="list-style-type: none"> Application for a Waste Disposal Site Permit Application for an EIA Authorisation Compliance to the Minimum Requirements 	<ol style="list-style-type: none"> If it is determined that the rehabilitation and/or phasing out activities need to meet the necessary "closure" conditions in order to minimise the negative impacts.(need to consult with relevant authority) If the impacts identified are considered to be an activity that has a detrimental effect on the environment 	DEAT or Provincial Department
	NEMA: Section 28	<ol style="list-style-type: none"> Compliance to a directive issued 	<ol style="list-style-type: none"> If it is determined that sludge producer must meet the duty of care obligation and remediate environmental damage and pollution caused 	DEAT or Provincial Department
	WSA: Sections 12 & 13	<ol style="list-style-type: none"> Detail rehabilitation plan in Water Services Development Plan (WSDP) 	<ol style="list-style-type: none"> Regarded as part of water services provision and thus the proposed management options must be submitted as part of the WSDP 	DWAF
	Note: (1) An EIA must be performed in accordance with the EIA regulations under the ECA. (2) It must also be noted that an authorisation granted by Minister of Environmental Affairs and Tourism or his delegated authority, does not necessarily exempt that activity from water use authorisation issued by DWAF in terms of the NWA. However since the authorisations required by both authorities, require similar investigations and processes, these processes can be aligned and conducted concurrently to avoid overlap. DWAF does however need the Record of Decision issued by DEAT to issue a water use licence. (3) DWAF may dispense with the licence requirement in terms of Section 22 (3) if it is satisfied that the authorisation issued under the ECA satisfies the purposes of the NWA. (4) The Third Edition of the Minimum Requirements also defines sewage sludge as a waste in terms of the ECA, if it is disposed off at a site other than that of the sewage works itself. This applies to any piece of land beyond the sewage works boundary. If the sludge remains within sewage works site its disposal is still required to be authorised as part of the water use authorisation. (5) Only registered waste discharge related water use in terms of Sections 21 (e), (f) and (g) of the NWA will be liable for waste discharges charges. The charges in terms of the current version of the WDACS, will only be based on direct or indirect impacts on surface water resources.			

MANAGEMENT OPTION	LEGISLATION THAT MAY APPLY	POSSIBLE REQUIREMENTS FOR SLUDGE PRODUCER	WHEN REQUIREMENTS MAY APPLY	RESPONSIBLE AUTHORITY
Off-site disposal of sludge in a general or hazardous landfill site	ECA: Sections 20 & 22	1. Compliance to the Minimum Requirements	1. In all cases, to determine the appropriate disposal requirements at either a general or hazardous landfill site.	DEAT or Provincial Department
	NEMA: Section 28 Note: (1) The Third Edition of the Minimum Requirements (not yet published and thus not yet enforceable does allow for sewage to be co-disposed off at a General Waste Site and also permits its co-disposal with refuse at a General Waste Site. The Estimated Environmental Concentrations will be used to determine the acceptable rates and or ratios. (2) The Third Edition of the Minimum Requirements also defines sewage sludge as a waste in terms of the ECA, if it is disposed off at a site other than that of the sewage works itself. This definition applies in this instance.	1. Compliance to a directive issued	1. If it is determined that sludge producer must meet the duty of care obligation	DEAT or Provincial Department

MANAGEMENT OPTION	LEGISLATION THAT MAY APPLY	POSSIBLE REQUIREMENTS FOR SLUDGE PRODUCER	WHEN REQUIREMENTS MAY APPLY	RESPONSIBLE AUTHORITY
<p>On-site disposal of sludge in a mono disposal landfill or lagoon</p>	<p>NWA: Sections 19, 20, 40, 41, 56</p>	<ol style="list-style-type: none"> 1. Compliance to directives issued or conditions stipulated related to pollution prevention or control of emergency incidents 2. Application for a Water Use Licence 3. Waste discharge charges 4. Activity is authorised in terms of any other water use authorisation (e.g. GA) 	<ol style="list-style-type: none"> 1. To remedy the impacts of pollution if it has occurred (as and when) or to prevent pollution 2. Control of incidents that may result due to the disposal activities (as and when) 3. If it is defined as a section 21 water use and/or it is permissible in terms of Section 22 (need to consult with relevant authority) 4. If it is determined that there is a need to recover costs of activities for measures aimed at pollution abatement and damaged caused by pollution and to discourage excessive pollution. 	<p>DWAF</p>
	<p>ECA: Sections 20 & 22</p>	<ol style="list-style-type: none"> 1. Application for a Waste Disposal Site Permit 2. Application for an EIA Authorisation 3. Compliance to the Minimum Requirements 	<ol style="list-style-type: none"> 1. If the disposal is considered to be a waste disposal site (need to consult with relevant authority) 2. If the impacts identified are considered to be an activity that has a detrimental effect on the environment (need to consult with relevant authority) 	<p>DEAT or Provincial Department</p>
	<p>NEMA: Section 28</p>	<ol style="list-style-type: none"> 1. Compliance to a directive issued 	<ol style="list-style-type: none"> 1. If it is determined that sludge producer must meet the duty of care obligation and remediate environmental damage and pollution caused 	<p>DEAT or Provincial Department</p>
	<p>WSA: Sections 12 & 13</p>	<ol style="list-style-type: none"> 1. Detail disposal activity in Water Services Development Plan (WSDP) 	<ol style="list-style-type: none"> 1. Regarded as part of water services provision and thus the disposal method and operation must be submitted as part of the WSDP 	<p>DWAF</p>
	<p>NHA: Section 83</p>	<ol style="list-style-type: none"> 1. Comply to compliance notice issued by health officer 	<ol style="list-style-type: none"> 1. If situation is likely to cause a health nuisance, constitutes a health notice or constitutes pollution detrimental to health. 	<p>Provincial and local departments of Health</p>
	<p>Note:</p> <p>(1) An EIA must be performed in accordance with the EIA regulations under the ECA.</p> <p>(2) It must also be noted that an authorisation granted by Minister of Environmental Affairs and Tourism or his delegated authority, does not necessarily exempt that activity from water use authorisation issued by DWAF in terms of the NWA. However since the authorisations required by both authorities, require similar investigations and processes, these processes can be aligned and conducted concurrently to avoid overlap. DWAF does however need the Record of Decision issued by DEAT to issue a water use licence.</p> <p>(3) DWAF may dispense with the licence requirement in terms of Section 22 (3) if it is satisfied that the authorisation issued under the ECA satisfies the purposes of the NWA.</p> <p>(4) Only registered waste discharge related water use in terms of Sections 21 (e), (f) and (g) of the NWA will be liable for waste discharges charges. The charges in terms of the current version of the WDCA, will only be based on direct or indirect impacts on surface water resources.</p>			

MANAGEMENT OPTION	LEGISLATION THAT MAY APPLY	POSSIBLE REQUIREMENTS FOR SLUDGE PRODUCER	WHEN REQUIREMENTS MAY APPLY	RESPONSIBLE AUTHORITY
<p>Disposal of sludge to the marine environment</p>	<p>NWA: Sections 40, 41, 56</p>	<ol style="list-style-type: none"> Application for a Water Use Licence Waste discharge charges Compliance to the Operational Policy for the disposal of Land-derived water containing waste to the Marine Environment (requires primary treatment and if applicable must meet the environmental quality objectives) Compliance to South African Water Quality Guidelines for Coastal Marine Waters 	<ol style="list-style-type: none"> If it is defined as a section 21 (h) water use (need to consult relevant authority) If it is determined that there is a need to recover costs of activities for measures aimed at pollution abatement and damaged caused by pollution and to discourage excessive pollution.. For all disposal of land-derived water containing wastes to the marine environment If the environmental water quality objectives are applicable and are enforced as the minimum discharge standard. 	<p>DWAF</p>
	<p>ECA: Section 22</p>	<ol style="list-style-type: none"> Application for an EIA Authorisation 	<ol style="list-style-type: none"> For any disposal of sludge to the marine environment (need to consult relevant authority and work applicable sea outfall forum) 	<p>DEAT or Provincial Department</p>
	<p>NEMA: Section 28</p>	<ol style="list-style-type: none"> Compliance to a directive issued 	<ol style="list-style-type: none"> If it is determined that sludge producer must meet the duty of care obligation and remediate environmental damage and pollution caused 	<p>DEAT or Provincial Department</p>
	<p>WSA: Sections 12 & 13</p>	<ol style="list-style-type: none"> Detail discharge in Water Services Development Plan (WSDP) 	<ol style="list-style-type: none"> Regarded as part of water services provision and thus the disposal method and operation must be submitted as part of the WSDP (especially since this would mean a discharge of freshwater which otherwise would have re-entered the water cycle). 	<p>DWAF</p>
	<p>MLRA: Section 43</p>	<ol style="list-style-type: none"> Request permission from Minister of Environmental Affairs and Tourism 	<ol style="list-style-type: none"> If the point of discharge is classified as a Marine Protected area, in terms of notice published in the Gazette. 	<p>Provincial and local departments of Health</p>
	<p>Note:</p> <ol style="list-style-type: none"> An EIA must be performed in accordance with the EIA regulations under the ECA. It must also be noted that an authorisation granted by Minister of Environmental Affairs and Tourism or his delegated authority, does not necessarily exempt that activity from water use authorisation issued by DWAF in terms of the NWA. However since the authorisations required by both authorities, require similar investigations and processes, these processes can be aligned and conducted concurrently to avoid overlap. DWAF does however need the Record of Decision issued by DEAT to issue a water use licence. DWAF is in the process of amending the NWA in order to provide a more suitable section dealing with marine disposal. In the interim, water use licences to sea outfalls are issued under Section 21 (h) since this section deals with industrial wastewater and does not specifically refer to the water resource as a point of discharge (most municipal wastewater, contains wastewater from industrial activities). Only registered waste discharge related water use in terms of Sections 21 (e), (f) and (g) of the NWA will be liable for waste discharges charges. Where an exemption permit has expired and a licence application has been issued to DWAF, the disposal will still be seen as an existing lawful use, provided that the conditions of the expired permit are complied with. At present, the requirements of the Operational Policy for the disposal of Land-derived water containing waste to the Marine Environment requires primary treatment, which limits the viability of this option. This option may require the use of other mediums for the disposal of the sludge, e.g. sea water. 			

7.2 Volume 4: Requirements for the Beneficial Use of Sludge

For the beneficial use of sludge, there are a number of legal requirements that must be complied with, in terms of the South African legislative framework discussed in the previous chapters.

MANAGEMENT OPTION	LEGISLATION THAT MAY APPLY	POSSIBLE REQUIREMENTS FOR SLUDGE PRODUCER	WHEN REQUIREMENTS MAY APPLY	RESPONSIBLE AUTHORITY
Rehabilitation of mine tailings	NWA: Section 56	1. Waste discharge charges (indirect)	1. To recover costs of activities aimed at pollution abatement and damaged caused by pollution and to discourage excessive pollution. – This charge will be imposed by DWAF on the mine however, the sludge producer may be requested to contribute to this, if the charge is based on sludge content as well.	DWAF
	ECA: Sections 20 & 22	1. Compliance to the Minimum Requirements	1. In all instances to determine appropriate co-disposal requirements in conjunction with the identified mine tailings	DEAT or Provincial Department
	NEMA: Section 2 & 28, Chapter 5	1. The manner of re-use or disposal must be done in a responsible manner in compliance to the applicable waste standard, management standard or practice.	1. In all cases to meet duty of care obligation, and objectives of integrated environmental management, and to prevent pollution.	DEAT or Provincial Department
	MPRDA: Section 39	1. Provide the necessary information and undertake necessary investigations as required for the environmental management programme report (EMPR) and or/plans.	1. If the mine requires the information to meet the requirements of the EMPR, or if requested by the relevant authority or any other authority.	DME (could involve DWAF for impacts on the water environment)
	Note: (1) An EIA must be performed to assess the impact or mining operations on the environment. (2) It must also be noted that an approval of an EMP by the Minister of Minerals and Energy must take into the consideration the comments of any other State department charged with the administration of any law which relates to matters affecting the environment (this could that of DWAF or DEAT). An approved EMP, does not necessarily exempt mining operations (e.g. waste disposal on tailings dams) from a water use authorisation issued by DWAF in terms of the NWA. However since the authorisations required by both authorities, require similar investigations and processes, these processes can be aligned and conducted concurrently to avoid overlap. (3) Only registered waste discharge related water use in terms of Sections 21 (e), (f) and (g) of the NWA will be liable for waste discharges charges. The charges in terms of the current version of the WDCS, will only be based on direct or indirect impacts on surface water resources.			

MANAGEMENT OPTION	LEGISLATION THAT MAY APPLY	POSSIBLE REQUIREMENTS FOR SLUDGE PRODUCER/USER	WHEN REQUIREMENTS MAY APPLY	RESPONSIBLE AUTHORITY
Using sludge to aid remediation of contaminated soil	NWA: Sections 19, 22, 40, 41	<ol style="list-style-type: none"> Compliance to directives issued or conditions stipulated related to pollution prevention Application for a Water Use Licence Activity is authorised in terms of any other water use authorisation (e.g. GA) 	<ol style="list-style-type: none"> To remedy the impacts of pollution if it has occurred (as and when) or prevent pollution / 3. If it is defined as a Section 21 water use and/or it is permissible in terms of Section 22. Could be a controlled activity (need to consult with relevant authority) 	DWAF
	ECA: Sections 20 & 22	<ol style="list-style-type: none"> Application for an EIA Authorisation Compliance to the Minimum Requirements or any other applicable waste standard that may apply 	<ol style="list-style-type: none"> If the impacts identified are considered to be an activity that has a detrimental effect on the environment (need to consult with relevant authority) If the authorisation is required the conditions will stipulate the minimum standard for application to the soil. 	DEAT or Provincial Department
	NEMA: Section 2, 28 and Chapter 5	<ol style="list-style-type: none"> The manner of re-use must be done in a responsible manner in compliance to the applicable waste standard, management standard or practice. 	<ol style="list-style-type: none"> In all cases to meet duty of care obligation, and objectives of integrated environmental management, and to prevent pollution. 	DEAT or Provincial Department
	CARA: Section 3 & 6	<ol style="list-style-type: none"> To meet the objectives of the Act – includes the conservation of the soil as a resource. 	<ol style="list-style-type: none"> Generally applicable to ensure protection of the soil as a natural resource. 	DoA
	NHA	<ol style="list-style-type: none"> Compliance to provincial health regulations and public health bylaws 	<ol style="list-style-type: none"> If situation is likely to cause a health nuisance, constitutes a health notice or constitutes pollution detrimental to health. 	Provincial and local departments of Health
	HSA: Section 29	<ol style="list-style-type: none"> Compliance to any regulations that may apply to the use of sludge 	<ol style="list-style-type: none"> If sludge composition is of such a nature that it is classified as a Grouped hazardous substance. 	Dept. of Health
	OHSA: Sections 9 & 10	<ol style="list-style-type: none"> Compliance to requirements to ensure workers are not exposed to hazards to their health Compliance to requirements to ensure that on supply of the sludge it is safe without health risks 	<ol style="list-style-type: none"> If the sludge composition is considered to be a hazardous substance that poses a risk to human health If the sludge is to be supplied for use. 	Dept. of Labour
	<p>Note:</p> <ol style="list-style-type: none"> An EIA must be performed in accordance with the EIA regulations under the ECA. It must also be noted that an authorisation granted by Minister of Environmental Affairs and Tourism or his delegated authority, does not necessarily exempt that activity from water use authorisation issued by DWAF in terms of the NWA. However since the authorisations required by both authorities, require similar investigations and processes, these processes can be aligned and conducted concurrently to avoid overlap. DWAF does however need the Record of Decision issued by DEAT to issue a water use licence. DWAF may dispense with the licence requirement in terms of Section 22 (3) if it is satisfied that the authorisation issued under the ECA satisfies the purposes of the NWA. The applicable bylaws, regulations and ordinances of the Provincial and Local Government must be adhered, and the applicable regulations of the National Health Act and Occupational Health and safety Act must also be complied with. In terms of the Occupational Health and Safety Act, information on the risks to health associated with a substance, the conditions necessary to ensure that that substance will be safe without risks to health when properly used must also be furnished. The Hazardous Substances Act regulations may require certain specifications for labelling of the bulk stock or packaging in which the sludge is sold or supplied for use. 			

MANAGEMENT OPTION	LEGISLATION THAT MAY APPLY	POSSIBLE REQUIREMENTS FOR SLUDGE PRODUCER	WHEN REQUIREMENTS MAY APPLY	RESPONSIBLE AUTHORITY
Using sludge as a plant growth medium	ECA: Sections 20 & 22	<ol style="list-style-type: none"> Compliance to the Minimum Requirements or any other applicable waste standard that may apply 	<ol style="list-style-type: none"> In all cases to ensure the sludge product is suitable for the intended use 	DEAT or Provincial Department
	NEMA: Section 2, 28 and Chapter 5	<ol style="list-style-type: none"> The manner of re-use must be done in a responsible manner in compliance to the applicable waste standard, management standard or practice. 	<ol style="list-style-type: none"> In all cases to meet duty of care obligation, and objectives of integrated environmental management, and to prevent pollution. 	DEAT or Provincial Department
	NHA	<ol style="list-style-type: none"> Compliance to provincial health regulations and public health bylaws 	<ol style="list-style-type: none"> If situation is likely to cause a health nuisance, constitutes a health notice or constitutes pollution detrimental to health. 	Provincial and local departments of Health
	HSA: Section 29	<ol style="list-style-type: none"> Compliance to any regulations that may apply to the use of sludge 	<ol style="list-style-type: none"> If sludge composition is of such a nature that it is classified as a Grouped hazardous substance. 	Dept. of Health
	OHSA: Sections 9 & 10	<ol style="list-style-type: none"> Compliance to requirements to ensure workers are not exposed to hazards to their health Compliance to requirements to ensure that on supply of the sludge it is safe without health risks 	<ol style="list-style-type: none"> If the sludge composition is considered to be a hazardous substance that poses a risk to human health In all cases as the sludge is to be supplied for use. 	Dept. of Labour
	<p>Note:</p> <p>(1) The applicable bylaws, regulations and ordinances of the Provincial and Local Government must be adhered, and the applicable regulations of the National Health Act and Occupational Health and Safety Act must also be complied with.</p> <p>(2) In terms of the Occupational Health and Safety Act, information on the risks to health associated with a substance, the conditions necessary to ensure that that substance will be safe without risks to health when properly used must also be furnished.</p> <p>(3) The Hazardous Substances Act regulations may require certain specifications for labelling of the bulk stock or packaging in which the sludge is sold or supplied for use.</p>			

MANAGEMENT OPTION	LEGISLATION THAT MAY APPLY	POSSIBLE REQUIREMENTS FOR SLUDGE PRODUCER/USER	WHEN REQUIREMENTS MAY APPLY	RESPONSIBLE AUTHORITY
Using sludge in municipal parks and other public areas	NWA: Sections 19, 22, 40, 41	<ol style="list-style-type: none"> Compliance to directives issued or conditions stipulated related to pollution prevention Application for a Water Use Licence Activity is authorised in terms of any other water use authorisation (e.g. GA, Schedule 1) 	<ol style="list-style-type: none"> To remedy the impacts of pollution if it has occurred (as and when) or to prevent pollution 3. If it is defined as a Section 21 water use and/or it is permissible in terms of Section 22. Could be a controlled activity (need to consult with relevant authority) 	DWAf
	ECA: Sections 20 & 22	<ol style="list-style-type: none"> Application for an EIA Authorisation Compliance to the Minimum Requirements or any other applicable waste standard that may apply 	<ol style="list-style-type: none"> If the impacts identified are considered to be an activity that has a detrimental effect on the environment (need to consult with relevant authority) If the authorisation is required the conditions will stipulate the minimum standard for application to the municipal or public area 	DEAT or Provincial Department
	NEMA: Section 2, 28 and Chapter 5	<ol style="list-style-type: none"> The manner of re-use must be done in a responsible manner in compliance to the applicable waste standard, management standard or practice. 	<ol style="list-style-type: none"> In all cases to meet duty of care obligation, and objectives of integrated environmental management, and to prevent pollution. 	DEAT or Provincial Department
	NHA	<ol style="list-style-type: none"> Compliance to provincial health regulations and public health bylaws 	<ol style="list-style-type: none"> If situation is likely to cause a health nuisance, constitutes a health notice or constitutes pollution detrimental to health. 	Provincial and local departments of Health
	HSA: Section 29	<ol style="list-style-type: none"> Compliance to any regulations that may apply to the use of sludge for this specific purpose 	<ol style="list-style-type: none"> If sludge composition is of such a nature that it is classified as a Grouped hazardous substance. 	Dept. of Health
	OHSA: Sections 9 & 10	<ol style="list-style-type: none"> Compliance to requirements to ensure workers are not exposed to hazards to their health Compliance to requirements to ensure that on supply of the sludge it is safe without health risks 	<ol style="list-style-type: none"> If the sludge composition is considered to be a hazardous substance that poses a risk to human health If the sludge is to be supplied for use. 	Dept. of Labour
	Provincial Legislation and Local Bylaws	<ol style="list-style-type: none"> Compliance to regulations and bylaws relating to waste management or pollution control. 	<ol style="list-style-type: none"> If such an activity is covered by Provincial regulations or ordinances or local bylaws in the specific municipality or region. 	Provincial and local departments of the Environment
<p>Note:</p> <p>(1) An EIA must be performed in accordance with the EIA regulations under the ECA.</p> <p>(2) It must also be noted that an authorisation granted by Minister of Environmental Affairs and Tourism or his delegated authority, does not necessarily exempt that activity from water use authorisation issued by DWAF in terms of the NWA. However since the authorisations required by both authorities, require similar investigations and processes, these processes can be aligned and conducted concurrently to avoid overlap. DWAF does however need the Record of Decision issued by DEAT to issue a water use licence.</p> <p>(3) DWAF may dispense with the licence requirement in terms of Section 22 (3) if it is satisfied that the authorisation issued under the ECA satisfies the purposes of the NWA.</p> <p>(4) The applicable bylaws, regulations and ordinances of the Provincial and Local Government must be adhered, and the applicable regulations of the National Health Act and Occupational Health and safety Act must also be complied with. In terms of the Occupational Health and Safety Act, information on the risks to health associated with a substance, the conditions necessary to ensure that that substance will be safe without risks to health when properly used must also be furnished.</p> <p>(5) The Hazardous Substances Act regulations may require certain specifications for labelling of the bulk stock or packaging in which the sludge is sold or supplied for use.</p>				

MANAGEMENT OPTION	LEGISLATION THAT MAY APPLY	POSSIBLE REQUIREMENTS FOR SLUDGE PRODUCER/USER	WHEN REQUIREMENTS MAY APPLY	RESPONSIBLE AUTHORITY	
Once-off high rate application	NWA: Sections 19, 22, 40, 41	<ol style="list-style-type: none"> Compliance to conditions stipulated or directives issued related to pollution prevention Application for a Water Use Licence Activity is authorised in terms of any other water use authorisation (e.g. GA, Schedule 1) 	<ol style="list-style-type: none"> To remedy the impacts of pollution if it has occurred (as and when) or to prevent pollution. 3. If it is defined as a Section 21 water use and/or it is permissible in terms of Section 22. Could be a controlled activity (need to consult with relevant authority) 	DWAF	
	ECA: Sections 20 & 22	<ol style="list-style-type: none"> Application for an EIA Authorisation Compliance to the Minimum Requirements or any other applicable waste standard that may apply 	<ol style="list-style-type: none"> If the impacts identified are considered to be an activity that has a detrimental effect on the environment (need to consult with relevant authority) If the authorisation is required the conditions will stipulate the minimum standard for application to the identified area 	DEAT or Provincial Department	
	NEMA: Section 2, 28 and Chapter 5	<ol style="list-style-type: none"> The manner of re-use must be done in a responsible manner in compliance to the applicable waste standard, management standard or practice. 	<ol style="list-style-type: none"> In all cases to meet duty of care obligation, and objectives of integrated environmental management, and to prevent pollution. 	DEAT or Provincial Department	
	NHA	<ol style="list-style-type: none"> Compliance to provincial health regulations and public health bylaws 	<ol style="list-style-type: none"> If situation is likely to cause a health nuisance, constitutes a health notice or constitutes pollution detrimental to health. 	Provincial and local departments of Health	
	HSA: Section 29	<ol style="list-style-type: none"> Compliance to any regulations that may apply to the use of sludge for this specific purpose. 	<ol style="list-style-type: none"> If sludge composition is of such a nature that it is classified as a Grouped hazardous substance. 	Dept. of Health	
	OHSA: Sections 9 & 10	<ol style="list-style-type: none"> Compliance to requirements to ensure workers are not exposed to hazards to their health Compliance to requirements to ensure that on supply of the sludge it is safe without health risks 	<ol style="list-style-type: none"> If the sludge composition is considered to be a hazardous substance that poses a risk to human health If the sludge is to be supplied for use. 	Dept. of Labour	
	Provincial Legislation and Local Bylaws	<ol style="list-style-type: none"> Compliance to regulations and bylaws relating to waste management or pollution control. 	<ol style="list-style-type: none"> If such an activity is covered by Provincial regulations or ordinances or local bylaws in the specific municipality or region. 	Provincial and local departments of the Environment	
	<p>Note:</p> <ol style="list-style-type: none"> An EIA must be performed in accordance with the EIA regulations under the ECA. It must also be noted that an authorisation granted by Minister of Environmental Affairs and Tourism or his delegated authority, does not necessarily exempt that activity from water use authorisation issued by DWAF in terms of the NWA. However since the authorisations required by both authorities, require similar investigations and processes, these processes can be aligned and conducted concurrently to avoid overlap. DWAF does however need the Record of Decision issued by DEAT to issue a water use licence. DWAF may dispense with the licence requirement in terms of Section 22 (3) if it is satisfied that the authorisation issued under the ECA satisfies the purposes of the NWA. The applicable bylaws, regulations and ordinances of the Provincial and Local Government must be adhered, and the applicable regulations of the National Health Act and Occupational Health and safety Act must also be complied with. In terms of the Occupational Health and Safety Act, information on the risks to health associated with a substance, the conditions necessary to ensure that that substance will be safe without risks to health when properly used must also be furnished. The Hazardous Substances Act regulations may require certain specifications for labelling of the bulk stock or packaging in which the sludge is sold or supplied for use. 				

MANAGEMENT OPTION	LEGISLATION THAT MAY APPLY	POSSIBLE REQUIREMENTS FOR SLUDGE PRODUCER/USER	WHEN REQUIREMENTS MAY APPLY	RESPONSIBLE AUTHORITY
Covering of landfills	NWA: Sections 19	<ol style="list-style-type: none"> Compliance to directives issued or conditions stipulated related to pollution prevention 	<ol style="list-style-type: none"> To prevent pollution from occurring 	DWAF
	ECA: Sections 20 & 22	<ol style="list-style-type: none"> Application for an EIA Authorisation Compliance to the Minimum Requirements or any other applicable waste standard that may apply 	<ol style="list-style-type: none"> If the impacts identified are considered to be an activity that has a detrimental effect on the environment (need to consult with relevant authority) If the authorisation is required the conditions will stipulate the minimum standard for application to the identified area 	DEAT or Provincial Department
	NEMA: Section 2, 28 and Chapter 5	<ol style="list-style-type: none"> The manner of re-use must be done in a responsible manner in compliance to the applicable waste standard, management standard or practice. A risk averse and cautious approach must be adhered to. 	<ol style="list-style-type: none"> In all cases to meet duty of care obligation, and objectives of integrated environmental management, and to prevent pollution. 	DEAT or Provincial Department
<p>Note: (1) This option could be regulated through the waste site permit issued for the disposal site (landfill), thus the above requirements will not directly apply. (2) An EIA must be performed in accordance with the EIA regulations under the ECA.</p>				

MANAGEMENT OPTION	LEGISLATION THAT MAY APPLY	POSSIBLE REQUIREMENTS FOR SLUDGE PRODUCER/USER	WHEN REQUIREMENTS MAY APPLY	RESPONSIBLE AUTHORITY
Beneficial Land Application at high rates	NWA: Sections 19, 22, 40, 41	<ol style="list-style-type: none"> 1. Compliance to conditions stipulated or directives issued related to pollution prevention 2. Application for a Water Use Licence 3. Activity is authorised in terms of any other water use authorisation (e.g. GA, Schedule 1) 	<ol style="list-style-type: none"> 1. To prevent pollution. 2./ 3. If it is defined as a Section 21 water use and/or it is permissible in terms of Section 22. Could be a controlled activity (need to consult with relevant authority) 	DWAF
	ECA: Sections 20 & 22	<ol style="list-style-type: none"> 1. Application for an EIA Authorisation 2. Compliance to the Minimum Requirements or any other applicable waste standard that may apply 	<ol style="list-style-type: none"> 1. If the impacts identified are considered to be an activity that has a detrimental effect on the environment (need to consult with relevant authority) 2. If the authorisation is required the conditions will stipulate the minimum standard for application to the identified area 	DEAT or Provincial Department
	NEMA: Section 2, 28 and Chapter 5	<ol style="list-style-type: none"> 1. The manner of re-use must be done in a responsible manner in compliance to the applicable waste standard, management standard or practice. 2. A risk averse and cautious approach must be adhered to. 	<ol style="list-style-type: none"> 1. In all cases to meet duty of care obligation, and objectives of integrated environmental management, and to prevent pollution. 	DEAT or Provincial Department
	NHA	<ol style="list-style-type: none"> 1. Compliance to provincial health regulations and public health bylaws 	<ol style="list-style-type: none"> 1. If situation is likely to cause a health nuisance, constitutes a health notice or constitutes pollution detrimental to health. 	Provincial and local departments of Health
	CARA: Section 3 & 6	<ol style="list-style-type: none"> 1. To meet the objectives of the Act – includes the conservation of the production potential of land. 	<ol style="list-style-type: none"> 1. Generally applicable to ensure protection of the soil as a natural resource. 	DoA
	HSA: Section 29	<ol style="list-style-type: none"> 1. Compliance to any regulations that may apply to the use of sludge for this specific purpose. 	<ol style="list-style-type: none"> 1. If sludge composition is of such a nature that it is classified as a Grouped hazardous substance. 	Dept. of Health
	OHSA: Sections 9 & 10	<ol style="list-style-type: none"> 1. Compliance to requirements to ensure workers are not exposed to hazards to their health 	<ol style="list-style-type: none"> 1. If the sludge composition is considered to be a hazardous substance that poses a risk to human health 	Dept. of Labour

	<p>Provincial Legislation and Local Bylaws</p>	<p>2. Compliance to requirements to ensure that on supply of the sludge it is safe without health risks</p> <p>1. Compliance to regulations and bylaws relating to waste management or pollution control.</p>	<p>2. If the sludge is to be supplied for use.</p> <p>1. If such an activity is covered by Provincial regulations or ordinances or local bylaws in the specific municipality or region.</p>	<p>Provincial and local departments of the Environment</p>
<p>Note:</p> <p>(1) An EIA must be performed in accordance with the EIA regulations under the ECA.</p> <p>(2) It must also be noted that an authorisation granted by Minister of Environmental Affairs and Tourism or his delegated authority, does not necessarily exempt that activity from water use authorisation issued by DWAF in terms of the NWA. However since the authorisations required by both authorities, require similar investigations and processes, these processes can be aligned and conducted concurrently to avoid overlap. DWAF does however need the Record of Decision issued by DEAT to issue a water use licence.</p> <p>(3) DWAF may dispense with the licence requirement in terms of Section 22 (3) if it is satisfied that the authorisation issued under the ECA satisfies the purposes of the NWA.</p> <p>(4) The applicable bylaws, regulations and ordinances of the Provincial and Local Government must be adhered, and the applicable regulations of the National Health Act and Occupational Health and safety Act must also be complied with. In terms of the Occupational Health and Safety Act, information on the risks to health associated with a substance, the conditions necessary to ensure that that substance will be safe without risks to health when properly used must also be furnished.</p> <p>(5) The Hazardous Substances Act regulations may require certain specifications for labelling of the bulk stock or packaging in which the sludge is sold or supplied for use.</p>				

7.3 Volume 5: Requirements for thermal sludge management and for commercial products containing Sludge

For thermal sludge management and for the use of sludge in commercial products, there are a number of legal requirements that must be complied with, in terms of the South African legislative framework discussed in the previous chapters.

MANAGEMENT OPTION	LEGISLATION THAT MAY APPLY	POSSIBLE REQUIREMENTS FOR SLUDGE PRODUCER/USER	WHEN REQUIREMENTS MAY APPLY	RESPONSIBLE AUTHORITY
<p style="text-align: center;">Incineration in dedicated incinerators</p>	<p>NEM: AQA: Part 2 & Section 37</p>	<ol style="list-style-type: none"> Compliance to national, provincial and local air quality and emission standards Application for a provisional atmospheric emission licence or atmospheric emission licence 	<ol style="list-style-type: none"> If the atmospheric emissions are of such a nature that the substances or mixtures of substances require regulation in terms of ambient air quality In all cases as the incineration of any waste requires a licence (listed activity) 	<p>Provincial Department or Local Government</p>
	<p>ECA: Section 22</p>	<ol style="list-style-type: none"> Application for an EIA Authorisation Compliance to the any minimum requirements or waste standard that may apply, e.g. waste emission standards 	<ol style="list-style-type: none"> If the impacts identified are considered to be an activity that has a detrimental effect on the environment (need to consult with relevant authority) If the authorisation is required the conditions will stipulate the minimum standard for activity to proceed 	<p>DEAT, Provincial Department and/or Local Government</p>
	<p>NEMA: Section 2, 24, 28 and Chapter 5</p>	<ol style="list-style-type: none"> The pollution of the environment must be avoided or where it cannot altogether be avoided, it must be minimised and remedied. 	<ol style="list-style-type: none"> In all cases to meet duty of care obligation, and objectives of integrated environmental management, and to prevent pollution. 	<p>DEAT or Provincial Department</p>
	<p>NHA</p>	<ol style="list-style-type: none"> Compliance to provincial health regulations and public health bylaws 	<ol style="list-style-type: none"> If situation is likely to cause a health nuisance, constitutes a health notice or constitutes pollution detrimental to health. 	<p>Provincial and local departments of Health</p>
	<p>HSA: Section 29</p>	<ol style="list-style-type: none"> Compliance to any regulations that may apply to the noxious gases 	<ol style="list-style-type: none"> If gases emitted from the incineration process are of such a nature that it is classified as a Grouped hazardous substance. 	<p>Dept. of Health</p>
	<p>Provincial Legislation and Local Bylaws</p>	<ol style="list-style-type: none"> Compliance to regulations and bylaws relating to standards for emissions of substances identified as a threat to health, well-being or the environment. Regulations relating to dust control, offensive odours and noise may also need to be complied with. 	<ol style="list-style-type: none"> If such emission standards applicable for the specific air pollutants that are emitted are covered by Provincial regulations or local bylaws in the specific municipality or region. If such regulations are applicable either nationally or provincially. 	<p>DEAT, Provincial and local departments responsible for air quality management</p>
	<p>Note:</p> <ol style="list-style-type: none"> An EIA must be performed in accordance with the EIA regulations under the ECA. In terms of Section 23 of the NEM: Air Quality Act an activity or appliance may be declared as a controlled emitter by the Minister or MEC of a province. These controlled emitters need to comply with specified emission standards. Incinerators could be identified as such controlled emitters. The applicable bylaws and regulations the Provincial and Local Government must be adhered, and the applicable regulations of the National Health Act and The Hazardous Substances Act regulations may require certain specifications for labelling of the bulk stock or packaging in which the sludge is sold or supplied for use. 			

MANAGEMENT OPTION	LEGISLATION THAT MAY APPLY	POSSIBLE REQUIREMENTS FOR SLUDGE PRODUCER/USER	WHEN REQUIREMENTS MAY APPLY	RESPONSIBLE AUTHORITY
<p style="text-align: center;">Incineration in furnaces, cement kilns</p>	<p>NEM: AQA: Part 2 & Section 37</p>	<ol style="list-style-type: none"> Compliance to national, provincial and local air quality and emission standards Application for a provisional atmospheric emission licence or atmospheric emission licence 	<ol style="list-style-type: none"> If the atmospheric emissions are of such a nature that the substances or mixtures of substances require regulation in terms of ambient air quality In all cases as the incineration of any waste is a listed activity and requires a licence 	Provincial Department or Local Government
	<p>ECA: Section 22</p>	<ol style="list-style-type: none"> Application for an EIA Authorisation Compliance to the any minimum requirements or waste standard that may apply, e.g. waste emission standards 	<ol style="list-style-type: none"> If the impacts identified are considered to be an activity that has a detrimental effect on the environment (need to consult with relevant authority) If the authorisation is required the conditions will stipulate the minimum standard for activity to proceed 	DEAT, Provincial Department and/or Local Government
	<p>NEMA: Section 2, 24, 28 and Chapter 5</p>	<ol style="list-style-type: none"> The pollution of the environment must be avoided or where it cannot altogether be avoided, it must be minimised and remedied. 	<ol style="list-style-type: none"> In all cases to meet duty of care obligation, and objectives of integrated environmental management, and to prevent pollution. 	DEAT or Provincial Department
	<p>NHA</p>	<ol style="list-style-type: none"> Compliance to provincial health regulations and public health bylaws 	<ol style="list-style-type: none"> If situation is likely to cause a health nuisance, constitutes a health notice or constitutes pollution detrimental to health. 	Provincial and local departments of Health
	<p>HSA: Section 29</p>	<ol style="list-style-type: none"> Compliance to any regulations that may apply to the noxious gases 	<ol style="list-style-type: none"> If gases emitted from the incineration process are of such a nature that it is classified as a Grouped hazardous substance. 	Dept. of Health
	<p>Provincial Legislation and Local Bylaws</p>	<ol style="list-style-type: none"> Compliance to regulations and bylaws relating to standards for emissions of substances identified as a threat to health, well-being or the environment. Regulations relating to dust control, offensive odours and noise may also need to be complied with. 	<ol style="list-style-type: none"> If such emission standards applicable for the specific air pollutants that are emitted are covered by Provincial regulations or local bylaws in the specific municipality or region. If such regulations are applicable either nationally or provincially. 	DEAT, Provincial and local departments responsible for air quality management
	<p>Note:</p> <p>(1) An EIA must be performed in accordance with the EIA regulations under the ECA. (2) In terms of Section 23 of the NEM: Air Quality Act an activity or appliance may be declared as a controlled emitter by the Minister or MEC of a province. These controlled emitters need to comply with specified emission standards. Incinerators could be identified as such controlled emitters. (3) The applicable bylaws and regulations of the Provincial and Local Government must be adhered, and the applicable regulations of the National Health Act and (4) The Hazardous Substances Act regulations may require certain specifications for labelling of the bulk stock or packaging in which the sludge is sold or supplied for use. (5) If the process has been authorised for another use it may not require a new authorisation but rather an amendment to the existing permit/licence.</p>			

MANAGEMENT OPTION	LEGISLATION THAT MAY APPLY	POSSIBLE REQUIREMENTS FOR SLUDGE PRODUCER/USER	WHEN REQUIREMENTS MAY APPLY	RESPONSIBLE AUTHORITY
Manufacturing of pellets/ commercial fertilizer from sludge	NHA	1. Compliance to provincial health regulations and public health bylaws	1. If situation is likely to cause a health nuisance, constitutes a health notice or pollution detrimental to health.	Provincial and local departments of Health
	HSA: Section 29	1. Compliance to any regulations that may apply to the use of sludge for this specific purpose.	1. If the final product composition is of such a nature that it is classified as a Grouped hazardous substance.	Dept. of Health
	OHSA: Sections 9 & 10	1. Compliance to requirements to ensure workers are not exposed to hazards to their health 2. Compliance to requirements to ensure that on supply of the sludge it is safe without health risks	1. If the sludge composition is considered to be a hazardous substance that poses a risk to human health 2. If the sludge is to be supplied for use.	Dept. of Labour
	Provincial Legislation and Local Bylaws	1. Regulations relating to dust control, offensive odours and noise may also need to be complied with.	1. If such regulations are applicable either nationally or provincially.	DEAT, Provincial and local departments responsible for air quality management
	Note: (1) The applicable bylaws and regulations the Provincial and Local Government must be adhered, and the applicable regulations of the National Health Act and (2) The Hazardous Substances Act regulations may require certain specifications for labelling of the bulk stock or packaging in which the sludge is sold or supplied for use.			

MANAGEMENT OPTION	LEGISLATION THAT MAY APPLY	POSSIBLE REQUIREMENTS FOR SLUDGE PRODUCER/USER	WHEN REQUIREMENTS MAY APPLY	RESPONSIBLE AUTHORITY
Manufacturing bricks, paving, artificial rocks and other products	NHA	1. Compliance to provincial health regulations and public health bylaws	1. If situation is likely to cause a health nuisance, constitutes a health notice or pollution detrimental to health.	Provincial and local departments of Health
	HSA: Section 29	1. Compliance to any regulations that may apply to the use of sludge for this specific purpose.	1. If the final composition is of such a nature that it is classified as a Grouped hazardous substance.	Dept. of Health
	OHSA: Sections 9 & 10	1. Compliance to requirements to ensure workers are not exposed to hazards to their health 2. Compliance to requirements to ensure that on supply of the sludge it is safe without health risks	1. If the sludge composition is considered to be a hazardous substance that poses a risk to human health 2. If the sludge is to be supplied for use.	Dept. of Labour
	Provincial Legislation and Local Bylaws	1. Regulations relating to dust control, offensive odours and noise may also need to be complied with.	1. If such regulations are applicable either nationally or provincially.	DEAT, Provincial and local departments responsible for air quality management
Note: (1) The applicable bylaws and regulations the Provincial and Local Government must be adhered, and the applicable regulations of the National Health Act and (2) The Hazardous Substances Act regulations may require certain specifications for labelling of the bulk stock or packaging in which the sludge is sold or supplied for use.				

8 ASSESSMENT OF THE LEGISLATIVE ENVIRONMENT TO MANAGEMENT OF SLUDGE

From the previous chapters it is evident that in terms of the South African legislative environment a wide range of legal instruments may be applicable to the sludge management options that have been identified. What is apparent is that the legislative requirements and processes are not always clear cut as pollution laws in South Africa arise from various sources, from pure environmental to safety and health, planning, nature and conservation and natural resources.

The following aspects are evident with regards to the legislative environment governing the management of wastewater sludge:

- The legislative framework is fragmented.
- It is administratively cumbersome, time consuming and complex.
- In many instances the legislative framework exists but lacks guidelines for implementation.
- The guiding policy is not always clear and well defined.
- The legislative environment appears to be too restrictive with the focus more on protection than development – precautionary approach.
- The administrative processes are time consuming and complex.
- Although holistic integrated management is presented as the ideal approach by government with respect to the management of the environment this is not practiced in South Africa between government departments and tiers of government

The above highlights the challenges that need to be addressed with regard to the legislative framework in South Africa. The above issues must be taken cognisance of in the development of the Sludge Guidelines series to ensure that the management options presented *do offer* a viable alternative to sludge producers/users from a legal perspective as well.

9 CONCLUSION

Although it is evident that the legislative environment in South Africa is complex, requiring various legal aspects to be met, the burden placed on the sludge producer/user is not as onerous as perceived. What the legal review has identified is the suite of legal requirements that *may apply* and does not necessarily mean that each has to be met for every option. The aim has been to highlight those legal aspects that must be considered in the development of the management options in the Sludge Guideline Series. These legal aspects must now be taken forward through in development of the management options and the final guidelines should define the most streamlined least cumbersome

process. This will ensure that the management options presented do create sufficient incentive for sludge producers/users to manage their sludge in a responsible and more innovative manner.

It is therefore recommended and the two key regulating authorities, which are DWAF and DEAT meet in a workshop environment to provide direction in terms of what the exact legal requirements are that must be met per management option. (If required the Department of Health could be included). This will assist in defining a simplistic legal process that could be included in the guidelines for the various management options.

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