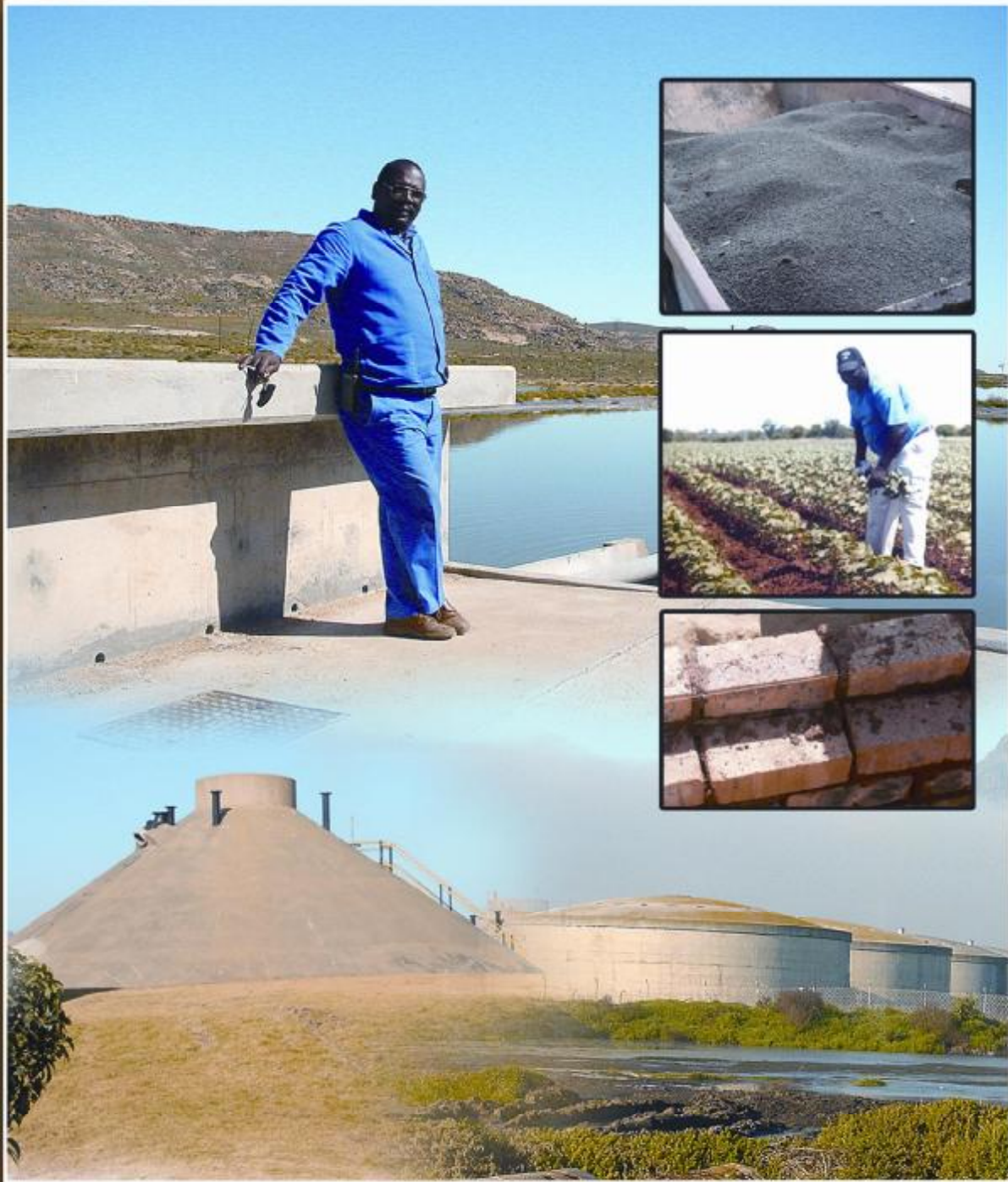


GUIDELINES FOR THE UTILISATION AND DISPOSAL OF WASTEWATER SLUDGE

Volume 1 of 5

Selection of management options



water & forestry

Department:
Water Affairs & Forestry
REPUBLIC OF SOUTH AFRICA



TT 261/06



**Water Research
Commission**

SLUDGE GUIDELINE VOLUMES

These Guidelines were developed to encourage the implementation of beneficial use of sludge. Rather than attempting to develop a single guideline to address all the management options, separate Guideline Volumes deal with each of the possible management options. This also simplifies the document(s) for the users, as each Guideline Volume is dedicated to the management, technical and legislative aspects associated with a particular option, as well as the sludge characterisation requirements for that option.



Volume 1: Selection of management options



Volume 2: Requirements for the agricultural use of sludge



Volume 3: Requirements for the on-site and off-site disposal of sludge



Volume 4: Requirements for the beneficial use of sludge



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

THESE VOLUMES ARE AVAILABLE FROM:

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Guidelines for the Utilisation and Disposal of Wastewater Sludge

Volume 1: Selection of Management options

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DISCLAIMER

This report has been reviewed by the Water Research Commission (WRC) and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the WRC, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

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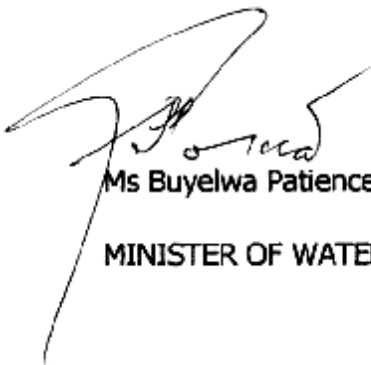
FOREWORD

Most of the South African laws and regulations pertaining to environmental, waste and water have either been replaced or updated in the last decade. These Sludge Guidelines have been developed taking the updated regulatory framework into consideration, as well as international trends and local knowledge gathered over the last 5 years. For example, these Guidelines adopt the principle of sustainability by offering different options for sludge handling. The agricultural use of sludge is presented as the preferred management option. However, it is recognised that not all the sludge generated in South Africa can be used in agricultural practices. For this reason, guidelines have also been developed for other management options such as disposal in landfill facility.

The Guidelines are now aligned with international best practice with the introduction of a new sludge classification system. At the same time, local contributions, including research findings from the Water Research Commission (WRC) were used to develop guidelines that suit South African environmental and socio-economic challenges.

The Guidelines were developed so that regulatory authorities, managers, practitioners and operators responsible for sludge management can easily understand them. At the same time, in the interest of transparency, the scientific basis, assumptions, thought processes and the extensive consultation process were also documented as separate documents that are available from the WRC.

The Sludge Guidelines are living publications, and will be reviewed periodically based on comments received on the current requirements and approaches. All users are urged to take a critical view regarding the Guidelines in terms of usefulness and appropriateness. It is believed that valuable feedback will ensure continual improvement. Comments should be directed to the Senior Manager: Resource Protection and Waste, Department of Water Affairs and Forestry, Private Bag X313, Pretoria, 0001.



Ms Buyelwa Patience Sonjica (MP)

MINISTER OF WATER AFFAIRS AND FORESTRY

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TABLE OF CONTENTS

SLUDGE GUIDELINE VOLUMES	i
FOREWORD	ii
ACKNOWLEDGEMENTS	iii
LIST OF TABLES	vi
LIST OF FIGURES	vi
INTRODUCTION	1
Purpose of the Sludge Guidelines	1
Who should use these Guidelines	2
OVERVIEW OF VOLUME 1: SELECTION OF MANAGEMENT OPTIONS	3
PART 1: BACKGROUND	4
Previous guidelines	4
Motivation for updating and developing the Sludge Guidelines	5
Process followed in developing the Sludge Guidelines	6
PART 2: STRUCTURE OF THE SLUDGE GUIDELINES	9
Volume 1: Selection of management options	10
Volume 2: Requirements for the agricultural use of sludge	10
Volume 3: Requirements for the on-site and off-site disposal of sludge	10
Volume 4: Requirements for the beneficial use of sludge	12
Volume 5: Requirements for thermal sludge management practices and for commercial products containing sludge	13
PART 3: GOOD SLUDGE MANAGEMENT PRACTICES	14
Sludge types and stability	14
Best management practices	14
PART 4: LEGAL FRAMEWORK FOR SLUDGE USE AND DISPOSAL	17
PART 5: COMPREHENSIVE CHARACTERIZATION OF SLUDGE	19
Why sludge needs to be characterized	19
Analyses required	20
Additional analyses	22
PART 6: PRELIMINARY CLASSIFICATION OF SLUDGE	23
Microbiological class	23
Stability class	24
Pollutant class	25
Preliminary Classification	26
PART 7: SELECTING AN APPROPRIATE MANAGEMENT OPTION	27

Examples of how to select the appropriate management options from preliminary classification	32
CONCLUSIONS	36
APPENDIX 1: Selecting the appropriate sampling points and collecting the samples	37
APPENDIX 2: Analytical methods	38
Appendix 2.1: Volatile acids and alkalinity	38
Appendix 2.2: Procedure to determine Helminth ova in sludge	42
Appendix 2.3: Methods for the determination of total Kjeldahl nitrogen and total phosphorus in sludge samples	52
Appendix 2.4: Method for the determination of total metal content of sludge and soil samples (<i>aqua regia</i> digestion)	53
APPENDIX 3: Vector attraction reduction options	54
DEFINITIONS AND DESCRIPTION OF KEY TERMS	58

LIST OF TABLES AND FIGURES

LIST OF TABLES

Table 1: Parameters to be included in the comprehensive characterisation of sludge	21
Table 2: Classification system for sludge	23
Table 3: Preliminary classification: Microbiological class	23
Table 4: Preliminary classification: Stability class	24
Table 5: Preliminary classification: Pollutant class	25
Table 6: Determine the organic pollutant content	26
Table 7: Colour coded index to assess appropriateness of the selected management option	27
Table 8: Using the preliminary microbiological classification to assess the appropriateness of a management option	28
Table 9: Using the preliminary stability classification to assess the appropriateness of a management option	29
Table 10: Using the preliminary pollutant classification to assess the appropriateness of a management option	30
Table 11: An overview of appropriate management options for each classification	31
Table 12: Characterisation and preliminary classification of 5 South African wastewater treatment plants	32

LIST OF FIGURES

Figure 1: Process followed during the development of the Sludge Guidelines	7
Figure 2: Decision-making process to identify the most suitable management option	9
Figure 3: An example of an Activated Sludge wastewater treatment plant showing stabilisation and dewatering options	15
Figure 4: An example of a Trickling filter wastewater treatment plant showing stabilisation and dewatering options	15
Figure 5: Effective use of life-cycle assessment to manage sludge quality	16
Figure 6: Initial characterisation and classification of sludge	20

INTRODUCTION

PURPOSE OF THE SLUDGE GUIDELINES

These Guidelines deal with the requirements of different options for managing sludge.

The purpose of the Guideline Volumes is to assist the reader to:

- Select appropriate management options for the specific sludge streams under consideration;
- Implement the requirements pertaining to the specific management option(s) selected. These include the operational and legal requirements; and,
- Implement the monitoring requirements for the selected option(s).

Definition: Wastewater sludge

The term “wastewater sludge” (hereafter referred to as “sludge”) refers to the material removed from wastewater treatment plants designed to treat predominately domestic wastewater and includes the following products:

- Raw or primary sludge from a primary clarifier
- Primary sludge from an elutriation process
- Anaerobically digested sludge, both heated and cold digestion
- Oxidation pond sludge
- Septic tank sludge and other sludge from on-site sanitation units
- Surplus or waste activated sludge
- Humus sludge
- Pasteurised sludge
- Heat-treated sludge
- Lime-stabilised sludge
- Composted sludge

Note that these guidelines can also be applied for the management of sludges from biological treatment plants designed to treat high COD effluents from industrial operations.

These Guidelines **do not** apply to:

- Screenings and grit removed in the preliminary treatment processes of wastewater treatment plants
- Solids removed from on-site sanitation systems which are mixed or blended with domestic refuse and solid waste
- Inorganic sludge produced by potable water treatment plants
- Inorganic brine and sludge produced by the treatment of industrial effluents or mine water
- Sludge and solids removed from a treatment plant that treats hazardous waste and effluents

WHO SHOULD USE THESE GUIDELINES?

These Guidelines were developed to ensure the safe use and disposal of sludge. Any person who effectively applies the Guidelines will comply with environmental, social and regulatory requirements. The Guidelines were developed for:

- **Wastewater treatment plant operators** – to understand the requirements for managing sludge generated at the plant.
- **Wastewater treatment service providers** – to implement and manage an appropriate sludge management strategy.
- **Local authorities and town/city councils that own and operate wastewater treatment plants** – to understand what is required to effectively operate and monitor a selected sludge management strategy.
- **Wastewater plant planners** – to design a scheme that complies with the requirements stipulated in the Guidelines, while understanding the long term operational and maintenance requirements.
- **Wastewater engineers/scientists** – to serve as baseline for the development of improved treatment methods, disposal options and monitoring protocols that will assist the water industry to improve.
- **Regulatory authorities** – to assess compliance in applicable cases.
- **Educators** – to use as training material to build capacity.

OVERVIEW OF VOLUME 1: SELECTION OF MANAGEMENT OPTIONS

This section gives an overview of the structure and content of Volume 1 of the Sludge Guidelines and its linkage to the other volumes that comprise the Guidelines.



Volume 1: Selection of Management options

Part 1

Background
Approach followed
Motivation

Part 2

Structure of the Sludge Guidelines
Provides a quick overview of what is contained in each volume (1 - 5)

Part 3

Good sludge management practices
This section contains notes and guidance on :
- Sludge types and stability
- Best management practices

Part 4

Legal framework for Sludge use and Disposal
Use this section to familiarise yourself with the relevant sections of the National Water Act and related environmental legislation

Part 5

Comprehensive characterisation of sludge
Use this section to ensure that appropriate sampling and analysis is done to gather sufficient information to do a preliminary classification

Part 6

Determine a Preliminary classification of sludge
Use the results obtained in Part 5 to do a preliminary classification of the sludge.
Assign a - Microbiological class;
- Stability class; and
- Pollutant class

Part 7

Selecting an appropriate management option
Determine which management options are appropriate for a specific sludge.

