Waste Classification and Management Regulations and Supporting Norms & Standards

2013 Waste Khoro

Dr Shauna Costley

Acting Director: Hazardous Waste Management

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

Background

- Prior to the development of the WM&CR, waste has been classified in terms of the Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste (MR - HW)
- Developed in 1998 – when landfill was the predominant method of waste management
- MR were the first guidance documents for the management of waste
- Philosophy of MR does not support the principles of the waste hierarchy – focus was on classification of waste for landfill
- Onus for classification on landfill operator; generator has little understanding of waste generated and makes no interventions to reduce waste volumes or recycle /recover

Governments Response

- Development and implementation of (*Gazette No. 36784* of 23 August 2013):
  - Waste Classification and Management Regulations
  - Norms and Standards for the Assessment of Waste for Landfill
  - Norms and Standards for the Disposal of Waste to Landfill, for immediate implementation
- Provide mechanisms which:
  - Facilitate the implementation of the waste hierarchy to move away from landfill to reuse, recovery and treatment
  - Separate waste classification from the management of waste
  - Divert waste from landfill and into utilisation where possible
  - Provide measures to monitor the progress
- Broad stakeholder engagement with industry, NGOs and all spheres of government

Waste Classification and Management Regulations

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

Purpose and Application

- Regulate classification and management of waste to give effect to provisions of the Act
- Prescribes general duties of waste generators, transporter and manager
- Establish a mechanism for the listing of waste management activities that do not require a waste management licence
- Prescribes requirements for disposal of waste to landfill
- Prescribe requirements and timeframes for the management of certain wastes

Waste Classification

- Waste must be classified according to GHS – SANS 10234

  “South African National Standard Globally Harmonized System of Classification and Labelling of Chemicals (GHS)”

- Must classify waste within 180 days of generation
- Any waste that has been treated must be re-classified
- Any waste must be re-classified if there are modification to the process or activity that generated the waste,
- Wastes listed in Annexure 1 do not need to be classified in terms of SANS 10234

Wastes That Do Not Require Classification or Assessment

General Waste 2(a)

- Domestic waste
- Business waste not containing hazardous waste or chemicals
- Uncontaminated building and demolition waste
- Waste tyres
- Garden waste
- Post consumer packaging
- Non-infectious animal carcasses
- Uncontaminated, excavated earth

Hazardous Waste 2(b)

- Asbestos waste
- PCB waste or PCB containing waste
- Expired, spoilt or unusable hazardous products
- General waste (excluding domestic waste) which contains hazardous waste or hazardous chemicals
- Mixed hazardous chemical waste from analytical or academic laboratories in containers less than 100 litres
- Health care risk waste

General Requirements

- Generators must ensure their waste is re-used, recycled, recovered, treated and/or disposed of within 18 months of generation
- Waste managers must not store waste for more than 18 months from the date of receipt of the waste
- Waste that was stored in an existing facility prior to promulgation of the Regulations must be re-used, recycled, recovered, treated or disposed of within 5 years of the commencement of the Regulations

General Requirements

- Waste may not be diluted to solely to reduce the concentration of its constituents for purposes of classification or assessment for landfill disposal
- Waste containers must be labelled, or where labelling is not possible, records must be kept, reflecting:
  - Category of waste as per the Waste Information Regulations, 2012
  - Date of containerisation
  - Date when container was filled, sealed or covered
  - Classification of the waste

Waste Treatment

- Waste may not be mixed or treated where this would
  - Reduce the potential for re-use, recycling or recovery; or
  - Where the treatment is not controlled
- May blend or pre-treat the waste to
  - Encourage the re-use, recycling, recovery or treatment, or
  - Reduce the risk of the waste

Waste Disposal to Landfill

- Waste must be assessed according to the N&S for Assessment of Waste for Landfill Disposal prior to landfilling
  - Type of waste
- Disposal of waste must comply with the N&S for Disposal of Waste to Landfill
  - Class of landfill
- Generators of waste listed in 2(a) and (b) do not have to assess the waste prior to landfilling

Records

- Responsibility of all waste generators (excluding (2)(a)) to keep records of waste
    - Classification
    - Quantity of waste generated
    - Quantity of waste reused, recycled, recovered, treated or disposed of
    - By whom the waste was managed
- All holders of hazardous waste must keep copies:
    - Waste manifest documentation
    - Safety data sheets
- Records must be kept for 5 years
- Made available to the Department on request

Waste Manifest

- All holders of hazardous waste or of waste that is listed in (2)(b) must be in possession of a waste manifest
- Responsibilities on the generator, transporter and the waste manager
  - Generator: generators details, origin of waste, quantity, intended receiver, SDS
  - Transporter: name, contact details, declaration of receipt
  - Waste manager: receiving facility, licence details, quanitity received, waste management activity applied, declaration of management of the waste
- Waste manifest is not required where the generator manages the waste stream on the same premises where is was generated

Safety data sheets

- Generators of hazardous waste must ensure a safety data sheet is prepared and accompanies the waste at all times
- Holders of hazardous waste (excluding HCRW) must be in possession of the relevant SDS for the waste
- Contents of SDS as per SANS 10234:
  - Source and composition of waste
  - Hazards identification
  - Physical and chemical properties
  - Toxicological and ecological effects
  - Transport
  - Disposal options
  - First aid/fire-fighting measures
  - Handling and storage

Waste Activities that do no Require a Waste Management Licence

- Any person may motivate to the Minister to list a specific waste activity as an activity which does not require a licence
- The activity must be able to be conducted consistently and repeatedly in a controlled manner without unacceptable impact on or risk to the environment or health
- There is specific information required to be submitted to support the motivation – comprehensive assessment of possible impacts
- The listing of the activity as not requiring a licence must be accompanied by the requirements or standards that must be adhered to when conducting the activity
- The Minister may repeal the listing at any time should there be non-compliance
- Implication is that whoever conducts the activity identified does not require a licence to undertake the activity provided they compile with the relevant requirements

Transitional Arrangements

- Waste that has been classified i.t.o Minimum Requirements or i.t.o an alternative classification approved by DWA or DEA :
  - retains that classification for 3 years
  - must be re-classified in terms of the SANS 10234 within 3 years
  - assessed in terms of the N&S for Assessment of Waste for Disposal within 3 years
- Wastes that had been generated but not classified
  - Classified in terms of SANS 1023 within 18 months
  - Assessed in terms of N&S for Assessment of Waste for Disposal within 18 months
- Requirement for labelling to include details of the waste classification as per SANS 10234 does not apply if :
  - waste was classified i.t.o the Minimum Requirements or an alternative classification approved by DWA or DEA and
  - this is reflected in the labelling or records required
- Record keeping and waste manifest system requirements take effect, one year after commencement of the Regulations except if waste was classifed prior to commencement in which case the requirements apply

National Norms and Standards for the Assessment of Waste for Landfill Disposal

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

Requirements for Assessment

- Prescribe the requirements for the assessment of waste prior to disposal to landfill
- Approach
  - Identify the chemical substances/elements present in the waste
  - Sample and analyse to determine the total concentration (TC) and leachable concentration (LC)
  - Compare the TC and LC to the risk levels identified in the relevant tables
    - Organics
    - Inorganics
  - Determine the type of waste for disposal to landfill

Determining the Waste Type for Landfill Disposal

Type of Waste	Element or chemical substance concentration
Type 0	LC > LCT3 **OR** TC > TCT2
Type 1	LCT2 < LC ≤ LCT3 **OR** TCT1 < TC ≤ TCT2
Type 2	LCT1 < LC ≤ LCT2 **AND** TC ≤ TCT1
Type 3	LCT0 < LC ≤ LCT1 **AND** TC ≤ TCT1
Type 4	LC ≤ LCT0 **AND** TC ≤ TCT0 for metal ions and inorganic anions **AND** all chemical substances are below the total concentration limits provided for organics and pesticides listed
Wastes that do not need assessment	Refer to Annexure 1 of the WC&MR

N7

Slide 19

N7 We suggest that you explain what kind of waste the diff types represent…and which landfill site can be disposed at and which site is equivalent to in MR

Ndivhuwo, 2013/10/04

Determining the Waste Type for Landfill Disposal

- If a chemical substance is not listed in the N&S and the waste is classified as hazardous according to SANS 10248 it is considered a TYPE 1 waste
- Wastes listed in (2)(b) of the Regulations are considered to be TYPE 1 waste unless determined otherwise
- If TC of an element/substance is above > TCT2 **AND** cannot be reduced but the LC is < LCT 3 the waste is TYPE 1
- If the LC for ALL metal ions and inorganic anions in the waste are ≤ LCTO limits such wastes are TYPE 3 irrespective of the TC of the elements provided:
  - The concentration of the chemical substances are below the limits for the organics and pesticides listed
  - The waste is stable and won't change over time and
  - The waste will be disposed of to landfill without any other waste

Implementation and Transitional Provisions

- Within 3 years all analyses must be conducted by a laboratory accredited by SANS to conduct the analytical methodology required
- Transitional provisions on the waste generator from the WC&MR
  - Waste that has been classified i.t.o Minimum Requirements or i.t.o an alternative classification approved by DWA or DEA :
    - assessed in terms of the N&S for Assessment of Waste for Disposal within 3 years
  - Wastes that had been generated but not classified
    - assessed in terms of the N&S for Assessment of Waste for Disposal within 18 months

National Standard for the Disposal of Waste to Landfill

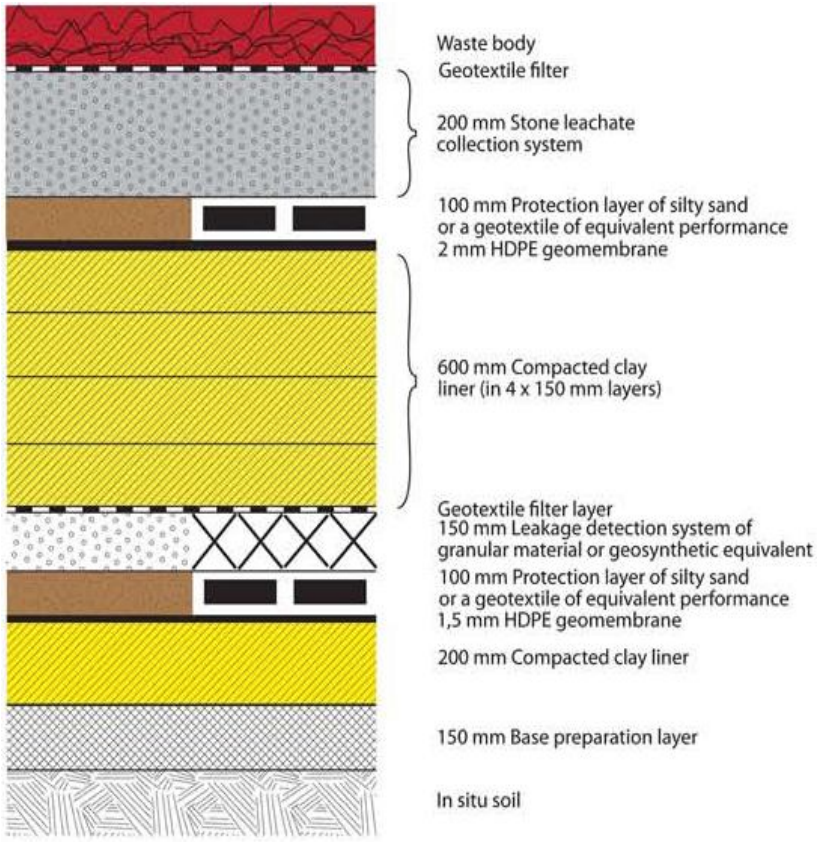
environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

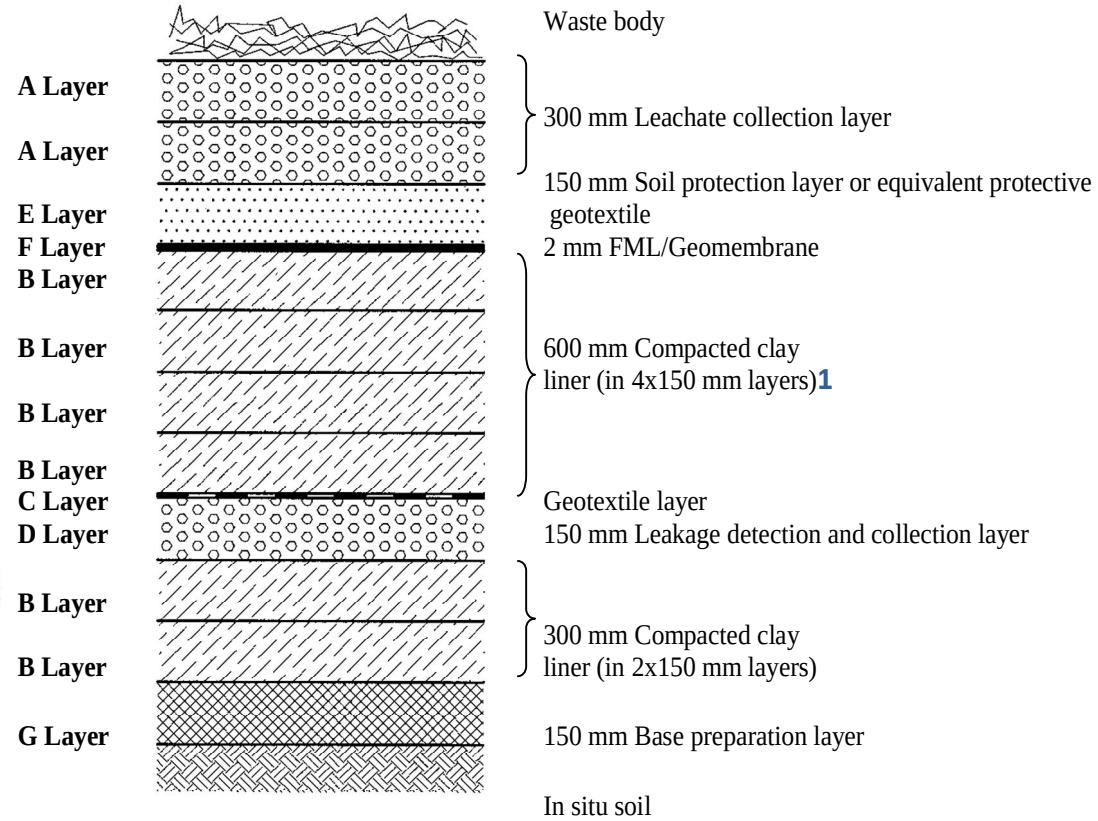
Purpose

- Determine the class of landfill
- Provide standard containment barrier requirements (engineering design requirements)
- List waste acceptance criteria for disposal of waste to landfill
- List waste disposal restrictions

Class A Containment Barrier Requirements

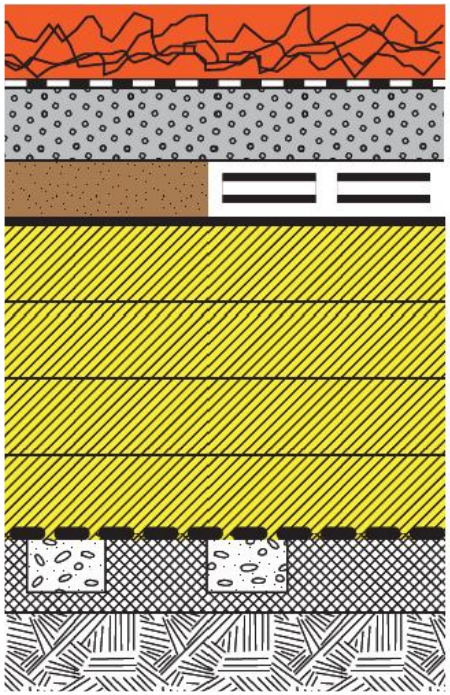
Liners: H:H Landfills and Encapsulation Cells





environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

Class B Containment Barrier Requirements



Waste body

Geotextile
150 mm Stone leachate collection system

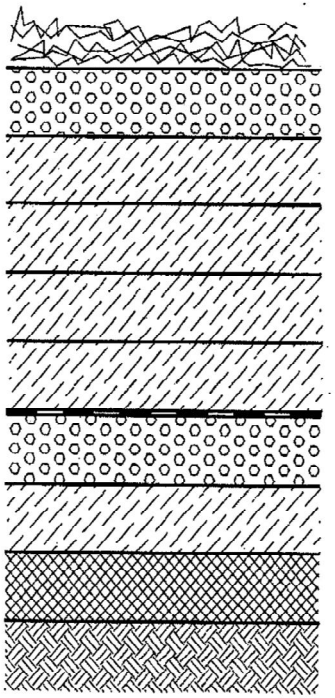
100 mm Protection layer of silty sand or a Geotextile of equivalent performance
1,5 mm HDPE Geomembrane

600 mm Compacted clay liner (in 4 x 150 mm layers)

Under drainage and monitoring system and 150 mm Base preparation layer

In situ soil

G:M:B$^+$ and G:L:B$^+$ Landfills



Waste body

150mm Leachate collection layer

600mm Compacted clay liner (in 4x150mm layers)

Geotextile layer
150mm Leakage detection and collection layer

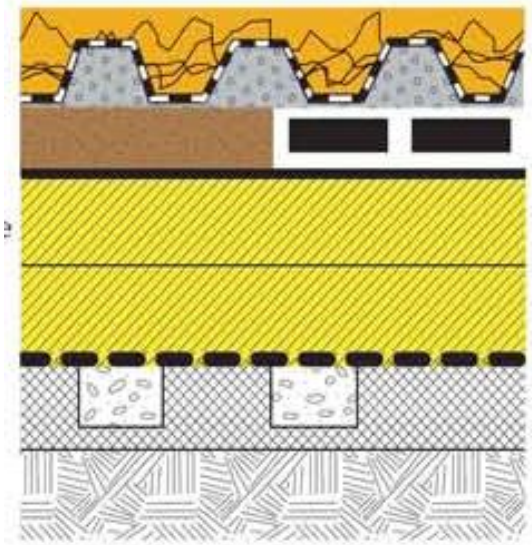
150mm Compacted clay liner

150mm Base preparation layer

In situ soil

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

Class C Containment Barrier Requirements



Waste body

300 mm thick finger drain of geotextile covered aggregate

100 mm Protection layer of silty sand or a geotextile of equivalent performance

1,5 mm thick HDPE geomembrane

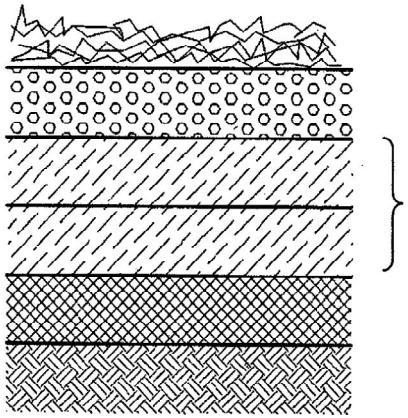
300 mm clay liner (of 2 X 150 mm thick layers)

Under drainage and monitoring system in base preparation layer

In situ soil

G:M:B$^+$ and G:L:B$^+$ Landfills

G:S:B$^+$ Landfills



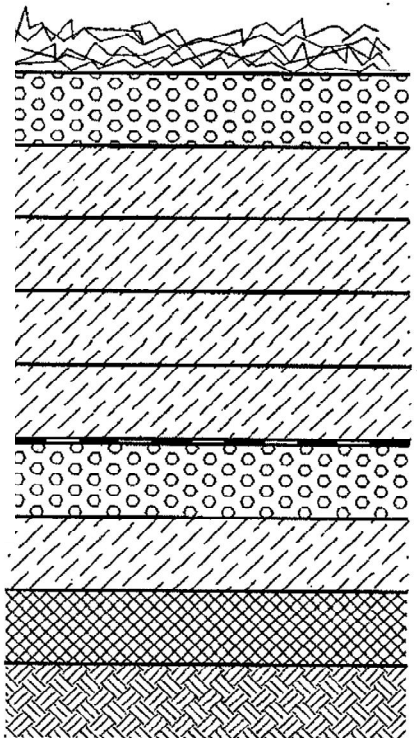
Waste body

150mm Leachate collection layer

300mm Compacted clay liner (in 2x150mm layers)

150mm Base preparation layer

In situ soil



Waste body

150mm Leachate collection layer

600mm Compacted clay liner (in 4x150mm layers)

Geotextile layer

150mm Leakage detection and collection laye

150mm Compacted clay liner

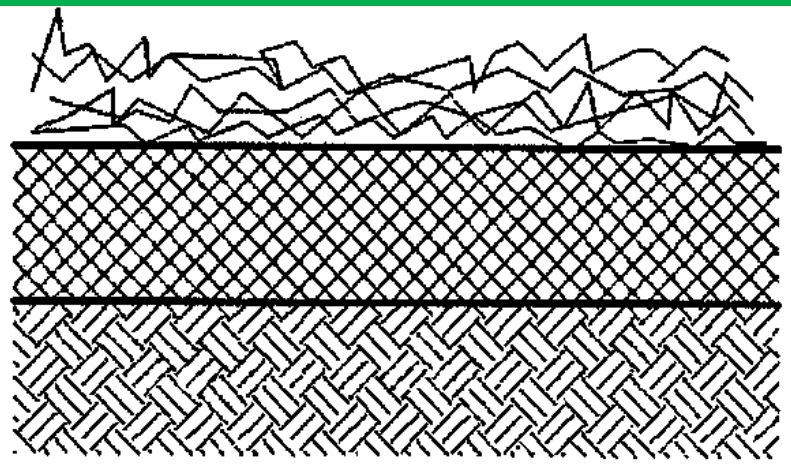
150mm Base preparation layer

In situ soil

environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

Class D Containment Barrier Requirements

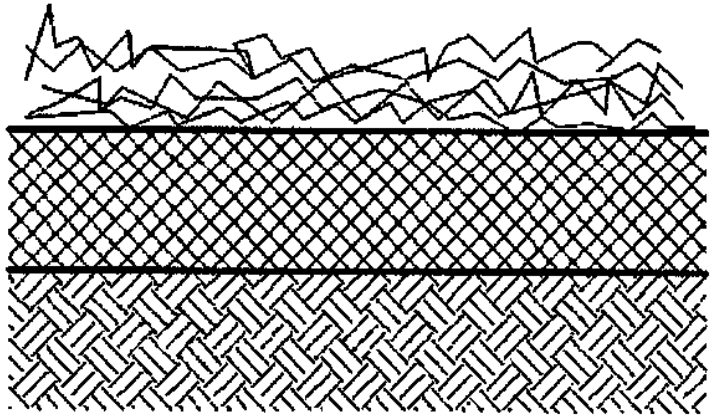


Waste body

150mm Base preparation layer

In situ soil

G:S:B$^-$ Landfills



Waste body

150mm Base preparation layer

In situ soil

Application for a Waste Licence for a Landfill Site or Cell

- In application for a licence for approval of a landfill site or cell the following requirements apply -
  - Design drawings certified by a registered, professional civil engineer
  - Consider temperature effects on liners
  - Seepage must be calculated in determining leakage rates
  - Alternative elements of approved equivalent performance may be considered
  - All drainage layers shall contain drainage pipes
  - Alternative designs for slopes exceeding 1:4 can be considered
  - Construction Quality Assurance is required on site
  - Geosynthetic materials must comply with SABS specifications
  - Chemical compatibility of liner material with the waste stream

Disposal of Waste to Landfill

- Wastes may be disposed of at landfills with the liner design requirements contained in the Minimum Requirements for the life-span of the operation cell, subject to:
  - Current working cell was operating lawfully prior to the Regulations coming into operation;
  - The next working cell was legally approved prior to the Regulations coming into operation; OR
  - An application for a new landfill or working cell had been made and a decision had not yet been taken
- Design and operation of future cells not included in the licence must be upgraded to the new containment barrier designs

Disposal Requirements

Waste Risk Level	Disposal Requirements
Type 0:	Disposal **not allowed**. The waste must be treated first and then re-tested to determine the risk profile for disposal.
Type 1:	**Class A** or **Hh/HH**
Type 2:	**Class B** or **GLB+**
Type 3:	**Class C** or **GLB+**
Type 4:	**Class D** or **GSB-**

Slide 30

N9 We suggest that you cover slide slide 35-37 on slide 34…
Ndivhuwo, 2013/10/04

Disposal Requirements – section 2(a)

Listed Waste	Disposal Requirements
(i) Domestic waste. (ii) Business waste not containing hazardous waste or hazardous chemicals. (iii) Non-infectious animal carcasses. (iv) Garden waste.	**Class B** or **GLB+**
(v) Post-consumer packaging. (vi) Waste tyres.	**Class C** or **GLB+**
(vii) Building and demolition waste not containing hazardous waste or hazardous chemicals. (viii) Excavated earth material not containing hazardous waste or hazardous chemicals.	**Class D** or **GLB-**

Disposal Requirements – section 2(b)

Listed Waste	Disposal Requirements
(i) Asbestos Waste. (ii) Expired, spoilt or unusable hazardous products. (iii) PCBs (or rather PCB containing waste (>50ppm)) (iv) General waste, excluding domestic waste, which contains hazardous waste or hazardous chemicals. (v) Mixed, hazardous chemical wastes from analytical laboratories and laboratories from academic institutions in containers less than 100 litres.	**Class A** or a **Hh / HH landfill**

Disposal Requirements – Waste Classified in terms of the Minimum Requirements

- May be accepted and disposed of for a period not exceeding 3 years after promulgation of the Regulations as follows:

Waste	Disposal Requirements
Hazardous Waste – Hazard Rating 1 or 2	**Class A** or **HH**
Hazardous Waste – Hazard Rating 3 or 4	**Class A** or **Hh**
Hazardous Waste – Delisted	**Class B** or **GLB+**
General Waste	**Class B** or **G S/M/L B-/B+**

- After 3 years the waste must be re-classified in terms of SANS 10234

Waste Prohibited or Restricted in terms of Disposal

Waste Prohibited or Restricted in terms of Disposal	Compliance Timeframe
Waste which, in the conditions of a landfill, is explosive, corrosive, oxidizing, or flammable (according to SANS 10234).	Immediate
Waste with a pH value of <6 or >12.	Immediate
Flammable waste with a closed cup flashpoint lower than 61^0C	Immediate
Reactive waste that may react with water, air, acids or components of the waste, or that could generate unacceptable amounts of toxic gases within the landfill.	Immediate
Waste compressed gases (according to SANS 10234 or 10228).	Immediate
Untreated Healthcare Risk Waste (HCRW).	Immediate
(i) POPs pesticides listed under the Stockholm Convention. (ii) Residue pesticides and pesticide containers.	Eight (8) years Four (4) years
Lead acid batteries.	Immediate
Other batteries	Eight (8) years
Reusable, recoverable or recyclable used lubricating minerals oils, as well as oil filters, but excluding other oil containing wastes.	Four (4) years
Reusable, recoverable or recyclable used or spent solvents.	Five (5) years
PCB containing wastes (>50 mg/kg or 50 ppm).	Five (5) years
Hazardous waste Electric and Electronic Equipment (WEEE) – Lamps.	Three (3) years
Hazardous waste Electric and Electronic Equipment (WEEE) – Other.	Eight (8) years

Waste Prohibited or Restricted in terms of Disposal

Waste Prohibited or Restricted in terms of Disposal	Compliance Timeframe
Waste tyres: Whole.	Immediate
Waste tyres: Quartered.	Five (5) years
Liquid waste– (i) Waste which has an angle of repose of less than 5 degrees, or becomes free-flowing at or below 60 ºC or when it is transported, or is not generally capable of being picked up by a spade or shovel; or (ii) Waste with a moisture content of >40% or that liberates moisture under pressure in landfill conditions, and which has not been stabilised by treatment.	Six (6) years
Hazardous waste with a calorific value of: (i) > 25 MJ/kg. (ii) > 20 MJ/kg. (iii) > 10 MJ/kg. (iv) > 6% TOC.	 Four (4) years Six (6) years Twelve (12) years Fifteen (15) years
Brine or waste with a high salt content (TDS > 5%), and a leachable concentration for TDS of more 100 000 mg/l.	Eight (8) years
Disposal of garden waste: (i) 25% diversion from baseline at a particular landfill of separated garden waste. (ii) 50% diversion from baseline at a particular landfill of separated garden waste.	 Five (5) years Ten (10) years
Infectious animal carcasses and animal waste.	Immediate

Prohibited or Restricted Waste Disposal Activities

Prohibited or Restricted Waste Disposal Activities	Timeframe
Disposal of– (i) Type 1 waste that has been treated, with waste listed in paragraph (2) (a) of Annexure 1 to the Regulations; (ii) Waste classified as hazardous ito Regulation 4(1), or waste listed in paragraph (2)(b) of Annexure 1 to the Regulations, with waste listed in paragraph (2)(a) of Annexure 1 of the Regulations; and (iii) Type 4 waste with any waste other than Type 4, unless part of treatment.	Five (5) years
Macro encapsulation of waste.	Eight (8) years

Implications for Provinces

- Provinces issue waste management licences for Class B, C and D landfill sites:
  - Need to enforce the new containment barrier requirements through licences conditions
  - Need to enforce the landfill restrictions (within the specified timeframes) through amending acceptable waste types in the waste licences
- Waste disposal facility licence applications made prior to the promulgation on the WM&CR must be processed in terms of the liner requirements in the Minimum Requirements

Implications for Municipalities

- Local Government are owners of general landfill sites and hence are waste managers
- General waste is listed and does not need classification ito the SANS 10248 or assessment ito N&S for Assessment of Waste for Landfill
- Liner requirements of landfills operating, legally approved or in process of getting a licence at the time of promulgation of the Regulations will be as per the Minimum Requirement
- Municipalities will have to:
  - enforce the landfill restriction on municipal landfill sites by ensuring measures are place to prevent receipt and landfilling of prohibited or restricted wastes
  - budget for and apply the new containment barrier requirements for new landfills
  - consider developing inert landfill sites
  - plan for the diversion of garden waste
  - determine the baseline for separated garden waste currently received
- Will need to work with industry to ensure waste segregation to be able to achieve diversion targets – liquid waste, calorific waste

THANK YOU

Mr Tshepo Moremi
Chief Director: Hazardous Waste Management and Licensing
tmoremi@environment.gov.za

Mr Bonginkosi Dlamini
Director: Licensing
brdlamini@environment.gov.za

Dr Shauna Costley
Acting Director: Hazardous Waste Management
scostley@environment.gov.za

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA