




contemplating stringent waste acceptance criteria to landfill

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moving from...

- **dilution is the solution to pollution**

- pollution control is the solution to pollution

to..

Dump

- pollution prevention is the solution to pollution

Control

Recycle

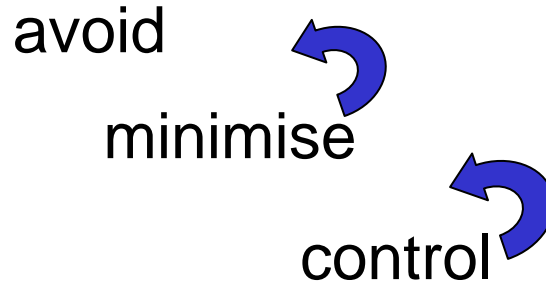
Prevent

60's 70's 80's 90's

Time →



cleaner production is about avoidance



“anticipate and prevent”

“solve problems”

“reduce total life cycle cost”

“react and treat”

“shift problems”

“incur additional cost”



waste.....

adopt a systematic and hierarchical approach to Integrated waste management (avoidance, reduce, re-use, recycle, treatment, disposal) with the goal of zero hazardous waste

the following needs to be demonstrated when dealing with waste:

- **planning – waste generation inventory, monitoring, permitting, reporting, auditing**
- **pro-active prevention – cleaner production**
- **effective and sensible reuse and recycling**
- **responsible treatment and disposal**

- **small quantity wastes – adequately addressed**
 - *separate*



important to consider the wider context

- not all wastes can (or ought to be) be landfilled
- consider what wastes can be accepted in landfills
- establish whether landfill is the most appropriate waste management option
 - *that's better than saying "divert waste from landfill"*
- consider practical issues such as the cost and availability of both treatment and landfill options

draft standards for disposal of waste to landfill

(issued by DEA 26/05/10 for discussion at 2 June stakeholder workshop)

- landfill acceptance criteria
 - hazardous waste can only be accepted at an appropriately designed and operated landfill in terms of the waste's

Waste Risk Profile

- waste disposal restrictions
 - *“dilution of a waste by any means to reduce the threshold concentration of any contaminant, so that it can meet the threshold criteria of a particular waste risk profile is prohibited”*



Analyse a Representative Sample(s) of the Waste for TC (mg/kg) for required Inorganic and Organic Parameters and Compare to Thresholds

TC is always less than twenty times SASLP0, i.e. $TC < 20 \times SASLP0$

Yes
Type D Waste

No

Analyse Representative Sample(s) of the Waste using the SASLP
1) If $TC > 20 \times SASLP0$ for any inorganic contaminant(s) analyse for inorganic compounds.
2) If $TC > 20 \times SASLP0$ for any organic contaminant(s) analyse for organic compounds.

$LC > SASLP2$
or
 $TC > SASTC2$

Type A Waste

$SASLP1 < LC = SASLP2$
or
 $SASTC1 < TC = SASTC2$

Type B Waste

$SASLP0 < LC = SASLP1$
or
 $SASTC0 < TC = SASTC1$

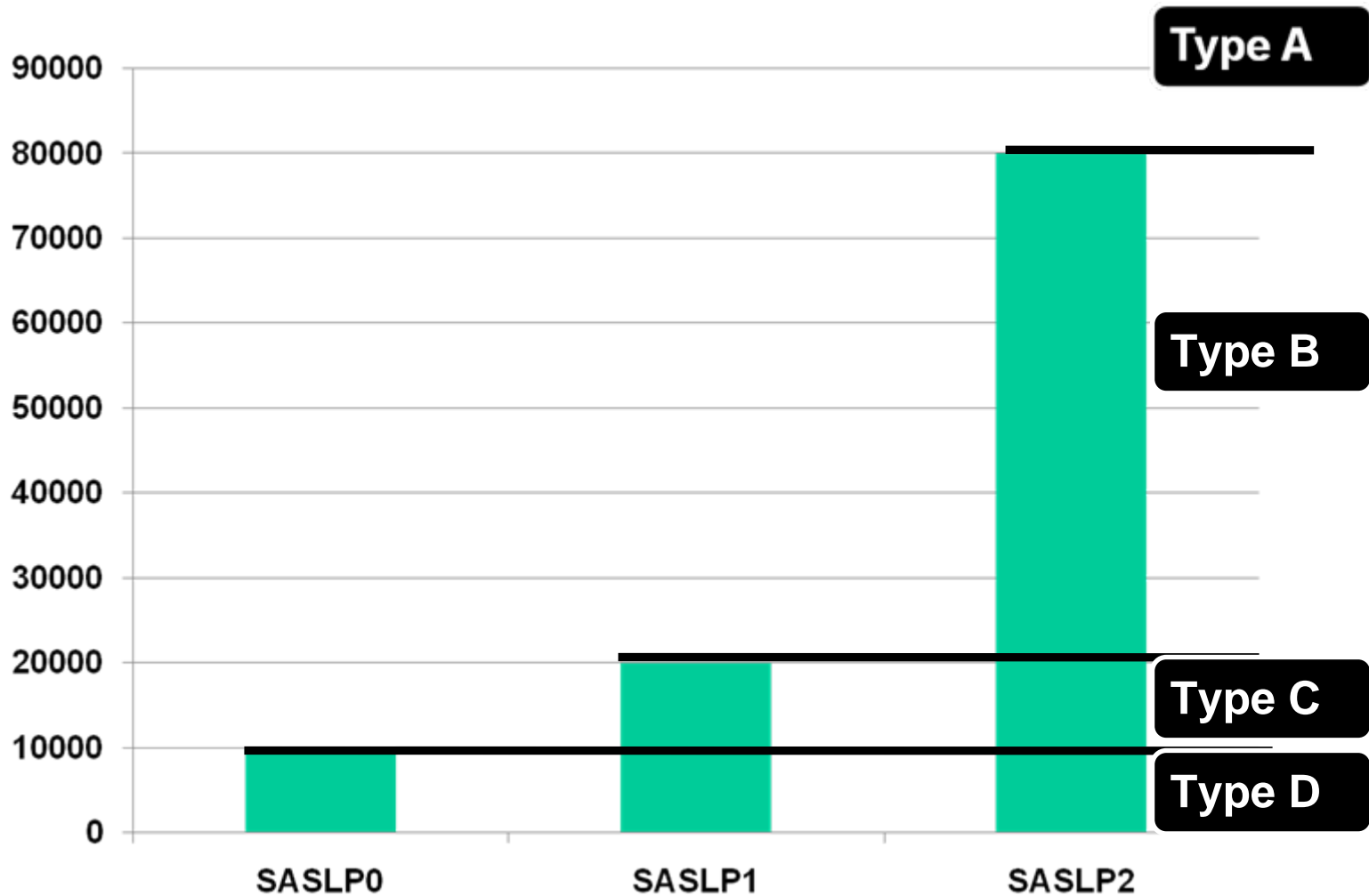
Type C Waste

$LC = SASLP0$
and
 $TC = SASTC0$

Type D Waste

(DEA proposal, May 2010)





SASLP: South Africa Standard Leaching Procedure

disposal requirements for hazardous waste (proposed by DEA)

waste risk profile	description	disposal option
A extreme risk (LC > SASLP2)	very high risk waste (very high level of control)	not allowed
B high risk (SASLP1 < LC ≤ SASLP2)	high risk waste (high level of control)	HH
C moderate risk (SASLP0 < LC ≤ SASLP1)	low risk waste (proposer control)	GLB+
D very low risk (LC ≤ SASLP0)	very low risk waste (some level of control)	GSB-

SASLP: South Africa Standard Leaching Procedure

disposal requirements for general waste

waste risk profile	disposal option*
domestic waste	GLB- or GLB+
building and demolition waste	GLB- or GLB+
inert waste	GSB-

* disposal allowed at a site designed and operated as specified in the Minimum Requirements Waste Disposal by Landfill (2nd ed., DWAF, 1998).

waste prohibited from disposal (DEA proposal)

Immediate

- existing restrictions*
- lead acid batteries
- tyres
- pesticides
- HCRW (untreated)
- compressed gasses
- wastes with:
 - pH < 6
 - pH > 12

2 – 5 years

- used oil
- used /spent solvents
- PCB wastes
- e-wastes (lights)
- liquid wastes
- tyres - quartered
- hazardous wastes** with high heating value
 - (> 20MJ/kg)

6 – 10 years

- brines (>5% TDS)
- wastes with greater than 6% organic content
- e-wastes (other)
- other batteries
- hazardous wastes** with lower heating value
 - (>10 MJ/kg)

*existing conditions include prohibiting waste which, in a landfill, is reactive, explosive, corrosive, oxidizing, or flammable (according to SANS 10234)

**non halogenated



prohibited waste disposal activities (DEA proposal)

- **within three years:**
 - co-disposal of waste that has been treated (Type A: extreme Risk Waste Profile), or
 - co-disposal of hazardous and general waste.
 - blending of waste (e.g. with ash) to reduce the moisture content thereof.
- **within eight years:**
 - macro encapsulation of waste

lessons from the UK approach

- not everything can be landfilled
- wastes can only be accepted at a landfill if they meet the waste acceptance criteria (WAC) for that class of landfill
- most wastes are treated before they can be sent to landfill.
- there is a formal process for identifying and checking wastes which must be followed before wastes can be accepted at a landfill site.
- comprehensive “checklist”
 - *source, process description, composition, appearance,, etc.*
 - *requires to demonstrate that the waste can be landfilled and why it cannot be recovered, recycled*

the UK regulations introduce a 'hierarchy of waste characterisation and testing'.

- **basic characterisation.**
 - *constitutes a thorough determination, according to standardised test methods, of the short and long-term leaching behaviour and/or characteristic properties of the waste.*
- **compliance testing.**
 - *constitutes periodical testing by simpler standardised test methods to determine whether a waste complies with permit conditions and/or specific reference criteria. The tests focus on key variables and behavior identified by basic characterisation*
- **on-site verification.**
 - *constitutes rapid check methods to confirm that a waste is the same as that which has been subjected to compliance testing.*
 - *it may merely consist of a visual inspection*



points for discussion

- separate landfilling from contaminated land issues
- the alignment of waste risk profiles with landfill classification of 2nd edition Minimum Requirements (document 2)
- time frames and transition
- Include process on how to deal with legitimate exceptions
- prohibition of any dilution of wastes
- other challenges?