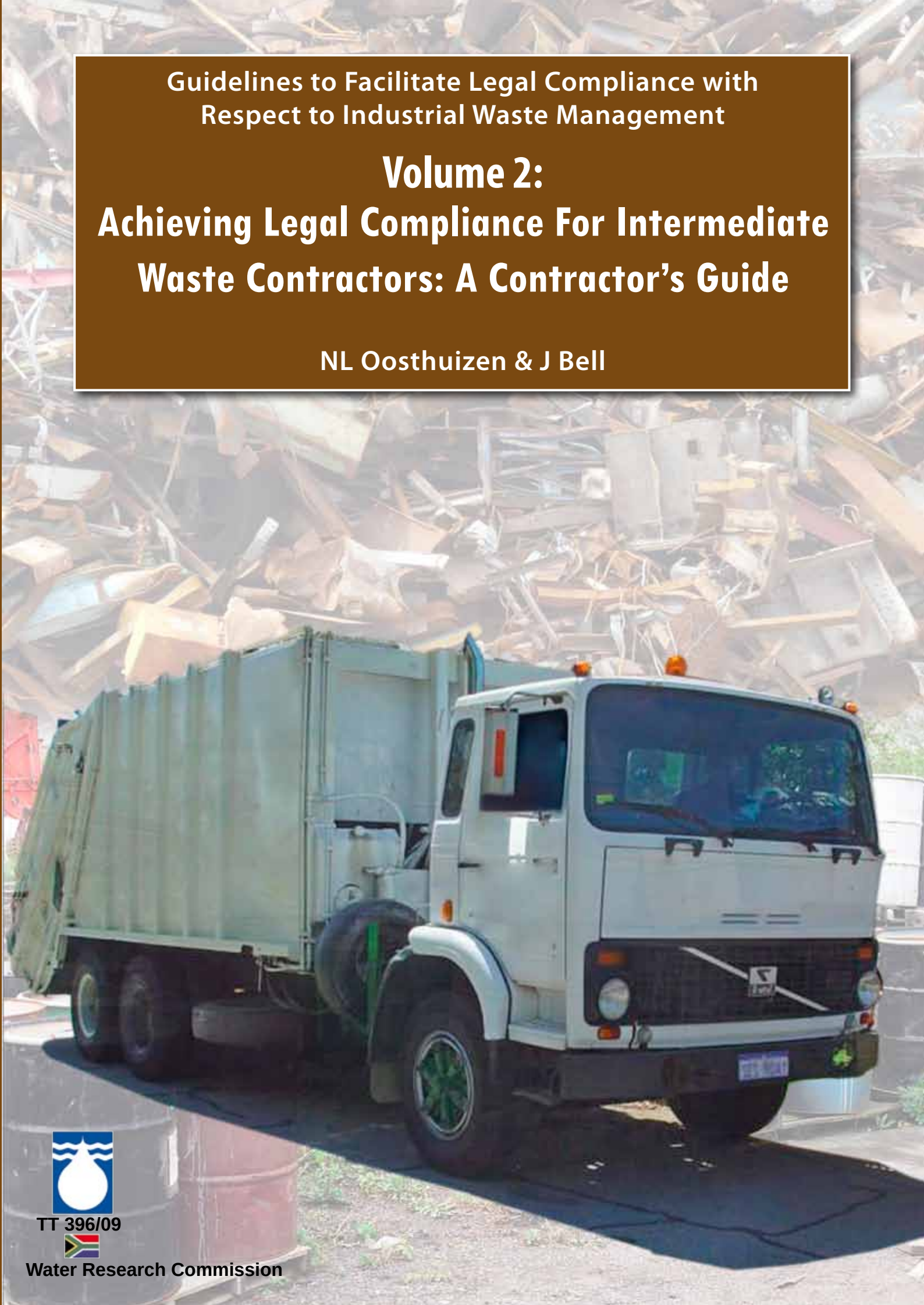
Guidelines to Facilitate Legal Compliance with Respect to Industrial Waste Management

Volume 2: Achieving Legal Compliance For Intermediate Waste Contractors: A Contractor's Guide

NL Oosthuizen & J Bell



TT 396/09

Water Research Commission

GUIDELINES TO FACILITATE LEGAL COMPLIANCE WITH RESPECT TO INDUSTRIAL WASTE MANAGEMENT

VOLUME 2:

ACHIEVING LEGAL COMPLIANCE FOR INTERMEDIATE WASTE CONTRACTORS: A CONTRACTOR'S GUIDE

Report to the
Water Research Commission

by

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on behalf of
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Understanding legal responsibilities with respect to waste management can be a daunting task. Compliance requirements pertaining to waste is contained in a wide array of legislation, across all tiers of government and administered by numerous government departments. Bad waste management practises can lead to high clean-up and rehabilitation costs in terms of Section 28 of the National Environmental Management Act (Act 73 of 1998) and Section 19 of the National Water Act (Act 36 of 1998).

This series of Guideline Documents sets out to provide waste generators, waste contractors and authorities with the necessary tools to assess waste practises by breaking down the complex requirements into simple and easy to understand language. By using these documents companies will also have the necessary knowledge to develop waste management plans that may be required in terms of future waste management legislation.

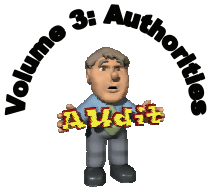
Separate Guideline Volumes deal with Waste Generators, Intermediate Waste Contractors and Authorities tasked with evaluating an organisation's compliance status. Some aspects of the guides are repeated such as the legal framework, but the content is amended to highlight the requirements specific to the target audience.

VOLUME ONE:

MANAGING YOUR WASTES TO ACHIEVE LEGAL COMPLIANCE: AN INDUSTRY GUIDE

VOLUME TWO:

ACHIEVING LEGAL COMPLIANCE FOR INTERMEDIATE WASTE CONTRACTORS: A CONTRACTOR'S GUIDE



VOLUME THREE:

AUDITING WASTE GENERATORS AND INTERMEDIATE WASTE CONTRACTORS TO ASSESS AND MONITOR LEGAL COMPLIANCE: AN AUTHORITY'S GUIDE

IMPORTANT NOTE

These guideline documents were finalised before the promulgation of the National Environmental Management: Waste Act 59 of 2008 (NEM:WA). Version B39 of the National Environmental Management: Waste Bill of 2007 was used for the drafting of the guidelines. Please refer to the NEM:WA when reviewing licence requirements as Section 20 of the Environment Conservation Act 73 of 1989 is no longer applicable. It is also noted that the waste activities as listed under the EIA Regulations have been removed and listed waste activities are part of the NEM:WA

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The Reference Group responsible for this project consisted of the following persons:

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CHAPTER ONE: INTRODUCTION

1.1 PURPOSE OF THE GUIDE

This guide has been developed to assist you as the owner or manager of an intermediate waste contracting business to manage your clients' wastes better by:

- complying with legal requirements
- safely handling, transporting and storing wastes
- effectively managing any sub-contractors that you employ
- disposing of your own wastes and your clients' wastes to the correct landfill site

thereby minimising the impact of your operations on the environment and your business.

The focus of the guide is on solid and liquid wastes discarded for recycling, treatment or landfilling, although some references are made to trade effluent and air emissions.

1.2 FOR WHOM THE GUIDE IS INTENDED?

This guide has been developed for the ***Intermediate Waste Contractor*** who is a waste contractor that may carry out any of the following activities:

(1) The removal of effluent for disposal to a wastewater works such as the eThekwini Water and Sanitation (EWS) Southern Wastewater Treatment Works (WWTW) facility.

(2) The removal and transportation of wastes to a landfill site that is neither owned nor operated by the intermediate waste contractor.

(3) The removal and transportation of wastes directly to a treatment facility such as an oil refining plant that is neither owned nor operated by the intermediate waste contractor.

(4) The removal and transportation of wastes to a transfer facility or premises owned and operated by the intermediate waste contractor where the wastes may be: sorted for recycling; stored for removal to a landfill site once sufficient volume has been accumulated; processed to reduce the volume and / or the toxicity of the wastes requiring disposal to landfill

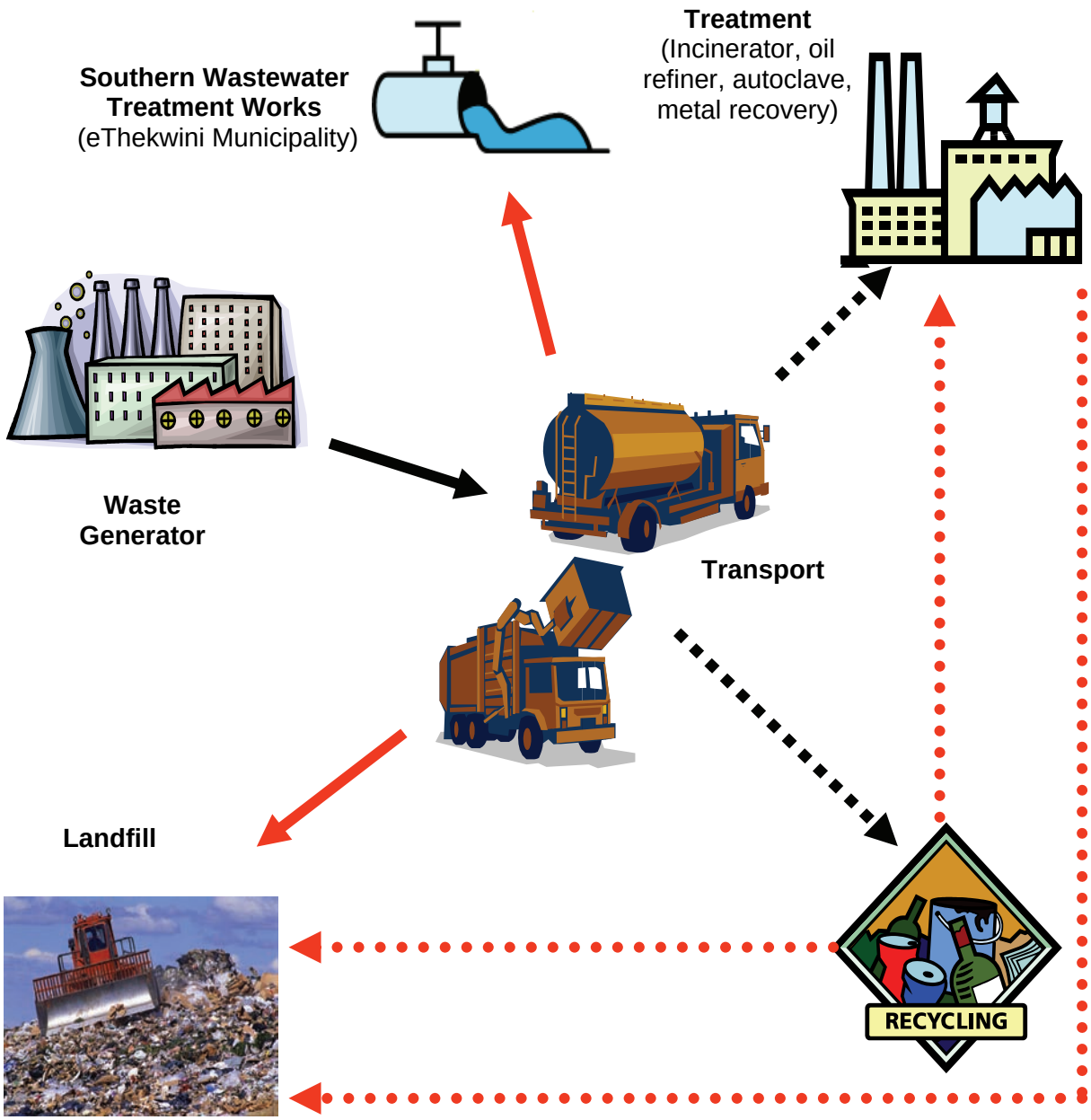
The guide is intended for use by members of an organisation who are responsible for environmental, health and safety matters within their company and who have the ability to influence the company's waste management practises.

As the intermediate waste contractor you are part of the waste management chain and therefore it is important that you are aware of your responsibilities with respect to how you manage wastes on behalf of your clients. Poor waste management practises can have an adverse impact on the environment and the health and safety of the citizens of our country. You need to identify the legal responsibilities that apply to your company and ensure that you have implemented adequate management practises to demonstrate compliance.

1.3 CASE STUDY: THE ETHEKWINI METRO

Whilst the guide is applicable to waste management in the national context, the eThekwini Municipality has been used as a case study to illustrate how local legislation has a bearing on waste management practises. *If your company is based in other areas, please make sure you find out what provincial requirements and local by-laws apply. This can be done by looking on the web sites of your local provincial environmental department and your local authority. If the information is not readily available you may need to visit the offices of your local authority, commission a consultant to assist you, or subscribe to a service that provides you with updated legislation.*

A SIMPLIFIED DIAGRAM DEPICTING SOME OF THE ACTIVITIES OF THE INTERMEDIATE WASTE CONTRACTOR



THIS GUIDE CAN BE USED TO:
☑ Reference legal requirements
☑ Review preferred waste management practises and enhance your company's compliance status
☑ Assess your current waste management practises against those detailed in the guide and identify opportunities for improvement

CHAPTER TWO: LEGAL FRAMEWORK

SUMMARY

Legal Reference	Abbreviation	Issues
National Environmental Management Act	NEMA	Pollution prevention, environmental management principles, incident management
National Water Act	NWA	Pollution prevention, incident management, water use and licensing
Environment Conservation Act	ECA	Littering, permitting for waste facilities, disposal to permitted facilities
Hazardous Substances Act	HSA	Classification of certain substances as hazardous – 4 classes
National Road Traffic Act and National Road Traffic Regs	NRTA and Regs	Chapter 8: Transportation of dangerous goods and thus hazardous waste
SANS 10228	-	Legal requirements for the classification of dangerous substances – first step in waste classification – assigning the SANS 10228 classes
SANS 10229	-	Packaging requirements for transport of dangerous goods
SANS 10231	-	Operational requirements for transport of dangerous goods – including the despatch of hazardous wastes
Occupational Health and Safety Act	OHSA	Health and safety in the workplace and beyond the fenceline
Hazardous Chemical Substance Regulations	HCS Regs	Storage, handling, transport and disposal of HCS, asbestos, lead and HBAs, including training requirements
Asbestos Regulations	Asbestos Regs	
Lead Regulations	Lead Regs	
Hazardous Biological Agents Regulations	HBA Regs	
Health Act and National Health Act	-	Prevention of nuisance conditions
Minimum Requirements series	Min Reqs	Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste
By-laws	-	Storage, registration of waste contractors, flammable substances storage and transport, permitting of scheduled trades, trade effluent discharge
National Environmental Waste Management Bill	NEM:WMA	Licensing of waste activities, priority wastes, establishment of norms and standards, requirements for storage, transport and disposal of waste, assessment and clean-up of contaminated land, establishment of a waste information system

2.1 *WHAT ARE LEGAL REQUIREMENTS?*

Legal requirements are those that are enforceable by law and may be grouped into the following fields:

- Waste Management and Pollution Control
- Resource Conservation and Utilisation
- Land Use and Planning

Apart from acts, international conventions, regulations and bylaws, legal requirements may also take the form of permits, licenses, authorisations, directives, and lease agreements. Some South African National Standards (SANS) documents have been incorporated into acts and regulations, thereby making them legally binding.

2.2 *THE DEVELOPMENT OF LEGISLATION*

The first step in changing policy in South Africa is the development of a Green Paper. This is usually in the form of a discussion document wherein various policy options are presented. The document is published in the Government Gazette and input is requested from all interested and affected parties. Once the Green Paper is finalised a more refined discussion document is produced called a White Paper. This is a broad statement of government policy on the subject. This document is published in the Government Gazette for comment.

Following the development of a White Paper, the Minister and officials within the relevant Department may draft legislative proposals to be considered by cabinet. These proposals may be gazetted into a bill for comment.

A Bill is a draft version of an Act. It may be proposing an entirely new Act, or amending an existing Act. It must be formally submitted to Parliament before they can consider making it a law.

NOTE:

If you are looking for a particular Act, Green Paper, White Paper, Regulation or Notice they are referenced as follows:

- The number of the Government Gazette (GG) in which they are published
- The date on which the Government Gazette was published
- The notice number (GN) within the Government Gazette that relates to the legislation under reference

For example: The National Environmental Management Act 108 of 1998 (GG 19519, GN 1540 of 27th November 1998)

Bills are usually discussed in the National Assembly or the National Council of Provinces (NCOP) and are also gazetted for public comment. The NCOP may hold special hearings to receive comments or suggestions from the public. Once the bill is approved it is allocated an act number and goes to the President for assent and signature, which is a requirement of the Constitution. It is then promulgated in the Government Gazette as an act.

Regulations may be promulgated to give more on specific compliance requirements in terms of an act. An example is the Regulations in terms of Chapter 5 of the National Environmental Management Act, 1998 – commonly referred to as the Environmental Impact Assessment Regulations or EIA Regs. These tell you how to comply with the requirements of that particular section of the act.

Government Notices may also be published whereby other documents such as SANS documents are incorporated as legally binding requirements in terms of specific acts or regulations.

Acts and regulations may be promulgated at a National Level or at a Provincial level (under the old administration an act promulgated by a province was referred to as an Ordinance). Legislation at local authority level is referred to as a bylaw. Bylaws may be promulgated in terms of National or Provincial legislation.

IMPORTANT NOTE:

Once an Act is gazetted, it may not immediately come into operation.

The Act usually includes a section entitled"*Commencement*". This section may say either that the Act:

- Commences on the date of publication, in which case it is immediately binding; or

- Takes effect on a date determined by the Minister by proclamation in the Gazette. In this case, the Gazettes need to be monitored for the publishing of a Notice that declares that the particular Act in question has commenced.

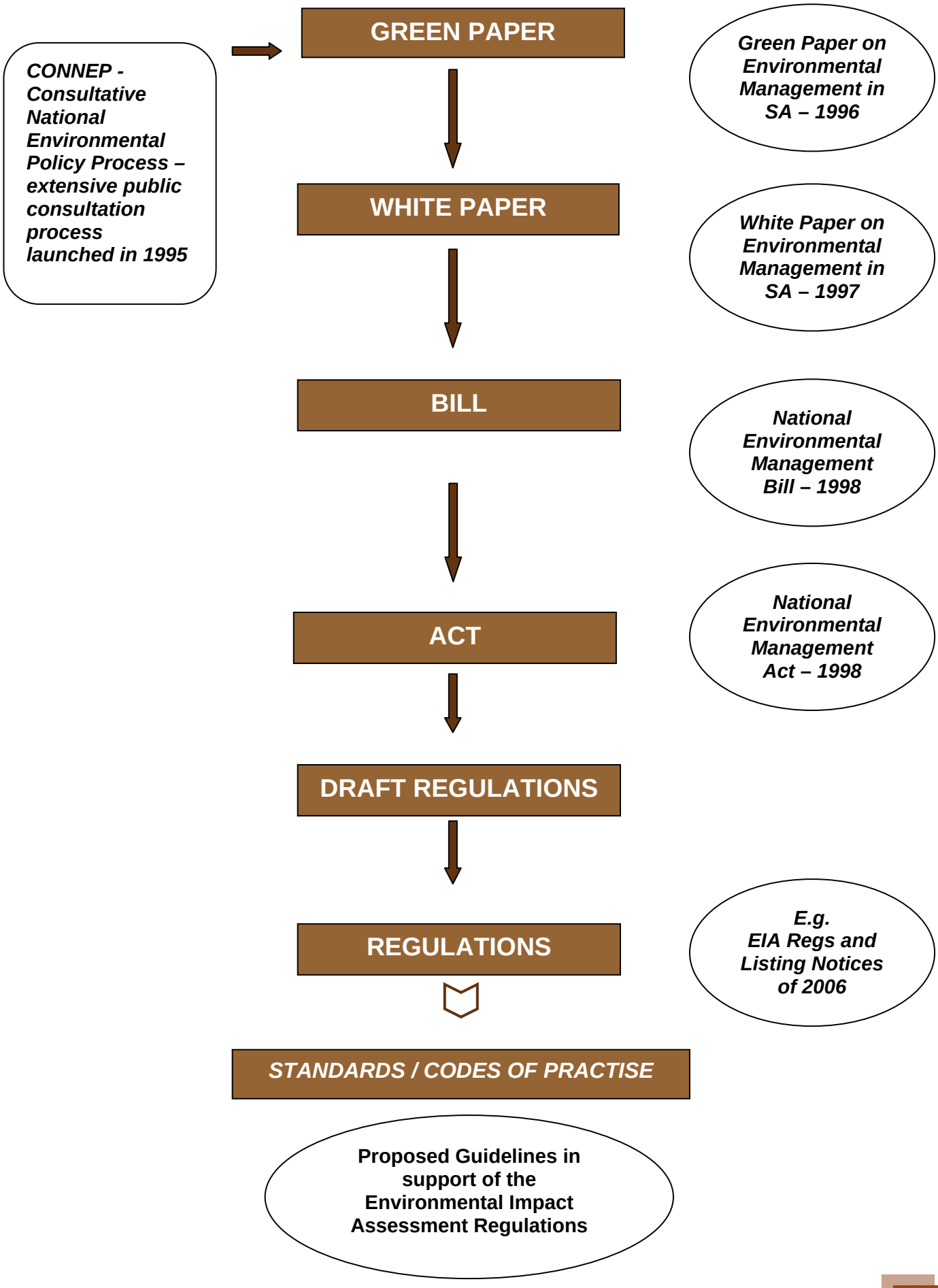
It is also important to note that sometimes only ***certain sections*** of a particular act come into effect, whilst other sections follow at a later stage. This is to allow for administrative actions to be undertaken by the relevant Department(s) before these sections may be implemented.

For example:
The National Environmental Management Air Quality Act 39 of 2004 was gazetted on 24th February 2005 but did not commence on this date.

The commencement date of 11th September 2005 was proclaimed in GNR 898, GG 28016 published on 9th September 2005. This notice however stated that the Act had commenced with the exception of Sections 21, 22, 36, 49 51(1)(e), 51(1)(f), 51(3), 60 and 61.

To date these sections have not come into effect and since S60 repeals the Atmospheric Pollution Prevention Act 45 of 1965 (APPA), APPA is still a legally binding act.

The diagram below depicts the development of the National Environmental Management Act 107 of 1998.



2.3 LEGISLATION PERTAINING TO WASTE MANAGEMENT

Waste management in South Africa is covered by a wide array of legislation at a National, Provincial and Local level (bylaws). To add to the complexities, legislation pertaining to waste issues is administered by a number of government departments including:

- The Department of Environmental Affairs and Tourism (DEAT)
- The Department of Water Affairs and Forestry (DWAF)
- The Department of Labour (DoL)
- The Department of Transport (DoT)
- Provincial environment departments
- Local authorities

This section seeks to *highlight* the *more important legislation* that has a bearing on waste management but is by no means a comprehensive narrative on the subject.

ENVIRONMENT CONSERVATION ACT DEFINITION (GN 1986 of 24/90): *"WASTE"*

"*..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 -*
is ***discarded*** *by any person; or*
is ***accumulated & stored*** *by any person with the* ***purpose of eventually discarding*** *it with or without prior treatment connected with the discarding thereof;*
building rubble used for filling or levelling purposes;
is ***stored*** *by any person with the* ***purpose of recycling, re-using or extracting a usable product*** *from such matter, excluding …"*

2.3.1 THE CONSTITUTION OF SOUTH AFRICA, 108 OF 1996

Section 24 of the Constitution enshrines Environmental Rights for all citizens of our country by providing that we are entitled to an environment that is not harmful to our health or well-being.

Furthermore, we have the right to have the environment protected for present and future generations through reasonable legislative measures that include the prevention of pollution and ecologically sustainable development.

Section 24 of the Constitution therefore obliges you to manage your clients and your own wastes in a way that prevents pollution and does not negatively affect the health and well-being of your employees or the community at large.

2.3.2 THE WHITE PAPER ON INTEGRATED WASTE MANAGEMENT AND POLLUTION CONTROL OF 2000

This document is not legally binding but is informative because it describes DEAT's approach to waste management. You should be aware of how the legal framework relating to waste management will be changed in the future.

The White Paper identified a number of important issues that needed addressing such as:

- The lack of priority afforded to waste management
- Fragmented legislation and ineffective enforcement
- Unacceptable safety, health and environmental practices for pollution and waste management
- The absence of integrated waste management options

The policy document was significant because it presented a change in thinking from a historic 'end-of-pipe' approach to pollution to a framework of preventative strategies that aim at waste minimisation and pollution prevention.

'End-of-Pipe'

Dealing with waste only after it has been generated, thereby focusing on disposal only

Seven strategic goals were identified in the policy:

- Effective Institutional Framework and Legislation
- Pollution Prevention, Waste Minimisation, Impact Management and Remediation
- Holistic and Integrated Planning
- Participation and Partnerships in Integrated Pollution and Waste Management Governance
- Empowerment and Education in Integrated Pollution and waste Management
- Information Management
- International Cooperation

2.3.3 THE NATIONAL WASTE MANAGEMENT STRATEGY

The National Waste Management Strategy (NWMS) presents a long-term plan (up to the year 2010) for addressing key issues, needs and problems experienced with waste management in South Africa.

It is also an action plan taking forward the goals of the White Paper on Integrated Waste Management and Pollution Control. The following priority initiatives were identified and are being addressed by the strategy:

- Integrated Waste Planning
- Waste Information Systems
- Waste Minimisation
- Recycling
- Waste Collection & Transport
- Waste Treatment
- Waste Disposal

2.3.4 THE POLOKWANE DECLARATION 2001

The Polokwane Declaration stemmed from a Waste Summit that was held in Polokwane during 2001. It was signed by government, business and civil society. The introduction to the declaration recognises that waste management is a priority for all South Africans and that there is a need for urgent action to reduce, reuse and recycle waste to protect the environment.

The vision of the declaration is:

"To implement a waste management system which contributes to sustainable development and a measurable improvement in the quality of life, by harnessing the energy & commitment of all South Africans for the effective reduction of waste"

The goal of the declaration is:

"To reduce waste generation and disposal by 50% & 25% respectively by 2012 and develop a plan for Zero Waste by 2022"

Although not a legally binding document, it gives a clear direction on government's intention as far as waste reduction is concerned. ***As a company you should thus be actively pursuing waste prevention and minimisation programmes.***

2.3.5 ENVIRONMENT CONSERVATION ACT 73 OF 1989

The objective of the Environment Conservation Act (ECA) is to provide for the effective protection and controlled utilisation of the environment. The act is administered by DEAT and the provincial government department that deals with the environment and is currently the main legislation that governs waste disposal in South Africa.

Although most sections of the ECA have been repealed by the National Environmental Management Act (NEMA), those dealing with waste are still in effect.

Section 19 prohibits the act of littering and therefore you should ensure that your wastes are adequately contained within your premises and in your container during transportation.

Section 20 deals with *Waste Management* and relates to the licensing of landfill sites and the disposal of waste.

Section 20(1) requires that landfill sites are permitted and ***Section 20(9)*** requires that all wastes are disposed at a disposal site that has been issued with a permit.

It is therefore necessary that:

- All your clients wastes are taken to permitted facilities – this includes recycling, reuse and treatment operations and
- You obtain copies of permits pertaining to the landfill site and recycling, reuse and treatment facilities where the wastes are taken. These permits include a wide range of legally binding conditions. You should review these conditions to ensure that the facility is allowed to accept the particular type of waste that you are taking there. It is also best practise to audit the waste facility to see if they are complying with their permit conditions.

TIP! Ask to see a copy of the waste facility's most recent external audit report. This will give you a clear indication of the management standard of the operation and any significant issues they face.

Some of these regulations are:

- Disposal site permit application
- Directions for control and management of general communal and general small waste disposal sites
- Noise control regulations
- Plastic bag regulations

2.3.6 NATIONAL ENVIRONMENTAL MANAGEMENT ACT 107 OF 1998

The National Environmental Management Act (NEMA) is the framework Act dealing with environmental management in South Africa. It is administered by DEAT and the provincial government department that deals with the environment. It also establishes principles for decision-making on matters affecting the environment. Many of the principles can be related to waste management activities and will be elaborated on in later Chapters.

Environmental Authorisations are required for various waste related activities. These are discussed further in Chapter 4, Section 4.2.

Perhaps the most important section of NEMA with respect to waste management in industry is ***Section 28*** which prescribes certain actions in terms of the *"Duty of Care and Remediation of Environmental Damage".*

NEMA DEFINITION:
"POLLUTION"

"Any change in the environment caused by-
(i) substances;
(ii) radioactive or other waves or
(iii) noise, odours, dust or heat,

emitted from any activity, including the storage or treatment of waste or substances …….

where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people……"

In a nutshell, ***Section 28*** requires every person who causes, has caused or may cause significant degradation of the environment, to take reasonable measures to prevent the pollution or degradation from occurring, continuing or recurring. It is important to note that should a company contravene this provision, then the authorities have the power to issue a directive under

Section 28(4) prescribing remediation steps that must be taken. Should the company fail to comply with this directive, the authorities have the power to undertake the necessary work and recover the costs from the company.

Although the act is not entirely prescriptive in what reasonable measures are required to be taken, it does provide some direction as to what reasonable measures include. See examples given in the diagram below.

Waste management reasonable measures (S28(3)) could include:

"Investigate, assess and evaluate the impact on the environment" – S28(3)(a)

- For example you should ensure that your customers identify their waste streams, classify the hazardous wastes, assess the different options for each waste stream and evaluate each option in terms of minimising the environmental impact

"Inform and educate employees about the environmental risks of their work and the manner in which their tasks must be performed in order to avoid causing significant pollution or degradation of the environment" – S28(3)(b)

- For example you should develop and implement appropriate waste management procedures and work instructions that cover the activities of your business. You also need to train your staff (including your sub-contractors and temporary employees) accordingly

"Cease, modify or control any act, activity or process causing the pollution or degradation" – S28(3)(c)

- For example, if you are storing wastes at your premises and your containers leak and / or overflow and cause soil pollution, you need to ensure that you develop infrastructure and provide facilities that do not cause pollution to the environment

"Contain or prevent the movement of pollutants or the causant of degradation" – S28(3)(d)

- For example if you have bulk waste / oil storage tanks at your premises you should ensure that the tanks are situated within a bunded area that can contain 10% more than the total volume of your storage tanks

"Eliminate any source of the pollution or degradation" – S28(3)(e)

- For example, if contaminated stormwater is leaving your premises, you must implement a program to eliminate the contamination. This may involve the separation of effluent and stormwater, spillage prevention and response procedures, bunding of tanks, etc.

"Remedy the effects of the pollution or degradation" – S28(3)(f)

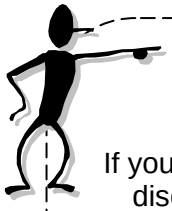
- For example, if the storage of wastes at your premises has caused soil pollution (and possibly the groundwater is also contaminated) you need to clean-up and remediate!

DID YOU KNOW?

The ***Section 28 duties pollution prevention duties*** are placed on:

- The ***owner*** of the land or premises
- The person ***in charge*** of the land or premises or
- The person who has the ***right to use*** the land or premises.

An example: If you are the landlord of a property and have sublet part of your property to another organisation which conducts an activity that causes pollution, you could be responsible for paying for the clean-up even if you were not directly involved in causing the pollution!



CAUTION!

If you ask one of your employees to discharge a drum of hazardous waste into a nearby river, he/she has the right to refuse to do this, as it would be a threat to the environment (***Section 29- Protection of workers refusing to do environmentally hazardous work***). You are also not allowed to dismiss, discipline, prejudice or harass this employee for exercising their rights!

Another important section of NEMA to be aware of is ***Section 30*** *"Control of Emergency Incidents"* which details a number of actions that you need to take should you have an emergency incident on or even off-site (such as when you are transporting hazardous waste to the landfill site).

NEMA S30(1)(a) DEFINITION:
INCIDENT

"An unexpected sudden occurrence, including a major emission, fire or explosion leading to serious danger to the public or potentially serious pollution of or detriment to the environment, whether immediate or delayed"

The responsible person is required to take certain actions including:

- Immediate reporting
- Containment and clean-up measures
- Remediation measures
- Post-incident reporting (to be submitted within 14 days of the incident)

NEMA defines responsible person as *including any person who:*

- *Is **responsible** for the incident;*
- ***Owns** any hazardous substance involved in the incident; or*
- *Was in **control** of any hazardous substance involved in the incident at the time of the incident.*

This means that as a transporter of waste your company can be held liable for an incident during the transportation of the waste.

Be aware that you could also be held liable for work that was being carried out on your behalf by a sub-contractor. For example: Your client has asked you to clean out a tank containing sludge. You remove the sludge from the tank and then ask another contractor to clean the tank using a high pressure cleaning system under your supervision. In the process, they spill contaminated wash-water into the stormwater drain located next to the tank. You (and you client and / or sub-contractor)

may potentially be liable for the pollution caused by the incident.

One of the criticisms relating to the state of the environment in South Africa is an apparent lack of enforcement of environmental legislation. The introduction of newly appointed and trained Environmental Management Inspectors (EMIs) – or Green Scorpions as they are commonly known – has been one of the important steps forward for monitoring and enforcing compliance with environmental management legislation. These inspectors can be from national, provincial or local government. They have wide ranging powers that extend as far as revoking permits and licences. You need to be aware that these officials can visit your company at any time to review your environmental management practises and compliance with relevant permits, licenses and authorisations.

Most company owners and managers in South Africa are aware that offences committed in terms of the Occupational Health and Safety Act 85 of 1993 are criminal offences. ***Section 34 of NEMA establishes the basis for directors, managers and employees to be held criminally liable for an offence that has been committed in terms of a list of Acts as detailed in Schedule 3 of NEMA.***

POTENTIAL LIABILITIES!

Liabilities that could be faced by a company that causes pollution include:

- Clean-up costs
- Remediation costs (long-term implications)
- Fines
- Criminal records and jail sentences for directors, managers and employees
- Payment of administrative costs of the state with respect to the investigation and prosecution
- Payment of the monetary value of any benefit that the guilty party achieved as a result of the offence

2.3.7 NATIONAL WATER ACT 36 OF 1998 (NWA)

The National Water Act deals with issues such as the protection of South Africa's water resources. The Act is similar in many respects to NEMA but focuses on pollution of water resources only. It is administered by the Department of Water Affairs and Forestry (DWAF).

NWA DEFINITION:
POLLUTION

"the direct or indirect alteration of the physical, chemical or biological properties of a water resource so as to make it—

(a) less fit for any beneficial purpose for which it may reasonably be expected to be used; or

(b) harmful or potentially harmful—

(aa) to the welfare, health or safety of human beings;

(bb) to any aquatic or non-aquatic organisms;

(cc) to the resource quality; or

(dd) to property"

As with NEMA, the NWA also contains a duty to prevent pollution which is detailed in ***Section 19***: *Prevention and remedying effects of pollution*. This section requires that an owner of land, a person in control of land or a person who occupies or uses the land on which any activity or process is or was performed that causes or is likely to cause pollution of a water resource, to take all reasonable measures to prevent any such pollution from occurring, continuing or recurring.

A number of *reasonable measures* are detailed. A directive can be issued to companies that have not undertaken the required actions (S19(3)). Failure to comply with the requirements of a directive can result in the required measures being undertaken by the authorities with the costs being charged to the company.

Section 20 of the NWA deals with the control of emergency incidents and thus must be taken into account should you store waste in a manner that may impact on a water resource following an incident. It also applies if your vehicles are involved in an incident that causes pollution.

NWA S20(1) DEFINITION:
INCIDENT

"any incident or accident in which a substance—

(a) pollutes or has the potential to pollute a water resource; or

(b) has, or is likely to have, a detrimental effect on a water resource"

The NWA defines the responsible person under Section 19(2) as *including any person who:*

- *is **responsible** for the incident;*
- ***owns** the substance involved in the incident; or*
- *was in **control** of the substance involved in the incident at the time of the incident"*

The responsible person is required to take certain actions including:

- Immediate reporting
- Containment and clean-up measures
- Remediation measures
- Measures that may be prescribed by the Catchment Management Agency

NWA DEFINITION:
WASTE

" includes 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"

A number of Water Uses are described in ***Section 21*** of the NWA and some of these water uses are applicable to waste management practises. A number of water uses are listed in ***Section 21*** and these include:

Section 21(f) *Discharging waste or water containing waste into a water resource through a pipe, canal, sewer or sea outfall or other conduit*

This water use could include discharging waste or wastewater directly into a river for example. Note: that this does not include the discharge of waste into a sea outfall or sewer that is under the control of another person who is authorised to undertake the purification, treatment and disposal of the waste or water containing waste (such as a municipal wastewater treatment works). You would however need a permit from the responsible authority and would need to comply with the prescribed discharge standards.

Section 21(g) *Disposing of waste in a manner which may detrimentally impact on a water resource*

This water use applies where waste disposal takes place into facilities on-site, for example

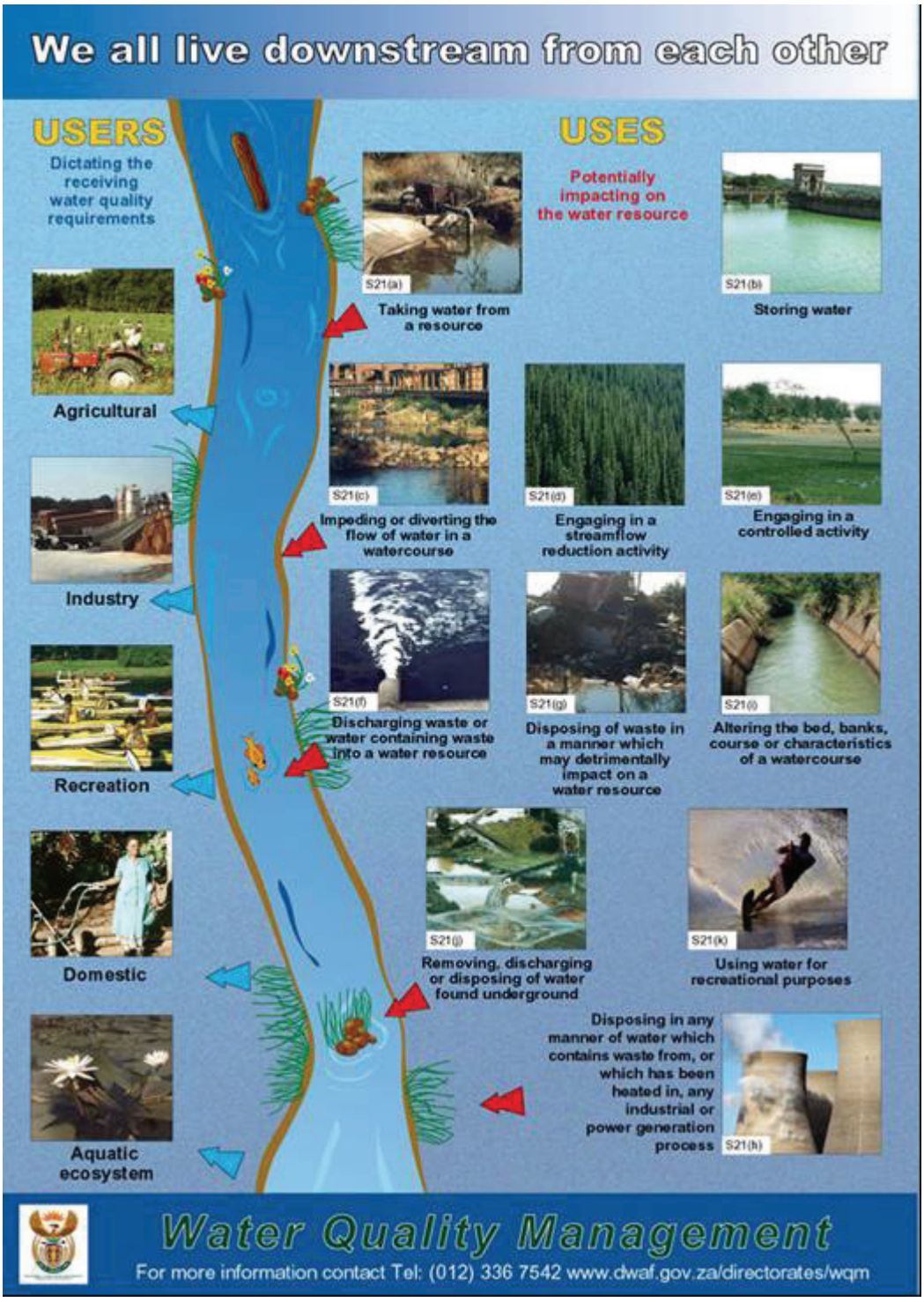
- French drains / conservancy tanks
- Oxidation ponds
- Evaporation dams
- Landfill sites

Section 21(h) *Disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process*

This water use typically refers to instances where effluent from power generation processes is discharged into the environment.

If you do need a water use license a useful document explaining the authorisation process is available on the DWAF website – it is entitled *Department of Water Affairs and Forestry, 2000. Water Use Authorisation process (individual applications). Edition 1 (March 2000).*

The poster below (sourced from the DWAF website) is a useful illustration depicting the different types of water uses.



Water use licenses may be required if your company is engaged in a water use activity (refer poster). Your water use may however be exempt in terms of the Revision of General Authorisations as promulgated in 2004 (GN 399, GG 26187 dated 26 March 2004). Your waste related water use may however be exempt in terms of the Revision of General Authorisations as promulgated in 2004 (GN 399, GG 26187 dated 26 March 2004). Information and application forms can be obtained from the following website http://www.dwaf.gov.za/Projects/WARMS (accessed February 2009).

2.3.8 *Occupational Health And Safety Act 85 of 1993*

The Occupational Health and Safety Act (OHSA) provides for the health and safety of persons at work and the community against hazards to health and safety as a direct result of the activities at a place of work. It places duties on employers and employees and is administered by the Department of Labour (DoL).

POTENTIAL LIABILITIES!

Do not forget your sub-contractors when you are dealing with health and safety issues. In terms of S37 of the OHSA you can be held liable for an offence that your sub-contractor has committed.

You should ensure that Health, Safety and Environmental Agreements are concluded with your contractors and that you audit their performance from time to time. A letter of good standing from the Compensation Commissioner should be obtained and copies of the contractors' health safety plans, and environmental management plans, and training records should also be reviewed depending on the scope of work to be carried out.

All your waste management activities need to be carried out in accordance with the requirements of the OHSA such as:

- Waste management practises must be safe and without risk.
- Risk assessments conducted should include waste related activities.
- Waste management training should be provided to employees and contractors.
- Written work instructions should be provided where necessary.
- Relevant personal protective equipment (PPE) and respiratory protective equipment (RPE) must be provided as a last resort after all other mitigatory measures have been reviewed.

A number of regulations promulgated in terms of the OHSA have a bearing on waste management issues. They are detailed in the following sections and are all administered by the DoL.

2.3.9 *Hazardous Chemical Substances Regulations of 1995*

These regulations form part of the OHSA. There are a number of duties with which you must comply with when handling hazardous chemical substances (HCS) and therefore hazardous wastes. The regulations are very long and detailed and a few of the more relevant sections with respect to waste management are included in this section.

It is important to note the training requirements under the HCS Regs. These training initiatives can assist you to improve upon your waste management practises. See the following page for some examples.

Some of the HCS Regs Training requirements and how they can benefit your waste management program

R3(1)(i) "The importance of good housekeeping at the workplace and personal hygiene"

- Training your employees in good housekeeping is one of the ways in which to minimise the potential for environmental pollution as a result of your company's activities.

R3(1)(j)"The safe working procedures regarding the use, handling, storage and labelling of the HCS at the workplace"

- Employees should be trained in all aspects of HCS management. This can assist you in your business activities, for example: ensuring that your sales staff know how to identify hazardous wastes; advising clients of the importance of keeping hazardous wastes separate from the general wastes; ensuring that you use containers that are compatible with the HCS properties; ensuring that the HCS containers that you collect are labelled as to the correct contents for both handling, transport, treatment and disposal purposes.

R3(k)"Procedures to be followed in the event of spillages, leakages or any similar emergency situation which could take place by accident "

- Spillages and other emergency situations can result in environmental pollution. If your employees have been trained in the procedures to follow, they can respond quicker and reduce the pollution potential of the incident.

Regulation 9A of the HCS Regs makes it compulsory to obtain a 16-point Material Safety Data Sheet (MSDS) for any HCS that you handle. HCS may form part of the hazardous waste streams that you handle, store, treat, transport and dispose on behalf of your clients and therefore the MSDSs are important documents to obtain. They should be used to train your employees on how to safely handle the wastes and to prevent and manage any pollution that may arise.

Emissions of HCS to atmosphere are dealt with under ***Regulation 10:*** Control of exposure to HCS. Regulation 10(3) requires emissions to the environment to comply with the Atmospheric Pollution Prevention Act, 45 of 1965 (APPA).

Regulation 14 deals with the labelling, packaging, transportation and storage of HCS. It requires that all HCS are properly identified, classified, labelled, transported and stored. This is dealt with in more detail in Chapter 7.

The disposal of HCS is detailed in ***Regulation 15*** of the HCS Regs. Specific requirements are listed, including the recycling, storing of HCS waste, transportation, and disposal of HCS waste to a permitted landfill site, including requirements to prevent exposure in the workplace and surrounding environment.

The Regs also require that there is a clause in the contract you have signed with your client that stipulates that you will comply with the requirements of the HCS Regs.

2.3.10 Asbestos Regulations of 2001

The Asbestos Regulations contain similar provisions that are relevant to waste management to those in the HCS Regs. Specific attention is drawn to:

- R5: Information and training – training on the safe disposal of asbestos waste is listed as a requirement

- R19: Labelling, packaging, transportation and storage
- R20: Disposal of asbestos

If you handle asbestos waste on behalf of your clients, it is important to ensure that you have taken the requirements into account.

Emissions of asbestos to the environment are dealt with under ***Regulation 13***: The control of exposure to asbestos of persons other than employees. The requirements include:

- Prevention of the release of dust to atmosphere;
- Filtering water which may contain asbestos fibres before it is released;
- Disposal of all contaminated material as asbestos waste; and
- Ensuring measures are taken to prevent the release of asbestos dust to atmosphere during transportation.

The Regs also require that there is a clause in the contract you have signed with your client that stipulates that you will comply with the requirements of the Asbestos Regs.

DWAF have produced a useful policy document on asbestos which is included in Annexure One of this guideline.

2.3.11 LEAD REGULATIONS OF 2001

The Lead Regulations contain provisions that are relevant to waste management. Specific attention is drawn to:

- R4: Information and training – training on the safe disposal of lead waste is listed as a requirement
- R16: Labelling, packaging, transportation and storage
- R27: Disposal of lead waste

If you handle, store and/or dispose of lead waste for your clients it is important that you ensure that you have taken the requirements into account.

Emissions of lead to the environment are dealt with under ***Regulation 11***: Control of exposure to lead. Regulation 11(3) requires that the release of lead into any environment or water system complies with the provisions of APPA, ECA, NWA, and NEMA.

The Regs also require that there is a clause in the contract that you have signed with your client that stipulates that you will comply with the requirements of the Lead Regs.

2.3.12 HAZARDOUS BIOLOGICAL AGENTS OF 2001

The Hazardous Biological Agents (HBA) Regulations contain provisions that are relevant to waste management.

HBA REGS DEFINITION:
HAZARDOUS BIOLOGICAL AGENT

"Hazardous biological agents which are micro-organisms, including those that have been genetically modified, pathogens, cells, cell cultures and human endoparasites that have the potential to provoke an infection toxic effects (sic), subdivided into the following groups…."

The definition goes on to define four different groups of HBA, from Group 1 which is unlikely to cause human disease to Group 4 which causes severe disease with a high risk of spreading to the community and for which no effective treatment is available.

Specific attention is drawn to:

- R4: Information and training
- R14: Labelling, packaging, transportation and storage
- R17: Disposal of HBA

If you handle, store and/dispose of HBA wastes for your clients, it is important that you ensure that you have taken the requirements into account.

Emissions of HBAs to the environment are dealt with under Regulation 10(2)(e) which requires emissions to the atmosphere to comply with the provisions of APPA.

The Regs also require that there is a clause in the contract that you have signed with your client that stipulates that you will comply with the requirements of the HBA Regs.

2.3.13 HEALTH ACT 63 OF 1977 AND THE NATIONAL HEALTH ACT 61 OF 2003

The Health Act provides measures for the promotion of health of the citizens of South Africa and is administered by the Department of Health (DoH). The Act has an impact on waste management in that it obliges local authorities to prevent nuisances and offensive conditions within their areas. Most local authorities have published bylaws in terms of this Act that deal with various activities (trades) that require permitting. It is thus important for you to check if your company requires a permit (See Section 2.3.19 for further details).

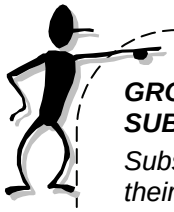
Most of the provisions of the Health Act have been repealed since the promulgation of the National Health Act. The latter Act provides for municipal health services which include:

- Water quality monitoring;
- Waste management;
- Health surveillance of premises;
- Environmental pollution control;
- Chemical safety

Environmental Health Officers can therefore be tasked with undertaking investigations in circumstances such as where pollution poses a danger to human health as a result of waste management activities.

2.3.14 HAZARDOUS SUBSTANCES ACT 15 OF 1973 (HSA)

This Act is administered by DoH. One of the aims of the Act is to *"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 sensitising or flammable nature or the generation of pressure…"* Four categories of hazardous substances have been declared under the Act.



GROUP I AND II HAZARDOUS SUBSTANCE:

Substances dangerous to humans due to their toxic, corrosive, irritant, strongly sensitizing or flammable nature or because they generate pressure through decomposition, heat or other means

[For the details of what Group I substances are – see GNR 452 of 25 March 1977]

[For the details of what Group II substances are – see GNR 1382 of 12 August 1994]

GROUP III HAZARDOUS SUBSTANCE:

Refers to certain electronic products

[For the details of what Group III substances are – see GNR 1302 of 14 June 1991]

GROUP IV HAZARDOUS SUBSTANCE:

This group includes radioactive substances which are defined in S1 of the Act as:

"*radioactive material which is outside a nuclear installation as defined in the Nuclear Energy Act, 1999, and is not a material which forms part of or is used or intended to be used in the nuclear fuel cycle, and—*

(a) has an activity concentration of more than 100 becquerels per gram and a total activity of more than 4 000 becquerels; or

(b) has an activity concentration of 100 becquerels or less per gram or a total activity of 4 000 becquerels or less and which the Minister has by notice in the Gazette declared to be a Group IV hazardous substance,

and which is used or intended to be used for medical, scientific, agricultural, commercial or industrial purposes, and any radioactive waste arising from such radioactive material"

No regulations have been promulgated for Group II substances which are those listed in SANS 10228, excluding Class I (explosive substances) and Class 7 (radioactive substances).

The regulations relating to Group III and Group IV substances are very detailed and as they have limited application in respect to this guide they are referenced below for information purposes:

- Regulations relating to Group III hazardous substances (GNR 690 of 14 April 1989)
- Regulations relating to Group IV hazardous substances (GNR 247 of 26 February 1993)

2.3.15 National Road Traffic Act 93 of 1996 (NRTA)

If your company transports hazardous waste or contracts others to do so on your behalf, you must ensure that both you and your sub-contractors comply with Chapter 8 of the National Road Traffic Act (NRTA) and the National Road Traffic Regulations of 2000. Dangerous Goods (as defined in SANS 10228) cannot be transported unless you comply with the requirements of the Act and the Regulations. The dispatch of hazardous waste off-site therefore falls under these requirements.

Various SANS documents have been made legally binding in terms of the National Road Traffic Regulations. It is therefore important that you obtain copies of these documents so that you are aware of all the legal requirements with which you (and any sub-contractors) and your clients must comply when dispatching and transporting hazardous waste off-site. This subject will be covered in greater detail in Chapter 7.

2.3.16 The Minimum Requirements Series Of Documents

The Department of Water Affairs and Forestry (DWAF) have produced the following series of guideline documents:

- Doc 1: *Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste*
- Doc 2: *Minimum Requirements for Waste Disposal by Landfill* (dealing with the siting, investigation, design, permitting, operation, monitoring and closure requirements for landfills), and
- Doc 3: *Water Monitoring of Waste Management Facilities.*

The 1998 edition of the documents is currently being revised by DEAT as they are now the lead authority with respect to waste management in South Africa.

Although these documents have not been incorporated into law, they are used as the basis for landfill and waste facility permitting. These activities are issued a Section 20 permit under the ECA, and the permits make reference to the *Minimum Requirements* documents. This means that the documents are legally binding on the operators of the landfill sites and other waste facilities.

As a waste contractor you need to be aware of these legal requirements. You need to ensure that when you are storing, treating, transporting and disposing of hazardous wastes it is done in accordance with the *Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste* and thus in terms of the relevant permit conditions as prescribed by the Minister. It is essential therefore that you have a copy of this document. It can be accessed on the DWAF website as follows: http://www.dwaf.gov.za/Dir_WQM/docs/Pol_Hazardous.pdf (Accessed Feb 09).

Chapter 7 will include more detail on the *Minimum Requirements Documents.*

2.3.17 Provincial Legislation – KwaZulu-Natal

You should check with your local provincial department that deals with environmental matters if there is any provincial legislation that deals with waste management issues. Some of the provincial legislation is very old, but some provinces are in the process of promulgating new environmental legislation. The Department of Agriculture and Environmental Affairs (DAEA) produced a draft KwaZulu-Natal Policy on Waste Management which was published in GN 9 on the 28th August 2003. DAEA is also in the process of developing the KwaZulu-Natal Prevention and Management of Waste Bill and associated regulations.

2.3.18 THE eTHEKWINI REFUSE REMOVAL BYLAWS MN 47 OF 2002

It is important that you consult the local bylaws for your area as they contain a number of requirements with which you need to comply. The eThekwini Refuse Removal Bylaws (MN 47 dated 17 October 2002) are applicable to industries operating in the Metro area. A significant section of the bylaws deals with the services provided by the local authority. Requirements relating to the eThekwini's disposal sites are also detailed. An example is that liquids may not be disposed on the Council's landfill sites unless prior written permission is received from the Head of Department (HOD) of Durban Solid Waste.

The bylaws also deal with *special industrial refuse* which may be either liquid or sludge wastes that cannot be discharged into the sewer system. There are also a number of administrative actions that you need to take to comply with these bylaws.

Make sure that you comply with the bylaws and that you store your own and your client's waste in suitable containers which are maintained in good condition. Do not allow the storage of wastes at your premises to accumulate to the extent that it creates nuisance conditions.

ACTIONS TO TAKE WITH RESPECT TO THE REFUSE REMOVAL BYLAWS:

Registration of Waste Contractors

If you are carrying out refuse removal services in the eThekwini Municipality, Section 2(3) requires that trade and industrial refuse may only be collected and removed from premises by a contractor approved in writing by the HOD for the purpose. Application for approval as a refuse removal contractor must be made to the HOD and it is also noted that this approval can be withdrawn by the HOD at any time. The approval may be granted or refused at the discretion of the HOD and shall be subject to a number of conditions such as: the period of validity and the type of refuse which may be managed.

Recycling Activities

If you are recycling wastes, Section 4(a)(i) states that you need the written permission of the HOD, for selling or otherwise disposing of corrugated cardboard, paper, glass or other material being an element of trade refuse, for recycling in a manufacturing process. The Medical Officer of Health's consent is also needed if you send any food wastes for animal consumption.

Removal of Special Industrial Refuse (Liquids and sludges)

Section 17(1) prohibits any person from removing special industrial refuse from premises on which it is generated without the written consent of the HOD. In giving this consent, the HOD must be satisfied that the person is competent and has the necessary equipment to carry out the removal. Section 15(1) stipulates that the HOD may request that they are informed from time to time as to the removal of special industrial refuse, the identity of the remover, the date of such removal, and the quantity and the composition of the special industrial refuse removed.

Builder's Refuse

Section 11(1) requires that all builders' refuse is deposited at the Council's disposal sites unless it is disposed of for the purpose of reclamation of land but only if prior written approval from the HOD has been obtained.

2.3.19 THE ETHEKWINI SEWAGE DISPOSAL BYLAWS MN 27 OF 1999

Although the focus of this guideline is not on effluent, your attention is drawn to the fact that you need a permit to discharge effluent other than normal domestic wastewater in terms of the eThekwini Sewage Disposal Bylaws (MN 27 of 1999). This permit is called a Trade Effluent Discharge Permit.

Trade effluent is defined as:

Any liquid whether or not containing matter in solution or suspension which is given off in the course of or as a result of any industrial, trade, manufacturing, mining or chemical process or any laboratory, research or agricultural activity, and includes any liquid other than standard domestic effluent or stormwater'.

If you are conducting any activities at your premises that require the discharge of trade effluent to sewer, you will need to ensure that you have a valid permit for this effluent discharge. If you remove trade effluent from a generator for disposal to the eThekwini Municipality Southern Wastewater Treatment Works facility both you and the waste generator must have the written permission from eThekwini Water and Sanitation to undertake this activity.

2.3.20 THE ETHEKWINI SCHEDULED TRADE AND OCCUPATIONS BYLAWS MN 134 OF 1979

The Scheduled Trade and Occupations Bylaws (MN 134 of 1979) deal with permit requirements relating to a number of Trades and Occupations as detailed in Schedule A of the Bylaws. Schedule A includes the following Trade and Occupation:

Refuse collection, storage, removal, processing or disposal.

As an intermediate waste contractor you will need to ensure that you have obtained a Scheduled Trade Permit if you operate within the eThekwini Municipality.

2.3.21 THE NEW ETHEKWINI PERMITTING SYSTEM

The eThekwini Water and Sanitation (EWS) and Health Services Departments are introducing a new permitting process for Scheduled Trades (in terms of the Scheduled Trade and Occupations Bylaws) and Trade Effluent (in terms of the Sewage Disposal Bylaws). The application process is very comprehensive and will result in permits being valid for five years (previously a one year validity applied). Although the permit application forms are the same, two separate permits will still be issued.

One of the requirements of the application process is that it will be mandatory for your company to establish an Environmental Management System (EMS). Five-year Environmental Improvement Programs will also be required and in order to retain your permit, you will be audited against your Environmental Management System and Improvement Plans.

Waste issues are a key component of the application process and permits contain a number of reporting responsibilities with which you will be expected to comply in order to retain your permit. Some of the waste requirements are:

- Identification of waste streams
- Classification of wastes and which type of disposal site is required (General, HH or Hh)
- Reporting of waste volumes per waste type
- Brief description of main pollutants and estimated concentration ranges present in each waste stream (including how the pollutant is generated and appropriate analytical reports where necessary)
- Details of any on-site waste treatment measures
- Waste storage and handling arrangements, including control measures
- Waste reduction measures

- Toxicity testing if required (for sea outfall disposal)
- Details on points of disposal for all waste types including the business entities involved
- Record keeping system to cover cradle-to-grave responsibilities
- Details on procedures, training, etc.

TIP! When you receive your permits, do not just punch them and keep them on file. Most of your permits come with compliance conditions. Make sure that you incorporate these into your environmental management programmes on-site.

2.3.22 *The Interim Code Relating To Fire Prevention And Flammable Liquids And Substances PN 5417 of 2000*

If you store hazardous wastes which are flammable, then you must ensure that these volumes are taken into account in the calculations submitted in your application for what is commonly known as a Certificate of Registration. This Certificate is issued in terms of eThekwini's Interim Code Relating to Fire Prevention and Flammable Liquids and Substances (PN 5417 of March 2000). Additional information on these Certificates is provided in Sections 7.14.2, 8.8.2 and 9.4.2).

2.3.23 *The National Waste Management Bill of 2007*

The development of new waste management legislation is currently being finalised. This legislation is based on the White Paper for Integrated Pollution and Waste Management for South Africa (GN 227, GG 20978 of 17th March 2000). Version B39D of 2007 of the Bill has been used for reference purposes. When the act is finalised and promulgated Sections 19, 19A, 20, 24, 24A and 24B of the Environment Conservation Act (ECA) will be repealed.

Although the act has not been finalised, this section will highlight some of the more important aspects of the act that will have an impact on waste generators. The cabinet version of the bill (B39-2007 Government Gazette No. 30142 of 3 August 2007) has been used for reference purposes.

Under the proposed act, ***various waste management activities may need to be licensed***. These include:

- Importation and exportation of waste;
- Generation of waste, including the undertaking of any activity or process which will result in the generation of waste;
- Accumulation and storage of waste;
- The collection and handling of waste;
- Reduction, reuse, recycling and recovery;
- Trading in waste;
- Transportation of waste;
- Transfer of waste;
- Treatment of waste; and
- Disposal.

Schedule 1 of the proposed act includes a number of categories of activities that will require a waste management licence. Activities that may apply to certain waste generators or intermediate waste contractors include:

Category A *(some extracts)*

Storage and transfer of waste

(1) The temporary storage of general waste at a facility, including a waste transfer facility and container yard, that has the capacity to receive in excess of 30 tonnes of general waste per day or that has a throughput capacity in excess of 20 m^3 per day, including the construction of a facility and associated structures and infrastructure for such storage.

(2) The temporary storage of hazardous waste at a facility, including a waste transfer facility and container yard, that has the capacity to receive in excess of 3 tonnes of hazardous waste per day, including the construction of a facility and associated structures and infrastructure for such storage.

Recycling and recovery

(3) The sorting and shredding of general waste at a facility that has the capacity to receive in excess of 1 ton of general waste per day, including the construction of a of a facility and associated structures and infrastructure for such sorting or shredding.

Treatment of waste

(6) The biological, physical or physicochemical treatment of hazardous waste or the autoclaving, drying or microwaving of hazardous waste, including the construction of a facility and associated structures and infrastructure for such treatment.

(7) The treatment of waste in sludge lagoons.

CATEGORY B *(some extracts)*

Treatment of waste

(1)The treatment of general waste by a method other than biological, physical or physicochemical treatment at a facility with the capacity to receive in excess of 10 tonnes of general waste per day, including the construction of a facility and associated structures and infrastructure for such treatment.

(2) The treatment of hazardous waste by a method other than biological or physicochemical treatment, including the construction of a facility and associated structures and infrastructure for such treatment.

(3) The incineration of waste, including the construction of a facility and associated structures and infrastructure for the incineration of waste.

Disposal of waste on land

(4)The disposal of hazardous waste to land, including the construction of a facility and associated structures and infrastructure for such disposal.

Section 7 tasks the Minister (of DEAT) with ***establishing national norms and standards*** for:

- The classification of waste
- The planning for and provision of waste management services
- The storage, treatment and disposal, including the planning and operation of waste treatment and waste disposal facilities

He/she may also establish norms and standards for:

- Waste reduction, reuse, recycling and recovery
- Extended Producer Responsibility
- The regionalisation of waste management services
- The remediation of contaminated land and soil quality.

Section 14 allows the Minister to declare ***priority wastes*** which may be a threat to the environment. Special measures to deal with these declared priority wastes will be introduced to improve reduction, re-use, recycling and recovery rates or reduce health and environmental impacts.

Section 16 details a number of ***general duties in respect of waste management***. The holder of waste must take all reasonable measures to:

- Avoid the generation of waste and where such generation cannot be avoided, to minimise the toxicity and amounts of waste that are generated
- Reduce, reuse, recycle and recover waste
- Where waste must be disposed of, to ensure that the waste is treated and disposed of in an environmentally sound manner
- Manage the waste in such a manner that it does not endanger health or the environment or cause a nuisance through noise, odour or visual impacts
- Prevent any employee or person, under his or her supervision from contravening a provision of this Act
- Take reasonable measures to prevent the waste from being used for an unauthorised purpose

In addition, any person who sells a product that may be used by the public and which will result in the generation of hazardous waste must take reasonable steps to inform the public of the impacts of that waste on human health and the environment (This is known as the extended producer responsibility).

Section 17 *deals with* ***reduction, re-use, recycling and recovery of waste*** and requires that ***any person who undertakes*** an activity involving the reduction, re-use, recycling or recovery of waste must, before undertaking that activity, ensure that the reduction, re-use, recycling or recovery of the waste-

- uses less natural resources than disposal of such waste; and
- to the extent that it is possible, is less harmful to the environment than the disposal of such waste.

Section 21 deals with ***general requirements for the storage of waste***. Any person who stores waste must at least take steps, unless otherwise authorised in terms of this Act, to ensure that:

- The containers in which any waste is stored are intact and not corroded or in any other way rendered unfit for the safe storage of waste
- Measures are taken to prevent accidental spillage or leaking
- The waste cannot be blown away;
- Nuisances such as odour, visual impacts and breeding of vectors do not arise
- Pollution of the environment and harm to health are prevented

Section 24 requires that ***waste can only be collected by persons authorised by law*** and ***Section 25*** prescribes ***duties of transporters***.

Section 26 prohibits the unauthorised disposal of waste and states that no person may:

- Dispose of waste, or knowingly or negligently cause or permit waste to be disposed of in or on any land, waterbody or at any facility unless the disposal of such waste is authorised by law
- Dispose of waste in a manner likely to cause pollution of the environment or harm to health and well-being.

Sections 35 to 42 deals with ***contaminated land,*** including the assessment and remediation thereof.

The proposed act also requires that a ***Waste Information System*** is developed.

NATIONAL ENVIRONMENTAL WASTE MANAGEMENT BILL

DEFINITION:

WASTE

"Waste" means any substance, whether or not that substance can be reduced, reused, recycled and recovered, that –

(i) is surplus, unwanted, rejected, discarded, abandoned or disposed of;

(ii) the generator has no further use of – for the purposes of production, reprocessing or consumption;

(iii) that must be treated or disposed of; or

(iv) is identified as a waste by the Minister and includes waste generated by the mining, medical or other sector,

Provided that a by-product shall not be considered to be waste and provided further that any portion of waste once reduced, reused, recycled and recovered ceases to be waste"

DEFINITION:

BY-PRODUCT

"By-product" means a substance which is produced as part of a process which is primarily intended to produce another substance or product and which has the characteristics of an equivalent virgin product or material

PROPOSED TRANSPORTER DUTIES IN TERMS OF SECTION 25 OF THE NATIONAL ENVIRONMENTAL WASTE MANAGEMENT BILL

Section 25(1) deals with the registration of waste transporters.

Section 25(2)Any person engaged in the transportation of waste must take all reasonable steps to ***prevent any spillage of waste or littering from a vehicle*** *used to transport waste.*

Section 25(3)Where waste is transported for the purposes of disposal, a ***person transporting the waste must, before offloading the waste from the vehicle, ensure that the facility or place to which the waste is transported is authorised to accept such waste.***

Section 25(4)Where hazardous waste is transported for purposes other than disposal, ***a person transporting the waste must, before offloading the waste from the vehicle, ensure that the facility or place to which the waste is transported is authorised to accept such waste and must obtain written notification that the waste has been accepted.***

Section 25(5)In the absence of evidence to the contrary which raises reasonable doubt, a person who is in control of a vehicle, or in a position to control the use of a vehicle which is used to transport waste for the purpose of offloading that waste, is deemed to ***knowingly cause such waste to be offloaded at the location where the waste is deposited.***

IMPORTANT LEGAL REQUIREMENTS – INCIDENT REPORTING SUMMARY

As you may have noticed, there are a number of pieces of legislation that require the reporting of incident and that detail actions to be taken in the event of an incident***.***
It is important that you take note of these requirements and that you incorporate them into your company procedures.

NATIONAL ENVIRONMENTAL MANAGEMENT ACT
SECTION 30 – EMERGENCY INCIDENTS

Section 30(3) Immediate reporting of :
- The nature of the incident;
- Any risks posed by the incident to public health, safety and property;
- The toxicity of substances or by-products released by the incident; and
- Any steps that should be taken in order to avoid or minimise the effects of the incident on public health and the environment

Reporting to:
- The Director-General (DEAT);
- The South African Police Services and the relevant fire prevention service;
- The relevant provincial head of department or municipality; and
- All persons whose health may be affected by the incident.

Section 30(4) Action to be taken as soon as reasonably practicable:
- All reasonable measures to contain and minimise the effects of the incident, including its effects on the environment and any risks posed by the incident to the health, safety and property of persons;
- Undertake clean-up procedures;
- Remedy the effects of the incident;
- Assess the immediate and long-term effects of the incident on the environment and public health.

Section 30(5) Follow up action - within ***14 days of the incident***, report to the Director-General, provincial head of department and municipality information to enable an initial evaluation of the incident, including-
- The nature of the incident;
- The substances involved and an estimation of the quantity released and their possible acute effect on persons and the environment and data needed to assess these effects;
- Initial measures taken to minimise impacts;
- Causes of the incident, whether direct or indirect, including equipment, technology, system, or management failure; and
- Measures taken and to be taken to avoid a recurrence of such incident.

NATIONAL WATER ACT
SECTION 20 – EMERGENCY INCIDENTS

Section 20(3) Immediate reporting to:
- The Department
- The South African Police Service or the relevant fire department or
- The relevant catchment management agency (or DWAF if there is no CMA).

Section 20(4) Immediate action:
- Take all reasonable measures to contain and minimise the effects of the incident
- Undertake clean-up procedures
- Remedy the effects of the incident
- Take such measures as the catchment management agency may either verbally or in writing direct within the time specified by such institution

IMPORTANT LEGAL REQUIREMENTS – INCIDENT REPORTING SUMMARY

NATIONAL ROAD TRAFFIC ACT AND SANS 10232-2

Incident*:* Unplanned event during the transportation and storage of dangerous goods which involves leakage or spillage or the risk thereof.

First Responder*:* First person to arrive at the scene of an incident who is able to correctly identify the goods and hazards, and to communicate with an emergency service either directly or through a base station.

Annexure B Report (in SANS 10232-2) to be completed and signed by First Responder and forwarded to the Department of Transport within 24 hrs of the incident occurring.

GENERAL ADMINISTRATIVE REGULATIONS OF 2003 PROMULGATED IN TERMS OF THE OHSACT TERMS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT (OHSA)

R8 : Reporting of Incidents and Occupational Diseases

The following incidents must be reported (on a WCL1 or WCL2 form) to the Provincial Director (Department of Labour) ***within 7 days of occurrence*** on a WCL1 or WCL2 form-

- A major incident
- The health or safety of any person was endangered and where:
  - a dangerous substance was spilled
  - or the uncontrolled release of any substance under pressure took place

Major incident means an occurrence of catastrophic proportions, resulting from the use of plant or machinery, or from activities at a workplace (S1 of the OHSA)

SEWAGE DISPOSAL BYLAWS MN 27 of 1999 (eTHEKWINI)

Section 4.12: Non-conforming discharges must be reported to eThekwini Water and Sanitation (giving reasons) ***within 12 hours of the incident occurring.***

THE INTERIM CODE RELATING TO FIRE PREVENTION AND FLAMMABLE LIQUIDS AND SUBSTANCES PN 5417 of 2000(eTHEKWINI)

Section 48**:** If you have a fire or accident on-site involving a flammable substance that caused damage to property or injury to persons you have to report this to the Chief Fire Officer.

Don't forget about incident reporting responsibilities in terms of the various authorisations / permits that you hold!

CHAPTER 3

THE INTERMEDIATE WASTE CONTRACTOR'S RESPONSIBILITIES

CHAPTER THREE: THE INTERMEDIATE WASTE CONTRACTOR'S RESPONSIBILITIES

SUMMARY

Duty of Care	▫ Take reasonable measures to prevent pollution. This includes providing facilities, developing procedures, conducting risk assessments, and employee training.
Cradle to Grave	▫ The intermediate waste contractor is part of the cradle-to-grave chain of waste management and therefore must ensure that any wastes removed are taken to the correct facilities which are licensed to accept the particular type waste. ▫ The maintenance of an auditable paper trail is essential to prove that the wastes have been managed in compliance with the relevant legislation. ▫ Do not forget to include any persons that you sub-contract your transportation operations to.
Polluter Pays	▫ If you cause the pollution you pay for the impacts. The cost could include those for clean-up and remediation, and can also include fines and possible criminal convictions.
Precautionary Principle	▫ Waste must be treated as hazardous until proven otherwise. ▫ You must ensure that your client has classified their hazardous wastes in order that you transport the wastes to the correct facility.
Waste Hierarchy	▫ The application of a process whereby you: ✓ Avoid waste ✓ Reduce, recycle or reuse waste ✓ Treat waste ✓ Only dispose of waste to the environment as a last resort

3.1 GENERAL

It is important that you are aware of the fundamental waste management principles that need to be incorporated into your business activities. This will ensure that you become legally compliant and act in an environmentally responsible manner.

3.2 THE DUTY OF CARE REQUIREMENT

As explained in Chapter 2, in terms of the National Environmental Management Act (NEMA) and the National Water Act (NWA) requirements you need to take reasonable measures to prevent pollution from occurring, continuing or reoccurring. This means that you should ensure that your business activities and the management system that you implement (including those of your sub-contactors') is effective in achieving this objective.

This can include:

- Written policies, procedures and work instructions that ensure compliance with legal requirements
- Employee and sub-contractor training
- Provision of suitable equipment and infrastructure for the wastes that you are transporting, storing, recycling and treating;
- Regular inspections, self-audits and sub-contractor audits
- Developing and testing contingency plans to deal with environmental incidents especially those requiring emergency response as a result of an incident during the transport of the waste
- Maintenance of comprehensive records

3.3 CRADLE-TO-GRAVE MANAGEMENT

It is important to be aware that your responsibilities as include ensuring that the services that you offer are legally compliant. The cradle-to-grave management of wastes means that wastes should be managed throughout the entire life-cycle. This means from the point of generation to the final disposal and thus as an intermediate waste contractor you form part of this chain.

NEMA PRINCIPLE

S2(4)(e) The Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.

You need to have systems in place to ensure that:

(1) The wastes that you collect from clients have been classified correctly and that you take them to the correct disposal site that has the required licence to accept the particular waste stream.

(2) You check that the recycling and / or treatment facilities you use can accept the waste streams that you transport to them, and that these facilities have the required permits.

(3) If you take the wastes to your own premises for recycling and / or treatment that you have the required permits in place to offer these services.

(4) You classify and dispose of any residual waste from your recycling and / or treatment processes in a legally compliant manner.

(5) You check that any sub-contractors you use comply with the above requirements.

3.4 THE POLLUTER PAYS PRINCIPLE

As an intermediate waste contractor you can face a host of liabilities if your waste management practises cause pollution.

NEMA PRINCIPLE

S2(4)(p) The costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.

These liabilities can include clean-up and remediation costs, fines, ***even jail terms and a criminal conviction.***

The responsibility for handling, treating and disposing of wastes can pass from one party to another, but as an intermediate waste contractor you will always be one of the parties held accountable for the pollution caused by the waste. You must therefore ensure that when you collect and manage wastes it is done responsibly and you are able to prove this and that you have complied with all applicable legal requirements. This is achieved by ensuring that:

- Your client has classified the waste that you transport to a disposal site;
- The disposal site can legally accept your client's waste stream;
- You are an approved waste contractor in the areas in which you operate – written approval by the local authority must be obtained (if applicable in your area);
- You transport hazardous wastes in accordance with the requirements of the National Road Traffic Act (NRTA).
- You recycle and / or treat your client's wastes in accordance with your permit conditions and in a manner that prevents an adverse environmental impact.
- You ensure that any recycling and / or treatment facility to which you take your client's waste (or any residual waste from your own processes) has the required permits for each particular waste stream that you transport.
- You classify any residual waste from your recycling and / or treatment processes and ensure that it is disposed of at the correct landfill site and in compliance with the landfill sites permit conditions.
- You have any other permits / authorisations as required by law for the activities that you undertake.
- You audit any waste facilities that you use to verify their environmental performance and legal compliance status.

3.5 THE PRECAUTIONARY PRINCIPLE

The precautionary principle dictates that wastes must be classified as hazardous until proven otherwise. You therefore need to ensure that your clients have classified their wastes correctly so that you transport it to the correct landfill site. If you treat your clients' wastes at your own facility, it is important to ensure that you classify the residue from your process correctly as the more hazardous the waste is, the more costly the transport and disposal will be and you also need to ensure legal compliance with the landfill sites permit conditions.

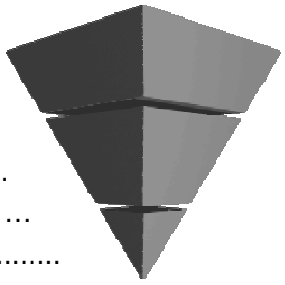
NEMA PRINCIPLE

S2(4)(a)(vii): 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.

3.6 THE WASTE HIERARCHY

The waste hierarchy is depicted in the diagram below with the most favourable waste management option being to avoid the production of waste, and working through the other options to disposal, being the least favoured option to be considered as a 'last resort'.

Avoid……
Reduce……
Reuse……
Recycle……
Treat……
Dispose responsibly…….....



The application of the waste hierarchy is an essential part of your waste management program.

You may be offering a one-stop-shop management service at your client and this means that you should be reviewing methods of waste prevention and minimisation, resource recovery opportunities, and waste treatment technologies. Waste disposal should only be considered as a last resort in your waste management strategy.

You will also need to implement the waste hierarchy at your own premises. You will reap the rewards of this approach, as not only will you be saving money on disposal costs, but you will be earning money on recyclable wastes and also limiting your company's potential liabilities.

NEMA PRINCIPLE

S2(4)(a)(iv) That waste is avoided, or where it cannot be altogether avoided, minimised and re-used or recycled where possible & otherwise disposed of in a responsible manner.

YOUR RESPONSIBILITIES WITH RESPECT TO:

The Waste Generator

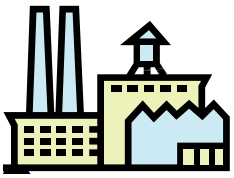
- Obtaining accurate information from the generator with respect to the composition and classification of the waste streams

Your Transport Operations

- Transport in terms of the National Road Traffic Act
- Registration as a Waste Contractor in terms of the local bylaws
- Cradle-to-grave paperwork – waste manifests / dangerous goods declarations covering the movement of wastes by your company to all of the waste facilities that you use
- Training – including transportation incident management procedures
- Verification of the compliance status of any sub-contractors used

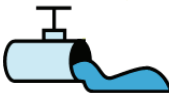
Your Intermediate Waste Contractor Premises

- Relevant permits and compliance with permit conditions
- Infrastructure and equipment to ensure prevention of pollution
- Mass balance system for reconciling wastes received, treated, recycled and disposed
- Training – including incident management procedures
- Application of the waste hierarchy



The Third Party Recycling / Treatment Facilities That You Use

- Verify facility permits and compliance with permit conditions – audit to review environmental performance
- Ensure facility permit conditions allow the acceptance of the waste stream being delivered



Your Use of eThekwini Southern WWTW (Wastewater treatment works)

- Generators permit / hauliers permit and compliance with discharge permit conditions

The Landfill Site That You Use

- Verify all facility permits and compliance with permit conditions – audit to review environmental performance
- Ensure facility permit conditions allow the acceptance of the waste stream being delivered

CHAPTER FOUR: AUTHORISATIONS

SUMMARY

Environmental Impact Assessments (EIA)	▫ Some waste activities require assessment and authorisation before they can commence. ▫ The NEMA lists of activities must be consulted to determine whether you need authorisation and if so whether a basic assessment or scoping and environmental impact assessment is required. ▫ Ensure that you comply with the conditions of the environmental authorisation issued to you.
Environmental Impact Assessment Authorisations	▫ Ensure that have obtained and comply with the requirements the Environmental Authorisation issued under NEMA or the Record of Decision issued under the ECA
Section 20 Permits in terms of the Environment Conservation Act	▫ If you are operating a waste facility like a storage yard or treatment facility make sure that you have either a Section 20 permit or an exemption for your premises.
Local Authority Permits	▫ Trade effluent permits if you discharge trade effluent to sewer. ▫ Schedule Trade Permit if you are carrying out a trade listed in the bylaws. ▫ Waste contractors registration.
Vehicle Permits	▫ Vehicles must be registered with Department of Transport to carry Dangerous Goods and must display the Operator's Card. ▫ If applicable in the jurisdiction of your local authority, vehicles transporting flammable wastes must be registered with the local fire department and the registration certificate must be carried on the vehicle. ▫ Haulier permits for disposal to wastewater treatment works – if applicable in the jurisdiction of your local authority
Incidents	▫ Ensure that you identify any incident reporting requirements specified in your permits and the bylaws and that you comply with the respective reporting requirements.

4.1 GENERAL

There are a number of permits and authorisations that need to be in place when you establish your business. The requirements will differ depending on the type of activities you are involved in. This Chapter summarises the permits and authorisations applicable to the intermediate waste contractor.

4.2 THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS OF 2006

Section 24 of the National Environmental Management Act (NEMA) requires that Environmental Authorisations are required before the commencement of various listed activities. The listing of activities can be found in:

- Listing Notice No 1 (GNR 386 of 21st April 2006) and
- Listing Notice No 2 (GNR 387 of 21st April 2006).

Various waste management activities (excluding those pertaining to landfill sites) are listed in each of the two notices mentioned – See below for examples.

LISTING NOTICE NO 1 – GNR 386 – Some examples

Activity 1:
*The **construction** of facilities or infrastructure, including associated structures or infrastructure, for –*

*(o) the **recycling, re-use, handling, temporary storage or treatment of general waste** with a **throughput capacity of 20 cubic metres or more daily** average measured over a period of 30 days, but less than 50 tons daily average measured over a period of 30 days;*
*(p) the **temporary storage of hazardous waste**;*
*(s) the **treatment of effluent**, wastewater or sewage with an annual throughput capacity of more than 2 000 cubic metres but less than 15 000 cubic metres.*

Activity 23:
*The **decommissioning** of existing facilities or infrastructure, other than facilities or infrastructure that commenced under an environmental authorisation issued in terms of the Environmental Impact Assessment Regulations, 2006 made under section 24(5) of the Act and published in Government Notice No. R. 385 of 2006, for:*

*(c) **industrial activities** where the facility or the **land** on which it is located is **contaminated or has the potential to be contaminated** by any material which may place a **restriction on the potential to re-use the site** for a different purpose;*
*(e) the **treatment of effluent**, wastewater and sewage with an annual throughput capacity of 15 000 cubic metres or more;*
*(f) the recycling**, handling, temporary storage or treatment of general waste** with a **daily throughput capacity of 20 cubic metres** or more; or*
*(g) the **recycling, handling, temporary storage or treatment of hazardous waste**.*

***Activity 25**:*
*The **expansion of or changes to existing facilities** for any process or activity, which requires an amendment of an existing permit or license or a **new permit or license in terms of legislation governing the release of emissions, pollution, effluent.***

LISTING NOTICE NO 2 – GNR 387 – Some examples

Activity 1:
*The **construction** of facilities or infrastructure, including associated structures or infrastructure, for –*

*(f) the recycling**, re-use, handling, temporary storage or treatment of general waste** with a throughput capacity of **50 tons or more daily average** measured over a period of 30 days;*

*(g) the **use, recycling, handling, treatment, storage or final disposal of hazardous waste**;*

*(p) the **treatment of effluent**, wastewater or sewage with an annual throughput capacity of 15 000 cubic metres or more;*

*(q) the **incineration, burning, evaporation, thermal treatment, roasting or heat sterilisation of waste or effluent**, including the cremation of human or animal tissue;*

*(r) the **microbial deactivation, chemical sterilisation or non-thermal treatment of waste or effluent…***

As you can see from the quoted examples if you need to establish transfer and / or treatment facilities at your premises, you will need to review the activities in Listing Notices 386 and 387 to see if your proposed operations fall within those listed. Ensure you look through the whole list of activities as there may be other activities that are applicable to your choice of location such as zoning issues. Very often more than one listed activity is applicable to your project.

If your proposed activity falls under ***Listing Notice 386*** you will need to undertake a ***Basic Assessment*** in terms of the Environmental Impact Assessment (EIA) Regulations promulgated in terms of the OHSA terms of S24(5) of NEMA. If your activity falls under ***Listing Notice 387***, then you will need to conduct a ***scoping and environmental assessment process***.

In both instances there are numerous requirements that you will need to fulfil including the appointment of an independent Environmental Assessment Practitioner (EAP) and public participation processes.

IMPORTANT!

The Environmental Assessment Regulations (EIA Regs) under the National Environmental Management Act (NEMA) came into effect on 3rd July 2006. If you have established and commenced any of the listed activities since this date without applying for an authorisation you have committed an offence in terms of the EIA Regulations and NEMA.

You must contact your provincial department that deals with the environment and discuss how you rectify your unlawful activity.

ENVIRONMENTAL AUTHORISATIONS

Make sure that when you receive your environmental authorisation (EA) you note the conditions attached to the authorisation. These are important legal requirements that you will need to include in your environmental management program.

Note that an Environmental Authorisation does not give blanket approval for your facility – you may need additional authorisations if you expand / change your operations.

4.3 SECTION 20 PERMITS IN TERMS OF THE ENVIRONMENT CONSERVATION ACT

There has been some confusion relating to the application of Section 20 of the Environment Conservation Act (ECA) when it comes to waste management activities. Many industries and waste contractors were of the opinion that it was only landfill sites that required permitting.

Section 20(1) of the ECA states that *'no person shall establish, provide or operate any disposal site without a permit issued …'* The ECA definition of disposal site is *'a site used for the accumulation of waste with the purpose of disposing or treatment of such waste'.* Therefore in terms of this definition, waste management facilities are required to have a S20 permit or an exemption.

Included for your information in Annexure Three is the *DWAF Policy on the Definition of Disposal Sites with regard to the Issuing of Permits for Waste Incinerators, Waste Management Facilities and Other Alternative Waste Disposal Technologies and Related Guidelines*. This policy document states that: *The land on which an **incinerator / transfer station / waste recycling plant / treatment facility / waste storage area** is established / installed, can thus be regarded as a disposal site for which a permit should be issued in terms of the mentioned Act.*

You therefore need to ensure that if you operate any such facility as part of your operations, you the required permit or exemption. The process to be followed for an exemption is included in Annexure Two for your information and is entitled *'Procedure with regard to the issuing of Exemptions under Section 20 of The Environment Conservation Act, 1989 (Act 73 of 1989)'*. If you require any guidance or clarification you may contact the National Department of Environmental Affairs and Tourism.

4.4 LOCAL AUTHORITY PERMITS

4.4.1 REFUSE REMOVAL BYLAWS

Most local authority refuse removal bylaws require that waste contractors are registered. If you are situated in the eThekwini Municipality, you will need to contact Durban Solid Waste to complete the application process. They may ask to inspect your vehicles and if you are managing hazardous waste, they will need you to demonstrate that you have the resources within your organisation to manage these waste streams.

4.4.2 SCHEDULED TRADE PERMIT

Some local authorities require the permitting of scheduled trades (these may also be called offensive trades). Waste management is listed in the City of Durban Scheduled Trade and Occupations Bylaws PN 134 of 1979 as follows:

Waste material salvaging, collecting, sorting, treating, processing or recycling/reclaiming

You therefore need to ensure that you have this permit. Note that you will be required to have suitable premises for your operation that are situated in an appropriately zoned area. At present the permits are renewed on an annual basis, so remember to keep your permit valid by contacting the eThekwini Health Department well in advance of your permit expiry date. It is important to note that your permit contains a number of compliance and reporting requirements so you must make sure that someone within your organisation is tasked with overseeing your compliance program. This will include the reporting of incidents to the local authority.

CAUTION!

If you change or modify your process that was approved in terms of your Schedule Trade Permit, you will need to have ***written approval*** from eThekwini Health before you make these changes.

4.4.3 TRADE EFFLUENT PERMIT

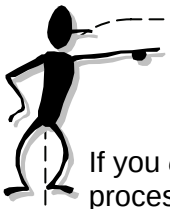
If you are conducting any activities at your premises that require the discharge of trade effluent to sewer, you will need to ensure that you have a valid permit for this effluent discharge in terms of local bylaws. The eThekwini Sewage Disposal Bylaws (MN 27 of 1999) define trade effluent as:

'Any liquid whether or not containing matter in solution or suspension which is given off in the course of or as a result of any industrial, trade, manufacturing, mining or chemical process or any laboratory, research or agricultural activity, and includes any liquid other than standard domestic effluent or stormwater'.

This means, for example, if you are:

- washing your vehicles at your premises
- washing containers previously holding hazardous chemical substances or
- conducting any treatment process that generates an effluent

you will need to have the necessary facilities to discharge this effluent to sewer and you will also need to have permission to do so by obtaining a Trade Effluent Discharge Permit from eThekwini Water and Sanitation (EWS).



CAUTION!

If you ***change or modify*** your process and this changes the ***composition of your effluent***, you will need to have ***prior written approval from eThekwini Water and Sanitation.***

Also note that your permit will specify a ***maximum monthly discharge***. If you need to increase this volume you will need ***prior written approval from eThekwini Water and Sanitation.***

NOTE:

Some of the requirements of the Sewage disposal bylaws include:

- Separation of stormwater from sewer discharge
- Prohibition of the contamination of stormwater – you should be sampling your stormwater to see if your pollution prevention measures are adequate
- Compliance with the trade effluent discharge standards as specified in the bylaws – you should be sampling your effluent to confirm that it is compliant with the requirements
- Incident reporting requirements – you are required to report a non-conforming discharge to EWS within 12 hours of the incident occurring

At present the permits are valid for one to two years so remember to keep your permit valid by contacting the EWS Department well in advance of your permit expiry date.

4.4.4 THE NEW ETHEKWINI PERMITTING SYSTEM

Remember to refer back to Section 2.3.20 with respect to the eThekwini Water and Sanitation and Health Department's new permitting process for Scheduled Trades (in terms of the Scheduled Trade and Occupations Bylaws) and Trade Effluent (in terms of the Sewage Disposal Bylaws) which will be phased in over the next few years.

4.4.5 *THE INTERIM CODE RELATING TO FIRE PREVENTION AND FLAMMABLE LIQUIDS AND SUBSTANCES*

In some areas there may be requirements in the local authority bylaws that require permits for storage of hazardous substances. An example is the permitting requirements for the storage of flammables in terms of the eThekwini Interim Code Relating to Fire Prevention and Flammable Liquids and Substances PN 5417 of 23 March 2000. In terms of this code you cannot store in excess of the following volumes of flammable liquids and substances unless you have a Certificate of Registration issued by eThekwini Fire and Emergency Services:

- ***Class 0*** = *LPG* = 48 kg
- ***Class I*** *Flammable Liquid* = 200 ℓ
- ***Classes II and III*** *Flammable Liquids* = 400 ℓ
- ***Flammable substances*** = a quantity specified by the Chief Fire Officer.

INTERIM CODE DEFINITION:

CLASSES OF FLAMMABLE LIQUIDS AND SUBSTANCES

"***Flammable Liquid or Substance***" means any substance that is readily ignited or any Flammable Liquid;

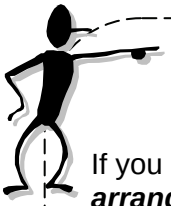
"***Class 0 Flammable Liquid***" means Liquefied Petroleum Gas;

"***Class I Flammable Liquid***" means a liquid that has a closed cup flash point below 21°C;

"***Class II Flammable Liquid***" means a liquid that has a closed cup flash point from 21°C up to and including 55°C;

"***Class III Flammable Liquid***" means a liquid that has a closed cup flash point from 55°C up to and including 100°C

If you are storing flammable wastes on your premises then you will need to obtain a permit from the local fire department. When you apply for your permit, you should develop an inventory of flammable wastes (and other flammable substances) that you store on-site. Your permit will then stipulate the volumes of each Class of flammable liquid that you can store and it will list other flammable substances as required. In the eThekwini Municipality, this permit is called a Certificate of Registration. It has a number and an issue date but does not expire.



CAUTION!

If you ***change your storage arrangements*** (increase or decrease) you need to ***apply for an amendment*** of your Certificate of Registration.

Your ***Certificate of Registration*** must be ***displayed*** at an appropriate position at your premises.

If you have a ***fire or accident involving a flammable substance*** that caused ***damage to property or injury to persons*** you have to ***report*** this to eThekwini Fire and Emergency Services.

The ***discharge of flammable liquid or substances*** is ***prohibited*** from entering any waste or foul water or storm water ***sewer or drain*** whether underground or on the surface.

4.5 *VEHICLE PERMITS*

4.5.1 *DANGOUS GOODS OPERATORS CARDS*

If you are operating vehicles that will be transporting dangerous goods, then these vehicles must be registered with the Department of Transport as Dangerous Goods Carriers. You will be issued with an Operator's Card (that looks like a license disc). This disc contains the word CATEGORY and if your vehicle will be used for dangerous goods, the letter D will appear next to the word. You must ensure that this disc is affixed to the windscreen of your vehicle and that you keep the Operator's Card valid at all times. Do not forget to check your sub-contractors for compliance.

4.5.2 *THE INTERIM CODE RELATING TO FIRE PREVENTION AND FLAMMABLE LIQUIDS AND SUBSTANCES*

Some local authority bylaws require the registration of vehicles that transport flammable substances such as eThekwini Municipality's Interim Code Relating to Fire Prevention and Flammable Liquids and Substances. These bylaws also apply to the transport of flammable wastes. Make sure that you have a Certificate of Registration for each vehicle that you use to carry flammable wastes.

In terms of the bylaws no vehicle is permitted to carry flammable substances (and therefore flammable wastes) in excess of the following amounts unless the vehicle has been issued with a Certificate of Registration:

- Class I Flammable liquid = 200 ℓ
- Class II Flammable liquid = 400 ℓ
- Class III Flammable liquid = 600 ℓ

(Refer back to Section 4.4.5 for the definition of the Classes).

CERTIFICATES OF REGISTRATION FOR VEHICLES

If you are transporting flammable wastes on/in your vehicle make sure that:

- you have the Certificate of Registration in your vehicle at all times
- what you are carrying complies with the Certificate of Registration
- the Certificate of Registration is valid.

4.5.3 *HAULIER'S PERMITS*

The eThekwini Sewage Disposal Bylaws requires transport companies to obtain Haulier Permits for permission to transport trade effluent or domestic effluent to a Council wastewater treatment facility. You will need to submit an application to eThekwini Water and Sanitation (EWS) on the prescribed form. Separate forms are needed for domestic and trade effluents and also for different wastewater treatment works. Note that Trade Effluent can only be delivered to the Southern Works Wastewater Treatment Works (WWTW).

You will need to advise (in the application):

- The average and maximum number of loads per month – this may require consultation with EWS – note that ***your permit will be based on this number of loads***
- The vehicle registration numbers for each vehicle proposed to be used for transporting effluent – ***vehicles not on the permit will be barred from the facility***
- Physical address where the vehicles are stored when not in use and where they are cleaned – you need to include the town planning or zone of the areas where your vehicles will be operating from – ***an inspection of the premises will be conducted prior to the permit being issued***

The application form also includes an indemnity form for consequential damage by tankered effluent belonging to or being operated on behalf of your company when on Council premises. If you sub-contract the operation, that company has to provide you and EWS with the same indemnity, thereby holding you and your haulage operator co-responsible. Note that the indemnity needs to be completed by a person authorised to do so in terms of a Board of Directors Resolution.

NOTE!

The ***generator*** of the trade effluent destined for disposal to Southern Works WWTW must also have a ***permit*** to do so.

A ***load delivery book*** is issued with each permit to ***regulate and track deliveries from source to final disposal.***

CHAPTER 5 THE INTERFACE BETWEEN YOU AND THE WASTE GENERATOR

CHAPTER FIVE: THE INTERFACE BETWEEN YOU AND THE WASTE GENERATOR

SUMMARY

Questions to ask the Client	▫ What kind of waste is it and how much is produced? You need to understand your client's wastes so that you can develop the appropriate systems for storage, handling, recycling, treatment and disposal. ▫ What are the hazards associated with the waste – your employees, and those at the recycling, treatment, and disposal facilities will need to handle the wastes and therefore you need to be aware of the risks and associated requirements ▫ What are the physical properties of the waste – these may influence your management practises.
Managing drummed waste	▫ Drummed waste can present a number of challenges and you need to be aware of the additional risks associated with these wastes.
Waste classification	▫ It is important that you are aware of and understand the waste classification process. You are part of the waste management chain and therefore you need to ensure that the wastes are taken to the correct and legally compliant facilities.
Sampling the waste	▫ You may need to sample the wastes and you therefore need to understand the sampling requirements and associated risks.
Working on your client's premises	▫ Issues that you should address include: ✓ Access ✓ Use of infrastructure, utilities and facilities ✓ Incidents and Near Misses ✓ Audits and Inspections ✓ Induction training / medicals

5.1 General

It is important to be aware of the interface between you and you client. There are a number of different roles and responsibilities and these need to be assessed to ensure that the respective legal requirements are identified and that systems have been put in place to facilitate compliance.

5.2 Questions To Ask Your Client

5.2.1 What Kind Of Waste Is It And How Much Is Produced?

Some of the questions you need to ask you client about their wastes are: Is the waste:

- hazardous or non-hazardous?
- liquid, sludge or solid?
- hot or cold?
- consistent or variable?
- malodourous or very volatile?

You will also need to know how much is produced and if the figure is based on actual production or estimated figures. If you understand how the waste is generated, you will be able to get a better idea of what to expect from a management perspective. It is important to make the correct decisions on:

- what containers to use for on-site storage
- what vehicles to use for the removal service
- the frequency of service
- any special handling requirements during storage and transport
- the correct recycling / treatment and / or disposal options.

Ask for copies of applicable Material Safety Data Sheets (MSDS), waste procedures and related documentation. If your client has an Environmental Management System, ask to see their Manual to understand the waste streams and how they are generated. You should do a site assessment with someone who has technical knowledge of the process(es) where the waste is generated, to gain a better understanding of the types of wastes that you will be dealing with.

5.2.2 What Are The Hazards Associated With The Waste?

Your sales and management personnel should be well versed in the identification of hazardous waste, so that you can be confident that you are not removing waste streams that require special handling without your prior knowledge. Whilst it is essentially the generators responsibility to classify waste, you should still have the technical expertise within your organisation to verify these details. Remember that you operate as part of the cradle-to-grave waste management chain of responsibility and therefore could face potential liabilities if things go wrong especially if you have not done your homework.

Ask for details on the waste constituents and classification. This will give you insight into the nature of the waste and help with decisions on how to reuse, recycle, treat or dispose of the waste. If the hazard(s) of the waste is known and understood, then the appropriate steps can be taken to minimize the risk to people, the environment and property.

Remember that the ***precautionary principle*** must be used where the waste constituents and hazards are neither known nor understood. Waste must be considered hazardous until proven otherwise.

MINIMUM REQUIREMENTS DOCUMENT

Hazardous Waste is waste that has the potential, even in low concentrations, to have a significant adverse effect on public health and the environment because of its inherent toxicological, chemical and physical characteristics.

Hazardous Waste requires stringent control and management, to prevent harm or damage and hence liabilities.

IMPORTANT!

If you are managing hazardous waste it is best practise to have someone within your organisation with the appropriate technical qualifications. This will reduce your potential liabilities.

How Do You Identify Hazardous Wastes?

Hazardous wastes are those which may cause injury, ill-health, death and / or environmental damage because of the following properties:

- Ignitable
- Corrosive
- Reactive
- Toxic or Infectious

It is important to find out as much information about the waste streams as possible, to assist you and the generator with decisions that need to be taken with respect to the management of the waste. If the wastes contain a substance that is listed in SANS 10228, the waste must be considered hazardous until proven otherwise.

Ignitable Wastes

Flammable liquid (ignitable) wastes are those which give off flammable vapours at or below 60.5°C. The vapours can ignite and cause fires, thereby creating a hazard. Solid flammable wastes can burn easily:

- By a spark or flame
- Though friction
- Through contact with air

Flammable solids may also emit flammable gases when wet. These wastes will require special handling to prevent incidents during storage, transport, treatment and disposal.

Corrosive Wastes

Corrosive wastes are solids or liquids that have a high (alkaline) or low (acid) pH. They can burn your skin, irritate your eyes and/or affect your breathing. They can cause damage to metals and other packaging material and thus it is important that you select the correct container in which the wastes will be stored.

Corrosive wastes are hazardous to the landfill (or wastewater treatment works) as they can adversely affect the biodegradation process by altering the pH conditions. These wastes therefore need to be neutralised before disposal takes place.

Reactive Wastes

Reactive wastes are those that are unstable under certain conditions. They can be sensitive to impact, friction, temperature, moisture, or mixing with other substances. The reaction can cause fires, dangerous fumes or explosions. Extreme caution must be used when managing reactive wastes!

Toxic and Infectious Wastes

Toxic and infectious wastes have the ability to cause death or disease. They may also cause cancers, mutations and birth defects. Infectious wastes are generated in health care facilities such as Occupational Health Clinics and laboratories (such as microbiology facilities). If you are handling toxic waste it is important that you are aware of all the safety precautions that need to be taken for each individual waste stream.

If you are not contracted to remove health care risk waste (medical waste) and you notice red plastic bags or yellow containers possibly holding sharps displaying the biohazard logo, ***do not touch or remove the waste.*** Contact the generator and fill in an incident report. Steps must be taken to prevent a recurrence. Ensure that your employees and sub-contractors understand these requirements as well.

REMEMBER!

Identifying waste as potentially hazardous is the first step in the waste management process. Many subsequent decisions are made based on this initial evaluation:

- Minimisation / recycling opportunities
- Classification
- Handling procedures, storage arrangements, transportation
- Treatment / Disposal

CAUTION!

If your client does not get the identification process correct, then the necessary health, safety and environmental arrangements for all subsequent management practises may be inadequate, including those that you will be responsible for in terms of the services that you are offering your client.

5.2.3 WHAT ARE THE PHYSICAL PROPERTIES OF THE WASTE?

The physical properties of the waste are an important consideration in terms of storage, subsequent transportation and disposal.

Hot Wastes

Hot wastes can present a number of challenges for example:

- They may damage the waste containers that you provide to your client and this will cost you money in repairs
- During transport, air may fan the waste, providing sufficient oxygen to cause the waste to ignite, presenting a danger to your driver, his assistant, other road users, the environment and your equipment
- Disposal of hot waste at a landfill site can be serious – the heat of the waste may cause other dry waste in the area to catch alight and result in a landfill fire- these are difficult to extinguish if they are not caught in time
- Sometimes hot wastes such as waxes cool down during transportation – you may find that you have a load of waste in your tanker or your waste container that cannot be discharged at the landfill site – this will cause additional costs for the hire of high pressure equipment to loosen the waste

Dense Wastes

Sometimes the density of the waste is overlooked. The denser the waste is, the more it will weigh. Some wastes can have a high specific gravity (Specific gravity is the weight of a substance, as compared with that of an equal volume of water which is about 1. Concentrated sulphuric acid for instance has a specific gravity of 1.84, so a 210 ℓ drum containing concentrated sulphuric acid would weigh 1.84 times that of a 210 ℓ drum of water. The density or specific gravity of the waste will therefore influence the method of storage, transport and handling.

Many injury, pollution, equipment and property damage incidents arise from containers that are too heavy for lifting. If the density is known, appropriate containers can be provided and your clients can be advised to fill them to an acceptable level. The frequency of emptying and replacement of these waste containers is then vital to prevent overfilling and spillages. As the waste partner in the generator's waste programme, it is important to share your findings and expertise in these issues, to ensure the ***duty of care*** is fulfilled by all the role players.

Sludges

Sludge wastes are difficult to manage if the consistency of the sludge varies. Be careful in selecting the appropriate containers for sludge wastes. If the waste is too liquid, then you may have spillages if you have not used a suitable container. Sometimes the waste looks thick, but when the container is transported on the road, the surging movement may cause the liquid in the waste to rise to the top of the container which can cause spillages.

TIP!

When transporting wastes, going up a hill can sometimes cause the contents of overfull containers to spill, especially if the waste is sloppy or there is liquid beneath a solid surface layer. It is the ***generator's responsibility*** to ensure that the ***correct waste*** is placed in the container. It is ***your*** responsibility to ensure your drivers ***do not load containers that have been overfilled*** or that contain the ***wrong wastes.***

IMPORTANT:

Make sure you educate:

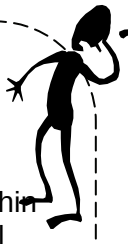
- your clients as to what can go into the container and what the safe filling level is
- your drivers so that they can identify problems ***before*** they load the containers onto their vehicle for removal

Don't forget to secure all your loads before removal as you may face prosecution for littering or spilling from your vehicle.

5.3 MANAGING DRUMMED WASTE

Management of drummed waste can present problems so be sure to:

- Check that all the drums contain the same product – open some and inspect the contents – do not take your client's word!
- If the contents are variable ensure that you and your client jointly develop a sampling protocol that will be representative of the entire load that needs to be removed



BEWARE!

Look out for:

- ***Bulging drums*** – these show that pressure is building up within the container and therefore will require special handling
- Drums that are ***rusting*** and appear to have been stored outside in the same place for a long time. Beware - When you lift these drums, the bottoms often fall out! Insist that badly rusted drums are repacked into new or reconditioned containers. Some drums may not be able to be repacked and may need to be contained within an ***overdrum*** that can fit the entire 210 ℓ drum inside.

Always be wary of old, unlabeled drums – ensure that the contents are properly identified so that you do not place your staff at risk.

5.4 WASTE CLASSIFICATION

5.4.1 WHAT TYPE OF INFORMATION DO YOU NEED FOR WASTE CLASSIFICATION?

If you are dealing with hazardous wastes you must be aware of the need for classification and the process involved. The facility that is receiving your client's waste may do the classification themselves or it may be performed by an independent consultant but you will still need a basic understanding of the procedure and the implications of the results. You may also need to assist your client in this process but the generator should be responsible for the waste classification. They know what their waste streams are most likely to contain as they know their raw materials, the processes and by-products involved. It is not appropriate for them to expect you to be exclusively responsible for the classification of their wastes.

INFORMATION TO ASSIST WITH CLASSIFICATION

Process Producing the Waste

What are the raw materials, the intermediates in the process and the finished products? Use a flow chart.

Waste Constituents and Chemical Properties

What are the expected constituents?

Is the waste flammable?

Is the waste toxic?

Is the waste corrosive?

Will the waste react with any other substances?

<u>It is your client's duty and responsibility to inform you of the potential health and safety risks associated with the waste stream</u>.

INFORMATION TO ASSIST WITH CLASSIFICATION ….

Variability of the Waste Stream

These questions are important from a sampling perspective:

Is the waste produced as a once-off from the process?

Is the waste produced from a continuous process and likely to be the same quality at all times?

Is the waste produced from a batch process making different products and will the constituents vary considerably?

Physical Nature of the Waste

The physical nature of the waste is important from a sampling and classification process:

Is the waste the same throughout – is it homogenous?

Does the waste separate into different phases and if so, how will a representative sample be obtained?

What is the colour of the waste?

Does the waste have a strong odour?

Is it a solid or liquid or sludge?

Waste Storage

How is the waste stored on-site once generated?

Is it stored on one large tank?

Is it stored in dams?

Is it stored in drums?

Is it stored in stockpiles?

5.4.2 SAMPLING THE WASTE

If you are managing hazardous wastes on behalf of your client you may need to sample the waste for classification purposes. There are a number of considerations to be taken into account and discussed with your client.

- *Chemical constituents* – what are the safety risks?
- *Sample points* – are they accessible; will it require a confined space entry; how will you open the drums?
- What *sampling equipment* is going to be used?
- *Number* of *samples* – how many samples are needed to ensure that they are representative of the waste stream?
- What *type of sample* – composite; samples from different phases; once-off sampling or sampling at regular time intervals (based on information sourced)
- *What type of sample container* are you going to use? (***Reminder***: Regulation 14(c) of the HCS Regs: *Any container into which an HCS is decanted is clearly labelled with regard to the contents thereof*).
- Are there *preservation requirements* for the sample and how should it be stored prior to despatching for analysis?
- What *quantity* does the laboratory need to perform the tests?

CAUTION!

Make sure that you take the sample yourself or at least be there when your client takes the sample.

Do not collect ready prepared samples- you cannot guarantee if it has been taken correctly, or even if it is from the waste stream that requires disposal. Remember your Duty of Care responsibilities!

IMPORTANT!

Once the initial tests have been done, you will also need to discuss the testing frequency with your client to ensure that the waste classification remains valid.

UNLESS THE PROCESS AND WASTE REMAINS 100% CONSISTENT, WASTE CLASSIFICATION IS NOT A ONCE-OFF EXERCISE!

5.4.3 WHAT IS THE SANS 10228 CLASSIFICATION?

The Minimum Requirements classification system requires you to assign your wastes into one of nine classes as defined in SANS 10228 *'The Identification and Classification of Dangerous Goods for Transport'.* The different aspects of Hazardous Waste management, such as packaging, temporary storage, transport, treatment and disposal are all based on the principles of SANS 10228. In this document, hazardous substances are given an identification number and are classified into nine classes as detailed below.

The SANS 10228 Classes and Waste Disposal Restrictions

CLASS 1 = Explosives	Direct disposal of Class 1 wastes is PROHIBITED. Class 1 wastes to be pre-treated (destroyed).
CLASS 2 = Gases	Flammable gases to be thermally destroyed. Non-flammable gases to be released to atmosphere, unless in contravention with the NEMA: Air Quality Act (Act 39 of 2004) and the Montreal Protocol. Controlled destruction of poisonous gases.
CLASS 3 = Flammable liquids	Landfilling of flammable liquids, flashpoint < 61°C is PROHIBITED. Flammable liquids to be treated to flashpoint > 61°C.
CLASS 4 = Flammable solids	Landfilling of flammable solids is PROHIBITED. Flammable solids to be treated to non-flammability.
CLASS 5 = Oxidising substances and organic peroxides	Landfill of Oxidising Substances and Organic Peroxides is PROHIBITED. Treatment to neutralize oxidation potential must be carried out.
CLASS 6 = Toxic and infectious substances	Toxic substances to be disposed subject to correct landfill site depending on the hazard rating. Infectious substances to be sterilised/incinerated and residue to be disposed subject to correct landfill site depending on the hazard rating.
CLASS 7 = Radioactive substances	Radioactive Substance with specific activity < 100 Bq/g, total activity < 4 kBq, to be incinerated or landfilled. Disposal of Radioactive Substance with specific activity > 100 Bq/g, total activity > 4 kBq, is PROHIBITED. Consult Department of Health.
CLASS 8 = Corrosives	Disposal of Corrosive Substance, pH < 6 and/or pH > 12, by landfill is PROHIBITED. Corrosive Substance to be treated to pH 6-12.
CLASS 9 = Miscellaneous dangerous goods and substances	Competent authority to be consulted and written approval to be received before disposal.

Source: Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste (2005 draft)

These SANS classes relate primarily to transportation, taking into account only the danger to humans. The *Minimum Requirements* classification system extends SANS 10228 to take into account the potential hazard of the waste to the ecosystem, and especially groundwater. As you can see from the previous diagram various types of treatment may be necessary before certain classes of waste may be landfilled.

Determining the class is only the first step in the classification process. The second step assigns the waste to a hazard rating in terms of the *Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste.*

5.4.4 *What Does The Hazard Rating Mean?*

Assigning the waste into the SANS Classes and performing the required treatment is only the first step in the classification process. You now need to ensure that the treated residue is assessed in terms of toxicity. The reason for this is to determine the degree of hazard that the waste poses to the environment.

HAZARD RATINGS

HR 1 = Extreme Hazard

Significant concentrations of extremely toxic substances, including carcinogens, teratogens & mutagens

HR 2 = High Hazard

Highly toxic characteristics or extremely toxic substances which are not persistent

HR 3 = Moderate Hazard

Moderately toxic substances or those that are potentially harmful to health or the environment but not persistent

HR 4 = Low Hazard

Often occurring in large quantities & contain potentially harmful substances that would present a limited threat to the environment

These hazard ratings are important as they tell you which class landfill site a hazardous waste must go to for disposal.

LANDFILL SITE CLASSIFICATION

Hazardous Waste Landfills – 2 types:

HH = High hazard landfill

Hh = Low hazard landfill

General Waste Landfills – many types:

Two examples:

GLB+ = ***(G)*** *General,* ***(L)*** *Large,* ***(B+)*** *The site produces leachate*

GLB- = ***(G)*** *General,* ***(M)*** *medium Large,* ***(B-)*** *The site does not produce significant leachate*

HH or Hh Disposal?

HR 1, HR 2, HR 3 and HR 4 can be disposed of at a HH landfill site.

An Hh landfill site can only accept ***HR3 and HR 4*** waste.

The hazard ratings are obtained by looking at the lethal dose (LD) and lethal concentrations (LC) values of the constituents in your client's waste:

- Acute mammalian toxicity values = LD_{50} values
- Acute ecotoxicity values = LC_{50} values

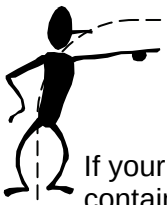
These values represent the concentration of a hazardous substance which would kill 50% of a population of rats (LD_{50}) or fish (LC_{50}) under controlled conditions. It therefore tells you how toxic a hazardous substance is.

The *Minimum Requirements* provide tables assigning the above values into hazard ratings (HR). The tables below show the hazard ratings (HR) and concentrations in parts per million (ppm) in terms of predicted toxicity.

MAMMALIAN TOXICITY			
HR	**LD_{50} (Oral) ppm**	**LD_{50} (Dermal) ppm**	**LD_{50} (Inhalation) ppm**
HR1	<5	<40	<0.5
HR2	5-<50	40-<200	0.5-<2
HR3	50-<500	200-<2000	2-<10
HR4	500-<5000	>2000	>10

ECOTOXICITY	
HR	**LC_{50} ppm**
HR1	<1
HR2	1-<10
HR3	10-<100
HR4	100-<1000

Once you have assigned your client's wastes into a specific hazard rating, you are now ready to see if the waste delists to a lower hazard rating.



CAUTION!

If your client has a waste that contains a mixture of chemicals, the hazard rating of the waste is always based on the most toxic chemical in the waste. This is universally known as the precautionary principle.

For example: Waste fluorescent tubes contain only a comparatively small amount of mercury which is a HR1 substance. The waste stream must therefore be sent to a HH site. This waste can be treated for disposal on an Hh site but only if the landfill site has written approval to do this.

5.4.5 What Does Delisting Mean?

Delisting is a complex process and this section will help to explain the terminology involved in the process. Your delisting calculations can be performed by the landfill site that is accepting your client's waste or by an independent laboratory with the relevant expertise. It is important to note that waste is delisted to a ***particular landfill*** site only.

If you want to do the delisting calculations yourself, then it will be necessary to study the latest editions of the *Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste* document in greater detail.

Delisting is the process used to assign a hazardous substance in a waste stream to a lower risk group or hazard rating (for example from HR2 to HR4) or to a 'non-risk' group (for example from HR2 to a general site with leachate collection systems.). It does not become a non-hazardous compound, but the associated risk is reduced.

Delisting involves reviewing the following:

- The concentration of the hazardous substances in the waste stream
- The toxicity of the hazardous substance
- The monthly volume of the waste stream
- The total amount of hazardous substances that will be disposed on the landfill site each month
- The size of the landfill site where the waste will be disposed

All these values are used to calculate two factors:

Acceptable Risk Level (ARL) [also referred to as Acceptable Exposure (AE)]: this is a factor based on the LC_{50} (lethal concentration) value of the hazardous substance. It represents the risk to the environment that has been deemed acceptable. This is the concentration at which the hazardous substance is predicted to the death of one in three hundred thousand fish in an aquatic environment.

The Estimated Environmental Concentration (EEC): This is the theoretical amount of hazardous substance that will leach and migrate from the site for an indefinite period of time. It takes into account the total amount of the hazardous substances that will be disposed of each month on one hectare of the landfill site.

The EEC is compared to the ARL [AE] for delisting purposes.

When the EEC is less than the ARL [AE] the hazardous substances with a HR2, HR3 and HR4 can delist to a general waste category. This means that they can be disposed of at a general waste landfill site with a leachate collection system. *Note: This is subject to written approval by DEAT.*

To delist a HR1 hazardous substance the EEC must be less than 10% of the ARL [AE] value.

5.4.6 DELISTING BY TREATMENT

There may be opportunities for you to delist your client's waste steam by pre-treatment. For example, some metals may be treated with lime to form metal hydroxides which are less soluble in the environment. They will then not leach as readily from the landfill site and pose less of a risk to the environment.

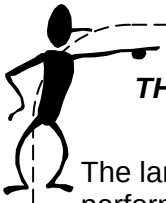
After you or your client has treated the wastes, you may ask the laboratory to perform a ***toxicity characteristic leaching procedure test*** (TCLP) on the waste. This will determine how much of the hazardous substance 'leaches' out of the waste stream. It is designed to replicate conditions in a landfill and therefore predict the fate of the waste when it is landfilled.

Using the TCLP test results, the ***Estimated Environmental Concentration*** value is compared with the ***Acceptable Risk Level*** [AE] and if less, the waste stream may be able to delist.

It is important to note that if your client's have waste streams that are disposed at lower category landfill sites due to a delisting process, you and your client must obtain written proof that the landfill site has been authorised to accept that waste.

For example, if you had a HR1 waste like fluorescent tubes, you would have to dispose of these to a HH landfill. If, however, you or the landfill operator applies appropriate treatment technologies the waste may delist to an Hh landfill site. In this case, you and your client need to ensure that the landfill site permit states that this waste stream can be accepted. If not, there may be a permit amendment authorising the disposal of this waste stream but you will need to obtain a copy of this authorisation for your records.

Similarly, if you have a hazardous waste that has been delisted to a general waste landfill site, you and your client need to ask for a copy of the landfill site permit amendment authorising this disposal.



THE TOTAL LOAD CONCEPT

The landfill site operator cannot perform individual delisting calculations without looking at the combined effect of all the hazardous substances on the landfill site. The operator needs to determine the total amount of a substance that can be disposed of at a landfill before the site may no longer accept more of that substance. E.g. the landfill site may be closed to mercury containing wastes once it has reached the limit for mercury.

Always ask for a copy of the waste classification report from your client or the landfill site if you have not done the work yourselves. The report must detail the EEC and ARL [AE] values and state the final hazard rating of the waste with recommendations for delisting if appropriate.

REMINDER!

Regulation 9A of the HCS Regs requires you to have a 16 point (headings) MSDS to cover the HCS that you handle. From a waste perspective, this MSDS contains information important to the classification process such as points:

14 – SANS Class

9 - Physical and Chemical Properties

10 – Stability and Reactivity

11 – Toxicological Information (mammalian) – LD_{50} values

12 – Ecological Information (environmental toxicity) – LC_{50} values

13 – Disposal considerations (these are normally international requirements depending on the source of the MSDS)

5.5 *WORKING ON YOUR CLIENT'S PREMISES*

If you are going to be doing work on your clients' premises, there may be specific requirements that you need to comply with. Your work may involve:

- dropping off empty containers and lifting and removing full ones
- removing wastes from storage facilities (such as tanks, sumps, bunds, drums), including high pressure cleaning if required
- collecting wastes for off-site treatment (including reuse, recycling, sterilisation, incineration, discharge to a wastewater treatment works) or landfill
- treating wastes on-site
- performing on-site waste management services such as internal waste collection, sorting and dispatch of the various waste streams

Besides knowing as much as possible about your client's wastes, you will need to be familiar with your client's operations such as what the hazards are on-site and what to do in the event of an emergency. Make sure that you sign a contract with your client. Some of the issues that should be addressed are as follows.

Access

To minimize time wasted at the gate on the first day, obtain a list of the Safety, Health and Environmental Rules for Contractors. You need to understand and comply with each requirement when you work on their site. Before doing any work on-site, you and your employees may be required to:

- provide a letter of good standing from the Compensation Commissioner
- prove sufficient insurance cover
- have an order number or other form of authorisation
- be inducted (usually training on the site's safety, health and environmental hazards, rules and other requirements)
- undergo Medical Screening – initially as a background and then routinely to assess exposure
- get a contractor's permit for personnel and vehicles
- wear appropriate personal protective equipment (safety shoes are usually a minimum requirement)
- carry identification and if driving, a driver's licence
- declare and hand over any prohibited items (such as weapons, cameras, matches, cell phones)
- get electrical equipment checked and approved by the site electrician
- have a scheduled appointment or report to a specific person or department
- be assessed to determine whether you are under the influence of prohibited substances (alcohol or drugs)

Use of Infrastructure, Utilities and Facilities

Depending on the scope of work at your client's premises, you may need to ask the following questions:

- Will your employees be able to use your client's facilities for ablutions, meals, primary health care and storing equipment and valuables or will you have to provide your own?
  - ✓ If you can use theirs, are their limits as to which ones are available, when and how you may use them?

- Can you use your client's utilities (such as water, electricity, air, steam, forklifts)?
- If you need to store flammable materials (such as fuel) or hazardous chemical substances will you be able to store them where you work or will you have to use their stores?
  - ✓ Is there capacity in their Certificate of Registration for these additional quantities of flammable substances?
  - ✓ How will you access this store and if it is after hours, are different arrangements required?
  - ✓ What are the rules associated with using these materials on-site?

Incidents and Near Misses

You may be asked to report any incidents and near misses that occur when handling, storing, transporting, treating or disposing of your client's wastes. You will need to know the timeframes for such reporting, to whom they should be reported and how. Will a phone call or e-mail be sufficient, or does the report need to be on a certain form? If there are documents to be completed, establish where to get them and keep a copy on file. Educate your employees about the reporting requirements and ensure that someone is allocated incident reporting responsibilities.

Audits and Inspections

Find out from your client if you will be expected to conduct your own Environmental, Health and Safety audits and inspections while you are on their premises. Is your work and workplace will be the subject of audits and inspections by your client and / or their consultants ask them if they be using an audit protocol or inspection checklist?

See if you can obtain a copy of these forms, so that you can use them to conduct your own audits and inspections and therefore be prepared for their visits. The table on the next page summarises some of the individual responsibilities of the waste generator and the intermediate waste contractor. Note that there may be an overlap of responsibilities and therefore it is important to ensure that you have a contract with your client that spells out the relevant roles and responsibilities.

The Waste Generator

- Identify and classify your wastes
- Separate wastes – hazardous and non-hazardous – use the designated containers for each type of waste
- Apply the waste hierarchy
- Obtain Material Safety Data Sheets or generate them for your own products
- Inform waste contractors of the waste constituents and the associated hazards
- Make your waste contractors aware of how to safely handle the waste and prevent exposure of their employees
- Prevent pollution and harm to people as a result of your waste management activities
- Inform the authorities of any incidents involving hazardous wastes
- Ensure safe loading of hazardous wastes
- Ensure waste contractors' vehicles on-site are fit for use, clean and correctly placarded
- Ensure the drivers of hazardous waste vehicles have the correct drivers licence, other permits and documentation
- Ensure wastes are correctly and legally handled, stored, treated and landfilled
- Formalise the partnership with waste contractors in a contract detailing:
  - ✓ roles and responsibilities for the safe handling, storage, transport and disposal of the wastes
  - ✓ how to prevent and manage incidents
- Audit all role-players for compliance with legal and contractual requirements

The Intermediate Waste Contractor

- Ensure that the client has had the hazardous wastes classified correctly
- Ensure wastes are handled, stored, transported, treated and disposed of correctly
- Avoid and minimise wastes in your own operations
- Prevent pollution and harm to people as a result of your waste management activities
- Inform employees and any sub-contractors you may use of the waste constituents and the associated hazards
- Provide employees with the knowledge and equipment to safely handle the wastes
- Ensure the safe loading, transport and offloading of wastes
- Ensure the waste is disposed of to a legally compliant facility that is authorised to accept that waste stream
- Inform the authorities and your clients of any incidents involving hazardous wastes
- Ensure that you have the necessary permits / authorisations / licences for your operations
- Ensure that you are compliant with the National Road Traffic Act and the NRTA Regulations with respect to the transport of hazardous wastes
- For any sub-contractors used, formalise the partnership in a contract detailing:
  - ✓ roles and responsibilities for the safe handling, storage, transport and disposal of the wastes
  - ✓ how to prevent and manage incidents
- Audit all role-players for compliance with legal and contractual requirements

CHAPTER SIX: HEALTH AND SAFETY

SUMMARY

Health and Safety and the Environment	▫ The NEMA definition of environment includes conditions that affect human health and well-being. ▫ Health and safety plans and procedures must be included in your management systems.
What are some key aspects to a safe and healthy workplace?	▫ Good housekeeping. ▫ Risk assessments. ▫ Safe work procedures. ▫ Training and awareness. ▫ Measure to manage. ▫ Continual improvement. ▫ Record keeping.
Legal framework	▫ Legislation pertaining to health and safety is a vast subject and could be the subject of a separate guideline. ▫ Some key aspects of the legislation have been included in this section for referencing purposes.
Hazardous chemical substances	▫ Be aware of the risks associated with your clients hazardous waste ▫ Conduct risk assessments in respect of your handling of the hazardous waste ▫ Introduce mitigatory measures to reduce any unacceptable risk ▫ Specify appropriate equipment and PPE ▫ Train employees and retrain regularly ▫ Verify whether your systems meet the objective of protecting health and safety
Some hazards associated with waste vehicles	▫ Specialised equipment – hooks, chains and hydraulic compaction ▫ Visibility of the waste conductor (or drivers assistant) ▫ Working with waste containers ▫ Manual handling of containers ▫ Lifting equipment and waste vehicles

6.1 GENERAL

A company which integrates safety, health and environmental issues as part of its core business is essentially one that will be sustainable in the long term. The National Environmental Management Act (NEMA) provides for a detailed definition of environment as follows:

NEMA DEFINITION:
"ENVIRONMENT"

"environment means the surroundings within which humans exist and that are made up of-

(i) the land, water and atmosphere of the earth;

(ii) micro-organisms, plant and animal life;

(iii) any part or combination of (i) and (ii) and the interrelationships among and between them; and

(iv) the physical, chemical, aesthetic and cultural properties and ***conditions of the foregoing that influence human health and well-being…***

You can see from the above definition that environmental considerations include the health and safety of people. The journey towards acceptable safety, health and environmental performance is one in which these issues are integrated into the company's business plan, with every member of the organisation responsible and accountable for their own behaviour, as well as that of the safety and health of their colleagues and the environment.

The principles involved in health and safety include the following:

- ***Safety first*** – incidents are costly to people, environment and the bottom line!
- ***An injury to one*** is an ***injury to all***!
- ***First time right***, every time!
- ***Predict and prevent*** – assess the risks all day, every day
- ***Continual improvement*** – do better next time
- ***Precautionary principle*** – if risks are unknown, assume the worst!
- ***Participation*** – people work better when they have a say and are heard
- ***Nick in time*** – scheduled maintenance pays in the long term
- ***People are humans***, not machines – they have reasonable expectations
- ***Measure to manage*** – set targets, record and review progress to plan
- ***Walk the Talk*** – safe behaviour is copied when seen not heard!

The first step on this journey is to identify the legal requirements in respect of health and safety and to work towards achieving compliance. This is not easy and requires commitment from all members of the business both in terms of providing resources (time, people and money) and in a willingness to change personal behaviour.

IMPORTANT!

Those in management roles need to ***"walk the talk"***. The standard that is set is the one that senior personnel (manager/ supervisor/ owner) walk past on a daily basis……

CAUTION!

With the ***duty of care*** principle written into law, your clients and even your service providers (such as landfill operators) will increasingly be ***auditing your workplace and practises*** to ensure that waste is handled, stored, treated and disposed of in compliance with legal and contractual requirements. If your workplace is untidy and unsafe, it will give the impression that your company will not fulfil these requirements and you may lose contracts and work opportunities.

The development of a culture of incident prevention is essential in your organisation. You need to identify hazards, minimise the risk and ensure that all your employees are trained to understand the impacts of the equipment and substances with which they work, as well as the role of their behaviour in preventing incidents.

6.2 *What are some Key aspects To A Safe and Healthy Work Place?*

When developing your health and safety management system, ensure that you take the following into consideration:

Good Housekeeping

Everything must have a place and everything must be in its place. This prevents slips, trips and falls, which are common causes of injuries in the workplace.

Risk Assessments

Predict and prevent incidents by identifying the four "whats":

- What can go wrong?
- What can cause it to go wrong?
- What can prevent it from going wrong?
- What can be done to minimise the impact if it does go wrong?

Do not forget to involve the employees in these risk assessments. They are the ones performing the task and they are often more aware of what can go wrong.

Safe Working Procedures

Develop written procedures (or work instructions) that cover all hazardous tasks performed by the employees. Here again, the input from the relevant employees should be obtained. Ensure that the employees are trained in the application of these procedures.

Training and Awareness

Everyone must know the hazards and risks of the company's operations and the measures to be taken to prevent incidents. Do not forget that this includes any casual workers, contractors and visitors, such as suppliers and clients.

Measure to Manage

Implement a system of internal audits so that you can verify whether your health and safety system is working. Include Job Observations where you watch someone performing a hazardous task and compare their performance against your safe working procedures.

Continual Improvement

Implement a corrective action system to ensure continual improvement. Record all incidents and investigate the root cause. Develop plans to prevent a recurrence and share the lessons learnt with all those involved. Ensure that all "near misses" (incidents that have the potential to cause harm) are also investigated – these are warnings that should be heeded before a serious incident occurs.

Record Keeping

Maintain comprehensive records relating to your health and safety system as these are important legal documents. This includes:

- Risk assessments
- Inspections / audits of the workplace
- Training records
- Incident reports and corrective actions
- Occupational hygiene surveys done by Approved Inspection Authorities (AIA)
- Medical surveillance records
- Legal appointments
- Health and Safety Committee Meeting Minutes
- Health and Safety work place inspections
- Statutory equipment inspection records and registers

IMPORTANT!

Poor health and safety performance can add additional costs to the organisation, for example:

- Loss of productivity
- Increased insurance risk and increased costs related to Workman's Compensation
- Increased downtime and equipment repair / replacement costs

6.3 *LEGAL FRAMEWORK*

The legal requirements pertaining to health and safety are extensive and ***cannot be adequately addressed in a guideline document of this nature.*** The following tables have been included to highlight some of the relevant legislation, but ***you are duty bound*** to obtain copies of the legislation relevant to your company's operations and ensure that you review them for compliance purposes.

SOME HIGHLIGHTS OF RELEVANT HEALTH AND SAFETY LEGISLATION

Legal Reference	Issues
Occupational Health and Safety Act (OHSA)	▫ Employers duties ✓ Provision of an environment without risk ✓ Conduct risk assessments and identify hazards ✓ Reduce risks to an acceptable level – engineering, safe working procedures, training, personnel protective equipment (PPE) only as a last resort ✓ Maintain discipline in the workplace by enforcing safe working procedures ✓ Ensure employees have access to a copy of the OHSA. ✓ Follow process to appoint Health and Safety Representatives (H&S Reps) for the workplace ✓ Train H&S Reps to perform workplace inspections ✓ Hold H&S Committee meetings at the required frequency – maintain a 1:1 ratio of H&S Reps and nominated members – keep minutes ✓ Report incidents in terms of the Act (timeframes and prescribed format) ✓ Investigate incidents ▫ Employees duties ✓ Comply with health and safety requirements ✓ Take reasonable care of health and safety and, including that of fellow employees who may be affected ✓ Report incidents and unsafe conditions
Compensation for Occupational Injuries and Diseases Act (COID)	▫ Registration with Compensation Commissioner (Department of Labour) ▫ Reporting of incidents and occupational illnesses and diseases (timeframes to be observed)

SOME HIGHLIGHTS OF RELEVANT HEALTH AND SAFETY LEGISLATION

Issue	Legal Reference	Details
Legal appointments ***Note***: Additional legal appointments can be made to ensure legal compliance can be verified for example a ladder inspector	OHSA	▫ S16(2) – appointment for the delegation of duties of the CEO ▫ S17 – H&S Reps appointment ▫ S18 – appointment of nominated persons for the H&S Committee
	General Administrative Regs (GAR)	▫ R6 – H&S Reps appointment ▫ R9 – incident investigator appointment
	General Machinery Regs (GMR)	▫ R2 – machinery supervisor appointment
	Vessels Under Pressure Regs (VUPR)	▫ R13 – appointment in respect of testing and inspection
	Construction Regs	▫ Numerous appointments required – consult the regulations
Incidents	OHSA	▫ S13 – employers duty to inform H&S Reps ▫ S14 – employees duty to report incident to employer ▫ S20 – incidents to be discussed at H&S Committee meetings ▫ S24 – types of incidents that must be reported to Department of Labour
	General Safety Regs (GSR)	▫ R3 – reporting by employees who work with hazardous substances of open wounds cuts and sores
	GAR	▫ R8 – reporting by employer of certain R9 – recording and investigating of incidents ▫ R10 – witnesses at an enquiry
	GMR	▫ R3 – reporting of certain incidents in respect of machinery
	COID	▫ S38 and S39 – reporting of accidents ▫ S40 – enquiries into accidents
Access Control	OHSA	▫ S37 – deals with Mandatories (contractors working on your site) – it is important to conclude SHE agreements with Mandatories
	GSR	▫ R2A – prevent admittance of intoxicated persons and prevent persons taking medicines with side effects that may impair their performance from performing hazardous tasks

SOME HIGHLIGHTS OF RELEVANT HEALTH AND SAFETY LEGISLATION

Issue	Legal Reference	Details
Risk Assessments and Training	OHSA	▫ S8 – duty of employers to conduct risk assessment of the workplace and introduce control measures including training
	GSR	▫ R2 – assess risk associated with the operation of machinery and introduce control measures including training
	Hazardous Chemical Substances Regs (HCS Regs) *Note: The same requirements are relevant in terms of the Lead Regs of 2001, the Asbestos Regs of 2001 and the Hazardous Biological Regs of 2003*	▫ R5 – assess potential exposure to employees to HCS ▫ R10 – introduce control measures including training measures (PPE must be a last resort) ▫ R9 – maintain records ▫ R3 – detailed training requirements
	Noise Induced Hearing Loss Regs (NIHLR)	▫ R6 – assess potential exposure to employees to noise ▫ R10 – introduce control measures including training measures (PPE must be a last resort) ▫ R11 – maintain records
First Aid	GSR	▫ R3 – first aid and relevant emergency equipment to be available in accordance with the scope of operation of the organisation (trained first aiders, first aid boxes, etc.)
PPE	OHSA	▫ S15 – safety equipment cannot be misused
	GSR	▫ R2 – safety equipment and facilities to be provided
	GMR	▫ R3 – equipment in connection with the safeguarding of machinery must be maintained in good working order and used
	Hazardous Chemical Substances Regs (HCS Regs) *Note: The same requirements are relevant in terms of the Lead Regs of 2001, the Asbestos Regs of 2001 and the Hazardous Biological Regs of 2003*	▫ R11 – provision of appropriate PPE

6.4 HAZARDOUS CHEMICAL SUBSTANCES

As discussed, if you are managing hazardous wastes, you must ensure that your employees are aware of the hazards associated with these wastes. These hazards may include:

Symbol	Abbreviation	Hazard	Description of hazard
Physicochemical			
	E	Explosive	Chemicals that explode.
	O	Oxidising	Chemicals that react with other chemicals and give off heat.
	F	Highly flammable	Chemicals that may catch fire in contact with air, only need brief contact with an ignition source, have a very low flash point or evolve highly flammable gases in contact with water.
	F+	Extremely flammable	Chemicals that have an extremely low flash point and boiling point, and gases that catch fire in contact with air.
Health			
	T	Toxic	Chemicals that at low levels cause damage to health.
	T+	Very toxic	Chemicals that at very low levels cause damage to health.
 	Carc Muta Repr	Carcinogens Mutagens Reproductive toxins	Chemicals that may cause cancer or increase its incidence. Chemicals that induce heritable genetic defects or increase their incidence. Chemicals that produce or increase the incidence of non-heritable effects in progeny and/or impairment in reproductive functions or capacity.
	Xn	Harmful	Chemicals that may cause damage to health.
	C	Corrosive	Chemicals that may destroy living tissue on contact.
	Xi	Irritant	Chemicals that may cause inflammation to the skin or other mucous membranes.
Environmental			
	N	Dangerous for the environment	Chemicals that may present an immediate or delayed danger to one or more components of the environment.

Hazardous wastes can enter the body through a number of routes depending on the chemical concerned.

Skin Contact

- Some chemicals pass easily through the skin where after they enter the tissue / blood
- Acids and alkalis can burn the skin
- Other chemicals can irritate the skin and cause dermatitis
- Some solvents can dissolve the oils in the skin, leaving it dry, cracked, and susceptible to infection and absorption of chemicals

Inhalation

- Some chemicals can enter your lungs and thereafter be transferred to the blood causing death or disease
- Some solid particles may get lodged in the lungs and cause cancer-like diseases
- Some chemicals are irritants and cause nose or throat irritations or occupational asthma
- Some chemicals may also cause discomfort, coughing or chest pain when they are inhaled and come into contact with parts of the lung

Ingestion

- Bad hygiene practises may cause you to ingest (eat) the chemicals, for example by not washing hands before eating and / or smoking
- Dusts are easily ingested

Eye Contact

The eyes are easily harmed by chemicals.

- Some chemicals may burn or irritate the eye
- Sometimes they may be absorbed through the eye and enter the bloodstream
- Infectious wastes (such as blood) can be splashed into the eyes and cause harm

You must ensure that you have sufficient procedures in place to protect your employees against the inherent risk of storing, handling, transporting, and treating hazardous waste. These procedures should cover the following:

- Obtaining the required information from your client regarding the risks associated with hazardous waste
- Conducting a risk assessment in respect of your handling of the hazardous waste
- Introduction of mitigatory measures to reduce any unacceptable risks
- Specifying the appropriate safety equipment and PPE
- Training your employees accordingly
- Verifying whether your systems meet the objective of protecting health and safety

6.5 *Some Hazards Associated With Waste Vehicles*

There are a number of risks associated with working with waste vehicles. Some of these are detailed below.

6.5.1 *Specialised Equipment*

Many waste vehicles have specialised equipment such as lifting hooks and chains, hydraulic compaction units, etc. Make sure that you draft ***safe working procedures*** that cover the vehicles and equipment that your operations use – moving equipment presents a danger to the hands, feet and limbs if not used safely.

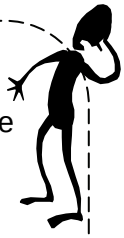
Do not forget to make sure all your vehicle cabs are fitted with steps and hand holds for climbing into and out of the vehicle. Keep these steps clean and well maintained to prevent slipping. Select the appropriate footwear for your employees. Leather lace up safety boots with ankle support provides the safest option.

6.5.2 *Visibility*

Waste vehicles do a lot of reversing when lining up to load and off-load wastes and containers. You need to ensure your vehicles have good all round visibility – for

example, correctly positioned mirrors, so that the driver is aware of the rear of the vehicle and its surrounds. Mirrors should be checked daily and maintained in good working order. Think about visibility if you work at night. Is the rear of your vehicle sufficiently illuminated to protect the safety of the conductor and to prevent damage to your equipment? If not, pollution and safety incidents could occur.

Make sure that you supply the driver's assistant (conductor) with protective clothing that is highly visible, especially if you work at night. Draft procedures that require that the driver does not reverse his vehicle unless the conductor can be seen at all times. Train your staff accordingly.



BEWARE!

Many accidents have occurred in the waste industry where the conductor has been either

- crushed between the rear of a waste vehicle and a waste container, or
- driven over

because the driver failed to keep the conductor in his line of sight. This has led to severe injuries and even death.

IMPORTANT!

Ensure that your vehicles are fitted with audible reversing signals as an additional safeguard.

6.5.3 *WORKING WITH WASTE CONTAINERS*

Some waste containers present different hazards to your employees. *Large **roll-on-roll-off** containers present a number of safety issues:*

(1) Covering the load

Placing the covers (tarpaulins or nets) onto these large containers requires that your employees work at heights. Many conductors have fallen off containers when undertaking this task. The hazards are even more pronounced during wet weather or low visibility conditions. Make sure that you have carried out a risk assessment for this activity and that you have introduced measures to reduce the risks. This can include: providing steps up the sides of the container / placing your sheeting hooks at eye level so that they are easy to reach. First prize is to investigate automatic sheeting systems. Make sure that your conductor covers the load prior to the container being loaded onto the vehicle.

(2) Tipping hooks on the container

Make sure that you have fitted hooks and chains to the rear of your roll-on-roll-off container doors. These allow the doors to be secured during the unloading / loading of the container. Many incidents have occurred when conductor has not been able to pin back the door due to missing hooks and chains. The result is that the doors of the container are left to swing on their hinges during tipping and the conductor is at risk of being hit by these heavy doors. One conductor was paralysed for life in an incident of this nature in the late 1980s.

BEWARE! Make sure that your client knows that roll-on-roll-off containers must be evenly loaded. Do not allow your employees to climb into the container to rearrange the load. Also be aware that when the driver lifts a heavy container that has an unevenly distributed load, the vehicle is at risk of overturning.

Skip containers may present safety risks such as when the containers are tipped without securing the chains properly.

TIP!

Identify the risks associated with your equipment, ***reduce*** the risks, develop ***safe working procedures***, ***train*** employees, ***enforce*** rules and ***audit*** for compliance.

6.5.4 MANUAL HANDLING OF CONTAINERS

If you do not have access to specialised waste vehicles, your employees may be involved in the manual handling of waste. This can be another source of injury and manual handling should be avoided if at all possible. If you cannot avoid it, assess the risk, ensure that your employees are trained and that each employee is fit for the task

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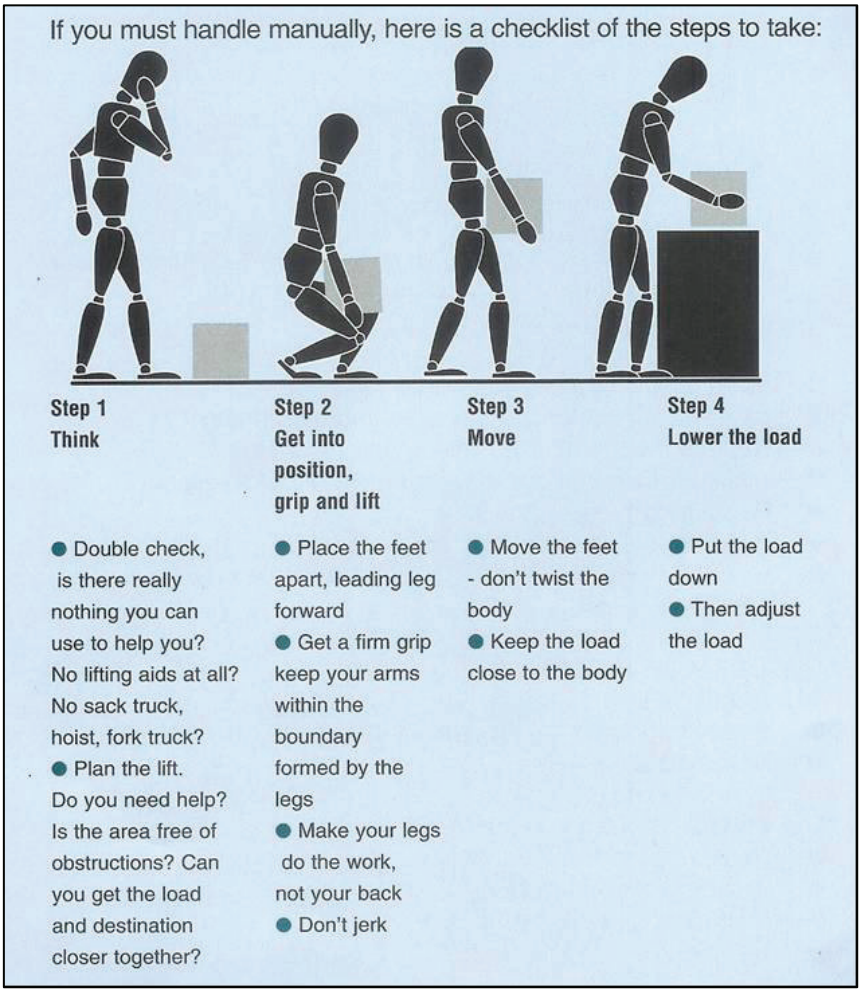
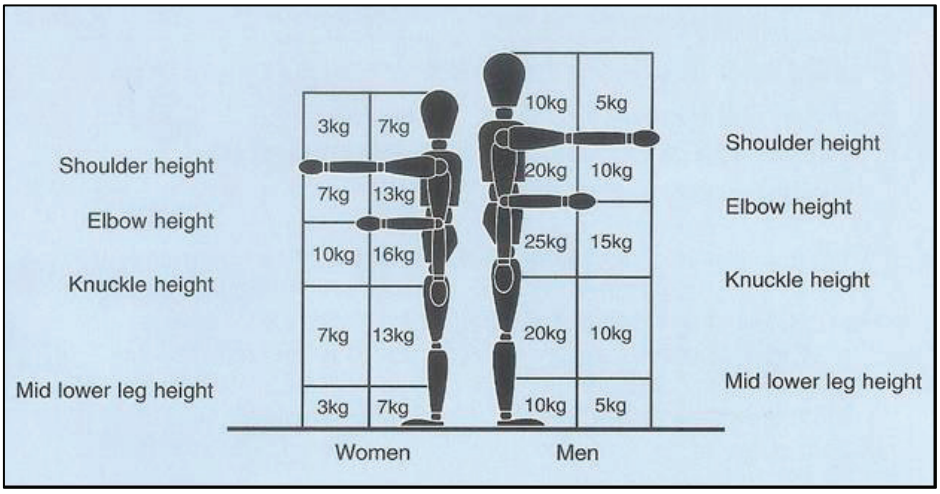




Any operation involving more than twice the guideline weights should be rigorously assessed – even for the very fit, well trained individuals working under favourable conditions. *Source: Waste Industry Safety and Health – Reducing the Risks. HSE 05/02 (Heath and Safety Executive – United Kingdom).*

EMPLOYEE PERSONAL PROTECTIVE EQUIPMENT!

NOTE: PPE should only be used as a last resort after other mitigatory measures have been applied. For example, don't just supply your employees with respirators. Make sure that you have first completed a risk assessment, and looked at ways in which employee exposure can be reduced. If the expose cannot be eliminated, use a respirator as a last resort. Don't forget to train employees in the correct use of the PPE!!

EYES – Is there a danger of a hazardous substance splashing into your eyes? Wear appropriate eye protection – safety glasses / goggles / face shield

FEET – As a minimum in the waste business you should be wearing steel capped safety shoes to prevent damage to your toes such as by sharp objects, heavy things dropping on your toes or even having your feet driven over!

HANDS – Is there a danger of your hands coming into contact with hazardous substance or being squashed or being exposed to sharp objects? Wear appropriate gloves

LUNGS – Is there a danger of your inhaling hazardous substances or being exposed to dust? Wear an appropriate respirator or dust mask (selected depending on the type of dust)

EARS – Do you visit a client's premises where there are designated noise zones and noise signs posted? Wear appropriate hearing protection. This may also be appropriate depending on the activities at your own premises.

ARE YOU VISIBLE? Make sure you wear your reflective clothing where necessary.

HYGIENE – Wear clean overalls every day / wash your hands before you take a smoke break or before you eat / drink.

HEAT STRESS – Do not forget to account for heat stress if working outside in the summer – have drinking water available and use sunscreen.

TIP!

Use posters and tool box talks to encourage your employees to adopt safe behaviours at work.

The Department of Labour has some useful health and safety documentation on their website – www.labour.gov.za

CHAPTER SEVEN: HAZARDOUS WASTE TRANSPORT

SUMMARY

SOUTH AFRICAN BUREAU OF STANDARDS DOCUMENTS	▫ Many South African National Standards (SANS) Documents dealing with the transportation of dangerous goods (and therefore hazardous wastes) are legally binding and you must be aware of the applicable requirements in these documents
The consignor, operator and consignee	▫ These categories of persons all have numerous responsibilities: ✓ Consignor – person who dispatches the hazardous waste ✓ Operator – person who transports the hazardous waste ✓ Consignee – person who accepts the hazardous waste after transport
Documentation and placarding	▫ As the waste transporter (the operator) you need to ensure that you use the correct documentation, including: ✓ The dangerous goods declaration and the transport emergency card ✓ You also need to ensure that your vehicle displays the correct placards and front warning diamond
Drivers duties	▫ Ensure that you use trained drivers, that they are aware of the procedures to be followed when transporting hazardous wastes and what to do in an emergency
Vehicle requirements and inspections	▫ Be aware of vehicle design, construction, inspection, ancillary equipment, testing and marking requirements for all road vehicles of gross vehicle mass equal to or exceeding 3 500 kgs
Incidents	▫ Incidents involving the transport of hazardous waste may be reportable in terms of S30 of National Environmental Management Act, S20 of the National Water Act and the National Road Traffic Act and SANS 10232-3
Empty containers	▫ Do not forget about empty containers previously carrying dangerous goods. Be aware of the requirements of SANS 10406

7.1 GENERAL

As discussed briefly in Chapter Two, if you are transporting hazardous wastes you need to ensure that it is done in compliance with the National Road Traffic Act of 1996, the Road Traffic Regulations of 2000 and the associated SANS documents that have been incorporated in to the regulations as legally binding requirements.

It is essential that you purchase copies of the relevant SANS documents so that you are able to identify the requirements applicable to your operations. This can be done electronically on the following website: www.sabs.co.za or at your local South Africa Bureau of Standards offices.

Remember that these documents are updated from time to time so you need to ensure that you kept abreast of new developments.

7.2 WHAT SANS DOCUMENTS DO YOU NEED?

A number of SANS documents have been incorporated into the legislation. Some of these are detailed in the adjacent table. It is recommended as a minimum that you keep copies of the documents marked (*). You may however need other documents depending on the nature of your business practises.

SANS	DOCUMENT TITLE
SANS 1518(*)	Transport of dangerous goods – Design requirements for road vehicles and portable tanks.
SANS 10228(*)	The identification and classification of dangerous substances and goods.
SANS 10229	Packaging and large packaging for road and rail transportation in South Africa. Part 1 – Packaging.
	Packaging and large packaging for road and rail transportation in South Africa. Part 2 – Large Packaging.
SANS 10231(*)	Transportation of dangerous goods – Operational requirements for road vehicles. Note: The 2006 revision replaces SANS 10230 (Transportation of dangerous goods-Inspection requirements for road vehicles) and SANS 10189 (The operation, handling, and maintenance of road tank vehicles for flammable liquids) and SANS 10231:2003).
SANS 10232(*)	Transportation of dangerous goods – Emergency information systems. Part 1 – Emergency information system for road transportation.
	Transportation of dangerous goods – Emergency information systems. Part 3 – Emergency response guides
	ANNEX A : 2000: Emergency Response Handbook
	Transport of dangerous goods – Emergency information systems. Part 4 – Transport emergency card.
SANS 10233(*)	Transport of dangerous goods – Intermediate bulk containers.
SANS 10406(*)	Transport of dangerous goods – The reprocessing of previously certified packaging.

7.3 *WHAT ARE YOUR RESPONSIBILITIES IN TERMS OF THE NATIONAL ROAD TRAFFIC ACT?*

NATIONAL ROAD TRAFFIC REGULATIONS – R273
DEFINITIONS

CONSIGNOR
'The person who offers dangerous goods for transport'.

CONSIGNEE
'The person who accepts dangerous goods'.

OPERATOR
'The person responsible for the use of a motor vehicle of any class and who has been registered as the operator of such vehicle'.

QUALIFIED PERSON
'A person trained to perform any specific task, nominated by the operator, consignor or consignee'.

7.3.1 *THE CONSIGNOR*

Your client, the ***consignor*** of hazardous wastes has a number of legal responsibilities of which you should be aware. Some of these (extracted from SANS 10231:2006) are listed below:

- ***Correct classification*** of the goods in terms of SANS 10228 *(This is a requirement for waste disposal and for transport purposes)*;
- Correct ***packaging*** of the waste in terms of SANS 10229 and SANS 10233;
- Check that the vehicle removing the waste displays a ***dangerous goods operator card***;
- Loading carried out by a ***qualified person,*** trained in the relevant procedures, under the supervision of a dangerous goods loading supervisor;
- The Driver has a signed ***Dangerous Goods Declaration*** (DGD); and
- ***Placards, transport emergency cards*** or the information with regard to the correct placards or transport emergency cards is supplied to the operator (*this is therefore your client's responsibility but you should discuss and agree on the information to be used)*.

IMPORTANT!

The SANS 10231 definition of ***consignor*** takes it a bit further –
3.1.7 '*person who offers goods for transport in a vehicle referred to in the relevant legislation*' and
NOTE: The consignor can be either the product manufacturer, or the product owner or the party that contracts the operator or the product custodian'.

Product manufacturer is defined in 3.1.20 *'as the person who manufactures the product or produces the product'*

Product owner is defined in 3.1.21 *'as the person who has legal ownership of that product at that particular time'*

Party that contracts the operator is defined in 3.1.18 as the *person who enters into a contract for the transport of dangerous goods with the operator*

Product custodian is defined in 3.1.19 *as the person who has control of the dangerous goods at a particular time but does not necessary own the goods*

If you are managing wastes at your client's premises and despatching the waste on their behalf, you could be the product custodian. Make sure that your contractual agreements cover this arrangement and that your waste manifests reflect these details.

7.3.2 THE OPERATOR

As the ***operator*** you have a number of responsibilities. The following are some issues with which you need to check for compliance (extracted from SANS 10231:2006):

- Have you ***registered*** with the ***Department of Transport*** as a Dangerous Goods Operator and is the operator's card displayed on the vehicle's windscreen? *(This is a disc that is affixed to the windscreen. It looks like a license disc but should display the heading OPERATOR CARD. In the section marked Category, you should see the letters G and D, meaning that the vehicle is licensed to carry for general and dangerous goods- this disc has an expiry date so that must be checked as well)*
- Do you ensure that your drivers have a ***valid professional driving permit*** (PrDP-D) for dangerous goods?
- Do you ***notify the emergency services*** and provide them with the information of the products that you are transporting through their local authority area?
- Are your ***drivers trained*** by an approved training body on an annual basis? *(An accredited training provider is one that has been approved by The Transport Education Training Authority – TETA, and by the Department of Transport – the training records must be kept with the driver).*
- Have you provided a ***route plan*** to your drivers?
- Do the drivers have a ***procedure*** to report accidents?
- Are you providing ***safety equipment*** to your drivers in accordance with the information on the transport emergency card?
- Are your ***drivers trained*** to use the ***safety equipment*** that has been issued to them?

IMPORTANT!

You must ensure that you have ***insurance cover in place*** which is based on the hazard and risk of the substances carried. It should cover: civil liability AND recovery and rehabilitation costs (*SANS 10231:2006 Clause 5.2*

The consignee is the person who receives the hazardous waste that you have transported. They are responsible for offloading the goods and for providing the qualified person or dangerous goods off-loading supervisor, unless you have an agreement to the contrary. It is important that you discuss these requirements with the management of the premises where you off-load the hazardous waste.

7.4 LOADING OPERATIONS

Your client is responsible for ensuring that loading as specified in SANS 10231:2006 is carried out by a ***qualified person*** trained in the relevant procedures. You are also an integral part of this process and should ensure that you document these arrangements with your clients.

SANS 10231:2006
DEFINITION
DANGEROUS GOODS LOADING/ OFFLOADING SUPERVISOR

'Qualified person trained to supervise the loading or off-loading of dangerous goods or substances, nominated by the consignor or consignee in terms of the relevant legislation (see Annex A)'

The qualified person or loading supervisor's responsibilities include:

- The vehicle is correctly parked;
- The area is safe and warning signs placed if required;
- The necessary safety and first aid equipment is provided in accordance with the transport emergency card;

- Loading is carried out in a safe manner and other activities in the area do not create any risk;
- The load is adequately secured;
- The load is correctly classified and packaged;
- The vehicle is suitable for the purpose and is clean and fit to load;
- If the vehicle has been used for a previous load and a certificate of cleaning or a gas free certificate has not been presented, then compatibility of the substances must be ensured;
- The loaded goods are all compatible (especially in the case of loads of mixed drums collected from different clients of the waste contractor);
- The correct quantity is loaded;
- The load is undamaged and properly secured (drums should be in good condition and the waste containers must not be leaking);
- The placards are fitted onto the vehicle;
- The driver has the necessary transport emergency card(s);
- The Dangerous Goods Declarations (DGDs) have been supplied to the driver.

7.5 OFF-LOADING OPERATIONS

The following are some compliance issues of which you should be aware with respect to off-loading (extracted from SANS 10231:2006):

- The cargo must be correct, undamaged and there must be no obvious spillage;
- The load must be refused if there is doubt that it can be off-loaded without risk;
- Offloading may not proceed if the conditions are deemed unsafe;
- After off-loading, no residue must remain on the vehicle and it must be free from contamination;
- If the vehicle cannot be certified clean, then the placards must remain in place.

7.6 DRIVER DUTIES

As an operator you must ensure that your driver understands the applicable responsibilities. They must:

- Have the required skills and training;
- Undertake a number of vehicle checks:
  - ✓ ***Preliminary checks*** – operators card; vehicle is roadworthy; complete the checklist (provided in SANS 10231-2006 Annexure E.2); vehicle free from any product likely to create a safety hazard;
  - ✓ ***Pre-loading checks***: site is suitable, vehicle correctly positioned; permission given for loading;
  - ✓ ***Post-loading checks***: correct transport emergency card of which the contents are understood; route plan, DGD stored (for that load only) in designated space; safety equipment available that he / she knows how to use; placards and warning diamonds in place; vehicle is not overloaded and load is secured; en-route procedures are followed (as detailed in SANS 10231:2006 Section 5.3).

7.7 THE DANGEROUS GOODS DECLARATION

Check that your ***waste manifest document*** complies with the requirements of SANS 10232-1:2007. This means that the document must include the following content:

- Heading 'DANGEROUS GOODS DECLARATION';
- Proper shipping name in accordance with SANS 10228 – for example: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, NOS (Not Otherwise Specified);
- The UN number – for example, for the above substance this would be 3082 with the word WASTE added;
- The hazard class and packing group, where applicable. Using the above example this would be Hazard Class 9 and Packing Group III;

- The quantity, and type of packaging, or the word 'BULK' where applicable;
- The gross and net mass or volume of the goods;
- The names and contact details for the following parties (where applicable): consignor..operator..consignee;
- The following declaration signed by the consignor: *"I hereby declare that the content of this consignment is fully and accurately described above by the proper shipping name, and is classified, packaged, marked and labelled / placarded in all respects in proper condition for transportation, in accordance with the applicable national government regulations";*
- The following declaration signed by the driver: *"The consignment above has been received into my vehicle. My vehicle is correctly placarded and I am in possession of all necessary transport documentation pertaining to the transport of dangerous goods including information to be followed in the case of an emergency".*

CAUTION!

Note the implications of what your drivers are signing for. Make sure that they been trained in the necessary requirements and have they been informed to refuse a load that does not comply with their paperwork. Remember that <u>this is a legally binding document and may be used against you in the event of an incident</u>!

7.8 THE TRANSPORT EMERGENCY CARD

The transport emergency card is an important document as it is intended to be used by the driver and the responders in the event of an emergency. It contains important safety information that may have to be used if your driver is unable to provide information about the load. Make sure that you are using the correct transport emergency card for each of the hazardous waste loads that you transport.

The transport emergency card must be generated by either:

- The CEFIC system (European Chemical Industry Council software) (and called a TREMCARD) or
- In accordance with SANS 10232-4 (and called a TREC).

The transport emergency card must be written in English, printed on A4 sized paper with a red vertical left and right hand side border of 10mm. It must be clean and legible.

VALIDITY OF THE TREMCARD!

Either version of the transport emergency card is ***only valid for three years*** from the generation date. This is shown on the bottom left hand corner (for CEFIC documents) or the preparation date in the bottom right hand corner of the document (for SANS 10232-4 documents).

WHERE MUST THE DRIVER'S DOCUMENTS BE CARRIED?

The Dangerous Goods Declaration and the transport emergency card must be kept in the ***designated space*** in the drivers cab.

The designated space is:

'A container, of colour orange and marked with the word "DOCUMENTS" in black, that is permanently fixed in a clearly visible space near the centre of the cab so as to be easily accessible from either one of the doors or through a broken front window".

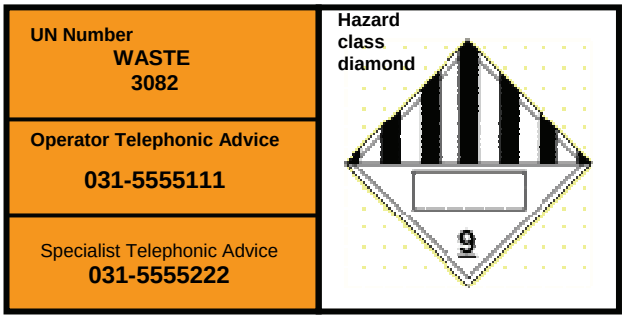
NOTE: *Only the documents relating to the current load must be kept in the designated space. If you keep the documents relating to your loads for the day in this box (which are all different) the emergency services will know what they are dealing with if your driver is not available to answer questions.*

7.9 VEHICLE PLACARDS

The ***consignor*** of the hazardous waste is responsible for supplying the placards or the information regarding the correct placard to you, the operator. In the waste industry this responsibility has generally been taken on by the waste company. You should however agree with your client what information will be used. The format and content of the placard is very specific and is found in SANS 10232-1. Ensure that:

- The UN number used is correct for each waste stream that you remove from site. This identifies the substances as per SANS 10228.
- The word WASTE is added above the UN number.
- The correct hazard class warning diamond is used.

An illustration of a placard for a liquid environmentally hazardous substance is provided below.



The vehicle carrying the wastes must display three of these placards: One on either side of the vehicle and one at the back. A truck and trailer combination with a waste container on the truck and containers on the trailer must display six placards in total.

Another sign required on the vehicle when it is carrying dangerous goods is an orange warning diamond (dimensions provided in SANS 10232-1) fixed to the front of the vehicle. This diamond must be removed if the vehicle is not carrying dangerous goods.

7.10 WASTE CLASSIFICATION REQUIREMENTS

SANS 10231-1 requires that a vehicle transporting waste containing any material listed as a dangerous substance (in terms of SANS 10228) exceeding the exempt quantities (as detailed in SANS 10231) carries a ***written confirmation*** of the waste classification. This information can be included on the Dangerous Goods Declaration.

7.11 VEHICLE REQUIREMENTS

7.11.1 REGISTRATION AND DESIGN

Apart from your vehicles being registered with the Department of Transport as a dangerous goods carrier, you need to ensure that they comply with the design and construction requirements. This is referenced in SANS 10318 entitled *Transport of dangerous goods – Design requirements for road vehicles and portable tanks.* This document pertains to the:

- design
- construction
- inspection
- ancillary equipment
- testing and
- marking

This applies to all road vehicles of gross vehicle mass equal to or exceeding 3 500 kgs and portable tanks for the transport of dangerous goods as classified in SANS 10228, classes 2 to 9.The SANS document refers to ***The European Agreement Concerning the International Carriage of Dangerous Goods by Road*** (ADR) and *states that the requirements of the ADR are to be fully complied with.* They are freely available on the following website: www.unece.org. Ensure that you have reviewed the latest edition of this standard to keep abreast of the requirements.

7.11.2 VEHICLE INSPECTIONS

SANS 10231:2006 requires that a number of vehicle inspections are carried out. These are listed in Annexure E of the document and include:

- Basic inspection schedule E.1 – minimum requirements given
- Daily inspection schedule E.2 – typical daily inspection schedule provided
- Six monthly inspection schedule E.3 – in-house inspection and

roadworthiness schedule requirement given

It is important to have a regular preventative maintenance schedule and keep detailed records for each vehicle. If your vehicle has undergone major maintenance, then the inspection schedule in E.1 must be restarted from the beginning.

7.12 TRANSPORT INCIDENTS

In order to limit your liability in the event of an incident, you make sure that you have complied with the relevant legal requirements. Apart from emergency incident management and reporting requirements in terms of the National Environmental Management Act and the National Water Act, there are also reporting requirements for emergency incidents in terms of the National Road Traffic Act and the associated Regulations.

SANS 10232-3 requires that a written report (the format is given in Annexure B) is completed and forwarded to the Department of Transport: Dangerous Goods Inspectorate within 24 hours of the incident. The circumstances of the incident will then be investigated. It is important to also notify your client if you have had an incident during the transportation of their waste.

NATIONAL ROAD TRAFFIC REGULATIONS – R273
DEFINITION
INCIDENT

'An unplanned event during the transportation or storage of dangerous goods which involves leakage or spillage of dangerous goods or risk thereof'

SANS 10232-1
DEFINITION
INCIDENT

'Unplanned event during the transport or storage of dangerous goods which includes incidents such as leakage, spillage, fire or other unplanned events'

REMINDER!

Refer back to the end of Chapter 2 for incident reporting requirements.

7.13 EMPTY CONTAINERS

Did you know that in terms of SANS 10232-1, a container used for the transport of dangerous goods that has not been cleaned and is not accompanied by a ***nominally empty packaging certificate signed by the consignee,*** is regarded as a dangerous goods waste product? Make sure that you are aware of the requirements of SANS 10406 in respect of the reprocessing of ***previously certified packaging.*** It is a good idea to review this document if you manage these wastes on behalf of your client, or if you generate them as part of your own operations.

SANS 10406
DEFINITION
NOMINALLY EMPTY PACKAGING

'Previously certified packaging from which the contents have been removed as far as possible, by means of the practices commonly employed to remove materials from that type of container, for example pouring, pumping or aspirating'

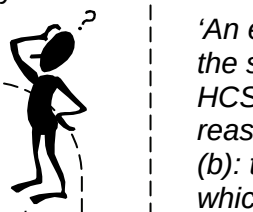
'Note: Packaging containing residual material of division 6.1 (main or subsidiary hazard in accordance with SANS 10228) is not deemed empty unless it has been triple-rinsed with an effective solvent, or has been cleaned by a method proved to achieve equivalent removal'.

If you are transporting drums or containers for recycling you ensure that they are nominally empty and that your client (or you if they are being dispatched from your premises) supplies a nominally empty certificate every time the drums / containers are sent for re-processing. An example is provided in Annex B of SANS 10406.

NOTE!

Re-processing companies should not be accepting drums or containers without these certificates!

When you audit the drum reconditioning company that you use, you should check how they manage drums that cannot be reprocessed. Find out what they will do with the drums they cannot use and intend to "throw away". SANS 10406 requires that when packaging containers are being prepared for scrap, the interior and exterior must be cleaned with an effective cleaning agent, or must be thermally neutralised in a reclamation furnace, where appropriate, to remove any foreign matter, residues, labels and decorative coatings. The packaging must then be mechanically or hydraulically crushed.



DID YOU KNOW?

A packaging reprocessing company must demonstrate compliance with legislation and other publications listed in Annex A of SANS 10406 as well as SANS 14 001. The list in Annex A includes The National Environmental Management Act, the National Road Traffic Act, the National Water Act, the Occupational Health and Safety Act and the DWAF Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste.

7.14 OTHER APPLICABLE LEGISLATION

7.14.1 THE OHSA REGULATIONS

In Chapter 2 various sets of regulations that detailed requirements for the labelling, packaging, transportation and storage of hazardous chemical substances (HCSs), such as asbestos, lead and hazardous biological agents were detailed.

These are additional legal requirements of which you should be aware when you are transporting hazardous wastes as part of the management chain. Labelling is also a requirement of the National Road Traffic Act and associated SANS requirements.

The wording of the provisions in the HCS, asbestos, lead and hazardous biological agents is very similar – see below for the requirements in terms of the HCS Regs.

HCS REGS

R14 Labelling, packaging, transportation and storage

'An employer shall, in order to avoid the spread of contamination of an HCS, take steps, as far as is reasonably practicable, to ensure (b): that a container or a vehicle in which an HCS is transported, is clearly identified, classified and packed in accordance with SANS 10228 and SANS 10229'

R15 Disposal of hazardous chemical substances

'An employer shall as far as is reasonably practicable
(c) ensure that all vehicles, re-usable containers and covers which have been in contact with HCS waste are cleaned and decontaminated after use in such a way that the vehicles, containers or covers do not cause a hazard inside or outside the premises concerned'

7.14.2 *THE INTERIM CODE RELATING TO FIRE PREVENTION AND FLAMMABLE LIQUIDS AND SUBSTANCES*

As detailed in Chapter 2, eThekwini Municipality have bylaws dealing with flammable liquids and substances. These also apply to the transport of flammable wastes. If your vehicles are used to transport flammable wastes, you make sure you have a ***Certificate of Registration*** for each vehicle that you use for this purpose.

In terms of the bylaws no vehicle is permitted to carry flammable substances in excess of the following amounts unless the vehicle has a Certificate of Registration:

- Class I Flammable liquid = 200 ℓ
- Class II Flammable liquid = 400 ℓ
- Class III Flammable liquid = 600 ℓ

It is a requirement that these Certificates are kept on the vehicles and that you comply with the conditions on the Certificate.

INTERIM CODE DEFINITION:

CLASSES OF FLAMMABLE LIQUIDS AND SUBSTANCES

"***Flammable Liquid or Substance***" means any substance that is readily ignited or any Flammable Liquid;

"***Class 0 Flammable Liquid***" means Liquefied Petroleum Gas;

"***Class I Flammable Liquid***" means a liquid that has a closed cup flash point below 21°C;

"***Class II Flammable Liquid***" means a liquid that has a closed cup flash point from 21°C up to and including 55°C;

"***Class III Flammable Liquid***" means a liquid that has a closed cup flash point from 55°C up to and including 100°C

CHAPTER 8

WASTE STORAGE, HANDLING AND CLASSIFICATION AT YOUR PREMISES

CHAPTER EIGHT: WASTE STORAGE, HANDLING AND CLASSIFICATION AT YOUR PREMSIES

SUMMARY

Environmental issues associated with waste storage	▫ Overflowing containers ▫ Leaking containers ▫ Wastes not moving regularly ▫ Provision of bunded areas for bulk storage
On-site waste management facilities	▫ Appropriate and adequate containers ▫ Containers emptied frequently and returned in clean, good repair ▫ Hard surfaced storage areas ▫ Covers ▫ Drainage (separation of stormwater and effluent) ▫ Bunding ▫ Access control ▫ Spill kits ▫ Labelling of containers ▫ Compliance with hazardous waste storage time periods ▫ Fire extinguishers ▫ Signage ▫ MSDSs
Responsible container management	▫ Ensure systems are in place to prevent containers previously holding hazardous chemical substances from entering the informal waste stream.
Permitting requirements	▫ Section 20 Environment Conservation Act permits ▫ Local authority permits – Registration Certificate in terms of Fire Bylaws if quantities of flammable wastes in excess of the prescribed limits are stored on-site

8.1 GENERAL

If you are removing your client's waste to your own premises for storage, treatment or transfer you need to ensure that you maintain your facilities so that they do not impact on health, safety or the environment. Some of the factors that you need to consider are:

- What are the legal requirements for waste storage?
- Do you have MSDSs or waste classification reports for the wastes being managed on your premises?
- Have you implemented a responsible container management program if you use and discard empty containers?
- Do you need any permits for waste handling and storage on-site?
- Do your facilities have the necessary controls to prevent environmental pollution?
- Are all hazardous waste containers labelled as to the contents?
- Are your employees and sub-contractors trained to safely manage the wastes?
- How will you manage incidents and respond to emergencies arising from handling these wastes?

8.2 REGULAR WASTE REMOVAL

Make sure you have a regular schedule for wastes that need to be removed from your premises for recycling, treatment or disposal. Accumulation of wastes can lead to unhygienic conditions on-site which will cause a problem with compliance with your Schedule Trade Permit. Regular removal also helps to maintain control over the wastes that you are handling and minimises your inventory in the event of a fire or other incident.

8.3 ON-SITE WASTE FACILITIES

Waste facilities must be provided at your premises to ensure that waste is stored in a way that minimises risk to people, the environment and property.

This means that containers must be:

- Stored on a hard surface away from stormwater drains
- Appropriately sized and designed to prevent overfilling and spillages
- Emptied regularly to prevent overflows
- Covered to prevent filling with rainwater and generation of odours
- Secured to prevent unauthorised reuse and recycle of items

Hazardous waste must be kept in containers that are:

- Appropriate for their contents to prevent leaks and spillages
- In good condition
- Labelled to show their contents during storage and transportation
- Marked with accumulation start dates

For waste liquids and sludges, you need to use leak-proof containers. The storage area needs to be hard surfaced and bunded to prevent contamination of water resources and the soil in the event of a spillage. Additional steps should be in place in areas where hazardous wastes are stored, including:

- The names, and phone numbers of the emergency coordinator and other response personnel on-site
- Fire extinguishers placed in strategic locations near the storage area
- Easily accessible spill containment equipment
- Training personnel to safely store and handle the wastes
- Work instructions for hazardous tasks such as the crushing of fluorescent tubes
- Control measures to ensure only those authorised to do so may handle the wastes

What is Best Practice for Waste Storage and Handling on Site?

- All waste is stored in a central area before going off-site for reuse, recycling, treatment or disposal
- The storage area is hard surfaced to prevent soil and groundwater contamination

- Drains or bunding is installed to prevent contamination of stormwater in the event of a spillage
- Cover is provided to prevent rainwater affecting the waste
- The area is secured to prevent unauthorised access and removal of waste
- Signs to designate where each waste stream is stored, the constituents, and the hazard
- Hazardous waste is appropriately secured to minimise the risk to people, the environment and property
- Date that storage commenced marked on hazardous waste containers
- Incompatible materials are stored separately and in compliance with all legal requirements
- Emergency response equipment and materials provided for all potential incidents
- Signs used to show who to contact in the event of an emergency
- Steps are taken to prevent odours and pests from creating a nuisance

8.4 LEAKPROOF CONTAINERS

Make sure that any hazardous waste you store is in leakproof containers in a secure area with access control. Empty these containers at the required frequency to prevent spillages and overflows. If you have bulk storage containers they should be situated within a bund that can hold 110% of the contents of your storage tank. If possible try to erect a roof over storage containers as this eliminates many potential pollution related incidents. Do not forget to implement a procedure that details how you are going to manage the water that collects in the bund – it may be contaminated due to leaks and / or spills or it may be clean rainwater.

8.5 MATERIAL SAFETY DATA SHEETS (MSDSS)

It is your responsibility in terms of the Hazardous Chemical Substances Regulations of 1995 to have MSDSs for all hazardous substances managed on your premises. These MSDSs must be used to inform personnel how to safely:

- Handle
- Store
- Dispose of chemicals

You should also keep copies of the waste classification reports.

If you sub-contract the removal of hazardous wastes the MSDSs and / or waste classification reports must also be provided to the contractors who will be transporting, treating and disposing of your hazardous wastes. As the generator of the wastes at your own premises you it is your responsibility to ensure that those who may store, handle (including treat, reuse and recycle) and dispose of your wastes are informed of the associated hazards. This will assist in ensuring that your wastes are safely handled, stored and disposed when removed from your premises.

8.6 RESPONSIBLE CONTAINER MANAGEMENT

All containers that previously held hazardous chemicals are classified as hazardous throughout their life cycle. If you use 210 ℓ drums or other such containers, you need to set up a system to manage these containers to prevent them being reused by unauthorised personnel.

If you use these containers or manage them at your premises and the containers are taken by your employees or contractors to use for storage at home, consider the potential consequences of the containers being:

- Used to store food or water – causing harm such as poisoning from toxins, cancer from carcinogens, etc.
- Used to make a braai?
- Exploding due to flammable residues in the drum when using a cutting torch or grinder?
- Used to store other chemicals and potentially causing a fire, toxic fumes or explosion due to incompatible mixtures of chemicals.

In South Africa we have a tragic situation where chemical containers are being stolen and sold for reuse, usually for food and water storage in the rural areas. There is no guarantee that the containers are clean and safe for use. Many people have been poisoned and some have even died from this practise. For more information please refer to the Responsible Container Association Website at http://www.rcmasa.org.za.

Minimise the amount of empty containers that you generate

Use the largest container size possible that suits you operation to minimise the numbers that you use. Where feasible, consider bulk systems such as 1 000 ℓ flow bins instead of 210 ℓ drums. Reuse the containers as often as possible whist retaining the integrity of the containers.

Treat the empty containers

Establish a system to clean containers before releasing for reuse. Remember that this washing process may cause your effluent constituents to change and possibly become more hazardous as a result. Check that your permit allows for the changes and make sure that you inform the local authority.

Send the empty containers for recycling

Use a reputable company to remove your drums for recycling. Make sure you provide the MSDS information to the recycler so that they are aware of the hazards associated with the containers. Remember to audit their practises to ensure that they are environmentally responsible and that they comply with the relevant legal requirements.

Final Disposal

If none of the options is feasible, develop a security system that ensures no containers are removed from site, other than to a reputable contractor for landfilling. It may be a good idea to crush or puncture your containers so that they are not suitable for re-use. Verify that disposal does take place to ensure your containers do not end up in the public domain. The landfill must be secure, waste manifests must be provided and the site must not allow scavenging. An auditable cradle to grave paper trail must be maintained.

8.7 WASTE CLASSIFICATION

Apart from ensuring that your clients have classified their wastes correctly you may be treating your clients' wastes at your premises and therefore you are producing a 'new' hazardous waste that requires classification. Make sure that you follow the process outlined in Section 5.4 (Waste Classification) to meet your legal obligations.

8.8 STORAGE TIME LIMITS

The *Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste* set limits on the time that you can store hazardous waste on your premises. This storage is linked to the volumes and the toxicity of the waste. The more toxic the waste, the lower the amount that can be stored without a permit (Note: The toxicity is based on the Hazard Rating: HR which is explained in Chapter 5).

STORE TIME LIMIT FOR HAZARDOUS WASTE

A generator of waste may accumulate the following quantities of hazardous waste on-site for 90 days or less without a permit:
Hazard Rating 1: 10 kg
Hazard Rating 2: 100 kg
Hazard Rating 3: 1000 kg
Hazard Rating 4: 10 000 kg

If you cannot comply with the storage time limits you need to apply to Department of Environmental Affairs and Tourism (DEAT) for a permit in terms of Section 20(1) of the Environment Conservation Act (ECA), or you need to apply for an exemption from this requirement.

8.9 AUTHORISATIONS

Refer back to Chapter 4 for relevant permits that you may need for your own premises and associated activities.

REMINDER OF SOME RELEVANT LEGAL REQUIREMENTS!

Leaking containers on-site Pollution to environment – soil, stormwater, groundwater	Prevention of pollution duties: - National Water Act 36 of 1998 - National Environmental Management Act 107 of 1998 - Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste - Local bylaws
Allowing leaking / overfull / damaged containers filled with hazardous waste off-site	Potential incident liabilities under: - National Water Act 36 of 1998 - National Environmental Management Act 107 of 1998 - National Road Traffic Act of 1996 Contravention of operators duties in terms of: - National Road Traffic Act of 1996 - The National Road Traffic Regs, 2000 - SANS 10231-1
Windblown litter not contained within the facility	Control of litter: - Environment Conservation Act 73 of 1989
Unhygienic conditions on-site due to waste	- National Health Act 61 of 2003 - Health Act 63 of 1977 - Local bylaws
Protection of health and safety of employees, contractors and waste contractors	Provision of a safe work environment - Occupational Health and Safety Act 85 of 1993 Provision of MSDS - Hazardous Chemical Substances Regs, 1995
Correct labelling for storage (and transportation) of hazardous wastes	- Hazardous Chemical Substances Regs, 1995 - Asbestos Regs, 2001 - Lead Regs, 2001 - Hazardous Biological Agents Regs, 2001 - National Road Traffic Act of 1996 - The National Road Traffic Regs, 2000 - SANS 10228 and 10229-1
Storage date labelling for hazardous waste - If you don't label your containers how will you demonstrate compliance with the 90 day storage limit for hazardous wastes	- Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste
Permitting requirements for storage of wastes on-site	- Environmental Authorisations (NEMA) - Environment Conservation Act 73 of 1989 - Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste

CHAPTER NINE: CRADLE-TO-GRAVE PAPERWORK

SUMMARY

Ensure you have sufficient and adequate paperwork to prove that you and any sub-contractors that you use have managed your client's and your own wastes in terms of applicable legal requirements	▫ Waste classification – analyses and reports ▫ Recycling, treatment and disposal facility permits and authorisations ▫ Records demonstrating compliance with the National Road Traffic Act ▫ Auditable paper trail from the point at which the waste left the site to the point of final disposal, including transfer, treatment or recycling facilities
Mass balance controls	▫ Ensure that you have mass balance controls for the wastes that go through your premises for processing, recycling, treatment and disposal
Contracts	▫ Formalise the individual responsibilities between you and your client to a legally binding contract
Audits	▫ Don't take your sub-contractors word when it comes to compliance issues, audit and verify their compliance from time to time

9.1 GENERAL

As you have seen from previous chapters, you are part of the management chain of your client's (and your own) wastes, from the point of generation to disposal. This includes any recycling or treatment phases that the wastes may go through. But what does this actually mean to you in practice? Basically, it means that in every step of the waste management chain:

- you need to be aware of the legal requirements,
- you, your client, your sub-contractors and any waste facilities that you use need to comply with the legal requirements and finally
- you need to have documented evidence that covers all of the above.

9.2 WASTE CLASSIFICATION

Make sure that you and your clients have identified and classified wastes correctly. Keep copies of all relevant paperwork for each waste stream including:

- Relevant MSDSs
- Sampling procedures
- Laboratory analyses
- Waste classification reports
- Communications with your client regarding the waste classification issues relating to each waste stream
- Delisting authorisations

9.3 RECYCLING, TREATMENT AND DISPOSAL FACILITIES AUTHORISATIONS

If you send your or your client's wastes to recycling or treatment facilities, you need to check that they have the required permits. If you operate these facilities you will also need the required permits as detailed in Chapter 4.

9.3.1 ENVIRONMENTAL AUTHORISATIONS

As detailed in Chapter 4, Section 4.2, the National Environmental Management Act (NEMA) requires that Environmental Authorisations are required before the commencement of various listed activities, which include various waste management activities. Check whether the facilities that you take your client's wastes to have the required Environmental Authorisation issued in terms of NEMA (or Record of Decision issued in terms of the ECA prior to 2006). You should also check that the conditions of the authorisations are being complied with.

9.3.2 SECTION 20 ECA PERMITS

Section 20 permits are issued in terms of the Environment Conservation Act (ECA). These permits used to be issued by DWAF but are now issued by DEAT. Section 20(1) of the ECA states that *'no person shall establish, provide or operate any disposal site without a permit issued …'*

The ECA definition of disposal site is *'a site used for the accumulation of waste with the purpose of disposing or treatment of such waste'.* Therefore in terms of this definition, waste management facilities are required to have a Section 20 permit or an exemption (See Annexure Three for the *DWAF Policy on the Definition of Disposal Sites with regard to the Issuing of Permits for Waste Incinerators, Waste Management Facilities and Other Alternative Waste Disposal Technologies and Related Guidelines*).

The above policy document states that:

The land on which an incinerator / transfer station / waste recycling plant / treatment facility / waste storage area is established / installed, can thus be regarded as a disposal site for which a permit should be issued in terms of the mentioned Act.

You need to therefore ensure that any facility to which you send you client's wastes (or your own wastes) has the relevant permit or exemption.

IMPORTANT!

You need to obtain copies of facility permits / authorisations or exemptions and keep them on file.

It is important to be aware of any conditions attached to the permits that might be relevant to you, for example – what waste is the facility permitted to handle? Are there wastes specified that they are not allowed to handle?

9.3.3 Local Authority Permits / Authorisations

Check that the facility to which you take your client's waste has other permits in terms of the bylaws in the area. If these facilities are in the eThekwini Municipality, you should be requesting copies of:

- Scheduled Trade Permits in terms of the Scheduled Trade Bylaws.
- Trade Effluent Discharge Permits in terms of the Sewage Disposal Bylaws (if the disposal site discharges leachate to sewer or if the recycling / treatment facilities discharge any effluent to sewer).
- Certificates of Registration in terms of the Interim Fire Code (if the facilities store flammable liquids and substances in excess of the storage limits in the bylaws).
- Planning permissions (if required).

All of these permits contain conditions of authorisation and thus you must obtain copies of the permits and keep them on file.

HINT!

If the facility that you use has a Trade Effluent Discharge Permit ask to see the latest copy of their Regulatory Monitoring Report. This will give you an idea of their permit compliance status and will also state whether any compliance notices (for contraventions) have been issued against the company.

9.4 Transportation Requirements

9.4.1 The National Road Traffic Act

As detailed in Chapter 8, there are numerous requirements with which you need to comply with as an operator who is transporting hazardous wastes. It is a good idea to draw up checklists to assist you in your compliance program. These checklists can also assist in ensuring that you have documentary proof that you have complied with all the requirements.

9.4.2 Local Authority Permits / Authorisations

Check that any sub-contractors that you may use are authorised waste contractors (if applicable in terms of the bylaws in the area). If you are in the eThekwini Municipality, you should request a written confirmation that your sub-contractor is approved in terms of the Refuse Removal Bylaws. ***Note: This approval will state what wastes the contractor is allowed to handle.***

9.5 Paperwork Relating to Loads Removed From Site

9.5.1 Auditable Paper Trail

You must ensure that you have an auditable paper trail that shows you can track wastes collected by your company from the point of removal from your client to the final point of disposal. This may mean that the waste goes through a transfer and / or treatment stage at your own premises. You therefore need records that include this aspect for the tracking and reconciliation of wastes that you manage.

9.5.2 Wastes Going Directly To Landfill

It is recommended that you use a 'best practice waste manifest'. This is a document that has a unique sequential number and has a place for the following information:

- The signature of your client, the waste generator (before the waste leaves their premises)
- The driver's signature (when the waste is accepted for removal from the client's premises)
- A signature from the landfill site where you take the waste to. Include a section where the landfill site can add a reference number unique to the load you are delivering, such as a weighbridge entry number. You should also attach a copy of the weighbridge slip.

When you remove the waste from your client's site, you should leave the top copy of the waste manifest bearing your client's and your driver's signature with the client (manifest copy 1). When the waste is disposed at the landfill site, you should send your client a copy of the waste manifest, this time bearing the signature from the landfill site and a reference number allocated to the load (manifest copy 2). You should also attach the weighbridge slip from the landfill site. Your client therefore has a document that bears all three signatures, providing an auditable paper trail that his / her waste has been managed in terms of legal requirements.

9.5.3 Wastes Going To Landfill Via Your Own Facility

Sometimes as you might take your client's wastes to your own premises where you undertake recycling, treatment or transfer operations. In this instance, you need to ensure that you develop the appropriate systems to ensure that you can demonstrate the mass balance of wastes:

- received
- treated
- discharged to sewer
- sent for recycling
- sent for landfilling (as applicable).

Your client must be able to track each load of waste that you take to your facility on his / her behalf and follow the waste through your operations and on to any other facility that you use. Remember that you are part of the waste management chain and this documentation forms part of your Duty of Care responsibilities. For example: If you take oily wastes from your client to your premises you need to have a database in place that captures:

- Each individual load received at your premises (allocated a unique sequential number)
- A total monthly volume of oily wastes received on-site
- The total monthly volume of oily wastes treated on-site and the method of treatment
- The total monthly volume of effluent discharged to sewer, as a result of the treatment process
- The total monthly volume of oil separated for dispatch to an oil refiner
- The total monthly volume of waste generated from the treatment process that was landfilled

Another reason you may take the waste to your premises is that you may store small volumes of waste (like drums of oily rags) until you have a bigger consignment to take to the landfill site. In this instance, you need to ensure that you have a system to reconcile what was received at your premises and what was sent to the landfill site for disposal. Your client's must be able to track the fate of their individual loads of waste.

9.5.4 Wastes Going To A Treatment Facility

You may be removing wastes from your client and taking them to a treatment facility, for example an oil refiner. Ensure that you use the 'three signatures manifest' and follow the same procedure as described in Section 9.5.2. Ask the recycling facility to sign your manifest and provide you with additional written proof that they have received your wastes. Send all completed paperwork back to your client for their cradle-to-grave paperwork trail.

Do not forget to follow up on what happens to the residue of the treated waste. For example:

- Is a waste classification done on the treated residue? Get a copy.
- Where is the treated residue sent and does the facility have a permit to accept these wastes? Get a copy.

9.5.5 *Wastes Going To A Recycling Facility*

Use appropriate paperwork when you take your client's waste to recycling facilities. Use the 'three signatures manifest' and ask the recycling facility to sign your manifests and to provide you with another form of written proof that they have received your load. Send all completed documentation back to your client for their cradle-to-grave paperwork trail.

9.5.6 *What About The Safe Disposal Certificate?*

Some companies like to have safe disposal certificates on file. This practise has traditionally arisen about from auditors and government officials asking for proof that wastes have been disposed of in a legally compliant manner.

Safe Disposal Certificates do have their place as they can provide your clients with a useful monthly summary of the wastes that they have dispatched from site. These certificates should not however replace the reconciled waste manifests bearing the signatures of the generator, the transporter and the disposal / treatment / recycling facility. If you do generate Safe Disposal Certificates make sure that you include the waste manifest number as well as a unique number provided by the facility where you have delivered the waste. Your clients will need to be able to audit your Safe Disposal Certificates to verify that their wastes have been managed in a legally compliant manner.

9.6 *Contracts*

It is important to have a written contract with each of your clients. Apart from the financial aspects, the contract needs to plainly spell out the roles and responsibilities of each party, including the procedure that must be followed when an incident occurs. The contract needs to be signed and dated by both parties and should be regularly reviewed. This will help you in addressing your Duty of Care requirements in terms of the National Environmental Management Act.

Your client will also need you to sign a clause where you give an undertaking to comply with the requirements of the Hazard Chemical Substances Regs, the Asbestos Regs, the Lead Regs and the Hazardous Biological Agents Regs as briefly discussed in Chapter 2.

9.7 *Audits*

Don't forget to include auditing in your Duty of Care and Cradle-to-Grave Responsibilities. You need to audit any sub-contractor that you use to ensure that they are complying with the legislation pertaining to waste. This includes:

- Pollution prevention responsibilities
- Transportation requirements
- Permit requirements
- Training, etc.

You will also need to audit the disposal, recycling and treatment facilities that you use. Keep copies of your audit reports on file as this demonstrates that you have taken reasonable steps to assess the legal compliance status and environmental performance of your sub-contractors and the facilities that you use. If you have any concerns about their operations communicate with them in writing and see how they respond. If you have serious concerns and the company does not make a genuine attempt to resolve the issues, it may be worth your while to look at alternative sub-contractors and / or facilities.

Remember, it is all about limiting your liability

CHAPTER 10 WHAT THE DISPOSAL SITE, RECYCLING AND TREATMENT FACILITIES MAY EXPECT OF YOU

CHAPTER TEN: WHAT THE DISPOSAL SITE, RECYCLING, AND TREATMENT FACILTIES MAY EXPECT OF YOU

SUMMARY

Account application and tariffs	▫ Make sure you have followed the account application process ▫ Find out about the tariffs for different wastes
Health and safety	▫ Signing of environmental, health and safety agreements ▫ Compliance with rules and requirements of the facility – do not forget to ensure your employees (and sub-contractors) understand and comply ▫ Provision of Letter of Good Standing from the Workman's Compensation Commissioner ▫ Provision of PPE for employees
Waste constituents	▫ The landfill / recycling / treatment facility will expect comprehensive details of the wastes that you want to take to their facility ▫ Sample and analyses will be required before your load arrives
Facility procedures	▫ Each facility will have its own procedures. Ensure that you obtain a copy of these procedures so that you comply ▫ Non-compliance with the required procedures may result in your load being refused at the facility

10.1 GENERAL

It is important to liaise with the waste facilities where you intend to take your clients' wastes. This is to ensure that you are aware of the individual requirements pertaining to their operations. If you are dealing in hazardous wastes, this is all the more important, as hazardous waste landfill sites and treatment facilities cannot accept hazardous wastes without a prior authorisation approval having been given. Each facility will have its own individual process to follow. This Chapter outlines some of the generic requirements of these facilities. It is important you establish what is required at each facility that you intend using.

10.2 ACCOUNT APPLICATION AND TARIFFS

Check with each facility that what their payment policies are:

- Do they take cash at the entrance, or will you be required to open an account? What information do they need from you in order to do this – creditor's application, bank guarantees?
- What are the payment terms?
- What are the tariffs for the different types of waste streams?
- What payment can you expect for wastes that are to be recycled?
- How and when will these payments be made?

Make sure you have made these arrangements ***before*** you arrive with your first load as you may be refused entry. This will result in you incurring additional costs and having to make alternative arrangements.

10.3 HEALTH AND SAFETY

Most companies today will require you to sign an Environmental, Health and Safety agreement before you can access their premises / facilities. These agreements usually contain the rules and requirements of the company. It is important that you review the contents of the agreement to ensure that you are able to comply. Do not forget to relay this information to your drivers and assistants, as they are the people who will be using the facility.

You will be expected to supply your employees with the Personal Protective Equipment (PPE) as required by law. For waste facilities this may include any (or all) of the following:

- Safety boots
- Safety glasses
- Safety goggles, for example, where there is a risk of getting splashed
- Protective clothing (sometimes even chemically resistant overalls or suits)
- Reflective jackets
- Hard hats
- Hearing protection (ear plugs or muffs)
- Gloves
- Respiratory protection (masks or respirator)

The PPE specification will be determined by the type of facility that you are using and the types of wastes you are handling.

IMPORTANT!

You will need to have proof that your employees and sub-contractors:

- are trained to use the PPE
- are fit to use respiratory protective equipment (RPE)
- keep PPE / RPE clean and in good condition (inspection reports)
- wear the PPE / RPE as and when required (inspection reports)

Your Safety, Health and Environmental Management System therefore needs to include a section on how PPE is issued and checked, how personnel are trained to use it and how they are assessed to ensure that they are fit to use it (such as for RPE).

10.4 WASTE CONSTITUENTS

Hazardous waste landfills, treatment or recycling facilities will not accept your wastes if they have not been classified / analysed. This means that you will need to get as much information as possible from your customers before you are able to make decisions on the management of these wastes. The hazards and risks should then be specified in the contract you sign with your client, when you initially undertake to handle their wastes. You are therefore getting them to commit in writing to the nature of the waste.

Apart from ensuring the safety and health of your employees (and any sub-contractors you use), you will also need to ensure the health and safety of the employees at the facility to which you take this waste. You should ask your clients to provide you with the following:

- simplified process flow diagram showing how and where the waste is generated
- safe working procedures used to store and handle the material
- previous incidents involving the waste
- details of the waste including:
  - ✓ constituents and concentrations
  - ✓ classification (hazardous/general; for transport and disposal)
  - ✓ volumes/mass
  - ✓ frequency
  - ✓ hazards and risks
  - ✓ any prohibitions on recycling/reuse
  - ✓ treatment and disposal options

Material Safety Data Sheets (MSDS) should be obtained for all wastes handled.

If insufficient information is available, do not attempt to handle the waste until representative samples have been taken and analysed, to get an idea of the constituents. Proper sampling is essential to ensure that if the waste is not consistent all aspects of the wastes are considered. This refers to wastes from:

- batch process
- mixed streams
- wastes subject to biological or chemical changes
- wastes with different phases
- large numbers of waste in drums
- large stockpiles of wastes
- wastes stored in large dams, etc.
- numbers of drums

When you take your sample you should record your observations such as the physical condition of the waste.
For example:

- What is the consistency of the waste?
- Is it hot or cold?
- Does it have an offensive odour?
- What colour is it?
- Does it separate into different fractions?
- Is it very volatile?

IMPORTANT!

- Make sure that you label your samples correctly and preferably use the appropriate warning class diamond. Remember to be aware of the safety of other people exposed to this sample.
- Use the correct sample bottles. For example, do not store solvents in plastic!
- Find out how much sample the facility needs to carry out their tests.

The landfill, treatment or recycling facility may ask for a sample of the wastes and all the details relating to the waste. They may accept a waste classification that has been done by your company, or they may want to do their own analysis and classification. They may also require written details relating to the waste generator and the completion of a waste information sheet which may be required to be signed by the generator. The type of information on this document may include:

- name of the transporter
- generators name and contact details
- volumes
- physical nature of the waste
- waste description
- process generating the waste
- major constituents

- a number of check boxes where specific details of the waste (chemical and physical properties) are required to be declared
- simplified process flow diagram showing how and where the waste is generated
- MSDS references

You may also need to sign a declaration on this information sheet, certifying that the information that you have given is correct.

WHY ALL THIS INFORMATION?

Sometimes pre-approval of a waste stream is time consuming due to the adoption of the precautionary principle and the classification requirements when dealing with new wastes.

It is important to understand that waste facilities have stringent permit conditions, including have some wastes that they cannot accept. They are also required to comply with the environmental management principles and have huge potential liabilities should they contravene their permit conditions or dispose / treat / recycle any waste that may adversely affect their operations. This is especially important for landfill sites which are situated in close proximity to residential communities. Even a non-toxic waste with a strong odour must be managed very carefully.

In addition to the above all waste facilities require documentation pertaining to the generator of the waste as part of their cradle-to-grave responsibilities in the waste management chain.

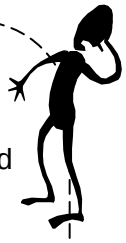
All hazardous waste streams will require prior approval before being accepted at a landfill, recycling or treatment facility. If prior approval has not been obtained, then your wastes may be refused.

10.5 FACILITY PROCEDURES

Each facility will have its own procedures and rules which could include the following:

- 24 hour notice period for approved waste streams
- Order or quote number
- Sampling of the load whilst the vehicle stands by – this is for verification of the load
- Waste manifest document correctly completed and bearing the signatures of the generator and the transporter
- Roadworthy vehicles and licensed drivers
- Compliance with the National Road Traffic Act with respect to the transport of dangerous goods (dangerous goods declaration, transport emergency card, vehicle placards)
- Appropriate containers, labelled and in good condition – if you present rusty drums with incorrect / no labels these may be rejected
- Safety equipment
- Compliance with safety rules – on-site speed limits, PPE, etc.
- Waste Contractor Registration (local authority)
- Compliance with hours of operation
- Specific areas of the site to proceed to for disposal / off-loading
- Treatment requirements for your load (which may delay your vehicle)
- Clean-up of any spillages caused on the premises
- Incident reporting and follow-up

BE AWARE!



If you arrive at a landfill site with a load that has not been pre-approved or does not appear to be the same waste that was authorised for disposal, you may be turned away from the landfill site.

Landfill site operators are obliged to advise the authorities of loads that are refused, and you will need to be able to prove what you have done with the waste load that was refused.

IMPORTANT!

- Make sure that wastes you think can be recycled (for example solvent and oil wastes) are checked by the recycling facility. Not all facilities can recycle the same wastes.

- Solvent wastes need to be thoroughly screened and analysed to determine whether there is a market for the recovered / resultant product before they are accepted for recovery.

WASTE MANAGEMENT POLICIES AND PROCEDURES

CHAPTER ELEVEN: WASTE MANAGEMENT POLICIES AND PROCEDURES

SUMMARY

Develop waste management policies, procedures and work instructions	▫ Policy statement of commitment ▫ Roles and responsibilities ▫ Terminology ▫ Procedure(s) detailing how you are going to manage your own and your clients waste ▫ Records ▫ Relevant legislation
Develop waste management plans	▫ How you are going to address shortcomings identified in your systems? ▫ What objectives and targets are you going to introduce? ▫ What resources do you need to commit to achieve these plans?
Audits	▫ Internal audits of your own waste management systems ▫ External audits of the waste facilities and sub-contractors that you use
Benefits of auditing	▫ Improvements in efficiency of waste handling ▫ Better legal compliance (no fines or compliance notices ▫ Reduction in costs ▫ Reduction in incidents (injuries and pollution ▫ Better company image and morale

11.1 GENERAL

In order to manage your business operations and to achieve legal compliance, you should draw up a waste management policy and procedures or work instructions. This will enable all your employees to understand their individual responsibilities. It is important to note that many companies are ISO 14 001 certified and as part of their environmental management system they may exert influence on their suppliers to become ISO 14 001 certified as well. You may already have had your suppliers requesting this of your company.

11.2 STATEMENTS OF COMMITMENT

You should incorporate statements of commitment in your policy document. Some examples of commitment statements are:

- Comply with all applicable legislation and associated regulations with respect to waste management
- Conduct audits on our operations to verify that we comply with our management system
- Identify, document and classify all wastes generated by our operations
- Incorporate waste minimisation practices of source reduction, separation at source, good housekeeping, substitution of products, hazard segregation, re-use, recycling, and treatment into all processes that generate waste through our own operations
- Undertake to deal with our clients waste in a legally compliant manner
- Designate on-site storage facilities for the intermediate storage of waste, and maintain these facilities in such a manner that they do not impact on the health and safety of employees or on the surrounding environment
- Set waste reduction targets annually and maintain waste records to assess actual performance against agreed targets
- Address our cradle-to-grave responsibilities by evaluating and monitoring all our sub-contractors and waste facilities that we use to ensure their compliance with applicable legislation
- Maintain auditable waste management documentation.

11.3 PROCEDURE CONTENT

You can incorporate any information that is relevant to your operations in your waste management procedure. To get you started these are the types of headings that are recommended to ensure that you address all your waste related requirements.

Content

A brief description of what the procedure covers. Remember to include the physical, as well as management boundaries.

Responsibility

Details of who holds responsibility for which aspects of the waste procedure.

Terminology

A list of terminology and respective explanations to assist those employees who are unfamiliar with technical jargon.

Procedure

The procedure should address a number of issues such as:

- Waste identification and classification (analytical requirements, frequency of testing and classification)
- Quality control and assurance
- Application of the waste hierarchy
- Waste storage arrangements
- Management procedures for each waste stream
- Cradle-to-grave documentation
- Required permits
- Compliance of sub-contractors and auditing of waste facilities (including waste recycling / treatment / disposal facilities)
- Training and awareness

Records

Document control arrangements and a list of records, who will keep them and for how long. For example:

- Clients waste inventory records, waste classification reports, delisting approvals
- Clients contracts
- Sub-contractors contracts
- Audits of waste facilities
- Reconciled waste manifests / dangerous goods declarations / weighbridge dockets / safe disposal certificates
- Invoices
- Summary spreadsheets
- Internal waste audits
- etc.

Legislation

If you do not have a Legal Register, then your procedure should reference the relevant legal requirements.

11.4 WASTE MANAGEMENT PLANS

Your waste management policy and procedure may link to a waste management plan. This plan should be developed to address shortcomings that you have identified in assessing your company's waste management systems. Some examples are:

- Improvement in waste management storage arrangements
- Permit application requirements
- Development of procedures to assess waste facilities compliance status
- Implementing a fleet management system

Remember in setting your plan to identify clear objectives and measurable targets so that you are able to evaluate your performance and provide a systematic basis for continual improvement.

BEWARE!

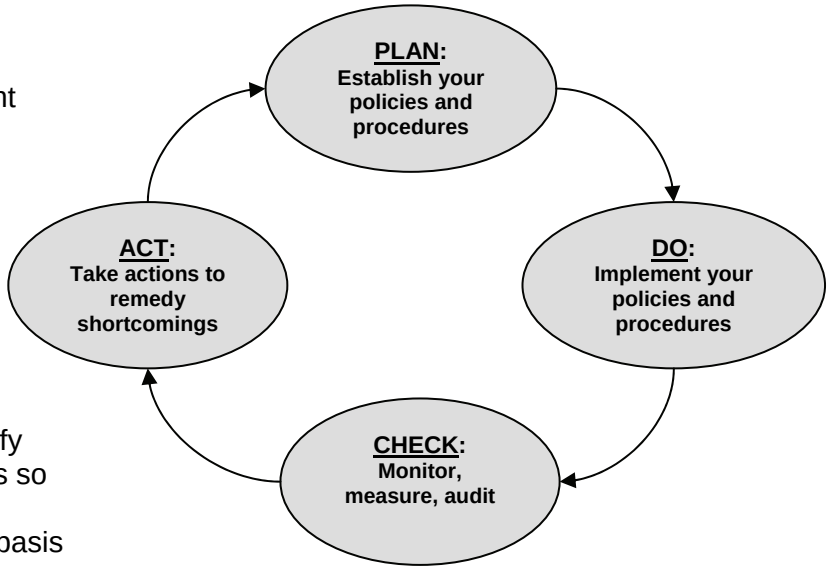
Make sure that you involve the employees in drawing up procedures, work instructions and management plans. If you do not you will not have buy in to the system and the process will not be sustainable.

Ensure your employees are trained and understand their roles and responsibilities. There should be ongoing awareness programmes.

11.5 AUDITS

11.5.1 CONTINUAL IMPROVEMENT

Any environmental management system (which includes your waste management policy and procedure) should be based on the cornerstone of **continual improvement**. This is illustrated by the Plan-Do-Check-Act cycle illustrated below:



Auditing is a process of checking to see if what was planned (as set out in policies and procedures) is actually being done (workplace practices). Auditing is vital to track your performance, progress and compliance status and is a component of the ***CHECK*** aspect of continual improvement.

The potential benefits of waste auditing include:

- Improvements in efficiency of waste handling
- Better legal compliance
- Reduction in costs
- Reduction in incidents

AUDIT OBJECTIVES

These may vary according to your business operations and may include:

- Verifying the waste produced at each of your clients
- Evaluating your on-site management systems at a particular client
- Measuring the effectiveness of the waste management systems at your premises
- Evaluating compliance with internal procedures
- Identifying opportunities for improvement
- Evaluating your compliance with the legislation governing the transportation of dangerous goods

11.5.2 AUDITING METHODOLOGY

An audit consists of a number of steps.

(1) Audit Scope and Objectives

Define the extent of the audit and what criteria are going to be used to assess performance. Define the objectives of the audit process.

(2) Plan the Audit

Obtain the necessary reference documents, background information and schedule the date and time of the audit. Develop your audit protocol which may be a checklist detailing the questions that you are going to ask and a list of the relevant records that you want to see. This will streamline the audit process.

Your audit protocol can be as simple or as complex as you require. Checklists can also be a useful method of scoring your audit results so that performance can be tracked, and you can establish if the waste management programme is working as planned. Waste management should not be considered separate from production issues and waste indicators should be part of your business performance scorecard.

Examples of checklist questions include:

Item	Yes	No	N/A	Comment
Are waste containers in good condition?				
Are waste containers labelled?				
Are waste storage areas isolated from storm water drains?				
Are incompatible wastes stored separately?				
Are flammable wastes stored correctly?				
Have all hazardous waste streams been classified?				

N/A means that the question is not applicable in the relevant area. For example, if there are no flammable wastes and they are never expected, it will be ticked as N/A.

You can use the information presented in this guide to develop your waste management procedures and plans and to compile your audit checklists.

(3) Audit Opening Meeting

Hold a short opening meeting with relevant employees responsible for the waste management function. The purpose of this meeting is to inform the company representatives of the scope and objectives of the audit.

(4) On Site Audit

Conduct the audit on-site. This can consist of a number of activities such as:

- Inspections of the facilities
- Review of monitoring records
- Review of training records
- Interviewing employees – always ensure that you verify their response by looking for evidence
- Observing employees carrying out their duties

It is useful to take photos during the audit so that you can present visual evidence in your audit report.

IMPORTANT!

All team members should be trained to audit and understand the protocol to be used. Ensure support from those working in the areas to be audited, by notifying them of how, when and why the audit will take place. Remember, that the carrot works better than the stick. Notice and report any positive behaviour and practices, as much (if not more!) as examples of poor waste management. Take photos illustrating both the good and the bad.

Reassure employees that the audit is about teamwork and finding opportunities for improvement. Commitment from all the role players is essential for ensuring the success of an audit, as the findings and recommendations are more likely to be considered and implemented. Include

(5) Audit Closing Meeting

Hold a short closing meeting with relevant employees to give them preliminary feedback relating to the audit. They therefore have some idea of how the audit went before the final audit report is prepared.

(6) Post Audit Review

Analyse the documentation that you have obtained during the audit process. Ensure that you have sufficient information to compile your report and request additional information if necessary.

(7) Audit Report

Consolidate the work that you have done during the audit in a written audit report where you present your findings and recommendations for improvement.

(8) Audit Follow Up

Follow up on your audit findings and recommendations for improvement to ensure that the responsible parties have implemented corrective actions and that these actions have been demonstrated effective.

Remember:

Do not audit your own work – make sure that the person appointed to audit is independent to ensure objectivity.

11.5.3 eTHEKWINI WASTE AUDITS

The eThekwini Municipality permitting process for Scheduled Trade and Trade Effluent permits for industry in the Municipality states that a waste audit is to be undertaken annually. This audit requires an assessment and report on the following matters:

- Identification of all waste types
- Condition of all sand, oil and grease traps
- For each waste stream:
  - Composition and constituents
  - Anticipated volumes
  - Classification
  - Methods of storing and handling on- and off-site
  - Identification of opportunities for minimisation and improved housekeeping

- Use of waste/by-products from others in production
- On-site waste treatment
- Final disposal site
- Record keeping and waste tracking

Ensure your inspection and audit programme includes these aspects as a minimum. Improvements in waste management practises need to be documented in the organisation's 5-year Environmental Improvement Programme.

11.5.4 AUDITING THE WASTE FACILITIES THAT YOU USE

(1) Landfill Sites and Treatment Facilities

Not everyone can be considered a subject expert when it comes to waste issues and therefore you might find auditing your waste facilities a bit intimidating.

If you are auditing a landfill or treatment facility for compliance with their Section 20 Environment Conservation Act (ECA) permit, it is useful to know that landfill sites and treatment facilities are required to be audited by an external auditor. The frequency of these audits is defined in the facility permit. Ask the landfill operator for a copy of their most recent external audit. This will give you a good idea of how they are complying with their permit conditions. If there are non-compliance issues, ask for their action plans in resolving them and verify that these actions have been carried out. Do a walk around their facility to see for yourself how effective the environmental controls are.

You can also check that they are complying with their:
- Scheduled Trade Permit
- Trade Effluent Discharge Permit
- The Certificate of Registration for storage of flammable substances (if applicable)
- Town Planning Permission (if applicable)
- EIA Record of Decision (if applicable)

Also ask for a copy of their registration as a waste contractor in terms of the eThekwini Refuse Removal Bylaws.

Don't forget to address health and safety aspects relating to the landfill site or treatment facilities.

Some questions that you can ask are:
- Have risk assessments been carried out and safe working procedures introduced?
- What training is done?
- What medical surveillance is implemented on-site?
- Have any occupational diseases or illnesses been reported to the Department of Labour?
- What personal monitoring has been carried out to assess the exposure of staff to hazardous chemicals in the waste?
- What Approved Inspection Authority Reports have been commissioned (such as for noise, hazardous chemical substances, etc.).

Look for the findings and recommendations that made in any assessments conducted and check if these have been implemented.

(2) Recyclers

Recycling facilities should have a Section 20 permit in terms of the (ECA) or an exemption there from. If their permit or exemption does not include a requirement for an external audit, ask for a copy of their permit and then audit them for compliance against their permit conditions.

Also check for compliance against their Scheduled Trade Permit which is a requirement for all waste operations. If they carry out any processes that discharge effluent to sewer, check that they have a valid Trade Effluent Discharge Permit and that they comply with the conditions. If they deal with flammable wastes check that they have a Certificate of Registration for storage of flammable substances (if applicable). Check if they have Town Planning Permission (if required). Also ask for a copy of their registration as a waste contractor in terms of the eThekwini Refuse Removal Bylaws. The same health and safety questions for the landfill and treatment facilities can be asked.

IMPORTANT!

Examples of waste contractors to be audited regularly to minimise risk to your business and the effect of illegal waste disposal include:

- ***Recyclers***: eg. oil, plastic, paper, metal, wood
- ***Treatment Facilities***: incinerators; health care risk waste treatment facilities
- ***Disposal***: landfill sites
- ***Transporters***: to and from any of the above facilities

GLOSSARY

ABBREVIATIONS & ACRONYMS

Acceptable Exposure	The concentration of a substance that will have a minimal effect on the environment or human health The European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR)
AE	Acceptable Exposure
Acceptable Risk Level	The concentration of a substance that will have a minimal effect on the environment
APPA	Atmospheric Pollution Prevention Act, 45 of 1965
ARL	Acceptable Risk Level
Asbestos Regs	Asbestos Regulations of 2001 promulgated in terms of the OHSA
ECA	Environment Conservation Act 73 of 1989
Carcinogens	A substance or agent producing or inciting cancer. These substances can be grouped as: Class A – carcinogenic to humans, Class B (a) – probably carcinogenic to humans, Class B (b) – possibly carcinogenic to humans, Class C and D – probably not a carcinogen or not classifiable as carcinogenic to humans.
Catchment Management Agency	An agency established to manage water resources in a specific catchment area
CEO	Chief Executive Officer
COID	Compensation for Occupational Injuries and Diseases Act 30 of 1993.
Consignee	The person who accepts dangerous goods
Consignor	The person who offers dangerous goods for transport
Constructions Regs	Construction Regulations of 2003 promulgated in terms of the OHSA
Cradle-to-Grave	A policy of controlling a Hazardous Waste from its inception to its ultimate disposal.
Dangerous Goods	Goods that are capable of posing a significant risk to health and safety or to property or the environment during transport and that are listed in B2 and Annex C (of SANS 10228 – *'The Identification and Classification of Dangerous Goods for Transport'*)

Dangerous Goods Declaration	Document that describes and quantifies the dangerous goods being transported from a consignor to a consignee.
DEAT	Department of Environmental Affairs and Tourism
DGD	Dangerous Goods Declaration
DoL	Department of Labour
DoT	Department of Transport
Duty of Care	This requires that any person who generates, transports, treats or disposes of waste must ensure that there is no unauthorised transfer or escape of waste from his control. Such a person must retain documentation describing both the waste and any related transactions. In this way, he retains responsibility for the waste generated or handled
DWAF	Department of Water Affairs and Forestry
EMS	Environmental Management System
eWASA	Electronic Waste Association of South Africa
EWS	eThekwini Water and Sanitation
Extended Producer Responsibility	Instead of the producer being responsible for pollution prevention during for example a manufacturing process, this responsibility is extended to include the management of the product once it has been discarded
Emergency Response	A response action to situations that may cause immediate and serious harm to people, the environment and/or property
GAR	General Administrative Regulations of 2003 promulgated in terms of the Occupational Health and Safety Act
General Administrative Regulations	General Administrative Regulations of 2003 promulgated in terms of the OHSA
General Safety Regulations	General Safety Regulations of 1986 promulgated in terms of the OHSA
GSR	General Safety Regulations of 1986 promulgated in terms of the OHSA
General Machinery Regulations	General Machinery Regulations of 1998 promulgated in terms of the OHSA
GMR	General Machinery Regulations of 1998 promulgated in terms of the OHSA
HBA	Hazardous Biological Agents
Hazard	Source or situation with a potential for harm in terms of human injury or ill health, damage to property, the workplace and/or the environment

Hazardous Chemical Substance	These may be liquids, solids or gases that are deemed hazardous to people's health, safety and/or may pose a risk to the environment
Hazard Rating	A system for classifying and ranking Hazardous waste according to the degree of hazard they present. This is based on Mammalian Acute and Chronic Toxicity, Ecotoxicity, and Environmental Fate. Based on this, Hazardous waste is classified as: Extreme Hazard, Hazard Rating 1; High Hazard, Hazard Rating 2; Moderate Hazard, Hazard Rating 3; and Low Hazard, Hazard Rating 4 This is used to determine the appropriate landfill for disposal of waste.
HBAR	Hazardous Biological Agents Regulations of 2001 promulgated in terms of the OHSA
H&S Reps	Health and Safety Representatives
HH Landfill Site	High Hazard Landfill Site
Hh Landfill Site	Low Hazard Landfill Site
HCS	Hazardous Chemical Substances
HCS Regs	Hazardous Chemical Substances Regulations of 1995 promulgated in terms of the OHSA
Incident	Event that gave rise to (or had the potential) harm to people, the environment, property and/or the process. An incident where no ill health, injury, damage, or other loss occurs is referred to as a "near-miss". The term "incident" includes "near-misses" and are opportunities for learning
Interim Fire Code	Interim Code Relating to Fire Prevention and Flammable Liquids and Substances PN 5417 of 23 March 2000
Leachate	An aqueous solution with a high pollution potential, arising when water is permitted to percolate through decomposing waste. It contains final and intermediate products of decomposition, various solutes and waste residues
Lead Regs	Lead Regulations of 2001 promulgated in terms of the OHSA.
MSDS	Material Safety Data Sheet
Mutagens	Agents causing genetic mutations. A substance is considered mutagenic when it is significantly positive in at least 3 different in vitro/in vivo assays
NEMA	National Environmental Management Act 107 of 1998
NIHLR	Noise Induced Hearing Loss Regs of 2003 promulgated in terms of the OHSA
Noise Induced Hearing Loss Regs	Noise Induced Hearing Loss Regs of 2003 promulgated in terms of the OHSA

NRTA	National Road Traffic Act 93 of 1996
NWA	National Water Act 36 of 1998
NWMS	The National Waste Management Strategy
OHSA	Occupational Health and Safety Act 85 of 1993
Pollution	Any change in the environment caused by substances, radioactive or other waves or noise, odours, dust or heat emitted from any activity where that change has an adverse effect on human health or wellbeing or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in the future
PPE	Personal Protective Equipment
RPE	Respiratory Protective Equipment
PrDP-D	Professional driving permit for dangerous goods
Promulgation	The promulgation of a law is the act of formally proclaiming or declaring new law when it receives final approval. After it is approved, the new law is officially announced to the public by way of publishing the text in a government gazette
Residue	A substance that is left over after a waste has been treated or destroyed
Risk	The scientific judgement of probability of harm. This basic and important concept has two dimensions: the consequences of an event or set of circumstances and the likelihood of particular consequences being realised. Both dimensions apply to environmental risk management with it generally being taken that only adverse consequences are relevant
Risk Assessment	Overall process of estimating the magnitude of risk and deciding whether or not the risk is tolerable
SANS	South African National Standard – These standard documents were previously referred to a South African Bureau of Standards Codes – SABS Codes
Scheduled Trade Bylaws	City of Durban Scheduled Trade and Occupations Bylaws PN 134 of 1979
SLA	Service Level Agreements
Sterilise	Make free from micro-organisms
TCLP	Toxicity Characteristic Leaching Procedure
Teratogens	These are substances, which have the capacity to cause birth defects
TETA	Transport Education Training Authority

Total Load Capacity	The capacity of a landfill site to accept a certain substance or the amount of a substance, which can be safely disposed of at a certain site. The total load capacity is influenced by the concentration levels and mobility of the waste, and by the landfill practice and design
Trade Effluent Bylaws	Durban Transitional Metropolitan Council Sewage Disposal Bylaws MN 27 of 13th May 1999
Toxicity	An intrinsic property of a substance which can cause harm or a particular adverse effect to humans, animals or plants at some dose
Toxicity Test	Quantifies the concentration/effect relationship for a given substance or effluent and the chosen response of an organism (measures the sensitivity of the organism to the test substance)
TCLP	Toxicity Characteristic Leaching Procedure
Toxicity Characteristic Leaching Procedure	A test developed by the USA Environmental Protection Agency to measure the ability of a substance to leach from the waste into the environment. It thus measures the risk posed by a substance to groundwater
Vessels Under Pressure Regulations	Vessels Under Pressure Regulations promulgated in terms of the OHSA
VUPR	Vessels Under Pressure Regulations of 1996 promulgated in terms of the OHSA

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3. Waste Minimisation: An Environmental Good Practice Guide for Industry, 2001. UK Environment Agency (www.environment-agency.gov.uk)
4. How to Prevent Waste and Emissions from your Company – A Self-help Guide, 1998. Clean Technology Centre, Cork Council, Ireland.
5. Environmental Auditing, Integrated Environmental Management, Information Series 14, 2004. Department of Environmental Affairs and Tourism (DEAT) Pretoria.
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7. Waste Industry Safety and Health – Reducing the Risks. HSE 05/02 (Heath and Safety Executive – United Kingdom).
8. Waste Management – Reduce, Reuse, Recycle. North West Environmental Management Series 4, 2005. North West Provincial Government.
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11. Website for DWAF: www.dwaf.gov.za
12. Website for DEAT: www.environment.gov.za

ANNEXURE ONE

POLICY ON THE HANDLING AND DISPOSAL OF ASBESTOS AND ASBESTOS CONTAINING WASTE IN TERMS OF SECTION 20 OF THE ENVIRONMENT CONSERVATION ACT, 1989 (ACT 73 OF 1989)

POLICY ON THE HANDLING AND DISPOSAL OF ASBESTOS AND ASBESTOS CONTAINING WASTE IN TERMS OF SECTION 20 OF THE ENVIRONMENT CONSERVATION ACT, 1989 (ACT 73 OF 1989)

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1. Purpose of Policy

The purpose of this policy is to provide clarity regarding the handling and disposal of asbestos containing waste (ACW), both when disposing in a mono-disposal site, i.e. a site specifically design for asbestos, or a co-disposal site.

2. Introduction

Asbestos is an indigenous fibrous mineral that has been mined in a number of sites in Southern Africa and, because of its excellent resistance to heat, has been used for the manufacture of various products since the 1900's (see section 4). Many studies have described a link between occupational exposure to various types of asbestos and lung cancer and associated diseases and has therefore been designated as a *known human carcinogen*. This carcinogenic activity is directly linked to the air pathway and ingestion of the fibres when swallowed in water does not carry any associated cander risks. Asbestos shows a slight solubility in water and the natural fibres tend to become blunted on a molecular scale thus greatly reducing the associated cancer risk. Water therefore serves as a natural route for the removal of fibres from the ait and as a mechanism to suppress the emission of fibres into the air environment.

3. Legislative Framework

The disposal of asbestos is controlled under section 20 of the Environmental Conservation Act, 1989. This section states that waste may only be disposed on a site that is permitted by the Department of Water Affairs and Forestry. Other applicable legislation includes the:

* Occupational Health and Safety Act (OHSA) (Act 85 of 1993)
* The Asbestos Regulations (R773 of 10 April 1987) promulgated under the OHSA
* Mine Health and Safety Act (Act 0f 1993)
* National Environmental Management Act (Act 107 of 1998)

The Department of Water Affairs and Forestry (DWAF) is committed to the principles of co-operative governance, therefore the handling and disposal of asbestos must take into account other applicable legislative requirements.

4. Sources and Classification of Asbestos Containing Waste

Asbestos containing waste (ACW) is divided into four hazard classes, A to D, table 1. The major types and are given in table 1:

Table 1: Classes of ACW and examples of waste falling each class:

ACW Hazard Call	Examples of ACW
Class A: Any friable ACW	Raw asbestos (e.g. asbestos damaged in transit or no longer required). Bags previously used to transport raw asbestos (that have not been melted into a solid mass). Asbestos insulation, limpet spray of pipe lagging removed from power stations, buildings, boilers or pipe works. Pure asbestos rope or textiles
Class B: Any non-friable ACW that has become crumbled, pulverised or reduced to powder during manufacturing, installation, renovation or demolition operations, such that it is likely to release fibres into the air.	Dry swarf or cutting dust from the asbestos cement or friction material production process. Used filter bags from dust extraction units at the workplace. Asbestos cement that has unavoidably been crumbled, pulverised, or reduced to powder during demolition operations. Disposal equipment and clothing contaminated with asbestos.
Class C: Any Class B ACW that has been adequately wetted or otherwise encapsulated such that it will not release fibres into the air	Wet swarf or cutting dust from the asbestos-cement or friction material production process. Sludge, slurry or wet waste from the production proces. Bags previously used to transport asbestos that have been melted into a solid mass in an autoclave.
Class D: Any non-friable ACW that is essentially in the same condition as when manufactured and is unlikely to release respirable fibres after being declared a waste product.	Asbestos cement sheets or pipes. Off cuts of asbestos-cement sheets or pipes. Disused friction products such as gaskets, brake pads or clutch plates

In table 1, the potential hazard or risk associated with the release of fibres, see section 5, is highest in class A and decreases to class D, where the risk posed by the waste is extremely small.

A similar approach is used by the US EPA which has published a document in terms of their National Emissions Standards for Hazardous Air Pollutants (NESHAP) [1], in which they define a number of important terms and conditions for asbestos products, i.e.

Friable Asbestos Material: is any material containing more that 1 % asbestos as determined using Polarised Light Microscopy (PLM), that when dry, can be crumbled, pulverised, or reduced to powder by hand pressure.

Asbestos Containing Waste Material: includes mill tailings or any waste that contains commercial asbestos. The term includes filters from control devices, friable asbestos waste material, and bags or other similar packaging contaminated with commercial

asbestos.

Non-friable asbestos Containing Material: is any material containing more that 1 % asbestos as determined by Polarised Light Microscopy (PLM), that when dry, cannot be crumbled, pulverised, or reduced to powder by hand pressure.

Note that in the US EPA definition a material must contain more than 1 % asbestos before it falls into the hazard category, which is similar to the proposed class A, ACW. However, due to the problems associated with this analysis, it is proposed that waste is even suspected of containing asbestos that is friable, be considered for class A.

5. **Toxicity and Hazard Rating**

Asbestos is classified as HG1, an extreme hazard, in terms of the Minimum Requirements for the Classification, Handling and Disposal of Hazardous Waste because it is a Group A carcinogen, i.e. it has definitely been shown to cause cancer in humans [2-3]. The fibres, which may not be present in all forms of asbestos, can cause lung and other forms of cancer. Six groups of asbestos fibres are recognised and these are further divided into two main groups, i.e. amphibole-asbestos and serpentine-asbestos. The latter, which is commonly known as white asbestos, is chrysotile, whereas the blue or amphibole asbestos group includes crocidolite, amosite, tremilite, actinilite and anthophylite. Blue asbestos is classified as class 9(II) in terms of SABS 0228 and white asbestos as class 9(III) [3].

All forms of asbestos are assumed, in terms of the precautionary principle, to be extremely hazardous, HGI, i.e. to be a class A ACW, until proven otherwise. However, in the Minimum Requirements [2], it is a fundamental principle that a waste can be downgraded or "delisted", if it can be shown that the concentration or availability of the hazardous component is below an acceptable risk limit. Provided the ACE is probably hazardous only because of its potential to release fibres and there are no other hazardous components, e.g. leachable heavy metals, then if no fibres are released above the accepted action level, it can be considered non-hazardous and delist.

The accepted action level for determining whether an ACW is hazardous is that defined in the Occupational Health and Safety Act (Act 85 of 1993) as the ability to release "0.5 *regulated asbestos fibres* per millilitre". A regulated asbestos fibre means "a particle of asbestos with a length to diameter ratio greater than 3 to 1' a length greater than five micrometers (µm) and a diameter less than 3 µm." The four classes of ACW are further defined below.

A Class A, ACW is that which has been shown to or because of its origin or form (table 1) is suspected to give off regulated fibres above 0.5 per millilitre and is classified as extremely hazardous, HGI.

A Class B, ACE is one that because of its origin may be not hazardous due to the release of regulated fibres but tests for fibres have not been conducted. Therefore, it is classified as an extreme hazard, HGI in terms of the precautionary principle.

A Class C, ACW is one that, because of its origin or form (table1), or because of treatment, e.g. by cementation, by containment in sealed drums or bags and/or is adequately wetted (section 6.2.1) cannot give off regulated fibres or the numbers of regulated fibres have been shown to be below the legal action level of 0.5 per millilitre. A Class C, ACW is not hazardous due to the production of regulated fibres and therefore delists in terms of the

Minimum Requirements [2].

A Class D, ACW is one that, because of iths oringin or form (table 1), i.e. one that is manufactured and has been adequately demonstrated to not give off regulated fibres above 0.5 fibres/ millilitre. As a precaution, treatment, e.g. by wetting prior to disposal, must be done. A Class D, ACW is not hazardous due to the production of regulated fibres and therefore delists in terms of the Minimum Requirements [2].

Asbestos is normally inert to the leaching of heavy metals and other hazardous species, but a TCLP or Acid Rain leaching test must be done, if contamination with other hazardous species is suspected due to its prior use or subsequent contamination.

6. Approved Treatment and Disposal Methods

All operational procedures must be in accordance with the Asbestos Regulations

6.1 Waste Minimisation

In accordance with the National Environmental Act (Act 107 of 1998), the Department of Waster Affairs and Forestry will encourage any procedures that result in the avoidance and/or recycling of asbestos waste. Recycling of waste produced within the production process is preferred and only unavoidable waste should be disposed. The utilisation and destruction of asbestos, when used as part of the feedstock into cement kilns or incineration processes, may be acceptable, but application for a permit must be made to the Department of Water Affairs and Forestry and the Department of Environmental Affairs and Tourism.

6.2 Treatment Technologies

6.2.1 Wetting

The major technology used to minimise the formation of asbestos fibres is to wet it normally with water. The US EPA has defined the term "Adequately Wetted", when water is used to control the emissions of particulate asbestos [1] and this terminology has been accepted for use in South Africa.

> *"Adequately wetted means to sufficiently mix or penetrate the ACW with liquid to prevent the release of airborne fibres. Suitable liquids include a wetting agend, amended water (water to which surfactant chemicals have been added, such as a 50:50 mixture of polyoxyethylene ester and polyoxyethylyne ether in a 0,16 % solution of water) or plain water."*

The ACW should be visibly wet and, if bagged, droplets of moisture should be evident. Control procedures, see section 6.3, must be in place to ensure that the ACW is adequately wetted and does not dry out during handling, transport or disposal.

6.2.2 Solidification

Solidification of asbestos wastes can be accomplished utilising cement and

other fixation agents such as water based silicates. Cementation by the addition of Ordinary Portland Cement or other Department of Water Affairs and Forestry approved pollozanic material can be cost effective, particularly Class A and B ACW. Note that cementation into a massive form would result in a Class D ACW. Any procedure must be approved by the Department and include test data on the final product showing that the fibre levels have been reduced to the accepted level.

6.3 Landfilling

Application must be made to the Department of Water Affairs and Forestry for permission to dispose asbestos at any site. Information required for full permitting include:

- The design plan for the proposed disposal area;
- A operational plan approved by the Department of Labour that the proposed operating procedures comply with the Asbestos Regulations;
- A rehabilitation plan; and
- Proof of Land Zoning

Asbestos can be disposed to a mono-disposal site or a co-disposal site.

6.3.1 Mono-disposal Sites

A mono-disposal site is one *solely for the purpose of accepting asbestos* and, because asbestos does not pose a pollution risk to water resources, the normal lining requirements for waste disposal facilities, as outlined in the Minimum Requirements for the Disposal of Waste to Landfill [4] do not apply. The liner must be an impregnable layer of at least 500mm, consisting of material such as cement or solidifies ash. A mono-disposal site for asbestos must be closed by covering with a 500mm layer of ash followed by an ashcrete or concrete dome. An ashcerete dome must consist of at least 10 % by mass of cementitious material, be compacted to ~2 % above optimum moisture content and must be 1 metre wider and longer that the trench widthe and length.

6.3.2 Co-disposal Sites

The Department requires all waste to be treated in order to minise the risk to human health and the environment. All classes of ACW can be so treted before disposal.

Because Class A, ACW is a known human carcinogen with a hazard rating of 1, and Class B, ACW are potentially hazardous, the Department requires direct disposal of this categories to HH co-disposal sites.

However, all classes of wastes, A to D can be treated before disposal, section 3.2, and

Hh or G Landfills can apply for a permit amendment to accept other forms of asbestos provided that the correct treatment and control procedures are in place or/and the practice of disposal does not constitute a hazard and is fully compatible with the Minimum Requirements.

All sites must be specifically permitted for the acceptance of ACW and application must be made to the Department for an amendment.

The requirements should be discussed with the Regional office of the Department, but permission will not granted where informal recycling is taking place or where there is any potential for risk to the public or workers. Note that a demarcated area and surveyed area must be set aside for asbestos disposal (see section 6.3.3).

6.3.3 Landfilling Practice . The following practices must be observed:

- All fibrous material falling into classes A to C (see table 1) must be double bagged in plastic bags with a minimum thickness of 75 microns before the waste is brought to the landfill. Transparent bags are referred, since they allow inspection of the waste to see if it is "adequa tely etted" without having to undo the bag. This avoids having the operator, auditor or inspector potentially exposed to fibres. Droplets of moisture should be visible on the inside of the bag.

- Class D wastes (see table 1) that includes larger items suc h as pipes and boards should be kept wet as a precautionary measure at all times before disposal at the site. Class D wstes should be trasported in vehicles or stored should be covered with a tarpaulin and wetted immediately prior to disposal.

- All asbestos waste (classes A to D) that has been treated and packaged as required in these regulations, must be deposited into trenches and immediately covered. Options include:

  On a mono-disposal site, the waste must be deposited in a trench ash and immediately covered with, at least, a metre of ash.

  On a co-disposal site, the waste must be immediately covered with domestic waste and carefully compacted. Otherwise it can be deposited in a deep trench, the waste must be completely covered with layer of ash, at least 25cm in depth. This will provide sufficient protection to the waste before a second layer is deposited on top. The trench should be closed, by adding a final layer of ash and/or general waste of al least 50cm in depth and compacting.

- During disposal, care must be taken to minimise the potential breaking of bags.

- *Only essential personnel* should be allowed to be close to the waste and should, as far as is possible, stand up wing, while the waste is being disposed. Personal protective equipment required in terms of the Occupational Health and Safety Act and the Asbestos Regulations must be worn at all times.

- No scavenging or other reclamation activities are allowed on or near the ACW disposal area within a waste disposal site, although the general

presence of scavengers does not automatically disqualify a site.

- On a co-disposal site, a surveyed area with the coordinates must be designated as the ACW disposal area. Other waste can be disposed in this area, but records must be maintained in order to prevent trenching or other operations taking place that could lead to the release of asbestos fibres.

- The ACW disposal area must be demarcated with hazard tape and signs erected to indicate that it is an asbestos area in terms of the asbestos regulations and that the appropriate protective clothing and equipment must be worn.

- No further trenching will be allowed on top of an area previously used for ACW unless it is cover with a layer of compacted waste that it at least 3 metres in depth.

- A monitoring programme for staff required by the Occupational Health and Safety Act should be implemented. This requires and initial analysis followed by regular monitoring at intervals of between 6 months and 2 years depending on the initial level.

- The procedures for disposal of ACW must be maintained at all times and must be specifically included in the internal auditing programme and annual external auditing programmes.

7. Permit Requirements for Landfilling

The Department requires any site that wishes to dispose of ACW to apply for an amendment to its permit. The requirements are those listed in these regulations but before formal application, it is recommended that the applicant discuss the requirements with the Regional office of the Department.

8. References

[1] US EPA: Asbestos NESHAP Adequately Wet Guidance; EPA340/1-90-019, December 1990

[2] Department of Water Affairs and Forestry, "Minimum Requirements for the Classification, Handling and Disposal of Hazardous Waste". 2nd edition, Pretoria, 1998

[3] SABS, "Code of Practice for the Identification and Classification of Dangerous Substances and Goods, 0228 – 1990, Pretoria, 1990

[4] Department of Water Affairs and Forestry, "Minimum Requirements for Waste Disposal by Landfill", 2nd edition, Pretoria, 1998

ANNEXURE TWO

DWAF POLICY RESOURCE ENTITLED PROCEDURE WITH REGARD TO THE ISSUING OF EXEMPTIONS UNDER SECTION 20 OF THE ENVIRONMENT CONSERVATION ACT, 1989 (ACT 73 OF 1989)

WM/10077106/KR

PROCEDURE WITH REGARD TO THE ISSUING OF EXEMPTIONS UNDER SECTION 20 OF THE ENVIRONMENT CONSERVATION ACT, 1989 (ACT 73 OF 1989)

PURPOSE OF THIS PROCEDURE

- To serve as a guideline document for applying for an exemption under section 20 of the Environment Conservation Act, 1989 (Act 73 of 1989).
- To outline the procedure to be followed and the type of information to be submitted for consideration for the issuing of an exemption.

BACKGROUND

The Department of Water Affairs and Forestry (DWAF) is mandated to issue permits for disposal sites[1] in terms of section 20 of the Environment Conservation Act, 1989 (Act 73 of 1989). According to section 20(1) "no person shall establish, provide or operate any disposal site without a permit issued by the Minister of Water Affairs and Forestry". Section 20(1) also states that the Minister may exempt any person or category of persons subject from such conditions, as he may deem fit. Based on this DWAF issues permits and exemptions once the principles of the Minimum Requirements 2nd edition have been complied with by the applicant, in accordance with section 20(3).

In some instances, it is considered appropriate to issue an exemption rather than a permit, specifically for activities related to the recycling and/or the treatment of waste, for example where an applicant wishes to recycle waste material into a commercial product such as the conversion of ash waste into bricks as well as the temporary storage of some types of waste material. The Department can, after careful evaluation, exempt an applicant from complying with some of the requirements for permitting. This implies that, provided all the necessary information required for granting of an exemption have been submitted, an exemption to undertake a particular activity will be granted in terms of section 20 of the Environment Conservation Act, 1989 (Act 73 of 1989).

All waste management facilities must register, on the Department of Water Affairs and Forestry's WARMS System, in terms of the National Water Act, 1998 (Act 36 of 1998) and as required in the National Waste Management Strategy (NWMS) Action Plan for Waste Disposal.

INFORMATION WHICH IS REQUIRED IN SUPPORT OF AN APPLICATION FOR AN EXEMPTION

1. The application should clearly state the reasons for the application.

2. A clear description of the activity is required, which should include:

    2.1 Sources, descriptions and quantities of raw or waste materials used. Classification of the material should be done according to the Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste (second edition, 1998).

[1] Disposal site means a site used for the accumulation of waste with the purpose of disposing or treatment of such waste (as defined in Section 1 of the Environment Conservation Act, 1989).

2.2 Description and quantities of waste stream **generated,** as well as it's classification according to the Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste (second edition, 1998).
2.3 **Water** management plan, including quantity and quality.
2.4 A site layout indicating specific details regarding construction of the storage or disposal site (designs).
2.5 Specific information on the timeframe applicable to the establishment of the facility (in the case of new facilities) includes the life of the facility until closure and decommissioning.

3. The locality of the activity, which should include:

3.1 Locality map.
3.2 Approved zoning.

4. Details regarding the operation of the activity, especially management of impacts likely to result from the activity e.g. stormwater management, waste, effluents, leachate etc.

5. The human health, environmental and the risk implications associated with the storage or disposal of this material e.g. risk of odours, noise, dust and both surface and underground water etc.

6. Mitigation measures to be implemented to mitigate these risks.

7. Proposed monitoring.

8. In the event of this being a recycling activity:

8.1 The material used as well as the product must be classified according to the Minimum Requirements, and include a comparison of the classification of the product to another similar commercial material already in the market.
8.2 Should the product made from the waste be used in the building industry proof of confirmation that the proposed material complies with SABS specifications for building materials is required.

9. A Record of Decision or proof of an exemption of the EIA Regulations promulgated in terms of section 26 of the Environment Conservation Act, 1989 (Act 73 of 1989), from the Provincial Department of Environmental Affairs in accordance with Section 21 and 22 of this Act is required, as well as authorisation required in terms of other legislation.

10. Detailed information on the decommissioning of the activity.

Please note that the **underground** storage **of hazardous material** has the potential to impact on the ground water environment. The Department does not recommend such storage unless it can be proved through proper motivation, that the operation will not adversely impact on the environment, especially on the groundwater environment. This motivation should *inter alia* include detailed designs of containment aspects, monitoring for effectiveness of the proposed system and contingency plan in the case of failure of containment.

It should however be stressed that the decision to issue an exemption solely lies with the Department and should it be decided that a permit will be issued, the applicant will be required to furnish the Department with all the necessary information to satisfy the requirements for a permit. Furthermore the Department may, during the process of evaluation of the application, require any additional information from the applicant that may be necessary to reach a decision.

RESPONSIBILITIES

TASK	***RESPONSIBILITY***
1. Investigations on a proposed activity	Applicant
2. Classification	Applicant
3. Zoning	Applicant
4. Compliance with EIA Regulation	Applicant and the relevant provincial Department of Environmental Affairs
5. Register on WARMS	Applicant and the relevant Regional Office of Department of Water Affairs and Forestry
6. Submit application	Applicant
7. Evaluation of an application	Department of Water Affairs and Forestry
8. Issuing and amendment of an Exemption	Department of Water Affairs and Forestry Head Office

The Department does not approve the technology to be applied in a particular activity, but only issue exemptions for the use of such technologies. It is the responsibility of the applicant to ensure that the technology in question is approved by the relevant organ of State or Department or any other recognised body authorised to do so before the application for an exemption is submitted to the Department of Water Affairs and Forestry.

Compiled by: J.C. Maluleke
Updated by: Wilna Moolman - 25 April 2002

ANNEXURE THREE

DWAF POLICY ON THE DEFINITION OF DISPOSAL SITES WITH REGARD TO THE ISSUING OF PERMITS FOR WASTE INCINERATORS, WASTE MANAGEMENT FACILITIES AND OTHER ALTERNATIVE WASTE DISPOSAL TECHNOLOGIES AND RELATED GUIDELINES.

Version 1/19 June 2000

INTERPRETATION OF THE DEFINITION OF DISPOSAL SITES WITH REGARD TO THE ISSUING OF PERMITS FOR WASTE INCINERATORS, WASTE MANAGEMENT FACILITIES AND OTHER ALTERNATIVE WASTE DISPOSAL TECHNOLOGIES AND RELATED GUIDELINES

1. BACKGROUND

As landfills across South Africa continue to fill, acceptable sites for new landfills become more difficult to find, especially in populated areas. This problem is forcing waste managers to become more resourceful in their search for space and to limit the amount of landfills through regionalisation and also to follow the cleaner technology route by establishing facilities such as waste recycling plants, treatment plants, transfer stations, storage areas and vacuum pyrolysis plants.

Vacuum pyrolysis plants, incinerators, compost plants, transfer stations, storage facilities and recycling plants are all seen as waste disposal sites according to the definition of a disposal site in terms of section 1 of the Environment Conservation Act, 1989 (Act 73 of 1989)(ECA). "Disposal site" means a site used for the accumulation of waste with the purpose of disposing or treatment of such waste. The facilities mentioned are seen as disposal sites because of the "continuous" storage of waste on the premises of these plants or sites before the disposal, removal or handling thereof.

2. LEGAL REQUIREMENTS

According to section 20(1) of the ECA "no person shall establish, provide or operate any disposal site without a permit issued by the Minister of Water Affairs ..." and for this reason the above-mentioned facilities should obtain a disposal site permit before they are established or operated.

Section 20(6) of the Environment Conservation Act, 1989 (Act 73 of 1989) determines that no person shall discard waste or dispose of it in any other manner, except -

(a) at a disposal site for which a permit has been issued; or

(b) in a manner or by means of a facility or method and subject to such conditions as the Minister may prescribe.

In terms of the said Act, "prescribe" means "prescribe" by regulation and no such regulations have been issued by the Minister of Environment Affairs in this regard. This means that waste has to be disposed of at a disposal site which is defined as a site used for the accumulation of waste with the purpose of disposing or treatment of such waste. The land on which an incinerator/transfer station/waste recycling plant/treatment facility/waste storage area is established/installed, can thus be regarded as a disposal site for which a permit should be issued in terms of the mentioned act.

There are a few other legal requirements which must be complied with in order to permit

and operate a waste disposal site including the above-mentioned facilities eg. the EIA Regulations and the Atmospheric Pollution Prevention Act, 1965 (Act 45 of 1965).

EIA Regulations

The requirements include compliance to the Environmental Impact Assessment (EIA) Regulations published in April 1998 (promulgated in Government Gazette No. 18261, 5 September 1997).

These regulations entail that a scoping exercise be undertaken which must include public participation. Alternative sites must be considered and the best site be identified. The Scoping exercise lead to the submission of a preliminary Environmental Impact Assessment Report to the Department of Environment in the different Provinces (Provincial Government). These Departments will then give guidance regarding the need for a full EIA as part of the permitting process of these facilities. To issue a permit, this Department thus requires a Record of Decision (RoD) or a letter confirming that an exception from an EIA has been given, from the provincial Department of Environment.

Atmospheric Pollution Prevention Act, 1965

In the case of incinerators air emissions are one of the issues which must be controlled. Most incinerators in South Africa are currently regulated by local authorities in terms of the Atmospheric Pollution Prevention Act, 1965 (Act 45 of 1965) and the Health Act, 1977 (Act 63 of 1977). The operation of the site and the emissions from the incinerator should be regularly inspected by air pollution staff of these authorities. Conditions are also prescribed for the collection, transportation and storage prior to incineration in terms of the Health Act, 1977 (Act 63 of 1977).

Incineration of waste (including medical and hazardous waste) is listed as a scheduled process in terms of the Atmospheric Pollution Prevention Act, 1965 (Act 45 of 1965). Scheduled processes are controlled by the Chief Air Pollution Control Officer of the Department of Environmental Affairs and Tourism (DEAT). The listing as a scheduled process will enable the Chief Officer to issue a registration certificate for a specific incinerator on certain conditions. In terms of section 12 of the Atmospheric Pollution Prevention Act, 1965 (Act 45 of 1965) the registration certificate shall be subject to the condition that all plant apparatus used for the purpose of carrying out the scheduled process in question and all appliances for preventing or reducing to a minimum the escape into the atmosphere of noxious or offensive gases, shall at all times be properly maintained and operated and the holder of the certificate shall ensure that all the necessary measures are taken to prevent the escape into the atmosphere of noxious or offensive gases. The Act also states that due allowance should be made for the unavoidable escape into the atmosphere of noxious or offensive gases during the starting-up of any plant or apparatus in respect of which the registration certificate has been issued or during the period of any breakdown or shut-down or disturbance of such apparatus or plant. The Chief Officer may by written notice require from the holder of such certificate that steps to ensure more effective operation of the appliances be taken. If the permit holder fails to comply with these conditions or requirements within a reasonable time, the Chief Officer may cancel the permit.

The following information is specified in the certificate, in terms of section 11(2) of the

mentioned Act:

(a) the situation and extent of the proposed building or plant to which the certificate relates;

(b) the nature of the scheduled process intended to be carried out;

(c) the raw materials intended to be used, the nature of the operations intended to be carried out and the products intended to be produced;

(d) the appliances intended to be installed and any other measures intended to be taken with a view to preventing or reducing to a minimum the escape into the atmosphere of any noxious or offensive gases likely to be produced by the operations intended to be carried out; and

(e) the proposed measures for the purification of the effluents discharged from the appliances installed for preventing or reducing to a minimum the escape into the atmosphere of any noxious or offensive gases for the processes that will be in operation, and for the prevention of the release of noxious or offensive constituents from such effluents when they come into contact with other effluents in drains or drainage canals.

It is clear that the certificate mainly addresses the pollution of air by the incinerator, although the pollution by effluents generated at the plant is also regulated. The incineration of waste can however have an impact on every aspect of the environment - air, soil, surface and ground water, thereby possibly endangering environmental health. It can just be mentioned that medical waste and the residue after the incineration process is regarded as hazardous waste in terms of the Basel Convention.

3. PROCESS

The same process as outlined in Figure 1 (page 1-9) of the document "Minimum Requirements for Waste Disposal by Landfill, second edition, 1998" should be applied with the development and permitting of these facilities.

Sites must first be classified according to the type and volume (volume = maximum amount of waste handled/treated/stored per day for which the facility was designed) of waste handled/treated/stored at the specific facility per day . After different locations for the proposed facility have been identified and ranked, a feasibility study on the best alternative site should conducted. After the confirmation of feasibility has been obtained from the Department of Water Affairs and Forestry (DWAF), the applicant applies for a permit. The required documents (according to the Minimum Requirements for Permitting - see Table 5 of the document "Minimum Requirements for Waste Disposal by Landfill) for that specific class site must then be submitted together with the permit application form. Since the Minimum Requirements are written specifically for waste disposal by landfill the level of detail required for each report/investigation could certainly vary for these waste facilities. In the case of general disposal sites the requirements must be discussed and confirmed with the specific Regional Director of DWAF, but a Design Report, Operation Report, Monitoring

Report and Contingency Plans would always be required. In some instances, additional studies (eg. Geohydrological Report) could be necessary.

4. GUIDELINES TO COMPILE A PERMIT APPLICATION REPORT FOR THE ABOVEMENTIONED WASTE MANAGEMENT FACILITIES

The Permit Application Report should include the information as required above. Guidelines on the type of information which should be given in this report for DWAF to make a decision whether to grant a permit or not is as follows:

Background information

This section must summarise the following aspects:

A. waste classification and quantities
B. current waste management system
C. climatic conditions
D. description of the proposed facility and environmental overview of conditions at the site

A. Waste classification and quantities

The types of waste generated and to be disposed of/treated/stored at the facility should be addressed e.g. whether it is household refuse for the site to be classified as a G site or whether it is hazardous waste for the site to be classified as a H site and the maximum quantities of waste stored/treated/disposed/handled at the facility per day.

This will indicate the classification of the site.

B. Current waste management system

This section should address the operational area and the population statistics of the area. It should also address waste collection, transport and existing methods of waste disposal/handling/treatment/storage.

C. Climatic conditions

Climatic conditions of the area, rainfall conditions (mean annual precipitation and evaporation rates), prevailing wind directions should be addressed in this section.

It could be that these waste management facilities in terms of the Landfill Classification System indicate that the region is in a water surplus area. A landfill in such an area would be expected to produce leachate and would be designated "B^+". However, due to the enclosed designs of most of these facilities climatic factors are expected to have little influence on the waste deposited/treated at the facility. Any leachate that may be generated would be the result of the moisture content of the incoming waste. These facilities will thus be classified as "B^-" sites in most cases.

D. Description of the proposed waste management facility and environmental overview

A description of the site location which includes a topocadastral map (1:50 000) indicating the location of the following, where present, within a 5 km radius of the site boundary:

* the waste management facility
* the area served
* existing residential and industrial areas
* possible future development
* transport route
* other waste management facilities in the area
* zoning and land use of the waste management facility and surrounding area within a 5 km radius, and
* the 1:50 year floodline of all watercourses.

As mentioned earlier in the document a preliminary environmental overview should be undertaken during the Scoping process which *inter alia* addresses the surrounding land uses, the geohydrology in the vicinity of the site, the ecology and conservation worthiness. The land use upon which these waste management facilities are to be developed should be approved and correctly zoned in terms of local and provincial legislation. Most probably no detailed geohydrological investigation/report will be required as part of the permit application for the above-mentioned waste management facilities.

Detailed reports of the following will be required and should be attached to the permit application:

* Design report,
* Operation and Monitoring report
* Contingency plans
* Environmental Impact Control Report (only if an EIA is required - consult with DWAF departmental officer and Department of Environment, Provincial Government).

Design report

This report should address:
* infrastructure requirements,
* stormwater and leachate management requirements, and
* odour control.

Operation Plan

An overview of the proposed operation of the waste management facility should be given. The following aspects should be addressed:

* Equipment description and Maintenance
* Staffing requirements
* Screening and acceptance of waste
* Waste handling, loading, compaction operation

* Waste Auditing and Reporting Procedures
* Traffic Control
* Environmental Control

Transportation and final disposal operations should be included in the above plan.

In addition to the above, the Operation Plan should also address the following aspects:

* Safety and Emergency Response
* Fire Prevention

A description of the facility e.g. existing infrastructure, ablution facilities, a dedicated telephone etc. should also be addressed.

The Operation Plan should also address access control to the site.

The general management of these waste management facilities will ensure the control of nuisances. Special measures to ensure good management must be addressed in the Operation Plan.

Such measures may include:

* No unauthorised discharging of waste at the facility
* No waste picking
* Roadways and other surfaces must be cleaned immediately after discharge where necessary etc.

Monitoring Plan

A Monitoring plan should be drawn up and implemented to ensure that the site conforms to permit requirements. Critical aspects to be monitored are:

* Types of incoming waste
* Excessive leachate production, and
* Cleanliness and odours

In addition the equipment must be monitored during use to ensure it is in good running order.

Environmental Impact Control Report

Should an EIA be required and/or if potential environmental impacts be identified during the Environmental Scoping process an Environmental Impact Control Report should be compiled which must address these impacts. In many cases, the impacts identified at these facilities are ground and surface water pollution, odour and visual impacts. These impacts must be addressed in the design and management of the site.

Environmental Consequences of failure assessment and report

Pollutants can escape into the surrounding environment via surface water, groundwater and/or air/wind flow. Measures to prevent floodwater from entering the facility should be

addressed. Storage areas should be built above minimum allowable floor level. In the case of groundwater pollution, measures should be in place to prevent leachate and contaminated stormwater from entering the surrounding environment. Drainage systems should be described in detail. If leachate and contaminated stormwater is pumped to municipal sewers, the approval letter from the municipality should be submitted together with the permit application.

Good management of waste management facilities does not require odour control. The situation should however be monitored and if problems arise due to odours the permit holder should respond immediately in an appropriate manner. Methods are aerosol deodorisers, biological filtration and chemical scrubbing.

A Response Action Plan should also be submitted if stoppage in the operation of the specific waste management facility will have an environmental impact.

5. CONCLUSION

This document only gives broad guidelines with regard to the permit application process applying to disposal facilities. *Ad hoc* exceptions to these broad guidelines may apply. Of importance is that the legal principles mentioned here and the objectives of the Minimum Requirements must however always apply.

It is important to note that the Department does not approve technologies, but issue permits for the use of such technologies in which performance criteria are set. Incinerators must for example be licensed by the Department of Environmental Affairs and Tourism first before a permit for such a "disposal site" will be considered by the Department.

Permits which will be issued for these facilities could be an abbreviated or amended version of the standard disposal site permit and conditions which are applicable to the specific facility will be included.

ANNEXURE ONE

POLICY ON THE HANDLING AND DISPOSAL OF ASBESTOS AND ASBESTOS CONTAINING WASTE IN TERMS OF SECTION 20 OF THE ENVIRONMENT CONSERVATION ACT, 1989 (ACT 73 OF 1989)

POLICY ON THE HANDLING AND DISPOSAL OF ASBESTOS AND ASBESTOS CONTAINING WASTE IN TERMS OF SECTION 20 OF THE ENVIRONMENT CONSERVATION ACT, 1989 (ACT 73 OF 1989)

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1. Purpose of Policy

The purpose of this policy is to provide clarity regarding the handling and disposal of asbestos containing waste (ACW), both when disposing in a mono-disposal site, i.e. a site specifically design for asbestos, or a co-disposal site.

2. Introduction

Asbestos is an indigenous fibrous mineral that has been mined in a number of sites in Southern Africa and, because of its excellent resistance to heat, has been used for the manufacture of various products since the 1900's (see section 4). Many studies have described a link between occupational exposure to various types of asbestos and lung cancer and associated diseases and has therefore been designated as a *known human carcinogen*. This carcinogenic activity is directly linked to the air pathway and ingestion of the fibres when swallowed in water does not carry any associated cander risks. Asbestos shows a slight solubility in water and the natural fibres tend to become blunted on a molecular scale thus greatly reducing the associated cancer risk. Water therefore serves as a natural route for the removal of fibres from the ait and as a mechanism to suppress the emission of fibres into the air environment.

3. Legislative Framework

The disposal of asbestos is controlled under section 20 of the Environmental Conservation Act, 1989. This section states that waste may only be disposed on a site that is permitted by the Department of Water Affairs and Forestry. Other applicable legislation includes the:

* Occupational Health and Safety Act (OHSA) (Act 85 of 1993)
* The Asbestos Regulations (R773 of 10 April 1987) promulgated under the OHSA
* Mine Health and Safety Act (Act 0f 1993)
* National Environmental Management Act (Act 107 of 1998)

The Department of Water Affairs and Forestry (DWAF) is committed to the principles of co-operative governance, therefore the handling and disposal of asbestos must take into account other applicable legislative requirements.

4. Sources and Classification of Asbestos Containing Waste

Asbestos containing waste (ACW) is divided into four hazard classes, A to D, table 1. The major types and are given in table 1:

Table 1: Classes of ACW and examples of waste falling each class:

ACW Hazard Call	Examples of ACW
Class A: Any friable ACW	Raw asbestos (e.g. asbestos damaged in transit or no longer required). Bags previously used to transport raw asbestos (that have not been melted into a solid mass). Asbestos insulation, limpet spray of pipe lagging removed from power stations, buildings, boilers or pipe works. Pure asbestos rope or textiles
Class B: Any non-friable ACW that has become crumbled, pulverised or reduced to powder during manufacturing, installation, renovation or demolition operations, such that it is likely to release fibres into the air.	Dry swarf or cutting dust from the asbestos cement or friction material production process. Used filter bags from dust extraction units at the workplace. Asbestos cement that has unavoidably been crumbled, pulverised, or reduced to powder during demolition operations. Disposal equipment and clothing contaminated with asbestos.
Class C: Any Class B ACW that has been adequately wetted or otherwise encapsulated such that it will not release fibres into the air	Wet swarf or cutting dust from the asbestos-cement or friction material production process. Sludge, slurry or wet waste from the production proces. Bags previously used to transport asbestos that have been melted into a solid mass in an autoclave.
Class D: Any non-friable ACW that is essentially in the same condition as when manufactured and is unlikely to release respirable fibres after being declared a waste product.	Asbestos cement sheets or pipes. Off cuts of asbestos-cement sheets or pipes. Disused friction products such as gaskets, brake pads or clutch plates

In table 1, the potential hazard or risk associated with the release of fibres, see section 5, is highest in class A and decreases to class D, where the risk posed by the waste is extremely small.

A similar approach is used by the US EPA which has published a document in terms of their National Emissions Standards for Hazardous Air Pollutants (NESHAP) [1], in which they define a number of important terms and conditions for asbestos products, i.e.

Friable Asbestos Material: is any material containing more that 1 % asbestos as determined using Polarised Light Microscopy (PLM), that when dry, can be crumbled, pulverised, or reduced to powder by hand pressure.

Asbestos Containing Waste Material: includes mill tailings or any waste that contains commercial asbestos. The term includes filters from control devices, friable asbestos waste material, and bags or other similar packaging contaminated with commercial

asbestos.

Non-friable asbestos Containing Material: is any material containing more that 1 % asbestos as determined by Polarised Light Microscopy (PLM), that when dry, cannot be crumbled, pulverised, or reduced to powder by hand pressure.

Note that in the US EPA definition a material must contain more than 1 % asbestos before it falls into the hazard category, which is similar to the proposed class A, ACW. However, due to the problems associated with this analysis, it is proposed that waste is even suspected of containing asbestos that is friable, be considered for class A.

5. **Toxicity and Hazard Rating**

Asbestos is classified as HG1, an extreme hazard, in terms of the Minimum Requirements for the Classification, Handling and Disposal of Hazardous Waste because it is a Group A carcinogen, i.e. it has definitely been shown to cause cancer in humans [2-3]. The fibres, which may not be present in all forms of asbestos, can cause lung and other forms of cancer. Six groups of asbestos fibres are recognised and these are further divided into two main groups, i.e. amphibole-asbestos and serpentine-asbestos. The latter, which is commonly known as white asbestos, is chrysotile, whereas the blue or amphibole asbestos group includes crocidolite, amosite, tremilite, actinilite and anthophylite. Blue asbestos is classified as class 9(II) in terms of SABS 0228 and white asbestos as class 9(III) [3].

All forms of asbestos are assumed, in terms of the precautionary principle, to be extremely hazardous, HGI, i.e. to be a class A ACW, until proven otherwise. However, in the Minimum Requirements [2], it is a fundamental principle that a waste can be downgraded or "delisted", if it can be shown that the concentration or availability of the hazardous component is below an acceptable risk limit. Provided the ACE is probably hazardous only because of its potential to release fibres and there are no other hazardous components, e.g. leachable heavy metals, then if no fibres are released above the accepted action level, it can be considered non-hazardous and delist.

The accepted action level for determining whether an ACW is hazardous is that defined in the Occupational Health and Safety Act (Act 85 of 1993) as the ability to release "0.5 *regulated asbestos fibres* per millilitre". A regulated asbestos fibre means "a particle of asbestos with a length to diameter ratio greater than 3 to 1' a length greater than five micrometers (µm) and a diameter less than 3 µm." The four classes of ACW are further defined below.

A Class A, ACW is that which has been shown to or because of its origin or form (table 1) is suspected to give off regulated fibres above 0.5 per millilitre and is classified as extremely hazardous, HGI.

A Class B, ACE is one that because of its origin may be not hazardous due to the release of regulated fibres but tests for fibres have not been conducted. Therefore, it is classified as an extreme hazard, HGI in terms of the precautionary principle.

A Class C, ACW is one that, because of its origin or form (table1), or because of treatment, e.g. by cementation, by containment in sealed drums or bags and/or is adequately wetted (section 6.2.1) cannot give off regulated fibres or the numbers of regulated fibres have been shown to be below the legal action level of 0.5 per millilitre. A Class C, ACW is not hazardous due to the production of regulated fibres and therefore delists in terms of the

Minimum Requirements [2].

A Class D, ACW is one that, because of iths oringin or form (table 1), i.e. one that is manufactured and has been adequately demonstrated to not give off regulated fibres above 0.5 fibres/ millilitre. As a precaution, treatment, e.g. by wetting prior to disposal, must be done. A Class D, ACW is not hazardous due to the production of regulated fibres and therefore delists in terms of the Minimum Requirements [2].

Asbestos is normally inert to the leaching of heavy metals and other hazardous species, but a TCLP or Acid Rain leaching test must be done, if contamination with other hazardous species is suspected due to its prior use or subsequent contamination.

6. Approved Treatment and Disposal Methods

All operational procedures must be in accordance with the Asbestos Regulations

6.1 Waste Minimisation

In accordance with the National Environmental Act (Act 107 of 1998), the Department of Waster Affairs and Forestry will encourage any procedures that result in the avoidance and/or recycling of asbestos waste. Recycling of waste produced within the production process is preferred and only unavoidable waste should be disposed. The utilisation and destruction of asbestos, when used as part of the feedstock into cement kilns or incineration processes, may be acceptable, but application for a permit must be made to the Department of Water Affairs and Forestry and the Department of Environmental Affairs and Tourism.

6.2 Treatment Technologies

6.2.1 Wetting

The major technology used to minimise the formation of asbestos fibres is to wet it normally with water. The US EPA has defined the term "Adequately Wetted", when water is used to control the emissions of particulate asbestos [1] and this terminology has been accepted for use in South Africa.

> *"Adequately wetted means to sufficiently mix or penetrate the ACW with liquid to prevent the release of airborne fibres. Suitable liquids include a wetting agend, amended water (water to which surfactant chemicals have been added, such as a 50:50 mixture of polyoxyethylene ester and polyoxyethylyne ether in a 0,16 % solution of water) or plain water."*

The ACW should be visibly wet and, if bagged, droplets of moisture should be evident. Control procedures, see section 6.3, must be in place to ensure that the ACW is adequately wetted and does not dry out during handling, transport or disposal.

6.2.2 Solidification

Solidification of asbestos wastes can be accomplished utilising cement and

other fixation agents such as water based silicates. Cementation by the addition of Ordinary Portland Cement or other Department of Water Affairs and Forestry approved pollozanic material can be cost effective, particularly Class A and B ACW. Note that cementation into a massive form would result in a Class D ACW. Any procedure must be approved by the Department and include test data on the final product showing that the fibre levels have been reduced to the accepted level.

6.3 Landfilling

Application must be made to the Department of Water Affairs and Forestry for permission to dispose asbestos at any site. Information required for full permitting include:

- The design plan for the proposed disposal area;
- A operational plan approved by the Department of Labour that the proposed operating procedures comply with the Asbestos Regulations;
- A rehabilitation plan; and
- Proof of Land Zoning

Asbestos can be disposed to a mono-disposal site or a co-disposal site.

6.3.1 Mono-disposal Sites

A mono-disposal site is one *solely for the purpose of accepting asbestos* and, because asbestos does not pose a pollution risk to water resources, the normal lining requirements for waste disposal facilities, as outlined in the Minimum Requirements for the Disposal of Waste to Landfill [4] do not apply. The liner must be an impregnable layer of at least 500mm, consisting of material such as cement or solidifies ash. A mono-disposal site for asbestos must be closed by covering with a 500mm layer of ash followed by an ashcrete or concrete dome. An ashcerete dome must consist of at least 10 % by mass of cementitious material, be compacted to ~2 % above optimum moisture content and must be 1 metre wider and longer that the trench widthe and length.

6.3.2 Co-disposal Sites

The Department requires all waste to be treated in order to minise the risk to human health and the environment. All classes of ACW can be so treted before disposal.

Because Class A, ACW is a known human carcinogen with a hazard rating of 1, and Class B, ACW are potentially hazardous, the Department requires direct disposal of this categories to HH co-disposal sites.

However, all classes of wastes, A to D can be treated before disposal, section 3.2, and

Hh or G Landfills can apply for a permit amendment to accept other forms of asbestos provided that the correct treatment and control procedures are in place or/and the practice of disposal does not constitute a hazard and is fully compatible with the Minimum Requirements.

All sites must be specifically permitted for the acceptance of ACW and application must be made to the Department for an amendment.

The requirements should be discussed with the Regional office of the Department, but permission will not granted where informal recycling is taking place or where there is any potential for risk to the public or workers. Note that a demarcated area and surveyed area must be set aside for asbestos disposal (see section 6.3.3).

6.3.3 Landfilling Practice . The following practices must be observed:

- All fibrous material falling into classes A to C (see table 1) must be double bagged in plastic bags with a minimum thickness of 75 microns before the waste is brought to the landfill. Transparent bags are referred, since they allow inspection of the waste to see if it is "adequa tely etted" without having to undo the bag. This avoids having the operator, auditor or inspector potentially exposed to fibres. Droplets of moisture should be visible on the inside of the bag.

- Class D wastes (see table 1) that includes larger items suc h as pipes and boards should be kept wet as a precautionary measure at all times before disposal at the site. Class D wstes should be trasported in vehicles or stored should be covered with a tarpaulin and wetted immediately prior to disposal.

- All asbestos waste (classes A to D) that has been treated and packaged as required in these regulations, must be deposited into trenches and immediately covered. Options include:

  On a mono-disposal site, the waste must be deposited in a trench ash and immediately covered with, at least, a metre of ash.

  On a co-disposal site, the waste must be immediately covered with domestic waste and carefully compacted. Otherwise it can be deposited in a deep trench, the waste must be completely covered with layer of ash, at least 25cm in depth. This will provide sufficient protection to the waste before a second layer is deposited on top. The trench should be closed, by adding a final layer of ash and/or general waste of al least 50cm in depth and compacting.

- During disposal, care must be taken to minimise the potential breaking of bags.

- *Only essential personnel* should be allowed to be close to the waste and should, as far as is possible, stand up wing, while the waste is being disposed. Personal protective equipment required in terms of the Occupational Health and Safety Act and the Asbestos Regulations must be worn at all times.

- No scavenging or other reclamation activities are allowed on or near the ACW disposal area within a waste disposal site, although the general

presence of scavengers does not automatically disqualify a site.

- On a co-disposal site, a surveyed area with the coordinates must be designated as the ACW disposal area. Other waste can be disposed in this area, but records must be maintained in order to prevent trenching or other operations taking place that could lead to the release of asbestos fibres.

- The ACW disposal area must be demarcated with hazard tape and signs erected to indicate that it is an asbestos area in terms of the asbestos regulations and that the appropriate protective clothing and equipment must be worn.

- No further trenching will be allowed on top of an area previously used for ACW unless it is cover with a layer of compacted waste that it at least 3 metres in depth.

- A monitoring programme for staff required by the Occupational Health and Safety Act should be implemented. This requires and initial analysis followed by regular monitoring at intervals of between 6 months and 2 years depending on the initial level.

- The procedures for disposal of ACW must be maintained at all times and must be specifically included in the internal auditing programme and annual external auditing programmes.

7. Permit Requirements for Landfilling

The Department requires any site that wishes to dispose of ACW to apply for an amendment to its permit. The requirements are those listed in these regulations but before formal application, it is recommended that the applicant discuss the requirements with the Regional office of the Department.

8. References

[1] US EPA: Asbestos NESHAP Adequately Wet Guidance; EPA340/1-90-019, December 1990

[2] Department of Water Affairs and Forestry, "Minimum Requirements for the Classification, Handling and Disposal of Hazardous Waste". 2nd edition, Pretoria, 1998

[3] SABS, "Code of Practice for the Identification and Classification of Dangerous Substances and Goods, 0228 – 1990, Pretoria, 1990

[4] Department of Water Affairs and Forestry, "Minimum Requirements for Waste Disposal by Landfill", 2nd edition, Pretoria, 1998

ANNEXURE TWO

DWAF POLICY RESOURCE ENTITLED PROCEDURE WITH REGARD TO THE ISSUING OF EXEMPTIONS UNDER SECTION 20 OF THE ENVIRONMENT CONSERVATION ACT, 1989 (ACT 73 OF 1989)

WM/10077106/KR

PROCEDURE WITH REGARD TO THE ISSUING OF EXEMPTIONS UNDER SECTION 20 OF THE ENVIRONMENT CONSERVATION ACT, 1989 (ACT 73 OF 1989)

PURPOSE OF THIS PROCEDURE

- To serve as a guideline document for applying for an exemption under section 20 of the Environment Conservation Act, 1989 (Act 73 of 1989).
- To outline the procedure to be followed and the type of information to be submitted for consideration for the issuing of an exemption.

BACKGROUND

The Department of Water Affairs and Forestry (DWAF) is mandated to issue permits for disposal sites[1] in terms of section 20 of the Environment Conservation Act, 1989 (Act 73 of 1989). According to section 20(1) "no person shall establish, provide or operate any disposal site without a permit issued by the Minister of Water Affairs and Forestry". Section 20(1) also states that the Minister may exempt any person or category of persons subject from such conditions, as he may deem fit. Based on this DWAF issues permits and exemptions once the principles of the Minimum Requirements 2nd edition have been complied with by the applicant, in accordance with section 20(3).

In some instances, it is considered appropriate to issue an exemption rather than a permit, specifically for activities related to the recycling and/or the treatment of waste, for example where an applicant wishes to recycle waste material into a commercial product such as the conversion of ash waste into bricks as well as the temporary storage of some types of waste material. The Department can, after careful evaluation, exempt an applicant from complying with some of the requirements for permitting. This implies that, provided all the necessary information required for granting of an exemption have been submitted, an exemption to undertake a particular activity will be granted in terms of section 20 of the Environment Conservation Act, 1989 (Act 73 of 1989).

All waste management facilities must register, on the Department of Water Affairs and Forestry's WARMS System, in terms of the National Water Act, 1998 (Act 36 of 1998) and as required in the National Waste Management Strategy (NWMS) Action Plan for Waste Disposal.

INFORMATION WHICH IS REQUIRED IN SUPPORT OF AN APPLICATION FOR AN EXEMPTION

1. The application should clearly state the reasons for the application.

2. A clear description of the activity is required, which should include:

    2.1 Sources, descriptions and quantities of raw or waste materials used. Classification of the material should be done according to the Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste (second edition, 1998).

[1] Disposal site means a site used for the accumulation of waste with the purpose of disposing or treatment of such waste (as defined in Section 1 of the Environment Conservation Act, 1989).

2.2 Description and quantities of waste stream **generated,** as well as it's classification according to the Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste (second edition, 1998).
2.3 **Water** management plan, including quantity and quality.
2.4 A site layout indicating specific details regarding construction of the storage or disposal site (designs).
2.5 Specific information on the timeframe applicable to the establishment of the facility (in the case of new facilities) includes the life of the facility until closure and decommissioning.

3. The locality of the activity, which should include:

3.1 Locality map.
3.2 Approved zoning.

4. Details regarding the operation of the activity, especially management of impacts likely to result from the activity e.g. stormwater management, waste, effluents, leachate etc.

5. The human health, environmental and the risk implications associated with the storage or disposal of this material e.g. risk of odours, noise, dust and both surface and underground water etc.

6. Mitigation measures to be implemented to mitigate these risks.

7. Proposed monitoring.

8. In the event of this being a recycling activity:

8.1 The material used as well as the product must be classified according to the Minimum Requirements, and include a comparison of the classification of the product to another similar commercial material already in the market.
8.2 Should the product made from the waste be used in the building industry proof of confirmation that the proposed material complies with SABS specifications for building materials is required.

9. A Record of Decision or proof of an exemption of the EIA Regulations promulgated in terms of section 26 of the Environment Conservation Act, 1989 (Act 73 of 1989), from the Provincial Department of Environmental Affairs in accordance with Section 21 and 22 of this Act is required, as well as authorisation required in terms of other legislation.

10. Detailed information on the decommissioning of the activity.

Please note that the **underground** storage **of hazardous material** has the potential to impact on the ground water environment. The Department does not recommend such storage unless it can be proved through proper motivation, that the operation will not adversely impact on the environment, especially on the groundwater environment. This motivation should *inter alia* include detailed designs of containment aspects, monitoring for effectiveness of the proposed system and contingency plan in the case of failure of containment.

It should however be stressed that the decision to issue an exemption solely lies with the Department and should it be decided that a permit will be issued, the applicant will be required to furnish the Department with all the necessary information to satisfy the requirements for a permit. Furthermore the Department may, during the process of evaluation of the application, require any additional information from the applicant that may be necessary to reach a decision.

RESPONSIBILITIES

TASK	***RESPONSIBILITY***
1. Investigations on a proposed activity	Applicant
2. Classification	Applicant
3. Zoning	Applicant
4. Compliance with EIA Regulation	Applicant and the relevant provincial Department of Environmental Affairs
5. Register on WARMS	Applicant and the relevant Regional Office of Department of Water Affairs and Forestry
6. Submit application	Applicant
7. Evaluation of an application	Department of Water Affairs and Forestry
8. Issuing and amendment of an Exemption	Department of Water Affairs and Forestry Head Office

The Department does not approve the technology to be applied in a particular activity, but only issue exemptions for the use of such technologies. It is the responsibility of the applicant to ensure that the technology in question is approved by the relevant organ of State or Department or any other recognised body authorised to do so before the application for an exemption is submitted to the Department of Water Affairs and Forestry.

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ANNEXURE THREE

DWAF POLICY ON THE DEFINITION OF DISPOSAL SITES WITH REGARD TO THE ISSUING OF PERMITS FOR WASTE INCINERATORS, WASTE MANAGEMENT FACILITIES AND OTHER ALTERNATIVE WASTE DISPOSAL TECHNOLOGIES AND RELATED GUIDELINES.

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INTERPRETATION OF THE DEFINITION OF DISPOSAL SITES WITH REGARD TO THE ISSUING OF PERMITS FOR WASTE INCINERATORS, WASTE MANAGEMENT FACILITIES AND OTHER ALTERNATIVE WASTE DISPOSAL TECHNOLOGIES AND RELATED GUIDELINES

1. BACKGROUND

As landfills across South Africa continue to fill, acceptable sites for new landfills become more difficult to find, especially in populated areas. This problem is forcing waste managers to become more resourceful in their search for space and to limit the amount of landfills through regionalisation and also to follow the cleaner technology route by establishing facilities such as waste recycling plants, treatment plants, transfer stations, storage areas and vacuum pyrolysis plants.

Vacuum pyrolysis plants, incinerators, compost plants, transfer stations, storage facilities and recycling plants are all seen as waste disposal sites according to the definition of a disposal site in terms of section 1 of the Environment Conservation Act, 1989 (Act 73 of 1989)(ECA). "Disposal site" means a site used for the accumulation of waste with the purpose of disposing or treatment of such waste. The facilities mentioned are seen as disposal sites because of the "continuous" storage of waste on the premises of these plants or sites before the disposal, removal or handling thereof.

2. LEGAL REQUIREMENTS

According to section 20(1) of the ECA "no person shall establish, provide or operate any disposal site without a permit issued by the Minister of Water Affairs ..." and for this reason the above-mentioned facilities should obtain a disposal site permit before they are established or operated.

Section 20(6) of the Environment Conservation Act, 1989 (Act 73 of 1989) determines that no person shall discard waste or dispose of it in any other manner, except -

(a) at a disposal site for which a permit has been issued; or

(b) in a manner or by means of a facility or method and subject to such conditions as the Minister may prescribe.

In terms of the said Act, "prescribe" means "prescribe" by regulation and no such regulations have been issued by the Minister of Environment Affairs in this regard. This means that waste has to be disposed of at a disposal site which is defined as a site used for the accumulation of waste with the purpose of disposing or treatment of such waste. The land on which an incinerator/transfer station/waste recycling plant/treatment facility/waste storage area is established/installed, can thus be regarded as a disposal site for which a permit should be issued in terms of the mentioned act.

There are a few other legal requirements which must be complied with in order to permit

and operate a waste disposal site including the above-mentioned facilities eg. the EIA Regulations and the Atmospheric Pollution Prevention Act, 1965 (Act 45 of 1965).

EIA Regulations

The requirements include compliance to the Environmental Impact Assessment (EIA) Regulations published in April 1998 (promulgated in Government Gazette No. 18261, 5 September 1997).

These regulations entail that a scoping exercise be undertaken which must include public participation. Alternative sites must be considered and the best site be identified. The Scoping exercise lead to the submission of a preliminary Environmental Impact Assessment Report to the Department of Environment in the different Provinces (Provincial Government). These Departments will then give guidance regarding the need for a full EIA as part of the permitting process of these facilities. To issue a permit, this Department thus requires a Record of Decision (RoD) or a letter confirming that an exception from an EIA has been given, from the provincial Department of Environment.

Atmospheric Pollution Prevention Act, 1965

In the case of incinerators air emissions are one of the issues which must be controlled. Most incinerators in South Africa are currently regulated by local authorities in terms of the Atmospheric Pollution Prevention Act, 1965 (Act 45 of 1965) and the Health Act, 1977 (Act 63 of 1977). The operation of the site and the emissions from the incinerator should be regularly inspected by air pollution staff of these authorities. Conditions are also prescribed for the collection, transportation and storage prior to incineration in terms of the Health Act, 1977 (Act 63 of 1977).

Incineration of waste (including medical and hazardous waste) is listed as a scheduled process in terms of the Atmospheric Pollution Prevention Act, 1965 (Act 45 of 1965). Scheduled processes are controlled by the Chief Air Pollution Control Officer of the Department of Environmental Affairs and Tourism (DEAT). The listing as a scheduled process will enable the Chief Officer to issue a registration certificate for a specific incinerator on certain conditions. In terms of section 12 of the Atmospheric Pollution Prevention Act, 1965 (Act 45 of 1965) the registration certificate shall be subject to the condition that all plant apparatus used for the purpose of carrying out the scheduled process in question and all appliances for preventing or reducing to a minimum the escape into the atmosphere of noxious or offensive gases, shall at all times be properly maintained and operated and the holder of the certificate shall ensure that all the necessary measures are taken to prevent the escape into the atmosphere of noxious or offensive gases. The Act also states that due allowance should be made for the unavoidable escape into the atmosphere of noxious or offensive gases during the starting-up of any plant or apparatus in respect of which the registration certificate has been issued or during the period of any breakdown or shut-down or disturbance of such apparatus or plant. The Chief Officer may by written notice require from the holder of such certificate that steps to ensure more effective operation of the appliances be taken. If the permit holder fails to comply with these conditions or requirements within a reasonable time, the Chief Officer may cancel the permit.

The following information is specified in the certificate, in terms of section 11(2) of the

mentioned Act:

(a) the situation and extent of the proposed building or plant to which the certificate relates;

(b) the nature of the scheduled process intended to be carried out;

(c) the raw materials intended to be used, the nature of the operations intended to be carried out and the products intended to be produced;

(d) the appliances intended to be installed and any other measures intended to be taken with a view to preventing or reducing to a minimum the escape into the atmosphere of any noxious or offensive gases likely to be produced by the operations intended to be carried out; and

(e) the proposed measures for the purification of the effluents discharged from the appliances installed for preventing or reducing to a minimum the escape into the atmosphere of any noxious or offensive gases for the processes that will be in operation, and for the prevention of the release of noxious or offensive constituents from such effluents when they come into contact with other effluents in drains or drainage canals.

It is clear that the certificate mainly addresses the pollution of air by the incinerator, although the pollution by effluents generated at the plant is also regulated. The incineration of waste can however have an impact on every aspect of the environment - air, soil, surface and ground water, thereby possibly endangering environmental health. It can just be mentioned that medical waste and the residue after the incineration process is regarded as hazardous waste in terms of the Basel Convention.

3. PROCESS

The same process as outlined in Figure 1 (page 1-9) of the document "Minimum Requirements for Waste Disposal by Landfill, second edition, 1998" should be applied with the development and permitting of these facilities.

Sites must first be classified according to the type and volume (volume = maximum amount of waste handled/treated/stored per day for which the facility was designed) of waste handled/treated/stored at the specific facility per day . After different locations for the proposed facility have been identified and ranked, a feasibility study on the best alternative site should conducted. After the confirmation of feasibility has been obtained from the Department of Water Affairs and Forestry (DWAF), the applicant applies for a permit. The required documents (according to the Minimum Requirements for Permitting - see Table 5 of the document "Minimum Requirements for Waste Disposal by Landfill) for that specific class site must then be submitted together with the permit application form. Since the Minimum Requirements are written specifically for waste disposal by landfill the level of detail required for each report/investigation could certainly vary for these waste facilities. In the case of general disposal sites the requirements must be discussed and confirmed with the specific Regional Director of DWAF, but a Design Report, Operation Report, Monitoring

Report and Contingency Plans would always be required. In some instances, additional studies (eg. Geohydrological Report) could be necessary.

4. GUIDELINES TO COMPILE A PERMIT APPLICATION REPORT FOR THE ABOVEMENTIONED WASTE MANAGEMENT FACILITIES

The Permit Application Report should include the information as required above. Guidelines on the type of information which should be given in this report for DWAF to make a decision whether to grant a permit or not is as follows:

Background information

This section must summarise the following aspects:

A. waste classification and quantities
B. current waste management system
C. climatic conditions
D. description of the proposed facility and environmental overview of conditions at the site

A. Waste classification and quantities

The types of waste generated and to be disposed of/treated/stored at the facility should be addressed e.g. whether it is household refuse for the site to be classified as a G site or whether it is hazardous waste for the site to be classified as a H site and the maximum quantities of waste stored/treated/disposed/handled at the facility per day.

This will indicate the classification of the site.

B. Current waste management system

This section should address the operational area and the population statistics of the area. It should also address waste collection, transport and existing methods of waste disposal/handling/treatment/storage.

C. Climatic conditions

Climatic conditions of the area, rainfall conditions (mean annual precipitation and evaporation rates), prevailing wind directions should be addressed in this section.

It could be that these waste management facilities in terms of the Landfill Classification System indicate that the region is in a water surplus area. A landfill in such an area would be expected to produce leachate and would be designated "B^+". However, due to the enclosed designs of most of these facilities climatic factors are expected to have little influence on the waste deposited/treated at the facility. Any leachate that may be generated would be the result of the moisture content of the incoming waste. These facilities will thus be classified as "B^-" sites in most cases.

D. Description of the proposed waste management facility and environmental overview

A description of the site location which includes a topocadastral map (1:50 000) indicating the location of the following, where present, within a 5 km radius of the site boundary:

* the waste management facility
* the area served
* existing residential and industrial areas
* possible future development
* transport route
* other waste management facilities in the area
* zoning and land use of the waste management facility and surrounding area within a 5 km radius, and
* the 1:50 year floodline of all watercourses.

As mentioned earlier in the document a preliminary environmental overview should be undertaken during the Scoping process which *inter alia* addresses the surrounding land uses, the geohydrology in the vicinity of the site, the ecology and conservation worthiness. The land use upon which these waste management facilities are to be developed should be approved and correctly zoned in terms of local and provincial legislation. Most probably no detailed geohydrological investigation/report will be required as part of the permit application for the above-mentioned waste management facilities.

Detailed reports of the following will be required and should be attached to the permit application:

* Design report,
* Operation and Monitoring report
* Contingency plans
* Environmental Impact Control Report (only if an EIA is required - consult with DWAF departmental officer and Department of Environment, Provincial Government).

Design report

This report should address:
* infrastructure requirements,
* stormwater and leachate management requirements, and
* odour control.

Operation Plan

An overview of the proposed operation of the waste management facility should be given. The following aspects should be addressed:

* Equipment description and Maintenance
* Staffing requirements
* Screening and acceptance of waste
* Waste handling, loading, compaction operation

* Waste Auditing and Reporting Procedures
* Traffic Control
* Environmental Control

Transportation and final disposal operations should be included in the above plan.

In addition to the above, the Operation Plan should also address the following aspects:

* Safety and Emergency Response
* Fire Prevention

A description of the facility e.g. existing infrastructure, ablution facilities, a dedicated telephone etc. should also be addressed.

The Operation Plan should also address access control to the site.

The general management of these waste management facilities will ensure the control of nuisances. Special measures to ensure good management must be addressed in the Operation Plan.

Such measures may include:

* No unauthorised discharging of waste at the facility
* No waste picking
* Roadways and other surfaces must be cleaned immediately after discharge where necessary etc.

Monitoring Plan

A Monitoring plan should be drawn up and implemented to ensure that the site conforms to permit requirements. Critical aspects to be monitored are:

* Types of incoming waste
* Excessive leachate production, and
* Cleanliness and odours

In addition the equipment must be monitored during use to ensure it is in good running order.

Environmental Impact Control Report

Should an EIA be required and/or if potential environmental impacts be identified during the Environmental Scoping process an Environmental Impact Control Report should be compiled which must address these impacts. In many cases, the impacts identified at these facilities are ground and surface water pollution, odour and visual impacts. These impacts must be addressed in the design and management of the site.

Environmental Consequences of failure assessment and report

Pollutants can escape into the surrounding environment via surface water, groundwater and/or air/wind flow. Measures to prevent floodwater from entering the facility should be

addressed. Storage areas should be built above minimum allowable floor level. In the case of groundwater pollution, measures should be in place to prevent leachate and contaminated stormwater from entering the surrounding environment. Drainage systems should be described in detail. If leachate and contaminated stormwater is pumped to municipal sewers, the approval letter from the municipality should be submitted together with the permit application.

Good management of waste management facilities does not require odour control. The situation should however be monitored and if problems arise due to odours the permit holder should respond immediately in an appropriate manner. Methods are aerosol deodorisers, biological filtration and chemical scrubbing.

A Response Action Plan should also be submitted if stoppage in the operation of the specific waste management facility will have an environmental impact.

5. CONCLUSION

This document only gives broad guidelines with regard to the permit application process applying to disposal facilities. *Ad hoc* exceptions to these broad guidelines may apply. Of importance is that the legal principles mentioned here and the objectives of the Minimum Requirements must however always apply.

It is important to note that the Department does not approve technologies, but issue permits for the use of such technologies in which performance criteria are set. Incinerators must for example be licensed by the Department of Environmental Affairs and Tourism first before a permit for such a "disposal site" will be considered by the Department.

Permits which will be issued for these facilities could be an abbreviated or amended version of the standard disposal site permit and conditions which are applicable to the specific facility will be included.