

TECHNICAL WASTE MANAGEMENT SUPPORT

ENVIROSERV LABORATORY CAPABILITY

EnviroServ's laboratory was established in the early 1990s. The Meadowdale laboratory is an accredited state of the art laboratory. This facility was the first waste analytical laboratory in South Africa to receive SANAS accreditation in February 2012. The laboratory is accredited according to the ISO/IEC 17025 standard for waste analyses. The laboratory offers expert advice with regard to testing and handling of hazardous waste materials and is able to assist in the analysis and classification of waste in accordance with the United Nations Globally Harmonised System of Classification (GHS) as contained in SANS 10234 and mandated by the National Environmental Management Waste Act (NEMWA No 59 of 2008) and the associated Waste Regulations with its prescribed Norms and Standards.

ATTRIBUTES

- EnviroServ's Laboratory offers expert advice with regard to testing and handling of hazardous waste materials.
- The laboratory assist in the analysis and classification of waste in accordance with the United Nations Globally Harmonised System of Classification (GHS) as contained in SANS 10234 and mandated by the National Environmental Management Waste Act (NEMWA No 59 of 2008) and the associated Waste Regulations with its prescribed Norms and Standards.
- EnviroServ's Meadowdale laboratory offers internal water analytical services for all of EnviroServ's open and closed landfill sites. This internal capability allows EnviroServ to manage water quality and mitigate potential risks of water contamination on their landfill sites.
- The laboratory focuses specifically on trace element analyses, spectro-analytical, gas chromatography mass spectrometry, and wet chemistry methods, suitable for the testing of a range of hazardous elements or compounds typical of hazardous wastes. Spectrochemical techniques include ICP-OES, GC-MS and Spectrophotometry. Wet chemistry techniques include titrimetric, volumetric and gravimetric methods.
- Waste and leachate samples from the Toxicity Characterisation Leaching Procedure (TCLP), water and effluent samples can be analysed by ICP-OES and GC/MS in accordance with United States-EPA based methods approved by SANAS , as well as the Australian Standard Leaching Procedure (ASLP) in line with National Environmental Management: Waste Act (NEMWA Act 59:2008) Requirements.



ENVIROSERV LABORATORY CAPABILITY



BENEFITS

- EnviroServ's Meadowdale laboratory is accredited according to the ISO/IEC 17025 standard for waste analyses.
- The laboratory is able to assess your waste streams to:
 - Explore alternatives to landfill
 - Investigate options to beneficiate your waste
 - Assess options for reduce, re-use, recycle (energy recovery), treatment or disposal.
- Classification of waste according to its properties (physical, health and environmental risks) in order to determine its hazardous nature is a legal requirement.
- Leach tests and risk profiling to determine suitable end destination of waste if landfill disposal is the chosen option.
- Due to its accreditation, this laboratory can provide a full range of environmental analytical testing services, specialising in the analysis of solid, liquid and sludge waste matrices. Analytical laboratory testing services for these matrices includes routine, trace and ultra-trace level analysis for organics (volatile and semi volatile, herbicides, pesticides and PCBs), metals and nutrients, inorganic non-metallics, toxicological parameters, as well as a range of physical parameters (flashpoint, flammability, moisture, and pH).
- In addition to the routine services, EnviroServ has expertise in many speciality testing areas. With its groundbreaking features and expanded capabilities, the EnviroServ laboratory has the latest available analytical equipment and is equipped with the following analytical instrumentation: ICP-OES, GC/MS, Flash Point Analyser, Moisture Analyser, Spectrometer, Balances, pH meters and a Purge and Trap System for organic compounds.
- The Waste Regulations guarantee that waste is adequately classified and categorised, and the associated risks of the waste are assessed for the safe transportation, handling, storage and disposal of the waste. Detailed information on a customer's waste streams is essential for adequate prioritisation and management of waste.



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CONTAMINATED LAND AND WASTE STOCKPILE MANAGEMENT

EnviroServ is aware of and is closely following the impact of the full implementation of Part 8 of the National Environmental Management: Waste Act, (no. 59 of 2008) on our customers. In this context, the company has a SANAS 17025 accredited laboratory available to assist our customers in the sampling and analysis of waste stockpiles as well as contaminated land.

ATTRIBUTES

Based on the data obtained from a preliminary assessment of waste stockpiles or contaminated land, EnviroServ's team of dedicated specialists can assist with the implementation of various solutions such as:

- Evaluation of the flagged waste stockpiles for potential recovery and/or reuse of valuable raw materials
- Assess whether treatment and disposal of the waste stockpile and/or contaminated land in situ is a viable option based on legal as well as cost constraints.



BENEFITS

- EnviroServ provides a cost effective removal and disposal option to a suitable landfill when other waste management options are either not feasible or cost effective
- EnviroServ supports a holistic approach to waste management that critically looks at the well-known waste hierarchical approach but balances this against alternatives that are cost effective and legally compliant
- The company allows customers an opportunity to choose the most suitable solution for their specific needs.



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TECHNICAL WASTE MANAGEMENT SUPPORT

As support structure to the range of waste management solutions offered by EnviroServ, the company has a dedicated team of specialists available, ranging from chemical and civil engineers, to chemical analysts and certified chemists, with many years of experience in the waste management sector, all available to assist in providing solutions to customers' waste problems.

Whether waste is hazardous or non-hazardous waste, liquid or solid, large or small, EnviroServ has the professionals who can assist customers through the minefield of legally compliant and environmentally acceptable waste management.



ATTRIBUTES

EnviroServ supports a holistic approach to waste management that critically looks at the well-known waste hierarchical approach to waste management but balances this against alternatives that are cost effective and legally compliant allowing our customers to choose the most suitable solution for their needs.

Issues such as registration and reporting into a Waste Information System (WIS) as required by law, the classification of waste as to its hazard rating as mandated by the national Waste Classification and Management Regulations (No. R. 634 of August 2013), assessment for landfill disposal if this is the waste management option chosen by the customer, the development of Safety Data Sheets (SDSs) as required by law for hazardous waste, etc, are but some of the many services available from EnviroServ and its Technical Waste Management Support team.

BENEFITS

- EnviroServ believes that partnerships and teamwork are key to waste management solutions fit for purpose. We will work with you for a solution that benefits you as a customer.
- EnviroServ solutions correctly match a client's waste management challenges and needs.
- EnviroServ has a huge pool of expertise and resources and is able to assist customers with projects large or small, whether the requirement is a solution for treating effluents, to energy recovery from waste via biogas development or thermal solutions for energy recovery.
- The company offers cost effective solutions.



WASTE TREATMENT OPTIONS AND PROJECTS

In support of EnviroServ's drive towards sustainable waste management, EnviroServ has invested in various alternative waste treatments such as Effluent Treatment, Oil Separation, Evaporation, Freeze Crystallisation, In-vessel Composting, Mechano-chemical Destruction and Micro-encapsulation. Some of these technologies have been implemented and others are planned for the future. This is in line with the restrictions listed in the National Norms and Standards for the Disposal of Waste to Landfill.

ATTRIBUTES

These treatment technologies will, once implemented, reduce the volume of waste disposed to landfill, limit the further generation of leachate in the landfill environment and improve the quality thereof. Oils and some brines currently destined for landfill disposal will also be recovered for further use.

Effluent Treatment Plants (ETP) are offered at the Aloes, Holfontein, Nyamasoga and Shongweni Landfill Sites. The ETPs make use of ultra-filtration (UF) and reverse osmosis (RO) membranes that concentrates the contaminants into a brine stream and produces a clean permeate. The brine will be further treated at the Micro-Encapsulation Plant or disposed of via current disposal processes to landfill. The final clean permeate meets discharge standards for river or sewer as required.

A Freeze Crystallisation Plant (FCP) has been constructed at the Holfontein Landfill Site. The plant uses a number of freeze processes to progressively precipitate out salts. The plant produces a clean permeate and various brines which are disposed of or recovered for sale.

Oil Separation Plants (OSP) will cater for the treatment of water contaminated with oil. The OSP will use an Ultra Filtration Membrane to concentrate the oil into a product stream and produce a permeate. The recovered oil will be sold while the permeate will be treated in the ETP, if required.

In-vessel composting is offered to increase the composting rate by using a vessel with regulated temperature and moisture conditions. Mobile Composting Units (MCU) and composting in windrows are offered at various landfill sites. MCUs have been successfully installed at various clients, one of them being BAT in Heidelberg.



BENEFITS

- A customer will be perceived by authorities as supporting the government's plans for minimising waste to landfill.
- Future generations and the environment benefit.
- Strategic partnerships enabling each other to meet sustainability goals.



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TECHNICAL WASTE MANAGEMENT SUPPORT

DEPARTMENT OF ENVIRONMENTAL AFFAIRS (DEA) WASTE INFORMATION SYSTEM REGISTRATION GUIDELINE

ARE YOU A HAZARDOUS WASTE GENERATOR?

NO! These regulations don't apply if you only generate general waste.

YES! Do you generate hazardous waste in excess of 20kg per day?

YES! **YOU ARE REQUIRED TO REGISTER ON THE WIS IN TERMS OF THE WASTE REGULATION EFFECTIVE SINCE 1 JAN 2013**

National Environmental Management Act (59/2008)

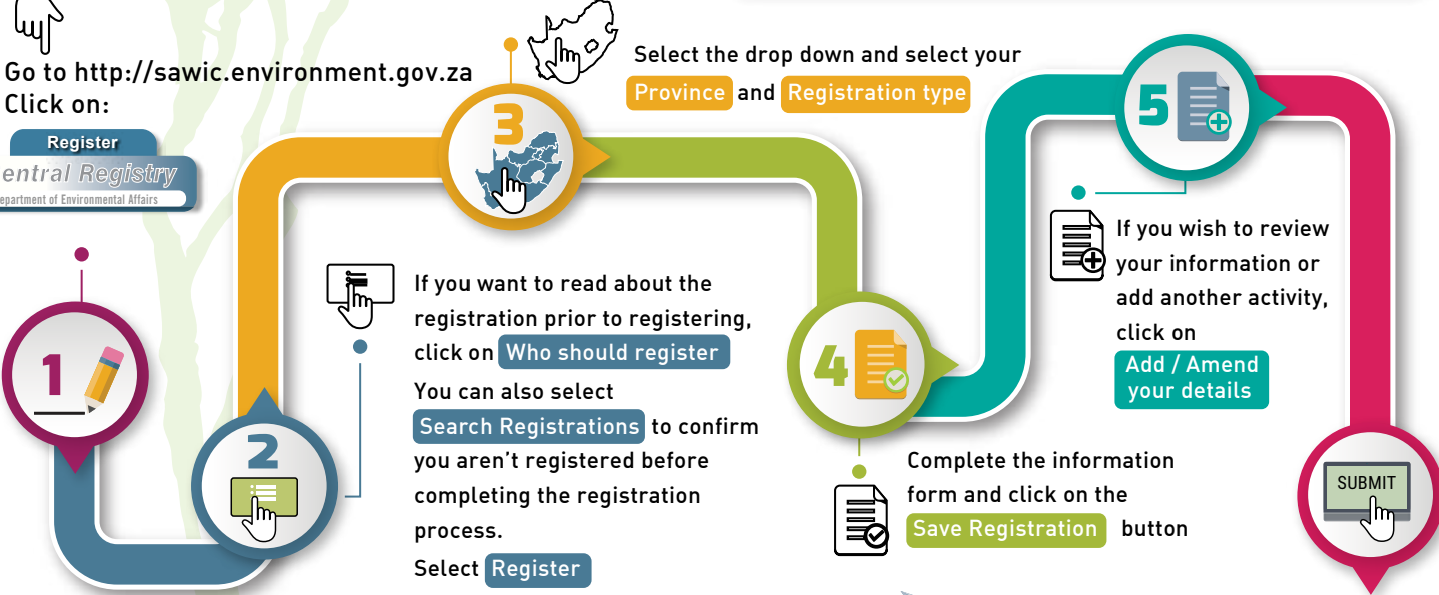


HOW TO REGISTER

Go to <http://sawic.environment.gov.za>
Click on:


Register
Central Registry
Department of Environmental Affairs

- 1** If you want to read about the registration prior to registering, click on **Who should register**. You can also select **Search Registrations** to confirm you aren't registered before completing the registration process. Select **Register**.
- 2** Select the drop down and select your **Province** and **Registration type**.
- 3** Complete the information form and click on the **Save Registration** button.
- 4** If you wish to review your information or add another activity, click on **Add / Amend your details**.
- 5** Click on **Submit Your Registration**.



Once registration is complete

You will receive an email to notify you that registration is awaiting authorisation. You will be sent a second email upon approval of your registration. This will contain a unique registration number, a username and password, which may be used to log onto the website to update or amend information as and when required.

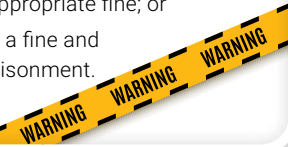


Click on **Submit Your Registration**

What happens if I don't register?

The new legislation act stipulates that all waste generators must apply to the DEA registration. Failing to comply or providing incorrect/misleading information, if convicted, will result in:

- imprisonment for a period not exceeding fifteen (15) years;
- an appropriate fine; or
- both a fine and imprisonment.



Final step

Send your WIS Registration Number to EnviroServ by email to:

KZN: infokzn.wis@enviroserv.co.za
 EC: infoec.wis@enviroserv.co.za
 Inland: infogp.wis@enviroserv.co.za
 WC: infowc.wis@enviroserv.co.za



TECHNICAL WASTE MANAGEMENT SUPPORT

SAFETY DATA SHEET (SDS)

What is a Safety Data Sheet?

A Safety Data Sheet is a document which contains information on the potential health effects of exposure to chemicals, or other potentially dangerous substances. It contains and describes safe working procedures when handling these substances. A Safety Data Sheet shall be produced for all substances and mixtures which meet the harmonised criteria for physical, health or environmental hazards as well as for all mixtures which contain substances that meet the criteria for carcinogenic, toxic to reproduction or target organ toxicity in concentrations exceeding the cut-off values/concentration limits. Mixtures not meeting the criteria for classification but containing hazardous substances in certain concentrations can also be required to have a Safety Data Sheet.

Why is a Safety Data Sheet required?

A Safety Data Sheet is intended to indicate the hazardous nature of the product, how to use the product safely, what to expect if the recommendations are not followed, what to do if accidents occur, how to recognise symptoms of overexposure, and what to do if such incidents occur.

Whose responsibility is it to submit the Safety Data Sheet to EnviroServ?

Every supplier, manufacturer, importer or distributor of a hazardous substance or mixture intended for use at a workplace shall provide the party receiving such a substance or mixture with a Safety Data Sheet, free of charge. The Safety Data Sheet shall contain information as set out in the diagram below and as stipulated in the National Environmental Management Waste Act.

It is the responsibility of the generator to get the Safety Data Sheet from their supplier and to submit it to EnviroServ.

When must the generator be in possession of a Safety Data Sheet?

If a waste is found to be hazardous, a SDS is required for storage, transport and disposal of the hazardous waste.

During the quoting process, an EnviroServ Sales Consultant will request the customer to submit their waste sample along with the Safety Data Sheet linked to that waste.

SDS INFORMATION

An SDS should contain the following information:

1. Identification
2. Hazard(s) identification
3. Composition/information on ingredients
4. First-aid measures
5. Fire-fighting measures
6. Accidental release measures
7. Handling and storage
8. Exposure controls/personal protection
9. Physical and chemical properties
10. Stability and reactivity
11. Toxicological information
12. Ecological information
13. Disposal considerations
14. Transport information
15. Regulatory information
16. Other information

SDS CONTENT

An SDS should provide a clear description of the data used to identify the hazards. The minimum information for each section listed below should be included.

If specific information is not applicable or not available under a particular subheading, the SDS should clearly state this.

Some subheadings are national or regional in nature and Safety Data Sheets should contain the information relevant for the area that the SDSs are intended for.



TECHNICAL WASTE MANAGEMENT SUPPORT

SAFE DISPOSAL CERTIFICATE (SDC)

What is a Safe Disposal Certificate?

A waste disposal certificate is a certificate confirming that Waste Managers disposing of waste to landfill have done so in accordance with the Norms and Standards for Disposal of Waste to Landfill set in terms of section 7(1) of the National Environmental Management Waste Act.

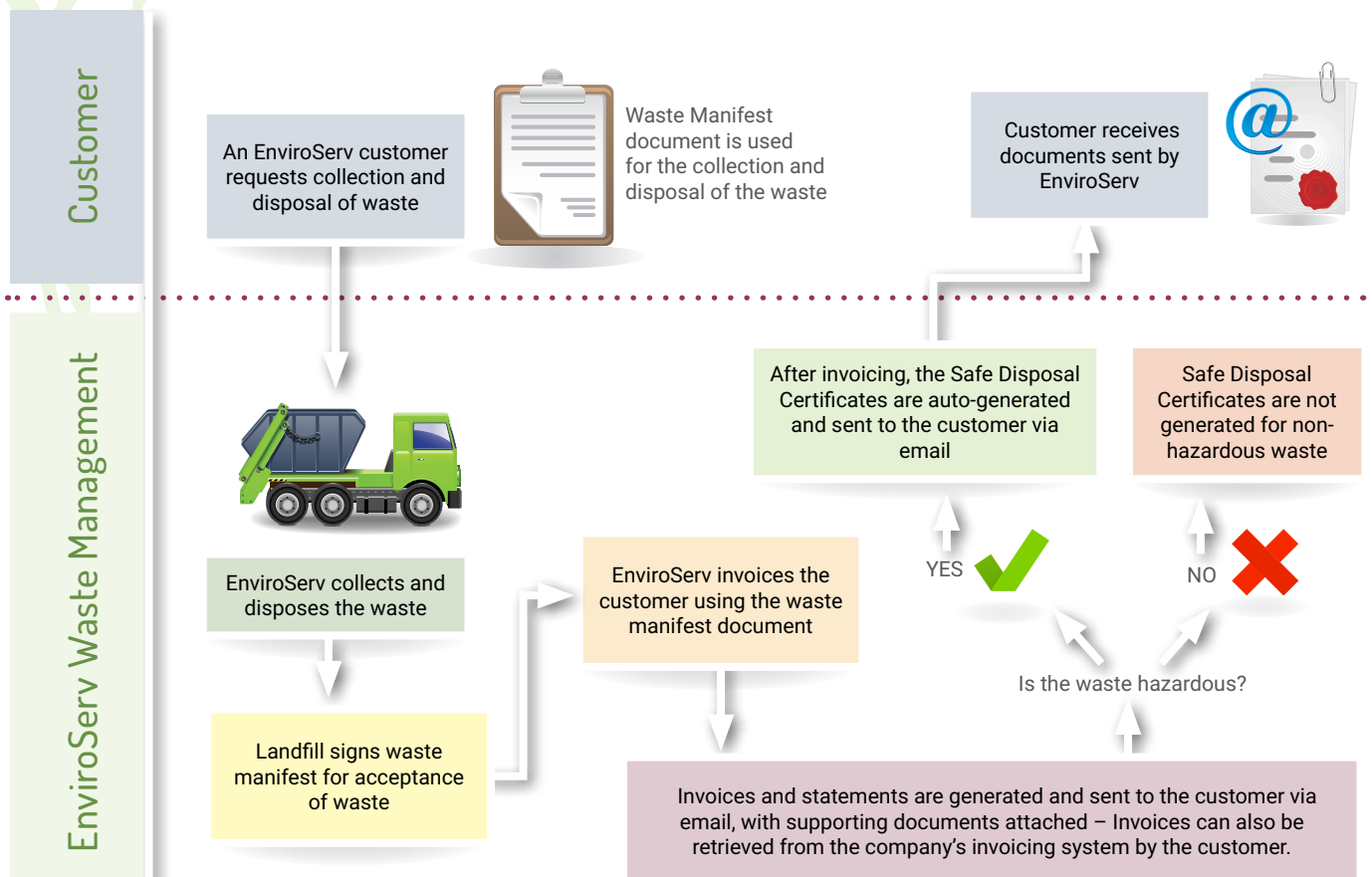
Who issues a Safe Disposal Certificate?

A waste manager treating and disposing the waste shall issue the waste generator with a Safe Disposal Certificate after the disposal of such waste.

Are Safe Disposal Certificates issued for both hazardous and non-hazardous waste?

Safe disposal certificates are issued for waste classified as hazardous waste. Non-hazardous waste are not issued with Safe Disposal Certificates.

EnviroServ's Safe Disposal Certificate process



MINIMISING WASTE TO LANDFILL

FLUORESCENT TUBE RECYCLING

EnviroServ Waste Management Ltd is committed to diversifying its service offering and to providing customers with suitable solutions for their specific waste concerns. To this end, the company partners with suitably qualified and registered experts in order to offer affordable and convenient waste management solutions into the market. This collaboration is in support of the government's strategy to divert waste from landfill. The government's strategy includes waste minimisation, and recovery of resources.

EnviroServ ensures that lighting waste is recycled. The venture aims to ensure that customers move up the waste hierarchy through innovative recycling solutions. To ensure that lighting waste is not disposed of at a landfill, EnviroServ provides its customers with lamp boxes and/or bins which are emptied regularly. When the box and/or bin is full, a client simply calls EnviroServ, EnviroServ then collects the box from the premises and if so required, delivers another one. Fluorescent tubes, compact fluorescent lamps and other energy efficient lighting such as linear fluorescent and high intensity discharge lamps contain mercury, and thus need to be handled and recycled according to legislative requirement. It is estimated that a single fluorescent tube has enough mercury to contaminate as much as 30,000 litres of water, and water is a scarce resource.

Trust EnviroServ for an ideal environmental solution for your waste including lamps.



BENEFITS

- EnviroServ offers integrated waste management solutions, thus allowing a customer peace of mind of dealing with one service provider.
- Cost-effective solutions which comes with an established waste management partner.
- A safe, cost-effective, convenient and efficient lamp solution thus reducing health and safety risks at customers' facilities.
- EnviroServ is compliant to the strictest legislation, thus a customer can rest assured that their waste is handled correctly.

ATTRIBUTES

- Minimising of waste to landfill through fluorescent tube recycling.
- Specially designed fluorescent tube boxes and plastic bags for the temporary storage of spent lamps.
- Peace of mind and a guarantee that all hazardous lamps are handled, transported and recycled correctly.



MINIMISING WASTE TO LANDFILL

COMPOSTING

AN IDEAL ALTERNATIVE TO LANDFILL DISPOSAL

EnviroServ fully supports the drive towards sustainable waste management and the waste hierarchy. To this end, the company has invested in various alternative waste treatments. Composting is one such alternative which EnviroServ offers to numerous customers. It is the perfect environmentally friendly alternative to reduce the volume of waste disposed to landfill. We are fully aware that the pressure to find alternatives to landfill and to minimise waste going into a landfill is a priority for both EnviroServ and its customers. EnviroServ has taken the initiative to compost certain waste streams currently going into landfills. Compost is sold directly to end-users or to other compost companies for further processing.



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ATTRIBUTES

EnviroServ produces high quality compost using suitable organic waste materials and by-products such as animal remains, abattoir waste, eggshells, and fruit pulp, etc. For bulking agents, EnviroServ uses kraal manure, chicken litter and wood chips to ensure that there are enough organic materials high in nutrients like calcium, sulphur, magnesium, iron and zinc to replenish the soil.

In addition, EnviroServ offers on site solutions for customers in the form of the Mobile Composting Unit (MCU), which is designed to manage compostable organic waste materials in an environmentally friendly manner. It is targeted at commercial and industrial organic waste such as canteen food waste, kitchen food wastes, garden wastes, etc. The MCU will compost the waste material while cleaning the air using a bio-filter to prevent unpleasant odours. This makes the MCU a sustainable environmental solution because of landfill avoidance. The MCU is suitable for sites that have less than 10 tons per day of general waste in order to compost their waste without any waste license. The volume of each unit is approximately 5m³, and it is expected that there would be a maximum of 2–3 of these units on-site, therefore, a total of around 10–15m³ will be available per two-week cycle.



COMPOSTING

BENEFITS

- Composting helps us to give back to nature what we take from her. The macro and micronutrients introduced back into the soils via compost reduces the need for chemical fertilizers and chemical pesticides and helps to keep our soils healthy and sustainable.
- Composting positively contributes to the environment by reducing the volume of waste destined for landfill.
- It helps reduce Green House Gas emissions when organic waste is landfilled, thereby positively reducing climate change.
- By making compost out of waste materials and by-products, EnviroServ ensures that customers are aligned with the "Waste Hierarchy" principle and therefore with the future of waste management.
- An affordable solution which leaves customers feeling empowered knowing what happens to their waste.



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HEALTH CARE RISK WASTE MANAGEMENT

ATTRIBUTES

Treatment and destruction of health care risk waste/medical waste.



BENEFITS

- With over 35 years of experience EnviroServ has an ability to handle anatomical and pharmaceutical waste.
- Peace of mind through documented legal compliance. The company uses a barcoded scanning of waste system and is thus able to provide a customer with answers for the cradle to grave questions.
- Minimising waste to landfill.
- EnviroServ adheres to the latest legislation, ensuring peace of mind.



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WASTE RECYCLING AND ON-SITE WASTE MANAGEMENT



ON-SITE WASTE MANAGEMENT

EnviroServ's integrated waste management approach and the on-site waste management services will provide all the support a customer needs to introduce waste recycling at a factory, office building, shopping mall, hospital or any other facility.

On-site waste management can be offered alone as a service, but is preferably one element of an integrated waste management plan in which the full spectrum of a customer's waste needs are assessed, understood and taken care of. Waste minimisation through reduction, re-use and recycling generally forms part of any On-Site Waste Management Service.

EnviroServ's teams of expertly trained staff are based at customers' premises to recover recyclable products such as plastic, paper, glass and cans. This service provides customers with the peace of mind, that through one service provider, they are legally compliant and meet the needs of the relevant safety, health and

environmental authorities, while effectively managing all waste generated from their sites. By performing this separation at source, EnviroServ is able to maximise the recyclable volumes and minimise waste sent to landfill.

This programme offers a solution that is both cost effective (as income is generated from the recyclables recovered), and provides customers with detailed reports that enable them to track and report on the volume of waste that is recycled.



ON-SITE WASTE MANAGEMENT

ATTRIBUTES

- Professional, trained teams dedicated to overseeing the entire waste management programme.
- Full ownership of the waste management programme.
- Provision of staff and equipment to ensure correct handling (packaging, sorting, bailing, labelling, loading), storage and transportation of waste streams.
- Appropriate staff complement and equipment to achieve cost effective solutions.
- If required, static compactors and bailing machines can be installed.
- Flexibility to manage changing waste volumes.
- Waste minimisation through reduction, separation, re-use and recycling.
- Accurate record keeping and reporting.

BENEFITS

- Peace of mind through compliance with all relevant legislation.
- Safety, Health, Environmental and Quality standards are met.
- One service provider on site dealing with and made accountable for all waste streams.
- One invoice per month.
- Encourages an integrated approach to waste management.
- Promotes waste minimisation through reduction, re-use and recycling.
- Training and awareness programs for staff at all levels.
- Reduced waste management programme cost through income from recyclables.
- Benefitting from EnviroServ's total recycling volumes to maximise on trading rates for your recyclable material.
- Reduces pilferage and associated security risks.
- Staff are specifically trained in the safe handling of a wide range of waste materials.
- Accurate document control and tracking.
- Monthly sustainability and waste volume reports.
- Cost effective solutions for handling, storage, transport, treatment and disposal for waste.
- Reducing waste to landfill volumes with the ultimate goal of Zero waste to landfill.



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WASTE RECYCLING AND ON-SITE WASTE MANAGEMENT

RECYCLABLE WASTE STREAMS

EnviroServ supports the government's vision of minimising the amount of waste sent to landfills. As a result, the company offers integrated waste management solutions. True integrated waste management is a process whereby waste streams are identified, classified and managed according to the best practical environmental option. A waste management plan is developed and followed to ensure that opportunities to move up the waste hierarchy are met through minimisation, re-use and recycling of waste, with disposal remaining only as a last resort.

Recyclable waste streams refer to those waste streams which can be retrieved and reused. These include but are not limited to:

- Paper
- Plastic
- Glass
- Wood
- Metals
- Food
- Textiles
- eWaste
- Fluorescent tubes
- Batteries
- Oil
- Solvents

ATTRIBUTES

Commercial waste consists of dry compactable waste, some of which can be recycled, wet and non-recyclable waste such as food and food packaging. EnviroServ has a variety of solutions that cater for small waste producers such as offices, shops and restaurants, as well as for large producers such as hotels, office blocks, shopping malls, warehouses and distribution centres.

ENVIROSERV OFFERS

- Customised service solutions to match a customer's unique requirements
- A range of efficient compaction systems to match a customer's needs, for example, mobile, static or portable compaction units
- A versatile range of containers. Ranging from small office recycling bins to 240 litre wheelie-bins or larger 6m³ containers for bulk storage and transportation.
- Fully outsourced waste management through the on-site management service. This includes detailed waste planning, operations, record keeping and auditing of waste and control.
- Recycling through the company's on-site management service
- Flexibility of service:
 - Call for service
 - Regular service
 - Daily
 - Weekly
 - Monthly
 - Service on public holidays.



RECYCLABLE WASTE STREAMS

BENEFITS

- Customised service offering and a cost effective service
- Efficient compaction systems resulting in cost effective storage and transport
- Versatility and flexibility with excellent demand management
- Income from recycling which helps subsidise the On-site service as well as reduce disposal cost due to less waste to dispose
- On-site management improves control and reduces theft and pilferaging
- Lids make the bins hygienic and prevent mess, odours and pests
- Waste is correctly dealt with at fully permitted and professionally managed waste treatment and disposal facilities
- Containers and bins can be rented or purchased outright and are available in a selection of colours for separation of waste at source.



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WASTE RECYCLING AND ON-SITE WASTE MANAGEMENT



WASTE SEPARATION AND MINIMISATION

At EnviroServ, we value the necessity for moving up the waste hierarchy as the new era of responsible waste management alternatives. Effective on-site waste management services can benefit clients across all industries.

A successful recycling operation requires good, clean, uniform collections of segregated waste types. This is most effectively achieved by separating the waste streams close to source, for example, on the factory floor, rather than at a waste treatment facility.

Waste Separation

EnviroServ encourages even the smallest waste generator to implement a waste separation programme. The most cost effective separations occur at source.

For example, scrap of one type produced at a point in a factory should immediately be collected into a dedicated container and not mixed with other waste types. This simplifies the effort to achieve sale-able recyclables. Waste streams that have been separated can be dealt with more effectively, i.e. re-used, sold to be recycled; or as a last option, sent for responsible disposal.



WASTE SEPARATION AND MINIMISATION

Waste Minimisation

Waste avoidance and waste reduction can be achieved through improved education and training - by improving efficiencies and by making staff environmentally aware. Separating waste at source allows the producer to accurately monitor all their waste streams thereby providing visibility into their waste generation. From this, the producer is able to fine tune their processes and procedures in order to minimise the volume of waste being produced.

EnviroServ Onsite Waste Management team assists in incentivising and training staff through a number of means. An example is competitions between teams or against past performance which turn an otherwise mundane issue into a fun challenge.

ATTRIBUTES

- Provides a holistic approach to your waste management process.
- Assessing your facilities, make recommendations and implement agreed policies.
- Provides staff and equipment to ensure correct handling (packing, labeling, loading), storage and transportation of waste streams.
- Provides staff to oversee the entire waste management process on-site.

BENEFITS

Value of recyclables

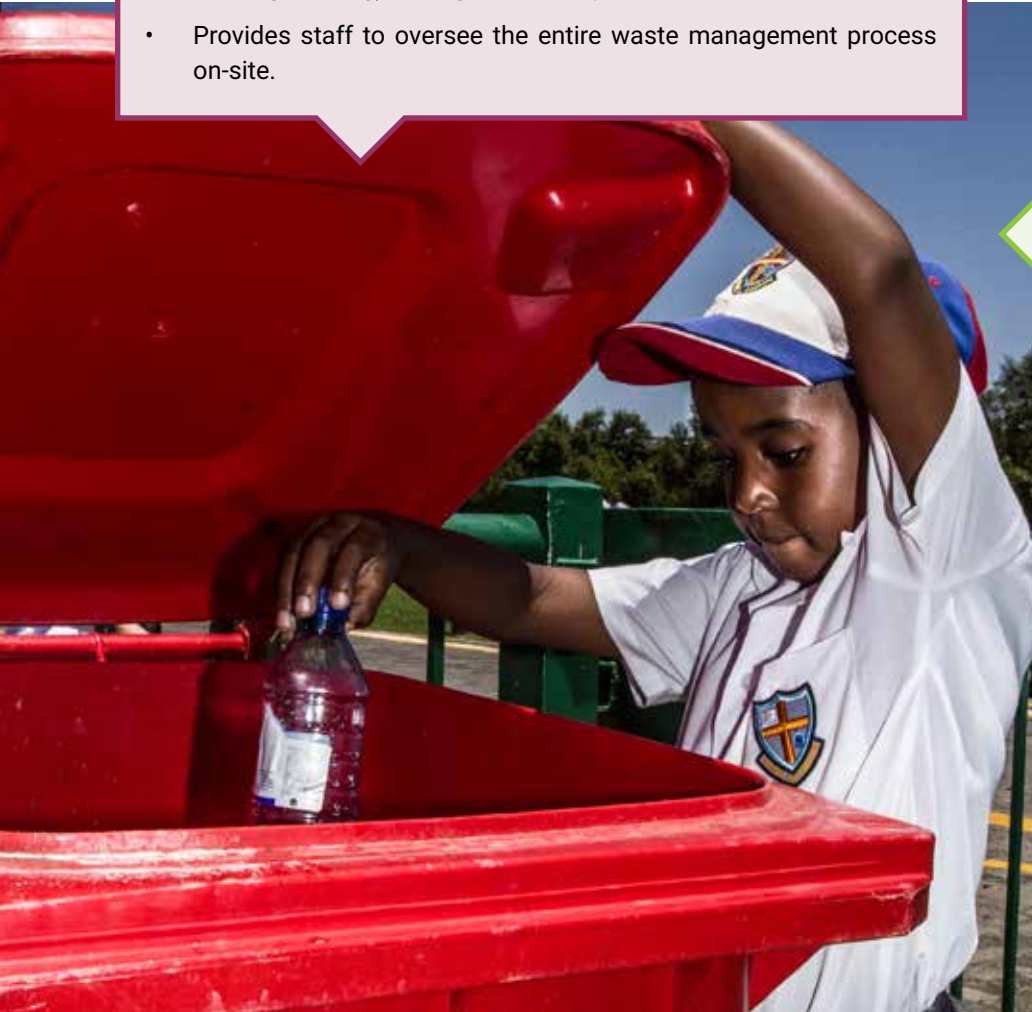
The financial incentives for waste recycling might be perceived as relatively small to the waste producer, but EnviroServ has noticed that whenever it introduces a waste recycling programme through its on-site waste management service, there is an overall significant reduction in the cost of the waste management services.

Job creation

EnviroServ waste recycling operations through the on-site waste management service has created a number of jobs as well as offered skills training for the site supervisors. Additionally, work and income are created for entrepreneurs who trade in recyclables. The majority of these much needed jobs are created in the area surrounding the waste producer.

Environmentally responsible

The primary motivation for recycling still needs to be that it is the right thing to do for our environment, for our children and more importantly, for future generations. Many resources are scarce or difficult to renew, for example trees for paper pulp. Recycling is one way to preserve resources and to protect the environment.



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WASTE MANAGEMENT

WASTE RECYCLING AND ON-SITE WASTE MANAGEMENT

SCHOOLS RECYCLING PROGRAMME

For over 35 years, EnviroServ has displayed a commitment to educating communities and corporates about responsible waste management, and how to best care for the environment through using legally compliant waste management providers.

With our over 35 years experience in the waste management, EnviroServ continues to be a pioneer within the industry. The company is the first waste management company to develop the unique schools recycling programme which is dedicated to enhancing recycling awareness at schools. The programme targets schools and is fast gaining popularity.

ATTRIBUTES

EnviroServ commits to collecting the waste materials and to recycle the materials and as a last option, dispose of any waste materials in a responsible manner and within legislative requirements. Furthermore, EnviroServ is able to offer a school cost effective total waste management solutions including hazardous waste management such as fluorescent tubes and laboratory waste. The key to the success of the programme is ongoing operational, marketing and training support.

AIMS AND OBJECTIVES

- To promote recycling within the schools, homes and communities.
- To engage schools and communities in activities which will highlight and popularise recycling, waste minimisation and alternatives to traditional disposal methods.
- Support the communities to participate in the programme
- To reduce the amount of litter
- To reduce the amount of waste to landfills
- To create generations of environmentally conscious citizens.



SCHOOLS RECYCLING PROGRAMME

BENEFITS

- On-site recommendation
- An efficient recycling system and programme pack
- Training and awareness is provided either on-site or with DVDs, posters and hand-outs
- Free collection services
- Monthly recyclable volume reports
- A fun way to educate future generations on the importance of environmental care and to protect the environment
- Notification of rewards, competitions etc.
- Additional services – general waste management, fluorescent tube boxes and spill kits
- Ability to service and supply staff for sport and fun days as well as any other school events
- Interaction with students and teachers at assemblies or any other forum the school chooses.



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WASTE RECYCLING AND ON-SITE WASTE MANAGEMENT

EVENTS CLEANING

EnviroServ is a trusted waste management partner to help green any event which a customer might be hosting. For a number of years, the company has provided resources to ensure that the bulk of the waste generated at customers' events is recycled. A customer can enjoy the days' proceedings, knowing full well that EnviroServ will ensure that the venue looks spotless at all times.



BENEFITS

- A clean and healthy environment during the event
- Peace of mind through On-site management service supervising a well trained and friendly team
- Flexible operations to manage changing demands
- Employment and empowerment of local community members
- Reduction of waste sent to landfill through recycling
- Responsible disposal to a compliant landfill site and
- Accurate records and reporting.

ATTRIBUTES

EnviroServ's events cleaning service is based on the same principle as our On-site waste management offering, where a detailed waste plan is drawn up to cater for the expected volumes of waste generated. What peace of mind! EnviroServ supports worldwide endeavours to reduce the amount of waste going to landfill.

From the prestigious Nedbank Golf Challenge, to the world's biggest ultra marathon—the Comrades marathon, to the JP Morgan race, the Duzi Canoe Marathon and more recently, the South African Schools Rowing Championships, EnviroServ has offered its integrated waste minimisation programme.

The waste plan needs to consider the following:

- Strategic placement of collection containers throughout the area and concentrated placements around high generation areas, for example food stalls
- Staff and logistics to empty full containers or assemble full containers at bulk transfer areas
- Accessibility and routing for mobile compactor vehicles
- Separation of recyclables and recycling logistics and
- Availability of a reputable landfill for disposal of non-recyclable waste streams.

WE OFFER

- Waste assessment and draft of a detailed waste plan
- Strategic placement of appropriate waste collection containers, for example, wheelie-bins throughout and bulk storage bins or compactors at centralised points
- Colour coded bins for waste separation and recycling
- On-site supervision
- Training and employment of local community members
- 24 hour cleaning and emptying for the duration of the event
- Clean-up of the area post-event
- Record keeping and reporting.





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CONTAMINATED LAND AND WASTE STOCKPILE MANAGEMENT

EnviroServ is aware of and is closely following the impact of the full implementation of Part 8 of the National Environmental Management: Waste Act, (no. 59 of 2008) on our customers. In this context, the company has a SANAS 17025 accredited laboratory available to assist our customers in the sampling and analysis of waste stockpiles as well as contaminated land.

ATTRIBUTES

Based on the data obtained from a preliminary assessment of waste stockpiles or contaminated land, EnviroServ's team of dedicated specialists can assist with the implementation of various solutions such as:

- Evaluation of the flagged waste stockpiles for potential recovery and/or reuse of valuable raw materials
- Assess whether treatment and disposal of the waste stockpile and/or contaminated land in situ is a viable option based on legal as well as cost constraints.



BENEFITS

- EnviroServ provides a cost effective removal and disposal option to a suitable landfill when other waste management options are either not feasible or cost effective
- EnviroServ supports a holistic approach to waste management that critically looks at the well-known waste hierarchical approach but balances this against alternatives that are cost effective and legally compliant
- The company allows customers an opportunity to choose the most suitable solution for their specific needs.



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WASTE MANAGEMENT

HAZARDOUS WASTE SERVICES

HAZMAT SERVICES

EnviroServ's Hazardous Waste Services includes both Hazmat services and Industrial Cleaning. There is often a crosslink of services as well as the sharing of skilled resources. Working with hazardous materials requires specialist knowledge and training due to the harsh and dangerous environments that need to be managed. Our team of Hazmat professionals is equipped to manage:

- Hazardous Incident Management for key account clients or as per agreement between two parties.
- Asbestos stripping.
- Obsolete/hazardous chemical containment and disposal.
- Plant demolition and decommissioning.

Any waste which requires disposal as part of the hazmat activities conducted is assessed and classified according to the current waste regulations. EnviroServ has its own accredited laboratory which performs the necessary chemical analysis that for part of the assessment and classification process. This has the added advantage of being able to provide a more cost effective classification service to customers as well as ensuring quick turnaround times. Before any waste is disposed of, it is assessed to see if any or all of the material can be recovered, recycled or re-used. This may entail the extraction of waste oils, solvent recovery and similar opportunities either conducted by EnviroServ itself or through compliant service providers. Full traceability is provided to ensure that a customer has peace of mind that all waste is being treated and/or disposed of using compliant operators.

INDUSTRIES SERVICED

- Construction and cement manufacture
- Food and beverage
- Manufacturing
- Mining, metallurgy and metals
- Oil and gas
- Petrochemical
- Ports and harbours
- Port, railway and aviation authorities
- Pulp and paper

ATTRIBUTES

EnviroServ's Hazmat team conducts full site assessment before any work is done. This is in order to ascertain the risks pertaining to the work; as well as what work methods and personal protective equipment are required. Risk assessments are conducted ahead of any work done with Health and Safety Plans compiled for any complex work.

BENEFITS

- Trained team of experts
- Peace of mind that your waste is handled appropriately
- Cost effective solution as all resources are drawn from EnviroServ's pool of resources and expertise.



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WASTE MANAGEMENT

HAZARDOUS WASTE SERVICES

INCIDENT MANAGEMENT

EnviroServ has been successfully handling chemical emergencies and pollution related incidents for our key account customers for many years. Chemical emergencies and pollution related incidents occur as minor industrial spills to major calamities such as industrial fires, spillages during shutdowns and breaches of storage vessels and dams. The company provides these services against pre-arranged contracts where required by our customers. The effective and safe management of these emergencies require highly specialised skills, resources and abilities. EnviroServ offers comprehensive, peace-of-mind solutions for both emergency management and environmental protection across sub-Saharan Africa.

Containment phase

The Containment phase is the most dangerous and critical of the incident management phases for hazardous material/waste emergencies. It is during this phase that the life and property threat is at its highest. The speed and efficiency of the containment measures taken in this phase determine the extent of the clean-up and long-term remediation demands. A weak response during the containment phase translates to a larger and protracted life and property threat, a larger component of environment exposed and more clean-up and long term remediation to be effected; and consequently a larger demand on resources and considerably higher cost.

Civil emergency services are responsible for the containment and threat neutralisation of chemical emergencies. EnviroServ's Hazmat team offers resources and support to emergency services during this critical phase of emergency management.



ATTRIBUTES

A 24-hour reactive support service is offered for emergency clean-ups, hazardous material spillage containment and on-site surface and soil remediation. EnviroServ's technicians have the expertise and skills to do high-risk work associated with the cleaning of premises and the management of waste after industrial fires, especially where hazardous chemicals were involved.

The safe resolutions of these emergencies require three distinct phases, Containment, Clean-up and Long Term Remediation.



INCIDENT MANAGEMENT

Cleanup phase

The clean-up phase is in essence gross product removal from the exposed areas. During this phase the threat to life and property should be greatly reduced, provided product removal is done speedily.

Clean-up procedures may include vacuuming or pumping of loose products, repacking of compromised vessels, manual collection of contaminated materials, product skimming from water bodies, utilisation of earthmoving plant to collect contaminated soil, or large vacuum or pump plant to move sludge and liquids. Activities can include supplementary containment, gross in-situ chemical treatment before collection, demolition and in-situ decontamination.

The transport of product and contaminated materials is effected by means of vacuum tankers, tippers, skip-loaders and conventional bulk material transport.

EnviroServ offers:

- Detailed assessment of the risks around all operations with hazardous materials.
- Implementation of plans including the instalment of first line response equipment.
- Site Service Contracts customised to a customer's requirements.
- Stand by service at agreed levels.
- Protective equipment inventory.
- Decontamination systems.
- On-site industrial cleaning services.
- Product containment equipment and absorbent materials such as plugs, patches, booms and dykes.
- Over-packing of compromised vessels/drums.
- Product collection and skimming.
- In-situ bioremediation when hydrocarbons are involved.
- Product transfer (tanker off-loading).
- In-situ chemical treatment and/or neutralisation.
- High pressure washing of contaminated surfaces.
- Bulk material handling, i.e. collection, on-site storage and transport of bulk solid and liquid volumes.
- Safety stand-by operations.

BENEFITS

- The staff is highly trained in Hazchem: Confined Space Entry and firefighting procedures to ensure compliance to legal requirements.
- Clear understanding of the risks associated with specific hazardous materials.
- Careful contingency planning for each identified risk.
- Trained staff acting promptly with the correct equipment can contain an incident and significantly minimize cost and environmental impact.
- Peace of mind through understanding and careful risk management.
- Clear established service level agreements for stand-by services.
- Clear established service level agreements for response services.
- The above services are offered "cradle-to-grave", i.e. EnviroServ will perform all activities associated with the product's life cycle from the moment of taking responsibility for a spill clean-up onwards. Responsibilities include collection, transport and safe disposal.



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HAZARDOUS WASTE SERVICES

ASBESTOS STRIPPING

EnviroServ was the first company in Africa to achieve EU accreditation as an Expert Supervisor for Asbestos Removal in 2003 and is qualified to do work for international clients. The health effects of asbestos have been well documented and most of EnviroServ's clients have gone through the process of removing asbestos from their sites or have active management plans in place. EnviroServ's technicians are trained in asbestos removal and have the necessary authorisations in place to do asbestos abatement work. A customer with an asbestos issue can engage with the Hazardous Waste Services team to see how best this can be managed.

The danger of exposure to asbestos fibres is well known. All asbestos materials have to be removed and safely disposed and EnviroServ has the expertise. In terms of the South African law, companies handling asbestos on a regular basis have to be accredited as asbestos contractors by the Department of Labour. EnviroServ has received the necessary authorisation. Before responding to an asbestos clean-up or stripping, a procedure of how the task will be completed has to be submitted to the Department of Labour for approval. The rationale is to ensure safe working practices with regards to the workers on site and preventing asbestos fibres from escaping into the environment.

ATTRIBUTES

- Ability to deliver services outside of South African border.
- Ability to commence work immediately through hastened approval of work plan by the department of labour.
- Stripping of loose/free asbestos i.e. the raw/unprocessed product.
- Stripping of solid/binded asbestos i.e. processed such as that found in facia boards, paneling, ceiling boards etc.
- Stripping of boiler cladding.
- Advisory services on the preparation of tenders for the removal of asbestos from premises.
- Advisory services to ensure legal compliance.

BENEFITS

- Ability to deliver this service throughout Africa. Rapid deployment.
- Start to finish clean-up service.
- In-depth understanding of procedures and requirements at the department of labour.
- No risk / exposure to the client's premises or staff due to expert operational procedures.
- Peace of mind through expertise, specialist knowledge, experience and practices.
- Compliance with local department of labour regulations.
- Observance of international best-practices and standards (European DTA certification).





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HAZARDOUS WASTE SERVICES

HAZARDOUS STORAGE/ OBSOLETE STOCKPILES

EnviroServ is fully equipped to handle hazardous waste. EnviroServ will ensure that work is done in a safe and effective manner. The Hazardous Waste Services team is trained to deal with these types of environments. Should the warehouse contain unknown chemicals and/or products that have become unsafe, EnviroServ will do the required assessments and sampling that would then allow for safe disposal of any of these materials. Overdrums can be provided to contain any leaking or unsafe drums.

Repackaging

For many reasons, containers can be compromised. Physical puncturing could happen through force in a road accident or factory incident. Some hazardous materials are corrosive. Old steel drums will rust through. EnviroServ offers a variety of suitable containers for the re-containerisation of hazardous materials.

Overdrums were introduced as a quick and effective solution to various high-risk situations posed by hazardous chemical substances. These specialised containers may be used to:

- Safely contain leaking drums whilst limiting handling of the drums.
- Re-package corroded and/or extensively damaged drums preventing leakage during transport.

BENEFITS

- Peace of mind for a customer.
- Minimising the risk to a customer's staff or facilities.
- Technical expertise in dealing with the threat of exposed hazardous materials.
- Legally compliant containerisation, treatment and disposal of hazardous materials.

ATTRIBUTES

Recovery and repackaging of hazardous materials including:

- Entry into hazardous atmospheres.
- Specialised products for containment and recovery.
- Transfer to safe packaging for either disposal or recycling.
- Supply of unique repackaging materials such as salvage / over-drums, intermediate bulk containers, salvage bags and waste containers for liquid and solid materials.
- Service provided under negative and positive pressure atmospheres.
- Provision of quality personal protection equipment such as basic dust and nuisance protection to level A gas tight and self-supplied air units.
- Safe disposal of expired and discarded product.



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HAZARDOUS WASTE SERVICES

PLANT DEMOLITION AND DECOMMISSIONING

When EnviroServ's customers decommission old plants or are in the process of renovating, often an industrial cleaning service is required to clean surfaces of the dirt, grime and/or hazardous chemicals that have built up over time. Where demolition is required as part of the process, EnviroServ co-ordinates activities around the demolition required and seamlessly collaborates with the other contractors who may be involved.

When the demolition or decommissioning involves old chemical and manufacturing plants, the material which needs to be removed is often contaminated with hazardous materials. The use of skilled Hazmat technicians to plan and complete the work is essential due to the hazards and safety risks involved. Ahead of any work being done, a customer or potential customer can make contact with EnviroServ's specialists who will work with the customer to plan the operation, identify the risks involved and provide a competitive quote to do the work.

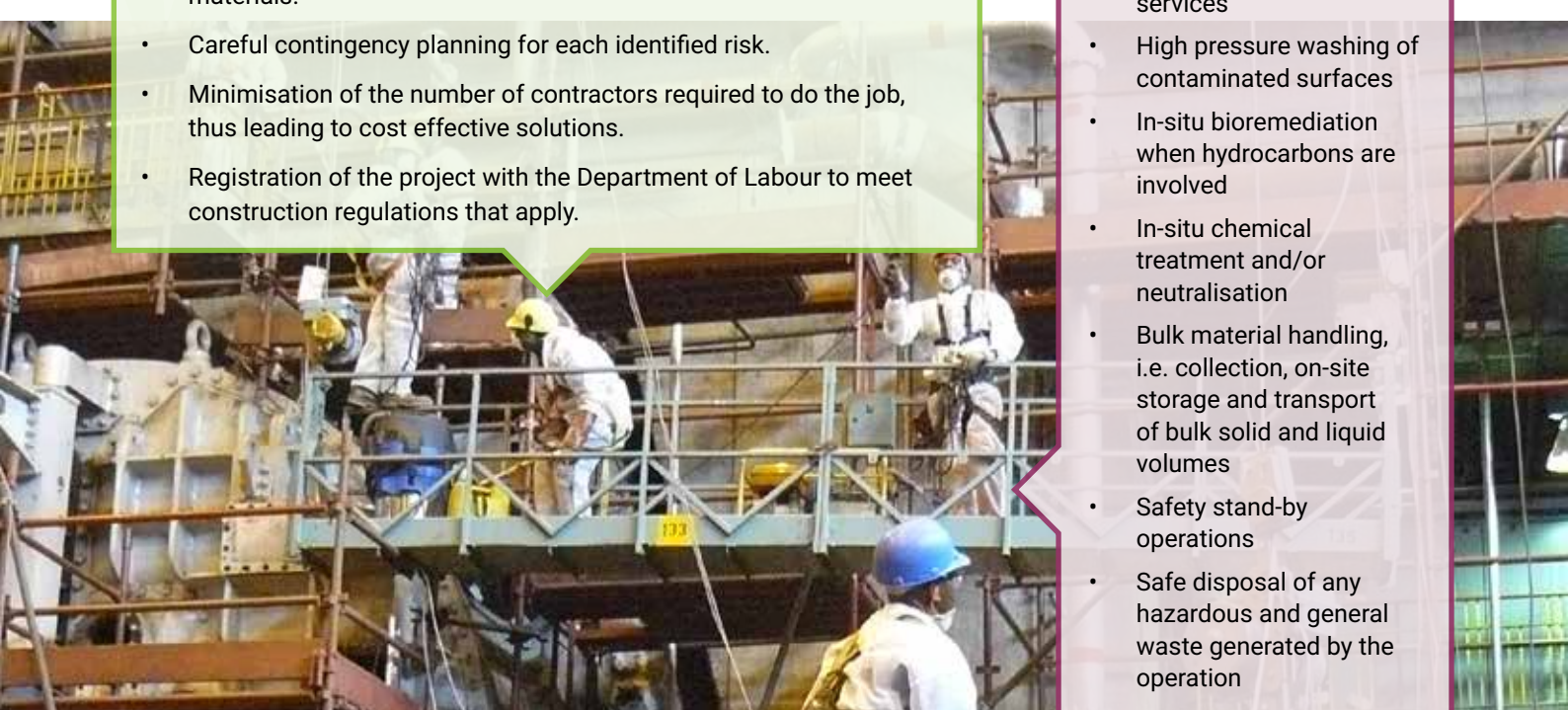
BENEFITS

- Safe handling and disposal of any hazardous and general waste generated by the operation.
- EnviroServ's team is highly trained in Hazchem: Confined Space Entry and firefighting procedures to ensure compliance to legal requirements.
- Clear understanding of the risks associated with specific hazardous materials.
- Careful contingency planning for each identified risk.
- Minimisation of the number of contractors required to do the job, thus leading to cost effective solutions.
- Registration of the project with the Department of Labour to meet construction regulations that apply.

ATTRIBUTES

EnviroServ offers:

- Detailed assessment of the risks pertaining to the work required
- Outsourcing and/or working with demolition experts
- Asbestos stripping
- Scrap metal removal
- Decontamination systems
- Product containment equipment and absorbent materials such as plugs, patches, booms and dykes
- Over-packing of compromised vessels/ drums
- Industrial cleaning services
- High pressure washing of contaminated surfaces
- In-situ bioremediation when hydrocarbons are involved
- In-situ chemical treatment and/or neutralisation
- Bulk material handling, i.e. collection, on-site storage and transport of bulk solid and liquid volumes
- Safety stand-by operations
- Safe disposal of any hazardous and general waste generated by the operation





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WASTE MANAGEMENT

HAZARDOUS WASTE SERVICES

ABSORBENT SPILL CONTROL PRODUCTS

EnviroServ services a number of industries; these industries work with an array of products and materials, some of them prone to spillages. With leaks and spills of hazardous materials, the containment phase is the most critical of the incident management phase. It is during this phase that the life and property threat are at their highest; and if not well handled can become dangerous.

The speed and efficiency of the containment measures taken in this phase determine the extent of the clean-up and long-term site remediation demands. Improper response at the containment phase often translates into a larger and protracted life and property threat, a larger component of environment exposed and more clean-up and long-term site remediation to be effected. This results in a greater demand on resources and considerably higher cost. Having a supply of appropriate containment material on-site, such as those supplied by EnviroServ and knowing how to use them appropriately is vital to every business where hazardous materials are handled.

ATTRIBUTES

- EnviroServ provides a range of absorbent products for safe spill management.
- EnviroServ offers customised and site specific spill kit bins and bags.
- EnviroServ offers training for proper application and usage of products.
- On-site assessments.

BENEFITS

- Professional advice on risk management.
- Containment plan for spill incidents.
- Supply quality products and ensure cost effective restocking of consumables.
- Customised options to match customers' requirements.
- A reputable support service for clean-up phase and for larger incidents.



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HAZARDOUS WASTE SERVICES

INDUSTRIAL CLEANING SERVICES

This specialised business unit of EnviroServ provides industrial cleaning services to both large and small clients. Whether you need a sump de-sludged or a permanent on-site industrial cleaning service, EnviroServ is up to the task. Safety and environmental peace of mind are primary. Our staff has undergone intensive training; with our technicians qualified in closed tank entry, fire-fighting and first aid. Where we do specialised work on the customers' site, we actively engage with the customer to ensure that a comprehensive Health and Safety Plan including risk assessments for all proposed activities are compiled and signed off before any work commences. Where work is required as part of a planned shutdown or maintenance cycle, we ensure that all activities are aligned to the clients timing requirements and co-ordinated with other contractors which may be conducting work in the same area.

ATTRIBUTES

Some of the specialist work we do at our larger clients includes tank de-sludging and cleaning, cleaning of contaminated surfaces and gullies, as well as cleaning of equipment. These services may relate to crude oil tanks, chemical tanks, sumps through to the cleaning of ships, rigs and vessels that have been brought to port for maintenance before being put out again to work.



INDUSTRIES SERVICED

- Construction and cement manufacture
- Food and beverage
- Manufacturing
- Mining, metallurgy and metals
- Oil and Gas
- Petrochemical
- Ports and Harbours
- Port, railway, and aviation authorities
- Pulp and paper



INDUSTRIAL CLEANING SERVICES

ATTRIBUTES

- Tank cleaning and preparation for statutory inspection and maintenance.
- Vacuuming and transfer of liquids either for disposal or to the clients effluent treatment plant.
- Sump cleaning and desludging of washbays.
- Removal of sludge and liquids from dams.
- De-sludge and cleaning of sewers, trenches, pits and separators.
- De-sludge and cleaning of any process equipment.
- Various high pressure cleaning applications related to the cleaning of surfaces.
- Draining and emptying of silos, driers, absorbers and other vessels.
- Slops removal from ships and oil rigs.
- Ship/oil rig cleaning as part of maintenance activities or to prepare the ship to take on new cargo.
- Reactor catalyst unloading/vacuuming.

BENEFITS

Disposal of Waste Residues:

Any wastes that require disposal as part of the industrial cleaning activities will be assessed and classified according to the current waste regulations. We have our own accredited laboratory which performs the necessary chemical analysis that form part of the assessment and classification process. This has the added advantage of being able to provide a more cost effective classification service to our clients and well as ensuring quick turnaround times. Before any waste is disposed of, it is assessed to see if any or all of the material can be recovered, recycled or re-used. This may entail the extraction of waste oils, solvent recovery and similar opportunities either conducted by EnviroServ itself or through compliant service providers. Full traceability is provided to ensure that you have peace of mind that all waste is being treated and/or disposed of using compliant operators.

- Able to provide a more cost effective classification of waste service to clients with quick turnaround times.
- Quick reaction times and reduced logistics costs.
- Ability to deliver services outside of South African borders.
- Experienced at providing sustained service delivery and ongoing operational support.
- We facilitate the required documentation for cross border movements of wastes limiting the administrative burden on the client.
- With over 35 years experience, our staff are well trained and experienced and we have a track record of projects successfully concluded over many years.
- Occupational Health and Safety standards are upheld when executing work.
- Responsibility for completing the work stays under one umbrella resulting in cradle to grave integrated waste management at the most competitive rates.
- Expert and focused attention to Industrial Waste Cleaning and Hazmat Services.
- Experienced advisors with a consultative approach to selling for customer centric solutions.
- EnviroServ operates in a number of industries and can thus offer Industry-relevant customised solutions.
- We provide peace of mind that the customer's cradle-to-grave environmental responsibilities are in the best possible hands with the necessary paperwork provided on invoicing for record keeping purposes.



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HAZARDOUS WASTE SERVICES

TANK CLEANING

Tank Cleaning forms part of our Industrial Cleaning Services portfolio. This type of work is highly specialised and requires skilled staff often working in confined spaces. A significant amount of tank cleaning work originates from the petrochemical industry, fuel storage depots, as well as the broader community of chemical processing industries. Projects range from the cleaning of fixed or floating roof tanks bulk crude oil storage tanks to chemical tanks and reaction vessels. Tank cleaning projects often coincide with, and are critical to, statutory inspection and maintenance of storage tanks, or during shut downs/turnarounds. Projects of this kind are typically done on a planned basis with significant up-front planning and coordination with the client and other maintenance service providers. Work is also done in reaction to unplanned breakdown emergencies when a blockage or sudden tank failure interrupts production. During such events, quick response times and a short delivery time are essential.

SERVICES OFFERED

- Tank/vessel entry
- Confined space entry
- Use of breathing apparatus
- Gas testing
- Venting
- Safety standby and rescue
- Sludge removal
- Catalyst removal
- Removal of wash water
- Removal of maintenance waste
- Transportation and disposal of waste
- Standalone portable vacuum pumps
- Mobile vacuum trucks
- Portable sludge pumps
- Bulk road tanker trucks
- Portable sludge tanks
- Manned dozer for mechanized cleaning
- Track-mounted sludge pump for remote controlled cleaning
- Supply of personal protective equipment
- Hazardous material decontamination of personnel and equipment
- High pressure washing/ water jetting



TANK CLEANING

ATTRIBUTES

The scope of tank cleaning typically involves de-sludging, flushing and HP cleaning of a tank's internal surfaces in preparation for NDT inspection and weld repairs. A turnkey solution to tank cleaning involves tank entry followed by removal, transportation and safe disposal of waste including tank sludge, waste-water and maintenance waste generated throughout the project.

Various methods of tank cleaning range from manual labour to methods supported by the use of standalone vacuum pumps, vacuum trucks, pumps and mini-dozers. Skilful operation and use of these methods are essential for safe and effective execution of a tank cleaning project. Cost efficiency and timeline efficiency is achieved through the use of bulk logistics for the transportation of waste sludge. The design of our customized fleet of fit for purpose road tankers comprise of hydraulic opening back-ends for quick tipping and disposal of sludges. Our tankers can be pumped or vacuumed into and can carry a payload capacity of up to 30m³. Our mobile vacuum trucks (Super Suckers) are also available in payload capacities ranging from 10m³ to 20m³.

In addition to the cleaning of tanks containing liquids and sludges, we are also able to clean vessels of other kinds effectively. Our vacuum units have been used to clean out driers, absorbers, reactor vessels and packed columns and to remove spent catalyst and other solid materials.

Improper cleaning of a tank could delay the entire project timeline for tank maintenance, or interfere with accurate results from NDT inspection. More seriously, failing to remove all significant residues from a tank could have potentially fatal consequences during subsequent hot work such as grinding, cutting and welding.

Safe execution of tank cleaning work requires strict compliance to safety regulations governing confined space entry and the handling of hazardous substances. Compliance to these regulations depends on the level of training, discipline and supervision of the personnel involved and is enabled through the provision of suitable personal protective equipment. Confined space entry involves many critical sub-tasks such as venting, gas testing, supply and use of breathing apparatus, safety standby and rescue procedures. Our experience in the South African and southern African regions revealed that customers have varying levels of involvement in these activities and we have collaborated effectively with all of the downstream oil and gas market players in the region. Compliance with customer-specific site regulations is as important as compliance with legal requirements. Contractor files and safety files are prepared in accordance with relevant legislation and the customer's health and safety specification.

BENEFITS

- Peace of mind that work is being conducted by competent people with minimum delays.
- Ability to deliver services outside of South African borders.
- EnviroServ can provide many of the ancillary services around tank cleaning like industrial vacuuming and disposal of waste residues.
- EnviroServ has the ability to choose and apply the right equipment suited to each type of job.
- In most instances we will already have extensive experience relating to the work required and can advise the client on the best approach to follow.
- Our specialist can quote on what work will be required to complete the work required including all safety and occupational health requirements.
- We have extensive experience meeting SHEQ requirements including that of the many multinationals we serve, with Safety and Health plans prepared ahead of any complex work being done.



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HAZARDOUS WASTE SERVICES

INDUSTRIAL VACUUMING

Industrial Vacuuming relates to the large scale removal of waste sludges and liquids that is then either transferred to another area for further processing or that requires disposal. These liquids and sludges may be present in a washbay sump, tanks, bund areas, dams or ponds. Many of these vessels silt up over time and require desludging. Using our fleet of vacuum units and pumps, EnviroServ can quickly service customers by removing the sludge and /or liquids so that the vessel can be put back into use. The company's suite of industrial vacuuming equipment enables us to tackle jobs both big and small in a cost effective manner.

Often Industrial Vacuuming does not take place as a standalone activity and may be required to deal with waste

residues generated by activities such as:

- Tank cleaning and de-sludging
- High pressure cleaning
- Cleaning of bunds, channels and gullies
- Remediation of dams and ponds including the removal and disposal of dam liners (if required)
- Treatment and disposal of wastes to compliant landfill

As EnviroServ provides a broad spectrum of waste management services, it is able to quote on the full scope of work required, reducing the number of service providers required to complete the work.



INDUSTRIAL VACUUMING

ATTRIBUTES

EnviroServ's SuperSucker units comprise:

- 30kl, 20kl, and 10kl mobile units (The vacuum unit and the storage tanker is on the same vehicle).
- Static vacuum units that are placed at site. These units then supply either Roll on / Roll Off (RoRo) 10kl tanks placed alongside, or directly to vehicle tankers.
- A variety of pumps can be used as an alternative to vacuum units allowing for a reduction in costs.

BENEFITS

- Peace of mind that work is being conducted by competent people with minimum delays.
- Ability to deliver services outside of the South African borders.
- EnviroServ can provide many of the ancillary services around tank cleaning like industrial vacuuming and disposal of waste residues.
- EnviroServ has the ability to choose and apply the right equipment suited to each type of job.
- In most instances we will already have extensive experience relating to the work required and can advise the client on the best approach to follow.
- Our specialist can quote on what work will be required to complete the work required including all safety and occupational health requirements.
- We have extensive experience meeting SHEQ requirements including that of the many multinationals we serve, with Safety and Health plans prepared ahead of any complex work being done.



ENVIROSERV

WASTE MANAGEMENT



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HAZARDOUS WASTE SERVICES

REMEDIATION OF DAMS AND PONDS

With a full basket of waste management solutions, EnviroServ ensures that customers across all industries have peace of mind. The company has the specialised skills required to remediate dams and ponds. Dams and ponds (lagoons) have a limited lifespan or may become compromised and leak or may need to be emptied so that their liners can be replaced. Where dams are used to store brines, salts tend to crystallise out over time to a point where the dam needs to be emptied. Some clients may have historical dams that are unlined and against current environmental standards pose a liability to the environment and the whole site has to be remediated.

EnviroServ has extensive experience in emptying and cleaning dams and ponds; whether the contents are liquid or sludge, as well as whether the liner system needs to be removed or not. These types of systems typically require:

- Skilled labour with the correct PPE to support the operational activities especially where the material to be removed is chemically hazardous.
- Industrial vacuum units like SuperSuckers and pumps to vacuum the material from the site.
- Storage tanks like 10kl Roll On/Roll Off (RoRo) tanks or road tankers for temporary storage ahead of removal from site.
- Decontamination units, if required, to remove hazardous residues from vehicles and equipment to prevent further contamination downstream of operations.
- Excavators, front end loaders, as required to excavate more solid material that cannot be vacuumed.
- Additional logistical requirements like skip trucks, tipper trucks and container bins that may be required to support the project.
- This just demonstrates that any size of project can be tackled, and the appropriate equipment and logistics will be supplied accordingly.



REMEDIATION OF DAMS AND PONDS

ATTRIBUTES

Due to their hazardous nature, some projects may need to have biological and environmental monitoring protocols in place for the duration of the project. Environmental monitoring relates to the measurement of airborne contaminants and/or odours around the operational site to ensure that they do not exceed certain levels. Biological monitoring normally entails monitoring operational staff through medical testing to ensure that any exposure to contaminants is kept at a safe level. EnviroServ will help evaluate if and what protocols will be required.

As these projects tend to be large scale and are done in mitigation of environmental liability, EnviroServ will keep rigorous documentation including a daily site diary of site activities that took place, waste manifest/disposal certificates proving proof of disposal, payment certificates; PPE registers as well as the results of any environmental and biological monitoring that may have been required. If a customer requires, we can take photographs daily of the site operations as part of the record keeping process.

As EnviroServ provides an integrated waste management solution, it is able to quote on the full scope of work required reducing the number of service providers required to complete the work.

BENEFITS

- Peace of mind that work is being conducted by competent people with minimum delays.
- Ability to deliver services outside of South African borders.
- EnviroServ can provide many of the ancillary services around tank cleaning like industrial vacuuming and disposal of waste residues.
- EnviroServ has the ability to choose and apply the right equipment suited to each type of job.
- In most instances we will already have extensive experience relating to the work required and can advise the client on the best approach to follow.
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HAZARDOUS WASTE SERVICES

HARBOUR AND VESSEL CLEANING SERVICES

EnviroServ offers holistic waste management services. Upstream activities in the oil and gas industry require cleaning of drill rigs and supply ships at port (quayside), often in between lease periods. High pressure water jetting is an important component of the work to remove rust, scale and deposits that have accumulated on surfaces so that the vessel can be handed over to the new tenant in a clean condition.

ATTRIBUTES

EnviroServ provides a comprehensive range of ship tank cleaning services for the following waste types:

- **Waste from shipping, including Quayside Maintenance:**
 - ♦ Spent oil and lubricants
 - ♦ Paint, solvents and waste detergents
 - ♦ Waste from ship maintenance activities
 - ♦ Galley waste
 - ♦ Sweepings from hatches and engine rooms
 - ♦ Slops from holds and tanks
 - ♦ Spilt cargo
 - ♦ Ballast water
 - ♦ General domestic waste
 - ♦ Health Care Risk Waste (HCRW)/medical waste
 - ♦ Spent batteries
- **Waste from the Dry and Floating Docks:**
 - ♦ Paint and shot grit
 - ♦ Waste metal and wood
 - ♦ Oil contaminated mechanical parts
- **Waste from Terminal Operators and Tenants:**
 - ♦ Spilt and waste cargo
 - ♦ Lading storage tanks

As EnviroServ provides a broad spectrum of waste management services it is able to quote on the full scope of work required reducing the number of service providers require to complete the work.

BENEFITS

- Peace of mind that work is being conducted by competent people with minimum delays.
- Ability to deliver services outside of South African borders.
- EnviroServ can provide many of the ancillary services around tank cleaning like industrial vacuuming and disposal of waste residues.
- EnviroServ has the ability to choose and apply the right equipment suited to each type of job.
- In most instances we will already have extensive experience relating to the work required and can advise the client on the best approach to follow.
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HAZARDOUS WASTE SERVICES



ENVIROSERV

WASTE MANAGEMENT

HIGH PRESSURE CLEANING

High Pressure (HP) cleaning is considered a high-risk activity and is often a source of serious incidents in the industrial environment. It takes highly skilled and disciplined staff to complete work without incident, especially when work is done in confined spaces and/or in elevated positions. EnviroServ strives to deliver cleaned process equipment back into operation in as short a time as possible, but does not compromise on safety or quality to do so.

ATTRIBUTES

With equipment capable of various pressures and applications, EnviroServ's HP capability covers a wide range of Industrial Waste Cleaning solutions, including:

- Drain and pipeline cleaning.
- Unblocking of sewers or underground piping.
- Washing of internal and external surfaces of process equipment.
- Degreasing of workshop/washbay floors.
- Surface preparation of tank internal shell, floor and roof.
- Preparatory cleaning of weld seams and other areas for NDT and statutory inspections.
- Non-destructive washing of coated surfaces.
- Cold cutting and abrasive water jetting.
- Descaling of tube bundles (internal lancing and external jetting).
- Cleaning of road surfaces to remove deposits and spillages.
- Washing of ship vessels, compartments and drill rigs.

UNDERGROUND STORAGE TANKS (USTS)

Storage tanks of fuels like petrol and diesel often fail over time. EnviroServ has been involved with the removal and recycling of these USTs for over ten years.

ATTRIBUTES

- Abrasive water jetting at pressures in excess of 2,000 bar is used for cold cutting of the redundant USTs where typical hot-work methods could have explosive results.
- Cut pieces are surface cleaned and taken into the scrap metal industry for recycling.



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HIGH PRESSURE CLEANING

BENEFITS

- Waste water generated during HP operations is typically collected and pumped or vacuumed and disposed of safely as an integrated part of the operation.
- Peace of mind that work is being conducted by competent people with minimum delays.
- Ability to deliver services outside of South African borders.
- EnviroServ can provide many of the ancillary services around tank cleaning like industrial vacuuming and disposal of waste residues.
- EnviroServ has the ability to choose and apply the right equipment suited to each type of job.
- In most instances we will already have extensive experience relating to the work required and can advise the client on the best approach to follow.
- Our specialist can quote on what work will be required to complete the work required including all safety and occupational health requirements.
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ENVIROSERV

WASTE MANAGEMENT



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WASTE MANAGEMENT

MUNICIPAL WASTE SERVICES

Established over 35 years ago, EnviroServ is widely regarded as Sub-Saharan Africa's leading and most innovative waste management company. The company partners with local municipalities to offer cost-effective Municipal Services such as town and city refuse collection.

As an organisation, EnviroServ is totally committed to the preservation of the environment and all refuse collected is managed in the most environmentally friendly manner. The company's waste management solutions and facilities are in accordance to legislative standards.

ATTRIBUTES

Total or partial town cleaning, operation and management of:

- Door-to-Door Collections
- Events Cleaning
- Illegal Dumping Clean-ups
- Landfill Management, i.e. planning, design, operation, closure and post closure of landfills
- Litter Picking
- Specialised Waste Collection Vehicles
- Street Sweeping
- Transfer Station Management



BENEFITS

Door-to-door collections, events cleaning, illegal dumping clean-ups, litter picking and street sweeping

- Eliminates capital outlay to local authorities.
- Site restored to a clean healthy environment.
- Roads and sites maintained as part of a clean healthy environment.
- Clean healthy environment during the event.
- Operations carried out by a trained and professional team.
- Responsible disposal to a permitted landfill site.
- Transparent invoicing through accurate records and reporting.
- Flexibility to manage demand for service.
- Peace of mind through on-site management service.
- Minimising of waste to landfill through recycling.



MUNICIPAL WASTE SERVICES

BENEFITS

Specialised Waste Collection Vehicles

- Compacting waste at the point of generation.
- Reducing transport costs and increasing cost efficiencies.
- Selection of container sizes to suit client needs.
- Strategic placement of containers – to suit client needs.
- Facilitates frequent services on pre-arranged days.
- Customisation of containers such as lids, locks etc.

Landfill Management

- Access to expertise in planning, design, operation, closure and post closure of landfills.
- Access to monitoring of incoming waste streams placement and compaction of waste and installation of environmental monitoring and control measures.
- Access to technical expertise required to comply with the environmental and legislative requirements of waste treatment and disposal.
- Overall efficiency in terms of equipment and human resources.
- No capitalisation of plant – all plant is supplied as part of the contract.
- Minimum downtime through plant breakdowns because of planned maintenance programs.
- Access to expertise in accurate waste information and data capturing.
- Empowerment and skill development of local community members through employment.

Transfer Stations

- Cost effective solution for customers generating waste far from a permitted waste treatment and disposal facility.
- Cost effective solution for handling, storage, transport, treatment and where necessary and as a last resort, disposal of waste of a wide range of waste materials.
- No capital expenditure on equipment or waste treatment and disposal facility.
- No long term liability or associated costs of a waste treatment and disposal facility.
- Environmentally acceptable method of temporary storage of waste.
- Facilitates compaction to reduce waste volume.
- Facilitates bulk transportation of waste.
- Facilitates recycling opportunities, including empowerment and employment through small business development.
- Community friendly waste management system.
- Peace of mind through compliance with legislation, and compliance with Safety, Health, Environmental and Quality standards.
- Reduces pilferage and associated risks.
- Reduces wind-scatter.
- Staff is specifically trained in the safe handling of a wide range of waste materials.



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ENVIROSERV

WASTE MANAGEMENT

WASTE TREATMENT AND DISPOSAL

Legislation is urging both waste producers and waste management companies to divert waste from landfills. EnviroServ fully supports this call, and to this end the company offers all customers alternatives to landfilling before deciding on disposal as a solution. Environmental legislation has numerous implications on both the public and private sector, including financial. EnviroServ is a valuable partner in helping customers to ensure cost-effective and safe treatment and disposal of waste.

BENEFITS

- EnviroServ has invested in a centralised SANAS accredited laboratory equipped with highly sophisticated instruments for the rapid analysis and classification of wastes. Such analysis and waste classification then dictates the method of treatment and the requisite procedure for safe, environmentally acceptable disposal of the waste to landfill. Every precaution is taken to ensure the protection of human health and safety of the environment.
- The company is a reliable partner for hazardous waste disposal. We continuously invest in ensuring that our hazardous waste sites remain abreast of the latest developments in waste disposal technology.
- We offer acceptable methods of treatment of waste streams which are toxic and not readily biodegradable.
- EnviroServ offers peace of mind through the provision of maximum protection and containment of hazardous waste.
- We issue safe disposal certificates.

ATTRIBUTES

South Africa has an excellent reputation for environmental awareness, with our now defunct Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste (2nd ed. 1998) being among the most advanced in the world at the time of their publication. These have subsequently been replaced by a more advanced system, the Waste Management Regulations published under the auspices of the National Environmental Management: Waste Act (no. 59 of 2008). In this context, EnviroServ currently owns and operates a number of technologically advanced landfill disposal sites, including the Class A Holfontein site; the largest of its kind in southern Africa. All EnviroServ's Class A facilities are designed by top civil engineers to handle all types of liquid and solid waste and are managed in accordance with legislation.

EnviroServ's Treatment and Disposal Solutions manages most types of hazardous and industrial waste that require specialised treatment and processing before disposal at a suitable landfill site. All such hazardous wastes, characterised by their flammability, corrosivity, toxicity and/or reactivity, must, by law, be analysed prior to treatment and disposal at a permitted landfill.



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WASTE TREATMENT AND DISPOSAL

LANDFILL MANAGEMENT

With a history of responsibly managing a number of waste treatment and disposal facilities both in South Africa and outside of the country, EnviroServ remains best suited to manage landfill in a manner that protects the environment and customers' reputations through responsible waste management.

The company continues to comply with legislation governing the waste management industry, and these facilities offering our customers peace of mind. Worldwide, there are calls for waste management service providers' strategies to include plans for alternatives to waste disposal at a landfill. EnviroServ supports these calls and offers a number of other service offerings as can be seen in their service offering package.

Landfill management refers to the processes involved in the planning, design, operation, closure and post closure of landfill sites otherwise known as waste treatment and disposal facilities. It further includes the monitoring of incoming waste streams, placement and compaction of waste, environmental monitoring and continuous control measures.

Landfill managers worldwide are feeling the impact of new and more stringent environmental legislation. As new information comes to the fore, legislation governing the waste management industry changes and the industry has to adapt. EnviroServ will continue to offer this peace of mind adhering to these legislative changes by adopting their business model.

EnviroServ is a strategic partner to provide cost effective and safe waste disposal for customers. The company presently owns and manages seven hazardous and non hazardous landfill facilities. These includes the class H:H Holfontein

site, the largest of its kind in southern Africa:

- **South Africa**
 - Holfontein in Mpumalanga
 - Chlookop in Gauteng
 - Shongweni in KwaZulu Natal
 - Vissershok in the Western Cape (joint venture)
 - Aloes in the Eastern Cape
- **Mozambique**
 - Mavoco landfill
- **Uganda**
 - Nyamasoga landfill

The sites are technologically advanced All the hazardous facilities are designed by top civil engineers to ensure that they can handle all types of liquid and solid waste and are managed according to accepted legislative standards, relevant to the country they are based in.



LANDFILL MANAGEMENT

BENEFITS

- EnviroServ's technologically advanced waste treatment and disposal facilities meet the strictest standards for safe and environmentally responsible waste management.
- The company has an excellent reputation for environmental responsibility. The company has played a pivotal role in raising the standard of landfill management on the African continent.
- Reduction of environmental risk posed by the disposed waste.
- Site Analysis is done regularly by experts, including engineers, scientists and other industry specialists and takes into account the ground profile of soil structures from geotechnical investigations, groundwater regime from geo-hydrological investigations and modelling, surface water from hydrological studies and nature of waste from waste classification.
- All new cells at EnviroServ's waste treatment and disposal facilities (landfills) comply with the double composite liner philosophy. A composite liner is the combination of a flexible plastic High Density Polyethylene (HDPE) membrane liner and a natural Compacted Clay Liner (CCL).
- The same principles and standards will be applied to any landfill site developed by EnviroServ.
- EnviroServ will be responsible for the rehabilitation and post closure monitoring of a landfill site.
- EnviroServ's objective is to provide a facility that will comply with all these standards. This is further facilitated by partnering with a professional who has the technical know-how and expertise in this fields where required. The end result is the disposal of hazardous and non hazardous waste in a **cost effective**, responsible and environmentally sustainable manner.

ATTRIBUTES

- EnviroServ is integral in the planning, designing and building of waste treatment and disposal facilities to handle all waste streams
- Identification and monitoring of waste streams and control measures
- Appropriate processing of Hazardous Waste
- Closure and rehabilitation of landfills also known as waste treatment and disposal facilities.



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CASE STUDY



ENVIROSERV

WASTE MANAGEMENT

MINIMISING WASTE TO LANDFILL

CREATING HEALTHY ANIMAL FEED FROM WASTE BY-PRODUCTS

INTRODUCTION

For the past 16 years, EnviroServ has been successfully diverting SAB by-products, consisting of wet spent brewer's grain, wet spent brewer's yeast and malt dust, away from landfill by supplying it to local farmers who use these products to feed their dairy cows and heifers. These by-products are high in protein which makes a balanced and nutritional feed for these animals.

THE SERVICE

Currently, there are two tanks on site at SAB (20,000L and 10,000L), which are filled on a daily basis with spent yeast. EnviroServ collect these loads on night shift in order to accommodate SAB's production run and transport the required volumes of spent yeast to the farmers. As each farmer requires different volumes, the spent yeast is decanted into the JoJo tanks which the farmers have on site.

Additionally, EnviroServ fills three 15m³ bins from the two grain silos that are on site at SAB. This amounts to 25–27 tons per load daily which is distributed to the farmers based on the volumes they require. All the farms have designated areas where the driver has to off load the spent grain onto the cement slabs provided. The biggest volumes we deliver to one specific farmer can range anything between 150 and 210 tons of grain on a weekly basis.

The rapid removal of these by products are of utmost importance, hence we have to ensure that we remove these products within 24 hours as limited space is an issue as well as the use-able life of the product.



OUTCOMES

One of EnviroServ's customers who has been using the brewer's grain for the past few years states, "The grain and yeast mix balances the ration well with grass, so that we can supplement without losing milk production per cow and therefore, provided the price of grain stays competitive, we can increase our margin per hectare." The brewer's grain has the same protein content as Lucerne, but at a fraction of the price. The grain and yeast mixture added to the fodder increases milk production by up to 15% per cow per day.



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CASE STUDY



ENVIROSERV

WASTE MANAGEMENT

MINIMISING WASTE TO LANDFILL

ENVIROSERV RAISING THE WASTE GAME WITH ARCELORMITTAL'S SALDANHA WORKS

INTRODUCTION

EnviroServ's brand promise is to raise the waste game. We do this by partnering with customers and enabling them to meet their objectives. The company has aligned with ArcelorMittal's "Journey to Zero" commitment believing in zero harm to the environment when it comes to waste management.

THE CHALLENGE

EnviroServ was contracted to take the current operations at ArcelorMittal and ethically reduce the amount of waste generated while ensuring legal compliance. As a fair amount of the waste, by-products and materials that are handled on site have an SG between 1.5 and 3, the possibility of grossly overloading bins to unsafe levels could occur, resulting in vehicle damage or failure.

THE SOLUTION

EnviroServ identified a number of alternative uses for the waste generated by ArcelorMittal that has minimised the waste volumes sent to landfill. Coal dust, DRI, Coke Fines and Conarc dust are compressed into briquettes/pellets which can be used for fuel and kindling. Wood pallets, wood boxes, planks, wood sides and beams are sold in accordance with the Saldanha Works requirements and stockpiles of wood are then chipped for further uses including cover for landfill or possible composting.

EnviroServ has optimised the waste storage solution so that it adheres to safety regulations and compliance. To manage the risk of overloading the bins and reducing the chance of equipment failure, EnviroServ manufactured smaller 4m³ bins whereby, even with the heaviest materials that are handled on site, overloading has virtually been stopped. There is also a need for smaller bins in areas where space is limited, and these bins are used there to good effect. To be able to manage chemical waste in drums and IBC containers and Kay-wool waste, EnviroServ has converted 15m³ skip compactor bins to be able to handle these waste types, destined for Vissershok, in the safest and most effective way. The company also assists in storage of these waste types in the Central Sorting yard.

In addition to the above, EnviroServ treats small volumes of chemical waste (generated in the laboratory) daily. The solid waste is managed by EnviroServ on a day to day basis.

CONCLUSION

The current EnviroServ Saldanha Works operation is fully compliant and has been awarded a number of certifications, namely ISO 14001 and ISO 18000. Additionally, EnviroServ has put a system in place to satisfy the ArcelorMittal FPS requirements thus further enhancing safety management on the site. EnviroServ's solutions continue to provide peace of mind.



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CASE STUDY

HAZARDOUS WASTE SERVICES

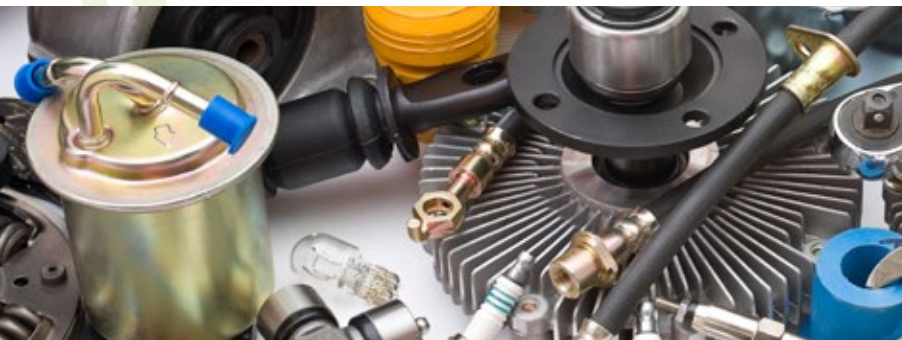
ENVIROSERV IS RAISING THE WASTE GAME WITHIN THE AUTOMOTIVE INDUSTRY

INTRODUCTION

EnviroServ expertly operates in a number of industries, including the Automotive Industry. Within this industry, there is an increasing environmental awareness and a growing need to reduce waste volumes, to recycle and to manage waste responsibly; ensuring that what we do impacts positively on the environment and the people.

THE CHALLENGE

There are calls for the industry to offer cheaper parts. With this, the industry itself is calling on its suppliers including waste management providers to look at cheaper waste management rates. In order to remain competitive, the automotive industry needs to reduce its volumes of waste going to landfill. Like most industries, the automotive industry is also under pressure to support government's calls to reduce waste volumes going to landfill. It has set its own target for achieving zero waste to landfill.



CONCLUSION

EnviroServ has assisted companies of all sizes in the automotive industry to manage their waste effectively for more than three decades. The company understands that there are many social, operational, environmental, and regulatory impediments to an ideal waste management solution.

EnviroServ partners with customers, enabling them to decide on and implement the best waste management solution for their circumstances. The solutions offered are practical, and have no negative impact on the environment. Customers can rest assured, EnviroServ will constantly endeavour for 100% compliance with legislation.

THE SOLUTIONS

In line with these driving targets, EnviroServ has recognised the need for alternatives and has started with a systematic approach to reduce and re-use the waste generated by the industry. A few examples of the solutions we provide our customers are as follows:

- **FORD MOTOR COMPANY:** EnviroServ took over the management and treatment of the oil and water waste from Ford Motor Company, an area that was costing the company in terms of time and resources. EnviroServ diverts almost three times the volumes of liquid Ford Motor Company generates through its treatment plant resulting in eliminating the need to treat their waste on site. Not only is this a great saving for Ford Motor Company, but has radically reduced volumes going to landfill. Ford is indeed well on its way towards achieving "zero waste to landfill".
- **GENERAL MOTORS:** On-site waste management contract for the past 3 years resulting in a reduction of their general waste loads from 527m³ to 31m³ per month. This not only had a huge reduction on disposal cost to landfill, but it has led to a continuous increase on their recyclable volumes.
- **PLASCON AUTOMOTIVE** Current trials are underway for the dewatering of paint sludge which should lead to a 30 to 40% reduction in landfill volumes. This technology involves the aeration of the paint sludge supported on a geotextile membrane. Plascon is happy as this will assist them in their continuous efforts to reduce volumes of waste to landfill as well as reaching their ultimate target of "zero waste to landfill".



CASE STUDY

MINIMISING WASTE TO LANDFILL

COMPOSTING - AN IDEAL ALTERNATIVE TO LANDFILL DISPOSAL

INTRODUCTION

In support of this drive towards sustainable waste management and support of the waste hierarchy, EnviroServ has investigated various alternative waste treatments, one of which is composting. Composting is the perfect environmentally friendly alternative to reduce the volume of waste disposed to landfill. This limits the further generation of leachate in the landfill environment and improves the quality of leachate should it be generated.

THE CHALLENGE

The pressure to find alternatives to landfill and to minimise waste going into a landfill is a priority for both EnviroServ and the industry players. EnviroServ has taken the initiative to compost certain waste streams currently going into landfills.

THE OUTCOME

Composting helps us to give back to nature what we take from her. The macro and micronutrients introduced back into the soils via compost reduces the need for chemical fertilizers and chemical pesticides and helps to keep our soils healthy and sustainable.

Composting positively contributes to the environment by reducing the volume of waste destined for landfill. It helps reduce Green House Gas emissions when organic waste is landfilled, thereby positively reducing climate change. By making compost out of waste materials and by-products, EnviroServ ensures that we align ourselves with the "Waste Hierarchy" principle and therefore with the future of waste management.



ENVIROSERV

WASTE MANAGEMENT

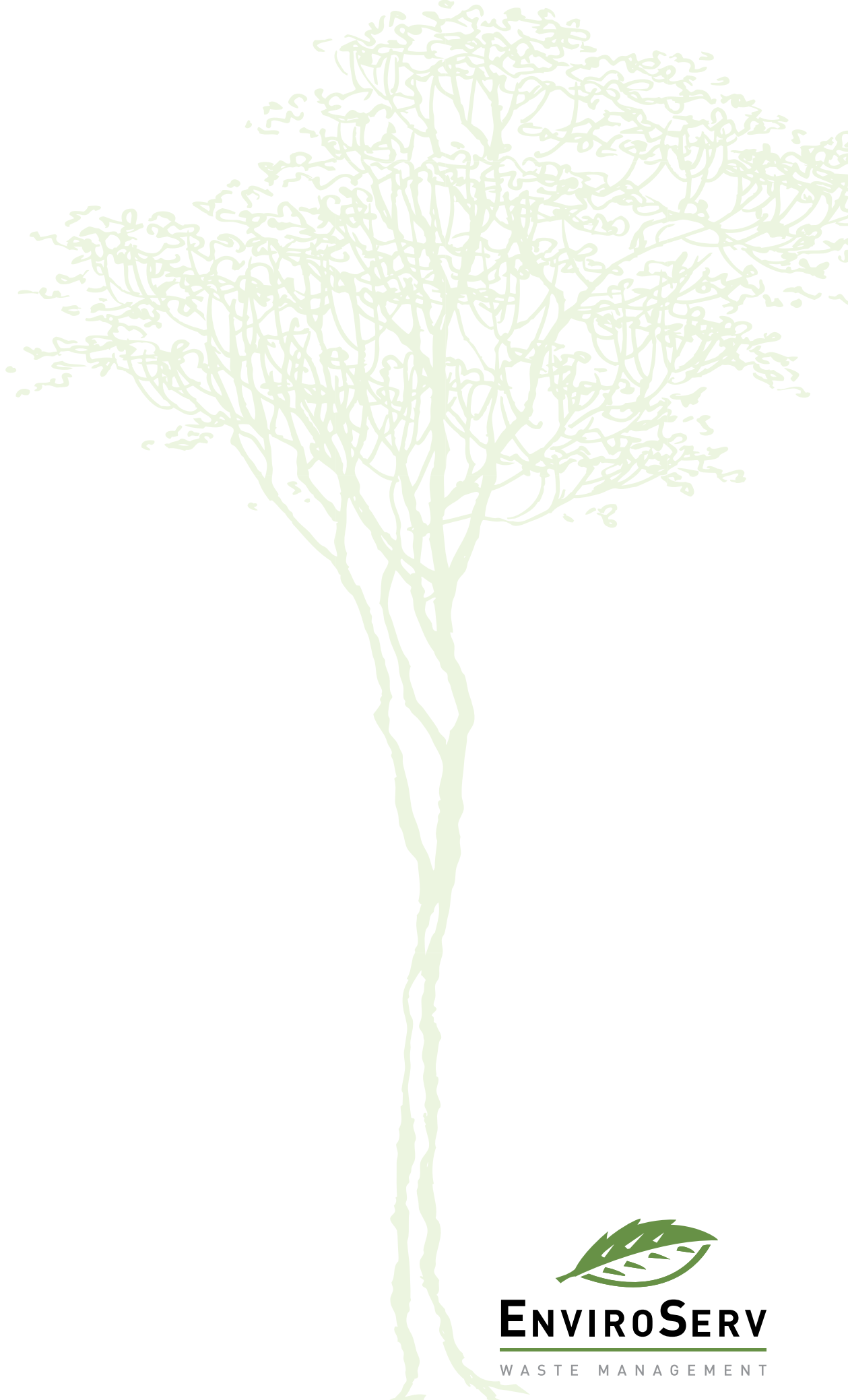
THE SOLUTION

EnviroServ produces high quality compost using suitable organic waste materials and by-products such as animal remains, abattoir waste, eggshells, and fruit pulp, etc. For bulking agents, EnviroServ uses kraal manure, chicken litter and wood chips to ensure that there are enough organic materials high in nutrients like calcium, sulphur, magnesium, iron and zinc to replenish the soil.

EnviroServ further offers on site solutions for clients in the form of the Mobile Composting Unit (MCU), which is designed to manage compostable organic waste materials in an environmentally friendly manner. It is targeted at commercial and industrial organic waste such as canteen food waste, kitchen food wastes, garden wastes, etc. The MCU will compost the waste material while cleaning the air using a bio-filter to prevent unpleasant odours. This makes the MCU a sustainable environmental solution because of landfill avoidance. The MCU is suitable for sites that have less than 10 tons per day of general waste in order to compost their waste without any waste license. The volume of each unit is approximately 5m³, and it is expected that there would be a maximum of 2-3 of these units on-site, therefore, a total of around 10-15m³ will be available per two-week cycle.



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CASE STUDIES

CORPORATE SOCIAL INVESTMENT

EnviroServ has numerous CSI initiatives which have changed the quality of lives for a number of community members both in South Africa and outside the borders of the republic. The company is particularly proud of the following projects:

Responsible Care Initiative of the year Awarded to EnviroServ

On November 5, 2015 at the Johannesburg Country Club, EnviroServ won the 2015 Responsible Care Initiative of the Year Award for its CSI project, Zandi's Angels initiative. When our executive committee was told about an orphanage in dire circumstances, it had no hesitation in buying and renovating as legislated for child care facilities, a house in Boksburg North, Gauteng. Twenty one children now have a place to call home, with each child having a bed of his or her own.

EnviroServ is extremely proud to have received this award as it is testament to the company's ingrained commitment to caring for its communities.



THE INTUTHUKO SEWING PROJECT

This project was started in 2002 with the objective of empowering women in the Daveyton and Etwatwa townships. This project has since developed into a sturdy business employing 30 people. EnviroServ provides the facilities through which women design and execute a wide range of colourful embroideries that are in demand in markets as far afield as Canada and the United States of America. Intuthuko works have won numerous awards.

THE CHRIS DLAMINI DRESS A LEARNER PROGRAMME

This project is a collaborative effort between the community leaders in Daveyton and Etwatwa, the Department of Basic Education, and EnviroServ which kicked off in 2013. This programme encourages youngsters to attend school by supplying them with full school uniforms at the beginning of each



academic year. With government introducing school feeding programmes at disadvantaged schools some years ago, the lack of uniforms has become the primary reason for absenteeism among schoolchildren. EnviroServ is actively addressing this issue.

ALIEN PLANT ERADICATION

At the beginning of 2015, the company started investigating more ways of giving back to the communities around Shongweni, KZN.

After a number of meetings between EnviroServ and the community leaders, issues that were of utmost concern were identified. Around the same time, Mrs Molebogeng "Mo" Mathebula of Tshwaranang Community Projects approached the company requesting funding for projects in Kroonstad in the Free State and KZN. This was a destiny moment to ensure that a partnership for the benefit of identified communities could be forged.

Together we could ensure long term employment to residents, they will help to eliminate from the environment alien plants whose ever increasing encroachment has been causing concern for villagers, government, and corporates alike. 31 community members were identified by community leaders and will be employed on this project.

HYGRO CHICKEN FARMING

We have funded this project since 2009, working closely with the Nel family, which provides South African Qualifications Authority and AgriSeta based skills training, mentoring, and project management capabilities for people from surrounding communities wanting to establish farming businesses. Project beneficiaries learn animal rearing best practice, farm business management, entrepreneurship, and marketing. Through the resultant establishment of successful farm businesses, the project helps create employment. Some 183 people have been awarded accredited certificates as proof of competency.

PLAY MORE – PROGRESS

The Eastern Cape is one of the poorest provinces and its rural schools lack the most basic facilities. In the belief that healthy bodies and healthy minds are closely interlinked and that sport is a powerful incentive for children to attend school and avoid being drawn into gangs, we are closely involved in refurbishing sports grounds, grassing fields, and erecting poles as requested by communities. In 2015, EnviroServ handed over a rugby/soccer field to Vulumzi Secondary School in the Motherwell area.

DONATIONS

We focus our donations on charities that work with the rehabilitation, health, and reform of children. We have made contributions to:

- Nazareth House
- St Mary's Hospital
- Avril Elizabeth Home
- Boys and Girls Town SA
- Salvation Army
- Doctors without Borders
- Wits Foundation – Wits Paediatric Fund
- United Cerebral Palsy Association of South Africa
- Wildlands Conservation Trust



EMPOWERMENT THROUGH EDUCATION

In 2014, we took a decision to focus our CSI efforts in the Western Cape on the development of Vaatjie Moravian Primary school; a school situated on the Old Darling road between Melkbosstrand and Philadelphia. EnviroServ upgraded the kitchen where learners' food is prepared. Our partnership did not stop there though. Due to lack of accommodation at the school, they still had a multi-grade class (two grades, one teacher). Americans raised funds for a mobile classroom. The aim was to split the multi-grade class into mono-grade classes to give really quality education to these learners. The downside was that they needed an educator. According to the school's enrolment of 210 learners and 6 teachers, the school doesn't qualify for another teacher.

A maximum salary of between R8 000.00 and R10 000.00 per month was needed for a teacher in a governing body post. EnviroServ offered to sponsor a teacher. Raydene Poggenpoel was appointed in this position and we are happily paying her salary knowing full well that future generations will continue to benefit. We feel honoured to be able to address some of the serious issues affecting our country.



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CASE STUDY

WASTE TREATMENT AND DISPOSAL

ENVIROSERV IS RAISING THE WASTE GAME AT GAANSBAAI LANDFILL SITE

INTRODUCTION

EnviroServ fully supports calls to look for viable waste management alternatives to traditional landfilling. As a company whose waste management strategy includes diverting waste from landfill, EnviroServ has a number of initiatives which ensure the reuse, recycling and reduction of waste. These options are not always practical, and traditional disposal at a landfill is a better option and complies with legislation.

Customers can rest assured that EnviroServ has expertise in designing, constructing, operating and managing technologically advanced waste treatment and disposal facilities meeting the strictest standards for safe and environmentally responsible waste management. The PPP Contract sees EnviroServ managing the Gaansbaai GSB+ (non hazardous waste) landfill site. In addition, EnviroServ takes the responsibility for the wood chipping from the area, as well as managing the Material Recovery Facility and Drop-Off Facilities on Pearly and Stanford beaches.



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THE CHALLENGE

The operation on the landfill site and facilities not only needed to ensure that the communities were unaffected, but it needed to meet the Minimum Requirements for Landfill Management as described by the South African Department of Water Affairs and Forestry (DWAF) as well as remain compliant to industry standards and regulations.



THE SOLUTION

EnviroServ approached the operation of the Landfill Site, Materials Recovery and Drop Off Facilities holistically, ensuring that the correct staff compliment was in place, the correct equipment was being used and operational plan involved all the engineering practises to create an operation that met stringent compliance. The landfill process involved waste tipping at the working face, waste spreading in layers of 300 - 500mm, shredding and compaction and daily waste covering to reduce wind scatter and promote natural decomposition processes.

In addition to these processes, Gaansbaai landfill required tailor-made solutions to the area's unique needs and requirements. As separate areas for the burial of dead animals is not practical at the site, this waste is rather off-loaded at the toe of the working face in a trench and covered immediately with general waste. The ramp method is implemented on site, where the compactor spreads and compacts the waste at a slope of $\pm 3:1$. As volumes of builders' rubble or cover material are of critical importance on the site, EnviroServ raised the cell height to an average of 1.5 to 2.5m to save volumes needed. The cells have been constructed in such a way as to maximise water run-off.

The Materials Recovery Facility and Drop Off site work in synergy with the Landfill site. Materials are sorted and packaged at the facilities and any item that cannot be recovered or recycled is sent to landfill. These facilities play an important role in reducing volumes of waste sent to landfill. Additionally, chipping for the area is done at the landfill site as well as at the drop-off site where it is used as cover material in conjunction with the available sand.



IN CONCLUSION

Worldwide environmental waste handling and disposal legislation and standards are becoming more stringent. EnviroServ's objective is to provide a facility that will comply with all these standards. Our technical expertise and experience in this field results in the disposal of general waste in a cost effective, responsible and environmentally sustainable manner.



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CASE STUDY

MUNICIPAL WASTE SERVICES

ENVIROSERV IS RAISING THE WASTE GAME IN MUNICIPAL SERVICES

INTRODUCTION

EnviroServ is a company with experts who possess a pioneering spirit. Being one of the first waste management companies to operate in most countries in southern Africa, the company can be trusted to find appropriate waste management solutions that are compliant to legislation.

THE CHALLENGE

There are growing calls for governments to ensure that waste generated in their countries is managed properly, and in a manner that would not impact negatively on humans and the environment. Responsible service providers such as EnviroServ have to come on board, find the necessary expertise and resources to assist. In this instance, EnviroServ had to start operations from scratch.

THE SOLUTIONS

In 2003, EnviroServ started a domestic waste collection service in Luanda, Angola. The company drew expertise and resources from its South African operations. The teams then employed and skilled local community members.

We are able to offer:

- Door to door collections
- Clean ups
- Street cleaning
- Supply of appropriate vehicles
- Empowerment contracts
- Entrepreneur development contacts
- On site waste management and management of landfill sites.

CONCLUSION

EnviroServ has since assisted a number of municipalities with domestic waste service and given job opportunities to thousands of locals. Customers can rest assured, EnviroServ will constantly endeavour for 100% compliance with legislation.



CASE STUDY

WASTE RECYCLING AND ON-SITE WASTE MANAGEMENT

ENVIROSERV SENDS WASTE PACKING IN THE PACKAGING INDUSTRY

INTRODUCTION

Having a zero waste to landfill strategic focus ensures that as a company, you optimise your operations' materials value, minimise your overall environmental footprint, and develop the potential for additional revenue streams from recycled or recovered waste.

Afripack, a leading name in the South African flexible packaging industry, understands this and has partnered with EnviroServ in a quest to reach their zero waste to landfill goals.

THE CHALLENGE

With several tons of recyclable, general and hazardous waste being produced by Afripack on a monthly basis, it was recognised that the revenue generated on recyclables was not covering the company's waste management costs. A need to increase the volume of waste being recycled versus waste sent to landfill was identified.

THE SOLUTIONS

In order to provide the most successful solution, EnviroServ obtained an in-depth understanding of Afripack's operation by studying the monthly average of waste generated, while also spending time on site to assess waste generation points and investigate possible waste reduction measures. EnviroServ's 35 years of industry knowledge and experience enabled the company to source and negotiate recyclable rebates to achieve the maximum benefit to the client based on waste volumes.



THE OUTCOME

Through the implementation of the new system and improved waste storage solutions on site, Afripack saw an immediate increase in recyclables and a reduction in waste sent to landfill. Additionally, Afripack saw an increase in recyclable rebates and revenue compared to landfill costs.



CONCLUSION

There are many benefits of outsourcing waste management from your own premises to EnviroServ, where our 35 years of experience and knowledge coupled with our economies of scale will benefit your bottom line.

We partner with our customers, enabling them to decide on and implement the best waste management solution for their circumstances. These solutions we offer are practical and have no negative impact on the environment. EnviroServ is concerned with customers' reputations and will, through responsible waste management assist them with complying with legislation.



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CASE STUDY



HAZARDOUS WASTE SERVICES

ENVIROSERV PARTNERS WITH PETROSA TO PROTECT THE ENVIRONMENT

INTRODUCTION

EnviroServ's Industrial Cleaning Services provides industrial cleaning services to large, medium sized and smaller customers. When a customer needs a sump desludged, or a permanent on-site industrial cleaning service, this team of experts is up to the task. Safety and environmental peace of mind are primary concern when embarking on any task. The company's specialist work for larger customers includes tank desludging and cleaning, cleaning of contaminated surfaces and gulleys as well as cleaning of equipment. These services may relate to crude oil tanks, chemical tanks, sumps through to the cleaning of ships, rigs and vessels that have been brought to port for maintenance before being put out again to work.

THE CHALLENGE

EnviroServ was tasked with the cleaning of underwater storage tanks on the Petro SA Orca Oil Rig as part of the tank cleaning service which the company offers. This was at the Port of Ngquka in the Eastern Cape region. Petro SA needed a reliable environmentally conscious waste management provider and with its reputation, EnviroServ was trusted with successful completion of the task.



THE SOLUTION

EnviroServ engages representatives from customers in order to offer solutions which are cost effective and environmentally friendly. Once a permit had been obtained from Petro SA; gas tests were conducted and the customer was supplied with a record of all tests in the applicable tanks which were to be worked on. EnviroServ issued all internal EWM permits for all activities during the project, which included vacuuming, pump transfer, confined space entry, working at heights and all set up work. As a specialist within the Hazardous waste services, EnviroServ prevented the possibility of product leaks by placing all hose and sleeve ends in drip trays.

General vacuuming was done in accordance WI-HAZ-NAT-03; and petroleum and hydrocarbons were vacuumed in accordance with WI-HAZ-NAT-06. For waste which had to be disposed, the customer was provided a weigh bridge certificate and a waste disposal manifest as proof of disposal; again, this is what waste legislation requires.



IN CONCLUSION

EnviroServ and Petro SA agreed that the tank was cleaned to the desired level of cleanliness and as a result, a final gas test was conducted and a gas free certificate issued. Again, as a partner in reliable waste management solutions, with an established track record, EnviroServ provided the customer peace of mind knowing that all waste would be handled according to governing legislation.



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CASE STUDY



ENVIROSERV

WASTE MANAGEMENT

MINIMISING WASTE TO LANDFILL

THE BENEFICIAL USAGE OF WASTE WATER SLUDGE IN AGRICULTURE

INTRODUCTION

The benefits of utilising the nutrients in waste water in agriculture have been recognised for well over 100 years. Waste water sludge has been applied to land in the greater Cape Town area for more than 50 years but up until 2002, there were no clear guidelines applicable to the usage of the waste water sludge for agricultural or other purposes. In a joint effort with the City of Cape Town, EnviroServ played a part in the revitalisation of the beneficial use of waste water sludge in agriculture.

THE CHALLENGE

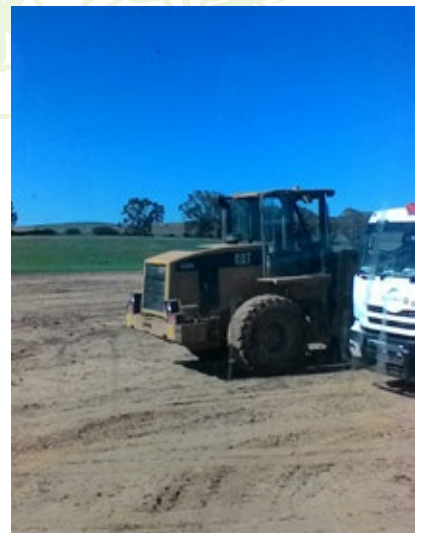
EnviroServ prides itself on its ability to partner with clients to create sustainable waste management solutions that are beneficial to the client as well as the environment. EnviroServ is contracted to the City of Cape Town for the removal and disposal of waste water sludge at the Vissershok Waste Management Facility. In dealings with The City of Cape Town, it was recognised that a means to improve generally poor quality soils in the Cape Town area for agricultural purposes was needed.

THE SOLUTION

Instead of disposing of the waste water sludge, EnviroServ found a beneficial alternative in the form of land application, whereby the sludge is used to improve soil quality. The waste water sludge is collected, transported, stored and then spread at the required rate and finally ploughed into the ground.

There is no doubt that the application of wastewater sludge to agricultural land is of major benefit. Due to the slow release of the nature of the nutrients, especially nitrogen, the potential for groundwater pollution is significantly reduced. In addition, the rate of emission of a nitrous oxide gas (a significant greenhouse effect contributor), is significantly lower than with synthetic fertilizers. There is a significant reduction in the quantity of synthetic fertilizer necessary to produce a reasonable crop.





OUTCOMES

Diverting a very large quantity of wastewater sludge from landfill, the City of Cape Town benefits:

1. It has extended the life of the Vissershok Waste Management Facility by many years.
2. The quantity of leachate produced by the facility will be reduced since less water is being added now that quantity of sludge has been significantly reduced.
3. When the sludge is co-disposed in a waste management facility, a valuable source of nutrients is being lost. With land application, these valuable nutrients are being utilised and assisting in the production of food for an ever-increasing population.

IN CONCLUSION

EnviroServ is very proud to have initiated the beneficial utilisation of waste water sludge by land application in the Western Cape, today, we manage the largest operation of its kind in South Africa. This is in line with the company's policy of developing sustainable waste handling technologies to the benefit of mankind.



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MINIMISING WASTE TO LANDFILL

HEALTH CARE RISK WASTE MANAGEMENT

EnviroServ's incineration business goes as far back as the late eighties. Through our incinerators, EnviroServ is able to offer the medical and related fields peace of mind that their waste is treated and destroyed in accordance to governing legislation. There have been a number of incinerators operated by the company, with the new HOWDEN machine commissioned in 2011. It is located at Roodepoort, Gauteng. EnviroServ does not handle the transportation of HCRW, but our incinerator is open to operators for the destruction of HCRW. The facility operates in accordance with the country's rules governing incinerators and has an Air Emission Licence and a Waste Management Licence.

Health Care Risk Waste (HCRW), also referred to as medical waste, is defined as: waste capable of producing any disease and includes but is not limited to the following:

- (a) Chemical waste;
- (b) Cytotoxic waste;
- (c) Genotoxic waste;
- (d) Infectious waste;
- (e) Isolation waste;
- (f) Laboratory waste;
- (g) Pathological waste;
- (h) Pharmaceutical waste;
- (i) Radioactive waste; and
- (j) Sharps waste.

The above is as defined by DoH (May 2014)

The DEA on the other hand has in its DRAFT regulations (June 2012) the following: **'Health care risk waste' means the portion of the health care waste that is hazardous and including:**

- (a) Laboratory waste;
- (b) Anatomical waste;
- (c) Genotoxic/cytotoxic waste;
- (d) Infectious waste;
- (e) Sharps waste;
- (f) Sanitary waste;
- (g) Nappy waste;
- (h) Low-level radioactive waste; and
- (i) Pharmaceutical waste.

It includes any waste that is generated during diagnosis, treatment or immunisation of humans or animals, in research pertaining to this; in the manufacturing or testing of biological agents - including blood, blood products and contaminated blood products, cultures, pathological wastes, sharps, human and animal anatomical wastes and isolation wastes.

