



# MARSH



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GUY CARPENTER OLIVER WYMAN

## Water and Waste Licensing and Management Plans

Marsh Environmental Services (MES) has extensive experience in undertaking the Integrated Water Use License Application (IWULA) process across the entire spectrum of complexity - from single water use licenses up to integrated inter-operation applications.

The IWULA, as stipulated in the National Water Act of South Africa, requires an Integrated Water and Waste Management Programme (IWWMP) to accompany the application. MES focuses on developing programmes that incorporate Environmental Management Plans (where appropriate) and other management systems and tools in order to ensure legal compliance across all applicable legislation, as well as eliminating conflicting requirements from different legislation and ensuring optimal use of our Clients' resources.



MES also advises clients on optimisation strategies that can be implemented at their operation as part of the IWWMP. Stakeholder consultation as required for the IWULA

is also undertaken and facilitated by MES' expert team.

MES undertakes extensive consultation with the Department of Water Affairs and Forestry (DWAF), thereby facilitating a smooth negotiation and authorisation process.

### Case Study 1

**Company:** Xstrata

**Situation:** In order to address changes in legislation, an urgent need was identified to authorise several activities impacting on water uses of 3 silica and chrome mines.

**Challenge:** Geology and water chemistry made it particularly challenging to obtain authorisation for 3 different mines in the same process. Furthermore, the varied nature of the water uses requiring authorisation demanded close authority liaison and definition of the legal process to be followed. These included:

- Abstraction and storage of water;
- Discharge of water containing waste;
- Disposing of waste in a manner that may detrimentally impact on a water resource, and
- Removing water from underground workings.

Significant time and cost savings were achieved through engaging

stakeholders through the same public participation process. A unique groundwater model was developed to understand better the cumulative impacts on the region by the activities, and their effects on each other. Through careful planning of the project, MES was able to assist the Client to achieve legal compliance cost-effectively and within tight timeframes.

**“Significant time and cost savings were achieved through engaging stakeholders through the same public participation process.”**

### Waste Management

Generators of waste incur a 'cradle-to-grave' responsibility to ensure that the waste it generated is handled, stored and disposed of in a legal and environmentally responsible manner according to the following internationally accepted principles:





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• *Duty of Care Principle* - whereby the generator of the waste is ultimately responsible for ensuring that the waste is handled, stored, transported and disposed of according to legislation and in an environmentally sound and responsible manner.

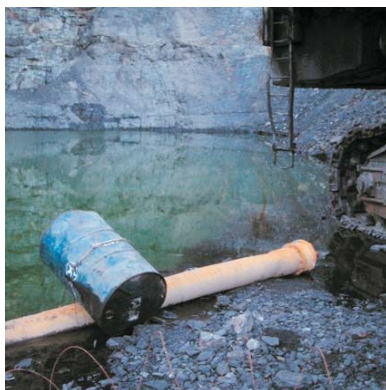
• *Polluter Pays Principle* - the person or organisation causing pollution is liable for any costs involved in rehabilitating inappropriate waste management practices.

• *Precautionary Principle* - all waste is assumed to be both highly hazardous and toxic until proven otherwise.

Furthermore, as landfill airspace becomes increasingly scarce and expensive, and virgin resources become increasingly scarce, the reduction of waste at source and the implementation of alternatives to landfilling (reduce, re-use and recycle) is also becoming increasingly necessary.



MES is able to offer our Clients a range of services in Waste Management to address these needs:



• Waste Classification and Delisting of Hazardous Wastes.

Wastes generated will be identified and classified according to legislation or best practices to ensure that the waste is stored, handled, transported and disposed according to the nature and risk of the waste:

- Review of all operations to identify all wastes generated on site (to develop a comprehensive waste register);
- Sampling and laboratory analysis of wastes to classify and rate hazardous wastes, and
- Delisting hazardous wastes for disposal on general landfills, with or without prior treatment. Treatment methodologies may also be recommended with Cost-Benefit Analyses.

• Development and Implementation of Waste Management Plans

- Waste identification, classification and sourcing of suitable disposal destinations;
- Identification of and consulting with waste contractors (e.g. recycling companies);

- Development of monitoring systems, and
- Feasibility studies for alternative waste disposal options.

• Performing Environmental Impact Assessments (EIAs) and obtaining Waste Permits for waste facilities, including landfills, compost plants, storage areas, recycling facilities, transfer stations, incinerators, etc.

• Auditing of waste facilities:

- In terms of an EIA RoD (Record of Decision) or Waste Permit issued by the relevant authorities;
- Auditing waste facilities on behalf of responsible industries (the waste generators) to establish the suitability of waste sites to receive waste generated, and
- 2<sup>nd</sup> party audits on waste contractors and transporters on behalf of a Client.

• Waste Storage Designs

- Design of waste stores to meet the Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste 2<sup>nd</sup> Edition (DWAf, 1998) to ensure effective and practical protection of the environment.

**“Wastes generated will be identified and classified according to legislation or best practices to ensure that the waste is stored, handled, transported and disposed according to the nature and risk of the waste”**



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## Water and Waste Licensing and Management Plans (continued)

- Research and Surveys
  - Research and comparisons of waste streams, waste sources, disposal options or international benchmarking for industry and waste companies.
- Waste Training
  - Customised courses in the Legal Requirements pertaining to a Client's industry, and
  - Preferred waste management practices (waste hierarchy).
- Life Cycle Assessments
  - Taking a wider view of disposal options for selected waste streams by determining the full environmental impact based a comprehensive inventory, quantification and assessment of impacts.
  - Based on the principles and framework for the accepted international standards for comprehensive Life Cycle Assessments ISO 14040-14043.

MES can therefore assist companies in managing their wastes responsibly, as well as to develop solutions to minimise wastes in a manner that will be environmentally preferable, practicable, and economical.

### Case Study 2

**Company:** OEM motor vehicle production company

**Situation:** Numerous hazardous and

general waste streams generated by the company were required to be identified and classified according to prescribed regulations, and to obtain approval to from the authorities to delist those hazardous wastes for general landfill disposal.

This resulted not only in legal compliance for our Client, but significant cost savings. Furthermore, in implementing the *cradle-to-grave* environmental management principle, audits of all disposal facilities were performed to ensure the facilities are permitted and that the wastes are managed in a responsible and legal manner.

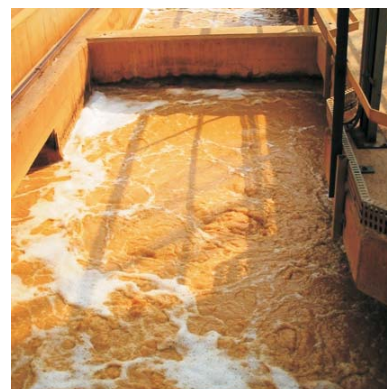
**"This resulted not only in legal compliance for our Client, but significant cost savings."**

**Challenge:** All waste streams generated on site needed to be identified to ensure they are being disposed of in a suitable manner, their constituents assessed, and their disposal acceptable.

**Action:** MES conducted an extensive review of all operations to identify all wastes generated, and submitted samples of waste streams for laboratory analysis. One of the higher volume waste streams was able to delist with approval from the authorities.

MES conducted audits of over twenty waste disposal facilities, including

landfills, recycling centres, transfer stations, incinerators and scrap metal dealers.



### Case Study 3

**Company:** A national water research organisation

**Situation:** Having worked with many industries, it was clear that the classification, rating, and disposal requirements of common hazardous waste streams proved problematic for many industries. These requirements were not being met by these waste generators, resulting in legal non-compliance, incorrect treatment and disposal, and, in many cases, contamination of groundwater and stormwater.

The reasons included lack of available information; expensive laboratory analyses; a lack of understanding of the legal requirements and lack of enforcement.



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**Challenge:** A study was therefore initiated with the national water research organisation, in order to develop user-friendly guidance documents and recommendations for the classification and disposal of common industrial hazardous wastes. The intention of the documents was to add value to the waste management industry, thereby reducing the costs required by industry, consultants, waste contractors, disposal companies, auditors and the authorities to manage these waste streams.

**Action:** Extensive research was conducted on 20 common hazardous waste streams (such as fluorescent tubes, hydrocarbon wastes, electronic

waste, medical waste and antifreeze) and official guidance documents published.

**“The intention of the documents was to add value to the waste management industry, thereby reducing the costs required by industry.”**

Information on each waste stream included their classification and rating, environmental health concerns, acceptable and unacceptable disposal conditions and industry trends.

Training in hazardous wastes and the guidance documents was organised for industry as well as university institutions. The research was also presented at an international waste management conference.



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