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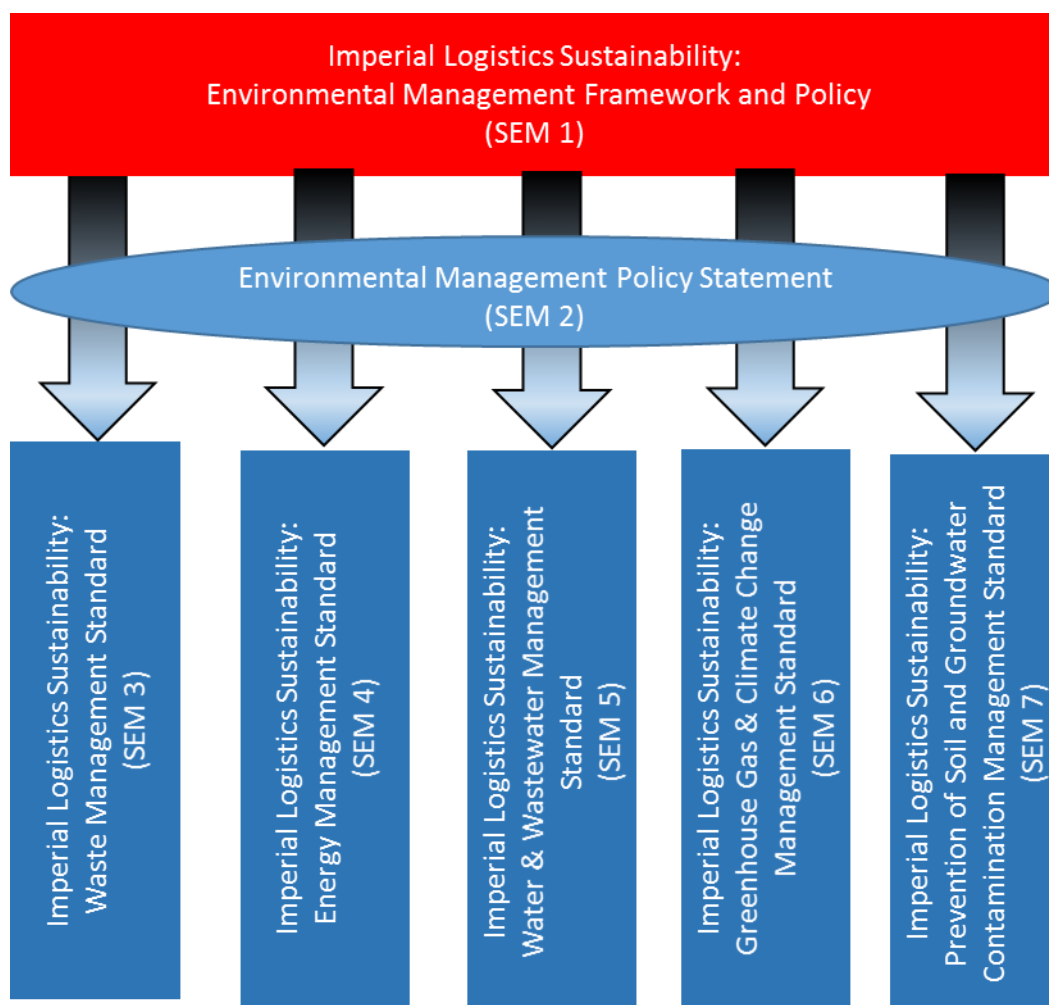
Environmental Sustainability: Environmental Management Standards



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DOCUMENT HIERARCHY OF THE IMPERIAL LOGISTICS ENVIRONMENTAL MANAGEMENT SERIES OF DOCUMENTS

The Imperial Logistics Environmental Management Policy and Framework describes the company's approach to sustainable environmental management and is supported by a set of Management Standards Documents (All environmental sustainability related documents are referenced SEMx...). The document hierarchy and architecture are illustrated below:



The objectives of the Management Standard Documents are to:

- Support the realisation of “*Leaders in Mobility*”
- Support the Imperial Logistics Environmental Management Policy and Framework;
- Provide a risk/opportunity-based management strategy;
- Provide clear environmental performance criteria against which environmental management across Imperial Logistics can be measured and audited; and
- Provide a uniform basis for the provision of assurance and from which to drive continual improvement across Imperial Logistics.

The high level content of the Management Standards is a mandatory requirement to consider and implement across all sites and facilities in Imperial Logistics

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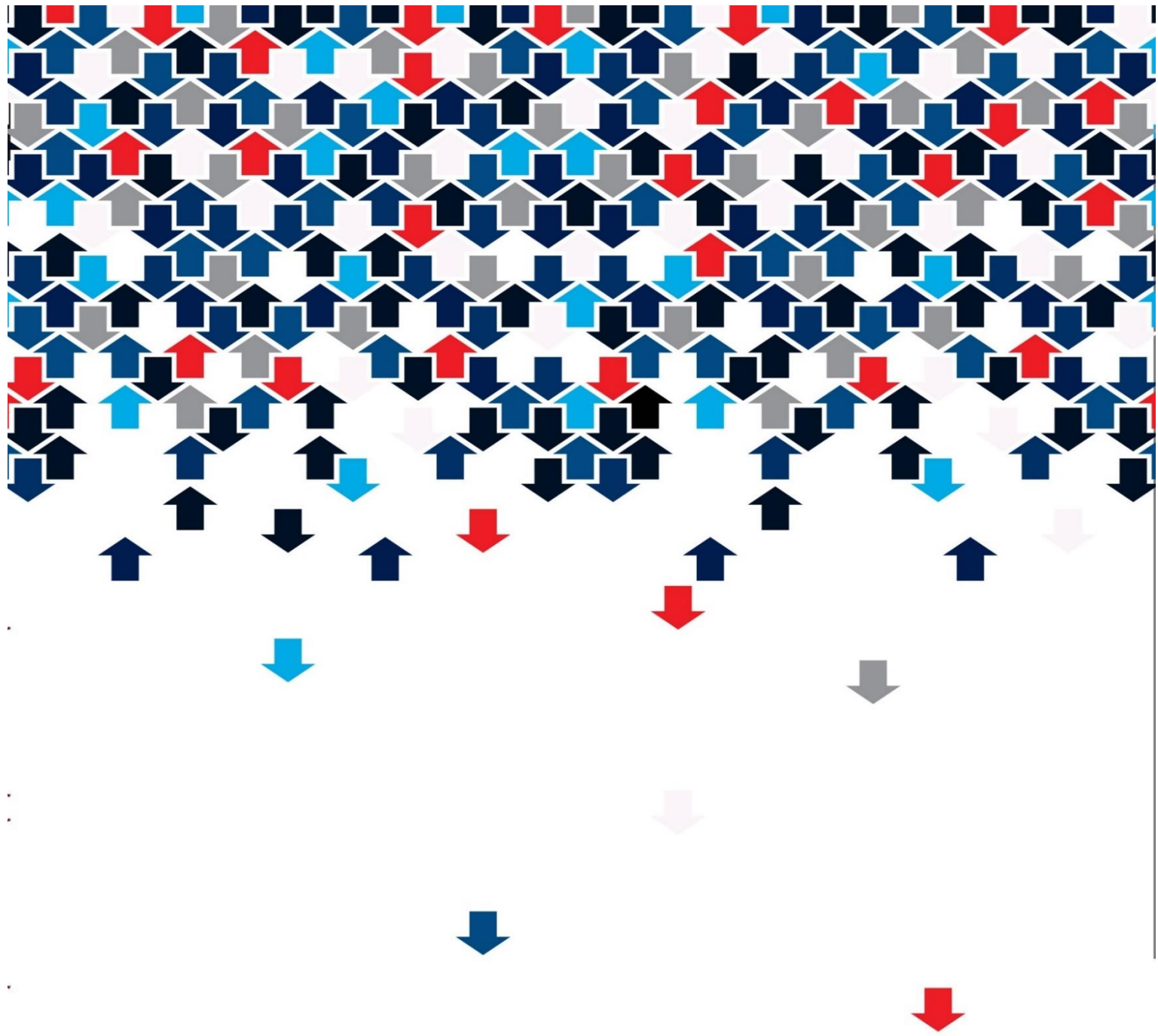
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Environmental Sustainability: Waste Management Standard

(Series No SEM 3)



1. Introduction

Imperial Logistics (hereafter *Logistics*¹) acknowledges that our business practices generate waste, and hence developed an environmental waste management standard that will assist in mitigating the harmful effect of waste.

1.1. Background

The manner in which we create, store and dispose our waste do not only come at a cost, but it also reflects the manner in which we execute the commitment to pollution prevention and management of Greenhouses Gases (GHG) as depicted in the *Imperial Logistics Environmental Policy Statement* (see document reference SEM2). Therefore, the correct handling of our waste streams is important, not only for the safety, health and wellbeing of employees and the environment, but also to ensure legal compliance and adherence to internal governance processes.

Stipulations in the National Environmental Management: Waste Act (Act No 59 of 2008) (hereafter *Waste Act*) mean Logistics remains responsible for their waste streams and waste products; from the generation thereof, whilst in transit and after disposal, a concept known as “*Cradle to Grave*”².

It is Imperials’ waste management strategy to ensure that all waste streams are managed and disposed of appropriately:

- in a sustainable manner,
- in line with safe practices, and
- according to legislation.

This strategy can only be achieved through:

- Reducing the amount of waste produced,
- Making best use of the waste that is produced by maximising re-use and recycling,
 - Mission is to have 80% of generated general waste re-used or recycled by 2019.
- Minimising the amount of waste disposed of to landfill,
 - Mission is to limited the amount of waste to landfill to 20% of generated general waste by 2019.
- Providing relevant training and information to staff and visitors to facilities, and
- Providing the necessary equipment and facilities to allow for the temporary safe storage and handling of all waste streams.

The manner in which waste is created, handled, stored, recycled transported and disposed is a key feature of basic sustainable waste management. How we deal with waste also influences the manner in which we provide services to customers, the credibility of our company, and Logistics’ corporate reputation.

¹ Implies all Operating Companies throughout Africa, and include South Africa (SA) and African Regional Markets (ARM).

² From creation to disposal; throughout the life cycle.

A reactive (rather than proactive) approach to waste management is likely to increase our annual costs (e.g. payments to waste companies who transport and dispose of waste, contamination of waste streams) and cause adverse environmental and reputational impacts.

1.2. Scope

This standard pertains to waste and the management thereof as per the definitions described in Section 1.3 below, and applies to all Operating Companies in South Africa (SA) and within the African Regional Markets (ARM) and also where Logistics has authority to introduce and implement its operating policies and standards.

1.3. Definitions

The following list of definitions is the general terms to be applied and interpreted when dealing with Waste Management within Logistics:

Builder's Rubble	:	Includes pieces of masonry, concrete, etc., resulting from construction, repair and demolition operations.
Compost	:	Organic waste that has undergone microbial degradation, to produce a contaminant- and nuisance free product of potential value as a soil conditioner.
Controlled Disposal:		The process whereby spoilt foodstuff or condemned / damaged products may be disposed of on the landfill under supervision of the Environmental Health Officer and/or Site Supervisor.
Customer	:	A client for which Imperial Logistics is rendering various services.
Domestic Waste	:	Solid waste that originates in a residential environment.
Facilities	:	Any warehouse, store, depot or workshop included in the list of facilities at which Imperial Logistics renders its business operations.
General Waste	:	Waste that does not pose an immediate threat to humans or the environment, i.e. household waste, builders' rubble, garden waste and certain dry industrial and commercial waste. It may, however, with decomposition, infiltration and percolation, produce leachate with an unacceptable pollution potential.
Hazardous Waste	:	Waste, other than radioactive waste, which is legally defined as hazardous in the state in which it is generated, transported or disposed of. The definition is based on the chemical reactivity or toxic, explosive, corrosive or other characteristics which cause, or are likely to cause, danger to health or to the environment, whether alone or when in contact with other waste.
Health Care Risk Waste	:	Wastes emanating primarily from human and veterinary hospitals, clinics and surgeries, also from chemists and Sanitary Services. They may comprise, <i>inter alia</i> , sharps (used hypodermic needles and scalpel blades), malignant tissue, body parts, soiled bandages and liner, and spent or outdated medicines or drugs. They have the ability to affect and infect other living organic and are considered hazardous.

Imperial Logistics Representative	:	A suitably qualified employee or any other duly appointed natural or juristic person duly nominated and tasked from time to time by Imperial Logistics, to act on its behalf with regards to certain aspects of the administration and execution of this Contract.
Industrial Waste	:	Non-toxic and non-hazardous solid waste that results from industrial processes and manufacturing.
Leachate	:	An aqueous solution with a high pollution potential, arising when water is permitted to percolate through decomposing waste. It contains final and intermediate products of decomposition, various solutes and waste residues. It may also contain carcinogens and/or pathogens (Sporadic/Significant).
Monitoring	:	The auditing and assessing of waste management operations to determine whether it conforms to the relevant legislation and approved Waste Management Plan.
Pharmaceutical Waste	:	Unused medicines, medications and residues of medicines that are no longer usable as medication.
Site	:	See "Facilities"
Waste	:	An undesirable or superfluous by-product, emission, or residue of any process or activity which has been discarded, accumulated or stored for the purpose of discarding or processing. It may be gaseous, liquid or solid or any combination thereof and may originate from a residential, commercial or industrial area. This definition excludes industrial waste water, sewage, radioactive substances, and mining, metallurgical and power generation waste. In this definition waste does not refer to emissions to atmosphere (covered in standard SEM6) nor to industrial or sanitary effluent/sewage discharged in compliance with the relevant standards and bylaws via a drainage system to municipal sewer.
Waste Management Plan	:	A site-specific plan describing the extent of and process by which waste management services will be rendered for any particular Logistics facility.

2. Waste Hierarchy

Logistics promotes a best practice approach to sustainable waste management known as the "Waste Management Hierarchy Approach"³. This approach requires wastes to be dealt with in order of priority starting with "prevention" and working through "minimization", "re-use" to finally "energy recovery"⁴ "Disposal", at the bottom of the hierarchy, is the least favourable waste management option (see Figure 1).

³ The hierarchy approach is accepted internationally and in South Africa as a rigorous approach to Integrated Waste Management (IWM)

⁴ Energy Recovery (ER), Waste-to-energy (WtE) or energy-from-waste (EfW) is the process of generating energy in the form of electricity and/or heat from the primary treatment of waste

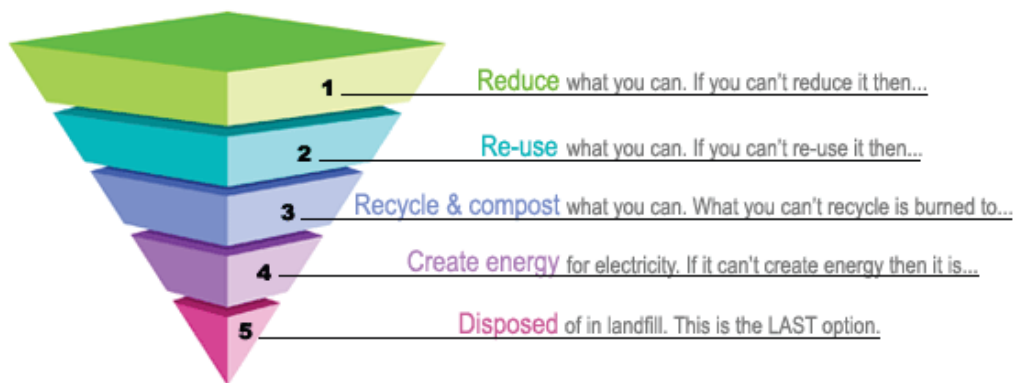


Figure 1: Waste management approach at Logistics (adopted from: Department of Environmental Affairs, 2011. A user friendly guide to the National Management: Waste Act, 2008, page 11)

To implement the waste management hierarchy Operating Companies must first seek ways to prevent waste from being generated at their facility (e.g. removing the need for the use of a resource; substitution of materials with hazardous content with more environmentally-friendly alternatives).

If the resource is considered necessary, opportunities to “reduce” its use should be investigated and documented. By reducing the amount of materials in use, we can decrease the amount of waste that is generated and hence the need for its disposal.

Where waste is considered unavoidable, opportunities to “reuse” or “recycle” that waste stream should be considered. Using items again (reuse) before they are discarded also saves costs and ultimately reduces our impact on the environment. After an item can no longer be re-used, it may be “recycled”, i.e., broken down into its original raw material state and used again to create the same or different products (e.g. plastic and paper recycling).

Where waste cannot be prevented, re-used or recycled, waste disposal is the final option.

3. Legal and Policy Compliance

Regardless of any inter-company policy, it is a legal requirement to be in compliance with all applicable legislation⁵. For the implementation of this standard, the South African Waste Act (i.e. *National Environmental Management: Waste Act (Act No 59 of 2008)*) has special reference. Implementers of this Standard are encouraged to obtain a copy of the said act.

In South Africa certain waste generating activities require formal permitting/formal authorisation in line with the listed activities referred to in the National Environmental Management Act (*Act No. 107 of 1998*). There are also various bylaws that govern waste management in a specific area or municipality. Companies should ensure that they have access to all applicable local and national laws as well as the bylaws for the local authority they operate in.

In addition to the legal requirements pertaining to waste, the Imperial Logistics Environmental Policy Statement also makes it a company commitment to prevent pollution, comply with applicable legislation and promote the efficient use of materials and natural resources. Therefore, every Operating Company must:

⁵ When an Operating Company operates outside the borders of South Africa, local laws must first be adhered to. When local laws are not available, this standard should be regarded as the minimum standard for waste management in the company

- plan for, control, manage and dispose of waste in adherence with to the contents of this Standard.
- shall include waste management in all Health, Safety and Environment (HSE) audits.
- aim to proactively implement programmes and procedures to ensure and show compliance with this Standard.

4. Waste Management Practices and Controls / Requirements

Logistics requires all Operating Companies to undertake the following:

4.1. Identification of waste types

Identify and document the different types of waste produced in an inventory. The inventory should detail waste type category the origin of the waste, its storage location and storage requirements.

Unless new waste streams are identified the main waste categories for Logistics are:

- Health Care Risk Waste,
- Mixed Paper,
- Corrugated (K4),
- Combustibles,
- Other Non-Other Combustibles,
- Food Waste,
- General Domestic / Garden Waste,
- Glass,
- Plastics
- Newspaper,
- Off Spec Food Waste,
- Aluminium,
- Ferrous material⁶,
- Other Organics,
- Wood,
- Used Lubricants, and
- Polystyrene.

4.2. Segregation / Separation of waste

Segregation of waste into three main categories should occur at all facilities. The categories are:

⁶ Ferrous metals include steel and pig iron (with a carbon content of a few percent) and alloys of iron with other metals (such as stainless steel).

- General waste going to landfill,
- Dry recyclable waste,
- Hazardous waste going to landfill,
- Recyclable hazardous waste.

Cross contamination of wastes can cause higher than necessary disposal costs (e.g. a skip containing non-hazardous wastes but mixed with empty solvent cans, can be classified in its entirety as “hazardous”).

4.3. Waste storage

The containers in which any waste is stored must be intact and not corroded in any way. Waste storage areas shall be weather-proof, on a sealed hard standing surface (i.e. concrete) and never stored on open ground. Hazardous waste storage areas shall be “controlled” areas (e.g. demarcated and secure) and not be stored where an accident and/or spillage of waste has the potential to easily pollute a watercourse (e.g. enter a surface drain) or the underlying surface.

All waste storage areas must be provided with secondary containment.

There are strict regulations governing waste tyre storage and management in South Africa, which must be adhered to (Waste Tyre Regulations, 2008). Logistics requires that any South African contractor handling waste tyres on behalf of Operating Companies shall be in compliance with these regulations.

4.4. Medical waste

Medical waste shall be separated from other waste streams at the point where it is used and stored in appropriate containers where it cannot come into direct contact with humans, animals, insects, rain, wind etc.

Access to medical waste should only be permitted to staff and approved contractors (e.g. registered disposal contractors) who are trained and authorized to handle medical wastes.

4.5. Labelling and categorisation

All waste receptacles / containers shall be clearly labelled (marked) to prevent cross-contamination of waste.

4.6. Recyclable materials

Recyclable material shall be kept separate from non-recyclable wastes so that they do not become contaminated.

4.7. Transportation and Disposal

Hazardous waste may not be transported across international boundaries except when in accordance with the Basel Convention for the Transboundary movement of hazardous waste, and only where disposal options are not appropriate for the type of waste generated within the country generated.

Transportation of general waste may only be conducted by a licenced company and disposal may only occur at the licenced facility. When a licenced facility is not available it is recommended to transport

the waste to the closest licenced facility, or written confirmation has been obtained from the local authority to use the facility.

4.8. Waste manifest documentation

To account for all hazardous waste and waste requiring safe disposal, a Waste Manifest must be available at the facility, or at a central office. The waste manifest documentation must contain the following information:

- The date of dispatch, type, characteristics, quantity and origin of hazardous wastes or waste type requiring safe disposal,
- Proper identification of the transporter of the wastes,
- Proof of delivery of waste to the designated waste management site, and
- Signed record for all parties, confirming that the wastes have been received and how they were managed/disposed of.

4.9. Documentation and record keeping

Each Operating Company shall maintain, or have direct access to, a document trail to reduce the risk of litigation associated with waste disposal.

Important documents include:

- Correspondence with the relevant authority/government body to utilize unlicensed Waste Disposal Facility (if applicable),
- Emergency contact details of environmental cleaning services providers
- Waste handlers certificate of registration/authorisation from the local municipality
- Landfill or treatment facility operator's permit/licence to operate from the relevant authority/government body;
- Waste manifest documentation for each consignment, which should:
 - be completed in triplicate by the site, the transporter and the landfill or treatment facility operator.
 - include final, fully signed version to be provided to the Operating Company by the waste transporter, along with the invoice, detailing the type, weight and final disposal destination of the waste.

4.10. Measurement and monitoring

As a minimum the following will be measured and monitored by each Operating Company:

- kilograms/litres of waste sent for recycling,
- kilograms/litres non-hazardous waste sent to landfill, and
- kilograms/litres waste sent to landfill for safe disposal,
- kilograms/litres hazardous waste sent to landfill.

Every waste consignment leaving the Operating Company must be recorded. To avoid double accounting the mass / volume of waste should only be recorded once it leaves site (i.e. not while in temporary storage).

Site Records should indicate the weight (kg) or litres (l) of all waste types removed/disposed of per month. All site records should be captured and approved on a monthly basis on the **Imperial Sustainability Management System (ISMS)**. A User Manual for the software system is available.

Regular audits must be conducted on all waste management facilities to ensure adherence to this Standard and all applicable legislation. Records of audits should be kept on file.

5. Waste Management Services to be applied and implemented across all South African facilities and sites

5.1. Waste management by an Imperial Logistics approved external Service Provider

Rationale: In-house onsite waste management by site staff and offsite waste management service provided by an Imperial Logistics approved Service Provider

At facilities and sites where the volume of recyclable waste generated does not warrant a comprehensive onsite waste segregation management system (to the discretion of the Operating Company), site / facility staff will be required to conduct in-house separation of recyclable waste from non-recyclable waste (general waste). Collection of the general waste for landfill disposal and the collection of the mixed dry recyclable waste for transport and delivery to a third party for offsite sorting and processing will be the responsibility of the Imperial Logistics approved external Service Provider.

Facilities and sites falling within this service category will be generators of general waste (and in some instances hazardous waste) requiring contracted services (i.e. call-for-service) for the collection, transport, treatment (where applicable) and disposal of both general and hazardous waste. The service provider will amongst others also be responsible for:

- supply of appropriate mobile waste receptacles for indoors use (ownership of mobile containers transferred to Imperial Logistics), and
- supply of appropriate bulk waste containers placed outdoors for onsite storage of (a) disposable general waste, (b) recyclable general waste as well as for onsite storage of (c) disposable hazardous waste and (d) recyclable hazardous waste (ownership of bulk containers remaining that of the service provider).
- create initial, as well as refresher awareness and provide similar training to Imperial Logistics staff in the process of achieving more effective at source separation of recyclable waste from non-recyclable waste.

5.2. Waste Only Sites

Rationale: No formal waste onsite waste management system required, just formal disposal.

At facilities and sites where volume of waste generated does not warrant any form of onsite waste management system (referred to as Waste-Only-Sites), waste is either collected by the local municipality (municipal schedule), or alternatively by the Offsite Waste Management Service Provider,

as described in Sections **Error! Reference source not found.** on a predetermined basis or on a “call-for-service” basis.

5.3. Waste Management conducted by client / customer

Rationale: Customer’s waste management principles will apply where Logistics operates at a client’s site.

Where Operating Companies operate at a customer / client’s site, the customer’s waste management principles and policy will apply unless it is required by the customer that the Imperial Logistics Waste Management Standard be implemented. In this instance Section 4 of this Standard should be implemented.

6. Training and Competence

Staff at all levels must receive appropriate training to ensure competence with regards to implementing this Waste Management Standard and requirements.

7. Continuous Improvement

Operating Companies shall agree deliver improvement in waste management practices on a continuous basis. An improvement plan shall specify the proposed improvements to the products, services and processes. Cost-saving benefits to Logistics and the site shall be highlighted.

A Continuous Improvement Plan shall cover at least the following areas:

- pure economic improvement, which includes introducing efficiencies and real cost savings, and
- environmental improvement (reduction of the volume of waste to landfill).

8. Waste Reduction Target

A Group Waste Management Reduction Target has been set.

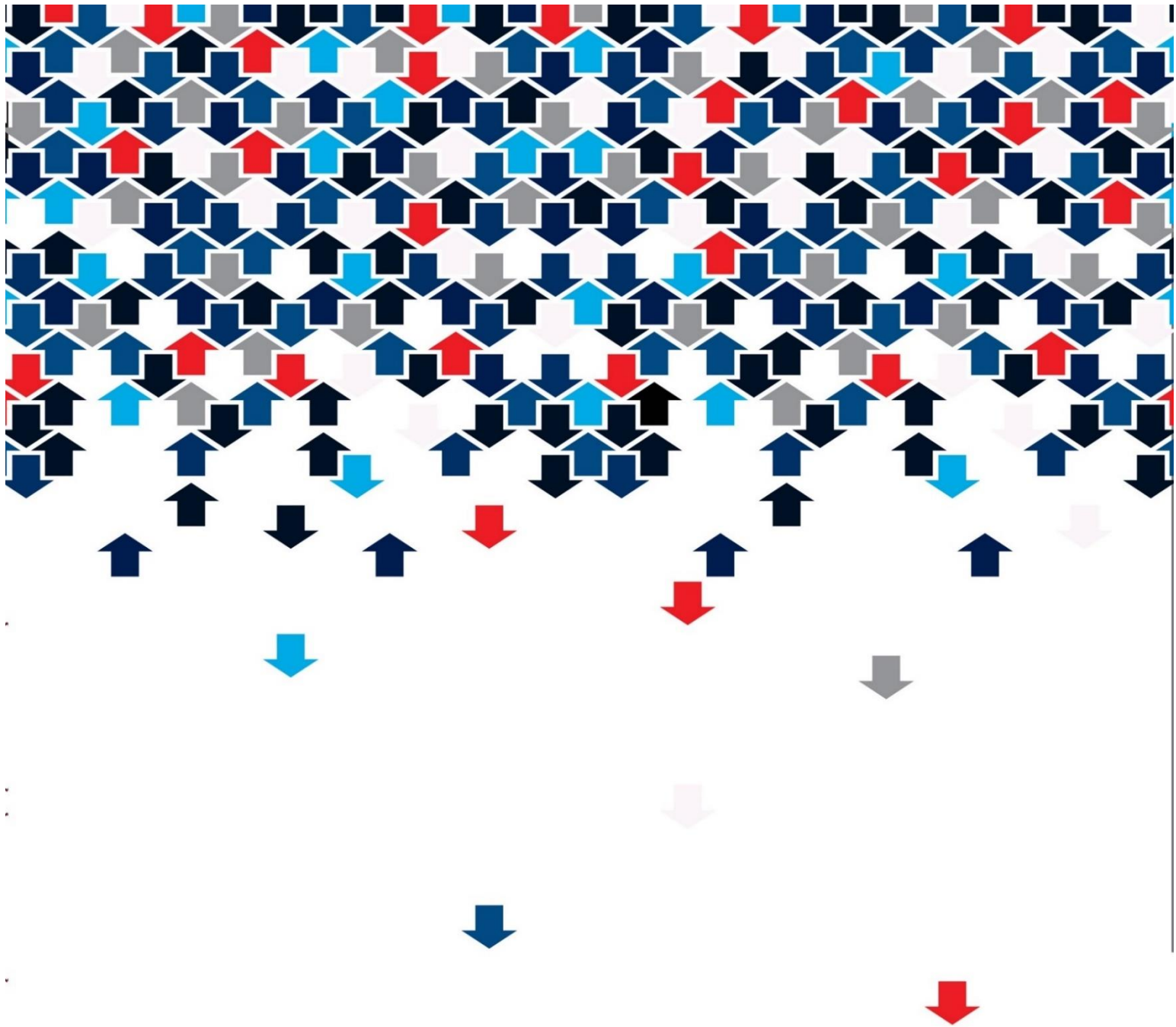
It is Logistics’ medium term goal (2019) to strive towards the 80:20 principle in terms of the on- and offsite management of waste; i.e. 80% of the waste by mass being reduced, reused and recycled, with the remaining 20% earmarked for treatment and / or landfill disposal.

9. Supporting Documentation

A Standard Operating Procedure (SOP) for the implementation of this standard is required per Operating Company or per facility / site.

10. Document Control

This document will be reviewed every three years from date of first publication (2017).



2017

Environmental Sustainability: Energy (Electricity) Management Standard

(Series No SEM4)



1. Introduction to energy (electricity) management

Imperial Logistics (hereafter Logistics⁷) acknowledges that Operating Companies require various forms of energy, specifically electricity, to function effectively and profitably, and hence developed a sustainable energy⁸ management standard with the aim to optimize and systematically reduces consumption throughout the Group.

2. Background

The supply of a reliable source of energy has become a challenge in South Africa, putting additional stress on operations. Pricing structures are also ever increasing, to the extent that the commodity is now an important cost driver affecting the bottom-line.

Energy conservation and management are also closely related to environmental issues. The problem of global warming or climate change is caused by emission of carbon dioxide and other Green House Gases (GHG) into the atmosphere. Energy conservation and management, especially saving use of fossil fuels, shall be the first among the various countermeasures of the problem, with due considerations of the aforementioned economic factors.

The abovementioned factors resulted in the need to re-evaluate and re-assess the manner in which we use and manage our energy / electricity supplies in a sustainable manner. It also reflects the manner in which we execute the commitment to monitor and reduce our carbon footprint, depicted in the Imperial Logistics Environmental Management Framework and Policy (see document reference SEM1) and Environmental Policy Statement (see document reference SEM2).

3. Scope

This standard pertains to energy usage and the management thereof (specifically electricity usage as implied to all Scope 2 GHG emissions) (see Management Standard SEM6, and applies to all Logistics' Operating Companies throughout Africa, as well as where Logistics has authority to introduce and implement its operating policies and standards.

4. Definitions

The following list of definitions is the general terms to be applied and interpreted when dealing with Energy Management within Logistics:

A colourless and odourless gas produced by burning carbon and organic compounds and by respiration. It is naturally present in air (about 0.03 per cent) and is absorbed by plants in photosynthesis.

Carbon dioxide: Extra carbon dioxide into the atmosphere, due to the burning of fossil fuels, increases the greenhouse effect. More heat is trapped by the atmosphere, causing the planet to become warmer than it would be naturally. The increase in global temperature this causes is called global warming

⁷ Implies all Operating Companies throughout Africa.

⁸ Energy in this Standard refers specifically to the usage and consumption of electricity at all facilities and operations.

Carbon footprint:	The sum of all emissions of CO ₂ (carbon dioxide), which were induced by a company's activities in a given time frame.
Energy Consumption (kWh) vs Energy Demand (kW):	One 100-watt light bulb burning for 10 hours consumes 1,000 watt-hours or 1 kWh. The entire time the light bulb is on, it requires or "demands" 100 watts or 0.1 kW from the utility. That means the utility must have that 0.1 kW ready whenever the customer turns the lamp on.
Energy efficiency:	Energy efficiency means using less energy to provide the same service. For example, a compact fluorescent bulb is more efficient than a traditional incandescent bulb as it uses much less electrical energy to produce the same amount of light.
Fossil fuels:	A natural fuel such as coal or gas, formed in the geological past from the remains of living organisms.
Global warming or Climate change:	A gradual increase in the average temperature of the earth's atmosphere and its oceans, a change that is believed to be permanently changing the Earth's climate.
Greenhouse Gases (GHG):	Any gaseous compound in the atmosphere that is capable of absorbing infrared radiation, thereby trapping and holding heat in the atmosphere. By increasing the heat in the atmosphere, greenhouse gases are responsible for the greenhouse effect, which ultimately leads to global warming.
Greenhouse Gas Effect	The trapping of the sun's warmth in a planet's lower atmosphere, due to the greater transparency of the atmosphere to visible radiation from the sun than to infrared radiation emitted from the planet's surface.
kVA:	A kilovolt-ampere (kVA) is 1000 volt-amperes. Electrical power is measured in watts (W): The voltage times the current measured each instant. In a direct current system or for resistive loads, the wattage and VA measurements will be identical.
kWh:	The kilowatt hour is a derived unit of energy equal to 3.6 mega joules. If the energy is being transmitted or used at a constant rate (power) over a period of time, the total energy in kilowatt-hours is the power in kilowatts (kW) multiplied by the time in hours.
Photovoltaics (PV):	The conversion of light into electricity using semiconducting materials. A typical photovoltaic system employs solar panels, each comprising a number of solar cells, which generate electrical power.
Power Factor:	<p>An electrical or electronic device's power factor is the ratio of the power that it draws from the mains supply and the power that it actually consumes. An 'ideal' device has a power factor of 1.0 and consumes all the power that it draws. It would present a load that is linear and entirely resistive: that is, one that remains constant irrespective of input voltage, and has no significant inductance or capacitance.</p> <p>The value of power factor can range from 0 to 1. A power factor of 1 is ideal.</p>

Retrofitting: Refers to the addition of new technology or features to older systems, e.g. the improving of existing buildings with energy efficiency equipment (conventional light bulbs to LEDs).

Scope 2 emissions: Scope 2 are also referred to as energy indirect GHG, and are defined as emissions from the consumption of purchased electricity, steam, or other sources of energy (e.g. chilled water) generated upstream from the organization (e.g., at a Power Generation Plant).

5. Legal and Policy Compliance

It is the responsibility of each Operating Company to ensure that all in-Country, Province or City energy related legislation, regulations or protocols be identified and adhered to, where feasible and applicable.

Regardless of the above, it is mandatory for all Operating Companies to implement this Imperial Logistics Standard.

6. Energy Management Practices and Controls / Requirements

Logistics requires all Operating Companies to undertake the following:

6.1. Creating an energy saving awareness environment

Energy management best practices are proven, non-technical techniques or methodologies revolving around behavioural change amongst staff arising from increased awareness, training, accountability and information systems. It is a fact that empowering the knowledge of staff contributes to sustainable energy savings.

Operating Companies must create an energy saving awareness environment by considering six essential steps:

- Step 1: Conduct a gap-analysis to determine the need, level and method of engagement.
- Step 2: Plan the energy saving awareness campaign to achieve the desired outcomes, based on the gap-analysis.
- Step 3: Implement the campaign by assigning roles and responsibilities.
- Step 4: Check the effectiveness of the programme and review awareness throughout the facility; allowing room to receive feedback.
- Step 5: Maintain the right level of commitment and momentum throughout the process.
- Step 6: Assess and evaluate the outcomes periodically to ensure the desired outcomes and continuous improvement of the campaign and among staff members.

6.2. Obtain an understanding of energy usage patterns

Unlike other commodities that are available, the cost of energy (electricity in this instance) is influenced by a variety of factors and depends upon:

- Demand - the rate, or how fast the electricity is used.
- Energy - how much electricity is used in the facility.

- Time-of-Use - when the electricity is used.
- Power Factor - the apparent rate of use versus the real rate of use

The monthly municipal bill does not provide enough detail to get a full understanding of when and where the high energy demands in a facility are. The installation of a main energy meter that is capable of real-time load, demand and consumption metering as well as power factor determination over a 24-hour period is required. Certain facilities may require sub-meters. Sub-meters are usually required at facilities where high demand areas such as battery bays and refrigerators need to be monitored separately. Where premises are subleased, a separate energy meter is also beneficial to provide accurate account to tenants.

Perhaps the main benefit to metered data is the overall increase in utility operational efficiency. More data from more sources means better business intelligence and the ability to make better decisions.

6.3. Analyse energy usage

Achieving positive behavioural change at work through an effective energy awareness programme (see Section 6.1) would require an understanding who or what uses most energy at the facility. Therefore, which usage can be controlled, and where is the greatest amount of energy that can be saved.

Data from the energy meters can be used to analyse usage patterns, e.g.

- Baseline energy requirements (baseload),
- Load demands,
- Power factors inaccuracies,
- 24-hour usage patterns.

6.4. Energy management improvement programs / plans

Based on the information obtained by implementing sections 6.1, 6.2 and 6.3 all Operating Companies must develop, implement, record and report on all energy management improvement programs or plans in order to optimize energy usage and improve energy efficiencies.

Programs to be considered include:

- Load shifting initiatives,
- Retrofitting of lights from conventional light fitting and bulbs to more efficient bulbs, such as LED's
- Light sensors and daylight controls for lighting and heating, ventilating/ventilation and air conditioning (HVAC),
- Solar energy using photovoltaics (PV).

For any management initiatives requiring CAPEX, a maximum payback period of three to eight years, depending on the initiative, should be used as a feasible guideline.

6.5. Measurement and monitoring and reporting

The following will be measured and monitored as a minimum by each Operating Company:

- monthly kWh usage

All site energy usage records should be captured and approved on the Imperial Sustainability Management System (ISMS). A User Manual for the software system is available.

Regular audits must be conducted on all facilities to ensure adherence to this Standard and all applicable legislation. Records of audits should be kept on file.

As a minimum, each Operating Company shall set measurable targets related to energy efficiency and reduced GHG emissions as part of their formal, audited environmental management systems.

7. Training and Competence

Staff must receive appropriate training to ensure competence with regards to implementing this Energy Management Standard and requirements.

8. Continuous Improvement

Operating Companies shall agree to deliver improvements in energy management practices on a continuous basis. An improvement plan shall specify the proposed improvements to the products, services and processes. Cost-saving benefits to Logistics and the site shall be highlighted.

A Continuous Improvement Plan shall cover at least the following areas:

- pure economic improvement, which includes introducing efficiencies and real cost savings, and
- environmental improvement (reduction of emitted GHGs).

9. Energy Target

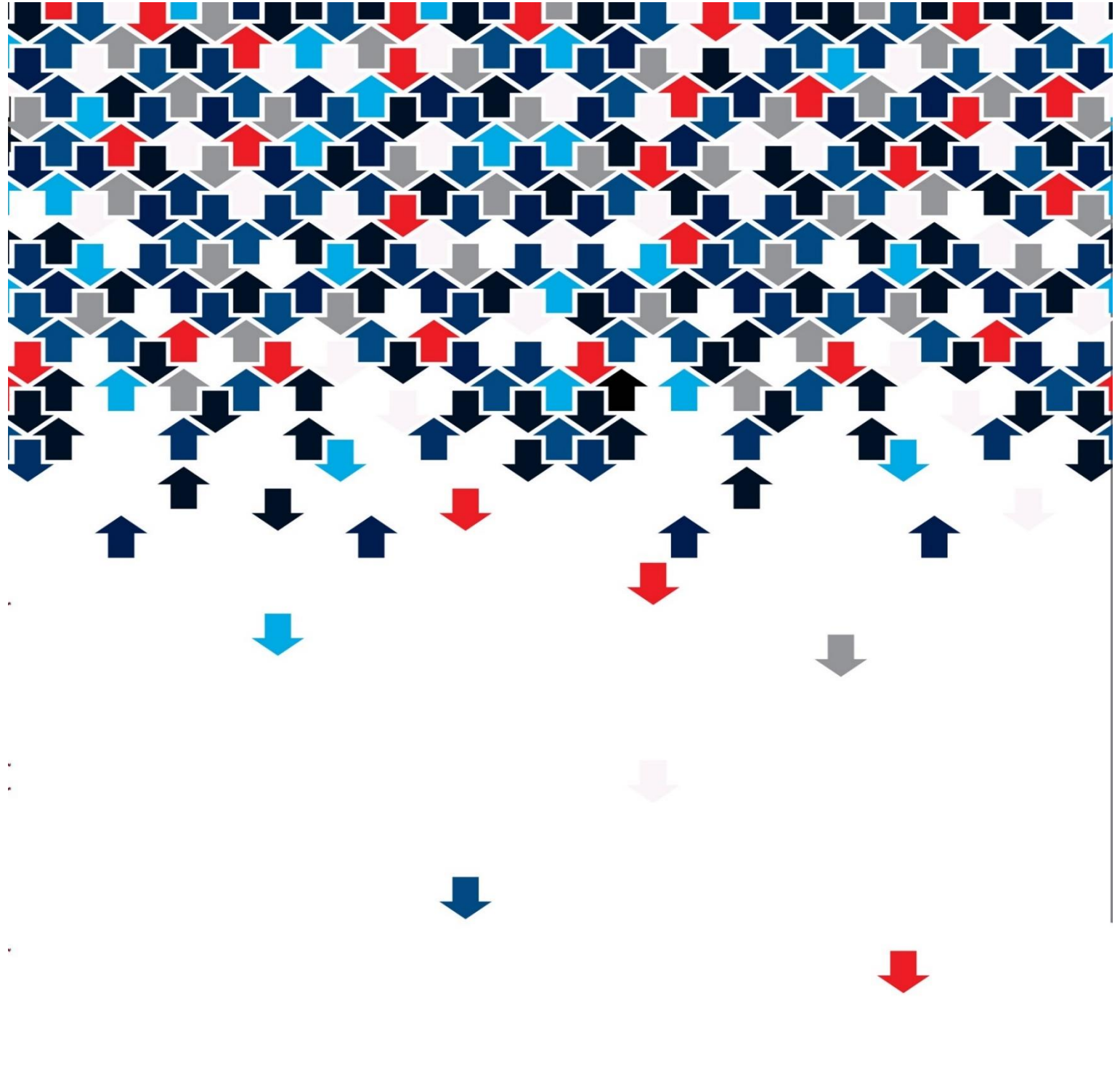
A Group-wide Energy Consumption Reduction Target will be set and communicated to all Operating Companies.

10. Supporting Documentation

A Standard Operating Procedure (SOP) for the implementation of this standard is required per Operating Company or per facility / site.

11. Document Control

This Standard will be reviewed every three years from date of first publication (2017).



2017

Environmental Sustainability: Water & Wastewater Management Standard

(Series No SEM5)



1. Introduction to water and wastewater management

Imperial Logistics (hereafter Logistics⁹) recognises the value of water as a limited and threatened natural resource, its necessity for social and economic development, and the potentially detrimental effect of polluting water or removing water unlawfully from environmental systems, particularly in water stressed regions. As a result of the aforementioned, a Water and Wastewater Management Standard, with the aim to optimize and systematically reduces consumption throughout the Group, has been developed.

2. Background

South Africa is currently over-exploiting its water resources at the national level. This means that national water withdrawals for municipal, industrial and agricultural sectors exceed levels of sustainable supply. Furthermore, the prevalence of the El Niño effect and climate change will manifest as more frequent and more intense periods of drought and flooding. South Africa will, therefore, need to plan for periods of drought and manage water availability and accessibility carefully.

As a result of the above the need to re-evaluate and re-assess the manner in which we use and manage our water supplies in a sustainable manner is becoming more important to our operations who depend on a sustainable water supply, both in terms of quality and quantity. Having a commitment to use water sustainably also shows commitment to the Imperial Logistics Environmental Management Framework and Policy (see document reference SEM1) and Environmental Policy Statement (see document reference SEM2).

3. Scope

This standard pertains to water and wastewater usage at Logistics, and the management thereof¹⁰. The Standard applies to all Logistics' Operating Companies throughout Africa, as well as where Logistics has authority to introduce and implement its operating policies and standards.

4. Definitions

The following list of definitions is the general terms to be applied and interpreted when dealing with Water and Wastewater Management within Logistics:

Climate change	A gradual increase in the average temperature of the earth's atmosphere and its oceans, a change that is believed to be permanently changing the Earth's climate.
El Niño effect	A climate cycle in the Pacific Ocean with a global impact on weather patterns. The cycle begins when warm water in the western tropical Pacific Ocean shifts eastward along the equator toward the coast of South America. Normally, this warm water pools near Indonesia and the Philippines

⁹ Implies all Operating Companies throughout Africa.

¹⁰ Water resources include water intake, effluent water discharge and rainwater.

Natural resource	A natural resource is anything that people can use which comes from nature. People do not make natural resources, but gather them from the earth. Examples of natural resources are air, water, wood, oil, wind energy, iron, and coal
Water resource	Water resources are sources of water that are useful or potentially useful. Uses of water include agricultural, industrial, household, recreational and environmental activities.
Water use (activities)	<p>Water use refers to doing something that has an impact on the water resource, for example:</p> <ul style="list-style-type: none"> • the amount of water in the resource (e.g. taking water from a water resource, storing water, taking water from underground sources) • the quality of water in the resource (e.g. discharging waste into a water resource, • the environment surrounding the resource (e.g. altering a water course, diverting the flow of water in a water course),
Water use (authorization)	<p>The different types of authorizations determine those water use activities which require a license and those activities which do not require a license.</p> <p>There are three types of water use authorizations:</p> <ol style="list-style-type: none"> (1) Schedule 1 of the National Water Act outlines permissible use of water where a water use licence is not required. The type of activities outlined in Schedule 1 are activities that have a very small impact on the water resource. These uses are called Schedule 1 use. Schedule 1 uses do not have to be registered. (2) General permission has been granted by the Minister of Water and Sanitation for other slightly larger uses from certain less-stressed sources. This permission has been given by means of general authorisations published in the Government Gazette. These authorisations allow a user to use water without a licence provided that the water use is within the conditions of the general authorisation. Examples of general authorisations include abstracting a limited amount of water from certain rivers, or from ground water sources (boreholes). (3) A user must apply for a water use licence for any new water use that is not listed in Schedule 1 or that is not covered by a general authorisation. Water licences are therefore used to control water use that exceeds the limits outlined in Schedule 1 and allowed for under general authorisations. Water use licences give existing or new water users formal authorisation to use water for productive and beneficial purposes, and specify the conditions under which the water can be used. Only a <i>responsible authority</i> can issue a licence to use water.

Water use registration and license

Water use is controlled through regulating the way water can be used. Most Countries regulate water use through registration of water use and through different types of authorizations.

5. Legal and Policy Compliance

It is the responsibility of each Operating Company to ensure that all applicable international treaties, national, Province or City water and wastewater related legislation, regulations or protocols be identified and adhered to.

In South Africa, national legislation and municipal bylaws prohibit wastage of water. Certain water use activities, generally involving abstraction of surface (more than 50m³ per day) or groundwater (more than 10m³ per day), and storage of more than 10 000m³ of water. All these uses require a water use registration and depending on quantity of water and location of site, may require a water use licence.

Municipal by-laws generally also stipulate that nothing but storm water may enter storm water drains and that storm water must not enter sewage drains. Process effluent (including from wash bays) usually requires municipal consent for discharge to municipal sewer, which must meet the discharge limits as set in the municipal by-laws. Special permission is required from the Department of Water and Sanitation (DWS) if process effluent is to be discharged to storm water (i.e. if linking to a municipal sewer is not possible). Any treatment of wastewater typically also requires a permit/formal permission.

For all South African operations special cognisance should be given to the National Water Act (No 36 of 1998) and the National Environmental Management Act (NEMA) (No. 107 of 1998). It is also mandatory for all Operating Companies to implement this Imperial Logistics Standard.

6. Water and Wastewater Management Practices and Controls / Requirements

There are key aspects pertaining to the National Water Act that all Operating Companies should familiar themselves with before water is being used in their operations (also see Section 1.3 – Water use (authorization)):

6.1. Commitment to water conservation

For any management program to be successful, the desire to conserve water must be present from the highest level of management. Senior management should understand that water conservation is necessary and be fully committed to its support.

Water conservation awareness should be aimed at all staff levels and water management initiatives should be planned and provisions made in the annual budget.

6.2. Identification of water use and wastewater discharge

Given the constraints regarding lawful water uses, Logistics requires all Operating Companies to:

- Identify all water uses in their operations to ensure that it is in line with the provisions of the local National Water Act (or similar), as well as the local provincial and municipal requirements.
- Identify all final discharge points for all wastewater (storm water, domestic and process effluent) and note these on a site plan or other identifiable document and ensure that all discharges are lawful and that the required licences or permits are in place and valid.

- Implement a water management hierarchy by prioritizing water treatment, water recycling and water re-use.

6.3. Water saving

The first step in any water saving initiative is to monitor water consumption. All Operating Companies should establish their baseline consumption. Once baseline consumptions have been determined, water saving targets must be introduced.

It should be a priority at all operations to repair leaking lines, valves and water faucets. In drought stricken areas, gardens should not be watered with potable water between 10:00 and 16:00. (Drip systems are preferable to spray systems).

To assist in determining on-site water consumption the installation of online water meters, to capture the necessary data, e.g. on shared facilities, or to itemise water consumption figures for wash bays and other high consumption areas is encouraged.

When new facilities are planned ¹¹install water efficient fixtures in restrooms and shower areas. These represent real opportunities for water savings, such as:

- High-efficiency toilets with a cistern capacity of not exceeding than 9 litres per flush,
- High-efficiency urinals,
- Faucet aerators in sinks used for hand washing,
- Efficient showerheads.

The National Water Act does not require the storing or using of run-off water from a roof to be licenced. It is therefore advocated that where possible all facilities investigate the possibility of installing rainwater harvesting equipment (tanks) at their premises. Water collected in this manner can be used for several non-drinking purposes:

- Water of gardens
- Flushing of toilets
- Washing of cars
- Connected to the wash bay system as part of the water recycling process.

At facilities where trucks or other types of vehicles are washed on a frequent basis, a wash bay water recycling system (system of bio-reactors and mechanical filtering) should be considered. Between 50 and 90% of water can be saved depending on varying site factors. The purpose of these processes is sustainable water usage and conservation. Rather than discharging waste water to municipal drains and surface waters, such as rivers and oceans water recycled water can be re-used. By connecting the system to rainwater harvesting equipment additional savings can be realised. This recycled water can satisfy most water demands, as long as it is adequately treated to ensure water quality appropriate for the intended use.

¹¹ Retrofitting of existing infrastructure should also be considered.

6.4. Wastewater control

In line with the National Water Act the discharge of waste or water containing waste into a water resource through a pipe, canal, sewer or other conduct, and disposing in any manner of water which contains waste from any industrial process require a registration. Therefore, runoff from all washing activities (vehicles, containers, machinery, plant, floors) should be contained, and discharged via an oil-water separator to municipal sewer. Where this is not feasible, special permission will need to be obtained from the relevant authority.

Washing of trucks and cars should only take place on sealed (i.e. not brick) hardstanding, in designated washday areas where drainage discharges as described above.

Storm water drains should be inspected at regular intervals for signs of contamination.

It is important to note that the treatment of effluent is a licensed waste management activity in terms of the National Environmental Management: Waste Act (2008) in South Africa.

6.5. Wastewater quality

There are standards governing the quality of wastewater discharged. In South Africa, the following applies:

- Waste or wastewater may not be discharged to storm water or to a water resource, without registration and authorisation with the Department of Water and Sanitation. Where authorisation is obtained, the discharges must be in compliance with the General Authorisations in terms of section 39 of the National Water Act (most recently: GN 655 of 6 September 2013). The allowable quality and the specifications are found in Table 2.1 of the abovementioned government notice (e.g. the allowable pH, suspended solids, chemical oxygen demand, oil & grease content, presence of metals, etc.). It is good practice to periodically sample storm water discharges from as site to determine how the quality compares to these national wastewater quality standards. This also applies to facilities outside South Africa, which do not have formal discharge standards of their own.
- Industrial effluent (i.e. not domestic effluent) discharged to municipal sewer requires authorisation from the applicable municipality. Each municipality will have discharge standards governing the quality of effluent that may be discharged (through By-Laws). Facilities discharging industrial wastewater to sewer must ensure that discharges meet the quality specified in the municipal authorisation. This should be undertaken by periodic sampling, which will generate records of wastewater quality over time, and may be useful in the event of there every being a dispute relating to the wastewater quality of the site.
- For facilities located outside South Africa, period sampling of storm water and effluent discharges should be undertaken. These should be compared to applicable regulations where these exist. In the absence of regulatory control, South African standards for effluent quality should be used as a guide.

Where effluent quality standards are not specified by host governments, the South African standards specified above shall be adhered to.

7. Training and Competence

Staff must receive appropriate training to ensure competence with regards to implementing this Water and Wastewater Management Standard and requirements.

8. Continuous Improvement

Operating Companies shall agree deliver improvement in water and wastewater management practices on a continuous basis. An improvement plan shall specify the proposed improvements to the products, services and processes. Cost-saving benefits to Logistics and the site shall be highlighted.

A Continuous Improvement Plan shall cover at least the following areas:

- pure economic improvement, which includes introducing efficiencies and real cost savings, and
- environmental improvement.

9. Water and Wastewater Management Target

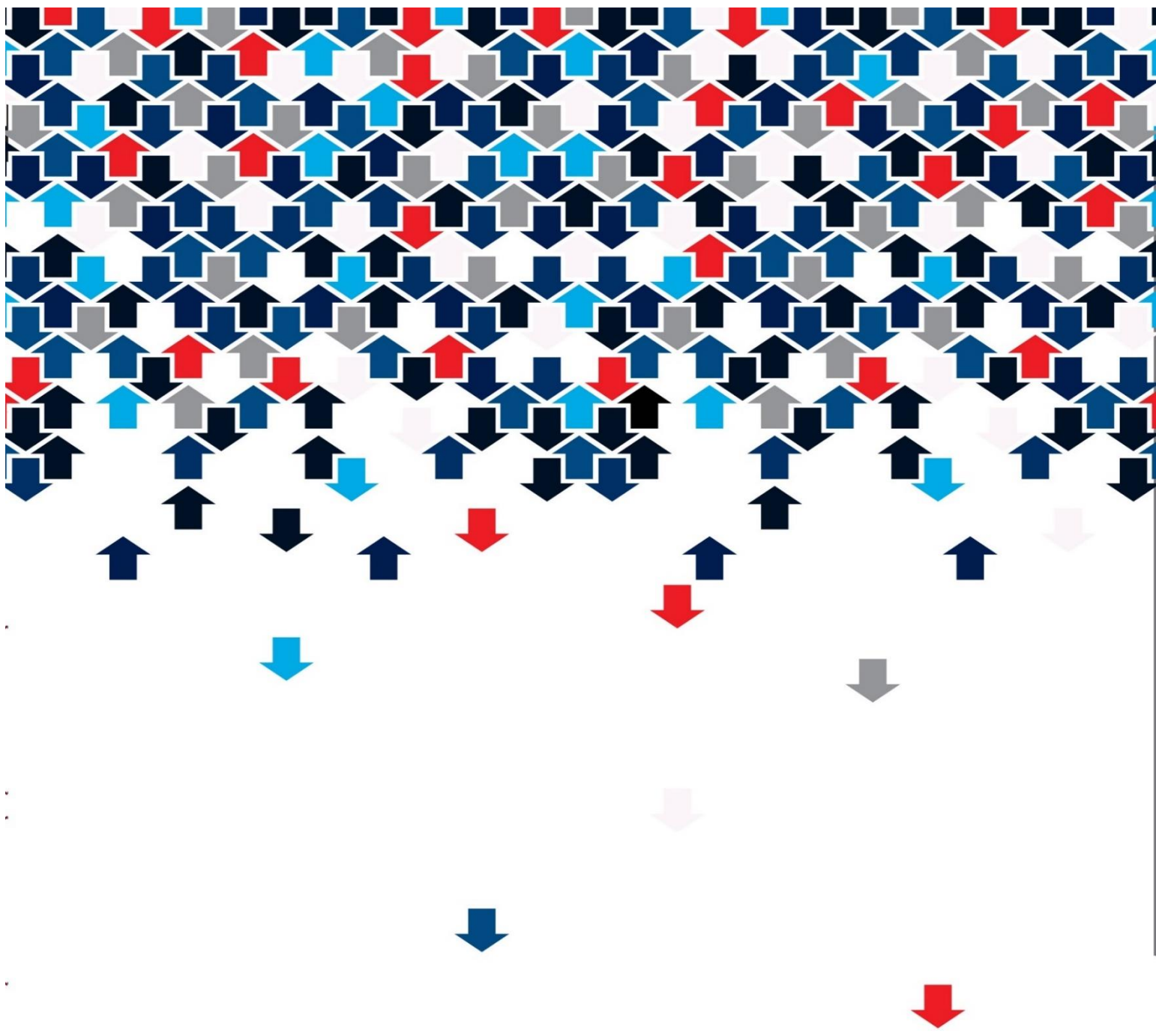
A Group-wide Water and Wastewater Management Consumption Reduction Target will be set and communicated to all Operating Companies.

10. Supporting Documentation

A Standard Operating Procedure (SOP) for the implementation of this standard is required per Operating Company or per facility / site.

11. Document Control

This Standard will be reviewed every three years from date of first publication (2017).



2017

Environmental Sustainability: Greenhouse Gas & Climate Change Management Standard

(Series No SEM6)



1. Introduction to greenhouse gas and climate change management

Imperial Logistics (hereafter Logistics¹²) acknowledges that the activities of its Operating Companies have an impact on the environment, notably those activities that are associated with climate change and greenhouse gas emissions, and hence developed a management standard with the aim to optimize and systematically reduces Greenhouse Gas emissions and play its part in combatting Climate Change.

2. Background

A growing number of companies are responding to climate change by attempting to mitigate greenhouse gas (GHG) emissions in their operations and supply chains. Imperial Logistics and its Operating Companies, which include both transport and warehousing operations, are contributing to global warming due to the release of GHGs from, amongst others, combustion of large volumes fuel (petrol and diesel) and electricity consumption.

As a result of the above the need to re-evaluate and re-assess the manner in which we use and manage our fuel sources and energy supplies in a sustainable manner have become important, not only to improve Shareholder value, but also of being a responsible corporate citizen. It further reflects the manner in which we execute the commitment to monitor and reduce our carbon footprint, depicted in the Imperial Logistics Environmental Management Framework and Policy (see document reference SEM1) and Environmental Policy Statement (see document reference SEM2).

3. Scope

This standard pertains to all Scope 1, 2 and 3 GHG emissions and applies to all Logistics' Operating Companies throughout Africa, as well as where Logistics has authority to introduce and implement its operating policies and standards.

4. Definitions

The following list of definitions is the general terms to be applied and interpreted when dealing with Energy Management within Logistics:

	A colourless, odourless gas produced by burning carbon and organic compounds and by respiration. It is naturally present in air (about 0.03 per cent) and is absorbed by plants in photosynthesis.
Carbon dioxide:	Extra carbon dioxide into the atmosphere, due to the burning of fossil fuels, increases the greenhouse effect. More heat is trapped by the atmosphere, causing the planet to become warmer than it would be naturally. The increase in global temperature this causes is called global warming.
Carbon footprint:	The sum of all emissions of CO ₂ (carbon dioxide), which were induced by a company's activities in a given time frame.
Energy efficiency:	Energy efficiency means using less energy to provide the same service. For example, a compact fluorescent bulb is more efficient than a traditional

¹² Implies all Operating Companies throughout Africa.

incandescent bulb as it uses much less electrical energy to produce the same amount of light.

Fossil fuels:	A natural fuel such as coal or gas, formed in the geological past from the remains of living organisms.
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Global warming or Climate change:	A gradual increase in the average temperature of the earth's atmosphere and its oceans, a change that is believed to be permanently changing the Earth's climate.
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Greenhouse Gases (GHG):	Any gaseous compound in the atmosphere that is capable of absorbing infrared radiation, thereby trapping and holding heat in the atmosphere. By increasing the heat in the atmosphere, greenhouse gases are responsible for the greenhouse effect, which ultimately leads to global warming.
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Greenhouse Gas Effect:	The trapping of the sun's warmth in a planet's lower atmosphere, due to the greater transparency of the atmosphere to visible radiation from the sun than to infrared radiation emitted from the planet's surface.
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Scope 1 emissions:	<p>Scope 1 are also referred to as Direct GHG, and are defined as 'emissions from sources that are owned or controlled by an organization', such as:</p> <p>Stationary Combustion: from the combustion of fossil fuels (e.g. natural gas, fuel oil, propane, etc.) for comfort heating or other industrial applications (e.g. generators).</p> <p>Mobile Combustion: from the combustion of fossil fuels (e.g. petrol, diesel) used in the operation of vehicles or other forms of mobile transportation.</p> <p>Process Emissions: emissions released during the manufacturing process in specific industry sectors (e.g. cement, iron and steel, ammonia).</p> <p>Fugitive Emissions: unintentional release of GHG from sources including refrigerant systems and natural gas distribution.</p>
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Scope 2 emissions:	Scope 2 are also referred to as Energy Indirect GHG, and are defined as 'emissions from the consumption of purchased electricity, steam, or other sources of energy (e.g. chilled water) generated upstream from the organization (e.g., at Power Generation Plant).
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Scope 3 emissions:	<p>Scope 3 are also referred to as Other Indirect GHG, and are defined as 'emissions that are a consequence of the operations of an organization, but are not directly owned or controlled by the organization.</p> <p>Scope 3 includes a number of different sources of GHG including employee commuting, business travel, third-party distribution and logistics, production of purchased goods, emissions from the use of sold products, and several more. Based on data from many companies that have conducted comprehensive assessments of their Scope 3 emissions, it is evident that Scope 3 GHG are by far the largest component of most organizations' carbon footprint.</p> <p>Imperial Logistics does record some, but not all its Scope 3 emissions.</p>
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5. Legal and Policy Compliance

It is the responsibility of each Operating Company to ensure that all in-Country, Province or City Greenhouse Gas and Climate Change legislation, regulations or protocols be identified and adhered to, where feasible and applicable.

Regardless of the above, it is mandatory for all Operating Companies to implement this Imperial Logistics Standard.

6. Greenhouse Gas and Climate Change Management Practices and Controls / Requirements

Logistics requires all Operating Companies to undertake the following:

6.1. Identifying and Capturing Scope 1 activities

As per the definitions depicted in Section 1.3 all Scope 1 emission sources must be identified and captured as per the requirements outlined in the ISMS Guideline Document.

Activities have to be identified down to site level and include:

- All Mobile Combustion activities. These include:
 - Petrol (*used by income generating fleet vehicles with normal engines. This excludes fuels consumed because of customer activities where vehicles are rented (e.g. car rental refills),*
 - Diesel (*used by income generating fleet vehicles with normal engines. This excludes fuels consumed because of customer activities where vehicle are rented (e.g. car rentals),*
 - LPG (*used for material handling and/or transport purposes (e.g. forklifts owned/leased by the company).*
- All Non Mobile Combustion activities. These include:
 - Lubricant Oils (*used as a lubricant for equipment/vehicles owned by the company. This excludes oils supplied to a third party either as a direct sale or as part of a vehicle service),*
 - Lubricant Greases (*used as a lubricant for equipment/vehicles owned by the company. This excludes lubricants supplied to a third party either as a direct sale or as part of a vehicle service).*
- All Stationary Combustion activities. These include:
 - Diesel (*used as a fuel source for stationary equipment (e.g. generators),*
 - Paraffin (*used as a fuel source for stationary equipment),*
 - LPG (*used for stationary equipment (e.g. used in ovens/ furnaces/ generators) for non-transport purposes),*
 - Heavy Fuel Oil (commonly known as HFO), *including residual and bunker fuel oil - used as a fuel source in stationary equipment (e.g. boilers),*
 - Natural Gas (*used as a fuel source in stationary equipment (e.g. building heating).*
- Refrigerant Gasses (*gasses used in air conditioners or cold storage).*

6.2. Identifying and Capturing Scope 2 activities

As per the definition depicted in Section 1.3 all Scope 2 emission sources must be identified and captured as per the requirements outlined in the ISMS Guideline Document.

Activities have to be identified down to site level and include:

- Purchased electricity from energy suppliers (*total kilowatt hours purchased from traditional energy suppliers (the grid). Examples in SA would be Eskom or municipalities*).

6.3. Identifying and Capturing Scope 3 activities

As per the definition depicted in Section 1.3 all Scope 3 emission sources must be identified and captured as per the requirements outlined in the ISMS Guideline Document.

Activities have to be identified down to site level and include:

- Business Travel in commercial aircraft (*economy class, short haul (<1600km), business class, short haul (<1600km), economy class, long haul (>1600km), economy class, long haul (>1600km)*),
- Vehicle Rental Diesel (*vehicle rental for official business purposes*),
- Vehicle Rental Petrol (*vehicle rental for official business purposes*),
- Business mileage in private diesel powered vehicles (*official business mileage in private diesel vehicles*),
- Business mileage in private petrol powered vehicles (*official business mileage in private diesel vehicles*),
- Subcontractor travel in petrol vehicles (*tonne-kilometres travelled by subcontractors using light goods vehicle and heavy goods rigid and articulated vehicles*),
- Subcontractor travel in diesel vehicles (*tonne-kilometres travelled by subcontractors using light goods vehicle and heavy goods rigid and articulated vehicles*).

6.4. Greenhouse Gas and Climate Change improvement programs / plans for Scope 1, 2 and 3 activities

Based on the information obtained by implementing sections 6.1, 6.2 and 6.3, all Operating Companies must develop, implement, record and report on all Greenhouse Gas and Climate Change management improvement programs or plans aimed at reducing their carbon footprint. Some of these programs and plans will be developed as part of the requirements and fulfilment of other Management Standards, notably the Waste (SEM3), Energy (SEM4) and Water (SEM5) Management Standards.

For any management initiatives requiring CAPEX, a maximum payback period of three to eight years, depending on the initiative, should be used as a feasible guideline.

7. Training and Competence

Staff must receive appropriate training to ensure competence with regards to implementing this Greenhouse Gas and Climate Change Management Standard and requirements.

8. Continuous Improvement

Operating Companies shall agree to deliver improvements on GHG and Carbon management practices on a continuous basis. An improvement plan shall specify the proposed improvements to the products, services and processes. Cost-saving benefits to Logistics and the site shall be highlighted.

A Continuous Improvement Plan shall cover at least the following areas:

- pure economic improvement, which includes introducing efficiencies and real cost savings, and
- environmental improvement (reduction of emitted GHGs).

9. Greenhouse Gas and Climate Change Targets

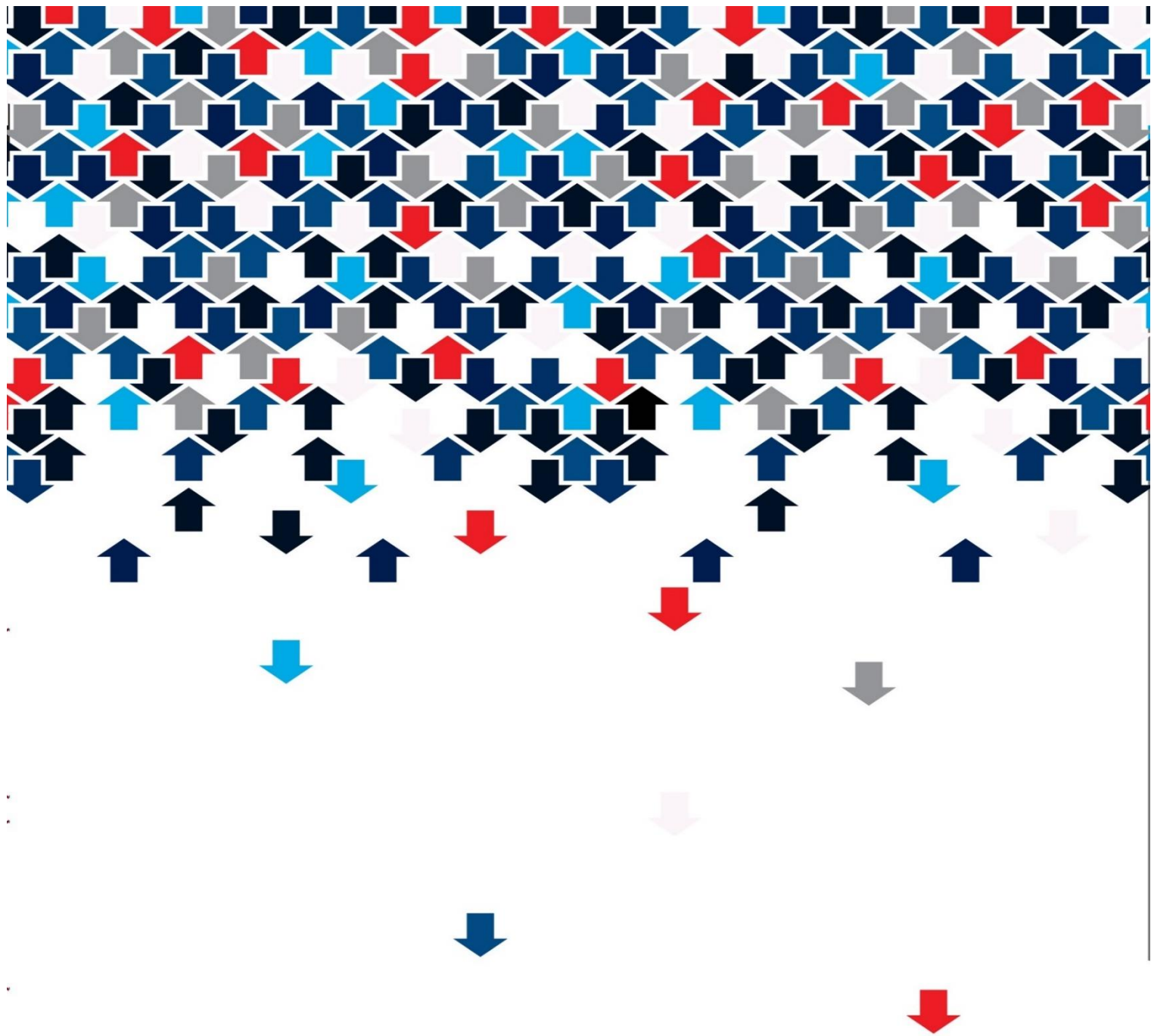
A Group-wide Greenhouse Gas and Climate Change Consumption Reduction Target will be set and communicated to all Operating Companies.

10. Supporting Documentation

A Standard Operating Procedure (SOP) for the implementation of this standard is required per Operating Company or per facility / site.

11. Document Control

This Standard will be reviewed every three years from date of first publication (2017).



2017

Environmental Sustainability: Prevention of Soil & Groundwater Contamination Management Standard

(Series No SEM7)



1. Introduction to the prevention of soil and groundwater contamination

Imperial Logistics (hereafter Logistics¹³) recognises the potential detrimental effect of polluting soil and groundwater resources resulting from operational processes. As a result of the aforesaid, a Prevention of Soil and Groundwater Contamination Management Standard, with the aim to ensure the principle of the *precautionary approach* prevails, has been developed.

2. Scope

This standard pertains to all activities where a potential for soil or groundwater contamination/pollution exists and applies to all Logistics' Operating Companies throughout Africa, as well as where Logistics has authority to introduce and implement its operating policies and standards.

3. Legal and Policy Compliance

All Operating Companies must show compliance with relevant legislation associated with pollution prevention, storage and handling of hazardous substances, and contaminated land in the countries where they operate.

In terms of South Africa legislation:

- Companies must be able to demonstrate that all reasonable measures have been taken to prevent pollution. Specific reference to pollution prevention is made in the National Environmental Management Act (Section 28 of Act No 107 of 1998) and the National Water Act (Section 19 of Act No 38 of 1998).
- The Polluter Pays principle applies, allowing authorities to identify a party responsible for polluting, and requiring that they pay for costs of clean-up (Section 2(4)p of Act No 107 of 1998).
- National legislation requires that certain authorities are notified in the event of an environmental emergency; such as a significant spill (see Section 20(3) of Act No 38 of 1998 and Section 30(3) of Act No 107 of 1998).
- In terms of the Waste Act (National Environmental Management: Waste Act, No 59 of 2008), contaminated land may not be transferred without informing the persons to whom it is being transferred to that contamination exists (See Section 40(1) of Act No 59 of 2008).
- The Waste Act also requires that significant land contamination be reported to the Department of Environmental Affairs (DEA) (See Section 36(5) of Act No 59 of 2008).
- Storage arrangements for flammable substances and bulk tanks are typically controlled by local bylaws and usually require Flammable Certificates and/or permission from local authorities.

This standard provides general rules for prevention of soil and groundwater contamination, and describes risks associated with soil and groundwater contamination. It should be read in conjunction with the Waste Management Standard (SEM3) and the Water and Wastewater Management Standard (SEM5) as these standards also describe management measures which will reduce the potential for contamination resulting from current site activities.

¹³ Implies all Operating Companies throughout Africa.

4. Definitions

The following list of definitions is the general terms to be applied and interpreted when dealing with Water and Wastewater Management within Logistics:

Bunded surface / bunding / bunded	<p>An embankment or wall of brick, stone, concrete or other impervious material, which forms the perimeter and floor of a compound and provides a barrier to retain liquid. Bunds are designed to contain spillages and leaks of liquids used, stored or processed above ground and to facilitate clean-up operations.</p> <p>The volume of bunded areas must be 110% of the capacity of the largest tank within the bunded area with an additional contingency based on the volume of rainfall associated with a 1 in 100 year 48 hour storm event.</p>
Contaminated land	<p>An area where the presence of a substance or micro-organism occurs above a concentration that is normally present in or under the land that may be contaminated. The substance or micro-organism may directly or indirectly adversely affect the quality of soil or the environment</p>
Hazardous substance	<p>Any substance that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics have a detrimental impact on health and the environment</p>
Precautionary approach	<p>The implementation of precautionary measures to anticipate, prevent or minimize the causes of environmental damage and mitigate the adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing such measures, taking into account that policies and measures to deal with environmental damage should be cost-effective so as to ensure global benefits at the lowest possible cost (Also known as the BATNEEC principle - Best Available Technology Not Entailing Excessive Cost)</p>

5. Prevention of Soil and Groundwater Contamination and Controls / Requirements

5.1. Potential sources of soil and groundwater contamination

Potential sources of soil and groundwater contamination associated with Imperial Logistics and its operations include:

- Maintenance areas;
- Washing areas (e.g. wash bays);
- Refuelling areas;
- Hazardous substances storage and handling areas, including fuel, oil, paint, solvents, dewaxing chemicals, cleaning chemicals, degreasers, etc.;
- Waste storage areas;
- Above ground storage tanks and associated pipework;

- Underground storage tanks and associated pipework;
- Leaks or spills from vehicles or equipment;
- Electrical transformers;
- Generators;
- Areas where there is no hardstanding, or where hardstanding is cracked and in a poor condition;
- Underground sumps or separation systems.

Indirect soil and groundwater contamination may also occur on premises that Logistics owns or operates, for example, from historic activities prior to site occupation, or off-site contamination that has migrated on to site.

5.2. General requirements

- Any material, including waste, fuel, chemicals, products, etc., that may cause pollution or contamination must be managed and stored in such a way as to avoid spillage/leakage to ground. Secondary containment (bunds, drip trays, sumps) must be provided wherever possible for such items.
- No waste material or effluent may be discharged directly to a ground or storm water drain.
- Machinery or appliances that could cause contamination, such as generators and transformers, should be provided with containment for spills and leaks, e.g. drip trays.
- Maintenance activities should be undertaken in dedicated areas on sealed (impermeable) hardstanding. Where this is not possible, drip trays should be appropriately placed, and absorbent material (non-combustible) put in place to absorb any accidental spillage.
- Dedicated maintenance areas should be provided with secondary containment, where potentially contaminated storm water can discharge via an oil/water interceptor to municipal sewer.
- Regular removal of sludge from water/oil interceptors must be undertaken (Note: the sludge must be treated as hazardous waste). The integrity of underground systems must be visually inspected on a regular basis, e.g. 6-monthly or annually, and results documented.
- Regular integrity testing of underground tanks and associated pipework shall be undertaken, and frequency should increase with age (e.g. at least once a year for equipment over 12 years old).
- Heavy equipment and vehicles should only be parked on sealed hardstanding. Equipment/vehicles which are stored for long periods of time, older or known to leak should be provided with drip trays.

5.3. Requirements pertaining to the control, handling and storage of hazardous substances

The potential impacts from hazardous substances are the release of contaminated water / effluent onto the open soil, or when underground in tanks, into the groundwater aquifer. The following precautions should be in place at all times:

- An up-to-date inventory of all hazardous substances has to be established;

- All hazardous chemicals must be clearly labelled for the benefit of current users, emergency personnel, and future users (Original manufacturers' labels must not be removed or defaced);
- Hazardous chemicals that are not in the manufacturer's original container (e.g., working solutions prepared in a workshop) must, at a minimum, be labelled with the contents of the container. If the contents are hazardous, attach a label indicating the hazard to warn individuals in the work area (It is not necessary to label containers that will be used temporarily (during one work shift) and are under immediate control of a supervisor);
- The storage of flammable and combustible liquids such as oils will comply with all relevant legislation and regulations;
- Any spills will be rendered harmless and arrangements made for appropriate collection and disposal including cleaning materials, absorbents and contaminated soils;
- Ensure that spill kits are available on site to clean up spills and leaks;
- Obtain any storage and disposal permits/approvals necessary and comply with the conditions attached to such permits and approvals;
- Ensure that any delivery drivers are appropriately supervised by an individual familiar with all procedures and restrictions on site. This is of particular importance during off and on-loading of materials;
- Operating Companies must comply with all national, regional and local legislation with regard to the storage, transport, use and disposal of chemicals, harmful and hazardous substances and materials;
- Operating Companies will furthermore be responsible for the training and education of all personnel on site who must be handling the material about its proper use, handling and disposal as well as spill response;
- Operating Companies must be responsible for establishing an emergency procedure for dealing with spills and other emergency procedures;
- Storage of all hazardous materials is to be safe, tamper proof and under strict control;
- Fuels, solvent and other wastes must be stored in vessels equipped with secondary containment structures and must be removed from site in compliance with the relevant legislation and regulations;
- The containers in which the products are kept must, in compliance with hazardous material management procedures, be removed from the site once empty. Hazardous products must otherwise be stored on adequately bunded surfaces in the designated hazardous material storage areas;
- Depending of the type of material, storage areas for hazardous substances will be roofed with impervious material (e.g. cement and chemicals);
- Fluids must not be stored together with solids; instead fuels, lubricants, transmission and hydraulic fluids must be stored in a designated area for fluids;
- Hazardous chemicals be stored in secondary containers and the relevant Material Safety Sheets (MSDS) must be available on site;

- Operating Companies must provide adequate and approved facilities for the storage and recycling of used oil and contaminated hydrocarbons. Such facilities must be designed and situated with the intention of preventing pollution of the surrounding area and environment;
- Identify and maintain a register of all activities that involve the handling of potentially hazardous substances, as well as devise and supervise the implementation of protocols for the handling of these substances. This will include all fuels, oils, lubricants and grease;
- Ensure that all hazardous substances are handled in accordance with the manufacturer's specifications and legal requirements;
- Store all hazardous substances (including oils, fuels, chemicals, tar etc.) in a manner prescribed in the relevant Acts and Regulations.

5.4. Removal/Decommissioning of bulk or unused storage tanks

If a tank or associated pipework is no longer required for the storage or use of a product or chemical substance, the owner of the tank or person in charge of the premises on which the installation was erected must:

- notify the local authorities,
- within 30 days of the cessation, remove the flammable substance from the installation and render it safe (follow safety instructions),
- within six months of the cessation, remove the installation including any associated pipework, from the premises entirely.

Prior to removal, integrity testing should be undertaken to confirm whether tanks were sound while operational, or whether any leaks can be expected.

Soil and groundwater specialists shall collect, as a minimum, five soil samples from the removed Underground Storage Tank (UST) area (one from each of the side walls and one from the base) and send these for laboratory analysis, to determine whether any leakage occurred.

If contamination is found, further intrusive investigations should be undertaken to determine the extent of the contamination. Contaminated soil should be treated, or removed for disposal as hazardous waste (consult a specialist).

If the removal of an underground tank installation detrimentally affects the stability of the premises, the owner or person in charge of the installation must apply in writing to the controlling authority to fill the tank with liquid cement slurry.

6. Training and Competence

Staff must receive appropriate training to ensure competence with regards to implementing this Prevention of Soil and Groundwater Contamination Management Standard and requirements.

7. Supporting Documentation

A Standard Operating Procedure (SOP) for the implementation of this standard is required per Operating Company or per facility / site.

8. Document Control

This Standard will be reviewed every three years from date of first publication (2017).