

# Pollution Solutions

## CREMATORIUM OPERATORS

JULY 2000



# Contents

<b>EXPLANATORY NOTES FOR OPERATOR'S ENVIRONMENTAL GUIDE (OEG)</b> .....	1
Purpose of the OEG .....	1
Limitations of the OEG .....	1
How to use the OEG .....	2
<b>ENVIRONMENTAL DUTY</b> .....	3
<b>ENVIRONMENTAL MANAGEMENT</b> .....	4
Environmental Management Program (EMP) .....	4
Environmental Management System (EMS) .....	4
<b>CREMATION PROCESSES AND MANAGEMENT</b> .....	6
Cremating .....	6
Cleaning Operations .....	7
<b>STORAGE OF POTENTIAL CONTAMINANTS</b> .....	8
<b>WASTE MANAGEMENT</b> .....	10
<b>SOLID WASTES</b> .....	11
Hazardous Wastes (regulated) .....	11
Non-hazardous Wastes .....	11
<b>LIQUID WASTES</b> .....	12
Non-sewerable Wastes (regulated) .....	12
Sewerable Wastes .....	12
<b>STORMWATER MANAGEMENT</b> .....	13
<b>AIRBORNE WASTES</b> .....	14
Stack Emissions .....	14
Dust Control .....	14
Odour/Volatile Emissions .....	15
<b>NOISE MANAGEMENT</b> .....	16
<b>VISUAL AMENITY</b> .....	17
<b>APPENDIX 1 – DEFINITIONS</b> .....	18
<b>APPENDIX 2 – SCHEDULE 7 - REGULATED WASTES</b> .....	20
<b>APPENDIX 3 – ON-SITE TREATMENT AND REUSE OF WASTEWATER OR STORMWATERS</b> .....	21

# EXPLANATORY NOTES FOR OPERATOR'S ENVIRONMENTAL GUIDE (OEG)

## Purpose of the OEG

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The *Environmental Protection Act 1994* states 'A person must not carry out an activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to prevent or minimise the harm (the "general environmental duty")'. This clause applies to all persons in Queensland.

Under the *Environmental Protection Act 1994* and *Integrated Planning Act 1997* Local Government licenses and approves businesses that have the potential to cause environmental harm – Environmentally Relevant Activities (ERAs). Crematoria are level 1 ERAs listed in the *Environmental Protection Regulation 1998*.

All ERAs must have a development permit and/or an environmental authority (licence) which lists the conditions of operation to prevent pollution. However, setting these conditions is only part of the story. Businesses should know how to meet these conditions (compliance) and to go beyond (best practice).

This Operator's Environmental Guide (OEG) – *Pollution Solutions for Crematorium Operators* - has been developed to assist crematorium operators to achieve their 'general environmental duty'. That is, to achieve compliance with the *Environmental Protection Act 1994* and progress towards best practice environmental management.

The OEG was developed jointly by Brisbane City Council and representatives of the crematorium industry.

## Limitations of the OEG

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Council has written this OEG as a guide only. It does not form part of the licence conditions. Complying with this document does not necessarily exempt the licensee from prosecution or ensure compliance with the *Environmental Protection Act 1994, Regulation and Policies* (Air, Water, Noise and Interim Waste).

Licences may contain conditions that vary from the requirements of the OEG. These are often included because of site specific requirements or because of the nature of the activity. Whether your operational performance meets the conditions of your development permit and/or environmental authority (licence) will be the main determinant of compliance.

The control measures in the OEG are recommendations only. **It remains the responsibility of each operator and employee of the business to satisfy the general environmental duty** applicable to that business. The operator should carefully consider the information in this OEG and put in place measures that help to achieve this objective.

This OEG represents accepted industry practice at the time of issue and is therefore subject to change. Please note the date recorded on the front.



## How to use the OEG

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This OEG is based on three central concepts. These are explained below and each operational process is defined according to these concepts.

### Environmental Outcomes

are outcomes, or goals, Council considers important to achieve if the environment is to be protected. **The Environmental Outcomes are highlighted in bold text.** You should try to satisfy the general environmental duty. The environmental outcomes in this OEG do not ensure that this duty is achieved and therefore should be considered in conjunction with your development permit and/or licence conditions.

### Compliance

means the control measures that Council recommends as the minimum required to meet the environmental outcome for the crematorium industry.

In some cases, a number of compliance control measures may be listed for one process. In these cases, you are advised to aim for the control measure or combination of control measures that is most likely to achieve the environmental outcome for that process.

Alternatively, you may be able to meet an environmental outcome in a manner that is not listed in this OEG. It is recommended that in these instances the alternatives be discussed with a Council Officer prior to implementation.

Although this guide lists some solutions, Council encourages operators to develop alternative ideas or innovations that are consistent with the environmental outcomes and other relevant requirements.



### Best practice

means the control measures that are considered to be above the minimum requirements. They are not compulsory. Best practice incorporates concepts such as cleaner production, waste minimisation, recycling and reuse. Use of best practice control measures may help to improve industry standards and progress towards best practice in the industry. Best practice measures are marked with a  in the text.

In some cases, a business may be required to use a best practice control measure, rather than compliance, if an authorised officer believes that it is necessary to achieve an environmental outcome.

The best practice options listed are not fully inclusive; they only indicate what options may be available. Other best practice options not listed in this OEG may be used.

Importantly, this OEG takes into account changing industry standards, technology improvements, and scientific knowledge and community expectations



# ENVIRONMENTAL DUTY

## Develop environmental commitment and sound environmental performance

- Develop a commitment to being good neighbours and to preventing or minimising pollution.
- Complete an Annual Return, and forward to Council with your licence fee on the anniversary of your licence.
- Ensure all staff are aware of the development permit and/or licence conditions and the relevant methods and procedures contained in this OEG.



Develop an environmental management system (EMS) specifically for your business.



Involve staff in developing environmental management procedures.



Ensure all staff are trained in the environmental management of the business.



# ENVIRONMENTAL MANAGEMENT

## Implement environmental policies and practices

- The object of the *Environmental Protection Act 1994* is to protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends (ecologically sustainable development).

## Environmental Management Program (EMP)

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### Achieve compliance for non-conforming activities

- Operators who are currently unable to comply with the requirements of licence conditions and the OEG may be required to submit an EMP for approval.
- An EMP is a binding agreement between your business and Council that sets out the areas where your business needs to improve to achieve compliance, and the time frame to achieve them. This allows you to operate your business although you may not fully comply, as long as Council has a firm arrangement with you to rectify problem areas in a mutually agreed time.

## Environmental Management System (EMS)

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### Maintain compliance with licence conditions and implement best practices



Develop an EMS to ensure environmental performance and compliance with licence conditions and the OEG. An EMS provides a systematic method for meeting environmental outcomes, licence conditions and the ways or procedures for meeting and exceeding compliance. It allows for:

- better practices
- monitoring of, and reporting on, performance
- training of staff
- keeping of relevant records
- complaint response
- emergency and incident response.



## Plan to protect your environment and reduce your business risks



An EMS addresses noise, air quality, waste and any other relevant environmental issues associated with processes that could reasonably pose a significant risk to the environment, if not appropriately controlled, monitored and/or managed.

- For low risk activities, the EMS should be kept concise with control measures, checklists and records (e.g. development permit, waste disposal) maintained.
- In higher risk activities, licence conditions and procedures generally require more detail in an EMS. In some cases, preparation by an environmental consultant is recommended.
- The basic objectives are to increase business performance and reduce environmental risks through good management practices. Key components in the EMS include:
  - monitoring and reporting
  - records
  - training of employees
  - complaint response
  - emergency and incident responses.



# CREMATION PROCESSES AND MANAGEMENT

## Cremating

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### Protect air quality and community values

- Minimise the release of airborne contaminants to protect environmental health and meet community expectations e.g. no visible smoke emissions or fallout of ash during different stages of the process.
- The activity must not cause an odour nuisance (refer to Airborne Wastes section).

### Minimise the release of hazardous airborne compounds

- In the combustion process:
  - maintain an adequate residence time and temperature (in accordance with manufacturers' specifications) inside the incinerator to ensure efficient combustion, full incineration and reduction of noxious emissions
-  computer control and remote monitoring of the combustion process (e.g. temperature and time) are recommended.
-  Avoid burning PVC plastics, polystyrene foams and lead or polyurethane paints in cremating operations.
-  Replace petroleum-based adhesives with water based products where possible.
-  Remove external casket fittings prior to cremation where it is able to be undertaken in a sensitive manner.

### Maintain air quality standards

-  The stack should be designed to maximise air dispersion of airborne compounds (e.g. Ausplume modeling using Brisbane climatic data). The following specifications are recommended:
  - minimum exhaust temperature – 400°C
  - stack diameter – 0.46M
  - minimum exit velocity – 15M/s
  - stack height – 10M.



### **Protect water, soil and groundwater quality**

- Unwanted cremated wastes must be either:
  - disposed of by a licensed waste removalist
  - buried on-site if written Council approval has been granted.
- To avoid potential pollution hazards when disposing of unwanted cremated remains on-site:
  - construct a soil bund to divert stormwater runoff from burial pits
  - never excavate burial pits below the water table.
- Undertake a study of underground soil characteristics on proposed new burial sites. Knowledge of the soil will assist in preventing seepage of possible hazardous leachates to soil and groundwater.

### **Prevent environmental nuisance**



Locate the burial area for unwanted cremated remains at least 200 metres from any boundary.

## **Cleaning Operations**

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### **Protect stormwater, soil and groundwater quality**

- Washdown water used for housekeeping or sanitation reasons, must be either directed to the sewerage system under the conditions of a Trade Waste Permit or collected and disposed by a licensed waste removalist.

### **Reduce emissions of volatile liquids**

- Avoid unnecessary evaporation of volatile liquids (solvents) by storing in a covered container.



# STORAGE OF POTENTIAL CONTAMINANTS



## Minimise accidental spills and prevent contamination of soil, stormwater, groundwater or air

- Store chemicals and other materials that may contaminate soil, stormwater, groundwater and/or air in a manner that prevents or minimises the impact of any accidental spills or releases. This means:
  - potential liquid contaminants stored in a secure, covered area away from through traffic. Such contaminants may include disinfectants, fuels, oils, detergents, poisons, cleaning solvents, alkaline or acidic solutions;
  - storage areas provided in an impervious bunded area or compound to contain any leakage or spillage. The capacity of the compound shall be at least the capacity of the largest tank or package in the compound (Bunding may not be required where the storage is inside a workshop or similar area and the operator can demonstrate that any spills will not escape the area and contaminate stormwater or surrounding ground.); and
  - where dangerous goods (as defined by the ADG Code) are stored in quantities in excess of minor storage (refer to Note below), the capacity of the compound shall comply with the requirements of the relevant legislation, Australian Standard and/or Code of Practice.  
*Relevant Australian Standards may include:*
    - AS 1940 *The storage and handling of flammable and combustible liquids*
    - AS 2022 *Anhydrous ammonia - Storage and handling anhydrous ammonia*
    - AS 2714 *The storage and handling of hazardous chemicals - Class 5.2 substances (organic peroxides)*
    - AS 3780 *The storage and handling of corrosive substances*
    - AS 3833 *The storage and handling of mixed classes of dangerous goods in packages and intermediate bulk containers*
    - AS 4081 *The storage, handling and transport of liquid and liquefied polyfunctional isocyanates*
    - AS 4326 *The storage and handling of oxidising agents*
    - AS 4452 *The storage and handling of toxic substances*

*Note: Storage of materials in excess of minor storage quantities may require approval, licensing and full compliance with the above standards. Contact the Council or the relevant dangerous goods administering authority for further information.*

- Storage must be:
  - away from any heating or ignition sources
  - provided with adequate natural or mechanical ventilation relevant to the nature of the substance and its use.



### Reduce volatile emissions

- Store volatile liquids (e.g. solvents, thinners) in closed containers that are kept closed when not in use. This will avoid unnecessary exposure of volatile liquids.
- Keep Material Safety Data Sheets (MSDS) for all hazardous substances used or stored on site. In case of an emergency an MSDS is the most effective means of assessing risk.

*CAUTION! Some classes of materials may react dangerously if mixed or stored together. Incompatible materials must be segregated to minimise the possibility of any reaction. Read and follow all directions on labels. Refer to the Material Safety Data Sheet (MSDS) or contact the manufacturer for further information.*

### Respond promptly to spills and leaks

- Keep clean-up equipment, absorbent materials, and any materials for neutralising or decontaminating spills on the premises. Staff are to be adequately trained in the use of these materials.
- Immediately clean-up spills or leaks. Contaminated materials are not to be reused and must be appropriately contained and packaged for transport for either recycling or disposal by a licensed waste removalist.

### Minimise chemical risks



- Fit containers of chemicals (e.g. solvents) with taps to enable pumping instead of pouring.
- Position trays under chemical container taps to catch any spillage or drips. Ensure the tray's material is compatible with the chemical.



# WASTE MANAGEMENT

## Reduce wastage of material resources and landfill space

- Minimise all wastes produced by site activities.



## Recycle and reduce waste disposal costs



Disposal of wastes should be viewed as the **last** option in environmental management strategies. The life of material resources may be extended by recovery, reuse and recycling.



Implement a waste recycling (reuse) system for non-hazardous solid wastes using separate containers for individual waste streams (refer to Solid Wastes section).

- Label waste containers clearly, and locate them in convenient areas to encourage use. Mixing wastes may make them unsuitable for reuse or recycling.

## Protect soil, stormwater and groundwater quality

- Store solid wastes undercover so contaminants cannot be washed into stormwater by rain.
- Never dispose of waste on site.



Use wet/dry vacuum cleaners with dust filters for general cleaning of floors instead of sweeping and hosing with water.

## Prevent landfill hazards

- Material put into industrial bins will generally go to landfill. Do not dispose of gas cylinders, asbestos-containing materials or synthetic-mineral fibres into an industrial bin. These wastes should be disposed of through a licensed waste removalist.
- Only put solid inert waste in industrial bins.

## Protect air quality

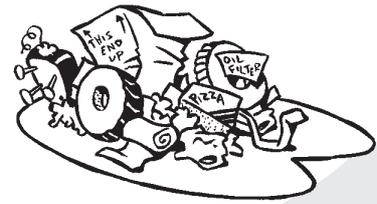
- Never incinerate waste on site.

## Ensure proper disposal of waste material

- Collect accumulated sludge from any wet scrubber systems for recycling, or dispose using a licensed waste removalist.



# SOLID WASTES



## Hazardous Wastes (regulated)

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### Prevent contamination of landfill, soil and water

- Regulated wastes are those that have been identified as unsafe for municipal or refuse landfill disposal. These wastes are listed in Schedule 7 of the *Environmental Protection Regulation 1998* (refer to Appendix 2). These wastes and special burial wastes must be disposed of through a licensed waste removalist.
- Keep proof of proper disposal of hazardous wastes for presentation to Council officers. Proof includes:
  - hazardous waste disposal facility docket
  - waste manifest documents
  - licensed waste transport receipts.

## Non-hazardous Wastes

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### Conserve material resources, landfill space and reduce waste disposal costs



The following solid wastes are recyclable. They should be collected in separate containers for disposal at a waste recycling and reprocessing facility:

- clean cardboard
- aluminium cans, drink bottles
- plastics
- steel drums, drained steel cans
- metal parts
- rags (can be laundered and reused).

### Ensure appropriate disposal of non-recyclable solid wastes

- Always dispose of non-recyclable solid waste at a licensed general waste disposal facility e.g. local government service or approved waste removalist.

### Prevent air contamination by harmful dusts

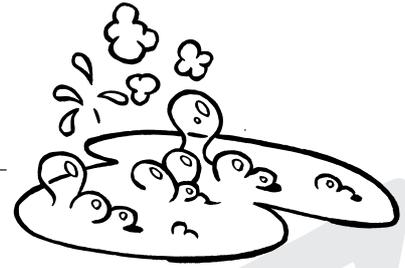
- Bag floor sweepings and other dusty wastes before disposing via the industrial bins.
- Only transport general solid waste in your own vehicle or by a licensed waste transporter.



# LIQUID WASTES

## Non-sewerable Wastes (regulated)

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### Prevent contamination of landfill, soil and water

- Non-sewerable (regulated) wastes are those that have been identified as unsafe for sewer disposal. These wastes are outlined in Schedule 7 of the *Environmental Protection Regulation 1998* (refer to Appendix 2) and must be disposed of by a licensed waste removalist.
- Keep proof of proper disposal of non-sewerable wastes for presentation to Council officers upon request. Proof includes:
  - hazardous waste disposal facility docket
  - waste manifest docket
  - licensed waste transport receipts.



Separate out recyclable liquid wastes for collection by a licensed waste removalist. Recyclable liquid wastes include:

- solvents
- thinners and
- waste oil.

## Sewerable Wastes

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### Ensure compliance with approval conditions (Trade Waste Permit)

- Obtain a Trade Waste Permit from Council prior to discharge of any trade waste to the sewer. The Permit establishes the discharge conditions for the waste.
- Washdown waters must either be directed to the sewerage system under the conditions of the Trade Waste Permit, or collected for recycling or disposal by a licensed waste removalist.
- Water-miscible solutions are generally accepted under a Trade Waste Permit. These may include dilute organic wastes.

### Prevent contamination of landfill, soil and water



On-site treatment and reuse of wastewater (e.g. washdown waters) can be used to replace or reduce disposal of wastewater to sewer. The systems of treatment and nature of reuse must not cause pollution or be hazardous to persons (refer to Appendix 3).



# STORMWATER MANAGEMENT

## Prevent contamination of soil, stormwater and local watercourses

Stormwater flows untreated to your local creek or waterbody.

- Prevent stormwater from entering or leaving work areas where it may become contaminated with grease, oils, chemicals, particulates or solvents.
  - Where necessary cover and bund the work areas to:
    - avoid the incursion of stormwater
    - prevent hazardous and trade wastes from contaminating the surrounding soil and stormwater system.
- Prevent wastewater containing contaminants (such as detergents used for cleaning areas) from contaminating stormwater or the ground. Do not hose workshop floor, vehicles or machinery parts on to the surrounding soil or into stormwater drains.
- Store wastes under cover so that contaminants cannot be washed to stormwater by rain.



## Avoid sewerage system overload

- Do not direct stormwater to the sewerage system. It is an offence under the Sewerage and Water Supply Act 1949.
- Contain any contaminated stormwater (e.g. holding tank) and:
  - dispose of by a licensed waste removalist
  -  treat on-site to an appropriate standard for discharge
  -  treat on-site for recycling or reuse (refer to Appendix 3).

**CAUTION!** Contaminating stormwater and other Queensland waters may result in an 'on the spot' fine or prosecution under the Environmental Protection Act 1994.

*The Environmental Protection (Water) Policy 1997 prohibits the discharge of 'certain things' into a roadside gutter, stormwater or a water, or to a place where it could be reasonably expected to move or to be washed into a roadside gutter, stormwater or a water. Discharges to stormwater must comply with the Environmental Protection (Water) Policy 1997.*



# AIRBORNE WASTES



## Stack Emissions

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### Maintain and protect local and regional air quality, soil and waters

- Emissions from this activity (e.g. smoke dusts, solvents or odours) must comply with those outlined in the *Environmental Protection (Air) Policy 1997* or those prescribed by the Council.
- Fit emissions stack with an effective rain protection device that does not impede the discharge of exhaust gases from the stack.



Use air-dispersion modelling to determine:

- buffer distances between the activity and sensitive land
- optimum stack height and exit velocity.

### Maintain air pollution control equipment



Examine and review the need for enhanced emission controls annually and if you receive complaints about performance

- Regularly maintain any emission control equipment such as cyclones, baghouse filters or afterburners as per manufacturers' instructions.
- Immediately replace or repair any emission control equipment that is blocked, frayed, leaking or not functioning within specifications. Spare bags and filters must be kept on site.

### Ensure emissions are below prescribed Air Quality Limits

- Regularly monitor, record and prepare reports on air emissions to ensure compliance with the stack emission standards and ambient standards "Air Quality Goals" Schedule 1 of the *Environmental Protection (Air) Policy 1997*.
- Install monitoring ports in all stacks and other air emissions discharge points. Refer AS 4323.1 (1995) - *Stationary Source Emissions: Method 1: Selection of Sampling Positions*.
- Keep a register of all recorded emissions and air quality indicator levels measured and have it available for Council inspection.

## Dust Control

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### Maintain and protect local and regional air quality, soil and waters

- Control dust generation so that particles do not move off-site. Dusts can contain hazardous materials and contaminate air, soil and waters.
- Immediately clean up material spilt on traffic areas before vehicle movement can disperse it.



- Regularly collect any floor sweepings, dust, powder waste or absorbent clean up materials and place in a sealed bag, before disposing in a covered waste bin.
-  Use wet/dry vacuum cleaners with dust filters for general cleaning of the work area floor instead of sweeping and hosing with water.
- Specify speed limits on exposed road surfaces (< 40 km/hr).
- Regularly water unsealed roads (clean water @ 1-2 l/m<sup>2</sup>) to prevent nuisance.
-  Erect barriers to discourage vehicle movements on unsealed areas.
- Seal, turf or cover exposed sites with a dust suppressant such as compacted road base or aggregate to minimise airborne dust. Dust may also be suppressed by applying organic dust-binding agents.
- **Do not use** waste oil or other contaminants on dirt roads as a dust suppressant or weed killer. This practice may lead to the site being notifiable under the *Environmental Protection Act 1994*.

## Odour/Volatile Emissions

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### Reduce odour and volatile emissions to prevent environmental nuisance

- Maintain adequate ventilation and hygiene to reduce odour generation.
- Keep odorous waste materials stored under appropriate conditions (e.g. coldroom where possible) for an acceptable period of time.
-  Maintain good housekeeping and cleaning practices.
-  Use mechanical ventilation systems and activated carbon filters or scrubbers, to prevent the emission of any uncontrolled and objectionable odours from buildings or rooms.



# NOISE MANAGEMENT



## Prevent nuisance and unreasonable noise

- The activity must not cause an 'unreasonable noise' as defined in the *Environmental Protection (Noise) Policy 1997*.
- Use the layout of the buildings and the natural topography as noise barriers where possible. Cost-effective landscaping improvements (e.g. fencing, mounds, and plants) can be implemented to reduce noise emissions and therefore noise complaints.
- It is best to avoid using extension telephone bells and public address systems but if they are considered necessary keep them at the lowest possible audible level. Ensure that music does not cause an annoyance to the neighbours.
- Ensure that silencers fitted to air compressors, pumps, fans and blowers and other noisy machinery are effective.
- Enclose or acoustically screen noisy equipment not complying with *Environmental Protection (Noise) Policy 1997* to muffle noise. Locate equipment or operations away from noise sensitive land uses.
- Reduce structural-borne noise and vibration by mounting equipment on vibration isolating platforms, rubber mats, or by increasing the mass weight of equipment.
- Fit mechanical ventilation systems (e.g. air conditioners, fans) with noise-proof ducting and acoustically designed intake and exhaust openings.
- Ask for noise-reduction devices when purchasing new plant and equipment.
- Close windows and roller doors facing noise-sensitive premises and seal all unnecessary openings.
- Only operate heavy vehicles in daylight hours.
- Regularly maintain all equipment and vehicles and attend promptly to any loose parts, rattling covers, worn bearings and broken components. This should be addressed through a regular maintenance schedule and correct staff training.

*Note: Premises causing ongoing noise problems may be required to introduce other noise control measures, including noise monitoring and reporting.*

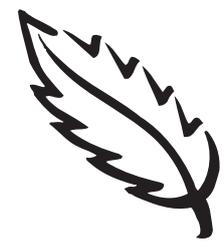
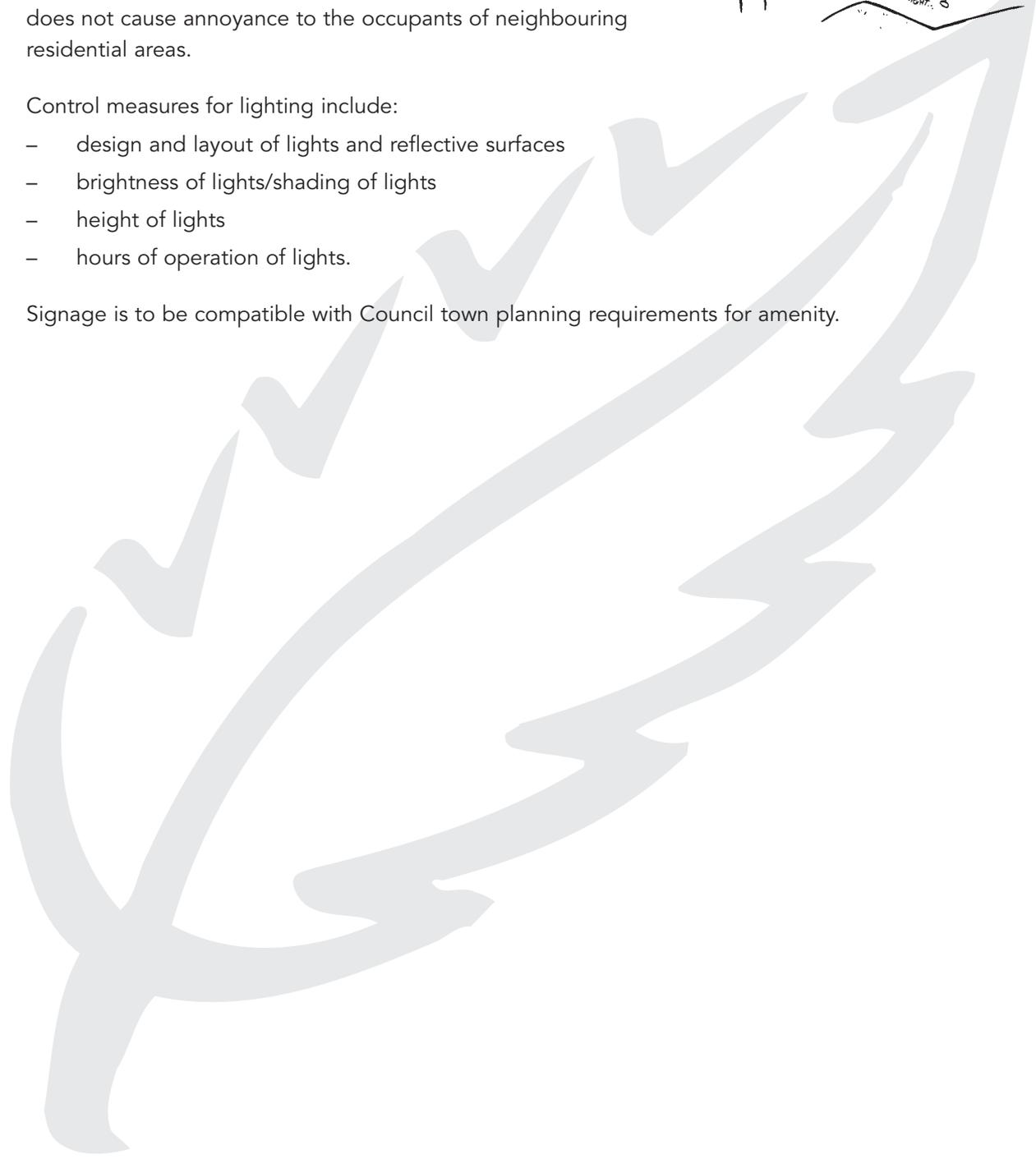
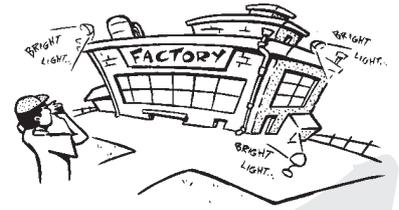
*Operators should be aware of the cumulative effects of noise levels on the receiving environment, and where practical, take appropriate steps to reduce noise levels from their operation, particularly before 7am and after 6pm.*



# VISUAL AMENITY

## Prevent environmental nuisance

- Ensure that lighting of the premises for security or any other reason does not cause annoyance to the occupants of neighbouring residential areas.
- Control measures for lighting include:
  - design and layout of lights and reflective surfaces
  - brightness of lights/shading of lights
  - height of lights
  - hours of operation of lights.
- Signage is to be compatible with Council town planning requirements for amenity.



# APPENDIX 1 – DEFINITIONS

## **Bund**

An impervious embankment or wall of brick, stone, concrete, or other approved material that may form part or all of the perimeter of a compound. For example, a bund may be used to contain spills from a fuel tank.

## **Environmental Harm**

An adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value and includes environmental nuisance, *Environmental Protection Act 1994*.

## **Environmental Management Program (EMP)**

A specific program that, when approved, achieves compliance with the *Environmental Protection Act 1994* for the matters dealt with by the program by:

- (a) reducing environmental harm
- (b) detailing the transition to an environmental standard.

## **Environmental Management System (EMS)**

Is a systematic approach to managing the environmental aspects of an activity. As a minimum for the lower risk activities administered by Council, an EMS would entail documenting standard operating procedures for the aspects of the activity that may result in environmental harm or nuisance.

## **Environmental Nuisance**

Any unreasonable interference or likely interference with an environmental value that is caused by noise, dust, odour, light, an unhealthy, offensive or unsightly condition because of contamination, or another way prescribed by regulation, *Environmental Protection Act 1994*.

## **Environmental Value**

- (a) A quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety; or
- (b) another quality of the environment identified and declared to be of environmental value under an environmental protection policy or regulation, *Environmental Protection Act 1994*.

## **General Environmental Duty**

A person must not carry out an activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to prevent or minimise the harm.

## **Material Safety Data Sheets (MSDS)**

Information sheets that manufacturers are required to provide. MSDS outline the composition, applications and precautions that need to be taken in using such products.

## **Regulated Liquid Wastes**

Those wastes that have been identified as unsafe for sewer disposal due to their chemical nature (e.g. flammable). These wastes are outlined in Schedule 7 of the *Environmental Protection Regulation 1998*.

## **Regulated Solid Wastes**

Wastes that have been identified as unsafe for landfill disposal. These wastes are outlined in Schedule 7 of the *Environmental Protection Regulation 1998*.



**Stormwater**

Rainfall that runs off hard surfaces, such as roofs, roads and car parks, or off ground that has become saturated. Stormwater flows untreated to local creeks.

**Trade Waste**

Liquid wastes from any business, industry, trade or manufacturing process approved for sewer disposal other than domestic sewage.

**Unreasonable Noise**

An unreasonable noise is one which:

- (a) causes unlawful environmental harm because of:
  - its characteristics
  - its intrusiveness
  - the time at which it is made
  - where it can be heard
  - other noises ordinarily present at the place where it can be heard
- (b) is not declared to be reasonable in Environmental Protection Policy.

**VOCs (Volatile Organic Compounds)**

Evaporated organic solvents e.g. hydrocarbons or alcohols, or unburnt liquid fuels, which are known or suspected to have environmental or health effects. Examples of VOCs include solvents, thinners, acrylic lacquers and fuels.



## APPENDIX 2 – SCHEDULE 7 - REGULATED WASTES

Abattoir effluent	Heterocyclic organic compounds containing oxygen, nitrogen or sulphur	Pharmaceutical substances
Acids and acid solutions	Hydrocarbons (oxygen, nitrogen or sulphur)	Phenolic compounds (other than solid inert polymeric materials)
Adhesives (other than solid inert polymeric materials)	Industrial plant wash down waters	Phosphorus
Alkalis and alkaline solutions	Infectious substances	Pickling liquors
Antimony	Inks	Polychlorinated biphenyls and related substances
Arsenic	Inorganic cyanides and cyanide complexes	Polymeric lattices
Asbestos (all chemical forms)	Inorganic sulphur compounds	Poultry processing wastes
Azides	Isocyanate compounds (other than solid inert polymeric materials)	Quarantine waste
Barium	Laboratory chemicals	Reactive chemicals
Batteries	Lead	Reducing agents
Beryllium	Lime neutralised sludges	Resins (other than solid inert polymeric materials)
Biocides	Lime sludges	Saline effluent and residues
Boiler blowdown sludge	Materials or equipment contaminated with infectious substances	Selenium
Boron	Mercaptans	Silver compounds
Cadmium	Mercury and anything containing mercury	Solvent recovery residues
Caustic solutions	Metal finishing effluent and residues	Surfactants
Chlorates	Methacrylate compounds (other than solid inert polymeric materials)	Tallow
Chromium	Nickel	Tannery effluent and residues
Contaminated soils	Oil interceptor sludges	Tars and tarry residues
Copper compounds	Oil water emulsions and mixtures	Tellurium
Cytotoxic wastes	Oils	Textile effluent and residues
Detergents	Organic solvents	Thallium
Distillation residues	Oxidising agents	Timber preservative effluent and residues
Dyes	Ozone depleting substances	Treatment tank sludges and residues (including sewage tank sludges and residues)
Electroplating effluent and residues	Paint sludges and residues	Tyres
Filter backwash waters	Perchlorates	Vanadium
Filter cake sludges and residues	Pesticides	Vegetable oils
Fish processing waste	Petroleum tank sludges	Vehicle wash down waters
Fly ash		Wool scouring effluent & residues
Food processing waste		Zinc compounds

## APPENDIX 3 – ON-SITE TREATMENT AND REUSE OF WASTEWATER OR STORMWATERS

- a) The operator should consult with the Council regarding any system for the collection, treatment and reuse of wastewater (e.g. washdown waters) or stormwater that may be contaminated. This needs to be approved by Council to ensure the method and level of treatment is adequate and safe.
- b) It is generally necessary to test and monitor treated waters to demonstrate effectiveness of the system for Council approval.
- c) Consideration must be made of:
  - volumes to be treated
  - handling and storage
  - key contaminants
  - types of treatment
  - disposal of wastes (e.g. sludge)
  - safety and hygiene
  - testing and frequency.

