



Pre-Treatment Guidelines

Liquid Trade Waste Dischargers

Pre-Treatment Guidelines

Liquid Trade Waste Dischargers

Contents

Pre-Treatment Guidelines for Liquid Trade Waste Dischargers	2
1.0 Introduction.....	2
2.0 Liquid Waste from Commercial and Service Industries	2
3.0 Grease Arrestor Requirements	2
3.1 Installation within Buildings.....	3
3.2 Cover and Frame Installation	3
3.3 Grease Arrestor Covers	3
3.4 Concrete Wall Extension and Concrete Surround	3
3.5 Grease Arrestor Outlet Inspection Opening.....	3
3.6 Venting of Grease Arrestors	4
4.0 Guide for Drains and Discharge Pipes Conveying Trade Waste.....	4
6.0 Food Waste Disposal Units	4
7.0 Oil Arrestors	4
8.0 Pumps.....	5
9.0 Bunding.....	5
10.0 Housekeeping.....	5
11.0 Trade Waste Categories	8
11.1 Pre-treatment Requirements (Categories 2 & 3).....	8
Appendix A Guidelines for Sizing Grease Arrestors.....	9

Pre-Treatment Guidelines for Liquid Trade Waste Dischargers

1.0 Introduction

As part of the Trade Waste Environmental Management Plan, Water & Wastewater strictly regulates the discharge of liquid trade waste to the sewer. All discharges must comply with the Sewer Admission Standards as set out in the Trade Waste Environment Management Plan. Liquid Trade Waste is the liquid waste generated from any industry, business, trade or manufacturing process. It does not include human waste, or prohibited substances as detailed in Schedule 1 of the Water Supply (Safety & Reliability) Act 2008 (the Act).

The following information is provided as a **guide only** to assist liquid waste generators. As liquid waste quality may vary both within a given industry and between individual industries of the same type, the adequacy of these guidelines will need to be verified for each discharge.

2.0 Liquid Waste from Commercial and Service Industries

Owners of all premises where commercial or service enterprises are undertaken, or likely to be undertaken, must apply to Water & Wastewater for Liquid Trade Waste Approval to discharge liquid waste to the sewer. Discharge without approval is an offence under the Act and subject to penalties as defined in the Act. Commercial and service enterprises include, but are not limited to, the following:

- Restaurants, Coffee Shops, Cafes, Fast Food Outlets, Take Away Shops, Butchers;
- Bakers, Hot Bread Shops, Seafood Shops, Delicatessens, Pie/Pastry Outlets, Ice-cream Parlours;
- Hotels, Motels, Hospitals, Clubs, Laundromats, Hairdressers, Nursing Homes;
- Medical Surgeries (includes dental, veterinary, chiropractic – where have X-rays) Garbage Collection Areas in commercial buildings;
- Service Stations, Other Automotive related business (small scale), Small Engineering Works;
- Photographic, X-ray, Graphic Arts, Mini Labs;
- Air-conditioning Waste-Condensates, Cooling Tower Wastes, Commercial Refrigeration Condensates;
- Swimming Pool Backwash Water, Supermarkets, Shopping Centres.

In most cases liquid wastes from these businesses would be termed as minor generators and should be suitable for discharge to the sewer after appropriate pre-treatment, as indicated in **Tables 1-3**. However, the Trade Waste Officer will assess all liquid trade waste generators and determine their category on a case-by-case basis.

3.0 Grease Arrestor Requirements

- **Appendix A** outlines different methods for estimating the size of grease arrestors. The final determination of adequate capacity will be done by the Trade Waste Officer.
- The maximum allowable capacity of an individual grease arrestor is 2000 litres. Where the capacity requirements for a premises is greater than 2000 litres, additional arrestors must be used, with each arrestor to be a discrete installation separately treating a defined liquid waste stream.
- In certain circumstances Water & Wastewater may approve the installation of an arrestor in excess of a 2000 litre capacity. Applications must include all details relating to loadings and be accompanied by detailed plans and specifications of the proposed device.

- The use of solvents, enzymes, mutant bacteria, odour control agents or pesticide in grease arrestors is prohibited unless specifically approved by the Trade Waste Officer.
- Cleaning and maintenance of grease arrestors must be carried out by an approved liquid waste disposal contractor at a frequency as specified in the Approval Conditions or Agreement as issued by Council.
- A permit to undertake plumbing work must be obtained from Council prior to any compliance assessable work commencing.
- All plumbing work is to be performed by a licenced Plumber/Drainer.

3.1 Installation within Buildings

Grease arrestors installed inside buildings will not normally be allowed, except in exceptional circumstances, and only with the approval of Water & Wastewater's Trade Waste Officers, and in conjunction with Council's Environmental Health Officers. If approval is given, where remote pump out is required for the installation, the arrestor must be of the "Boat Bottom" design and be fitted with gas tight lids.

3.2 Cover and Frame Installation

The cast iron grease arrestor frame shall be jointed to the thickening rib and/or wall extension of the grease arrestor by industrial Araldite Epoxy or similar Council approved material. The 'in situ' concrete surround around the frame shall be at least 200 mm wide and extend below the angle of the thickening rib of the grease arrestor.

3.3 Grease Arrestor Covers

- Installation of covers and cast iron frame shall comply with Council's requirements, and the Water Supply (Safety & Reliability) Act 2008 to ensure that a gas tight seal is obtained between cover and frame. Covers shall be machine edged.
- The cast iron frame shall be full length and full width of the trap opening and placed on the thickening rib of the grease arrestor or the vertical concrete extension thereto of the grease arrestor wall and flush with the inside of the vertical concrete wall extension and/or thickening rib of the grease arrestor.
- Loose checker plate steel lid may be used in open air and non-trafficable areas only. Top of grease trap is to be a minimum 50 mm above surrounding surface area/or flood level with tapered concrete apron.

3.4 Concrete Wall Extension and Concrete Surround

Precast and 'in situ' concrete wall extensions and/or surrounds shall be vertical, smooth and free of air holes and jointed flush with the inside of the grease arrestor wall. Material used for the jointing of the precast concrete products to the grease arrestor shall be industrial Araldite Epoxy or similar Council approved material.

3.5 Grease Arrestor Outlet Inspection Opening

Outlet inspection opening to be 100 mm screwed brass cleaning eye, finished at ground level with concrete surround.

3.6 Venting of Grease Arrestors

Grease arrestors shall be vented. The size of vent to be a minimum 100mm diameter.

4.0 Guide for Drains and Discharge Pipes Conveying Trade Waste

Discharger types where vitrified clay pipe or other approved materials would be *required*:

- Laundries – commercial and hospital
- Hospitals – sterilisers, autoclaves, laboratories
- Tanneries
- Anodising plants
- Smallgoods manufacture
- Boning rooms
- Paint manufacture
- Boiler blow down from industrial premises
- Poultry abattoir
- Margarine and butter manufacture
- Mechanical parts washing – solvents
- Printing works
- Food processing
- Bakery
- Restaurant
- Fish and chip shop
- Take away food shop
- Car wash
- Retail butchery

Discharger types where vitrified clay pipe or other approved materials would be *optional*:

- Coffee shop
- Milk bar
- Garbage compaction areas

Fixture wastes connected to trade waste drains are not to be installed in copper/brass piping and fittings.

6.0 Food Waste Disposal Units

Food waste disposal units (garbage grinders/in-sink waste disposal units) are not normally allowed in commercial applications. Where installation is approved, an annual charge based on motor power shall apply. Garbage grinders must discharge direct to sewer and cannot discharge through a grease arrestor.

Potato peelers also come within this category and are subject to the same charges and conditions.

7.0 Oil Arrestors

Inground triple chamber type oil arrestors are no longer permitted for oil and grease separation. Oil Arrestors are to be of the Coalescing Plate type, Vertical Gravity Arrestors, Hydrocyclones, or other Water & Wastewater approved devices.

Installation requirements for Oil Arrestors are as follows:

- Only Council approved equipment to be installed
- Installation must comply with relevant Council Building and Plumbing Legislation
- Minimum capacity 1000 litres per hour
- Where required, pumps to be sized so as not to exceed the capacity of the arrestor
- Only approved non-emulsifying pumps to be used
- Sludge outlet to be fitted with a full flow valve
- Manufacturer recommended servicing/clean out schedules must be adhered to
- Cleaners and detergents must be of "Quick Break" formulation

NB. In-ground oil arrestor grease-silt traps are no longer acceptable.

8.0 Pumps

Only non-emulsifying pumps, such as an electrically driven diaphragm pump (at less than 40 cycles per minute) may be used to pump the wastewater to an arrestor.

Pump discharge must not be greater than the capacity of the arrestor.

Any person wishing to sell an Oil Arrestor system, which includes the pump for treatment of wastewater going to sewer, must conform to these guidelines.

9.0 Bunding

The area around all treatment installations must be bunded. There must be no spillage or overflow of trade wastewater influent or effluent, sludge, or treatment chemicals to the stormwater or sewerage systems (by gravity or by automated mechanical means). The storage of oils or chemicals within this bunded area is not permitted.

10.0 Housekeeping

"Housekeeping" refers to all work practices and activities which minimise waste. There are a number of housekeeping practices which can be adopted to reduce wastewater levels, and lessen the load placed on pre-treatment facilities. Good housekeeping procedures should be adopted wherever possible and in some circumstances can even classify the generator as a non-discharger. Some of the practices are:

- Use less water by adopting dry cleaning methods. The less water used, the less trade wastewater to be treated.
- Dry cleaning methods include wiping up spills and sweeping, rather than hosing. There are absorbent packs available to soak up oil spills.
- Ensure all equipment is properly cleaned and maintained.
- Avoid pouring oil down the drain. Ensure that adequate storage is provided for used oil and that a collection program is arranged with an Oil Recycler.
- Use "Quick break" detergents. These help remove oil in the pre-treatment stage.
- Use cleaning products that have a pH of 7-10 at working concentrations.

Table 1 General Pre-Treatment Guidelines for Minor Liquid Trade Waste Generators

Mechanical Repairs in Workshop		
Process	Pre-Treatment	Hints
Parts washing with water.	<p>Wash area to be bunded to contain wash water. If outside the workshop the wash area is to be bunded and roofed.</p> <p>A collection well and non-emulsifying pump.</p> <p>An approved Oil Arrestor with an oil collection container and sludge removal system, all within a roofed and bunded area.</p> <p>Wash designated, bunded area (segregated from rest of workshop).</p>	<p>Screens may be useful to exclude nuts and washers from the pump intake.</p> <p>Cleaning compounds to be compatible with the pre-treatment system. The cleaning and maintenance program specified by the supplier should be followed.</p> <p>Oil to be drained and wiped from parts prior to washing. Store used oil for recycling.</p>
Parts washing with solvents (Preferred method)	<p>Spent solvents to be removed off-site for regeneration or disposal.</p> <p>Area containing the parts wash to be bunded to contain any spillage or leakage.</p> <p>NB. There is no discharge to sewer.</p>	<p>Read the Material Safety Data Sheets for each of the materials being used.</p>
Floor Washdown (Periodic)	<p>Area to be under roof and bunded to exclude rainwater, but include wash water.</p> <p>A collection well and non-emulsifying pump.</p> <p>An approved oil separator with an oil collection container and sludge withdrawal system, all within roofed and bunded area.</p> <p>NB. The wastewater from washdown can drain to the same pre-treatment system as that used for parts washing.</p>	<p>Screen may be used to exclude nuts and washers from the pump intake.</p> <p>Cleaning compounds to be compatible with the pre-treatment system.</p> <p>The cleaning and maintenance program specified by the supplier should be followed.</p> <p>Oil spills should be soaked up or wiped up prior to washing.</p> <p>Grease blobs should be scraped up before washing.</p>
Vehicle Body Repair Shops (Wet Rubbing)	<p>Wet rubbing area to be roofed and bunded.</p> <p>Area to drain to a minimum 1000 litre Triple Arrestor Trap.</p>	<p>Arrestor to be serviced at regular intervals by a licensed contractor.</p>
Washing of Vehicle Body only (No Degreasing)	<p>Wash area to be bunded to contain wash water. If outside the workshop the wash area is to be bunded and roofed.</p> <p>A 550 litre minimum Triple Arrestor Trap.</p>	<p>Arrestor to be serviced at regular intervals by a licensed industrial liquid removal contractor.</p>
Vehicle Detailing (Degreasing)	<p>Area to be under roof and bunded to exclude rainwater, but include washwater.</p> <p>A collection well and non-emulsifying pump.</p> <p>An approved oil separator with an oil collection container and sludge withdrawal system, all within roofed and bunded area.</p>	<p>Arrestor to be serviced at regular intervals by a licensed industrial liquid removal contractor.</p>
Service Stations – Covered Forecourt		<p>Not permitted to sewer or stormwater drain – dry cleaning technique should be adopted.</p>

Table 2 General Pre-Treatment Requirements for Food Industry Generators

Process	Pre-Treatment	Hints
All premises involved in cooking food	Grease Arrestor (for sizing see Table 4). Dry basket arrestors in floor wastes. Used oil and fat storage area to be roofed and bunded. Waste bin cleaning area to be roofed and bunded – wastewater to pass through a dry basket arrestor and discharged through a grease arrestor.	Grease arrestors to be serviced at regular intervals by a licensed liquid waste disposal contractor.
Food preparation only	Dry basket arrestors in floor wastes – grates in sinks. Grease arrestor in some circumstances (determine by Trade Waste Officer).	Grease arrestors to be serviced at regular intervals by a licensed liquid waste disposal contractor.

Table 3 General Pre-Treatment Guidelines for Other Liquid Trade Waste Generators

Generator / Source	Characteristics of Waste	General Pre-treatment Requirements
Dental / Medical / Veterinary Surgeries		
- No plaster casts	Solids	Bottle trap
- Plaster casts	Solids	Plaster arrestor
- X-rays	Rinse water and spent solutions	To sewer via balancing tank after silver recovery (refer to photographic industry code of practice)
Photographic Waste		
- Fast photos	Rinse water and spent solutions	To sewer via balancing tank after silver recovery (refer to photographic industry code of practice)
- X-rays		
Laundromats		
	Lint, temperature	Lint screens 1 mm mesh. Cooling pit if exceeds temperature of 38° C
Hairdressing Salons		
	Hair, soap, dyes, etc.	No pre-treatment required. Not to discharge through a grease arrestor
Hobby Clubs		
- Discharge less than 200 L/day	Suspended solids	No pre-treatment
- Discharge 200-1000 L/day	Suspended solids	Plaster arrestors
- Discharge over 1000 L/day	Suspended solids	Solids settlement pit 1000 L, minimum of 1 hour retention time
Kennels		
	Solids	Dry arrestor pit, open area controls, dry cleaning prior to washing down
School - Laboratory		
	Acid / Alkali, chemicals	Sediment and neutralising pit

NB. Discharge from photographic processing and laboratories not to come into contact with copper pipes.

11.0 Trade Waste Categories

Council divides trade waste generators into three categories:

- Category 1** Low strength/low volume dischargers
- BOD5 and suspended solids less than 600 mg/L
 - and/or COD less than 600 mg/L
 - Volume less than 500 kL/annum

Approval to discharge required – Annual Category One (1) & Two (2) fee applies.

- Category 2** Low strength/high volume dischargers
- BOD5 and suspended solids less than 600 mg/L
 - and/or COD less than 600 mg/L
 - Volume greater than 500 kL/annum

Approval to discharge required – Annual Category One (1) & Two (2) fee applies.

Volume charges also apply – calculated from meter readings performed every four (4) months less pedestal allowance (refer to Council's Trade Waste Environmental Management Plan General Policy document for details).

- Category 3** High strength dischargers
- BOD5 and suspended solids greater than 600 mg/L
 - and/or COD greater than 600 mg/L
 - Volume – any

Approval to discharge required – An agreement between Council and both the owner (or Authorised Agent) and the liquid trade waste generator when the owner is not the Generator.

Annual Category Three (3) flat fee applies.

Additional charges also apply: – Quantity and Quality charges on total annual load and volume.

11.1 Pre-treatment Requirements (Categories 2 & 3)

Category 2 and 3 generators will be assessed on inspection by the Trade Waste Officers and pre-treatment will be determined on an individual basis. Specific problem industries will be required to employ the services of a Trade Waste Consultant to report on the type, volume and concentrations of trade wastewater and the methods that will be adopted to ensure Water & Wastewater's sewer admission limits are met. This report must be forwarded to Water & Wastewater for approval prior to any pre-treatment facilities being installed.

It is to be noted that dilution of the waste stream to meet sewer admission levels is not permitted.

Appendix A Guidelines for Sizing Grease Arrestors

1. The capacity of a grease arrestor may be calculated from the following capacity allowances for various fixtures and fittings in commercial premises:

Fixture / Fitting	Capacity (litres)
Commercial kitchen sink	140
Double bowl or pot sink	280
Basin	30
Water heated bain-marie	40
Dishwasher – small (under bench)	400
Dishwasher – medium (upright)	800
Dishwasher – large (more than one outlet)	1200
Steamer / Hydrotherm / Boiling Pots / Stock Pots	100
Wok burner	140
Mixing bowl	140
Glass washers (not in liquor sales area)	200

2. The following criteria shall apply where restaurants, coffee shops, hotels/motels, hostels, nursing homes etc., do not have fixtures or fittings in excess of 250 litres capacity:

Servicing Capacity	Minimum Grease Arrestor (litres)
0 – 40 persons	550
41 – 90 persons	1000
91 – 180 persons	2000

3. Below are the minimum grease arrestor capacities for different business types:

Business	Arrestor Size (litres)	Comment
Take Away Only	550	Not including cooking chicken or use of woks
Hot Bread Shop	550 - 1000	Depending on fixtures / fittings / seating capacity
Retail Seafood Outlet	TBA	No processing / cooking
Ice Cream Parlour	550	
Hostel	550	
Pizza Shop	550 - 1000	
Take Away and Delicatessen	550 - 1000	
Coffee Shop (0 - 40 persons)	550 - 1000	
Restaurant (0 - 40 persons)	550 - 1000	
Retail Butcher	550 - 1000	
Bakery	1000 - 2000	
Coffee Shop (40 – 90 persons)	1000 - 2000	
Restaurant (40 – 90 persons)	1000 - 2000	
Retail Chicken	1000 - 2000	
Seafood Processing	1000 - 2000	
Coffee Shop (91 – 180 persons)	2000	
Restaurant (91 – 180 persons)	2000	
Nursing Homes	2000	
Hotel	2000	
Hospital	2000	
Shopping Centre	2000	Combination of Shops