



WASTEWATER PRE-TREATMENT GUIDELINE

PERISHER RANGE RESORTS

KOSCIUSZKO NATIONAL PARK

VERSION 1

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1 INTRODUCTION

1.1 BACKGROUND

This guideline has been prepared by the NSW Office of Environment and Heritage (OEH) National Parks and Wildlife Service (NPWS) and applies to all premises within the Perisher Range Resort (PRR) areas of Perisher Valley, Blue Cow, Smiggin Holes and Guthega that discharge wastewater to the Perisher Range Sewerage System (PRSS).

For the purpose of this guideline the term 'wastewater' refers to any discharge to the sewerage system that is in addition to sewage from domestic toilets, bathrooms or laundries.

Hotel and lodge style residential and commercial service buildings (such as cafes, restaurants, laundries) tend to discharge wastewater that has characteristics that are different from normal domestic sewage. These discharges can contain higher proportions of food particles, oils and grease, phosphorus and other chemicals used in a variety of processes.

The Perisher Valley Sewage Treatment Plant (STP) is operated by NPWS and treats all sewage and wastewater from the resort areas of Perisher Valley, Blue Cow, Smiggin Holes and Guthega. The STP uses a biological process to treat sewage and wastewater to a high standard prior to discharge into Perisher Creek. Due to the environmental significance of the area, the STP has to meet stringent regulatory requirements to ensure the water quality of Perisher Creek and amenity of the resort areas is maintained.

The biological process used at the STP is effective in the removal of nutrients from the sewage. However, the organisms that break down these nutrients:

- Are not efficient at treating high levels of oil and greases
- Are sensitive to rapid changes in effluent quality
- Can be detrimentally effected by introduction of chemicals into the STP

A large portion of the oils, grease, food scraps and chemicals that are contained within wastewater can be removed at the source by the use of a wastewater pre-treatment system. This is the preferred practice compared to direct discharge to the sewerage system for treatment at the STP and final discharge to Perisher Creek.

Ensuring that wastewater pre-treatment systems are installed and are in good condition will result in significant benefits to the PRSS and environment, including;

- Providing a significant contribution to achieving a higher quality effluent discharge from the Perisher Valley STP into Perisher Creek.
- Lowering the risk of environmental harm through the discharge of toxic chemicals, oils and grease to Perisher Creek.
- Helping to protect the sewage treatment system and biological treatment process from harmful chemicals including those used in the treatment of spas and indoor swimming pools.
- Reducing the risk of sewer chokes or blockages in sewer mains and pumps and the consequent lower risk of overflows through surcharging manholes and gully traps.
- Encouraging waste minimisation and water conservation.

This document outlines the different types of wastewater pre-treatment systems available, the application and maintenance of these systems and the approval process for the installation of new systems.

1.2 AIM OF THE GUIDELINE

This guideline sets out to provide guidance to premises located in the Perisher Range Resort areas in regards to the following:

1. The types of wastewater pre-treatment systems available (Page 5 - Section 2)
2. Design requirements for grease arrestors (Page 8 - Section 3)
3. Maintaining / managing grease arrestors (Page 12 - Section 4)
4. Managing other types of wastewater (Page 15 - Section 5)
5. The proposal submission and approval process (Page 17 - Section 6)

1.3 APPLICATION OF THE GUIDELINE

This guideline applies to all premises and processes contained within the Perisher Range resort areas. This includes (but is not limited to) the following:

- Kitchen waste from commercial and lodge kitchens, restaurants and take away food premises.
- Discharges from communal or shared spa baths, hot tubs or swimming pools where chemicals are used to treat the water.
- Specialty industrial processes such as photography development and processing.
- Mechanical workshops.

The policy does not apply to premises that are considered a single family residence, have 6 beds or less and/or do not contain a commercial style kitchen.

2 WASTEWATER PRE-TREATMENT SYSTEMS

A wide range of wastewater pre-treatment systems are available. The following provides general information on the most common systems used within the Perisher Range Resort area, including for food preparation, workshop and pool/spa applications.

2.1 KITCHEN OIL AND GREASE

2.1.1 Grease Arrestors

A grease arrestor is designed to trap kitchen oils and grease at source and prevent discharge to the sewerage system. Arrestors work by using a number of baffles and chambers to slow the flow of the wastewater as it passes. The chambers maximise retention time, allowing solids to settle to the bottom of the trap and lighter greases and fats rise to the top. Maximising the retention time of the wastewater also allows for cooling which aids the separation process.

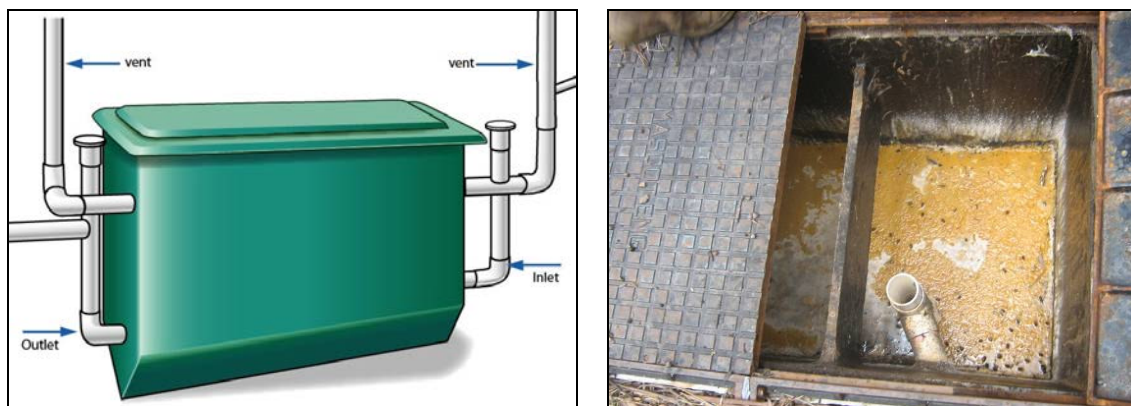


Figure 1 - Schematic diagram of typical grease trap (Sydney Water 2008) and grease trap at Perisher Valley (photo Tom Pinzone/OEH)

Correctly sized grease arrestors are the preferred means of pre-treatment for food preparation wastewater.

Arrestors must be pumped out and cleaned on a regular basis dependent on the nature of the lodge. In an ordinary application, the nominal cleaning period would be every 3 months. However, given the seasonal nature of business in the PRR a once per year clean is considered acceptable. This pump-out and cleaning is undertaken by NPWS at the end of the ski season. This allows time for any faults that are identified to be rectified prior to the following winter.

2.1.2 Grease Extractor Units

A grease extractor is a tank with an effluent filter on the outlet pipe-work of the tank. Grease extractors may also have baffles and chambers to aid in the separation process as per grease arrestors. When compared to grease arrestors, grease extractors usually require more frequent servicing due to the extra filter equipment and smaller capacities.



Figure 2 - Grease extractor and schematic diagram (www.halgan.com.au)

In general, grease extractors are not a suitable pre-treatment for high volume wastewater discharges and should only be installed where circumstances do not permit the installation of a grease arrester due to size or installation limitations.

Grease extractor units are not the preferred method of pre-treatment within the Perisher Range Resorts due to the additional maintenance requirements. Premises that wish to install grease extractor *in lieu* of a grease arrester should expect that additional pump-outs would be required over and above the single pump-out undertaken by NPWS. Additional pump-outs would be at the cost of the premise.

2.1.3 Dry Basket Arrestors

A dry basket arrester is designed to reduce the amount of solid material contained in discharged wastewater. Once installed, the arrester must be emptied regularly, often more than once per day.



Figure 3 - Dry basket arrestors (www.vinidex.com.au)

A dry basket may be necessary if floor wastes are located in food preparation and handling areas. The use of dry basket arrestors may be applicable for larger food preparation areas in the Perisher Range Resorts provided they are maintained and emptied on a regular basis.

A dry basket arrester can not be used instead of a grease arrester.

2.2 WORKSHOP WASTE OIL

Oil water separation systems remove oil-based pollutants from workshop wastewater. Most systems use a number of chambers, the flow of the wastewater, gravity and filters to separate oil and grease. Other systems may use centrifugal forces to separate oil and other contaminants from the wastewater.

Triple interceptors, corrugated plate interceptors, hydrocyclone separation systems and vertical gravity separator systems are common forms of this type of pre-treatment.

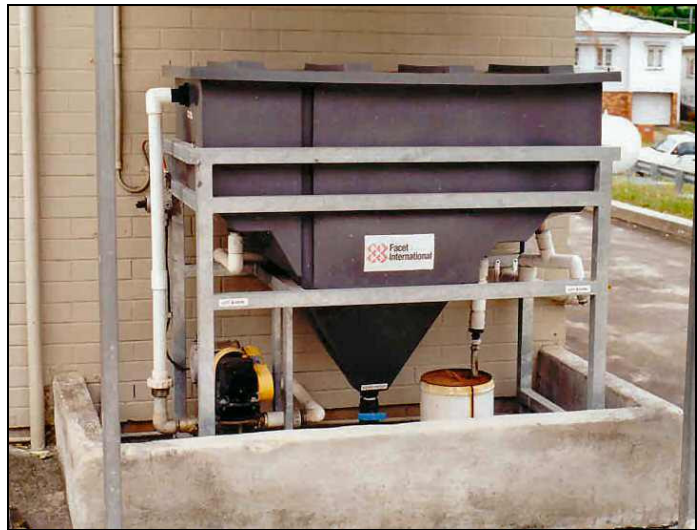


Figure 4 - Triple interceptor (www.vikingplastics.com.au) Corrugated plate interceptor (www.ultraspin.com.au)



Figure 5 - Hydrocyclone separation systems (www.ultraspin.com.au) and vertical gravity separator (www.issproject.com.au)

Premises wishing to install or replace an oil water separation system must discuss the use and applicability of the common types of system with NPWS.

2.3 POOL AND SPA WATER

The chemicals used to disinfect spa baths, hot tubs and swimming pools can be harmful to the sewage treatment process. Any discharge of these chemicals into the sewerage system can have serious consequences for the treatment process and for resort operations as a whole.

All spa baths and swimming pools that use chemicals require specific treatment prior to discharge to the sewer. A neutralising agent (such as sodium thiosulphate) must be added to neutralise the water. The neutralising agent should be added as per the manufacturer's requirements. Neutralisation must be checked and confirmed by testing prior to discharge to sewer. Records of the treatment process, testing and discharge occasions should be kept for future reference.

3 DESIGN REQUIREMENTS FOR GREASE ARRESTORS

3.1 GENERAL

To minimise the potential for detrimental impacts on the STP biological treatment process, NPWS require all premises over 6 beds or those that have a commercial kitchen to have a grease arrestor installed.

All wastewater from food preparation areas, floor waste in food preparation, kitchen sinks and dishwashers should be disposed of through a grease arrestor. Grease arrestors must be connected to the sewerage system.

Domestic sewage, stormwater and roof water must not be directed through grease arrestors.

This section provides guidance in relation to:

- Appropriate sizing of grease arrestors in the Perisher Range Resort
- Size requirements for lodges
- Size requirements for commercial premises
- Locating grease arrestors
- Installing grease arrestors
- Lids and snow covers

3.2 SIZING REQUIREMENTS FOR THE PERISHER RANGE RESORTS

Grease arrestors must be correctly sized to ensure they provide adequate retention time to allow separation of grease/oil and suspended solids and capacity for the winter period.

NPWS acknowledge that sizing requirements outlined in this document for grease arrestors within the Perisher Range Resorts are more stringent than elsewhere. There are a number of reasons for this including:

1. **Access issues over winter** - Traps are serviced on an annual basis and are difficult or impossible to access over winter. As such, grease arrestors must have adequate holding capacity for the separated materials to accumulate over this time.
2. **Alpine Environment** - Perisher STP treats effluent and discharges directly into Perisher Creek in Kosciuszko National Park. NPWS operates under extremely stringent water quality limits (including oil and grease) under a licence issued by the Environment Protection Authority (EPA). The STP operates on a biological treatment process that can be impacted by excess oil, fats etc and is not effective in treating these pollutants. The most efficient and cost effective system is to capture these pollutants at the source. To this end, NPWS require grease traps of larger capacity to ensure the majority of oils and fats are captured and held before being removed and treated off-park.
3. **Alpine Climate** - Having a sewerage reticulation network in an alpine environment increases the risk of fat / grease solidifying in the pipe network due to colder temperatures. This can increase the potential for blockages within the sewerage system. Given that NPWS cannot easily access a large proportion of the sewer network in the winter season to undertake repairs this is a situation that must be avoided.

Based on the above, the minimum sized grease arrestor that will be approved within the Perisher Range Resorts is 500 litres (L). The maximum capacity for any one grease arrestor is 5,000 L to ensure ease of pump out. If a capacity greater than 5,000 L is required, premises may need to install a number of separate arrestors or discuss their requirements with NPWS.

Determining the appropriate type and size of a wastewater pre-treatment system depends on a number of factors and will vary between premises.

3.3 ACCOMMODATION LODGES

The requirement for a grease arrestor for lodges is determined by the number of beds. Table 1 outlines these requirements.

Table 1 - Grease arrestor requirements for lodges (after Sydney Water 2004)

Number of Beds	Minimum Grease Arrestor Size
0 to 6	Not required
7 to 29	500 Litres
30 to 69	1,000 Litres
70 to 199	1,500 Litres
200 to 399	2,000 Litres
400 to 599	3,000 Litres
600 or more	4,000 Litres

NPWS can assist with correctly sizing your grease arrestor if required.

3.4 COMMERCIAL KITCHEN PREMISES

The requirement for a grease arrestor for specific commercial operations such as hotels, restaurants, and food outlets should be determined by;

1. Calculating the peak hourly flow rate that will be entering the arrestor
2. Determining the average daily number of meals that would be served at the premises (if applicable)

The grease arrestor sizing would be the larger size determined by these two methods. NPWS can assist with correctly sizing your grease arrestor if required.

3.4.1 Method 1 – Peak hourly flow

Grease traps must be designed to allow for a one hour retention at the peak hourly flow. To determine the peak hourly flow, the flow ratings for all fixtures feeding into the grease arrestor should be added. Typical flow ratings for a range of fixtures are provided in Table 2. Additional, more accurate flow ratings may be available from manufacturers.

Table 2 - Flow ratings for typical plumbing fixtures (SA Water 2010)

Fixture	Flow Rating (litres / hour)
Sink - single bowl	200
Sink - double bowl	300
Sink - pot, single	300
Sink - pot, double	400
Sink - cleaner's	50
Rinse sink	300
Hand basin	50
Bain Marie	50
Steamer/steam oven	100
Wok table	100 per burner
Dishwasher - commercial/domestic	500
Dishwasher - tunnel	1000
Floor waste	50
Bin wash area	200

By adding the hourly flow ratings for the relevant fixtures, the minimum arrestor size required to provide a one hour retention time can be calculated. The actual arrestor used should be the size that is equal to or larger than the calculated peak hourly flow.

Example: *A kitchen facility in a restaurant contains:*

- 2 x Double bowl sinks*
- 1 x Rinse sink*
- 1 x Bain Marie*
- 1 x Commercial dishwasher*
- 2 x Hand basins*
- 4 x Floor waste drains*

Based on Table 2, the peak hourly flow rate = (2 x 300) + (300) + (50) + (500) + (2 x 50) + (4 x 50)
= 1,750 litres / hour

Therefore, the most appropriate grease arrestor size is a 2,000 litre unit.

3.4.2 Method 2 – Meals per day

In addition to Method 1, the sizing of a grease arrestor for commercial operations should be checked against the average daily number of meals that will be prepared at a commercial operation. Table 3 outlines these requirements.

Table 3 - Grease arrestor requirements based on number of meals per day (SA Water 2010)

Meals per Day	Minimum Grease Arrestor Size
Up to 69	1,000 Litres
70 to 199	2,000 Litres
200 to 399	3,000 Litres
400 or more	5,000 Litres

If the above table specifies a grease arrestor size larger than that determined by Method 1, then this larger size must be used.

3.5 LOCATING GREASE ARRESTORS

Grease arrestors should be installed at a location that is both close to kitchen facilities, to minimise pipe-work blockages, and at a location that is easily accessible for the pump-out contractor. In most circumstances, grease arrestors must be installed below ground.

The potential for stormwater ingress and snow melt must also be considered in siting grease arrestors. The ground surface surrounding the grease arrestor is to be sloped away from the edges of the trap.

A vertical clearance as per the manufacturer's specification, potentially up to 2m, or at least the depth of the trap must be provided above the grease arrestor.

3.6 INSTALLATION OF GREASE ARRESTORS

Grease arrestors must be installed according to the manufacturer's instructions and the requirements of this Guideline. The associated plumbing and drainage must comply with the NSW Plumbing Code of Australia (PCA) and AS/NZS 3500 Plumbing and Drainage.

Grease arrestors must be installed where they are able to drain to sewer. Traps that would require the inclusion of a pump well will not be approved.

The preferred drainage and venting layout for the installation of grease arrestors within the Perisher Range Resorts is shown in Figure 6. To minimise rainwater and snow melt ingress into the Perisher Sewerage System, vents and inspection openings (IO) should not be left open.

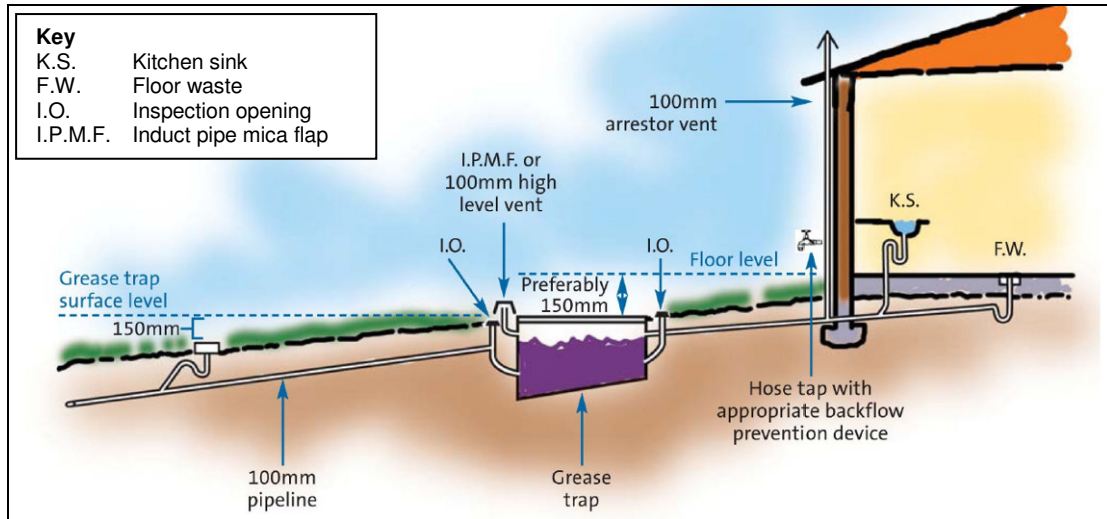


Figure 6 - Preferable drainage layout for a grease arrestor installation (Sydney Water 2004)

3.7 LIDS AND SNOW COVERS

The grease arrestor lid is mandatory and should be fully removable to allow all solids and liquids to be extracted during cleaning.

Additionally, in most circumstances, a snow cover would be required to prevent snowmelt, surface water runoff and leaf litter from entering the grease arrestor. Excess surface water ingress can disrupt the operation of the trap, reduce the retention time and also lead to increased flows to the Perisher STP. Snow covers should be checker plate steel or aluminium, tin or similar and extend a minimum of 50mm over the grease arrestor lid.

Snow covers should also be of sufficient weight and / or adequately secured to ensure they remain in position in the event of high winds as expected in the alpine areas.

Grease arrestors must be installed 50-100 mm above the ground surface to further prevent the flow of surface water into the trap.



Figure 7 - Lid and snow cover arrangements at Perisher Valley (photos Tom Pinzone/OEH)

4 MAINTENANCE AND MANAGEMENT OF GREASE ARRESTORS

4.1 ANNUAL INSPECTION AND CLEANING

The cleaning of grease arrestors is managed by NPWS as part of Municipal Services Unit (MSU) operations. This service is funded by leaseholder charges within PRR. Although this is not the usual municipal model, it is considered the most effective way to ensure grease traps are cleaned and inspected in a seasonal ski resort setting.

The cleaning and inspection of grease arrestors is carried out annually at the conclusion of the ski season to return the trap to full capacity. This also allows sufficient time for repair works to be undertaken or new arrestors to be installed where required prior to the following winter.

The work is carried out by a contractor acting on behalf of NPWS and includes the pump-out of the grease traps, a condition assessment, photos and the transport and disposal of the grease waste as follows:

1. The contents of the grease trap are pumped out and walls and internal fixtures are scraped cleaned of grease and foreign matter.
2. A condition assessment of each grease trap is undertaken and signed off by the contractor at the time of pump-out/cleaning.
3. Digital photographs are to be taken of each trap prior to and after the pump-out and clean. Photographs are also taken of any specific aspects of the trap that are severely degraded. This may include the lid, evidence of sewer infiltration and baffle failures.
4. An inspection report including photos is provided to NPWS for each grease arrestor within the Perisher Range Resorts.
5. The grease arrestor waste is transported to a licensed treatment facility where it is processed and recycled.

The cleaning frequency for grease arrestors in a normal setting would be every 3 months for businesses operating on a year-round basis. Due to the seasonal nature of the resort operations, NPWS is, in most cases, satisfied with annual cleaning. However, additional pump-outs may be required where businesses are open longer than the official ski season or due to any other change in operations. Additional pump-outs would be at the cost of the lessee.



Figure 8 - Grease arrestor pump-out at Guthega (photo Tom Pinzone/OEH)

4.2 RECTIFICATION MEASURES

NPWS will notify lessees of any issues identified as part of the annual condition assessment. Typical issues identified often relate to:

- Evidence of water egress (Figure 9)
- Evidence of water ingress (Figure 9)
- Broken or cracked lids (Figure 9)
- Sewage contamination (Figure 10)
- Undersized traps (Figure 10)



Figure 9 - Fallen grease level indicating water egress and cracked/broken lid leading to water ingress (photos Tom Pinzone/OEH)



Figure 10 - Sewage contamination in grease trap and undersized grease traps (photos Tom Pinzone/OEH)

Identified issues will be communicated as early as possible once the cleaning and inspection contract has been carried out to allow sufficient time for repair works to be undertaken or new arrestors to be installed where required prior to winter. NPWS may also request that a detailed condition assessment be undertaken by the premises' licensed plumber to determine what, if any, rectification works may be required.

Rectification of these issues is the responsibility of the lodge managers. It is expected that minor works are completed prior to the next winter.

NPWS encourages lessees to also carry out major works and/or grease arrestor replacement within this timeframe. However, if this is not possible, rectification or replacement must be carried out within 2 years.

As a minimum, lessees must respond in writing to correspondence sent by NPWS where an issue has been identified. This response should outline plans for rectification or replacement.

NPWS will generally not require undersized grease arrestors to be replaced while they are functional. Should an undersized grease arrestor begin to fail, NPWS will require that it is replaced with a correctly sized grease arrestor as per Section 3.2. Alternatively, where lodges undertake renovation works, undersized grease arrestors should be replaced at this time.

All rectification works, installation of new grease arrestors and/or detailed condition assessments must be undertaken by a licensed plumber.

4.3 MAINTAINING YOUR GREASE ARRESTOR

Management of grease arrestors requires a co-operative effort from all involved. An ineffective or defective grease arrestor could lead to a sewer blockage which can result in severe consequences for the resort as a whole.

The following points can help to maintain your grease arrestors in working order and produce a better environmental outcome.

Arrestor condition	Make sure that your grease arrestor is properly maintained and does not permit the ingress of stormwater or snow melt. Check the lid for cracks, check internally for corrosion and that all the baffles are in place.
Rectification	Comply with any request to undertake upgrade work on your grease arrestor following annual cleaning and inspection by NPWS, or, if you discover that your grease trap has been damaged arrange for the necessary repairs to be undertaken by a licensed plumber.
Kitchen practices	Scrape as much food as possible from plates and utensils before washing up. Never put solid wastes down the sink (including ground coffee, tea leaves etc).
Waste oil	Do not pour oils and fats down the drain. Recycle used oils and fats through the NPWS collection system. Used cooking oil can be recycled by pouring the oil into its original container and placing the container in the lodge waste receptacle or storage area for collection during winter. Over the off-season, waste cooking oil should be taken to the Perisher Valley Waste Transfer Station.
Education	Educate staff and / or guests on the above practices.
Odour	If your grease arrestor smells like sewage, contact your licensed plumber.

NPWS remind lessees to consider work health and safety while inspecting their grease arrestor. Be mindful of the weight of the lid and falling into the pit. NPWS can assist with your inspection if required.

5 MANAGING OTHER TYPES WASTEWATER

5.1 MECHANICAL WORKSHOPS

All mechanical workshops within the PRR are required to have a trade waste oil separator in place prior to wastewater discharge to sewer. The trade waste oil separator is to collect wastewater from wash down areas and floor wastes. Common systems include triple interceptors, corrugated plate interceptors, hydrocyclone separation systems and vertical gravity separator systems.

Premises are responsible for ensuring trade waste oil separators are pumped out and cleaned on a regular basis in accordance with the manufacturer's instructions.

NPWS must be consulted where a new system is required. NPWS and your plumber can assist in determining the correct system. Any pipe work associated with the trade waste oil separator must be installed by a licensed plumber. Following treatment in the trade waste oil separator, wastewater should be directed to the sewerage system.

Sydney Water (2003) has developed the following tips to help maintain oil water separation systems, protect the sewerage system and keep our environment free of workshop pollutants:

- Degreasing bays, vehicle washing areas and workshop floors should all flow or pump to an oil water separator.
- Oil water separators cannot process large amounts of liquids such as oil, chemicals, petrol, kerosene, radiator fluid, brake fluids, non quick break degreasers and solvents. Waste liquids should be collected and stored for recycling or disposal off site.
- Liquids should be adequately stored to ensure spills are easily captured and removed off-site. Collect all spills and do not discharge them to the separator.
- Follow the manufacturer's instructions and maintain equipment regularly so that wastewater remains within an acceptable standard. Pre-treated wastewater should be clear, not milky.
- The period between scheduled maintenance should not exceed 13 weeks. Train at least two people in your workshop to manage the equipment in case the system needs cleaning or servicing at short notice.
- Install a dry basket arrestor or bucket trap to collect nuts, bolts and other loose material that can damage any pumps.
- Ensure the pump well has a sloping bottom, a sump and a working capacity of at least 500 litres. If you are using an existing pre-treatment pit as a pump well, install a sloping bottom and sump. Pump wells with sealed lids should be vented.
- The shape of the pump well and lid placement must allow periodic cleaning of the whole pump well. Clean out any sand collected in the sump.
- Install a robust, rust-proof basket with 6-8 mm evenly spaced holes around the pump suction line to protect the pump from solid items such as nuts and bolts.

A condition assessment of the waste oil separator should be conducted at the same time as the pump-out/cleaning. Records of assessment, pump out and cleaning should be kept for future reference.

5.2 POOLS AND SPAS

Premises that operate a spa or a pool must ensure all discharge water is neutralised prior to release to the sewerage system. A neutralising agent (such as sodium thiosulphate) must be added to the water to be discharged in accordance with manufacturer's specifications.

Neutralisation must be checked and confirmed by testing prior to discharge to sewer. Records of this testing and discharge dates must be maintained.

Backwash water can be discharged to sewer. Premises must ensure filters are backwashed at frequent intervals to ensure acceptable water quality concentrations are maintained in the spa or pool.

As per the *Public Health Act 2010*, from 1 March 2013, all premises that operate a spa or pool must notify NPWS of its existence in writing. Any lodge that does not comply with this requirement of the Act may be liable for a monetary infringement.

5.3 INTERNAL HEATING FUEL STORAGE TANKS

Aboveground and internal fuel tanks must be contained within bunds or other approved methods to prevent leaks, spills and overflows draining directly into the sewer. Bunds must be big enough to contain at least 110% of the volume of the largest storage tank.

Floor drains in the proximity of fuel storage areas must not be connected to the sewerage system. NPWS can assist with determining if floor drains are connected to the sewerage system.

5.4 MANAGING WASTE COOKING OIL

Grease arrestors are designed to treat greasy wastewater, they are not designed to accept waste cooking oil. Waste oil should be collected from deep fryers and BBQ's, stored in its original containers and left at the lodge waste receptacle or waste storage areas for collection during the ski season.

Over summer, oil should be taken to the Perisher Valley Waste Transfer Station located behind the Perisher Fire Station.

6 PROPOSAL SUBMISSION, APPROVAL AND INSTALLATION

Lessees must submit a proposal to NPWS where:

- A grease trap or oil water separator has been identified for replacement.
- A new unit is to be installed.

The proposal is to include:

1. The type and size of the wastewater pre-treatment system based on the sizing methods outlined in this document.
2. A photo or sketch, and description of the proposed system (incorporating appropriate design considerations and plumbing arrangements).
3. A plan showing the proposed location.
4. Proposed operation of the wastewater pre-treatment system.
5. Snow cover and lid arrangement.
6. Installation plan (who will be installing, timing etc.) including details of required machinery access during construction, in particular if access would be over undisturbed vegetation or wet areas.

Proposals should be forwarded to the Project Engineer at:

National Parks and Wildlife Service
Municipal Services Unit
Perisher Valley PO Box 41
NSW 2624

or

perisher@environment.nsw.gov.au

Replacing a wastewater pre-treatment system would not generally require approval from the Department of Planning and Infrastructure (DPI). However NPWS will advise if a Development Application (DA) is required.

Once any design or DA issues have been addressed, NPWS will approve the wastewater pre-treatment system for construction.

NPWS is to be notified of progress at the following stages to allow for inspections:

- (i) Prior to commencement of construction
- (ii) At completion of the project but prior to use of the wastewater pre-treatment system

Works as executed drawings showing the location of the wastewater pre-treatment system and associated pipe work must be submitted to NPWS at the conclusion of the project.

7 ENQUIRIES AND FURTHER INFORMATION

7.1 CONTACT DETAILS

Project Engineer, Municipal Services Unit, NPWS Perisher Valley

Phone: 02 6457 4444

Email: perisher@environment.nsw.gov.au

Postal address: PO Box 41
Perisher Valley
NSW 2624

7.2 RELATED DOCUMENTS

AS/NZS 3500 Plumbing and drainage

<http://infostore.saiglobal.com/store/>

NSW Plumbing Code of Australia (PCA)

<http://www.abcb.gov.au/>

http://www.fairtrading.nsw.gov.au/Tradespeople/Plumbers_and_drainers/Plumbing_code_and_standards.html

Sydney Water Documents

General information for commercial customers

<http://www.sydneywater.com.au/Oursystemsandoperations/Tradewaste/CommercialCustomers.cfm>

Pre-treatment of trade wastewater from commercial customers

<http://www.sydneywater.com.au/Publications/FactSheets/Pretreatmentoftradewastewatercommercialcustomers.pdf>

Best practice guidelines for water management in aquatic leisure centres

<http://www.sydneywater.com.au/Publications/FactSheets/BPGsForAquaticLeisureCentres.pdf>

Managing trade wastewater in the motor vehicle industry

<http://www.sydneywater.com.au/Publications/FactSheets/TradewasteMotorVehicleIndustry.pdf>

8 REFERENCES

SA Water 2011, *Grease Arresters Trade Waste Guideline no. 12*, Adelaide, [online]
<http://www.sawater.com.au/NR/rdonlyres/DC5121BE-8162-434E-9D2E-EF3325D21BA1/0/TWGL12.pdf>

Sydney Water 2003, *Managing trade wastewater in the motor vehicle industry*, Sydney, [online]
<http://www.sydneywater.com.au/Publications/FactSheets/TradewasteMotorVehicleIndustry.pdf>

Sydney Water 2004, *Pre-treatment of trade wastewater from commercial customers*, Sydney [online]
<http://www.sydneywater.com.au/Publications/FactSheets/Pretreatmentoftradewastewatercommercialcustomers.pdf>

Sydney Water 2008, *Installation guidelines for grease traps*, Sydney [online]
<http://www.sydneywater.com.au/Publications/FactSheets/Installationguidelinesforgreasetraps.pdf>