

Washdown Bay Information Sheet

Relevant to – Health (Miscellaneous Provisions) Act 1911, Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) ; Regulations 1974 and Environmental Protection Act 1986

Washdown Bay

Servicing of vehicles and mechanical components in central workshop facilities produces a variety of waste including:

- Solvents, lubricants and metals from degreasing engines;
- Old motor vehicle parts;
- Waste oils, brake fluid, coolants and lubricants;
- Soiled cleanup materials and rags;
- Used oil containers and filters; and
- Washdown water.

These waste products have the potential to degrade water resources unless proper management practises are in place. Wastewater generated in mechanical servicing facilities may contain substances listed in Schedule 1 of the Unauthorised Discharge Regulations 2004 and so can not be discharged to the environment.

These guidelines have been developed to ensure the quality of the region's water resources are protected and are applicable to all sites (including minor workshops) where mechanical servicing of vehicles or equipment occurs.

The Shire's Health Services assesses applications for the installation of a vehicle/engine parts washdown bay that proposes to discharge low volume liquid wastes to on-site soak wells or leach drains.

On-site Discharge of Liquid Wastes

Approval by the shire for on-site discharge are based primarily on whether the proposed treatment system will produce an effluent that meets the discharge water quality criteria required by the Department of Water and Department of Environment and Conservation.

A summary of these criteria is provided below. In addition, a list of publications which may also be informative for the design of your treatment system is provided at the end of this document.

A mechanical wash down bay proposal must effectively address the following general wastewater management principles for industrial premises discharging oils and petrochemical liquid waste:

No wastewater flows should be allowed to enter stormwater drainage and/or discharge directly into the environment.

All impervious surface areas where liquid wastes are likely to accumulate should be adequately covered to protect them from stormwater run-off.

A solvent based cleaning system for mechanical parts should recycle the cleaning solvent. Parts should not be doused in kerosene or similar and hosed down on driveways etc.

The run-off from stream cleaning automotive parts should be directed to a petrol/oil separator system and the oil regularly removed for recycling.

Only quick break degreasing compounds should be used for biodegradability and also for compatibility with plate separator systems. Wastewater containing emulsifiers

(degreasers) and oil/grease suspensions should not be passed through triple interceptors or other devices as the resulting oily water will pass through straight to the soak wells. Such emulsified waste water may need further treatment on site in a suitable chemical treatment system in order to break the degreaser/oil bond and allow the oil droplets to agglomerate.

Liquid waste disposal protocols

The following protocols have been established when considering an application for an oily-water discharge to soak wells via a petrol/oil separator system.

Sewer connection

Connection to sewer where available is the most desirable situation and is subject to the approval conditions of the Water Corporations Industrial Trade Waste division.

Soak well Discharge *within* the Resource zone – Public Drinking Water Source Areas or Environmentally Sensitive Areas

Discussions with the Department of Water have established that any soak well or leach drain in the Esperance Water Reserve Public Drinking water Source Area which is intended to be used for oily water discharge will not be approved. All applications to install washdown bays adjacent to a wetland system will be referred to the Department of Water for comment.

Soak well Discharge *outside* the Resource zone – Public Drinking Water Source Areas or

Environmentally Sensitive Areas

For industrial properties outside the Resource zone, the Department of Water will support approval for discharge to soak wells provided it complies with the "Water Quality Protection Note – Mechanical Equipment Wash-down" requirements which are as follows:

- A minimum vertical separation buffer of 1.2m to the maximum (wet season) groundwater table.
- Water collected from the wash down pad should initially discharge into a sediment trap for settling and removal of soils and heavy contaminants. The trap should provide a 1 hour minimum water detention capacity under peak flow conditions.
- If quick break cleaning agents are used, then only oily waste emulsion should pass into a de-emulsification basin, to allow for natural emulsion breakdown. The water should then be transferred to a gravity oil separator (inclined plate or similar)
- Steam cleaning or use of quick break detergent is recommended for cleaning mechanical equipment – however, where organic solvents have been used, artificial methods may be needed before oil separation occurs (such as acidification and flocculent addition method as described above).

Waste water quality

Discharge criteria

The following waste water quality criteria are drawn from the "Indicative Wastewater Discharge Criteria", Table 1, Mechanical Equipment Washdown – WQPN68 Department of Water 2006. In all cases, applicants will be required to satisfy the Shire that these criteria can be achieved before approval to discharge on-site will be issued.

- pH in the range of 5.5 to 8.5
- Salinity measured as Electrical Conductivity less than 1800 uS/cm
- Surfactants should not exceed 5 mg/L
- Total Petroleum Hydrocarbons should not exceed 15 mg/L
- Bensene, toluene, ethyl benzene & xylene should not exceed 10 micrograms (µg/L)
- All other contaminants i.e. heavy metals should not exceed the Australia and New Zealand Guidelines for Fresh and Marine Water Quality (2000)

System maintenance, monitoring and reporting

- Maintenance inspections of all wastewater treatment and disposal systems should occur at least weekly. Any necessary remedial action should be taken immediately.
- All inspection results, analytical data and corrective actions should be recorded in an operating log. This

data should be retained on-site for a minimum of two years as an operation logbook.

- The waste water system mechanical operating performance should be tested quarterly.
- All inspection results, start up analytical data etc should be recorded in a log book, and data kept for 2 years.
- Where required by regulatory authorities, the site operator should take representative samples at least 6 monthly and have analysed by a NATA approved laboratory. The analysis shall be compared to the discharge water quality guidelines stated above (Indicative Wastewater Discharge).

To demonstrate that the installed system is maintained and working effectively, it will be a condition of approval that the applicant commences a biannual sampling program of wastewater being discharged to the environment. Collected water samples are to be analysed at a registered National Association of Testing Authorities laboratory.

Application

1. Submit a "Washdown Bay Application Form" with detailed design plans (including side view elevations) of the washdown area, pad, plate oil separator and disposal area. The application should include the following information:
 - a. A scaled site plan (1:100, 1:200, or 1:500) showing existing and proposed facilities at the site;
 - b. Design drawings of washdown bay, pipes, silt trap, holding tanks, plate oil separator and leach drains; and
 - c. Description of the type and monthly volume of any chemicals (including detergents/solvents) to be used on site.
2. Payment of applicable fee. Cheques are to be made payable to the Shire of Esperance.

Design information

- Key features:
 - The location, size and type of hydrocarbon (petrol/oil) separator;
 - Silt trap/pit;
 - Size of washdown pad/s;
 - Stormwater access to the washdown pad is to be minimised. Areas over 20m² must be roofed unless it can be demonstrated that all water can be contained on-site;
 - The washdown pad should be impervious and grade to a collector gully;
 - Water collected from the washdown pad must initially drain from the connector gully via a pipe or culvert to a sediment trap, to settle and allow removal of soil, silt and other heavy contaminants;
 - Silt trap, plate oil separator/s and holding tank types to be indicated and must be Water Corp approved;

- Industrial Waste Sampling Points (IWSP) are to be located in between the plate oil separator and the leach drain diverter, sewer connection point or holding tank(s);
- Setback criteria
- Leach drains must be a minimum of 1.8 m from buildings, boundaries and other leach drains;
- Wastewater disposal – if using leach drains, two drains must be installed. Leach drain size calculation information is to be provided as per guidelines below:
 - Leach drains are 2 m wide and 1.2 m deep;
 - A 2 m gap is required between the leach drains and the diverter.
 - A leach drain size in metres = total inflow to leach drain per day in litres / 20 (soil infiltration factor) / 1.34 (leach drain dispersion factor) / 2
- If water disposal is to sewer, water quality must meet the service providers' requirements

References

- Department of Water 2006, Mechanical equipment washdown – WQPN68, water quality protection note, from: www.water.wa.gov.au
- Department of Water 2006, Mechanical servicing and workshops – WQPN28, Water quality protection note, from: www.water.wa.gov.au
- Water Corporation 2007, Detailed acceptance criteria – IW PUB06, Industrial information brochure, from: www.watercorporation.com.au/industrialwaste
- Water Corporation 2005, Industrial waste typical drawings – IW PUB07, Water quality protection note, from: www.watercorporation.com.au/industrialwaste

System maintenance, monitoring and reporting

- A signed maintenance agreement and program for system must be in place i.e. testing of water for compliance with recommended parameters (provision of an industrial waste water sampling point), regular cleaning out of spoon drains, silt pits, pump pits, disposal of waste oil etc.
- The site operator should take representative samples at six monthly (minimum) intervals, for an liquids discharged to the environment. These liquids should be analysed by a laboratory registered by the National Association of Testing Authorities for relevant parameters, (e.g. pH, electrical conductivity, suspended solids, total petroleum hydrocarbons, BTEX and surfactants).
- Maintenance inspections of all wastewater treatment and disposal systems should occur at least weekly. Any necessary remedial action should be taken immediately. All inspection results, analytical data and corrective actions should be recorded in an operating log. This data should be retained on-site for a minimum of two years as an operations logbook

General conditions

- Construction and/or installation is not to commence until approval has been granted by the Shire of Esperance.
- A final inspection of each approved system must be carried out by the Shire's Environmental Health Services prior to use.