



Guidance note for wash down facilities using recycled water

Introduction

This fact sheet has been prepared by the Department of Health and WorkSafe to provide information and guidance on health and safety requirements to reuse treated water from wash down facilities that does not contain human faecal matter or urine (sewage)

Examples of wash down facilities include but are not limited to:

- Earthmoving, heavy vehicle, harvesting and other washing down equipment facilities
- Mining applications
- Commercial car/trucks facilities

Treatment and reuse of water from wash down facilities is a sustainable way of reducing liquid waste disposal and minimising the release of contaminants to the environment. Clean work practices that reduce the frequency of wash down cleaning such as the use of pressurised water hoses is encouraged to reduce water usage.

Wash down water may contain:

- chemical contaminants (such as caustic cleaners, soaps, oil, fuel, detergents, battery acids, metals, hydrocarbons, mud, rubber, grease, tars, grit, disinfectants and solvents); and
- pathogens (disease causing organisms).

These chemicals and pathogens can pose a risk to the operators and the environment if not managed in a safe manner.

This fact sheet applies to all wash down facilities in Western Australia independent of the:

- source of water used to top up the system (e.g. bore water, rain water, drinking water);
- size of the system;
- purpose of wash down;
- type of operation (automated/non-automated);
- level and type of liquid waste treatment; and
- water usage flow rates.

Planning for reusing wash down water

Wash down water can be recycled on site through an open or closed loop system. Before reusing wash down water the following aspects need to be evaluated / implemented:

- The estimation of volume and likely composition of the effluent generated per day and the treatment capacity requirements;



- The financial planning to ensure long-term viability of the system including installation, maintenance and any monitoring costs;
- The identification of hazards in the liquid waste and possible hazardous events.
- Evaluation of the proposed system design including collection, storage, pre-treatment, treatment, storage, use and liquid waste disposal;
- Design should prevent stormwater run-off from entering the wash pad or treatment system;
- Evaluation of proposed treatment method to ensure the liquid waste to be reused meets the water quality criteria (Table 1);
- Contingency disposal options in case of system failure;
- Characteristics of the local environment (e.g. natural surface and ground waters, adjacent land uses), that may be at risk from any effluent discharge;
- Consultation with local government to determine if buffer zones to residential areas or other facilities apply;
- Implementation of a communications plan with all stakeholders (employees, workplace safety and health representatives, unions, insurers, investors, suppliers and customers). This plan should include information on how the system works and how the system is managed in a way that does not pose a risk to human health or the environment. The plan should also include, work safety and other relevant standards implemented to minimise risk;
- Identification of any regulatory requirements (licences or permits) that may be necessary by your business or contractors to store, treat, transport or dispose hazardous and controlled wastes, such as used chemicals, or to treat effluent or dispose on-site.

Commissioning a system to reuse wash down liquid waste

After completion of the planning stage, the following needs to be implemented during the commissioning of the system:

- Treatment system and associated equipment to be installed, inspected and maintained in accordance with local government requirements and manufacturers specifications;
- Assessment of the water quality parameters in Table 1 before and after treatment, and any other parameters identified in the risk assessment. It is recommended that a minimum of six samples be undertaken over a six week period to demonstrate that the equipment and treatment process is operating effectively to minimise hazards;
- The system operation and maintenance of the system in accordance with the manufacturers manuals and specifications;
- Periodic employee training and awareness to successfully implement operational procedures in support of the introduction of new equipment or processes;
- Adequate disposal of settled soil material and sludge for disposal at a registered facility.

Risk management practices

Employers should apply the following three step process to ensure employees are provided with a safe and healthy work environment:



- i) Identify any hazards associated with the wash down activities;
- ii) Assess the risk of injury or harm to health associated with each hazard; and
- iii) Consider and apply the means by which the risk may be eliminated, reduced or controlled.

Employers must, so far as is practicable, provide and maintain a working environment where their employees are not exposed to hazards. The general duties of an employer to maintain safe wash down facilities using recycled water include:

- safe systems of work
- information, instruction, training and supervision
- consultation and co-operation
- provision of personal protection
- provision of safe handling of plant and toxic substances
- reporting of injuries and disease

Wash down water quality requirements

As part of the duty of care and best management practices it is recommended that the wash down water quality be sampled to ensure the system is performing as expected. Samples should be taken after the treatment process (i.e. before reuse) at six monthly intervals. The samples should be analysed by a National Association of Testing Authorities (NATA) registered laboratory. All sampling records should be kept on site for a period of minimum five years and should be made available when requested by regulatory authorities.

Table 1 Indicative quality criteria for the reuse of wash down water

Parameter	Recycled water limiting criteria	Recommended monitoring frequency
<i>E. coli</i>	<10 MPN or cfu/100mL	Every six months
pH	6.5 – 8.5	Continuous online
Turbidity	< 5 NTU (95%ile) ¹	Continuous online
Disinfection	Cl ² : 0.2 – 2.0 mg/L UV ³ UVT >75% UV intensity: drop <25% at 254nm UV dose: 40 70mJ/cm ²	Continuous online
Benzene, toluene, ethyl benzene, xylene (BTEX)	No more than ten times the guideline value of the Australian Drinking Water Guidelines	Every year



Table notes:

MPN: most probable numbers; cfu: colony forming units; NTU nephelometric turbidity units; UV: Ultraviolet light; UVT: Ultraviolet light transmissivity

1. Limit met for turbidity prior to disinfection
2. Total chlorine residual after a minimum contact time of 30 minutes
3. UV systems shall be self cleaning and fitted with lamp failure with associated shut down of recycled water out of specifications. The UV unit shall be able to communicate with the program logic controller (PLC) to ensure that effective UV disinfection is happening at all times when recycled water is being produced. UVT, UV dose and UV intensity can be used independently or in combination as parameters to assess UV performance.

Failure to maintain wash down facilities will result in deteriorating site conditions, which in turn can result in enforcement actions such as improvement notices, prohibition notices or prosecution.

References/ additional reading

Department of Health Government of Western Australia (2011) Guidelines for the Non-potable Uses of Recycled Water in Western Australia

http://www.public.health.wa.gov.au/3/1275/2/recycled_water_guidelines_and_publications.pm

Department of Water Government of Western Australia (2006). Mechanical equipment washdown WQPN 68 <http://www.water.wa.gov.au/PublicationStore/first/81818.pdf>

Department of Commerce (2005) Guidance note "General duty of care in Western Australia workplace"

http://www.commerce.wa.gov.au/WorkSafe/PDF/Guidance_notes/general_duty_of_care.pdf

Western Australian Health Act 1911

Occupational Safety and Health Act 1984

Occupational Safety and Health Regulations 1996.

Accessible from: www.slp.wa.gov.au

AS 3765 Clothing to protect skin against toxic or volatile chemicals

AS/NZS 1337 – 1994 Eye protection

AS 1319 1994 Safety signs for the occupational environment

AS/NZS 2161 Occupational protective gloves

AS/NZS 2210 Occupational protective footwear

AS/NZS 4501.1:2008 Occupational protective clothing — Guidelines on the selection, use, care and maintenance of protective clothing



More information

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