

1. PREAMBLE

When working in a wastewater environment there is potential for exposure to a wide range of illnesses and infections.

2. PURPOSE

The purpose of this procedure is to identify the biological risks associated with wastewater, and specify the personal hygiene and protective equipment requirements for such work.

3. INFECTIONS

Infectious agents like bacteria and viruses can enter the body via the following routes:

3.1 Skin

Skin cannot fully protect us from harmful effects of infectious agents like bacteria and viruses. In day to day life, it generally protects us well, however it cannot offer a barrier against penetrating objects, in particular needles, syringes, razor blades, glass etc., all of which could be found in some wastewater environments.

The skin and membranes of the eye, mouth and nostrils are less resistant to infectious agents, in comparison with normal skin. Therefore, it is essential to protect those areas from contact with wastewater or from infection on hands being transferred to eyes and mouth.

The diseases that can be contracted through damage to the skin include wound infections, tinea, eye infections, Tetanus, Hepatitis B and less likely HIV (through needles and syringes).

3.2 Ingestion (mouth)

Wastewater is composed of a variety of micro-organisms that inhabit the gut of humans. Some of these have the potential to cause disease if they enter the body via splashes to the mouth/face/nose region or from hands while eating, drinking and smoking.

The types of illnesses that may result are Hepatitis A, gastro-enteritis, dysentery and giardia. Symptoms may include nausea, vomiting, diarrhoea, fever, abdominal discomfort etc.

3.3 Inhalation (breathing)

The vapors and mists, which are present in the wastewater environment can contain large numbers of micro-organisms that can cause disease such as pneumonia, gastro and influenza type illnesses.

4. VACCINATION

4.1 Workers exposed or have the potential to be exposed to wastewater biological hazards, will be vaccinated for Hepatitis A and B, prior to commencing working around wastewater.

4.2 Workers exposed or have potential to be exposed to wastewater biological hazards from animals, such as abattoir's and stock yards, will also be vaccinated for Q fever.

5. PERSONAL PROTECTIVE EQUIPMENT

Employees working in a wastewater environment must avoid exposure to wastewater spray or splashes, wear protective clothing and equipment appropriate to the task:

- a) Disposable nitrile puncture resistant gloves protect the skin and reduce the risk of penetrating injuries and must be worn at all times
- b) P2 respirator mask and face splash shield must be worn if persons are at risk of exposure to wastewater spray or splashes
- c) Clean down P2 respirator and face shield with fresh water and anti-bactericidal alcohol wipes after use
- d) Gumboots and disposable Tyvek type 5/6 coveralls reduce skin exposure to wastewater and must be worn if persons at risk of exposure to wastewater spray or splashes
- e) Gumboots must be washed down with clean water and disposable coveralls must be disposed of upon completion of wastewater exposure works
- f) Ensure that any cuts, abrasions, or skin irritations are protected from contact with wastewater by wearing personal protective equipment and practicing good personal hygiene.

6. PERSONAL HYGIENE PRACTICES

- a) Wash your hands with soap and warm water prior to eating, drinking, smoking, before and after going to the toilet and after removing PPE
- b) Keep your lunch room clean and free from contamination
- c) Hands to be washed with hand sanitiser and avoid touching face

7. MAINTENANCE WORKS AT WASTE WATER TREATMENT PLANT

- a) Risk assessment to be completed prior to maintenance works commencing
- b) Aerators and rotators equipment onsite to be locked and tagged out prior to starting maintenance works on equipment and conduct work in upwind direction
- c) Aerators and rotator equipment operating normally, all persons must keep a 10 meter clearance or stay upwind to avoid wastewater spray and mist in atmosphere
- d) Required wastewater Personal Protective Equipment to be worn by all workers
- e) Personal hygiene practices for wastewater must be followed at all times

- f) All tools and equipment used to complete maintenance on wastewater equipment, must be washed down with clean water and then wiped down with anti-bactericidal alcohol hand wipes

8. IN THE EVENT OF RAW SEWAGE or WASTEWATER CONTAMINATION

- a) Remove contaminated clothing immediately
- b) Shower or wash down with copious amounts of water
- c) Use eye wash if eyes are contaminated
- d) If wastewater is ingested, then advice from a doctor should be sought immediately regarding a preventative dose of immunoglobulin against Hepatitis A, if you are not already immunised
- e) Report the incident to your supervisor and complete an Incident/ Accident Report log
- f) If you develop any symptoms of nausea, vomiting, diarrhoea or fever, then immediately consult your doctor and inform them of your wastewater exposure
- g) Carry out a full accident investigation to identify and address contributory factors in order to prevent a recurrence

9. NEEDLES AND SYRINGES

- a) Dispose of any needles or syringes found in the wastewater environment promptly in an appropriate plastic yellow biohazard container;
- b) Don't place hands in places where needles/syringes could be concealed, use an implement and ensure that there is good lighting

You should consider any blood, body fluids, needles and/r syringes to be infectious.

In the event of a needle-stick or "sharps" injury:

- a) Encourage the wound to bleed slightly, then wash with soap and warm water
- b) Report it immediately to your supervisor and complete an Incident/ Accident log in the Tech1 Incident register, after receiving medical treatment.
- c) See your doctor immediately, as an "antidote" to reduce your risk can be effective if given as soon as possible within 24 hours of the injury. Relevant blood testing can be conducted if required.
- d) Previous vaccinations for Hepatitis B etc. do not necessarily guarantee immunity, because immunity can wear off over time and some individuals don't react as expected
- e) Carry out a full accident investigation to identify and address contributory factors in order to prevent a recurrence

10. REFERENCES AND DOCUMENTATION

- a) Victorian Occupational Health and Safety Act (2004)
- b) Victorian Occupational Health and Safety Regulations (2017)
- c) CMS/795 - Health Monitoring Procedure
- d) CMS/2288 - Health Monitoring Schedule