

procedure document

PR-2127-055-27

Click anywhere in this document to return to sewage spill cleanup information at InspectApedia.com

Sewage Spills

Scope

This procedure applies to all employees of Redland City Council, as well as contractors, visitors and volunteers.

Purpose

The purpose of this procedure is to provide information on dealing with sewage spills to effectively control the risks that this situation brings.

Definitions

WHS – Workplace Health and Safety;

RCC – Redland City Council.

Actions and Responsibilities

Chief Executive Officer - The CEO is responsible for any outcomes from hazards or risk associated with the organisation.

Managers - are responsible for ensuring the implementation of policies and procedures relating to the RCC WHS Management system.

Supervisors - are responsible for ensuring employees, contractors and visitors and volunteers under their control are aware of and comply with WHS management system polices and procedures.

Employees are responsible for:

- following any instructions given to them for their personal health and safety;
- informing the supervisor of any concerns or problems;
- reporting all identified hazards via a Hazard / Near Miss Report Form;
- taking reasonable care to ensure that they do not place themselves or others at risk of injury or illness.

General Information

Raw sewage contains biological agents such as bacteria, viruses, fungi and parasites that can cause serious illness and even death. There is also a risk from contamination with unknown chemicals (such as solvents, carcinogens, pesticides) and from toxic, irritant, asphyxiating or flammable gases in confined spaces.

Always assume that floodwater is contaminated with sewage. Immediate clean up is essential to reduce the risk of infection and/or mould growth.

CMR Team use only

Health Effects of Exposure to Sewage

Tetanus is caused by a toxin produced by the bacterium *Clostridium tetani* that is common in soil and in sewage. The bacterium enters the body via open wounds. There is a high risk of death occurring if infected. Anyone who may be exposed to sewage or soil should have prophylaxis tetanus vaccinations every ten years.

Leptospirosis is caused by the parasitic worm *Leptospira icterohaemorrhagiae* and is transmitted from water and damp earth contaminated primarily by rats that harbour the organism. The initial septicemia phase lasts for 4-7 days and causes acute headache, chills, fever, severe muscle aching, anorexia, nausea and vomiting. The immune phase, characterised by aseptic meningitis, follows a 24-72 hour asymptomatic period. Approximately 10-15% of patients present with Weil's disease, jaundice, haemorrhage and renal damage.

Hepatitis A is caused by the Hepatitis A virus (HAV) that is transmitted primarily by ingestion. The virus must be present in sufficient quantities to cause infection. Infection occurs after an incubation period of three to four weeks. Hepatitis A is often mild, but can be severe or even fatal in some cases. Symptoms are fever, headache, nausea and pain in the abdomen, dark urine and jaundice. People can spread the disease to others in the immediate period before they become ill and while they are ill. Recovery from Hepatitis A can be slow and require several weeks or months of increased rest. A majority of patients make a complete recovery but the disease can be more severe in older patients.

Giardia and Cryptosporidium are protozoan parasites, commonly found in sewage and surface waters, that can cause diarrhoea, stomach cramps, nausea and sometimes fever. Symptoms may last for only a few days or can last for months or years. Many people, especially children, have no symptoms. Cysts from infected persons or animals enter sewage and if untreated may infect other people who ingest the cysts.

Gram-Negative Bacteria such as *E.coli* can cause gastro-intestinal diseases if ingested or airway problems, headache, tiredness and nausea if inhaled. Substances called endotoxins that are released at the time of death of the bacterium have been suggested as the cause of a wide variety of occupational diseases such as mill fever and grain fever.

Risks of Exposure to Sewage

The risk to health depends on the microbes present, duration of exposure and method of exposure. Microbes in raw sewage can enter the body via the nose, mouth, and open wounds or by inhalation of aerosols or dusts. The most common modes of infection are through drinking contaminated water or hand to mouth transmission. Skin contact alone does not pose a health threat unless you have an open wound.

The survival of pathogens depends on a number of factors: location, type of surface contaminated, whether disinfectants are used and environmental conditions. UV radiation reduces the survival rate of pathogens. Mild temperatures and higher humidity increase survival times. The risk of exposure when handling sewage can be reduced significantly by effective and immediate clean-up and by taking appropriate safety precautions.

CMR Team use only

Safety Precautions to be Followed when Handling Sewage

The following safety measures must be observed when handling sewage-contaminated materials:

- Assume anything touched by sewage is contaminated.
- Do not eat or drink or smoke in sewage handling areas.
- Wash hands well with soap and clean water (preferably hot) before eating or smoking and during and after work. Also, wash hands after removing gloves to prevent cross-contamination.
- Wash hands with soap and clean water (preferably hot) after touching any surfaces or objects that may have been contaminated.
- Do not touch your nose, mouth, eyes or ears with your hands, unless you have just washed.
- Keep fingernails short and clean carefully under nails.
- Always wear gloves when hands are chapped, burned or have a rash or cut. Use a waterproof dressing for additional protection under gloves or clothing.
- Immediately wash and disinfect any wound that comes into contact with sewage.
- Shower and change out of your work clothes before leaving. Do not keep soiled work clothes with your other clothes. Launder work clothes separately or discard.
- Always use the right personal protective equipment:
 - Eye protection. Goggles are recommended if using a hose and/or any chemicals.
 - Rubber boots
 - Rubber gloves
 - Impervious coveralls or old clothing that may be discarded after use.
- Ensure vaccinations are up to date for tetanus and diphtheria. Vaccinations are also available for hepatitis A.
- Take care - wet surfaces can be very slippery.
- Do not enter confined spaces that have been contaminated with sewage, as toxic, flammable or asphyxiating gases may be present.

CMR Team use only

- Be aware of electrical hazards when dealing with floodwater.
- Read labels on chemicals and observe the appropriate safety precautions and follow the manufacturer's directions.
- Contact a doctor immediately if illness occurs.

Cleaning up after Sewage Spills

- Vacate the area immediately.
- Conduct a risk assessment to determine a safe work procedure. This includes an initial site assessment, confined space monitoring and permitting (if required), electrical hazards, removal of materials, disposal of sewage and contaminated materials, site sanitation, and decontamination of workers.
- Determine whether professional help is required
- Clean all contaminated objects and surfaces immediately to reduce the risk of infection and to prevent further microbial growth. The longer that contaminated water remains the greater the risk of infection occurring. Cleaning should be carried out before the sewage dries out to avoid contaminated dust being dispersed in the air.

Indoors

- Remove any gross contamination and dispose of in a sewage treatment facility and not into storm drains or landfill. Dehumidifiers should be used when available.
- Open all windows and use fans where available to increase ventilation and reduce humidity.
- Excess water should be removed by pumps, wet vacs or mopping, empty into sewage system and not into storm drains.
- Discard all potentially contaminated food, food containers, cosmetics, medicines and medical supplies, stuffed toys, mattresses and pillows, upholstered furniture, carpet padding, cardboard and other objects that are porous or difficult to clean.
- Where possible discard large carpets, foam rubber and books and paper products. Otherwise professional cleaning is required.
- Place discarded contaminated materials in plastic bags.
- Plasterboard, wooden panelling and skirting should be discarded if they have absorbed water.
- Wash affected areas and furnishings with a detergent solution to remove contamination, then disinfect, rinse with clean water and allow to dry thoroughly, preferably outside where UV light aids decontamination.

CMR Team use only

- Avoid spreading contamination when moving furniture etc. by placing plastic sheeting on the floor of clean areas.
- Rinse fabrics with clean water then wash in a hot wash cycle with bleach added. Note that non-colourfast items may fade or change colour. Alternatively soak in nappy soaker e.g. Napisan, before washing. Dry-cleaning or steam-cleaning are also effective, however cleaning agencies may refuse to deal with contaminated items.
- Clean all equipment used and personal protective equipment with a detergent then disinfect (or use a combined product) or discard if possible (e.g. mop heads).
- Ensure surfaces are completely dry before replacing carpeting, plasterboard etc to prevent mould growth occurring. This may take up to 30 days.

Outdoors

- Remove any gross contamination and dispose of in a sewage treatment facility and not into storm drains or landfill.
- Clean hard surfaces such as paving, concrete and tarmac with a detergent solution then disinfect. Use only approved disinfectants.
- Do not allow wastewater to enter the storm drains. For large spills it may be necessary to construct an impervious embankment of earth, brick, stone or other suitable material to retain liquid. This is known as "bundling". Liquid should be disposed of to sewer or a suitable workplace collection pit. Contact the local Water Board for further advice.
- Contaminated soil, sand or lawn should be allowed to degrade naturally as microbes will be inactivated within several days of exposure to UV radiation from sunlight. Bacterial numbers on grass are generally reduced to background levels within 20 days. Place barriers and signs to restrict access during this time.
- Clean all equipment and personal protective equipment used with a detergent then disinfect (or use a combined product) or discard if possible (e.g. mop heads).

Disinfection

Chemical disinfectants kill or inhibit the growth of microbes. Many household products are useful disinfectants and should be used in accordance with the manufacturers label directions. Bleach (sodium hypochlorite) is the most commonly used disinfectant and should be used as a 1:10 dilution. Do not use undiluted bleach as this can cause severe skin and respiratory problems.

Note that normal household detergents do not necessarily kill microbes. Use only products that are disinfectants. The term anti-bacterial means that it kills bacteria but is not necessarily effective against viruses and parasites.

CMR Team use only

Safe Handling of Disinfectants

Chemical detergents and disinfectants can have varying degrees of reactivity, depending upon the active chemicals. The chemical can affect the skin, eyes and mucous membranes of the user and may affect the airways and lungs.

- Wash surfaces first with warm soapy water and rinse with clean water.
- Wear rubber gloves and goggles when working with cleaning products.
- Read the label carefully before using a disinfectant.
- Only use the disinfectant in well-ventilated areas, and be aware of the handling precautions and first aid procedures.
- Apply disinfectant to all areas of the affected surface and allow for sufficient contact time before rinsing and allow to dry thoroughly (15-30 minutes contact time is a good guide when disinfecting with bleach).
- Do not mix bleach with ammonia cleaners. The chlorine fumes are highly toxic.

Reference Documents

Workplace Health and Safety Act;
Workplace Health and Safety Regulations;
Workers Health Centre Fact Sheet – Sewage Spills.

Document Control

- Only the General Manager Corporate Services can approve amendments this document. Please forward any requests to change the content of this document to the General Manager.
- Approved amended documents must be submitted to the Office of the Chief Executive Officer to place the document on the Policy, Guidelines and the Procedures Register.