

Occupational Health and Safety Bulletin



Workers Exposure to Sewage

This bulletin serves as a guide to assist employers, supervisors, contractors and workers in understanding the risks of exposure to sewage and minimizing exposure to it. People who may be at risk of exposure are:

- workers involved with sewer inspection and maintenance work
- workers working with portable toilet systems
- workers at sewage treatment plants
- agricultural and forestry workers who may be exposed to sewage sludge
- sludge tank drivers/operators
- plumbers

Hazards

Biological

The potential for illnesses from contact with viruses, bacteria and other microorganisms in sewage is valid, but limited in possibility. The most serious viral risk is hepatitis and the most serious bacterial risk is tetanus. The main route of exposure is hand-to-mouth contact. Breathing in a suspension of particles (aerosols) is a less common means of exposure but may occur whenever sewage is agitated, such as near incoming wastewater inlets and sludge treatment areas.

Chemical

Sanitary sewers and similar confined spaces containing sewage can sometimes be deficient in oxygen due to organic oxidation and displacement by carbon dioxide. They can also contain flammable gases such as methane and toxic gases such as carbon monoxide and hydrogen sulphide. Carbon monoxide, carbon dioxide, and other exhaust gases may sometimes be present due to a poorly located gasoline engine or generator exhausting into the confined space.

Gasoline and chemicals can be encountered in sewers from leakage from industrial sites, storage tanks or unlawful chemical dumping. The effects from exposure of these materials range from simple asphyxia to a variety of health problems.

Sewer line workers should be aware of the potential gaseous and chemical hazards associated with sewer lines, and know the procedures for safe sewer entry and applicable rescue measures.

Refer to the Workplace Health and Safety publication “Sewer Entry Guidelines” (CH037) for detailed information located on the website http://humanservices.alberta.ca/documents/WHS-PUB_ch037.pdf. This publication has a section on sewer environmental hazards and includes the type of hazard, and the action of gas or vapour to the human body along with the signs of exposure.

Worker Education

Education about personal hygiene and safe work practices is extremely important to minimize contact with sewage and the prevent illnesses. It is essential information to be provided to the worker and should include the following:

- (1) Avoid direct contact with sewage.
- (2) Avoid aerosolizing sewage water or minimizing exposure time in areas where this is occurring. Make sure ventilation systems are functioning properly when working around areas where sewage may be aerosolized.
- (3) Thoroughly cleanse all exposed injuries with soap and water and keep them covered with a bandage (preferably water-proof) while at work. Seek a physician’s advice as soon as possible after suffering cuts or penetrating injuries.
- (4) If a worker is suffering from a skin problem; he/she should see a physician before working with sewage.
- (5) Avoid touching the face, mouth, hands, eyes or nose with dirty hands or other items and avoiding nail-biting. Use a stiff, soapy nailbrush to clean under the nails.
- (6) Thoroughly wash the hands and face with soap and water before eating, drinking or smoking.
- (7) Eat/ smoke in designated areas away from sewage contamination. These areas must be kept free from contamination by leaving any protective clothing and boots in a separate area.
- (8) Emphasize the requirement and importance of using appropriate protective clothing at work (coveralls) and personal protective equipment (boots, gloves, plastic face shields) and, where required wearing respiratory protective equipment.

- (9) Remove personal protective clothing and footwear at the end of the shift and leave it at work.
- (10) The importance of daily showering and changing out of work clothes before leaving work.
- (11) The need for workers to report damaged equipment.
- (12) The need for workers to report potential work-related symptoms to the appropriate supervisor or nurse (if applicable). These may include:
 - cramping stomach pains, diarrhea, vomiting
 - yellowing of the skin
 - symptoms of breathlessness, chest tightness and wheezing
 - redness and pain of the eyes
 - skin rash and/or pain

Reporting may aid in the early detection of work-related health effects.

Workers with these symptoms should see a physician. Make sure that the physician is aware of conditions of work and potential exposures.

- (13) Workers who accidentally fall into sewage are to shower and cleanse themselves immediately. The incident is to be recorded in the employer's first aid records. If complete immersion occurs, the worker is to be seen by a physician.

Pre-planning, careful attention to personal hygiene and proper use of personal protective equipment (PPE) can greatly reduce the associated risks of exposure to sewage.

Employer Responsibilities Including Implementation of Control Measures

- (1) Employers must have first aid supplies and trained first aid personnel as required in the Occupational Health and Safety (OHS) Code, Part 11, First Aid. An employer must provide first aid services, supplies and equipment, and provide a first aid room with the applicable requirements of OHS legislation.
- (2) Since micro-organisms are a natural part of sewage, the hazard cannot be eliminated. A site-specific assessment of the risk of worker's exposure to the hazards of sewage must be completed. The OHS Code, Part 2, Hazard Assessment, requires that a hazard assessment be completed before work begins at a work site or prior to the construction of a new worksite.

- (3) Appropriate controls are needed to minimize the risk of exposure including:
 - engineering controls such as ventilation
 - appropriate work practices and administrative controls
 - ensuring that workers and management understand risks through education on hazards, the importance of following safe work practices and the importance of hygiene measures
- (4) Ensure workers use appropriate PPE such as liquid-repellant coveralls and gloves, boots, goggles, respirators, and splash-proof eye/face shields. If respirators are needed, a comprehensive program must include respirator fit testing and a respirator code of practice. (Refer to the Workplace Health and Safety publication “Respiratory Protective Equipment: An Employer’s Guide” (PPE001) for detailed information located on the website http://www.humanservices.alberta.ca/documents/WHS-PUB_ppe001.pdf.)
- (5) Establish a proper system for purchase, inspection and maintenance of PPE.
- (6) Ensure areas for storage of clean and contaminated equipment and personal effects are segregated and separate from eating facilities, and have facilities readily available for decontamination of workers.
- (7) The employer must develop and implement policies and procedures for post-exposure management of workers exposed to bio hazardous material as required in the OHS Code, Part 35, Section 530.

Immunization

The following immunizations are recommended:

Tetanus-Diphtheria (Td)

All adults should be up to date on their Td immunization. Ensure that the primary immunization of three doses has been completed. Booster doses should be administered once every 10 years.

Hepatitis A

There is no evidence that workers exposed to sewage in Canada have an increased incidence of Hepatitis A and the evidence cited from Europe has not been confirmed by others. Hepatitis A vaccine is therefore NOT routinely recommended for workers exposed to sewage in Alberta. For each work situation involving potential risk, a hazard assessment is to be completed to determine if immunization is indicated.

This is a safe and effective vaccine and there is no contraindication to its administration to anyone wishing to receive and willing to pay for it. Currently the National Advisory Committee on Immunization encourages all those who wish to decrease their risk of acquiring Hepatitis A to be vaccinated.

Routine immunization against poliomyelitis of adults living in Canada is not considered necessary.

Further information regarding immunization and infectious disease is available from:



Alberta Health Services- Health Link

- Edmonton- 780 408-5465
- Calgary-403-943-5465
- Throughout Alberta call toll-free 1-866-408-5465.



Alberta Health
Surveillance and Assessment
23rd Floor, 10025 Jasper Avenue
Edmonton, Alberta T5J 1S6
780-427-7164



Throughout Alberta: 1-866-415-8690



Alberta Health Services website: <http://www.albertahealthservices.ca/>

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Province-Wide Contact Centre



Edmonton
780-415-8690



Other locations
1-866-415-8690
(Toll Free)



- Deaf or hearing impaired
- Edmonton 780-427-9999
 - Other locations 1-800-232-7215
(Toll Free)

Web Site



www.worksafe.alberta.ca

Getting copies of *OHS Act*, Regulation & Code:

Queen's Printer



www.qp.alberta.ca

Occupational Health and Safety



<http://humanservices.alberta.ca/working-in-alberta/295.html>



Edmonton 780-427-4952

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