



Sewage

A. Hazard, Reference and Requirements

1. Sewage is a potential hazard to personnel by skin contact, and in confined or enclosed spaces due to toxic gases, oxygen deficiency and potential explosion.
2. Before working with sewage or sewage systems each contractor whose personnel may be exposed to sewage, must provide to the NNS EH&S Department a copy of that contractor's written Sewage Safety Program. This document must describe the contractor's program for complying with each element of the applicable OSHA standard(s). The contractor shall provide a copy of any changes of their program to NNS on an annual basis
3. The following requirements are taken from Volume II, Chapter 35 of the NNS *Health and Safety Manual*, which is the primary NNS reference. These requirements will be updated as necessary when this primary reference is changed.
4. Contractors whose employees may work on sewage systems at NNS shall ensure compliance with the following requirements as applicable:
 - a. Training
 - b. Monitoring.
 - c. Personal protective equipment.
 - d. Posting.
 - e. Spill response and emergency notification.
 - f. Confined space chapter of this manual.

B. Training

1. Contractors shall ensure that at a minimum all their employees receive training on the following topics:
 - a. Types and hazards of sewer gases and biological agents encountered while performing maintenance or repairs on sanitary sewage systems.
 - b. PPE (Personal protective equipment) and other controls, which are required for this type of work.



- c. Training in confined space entry and the hazards of oxygen deficiency and toxic gases in confined spaces.
2. Contractors shall ensure that their employees who will be required to open or enter sealed sewage systems receive additional training in the following topics:
 - a. The general nature of the sewage systems they are required to work on and the hazardous conditions they may encounter.
 - b. The applicability of lockout and/or tagout to these operations.
 - c. The requirement for and operation of personal hydrogen sulfide monitors.
 - d. The requirement for and use of escape respirators.
 - e. The actions to be taken in the event of an alarm.
 - f. The set-up of the work area (signs, ventilation, etc.)
 - g. Exception – the requirement for this training does not apply to the removal and installation of toilets, sinks, and similar plumbing fixtures in buildings.

C. Monitoring

1. Contractors shall require their employees to use hydrogen sulfide monitors in enclosed spaces where there is the possibility of exposure to sewer gases.
 - a. This includes operations such as entering tanks and pits where sewage is present and opening pipes and tank covers in enclosed areas.
 - b. Contractors shall require employees directly involved and closest to the potential source of the gas to have personal hydrogen sulfide monitors.
2. Personal hydrogen sulfide monitors shall not be used for confined space entry. They only warn of changing conditions in a space where entry has already been approved.

D. Personal Protective Equipment and Practices

1. Contractors shall require their employees to wear gloves when there is potential for contact with sewage or surfaces potentially contaminated with sewage.
 - a. Contractors shall select appropriate waterproof gloves with a degree of puncture resistance consistent with the work being performed.

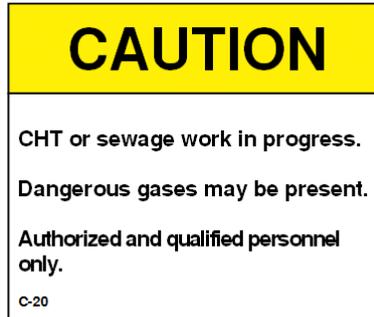


- b. Gloves may be reused if they are intact and interiors have not been contaminated.
 - 1) Gloves shall be washed with soap and water before being stored.
 - 2) Gloves must be discarded if they are cracked, peeling, discolored, torn, punctured or exhibit other signs of deterioration.
2. Contractors shall require their employees to wear face shields whenever there is a potential for splashes or spray resulting in nose or mouth contamination.
3. Contractors shall require their employees to wear full-face air-supplied respirators where airborne droplets may be present, such as high-pressure water washing of contaminated surfaces.
4. Contractors shall require their employees to wear air-purifying respirators with HEPA filters where airborne dry dust may be present.
5. Contractors shall require their employees to wear waterproof suits if there is a potential for significant liquid contamination of skin or clothing.
 - a. Tyvek or similar moisture resistant disposable coveralls may be worn where extensive contact with liquids or wet surfaces is not anticipated.
 - b. Contractors shall require their employees to wear waterproof shoe covers if there is a potential for significant contamination of shoes.
6. Good personal hygiene is the most important and effective method for preventing illness caused by biological organisms that may be present in sewage.
 - a. Contractors shall require their employees to thoroughly wash their hands after all sewage work, no matter what other controls are used.
 - b. Contractors shall require their employees to remove:
 - 1) Gross contamination prior to removal of personal protective equipment, and
 - 2) All PPE immediately upon leaving the work area or as soon as possible.
 - c. Contractors shall require their employees to wash their hands with soap and water as soon as possible after removing gloves and other protective equipment.
7. Contractors shall issue their employees Self-contained emergency escape respirators for work in spaces where all persons cannot exit within ten (10) seconds.



E. Signs

1. The following requirements apply to opening intact sewage plumbing systems except where the system has been flushed and is isolated from sources of raw sewage, but do not apply to the removal and installation of toilets, sinks and similar plumbing fixtures in buildings.
2. Contractors shall ensure that signs with the following wording are posted at the entrance to the work area:



F. Spill Response and Emergency Notification

1. Contractors shall call the NNS Marine Chemist office (380-7634 or 688-1636) prior to entry into enclosed or confined spaces containing more than several gallons of spilled sewage. This does not apply to simple toilet overflows, but does apply to main line sewage backups.
2. In the event of a hydrogen sulfide alarm, contractors shall:
 - a. Immediately evacuate all persons in compartment or space.
 - b. Mark the entrance to the space with red tags to prevent entry.
 - c. Notify the NNS communications center by dialing *911.