Wastewater Treatment Workers Meeting Kit

What’s At Stake

Wastewater treatment workers treat sewer and storm water to remove impurities and then release the water to rivers, oceans, or recycled irrigation and landscaping networks.

What’s the Danger

HEALTH DANGERS WITH WASTEWATER TREATMENT WORKERS

Studies reveal the higher mortality rates, incidences of certain cancers, various infections, and cardiopulmonary diseases of this specialised workforce of wastewater treatment workers.

COMMON HAZARDS IN SEWAGE – FOUR PRINCIPAL HAZARDS

- **Biological hazards.** Pathogens (disease causing organisms such as viruses, bacteria, protozoa, or other microorganisms) are found in sewage. Most of the health effects in occupational exposures to sewage are attributed to the microbial hazards. **There are four principal categories of microbial hazards** found in raw sewage:

1. Enteric (intestinal) microbial pathogens, such as rotavirus and Cryptosporidium that cause gastroenteritis.
2. Opportunistic pathogens, such as Pseudomonas aeruginosa and Legionella pneumophila.
3. Microbial endotoxins that could be inhaled in the workplace.
4. Parasites such as intestinal worms and Giardia duodenalis.

- **Chemical hazards.** Sewage can be deficient in oxygen or contain flammable gases such as methane and toxic gases such as carbon monoxide and hydrogen sulfide. For example, flammable gases may be released during vehicle transport of human sewage due to agitation, presenting a risk of fire or

explosion. Sewage may also contain harmful substances from trade waste or industrial and commercial facilities, such as certain solvents, organic chemicals, and heavy metals.

- **Skin contact/inhalation.** These microbiological and chemical hazards can pose an occupational health and safety risk to workers if not managed in a safe manner. **The two primary routes of exposure are skin contact or inhalation**. Affected areas may include the nose, throat, respiratory tract, eyes, and any part of the body directly contacted or splashed by sewage. Inadvertent ingestion through contaminated tools or hands is another route of exposure that can be reduced by good personal hygiene practices and adequate use of personal protective equipment.

DANGER SUMMARY OF WASTEWATER PLANTS

- **Confined spaces** – including sewers, pipelines, wet wells, digesters, and pump stations – and the potentially dangerous environment they represent caused by buildup of gases such as methane, hydrogen sulfide and carbon dioxide. Workers are advised to wear personal gas-detection equipment and to read and follow all OSHA requirements for working in confined spaces.
- **Chemical hazards,** which in the case of chlorine, may be deadly. Employees should read and understand the requirements for the chemical products they're working with. And they should follow all recommendations for personal protective equipment when working with chemical products and clean up all chemical spills promptly.
- **Collapse of trenches** can cause serious injury or death, which is why plants should use proper techniques for trenching and shoring when digging.
- **Falls are a danger,** which is why the use of fall-protection devices (railings, ramps, harnesses, belts) can prevent serious injury, as can removal of slipping or tripping hazards like cracked sidewalks or wet floors.
- **Water-borne disease caused by pathogens in wastewater.** Defenses include getting vaccinations for diphtheria and other diseases, practicing good hygiene such as washing

hands frequently with antibacterial soap, protecting open cuts or wounds, and avoiding contact with wastewater by wearing rubber gloves and protective clothing.

HOW TO PROTECT YOURSELF

PERSONAL PROTECTIVE EQUIPMENT (PPE) FOR WORKERS

- **Work clothes** (coveralls or clothes with long sleeves and long pants).
- Enclosed liquid repellent shoes or rubber boots with non-slip soles.
- **Waterproof gloves.** Waterproof gloves should always be worn when cleaning pumps, filters, or screens and when handling effluent, recycled water biosolids or grit.
- **Eye protection** shall be worn at all times where the eyes may be exposed to dust, flying particles, or splashes
- **Liquid repellent coveralls**, a disposable or reusable respirator and/or splash-proof face shield may be required in some circumstances when dealing with raw sewage or confined spaces. Air purifying respirators may filter for particulates and/or gases, however in confined spaces or where there is a risk of low oxygen levels an air supplied respirator may be required.

BEST HYGIENE PRACTICES FOR WASTEWATER TREATMENT WORKERS

When handling or working with human effluent, biosolids or recycled water workers should:

- Avoid direct contact with sewage or recycled water and unnecessary exposures to sprays and aerosols. This includes avoiding work around active sprinklers when irrigating or the generation of mists and airborne dust.
- Wash hands with soap and clean water immediately and every time after working.
- Keep fingernails short. Nails should be scrubbed well with soap after work.
- Ensure hands are clean before eating, drinking, smoking, or using the toilet.

- Avoid touching the face, mouth, eyes, nose, ears or open sores and cuts when handling sewage.
- Before eating, remove soiled work clothes, wash hands and face and only eat in designated areas away from sewage contaminated areas.
- Keep open sores, cuts, lacerations, abrasions, and wounds covered with clean, dry bandages.
- Wash eyes with drinking water if sewage or recycled water contact eyes.
- Remove work clothing at the end of the shift and if possible, leave it at work.
- Ensure soles of boots are clean to minimise spread of biosolids outside application areas
- Keep work clothes separate from other clothes.
- Wherever possible, separately launder and store work clothes.
- Clean work tools after use.
- Shower after work and change clothes before leaving.

FINAL WORD

Wastewater treatment workers who are exposed to biological and chemical agents should read and understand the requirements for these agents. They should also follow all recommendations for wearing personal protective equipment.