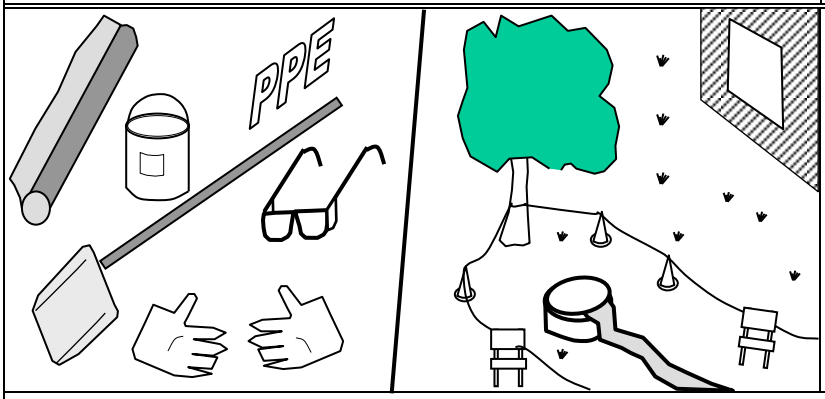
ACTIVITY: Response to Sanitary Sewer Overflows | IC – 14



CITY OF KNOXVILLE

Targeted Constituents				
● Significant Benefit	◗ Partial Benefit	○ Low or Unknown Benefit		
○ Sediment	○ Heavy Metals	◗ Floatable Materials	● Oxygen Demanding Substances	
● Nutrients	◗ Toxic Materials	○ Oil & Grease	● Bacteria & Viruses	○ Construction Wastes

Description

This BMP is intended to describe the general procedures and precautions necessary when responding to sanitary sewer overflow (SSO) incidents. **Citizens should report SSOs directly to the wastewater system operator for immediate response.** Wastewater system employees receive training and equipment necessary to handle SSO incidents using procedures that meet state and local guidelines.

(Wastewater system operators within the City of Knoxville)

Wastewater system operator	Telephone # to report SSOs	
First Utility District of Knox Co.	966-9741	(http://www.fudknxco.org)
Hallsdale-Powell Utility District	922-7547	
Knoxville Utilities Board (KUB)	**524-2911**	(http://www.kub.org)
Knox Chapman Utility District	577-4497	
Lenoir City Utilities Board (LCUB)	986-6591	(http://www.lcub.com)
Northeast Knox Utility District	688-4070	(http://www.nekud.com)
West Knox Utility District	690-2521	(http://www.wkud.com)

Wastewater system employees will respond to reported SSO incidents and follow company procedures that meet state and local guidelines. These guidelines are intended as the minimum standards for SSO response by various wastewater system operators. Large industrial/commercial facilities may have the resources of responding to blocked sanitary laterals in a safe and effective manner.

Approach

The primary objective in SSO response shall be to protect human health, private and public property, and the environment. It is a known fact that sanitary sewage may contain viruses, bacteria and other pathogens that are harmful to human and animal life. All practical steps must be taken to prevent the general public from having direct contact with areas contaminated by raw untreated sewage.

The wastewater system operator is responsible for posting signs and barricades as soon as possible to warn the general public about SSO occurrences. Restrict access to the contaminated areas. In addition, SSO responders should be aware of indirect exposures (through pets, birds, flies, mosquitoes, etc.) and take steps to prevent or reduce these exposures.

An SSO discharge is a direct violation of the NPDES industrial permit issued to each of the wastewater system operators. In addition, the SSO discharge also violates the NPDES municipal permit issued to the City of Knoxville by the Tennessee Department of

Environment and Conservation (TDEC). The City of Knoxville Stormwater Engineering Division is therefore obligated by TDEC to identify, monitor and control illegal SSO discharges by issuing a Notice of Violation (NOV) with appropriate penalties and legal actions (see the Knoxville Stormwater and Street Ordinance which is Chapter 22.5 of the City Code).

SSO Response Guidelines

Personal Protective Equipment (PPE)

- Wastewater system employees who respond to an SSO incident should wear appropriate personal protective equipment (PPE) to prevent any contact with raw sewage. PPE may include: rubber gloves, rubber boots, impermeable coveralls (usually tyvex), and protective headwear with a splash shield.
- Leather gloves and leather boots are not adequate PPE for wastewater system employees. Leather is easily contaminated and can not be cleaned; discard leather gloves and boots if they have been exposed to raw sewage.
- Maintain adequate PPE supplies for each responding crew. Replace PPE as necessary during cleanup operations to ensure employee protection. Place used PPE into sealed bags for decontamination or disposal at a later time.
- In addition to adequate PPE supplies, each responding crew should be equipped with tools (shovels, rakes, pumps, hoses), damming materials (plugs, blocks, plastic sheeting, straw bales, sandbags), testing equipment, and decontamination chemicals (typically lime).

Recommendations to Limit and Control Exposures

- Plan response activities and operations to prevent or minimize stormwater contact. Identify the sources of raw sewage and probable causes. Determine the best manner to contain and reduce the area of SSO contamination. Field crew supervisors are expected to use their best judgment in controlling SSO discharges.
- Immediately protect nearby drainage structures (ditches, channels, curbs, drop inlets, culverts, natural streams and ponds, detention basins, etc.) from receiving raw sewage to the greatest extent possible. Available materials to contain SSOs include: pipe plugs, plastic or wood blocks, sandbags, straw bales, plastic sheeting, or dirt berms.
- In instances with large flows, the responding crew may immediately choose to create dirt berms to control the SSO discharge. Or it can even be beneficial to use an existing stormwater detention basin to contain SSO discharges by plugging the detention outlet structure. The goals are to: 1) reduce exposure to humans, 2) protect property and the environment, and 3) reduce the extent of contaminated areas which need to be cleaned.
- Eliminate the SSO if possible by:
  - Directly removing blockages from the sanitary sewer line or manhole (if a blockage is clearly indicated).
  - Pumping sewage into a sewage tank trunk until the overflow stops, for later disposal at another sanitary sewer manhole or at wastewater treatment plant.
  - Pumping sewage downstream into the nearest downstream manhole at a location where the sanitary sewer line is properly functioning.

Cleanup and Decontamination

- After the SSO has been eliminated, then reclaim raw sewage from contaminated areas such as ground depressions, ditches, curb inlets, culverts, etc. Portable pumps and

hoses can be used to collect raw sewage into sewage trucks. **Do not wash SSO discharges into the storm drainage system while cleaning SSO residues;** this is a violation of the City Stormwater and Street Ordinance and will be subject to penalties and other legal action.

- Remove **all** solid materials and residues that were discharged during an SSO. Solid materials include, but are not limited to: feces, toilet paper, personal hygiene products, napkins, food products, congealed grease or fat, soap residue, etc. Unfortunately, almost any type of material conceivable can be placed into the sanitary sewer system by the general public (limited only by size).
- Decontaminate areas with lime or other disinfectant as needed. Apply the correct amount of disinfectant. Do not allow disinfectant to enter ditches, storm drains, or natural streams. **Do not discharge lime into any flowing channels.**
- Important -- Lime and other disinfectants are generally fatal to aquatic organisms, birds, pets and other animals. Only use as much lime as needed. Prevent lime from entering ditches, storm drains or flowing water. Field crews shall use their best judgment on the use and quantity of lime. Protection of human health is the highest priority.
- Contaminated areas with prolonged exposure to SSOs may need to be excavated, regraded, or replanted to fully repair SSO damage. Return site conditions so that human and animal contact with contaminated soils will not pose a health problem.
- Remove signs and barricades only after the contaminated areas are safe again for human contact.

Maintenance

- Wastewater system operators are required to maintain and repair sanitary sewer lines in a timely manner. SSO discharges are not allowable under NPDES permits, and must be prevented to the maximum extent possible.
- If the cause of an SSO discharge has compromised the ability of the sanitary sewer system to function, then the system should be repaired immediately to prevent a reoccurrence of the SSO.

References **170, 182, 195, 197** (see BMP Manual Chapter 10 for list)

Two TMDL reports, written by TDEC and dated April 2002:

- Total Maximum Daily Load (TMDL) for Fecal Coliform
  First Creek, Second Creek, Third Creek, Goose Creek,
  Fort Loudoun Lake Watershed (HUC 06010201), Knox County, Tennessee
- Total Maximum Daily Load (TMDL) for Fecal Coliform
  Baker Creek, Fourth Creek, Williams Creek
  Fort Loudoun Lake Watershed (HUC 06010201), Knox County, Tennessee