



**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**

Employee training and knowledge is the beginning point for solving stormwater pollution problems. This fact sheet highlights the importance of employee training as integral to the performance of any job. An employee who is trained at the start of any job will perform the task correctly; an untrained employee may not perform the task correctly and may never learn to do it the right way after the initial opportunity is lost. Management should integrate key elements from individual BMP fact sheets into a comprehensive training program.

Specific training aspects for employees (including any subcontractors if present) are highlighted in the individual fact sheets. The focus of this fact sheet is more general, and includes the overall objectives and approach for assuring employee/subcontractor training in stormwater pollution prevention. Employee training is generally the most important BMP in this manual.

**Objective**

Employee training should include subcontractors and other regular workers at the project site. Training should be based on four objectives:

- Promote a clear identification and understanding of the problem, including activities with the potential to pollute stormwater.
- Identify solutions using BMPs and available technologies.
- Promote employee ownership of the problems and solutions.
- Integrate employee feedback into training and BMP implementation.

**Approach**

This BMP is very closely related to IC-01, Non-Stormwater Discharges to Storm Drains, in that the principal goal is to eliminate all substances (liquid or solid) that do not belong in stormwater. The current stormwater ordinance (posted at the City of Knoxville Engineering Department website) specifically describes what is allowable to discharge into the stormwater; all other discharges are prohibited. The following list of non-stormwater discharges are allowable:

1. Water line flushing;
2. Landscape irrigation;
3. Diversion of stream flows or rising groundwater;
4. Infiltration of uncontaminated groundwater [as defined at 40 CFR 35.2005(20)] to separate storm drains;

5. Pumping of uncontaminated groundwater;
6. Discharges from potable water sources, foundation drains, air conditioning condensate, irrigation waters, springs, water from crawl space pumps, or footing drains;
7. Lawn watering;
8. Individual noncommercial car washing on residential property; or car washing of less than two consecutive days in duration for a charity, nonprofit fund raising or similar noncommercial purpose;
9. Flows from riparian habitats and wetlands;
10. Dechlorinated swimming pool discharges;
11. Incidental street washing water from street cleaning equipment designed for cleaning paved surfaces and limiting waste discharges;
12. Street deicing for public safety;
13. Any activity authorized by a valid NPDES permit;
14. Any flows that result from firefighting.

The following non-stormwater discharges are explicitly prohibited by the Knoxville Stormwater and Street Ordinance. The list of prohibited discharges is not all-inclusive, as any type of discharge not specifically exempted (see list of 14 items above) is prohibited by law.

- A. Raw sewage discharges or overflows, including sanitary sewer overflows (SSOs);
- B. Discharges of wash water resulting from the hosing or cleaning of gasoline stations, auto repair garages, or other types of automotive service facilities;
- C. Discharges resulting from the cleaning, repair, or maintenance of any type of equipment, machinery, or facility (includes motor vehicles, cement-related construction equipment, port-a-potty servicing, etc.);
- D. Discharges of wash water from mobile operations such as steam cleaning, power washing, pressure washing, carpet cleaning, and mobile carwash facilities;
- E. Discharges of wash water from the cleaning or hosing of impervious surfaces in industrial and commercial areas including parking lots, streets, sidewalks, driveways, patios, plazas, work yards, and outdoor eating or drinking areas;
- F. Discharges of runoff from material storage areas containing chemicals, fuels, grease, oil or hazardous materials;
- G. Discharges of pool or fountain water containing chlorine, biocides or other chemicals, and also discharges of pool or fountain filter backwash water;
- H. Discharges of water containing sediment or construction-related wastes;
- I. Discharges of food-related wastes such as grease, oil, fish processing water, kitchen mat wash water, trash bin wash water, pouring liquids into dumpsters, etc. This includes disposing unwanted food or liquid into ditches, creeks or streams to feed the “little critters”.

**Requirements**

- Integrate training regarding stormwater quality management with existing training programs that may be required for your business by other regulations such as the 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER, 29 CFR 1910.120) and Spill Prevention Control and Countermeasure (SPCC) Plan (required by 40 CFR 112). Supervisors and inspectors should receive additional annual 8-hour OSHA refresher courses.
- Businesses, particularly smaller ones that may not be regulated by federal, state, or local regulations, may use the information in this BMP Manual to develop a training program to reduce their potential to pollute stormwater.
- Use the quick reference on disposal alternatives (Table AM-01-1) and information from the Knoxville Office of Solid Waste website to train employees and subcontractors in proper methods for disposal. Post information on the employee bulletin board, around the job site, or in the office trailer to reinforce training.
- Train employee and subcontractors in standard operating procedures and spill cleanup techniques described in the fact sheets. Employee/subcontractors who have been trained in spill containment and cleanup should be present during the loading, unloading and handling of materials.
- Identify locations with higher potential for spills and leaks, such as indoor and outdoor loading platforms, material storage containers, plant and facility processing areas, and disposal areas for liquid and solid wastes. Discuss examples of leaks or spills at this project site or similar facilities to review actions taken by staff, controllable and uncontrollable processes, and ways to improve spill response. Incorporate various case studies into regular safety training.
- Personnel who use pesticides, herbicides or fertilizers must be trained to follow product instructions and suggested usage rates to avoid overapplication.
- Proper education of subcontractors or offsite personnel is often overlooked. The conscientious efforts of well-trained employees and subcontractors can be negated by careless or untrained subcontractors, so make sure they are well informed about what they are expected to do onsite.

**References**

**30, 31, 33, 34, 35, Knoxville Stormwater and Street Ordinance**  
(see BMP Manual Chapter 10 for list)