



Chapter 6

STORMWATER POLLUTION PREVENTION PLAN

6.1 City Versus State Requirements

A stormwater pollution prevention plan (SWPPP) is usually prepared only if required by Tennessee Department of Environment and Conservation (TDEC) or a Qualified Local Program (QLP). The City of Knoxville has been chosen as a QLP as of March 1, 2013. However, the City of Knoxville Engineering Department may also require a SWPPP at the discretion of the Engineering Director on the basis of: 1) sound engineering judgment, 2) type of business, or 3) a history of water pollution at this site or by this owner/operator at other sites. Typical properties or land uses that require a SWPPP include:

- Vehicle fueling stations
- Vehicle service and maintenance facilities
- Vehicle and equipment cleaning facilities
- Fleet storage areas (for cars, buses or trucks)
- Industrial and manufacturing sites
- Outdoor loading/storage/transfer facilities
- Salvage and recycling facilities (including junkyards)
- Marinas and boat maintenance facilities
- Commercial nurseries

TDEC has specific requirements for any SWPPP that is part of the NPDES permit program. The City of Knoxville requires a contractor to submit a SWPPP for construction sites which disturb 1 acre or more, using the instructions under the Qualified Local Program Construction General Permit policy. TDEC requires a SWPPP for industrial activity with the potential to pollute waters of the state, using the instructions under the statewide NPDES General Permit for Industrial Stormwater. See the TDEC website listed in Chapter 8 for additional information on these two general statewide permits and how to obtain coverage. The TDEC website also has a summary of environmental permits that are required to meet state and federal regulations.

It is mandatory for a NPDES permit holder to submit a copy of an NPDES Permit issued by TDEC to the City of Knoxville Engineering Department within 60 days of being issued by TDEC. This requirement also includes industries that hold a Multi-Sector General NPDES Permit under authority of the state's NPDES permit. As part of the process of obtaining a NPDES Permit, a Notice of Intent must be filed with the affected operator of a municipal separate storm drain system, such as the City of Knoxville Engineering Department.

The remainder of this chapter is devoted to preparing a SWPPP for the City of Knoxville Engineering Department that is not specifically required by TDEC. SWPPP requirements are generally the same as described in the cited Tennessee Rule and in two EPA documents which are both subtitled, "Developing Pollution Prevention Plans and Best Management Practices" (references 137 and 138).

The life history of a SWPPP includes three phases:

1. Site Evaluation

2. Planning and Design
3. Implementation and Monitoring

Preparing a SWPPP involves the first two phases of the life history but requires careful consideration of how the third phase will be handled. The SWPPP shall include a methodology for adding letters, memos, inspection reports, monitoring data, maintenance records, leak/spill information, etc. The SWPPP is intended to be a living document that will serve the site owner/operator in meeting many environmental needs.

6.2 Phase 1: Site Evaluation

This requirement is intended to be a one-time event if a SWPPP is maintained properly. If the SWPPP is not maintained properly, then a complete site evaluation may be required again whenever new construction or redevelopment takes place.

Step 1: Select a pollution prevention team. A specific individual will be in charge of developing and maintaining the SWPPP. As a minimum, there must be one other team member who is familiar with the specifics of the SWPPP and who can take charge in the absence of the leader. Pollution team members must be aware of all activities at the site. For large project sites, there may be many pollution team members.

Step 2: Conduct a site assessment, including a review of all available information and records. A site map must be developed that includes all known structures, drainage features, material storage, known leaks and spills, historical information such as date of construction, etc. Additional items to be shown include soil types, vegetation, contours, drainage outfalls, size and material of stormwater pipes and manholes, floor drains, parking areas, and method of roof drainage. The site map must be drawn to scale, legible, properly labeled, and reproducible.

Step 3: Develop a comprehensive materials inventory to include material safety data sheets (MSDS). All materials and liquids should be included on the list, no matter how small the quantity involved. The list should include the name of material, location stored, type of container, volume of material, use of material, safeguards in place to prevent pollution, and whether a MSDS is required. The list should also indicate which materials are exposed to stormwater and the quantities involved.

Step 4: Identify all non-stormwater discharges, including past spills and leaks. A non-stormwater discharge is any material that is released intentionally or unintentionally to the ground surface, to a storm drain system, or to a natural channel. Provide a list of significant spills and leaks that have occurred within the last 3 years, using the federal definition of a reportable quantity. A reportable quantity of each material can be defined using the federal regulations contained in 40 CFR 302.4, 40 CFR 117.21, and 40 CFR 110.10.

Step 5: Provide monitoring data to identify non-stormwater discharges, past spills and leaks, and the current level of pollution from the various site outfalls. Stormwater sampling must be conducted for several parameters that are deemed to be important by the City of Knoxville. The parameters are subject to change: 1) from watershed to watershed, 2) over a period of time, and, 3) as directed by agencies having control over Knoxville's citywide NPDES permit. Therefore, it is essential to contact the City of Knoxville Engineering Department for further guidance on stormwater sampling parameters.

Step 6: Evaluate the gathered data and to write a site evaluation summary. The use of electronic drawings and spreadsheets is encouraged and will generally allow the SWPPP preparer to make changes as necessary. The narrative should concentrate on activities with a high potential for contaminating stormwater.

6.3 Phase 2: Planning and Design

What changes can be made to improve stormwater quality? What can be done to reduce the possibility of a spill or release? How can monitoring and sampling be made easier and more consistent?

Step 1: Identify BMPs and good housekeeping practices necessary to improve operations. The most effective BMP is to hire good employees and to provide them with consistent training. An employee training manual, as part of a well-designed training program, can be a simple and cost-effective method to ensure good housekeeping practices.

Step 2: Identify ways to improve work methods and ways to reduce stormwater pollution. The second-most effective BMP is to use the proper equipment and materials. For instance, a commercial or industrial site should consider equipment upgrades and improvements as necessary. A construction site should identify erosion and sediment control measures. Most sites should consider the use of stormwater control measures (grass buffer zones, detention basins, oil-water separators) to reduce stormwater pollution leaving the site.

Step 3: Design a program for operations and maintenance, including regularly scheduled inspections and testing. Record keeping is essential to this program; an electronic database is almost a necessity for many types of sites. Ensure that inspection records have a standard format with complete information, in case of an audit. Inspection records must be kept for at least three years.

Step 4: Design a spill prevention and response program. Safety measures and emergency contact telephone numbers must be identified and then posted on the site for quick use. Include procedures for notifying regulatory authorities (City of Knoxville Engineering Department, TDEC) and emergency responders (police, fire, hospital). Describe spill containment, isolation, and cleanup measures that would be used. Although the City of Knoxville Fire Department can assist with spill or leak containment, the responsible party will be expected to remediate any pollution. It is highly recommended that a spill response program shall include contacting a few remediation contractors or emergency response contractors, such as are listed in Table AM-07-1.

6.4 Phase 3: Implementation and Monitoring

This phase essentially involves the actual performance of everything identified within Phase 2. It may be necessary to develop an implementation schedule and cost estimate if some items are being phased in.

Step 1: Train employees properly in accordance with a good employee training program that is carefully documented, typically with tests or quizzes. State and federal agencies, depending on materials involved or the type of business may mandate additional training requirements.

Step 2: Use the BMPs identified previously in the SWPPP. Proper construction or installation of all items is necessary for them to function properly. Document each item as it is being installed; pictures are generally preferable to supplement sketches. Correctly store all operating procedures, repair manuals, spare parts, and receipts for immediate use and/or reference.

Step 3: Purchase a spill containment kit or materials. Train all personnel about where materials are stored, when to use spill containment, emergency notification procedures, and the disposal of used spill containment materials.

Step 4: Inspect and maintain the site as described in the design phase. Inspection duties must be assigned to a responsible person in order to ensure proper inspection schedules and record keeping.

6.5 SWPPP Preparation Guidance

The following checklist is a short version containing some of the typical elements for SWPPP preparation. Additional information may be necessary due to the nature of the site. The TDEC website has guidance on preparing a SWPPP document for construction sites and for industrial sites. The EPA documents for preparing pollution prevention plans (references 137 and 138) contain additional checklists and examples.

1. Complete site description, address, and purpose
2. Pollution prevention team with complete contact information
3. Signature page for responsible persons
4. Pertinent project correspondence and project history
5. Description of potential pollutant sources
6. Existing topography, grading, vegetation
7. Information on soils and groundwater
8. Site drainage map, including outfall locations and sinkholes
9. Existing and proposed drainage structures (size, material, dimensions, etc.)
10. Material storage areas
11. Inventory of exposed materials within the last 3 years ***
12. List of known spills and leaks within the last 3 years ***
13. List of non-stormwater discharges within the last 3 years ***
14. Sampling data within the last 3 years ***
15. Good housekeeping measures and BMPs
16. Inspection and maintenance schedule
17. Inspection and maintenance records
18. Spill prevention and response procedures
19. Material safety data sheets
20. Inventory and location of spill prevention materials
21. Employee training
22. Record keeping and reporting procedures
23. Copy of NPDES permit and/or application

*** The SWPPP shall include an appendix to keep ongoing records of all known spills, leaks and non-stormwater discharges indefinitely. The 3-year time limit only applies to the initial site investigation for creating the SWPPP document.