



Description *Local Versus State Requirements*

A stormwater pollution prevention plan (SWPPP) is usually prepared only if required by Tennessee Department of Environment and Conservation (TDEC). However, the local engineering department may require a SWPPP at the discretion of the stormwater manager 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 commercial sites
- Outdoor loading/storage/transfer facilities
- Salvage and recycling facilities (including junkyards)
- Marinas and boat maintenance facilities
- Commercial nurseries
- Construction sites

Selection Criteria

TDEC has specific requirements for any SWPPP that is part of the NPDES permit program. TDEC requires a contractor to submit a SWPPP for construction sites which disturb 5 acres or more, using the instructions in Tennessee Rule 1200-4-10-.05 containing general NPDES permit requirements. TDEC also requires a SWPPP for industrial or commercial facilities with the potential to pollute waters of the state, using the instructions in Tennessee Rule 1200-4-10-.04 containing general NPDES Permit requirements. These two rules may be viewed and printed from the TDEC website (<http://www.state.tn.us/environment/permits/>). In addition, the TDEC website also has a summary of environmental permits that are required to meet state and federal regulations.

While TDEC does not require a SWPPP for Phase II Post-construction stormwater management, it is recommended that a plan be considered. Development projects can be planned and designed to reduce both water quantity and water quality impacts on watershed when careful efforts are made to conserve natural areas, reduce impervious cover and better integrate stormwater treatment. By implementing a combination of these nonstructural approaches, it is possible to reduce the amount of runoff and pollutants that are generated from a site and provide for some nonstructural on-site treatment and control of runoff.

Reduction of adverse stormwater runoff impacts through the use of better site design should be the first consideration of the design engineer. Operationally, economically, and aesthetically, the use of better site design practices offers significant benefits over treating and controlling runoff downstream or retrofitting an expensive fix after the project is developed.

The reduction in runoff and pollutants using better site design can reduce the required runoff peak and volumes that need to be conveyed and controlled on a site and, therefore, the size and cost of necessary drainage infrastructure and structural stormwater controls. In some cases, the use of better site design concepts can be viewed as both a water quantity and water quality management tool.

The goals of better site design include:

- Managing stormwater (quantity and quality) as close to the point of origin as possible and minimizing collection and conveyance
- Preventing stormwater impacts rather than mitigating them
- Utilizing simple, nonstructural methods for stormwater management that are lower cost and lower maintenance than structural controls
- Creating a multifunctional landscape
- Using hydrology as a framework for site design

The remainder of this chapter is devoted to preparing a Stormwater Pollution Prevention Plan (SWPPP) for the city that is not specifically required by TDEC. SWPPP requirements are generally similar to those described in the cited Tennessee rules and in other EPA and state documents (see EPA, 1992; Georgia, 2001)

The life history of a SWPPP generally includes three broad 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.

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 sewer 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 local municipality. 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 the citywide NPDES permit. Therefore, it is essential to contact the local 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.

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, and 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 engineering department, TDEC) and emergency responders (police, fire, hospital). Describe spill containment, isolation, and cleanup measures that would be used. Although the local 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.

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.

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 EPA documents for preparing pollution prevention plans (references 137 and 138) contain additional checklists and examples. Tennessee Rule 1200-4-10-.04 may be used as guidance in preparing a SWPPP for industrial sites. Tennessee Rule 1200-4-10-.05 may be used as guidance in preparing a SWPPP for construction sites.

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

References

City of Knoxville Engineering Department Planning Division. "Knoxville BMP Manual", March 2001.

U. S. EPA Website, *Developing Pollution Prevention Plans and Best Management Practices* (EPA 832-R-92-005), Chapter 2 and Appendix A: Storm Water Pollution Prevention Plan Checklist, September 1992,
http://www.epa.gov/npdes/pubs/chap02_conguide.pdf

Georgia Website, *Georgia Stormwater Management Manual*, Volume 2 – Technical Handbook, Chapter 1, Stormwater Management Planning and Design, Section 1.4 - Stormwater Better Site Design and Section 1.5 - Stormwater Site Planning, August 2001: <http://www.georgiastormwater.com/>,
<http://www.georgiastormwater.com/vol2/1-5.pdf>