



Storm Water O&M Fact Sheet Preventive Maintenance

DESCRIPTION

Preventive maintenance involves the regular inspection, testing, and replacement or repair of equipment and operational systems. As a storm water best management practice (BMP), preventive maintenance should be used to monitor systems built to control storm water. These systems should be inspected to uncover cracks, leaks, and other conditions that could cause breakdowns or failures of storm water mitigation structures and equipment, which, in turn, could result in discharges of chemicals to surface waters either by direct overland flow or through storm drainage systems. A preventive maintenance program can prevent breakdowns and failures through adjustment, repair, or replacement of equipment before a major breakdown or failure occurs.

Typically, a preventive maintenance program should include inspections of catch basins, storm water detention areas, and water quality treatment systems. Without adequate maintenance, sediment and debris can quickly clog storm drainage facilities and render them useless.

APPLICABILITY

Preventive maintenance procedures and activities are applicable to almost all industrial facilities. This concept should be a part of a general good housekeeping program designed to maintain a clean and orderly work environment. Often the most effective first step towards preventing storm water pollution from industrial sites is to improve the facility's preventive maintenance and general good housekeeping methods.

For many facilities, preventive maintenance to protect water quality is simply an extension of current plant preventive maintenance programs. Most plants already have preventive maintenance programs that provide some degree of environmental protection. Such programs could be expanded to include storm water considerations.

ADVANTAGES AND DISADVANTAGES

Preventive maintenance takes a proactive approach to storm water management and seeks to prevent problems before they occur. A preventive maintenance program can improve water quality by controlling pollutant discharges to surface water that would result from spills and leaks. Preventive maintenance programs can also save a facility money by reducing the likelihood of having a system breakdown and also by reducing the likelihood of funding costly cleanup projects. In addition, a preventive maintenance program can be an effective community relations tool.

The primary limitations of implementing a preventive maintenance program include:

- Cost.
- Availability of trained preventive maintenance staff technicians.
- Management direction and staff motivation in expanding the preventive maintenance program to include storm water considerations.

KEY PROGRAM COMPONENTS

Elements of a good preventive maintenance program should include the following:

- Identification of equipment or systems that may malfunction and cause spills or leaks, or may otherwise contaminate storm water runoff. Typical equipment to be inspected includes pipes, pumps, storage tanks and bins, pressure vessels, pressure release valves, process and material handling equipment, and storm water management devices.
- Establishment of schedules and procedures for routine inspections.
- Periodic testing of plant equipment for structural soundness.
- Prompt repair or replacement of defective equipment found during inspection and testing.
- Maintenance of a supply of spare parts for equipment that needs frequent repairs.
- Use of an organized record-keeping system to schedule tests and document inspections.
- Commitment to ensure that records are complete and detailed, and that they record test results and follow-up actions. Preventive maintenance inspection records should be kept with other visual inspection records.

IMPLEMENTATION

The key to properly implementing and tracking a preventive maintenance program is through the continual updating of maintenance records. Update records immediately after performing preventive maintenance or repairing an item and review them annually to evaluate the overall effectiveness of the program. Then refine the preventive maintenance procedures as necessary.

No quantitative data on the effectiveness of preventive maintenance as a BMP is available. However, it is intuitively clear that an effective preventive maintenance program will result in improved storm water discharge quality.

COSTS

The major cost of implementing a preventive maintenance program on storm water quality is the staff time required to administer the program. Typically, this is a small incremental increase if a preventive maintenance program already exists at the facility.

REFERENCES

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2. U.S. EPA, Pre-print, July 1992. *Storm Water Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices*. EPA 832-R-92-006.
3. Washington State Department of Ecology, February 1992. *Storm Water Management Manual for Puget Sound*.

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