



Photo by Dennis Schroeder, NREL 45400

MS4 – Municipal Separate Storm Sewer System

Stormwater refers to the rainwater or melted snow that flows over land surfaces—including streets, rooftops, and parking lots—that does not infiltrate into the ground. It is collected by storm drains and conveyed through a network of pipes and channels, eventually discharging into streams, rivers, lakes, or oceans.

The storm sewer systems on NREL’s South Table Mountain (STM) campus, distinct from the sanitary sewer systems, is known as a Municipal Separate Storm Sewer System (MS4). The Environmental Protection Agency (EPA) issued NREL an MS4 Permit for the STM campus to regulate stormwater operations within the boundaries of the STM campus. The STM campus is the only NREL campus to have an MS4 Permit.

NREL’s MS4 program includes six elements:

1. Campus community education and outreach
2. Organizational involvement
3. Illicit discharges and elimination
4. Construction site runoff
5. Post construction new and redevelopment
6. Pollution prevention

Campus Community Education and Outreach

The education and outreach element of NREL’s MS4 program aims to raise awareness about the impacts of stormwater runoff on water quality and the environment, and to encourage responsible behaviors that minimize pollution using educational media, training on MS4-related topics, and participating in community events. NREL’s community includes researchers, facility support staff, subcontractors, and visitors to NREL’s STM campus.

How Our Daily Activities Impact Our Water Supply

This video demonstrates how our daily activities, like washing the car or walking the dog, can impact the health of our water systems and stormwater runoff.



youtube.com/watch?v=rycO9GbvdSg

Organizational Involvement

NREL's MS4 organizational involvement element consists of a team of NREL and U.S. Department of Energy (DOE) employees who implement MS4 program actions their groups are responsible for. The following groups are represented in the public involvement team:

- Architectural and Engineer Services; and Project Management and Construction Group
- Acquisition Services
- Communications Office
- DOE Golden Field Office
- Environment, Safety, Health, and Quality Office
- Maintenance
- Office of the General Counsel.



Illicit Discharges and Elimination

NREL's MS4 illicit discharges and elimination element is a proactive and systematic approach to identifying and eliminating pollutants from entering the storm sewer system. This comprehensive effort involves regular inspections, monitoring, and public outreach to detect and report illicit or unauthorized discharges, which may include hazardous chemicals, oils, or sewage into stormwater conveyances. The element establishes clear protocols for investigating and responding to reported discharges and implementing corrective actions to eliminate future illicit discharges.

Construction Site Runoff

The construct site runoff element is implemented to reduce or prevent the discharge of pollutants into the storm sewer

system from construction activities. To prevent pollution and degradation of water quality, NREL requires temporary stormwater control measures that mitigate potential pollution sources to be installed at NREL's construction sites. The EPA requires a Stormwater Pollution Prevention Plan and a [Construction General Permit](#) when site disturbance is one acre or greater. Throughout construction, the EPA requires inspections for deficiencies.

Post-Construction New and Redevelopment

The Post Construction New and Redevelopment element manages the permanent stormwater runoff from development and future development of the STM campus. Infrastructure that has been installed from development of the STM campus is managed by a stormwater operation and maintenance manual. The manual addresses and identifies processes and activities involved in managing and preserving stormwater infrastructure to prevent flooding, water pollution, and erosion through the proper inspection of infrastructure; evaluation of stormwater infrastructure efficiency; and maintenance of stormwater infrastructure.

Pollution Prevention

The pollution prevention element requires proactively implementing measures and practices that are aimed at reducing or eliminating the introduction of pollutants into stormwater runoff. Several ways that NREL helps prevent pollutants from entering the storm sewer system are by managing deicing material, following a discharge procedure of what is allowable in the storm sewer system, and snow management activities.



Placard discs were applied to the stormwater drains on NREL's South Table Mountain Campus as a part of the MS4 permit program.