



**Standard Operating Procedure:
Building Fire Sprinkler System Flushing**

Date: 12/11/2019* Version: 3 Review Frequency: Annual

Reasons for Procedure

The University of Virginia (UVA) has a permit to operate a Municipal Separate Storm Sewer System (MS4) issued by the Virginia Department of Environmental Quality. This permit authorizes UVA to discharge stormwater pursuant to the Virginia Stormwater Management Program and the Virginia Stormwater Management Act.

Since storm drain systems are not connected to a sanitary sewer treatment plant, water traveling through the storm drain system flows untreated directly to local streams, rivers and lakes. An illicit discharge to the storm system is generally defined as any discharge that is not composed entirely of stormwater. UVA's MS4 Program "shall include all procedures developed by the operator to detect, identify, and address nonstormwater discharges to the MS4."¹

1.0 Purpose

The purpose of this procedure is to describe the proper means for flushing fire sprinkler systems to prevent the discharge of contaminated water to UVA's stormwater systems and surface waters. Water that is flushed from sprinkler system may contain high levels of iron, zinc, oils, and biological contaminants. Discharge of these contaminants into a storm drain could be considered an "Illicit Discharge." Illicit discharges can result in significant fines from regulatory agencies.

2.0 Scope

This procedure applies to employees and contractors that are responsible for the maintenance and operation of the fire sprinkler systems across campus. First flush water will not be allowed to enter storm drains directly and should be directed to the nearest sanitary sewer inlet or manhole for disposal.

3.0 Responsibility

3.1 Facilities Management Environmental Resources

Environmental Resources is responsible for working with staff to keep this policy up to date and revised as needed.

¹ General Permit No: VAR040073, General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems.

3.2 Managers

Managers and supervisors must provide training to the employees and contractors who will be conducting the sprinkler flushing operations. Managers will be responsible with approving project plans and work order assignments to ensure that each job is in compliance with this SOP. Managers are responsible for ensuring training is conducted with the most recent version of the SOP.

3.3 Personnel Performing the Job

Personnel must follow the correct procedures in accordance with this SOP.

4.0 Procedures

The flushing of sprinkler systems will usually result in the discharge of some water that would not be considered potable even though the source of the flush water is the drinking water system. This is the result of water lying stagnant in these systems for many months causing corrosion of the piping and the growth of bacteria and mold. To insure proper operation of these systems, they are flushed with potable water to remove these contaminants that could otherwise impair the proper operation of the system in the event of a fire. The first water out of the systems during these flushing operations is generally of much poorer quality (black or dark brown in color) than the water that is discharged later in the processes as it approaches the quality of the potable source. This first flush water cannot be discharged to surface waters or directly to stormwater conveyances.

4.1 Flushing Plan Design and Approval

For each project, the Project Manager will determine the best method for disposing of the first flush water. Ideally, this water will be discharged to the sanitary sewer system. This will be reviewed with the project staff. If the area lacks the capability to drain this first flush water to a municipal sanitary wastewater system, other practices may be effective for the prevention of storm water pollution. Such permissible practices may include portable containment, discharge to vegetated areas, or portable filtering devices. In these cases, contact ER to review and approve alternative water disposal plans before flushing takes place.

4.2 Flushing Operation

Once the disposal piping is set up for the water to discharge to the sanitary sewer, flush the system until the water runs clear. At this point, the flushing can be redirected to the surface, preferably to a vegetated area, so long as the flushing is managed in a manner to avoid an instream impact.

5.0 Review of Procedure/Training

All location and project managers who perform and/or request that these flushing operations are responsible for reviewing this procedure with all employees who have these job duties at least once every 24 months. Any project managers who hire contractors to perform these job duties are required to convey the requirements of this procedure to the contractors.

6.0 Regulatory impacts

Illicit discharges, including discharges of contaminated water, are prohibited by the University's MS4 permit. This offense is punishable by civil and criminal penalties as illicit discharges constitute a threat to the public health, safety, and welfare, and are deemed public nuisances.

*Printed versions of SOPs with previous review dates are considered current as long as the version number is the same as the current version. Current versions of all SOPs are maintained on the UVA Environmental Resources website.