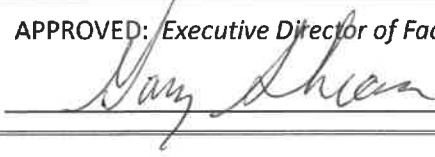


POLICY IV 12: Daily Operational Procedures for Stormwater Control Best Management Practices

APPROVED: *Executive Director of Facilities & Construction:*



Policy Review: Annually

Dated: May 2015

Updated: Dec. 2022

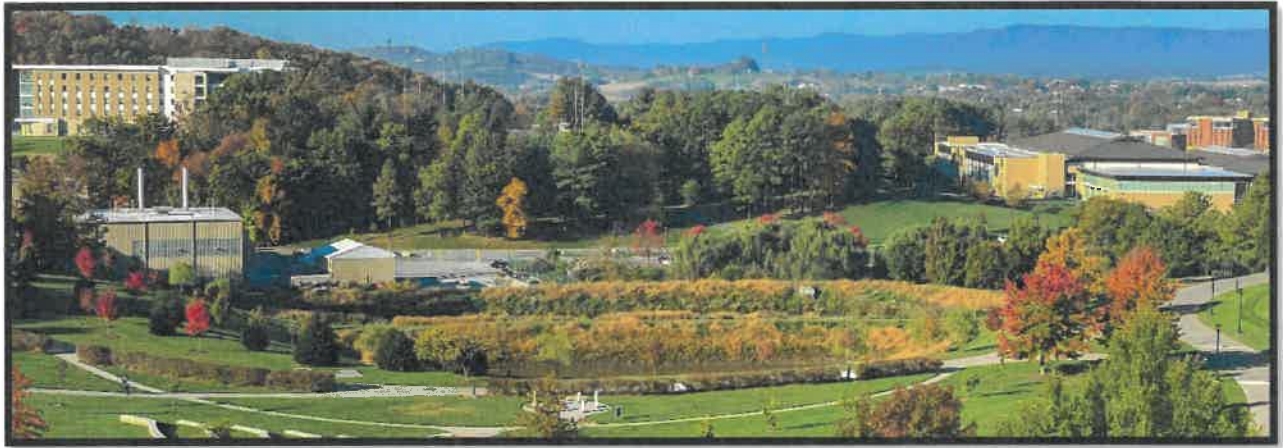


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1.0 Purpose

James Madison University has a permit to operate a Municipal Separate Storm Sewer System (MS4) issued by the Virginia Department of Environmental Quality (DEQ). The permit makes JMU responsible for any discharges to the storm sewer system, or waterways, that is not entirely composed of stormwater run-off.

The purpose of this policy is to develop and implement written procedures designed to minimize or prevent pollutant discharge as required by state and federal stormwater regulations. As stated in state regulations, these procedures will include daily operations such as (i) road, street, and parking lot maintenance; (ii) vehicle and equipment maintenance; (iii) the application, storage, transport, and disposal of pesticides, herbicides, and fertilizers; and (iv) the storage of erodible materials. Procedures will be designed to:

1. Prevent illicit discharges;
2. Ensure the proper disposal of waste materials, including landscape wastes;
3. Prevent the discharge of municipal vehicle wash water into the MS4 without authorization under a separate VPDES permit;
4. Prevent the discharge of wastewater into the MS4 without authorization under a separate VPDES permit;
5. Require implementation of best management practices when discharging water pumped from utility construction and maintenance activities;
6. Minimize the pollutants in stormwater runoff from bulk storage areas (e.g., salt storage, topsoil stockpiles) through the use of best management practices;
7. Prevent pollutant discharge into the MS4 from leaking municipal automobiles and equipment; and
8. Ensure that the application of materials, including fertilizers and pesticides, is conducted in accordance with the manufacturer's recommendation.

Discharges, other than stormwater run-off to a storm sewer system or state waterway, is considered an "illicit discharge" and can result in significant fines from regulatory agencies such as the DEQ and the Environmental Protection Agency (EPA). Please note that JMU's storm sewer system is connected to the City of Harrisonburg and the Virginia Department of Transportation. Discharges to their systems could also result in civil and criminal penalties.

2.0 Definitions

Best Management Practice (BMP) – Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices, including both structural and nonstructural practices to prevent or reduce pollution of surface waters and groundwater systems.

Environmental Protection Agency (EPA) – Federal entity responsible for monitoring, standard-setting and enforcing activities to ensure environmental protection.

Illicit Discharge – Any discharge to a MS4 that is not composed entirely of stormwater, except discharges pursuant to a separate VPDES permit, discharges resulting from firefighting activities, and discharges identified by and in compliance with 9VAC25-870-400 D 2 c (3). (water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated groundwater infiltration as defined in 40 CFR 35.2005(20), uncontaminated pumped ground water, potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water.)

Municipal Separate Storm Sewer System (MS4) – A conveyance or system of conveyances including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains.

Stormwater Management Facility - A structural best management practice that controls stormwater runoff and changes the characteristics of that runoff, including but not limited to, the quantity and quality, the period of release, or the velocity of flow.

Virginia Department of Environmental Quality (DEQ) – State department responsible overseeing the universities stormwater related programs and the enforcement of stormwater legislation.

Virginia Pollutant Discharge Elimination System (VPDES) – A permit program allowing the discharge of stormwater from MS4s, industrial activities and construction activities.

3.0 Responsibilities

Executive Director of Facilities & Construction, Associate Director of Operations, Assistant Director of Environmental Services, Director of Engineering and Construction, and Assistant Director of Support Services: Responsible for the overall implementation of this policy and procedures.

Project Managers and Supervisors: Responsible for ensuring that employees and outside contractors are properly informed and follow procedures.

Stormwater Coordinator: Responsible for fulfilling training requirements to FM employees. This will be done through annual stormwater training sessions and new FM employee orientation.

4.0 Procedures

4.1 Building and Other Exterior Washing

Waste water from exterior cleaning activities such as the washing of university buildings, loading docks, patios, roads, parking decks and parking lots can contain a variety of materials that if not filtered or captured can pollute the university's storm sewer system and the state's waterways.

4.1.1 Cleaning with Potable Water (no chemicals)

When potable wash water will be used without chemicals and the resulting waste water is not expected to contain anything other than the water and dirt generated from the surface being cleaned, waste water can be handled in one of the following methods:

- Waste water can be directed onto a grass or vegetated area where it can be absorbed into the soil. No runoff from the area should occur and no runoff may enter a storm drain inlet, conveyance, roof drain or waterway.
- Waste water can be directed to adequate filtration methods, such as inlet protection, if sediments or other solids are the only anticipated waste materials. Existing stormwater BMP's such as bio-retention filters or manufactured stormfilters are not to be considered as adequate filters, and must be protected from waste water.
- If there is not an adequate amount of vegetated area nearby, waste water can be captured or diverted to a holding area for proper disposal. Wet/dry vacuums can be used for smaller jobs. Larger jobs can be broken into smaller sections with moving containment if necessary.



4.1.2 Cleaning with the use of Chemicals

The use of chemicals is strongly discouraged, but may be needed for certain circumstances. When using chemicals, or when washing items that may contain hazardous waste, such as power washing paint off a building, all waste water must be captured or diverted to a holding area for proper disposal. Wastes may not be allowed to drain into stormwater systems, waterways, or into other areas to be absorbed into the soil. Wet/dry vacuums can be used for smaller jobs. Larger jobs can be broken into smaller sections with moving containment if necessary.

Please note that all chemicals and detergents used must be suitable for disposal in the sanitary sewer. Check with limitations with the City of Harrisonburg and the Harrisonburg Rockingham Regional Sewer Authority (HRRSA) as needed.



4.2 Building Fire Sprinkler System Flushing

Sprinkler systems are originally filled with potable water, but it remains stagnant for long periods of time. As such, water flushed from sprinkler systems may contain high levels of iron, zinc, oils and biological contaminants. The initial discharge from flushing may not be discharged to stormwater conveyances or waterways.

Ensure the first flush is either collected or directly discharged to the sanitary sewer system. Once flushed water is clear, it may be directed to a vegetated area, or if none available, to a paved area or conveyance.

4.3 Concrete and Related Masonry Work

Waste water containing concrete and other masonry materials is caustic with a pH of approximately 12 and contains a high concentration of solids. Wastes from concrete, joint compounds, limes, cement, plaster, and other masonry materials may not be allowed to enter storm conveyance systems or waterways. These items have a direct effect on aquatic life, especially benthic macroinvertebrates.

Waste water must be captured or diverted to a holding area for proper disposal. Wet/dry vacuums can be used for smaller jobs. Larger jobs can be broken into smaller sections with moving containment if necessary.



Measures shall be installed before construction activity begins and wastes shall be confined to the immediate work area, not allowed to flow down curb and gutter to a distant inlet. At end of each day, sweep up or shovel any residual debris and dispose of properly.

4.4 Dewatering Activities

Water removed from maintenance or operational activities could contain pollutants such as bacteria, nutrients, oils, sediments or other materials. Depending on the scenario, the water may need to be filtered, or collected for proper disposal.

4.4.1 Clean Water (Rainwater or groundwater infiltration)

After a visual inspection is completed and it is determined that the water is clean due to a lack of potential pollutant sources, water may be pumped into a nearby vegetated area which will allow infiltration. If there is not a large enough vegetated area nearby, or the water is sediment laden, water will need to be pumped through an adequately sized filtration device, such as a dewatering bag.

4.4.2 Contaminated Water

After a visual inspection is completed and it is determined that there are possible contaminants, water will need to be collected and transported for proper disposal. Possible disposal options could include discharging the water to the sanitary sewer or hauling to an off-site permitted disposal facility. Consultation with the Environmental Health Coordinator may be needed for proper disposal depending on the pollutant.

4.5 Erodible Material Storage (Soil, sand, road salt, etc.)

Precipitation can cause stock piles to erode, and stormwater runoff can pick up and transport material to conveyance systems and waterways. These materials have a direct effect on aquatic life, especially benthic macroinvertebrates.

Cover and contain materials to prevent erosion whenever possible. Erosion results in stormwater contamination and the loss of valuable product. The preferred storage location for soils is the South Main Street Soil Stockpile Site which has an active construction general permit for land disturbance with adequate control measures installed. The Stormwater Pollution Prevention Plan (SWPPP) for this project can be viewed at either the Stormwater Coordinator or Landscape Managers office. If erodible material is to be stored at any other location, the following measures shall be applied.

- Place temporary plastic sheeting (polyethylene, polypropylene, hypalon, or equivalent material) over the material and anchor to prevent contact between erodible material and precipitation.
- Install a berm or use other methods at upslope edge of storage pile to prevent stormwater run-off from flowing through stock pile.
- Install erosion control measures, as needed, downslope of storage pile.
- Inspect after each run-off event to make sure no erosion is present.

Existing stormwater BMP's, such as bio-retention filters or manufactured stormfilters, are not to be considered as adequate control measures, and must be protected from excess sedimentation from material storage locations.

4.6 Landscape Wastes

Landscape wastes are typically high in nutrient content. Any organic, plant or soil wastes generated as a result of landscape maintenance, including but not limited to grass clippings, leaves, or other debris shall be handled in an environmentally responsible manner to reduce the likelihood of material from entering stormwater conveyances or waterways.

4.6.1 Grass Clippings

Grass clippings should be collected or blown back on to grassed areas. Clippings should not be blown onto pavement or in to storm drains.

4.6.2 Leaves

Collected leaves are to be picked up as soon as practical. This will keep storm conveyances clear of obstructions which will prevent flooding issues. In the event leaves cannot be picked up in a timely manner, they should be blown back onto vegetated surfaces.

There is a compost site located at the South Main Street Soil Stockpile Site. All vegetative waste that cannot be re-used on site should be taken to this location.

4.7 Pesticides, Herbicides and Fertilizers

Chemicals used for the purposes of dealing with pest control, unwanted plants, and aiding in plant growth shall be handled in a manner to minimize possible discharge to stormwater conveyance systems and waterways.

4.7.1 Application

Pesticides, herbicides and fertilizers shall only be applied by certified personnel or personnel currently fulfilling the hands on requirement for obtaining certification. All applications shall follow the guidelines included in the campus integrated pest management (IPM) plan and/or the nutrient management plan (NMP). Other applicable guidelines to follow when applying are:

- Avoid spraying over impervious surfaces.
- Do not spray when wind could affect proper application.
- Do not apply to bare or eroding soil.
- Do not apply near water systems. Maintain a buffer zone of at least 20' between waterways and application of chemicals.
- Only limited use of fertilizers and pesticides may be used in bioretention areas (rain gardens, filterra units, etc.) for the purposes of assisting initial and new plantings, and controlling weeds and invasive species.
- Do not apply if it is raining or immediately before rain is expected (unless the label directs such timing).

4.7.2 Storage

Chemicals shall either be stored in an enclosed area, or in an area under cover that is protected from precipitation and does not receive flow from stormwater run-off. If possible, keep chemicals in their original containers and mark date of purchase on each container to enable using older product first. Preferred storage location is inside the storage building at the end of Chesapeake Avenue (old Rockingham Cooperative building).

4.7.3 Transport

Chemicals shall be transported in leak proof containers.

4.7.4 Disposal

Chemicals shall only be disposed of as recommended by the product manufacturer.

4.8 Road, Street, and Parking Lot Maintenance

Sweep or vacuum roads, streets and parking lots regularly, or as needed, to collect dirt, waste, and debris. Debris may be stored at the designated area at the South Main Stockpile Site, or covered as erodible material (refer to section 4.5) at the designated area at the lower section of the R2 parking lot. Dispose as solid waste by transporting to an approved facility.

Any pavement, concrete or other maintenance and repair projects shall be done in a manner to prevent discharges of waste material to storm conveyance systems. Appropriate control measures shall be implemented and wastes disposed of properly. Before any work begins, evaluate where drainage ways are located and determine adequate measures to install to protect drainage areas before work begins (e.g., concrete wash out areas, saw cutting waste water collection and disposal, etc.). Measures shall be installed before construction activity begins and wastes shall be confined to the immediate work area, not allowed to flow down curb and gutter to a distant inlet. At end of each day, sweep up or shovel any residual debris and dispose of properly.

4.9 Saw Cutting, Grinding and Drilling

Waste water from saw cutting, grinding or drilling activities shall not be allowed to enter stormwater conveyance systems or waterways without first being filtered. In addition, the sediment created from these activities shall not be allowed to remain on impervious surfaces after project completion.

Storm drains or other access to stormwater conveyance systems shall have measures installed to filter waste water. Standard erosion and sediment control inlet control measures may be used for this purpose. Wastes can also be collected, vactored and transported for proper disposal. Measures shall be installed before construction activity begins and wastes shall be confined to the immediate work area, not allowed to flow down curb and gutter to a distant inlet. At end of each day, sweep up or shovel any residual debris and dispose of properly.

Existing stormwater BMP's, such as bio-retention filters or manufactured stormfilters, are not to be considered as adequate control measures, and must be protected waste water from these types of activities.

4.10 Snow Removal and Deicing

Use of salt for roadway and walkway deicing, shall be applied as recommended by the manufacturer and only as needed using minimum quantities. Excess snow should not be placed in stormwater treatment facilities such as bio-retention filters, or in stormwater drainage ways.

4.10.1 Maintenance after Deicing and Snow Removal

Increase maintenance of stormwater structures as necessary to ensure proper operation of drainage systems. Sweep or clean up accumulated deicing and anti-icing materials and grit from roads as soon as possible after the road surface clears in order to prevent access debris from entering the storm sewer system and allow drainage of snow melt.

4.10.2 Storage

The primary storage area for road salt is the South Main Salt Shed. If stored at any other location, refer to section 4.5 for Erodible Material Storage.



4.11 Spill Control & Response

Spill control kits are located at several locations throughout campus and shall be kept adequately stocked. Be aware of drainage ways and where the nearest spill control kit is located when working outside with chemicals.

<ul style="list-style-type: none"> Festival Loading Dock Harrison Hall Huffman Hall ISAT Loading Dock Memorial Hall Power Plant Recycling Rose Library Showker Hall Taylor Hall 	<p>UREC USB Garage</p> <p>HAZWOPER SHEDS Harrison Hall Annex Power Plant ISAT/CS Building</p> <p>Spill kits can be unlocked with key A473</p>	
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For small spills, spot clean immediately, dry clean only (no water spraying), and sweep up absorbents and dispose of properly. For large spills contact Work Control at (540) 568-6101 or campus police at (540) 6911 for assistance.

Spills should be documented using the Facilities Management HAZWOPER Incident Report. In the event of an audit from DEQ or EPA, JMU will need to provide documentation about the spill and clean up procedures implemented (e.g., if auditor notices a stain adjacent at a gas pump or storage bin, they will want to see documentation of the incident.)

4.12 Vehicle and Equipment Maintenance

Improperly maintained vehicles and equipment can generate spills or leaks that can contaminate stormwater runoff and enter stormwater conveyances and waterways.

4.12.1 Vehicle and Equipment Storage

Ensure that vehicles and equipment are not leaking oil or other fluids. If leaks are noted, contact Garage Supervisor for maintenance.

4.12.2 Vehicle and Equipment Washing

Wastewater from cleaning vehicles and equipment must be discharged into a sanitary sewer drain at a site that is approved for discharge. Pollutants released while washing vehicles and equipment include surfactants, petroleum hydrocarbons, toxic organic compounds, oils and greases, nutrients, metals, and suspended solids.

Approved washing locations are:

- Transportation Wash Bay at South Main Street Facility (1603 South Main Street)
- Wash Bay at University Sports Park Maintenance Shop (1285 Kelsey Lane)
- Other preferred or contracted privately owned car wash facilities. (Contact your supervisor for approved list)
- In instances where it is not practicable to move machinery/equipment to a wash bay before transporting, field washing may be allowed without the use of chemicals (soaps, degreasers, etc.) as long as it is done in a large grassed area with little or no slope away from storm drainage systems.

4.12.3 Vehicle and Equipment Maintenance

JMU's Garage Supervisor will ensure that vehicles and equipment receive routine maintenance as needed. Maintenance and repair activities must be conducted indoors whenever possible. If work must be performed outdoors, drip pans or other containment devices shall be used beneath the vehicle or equipment to capture all spills and drips. Tarps or other methods shall also be employed to prevent precipitation from coming in contact with vehicle and equipment leaks.

Maintenance and repair areas may not be hosed down to outdoor areas. All cleaning must be done inside and by using appropriate control measures.

Drains located inside buildings must be connected to the sanitary sewer. Sanitary sewer connections should not be made without prior approval from any appropriate agencies.

All fluids shall be stored and disposed of properly by following the product manufacturer's recommendations.

5.0 References

Following are references to stormwater related laws, regulations, and specifications:

Code of Virginia. Chapter 3.1. State Water Control Law

<https://law.lis.virginia.gov/vacode/title62.1/chapter3.1/>

James Madison University. *Annual Standards and Specifications for ESC & SWM*

<https://www.jmu.edu/facmgt/sustainability/stormwater/site-plan-review.shtml>

James Madison University. *Municipal Separate Storm Sewer (MS4) Program Plan*

<https://www.jmu.edu/facmgt/sustainability/stormwater/ms4.shtml>

Virginia Administrative Code. Chapter 840. Erosion and Sediment Control Regulations

<https://law.lis.virginia.gov/admincode/title9/agency25/chapter840/>

Virginia Administrative Code. Chapter 870. Virginia Stormwater Management Program (VSMP) Regulation

<https://law.lis.virginia.gov/admincode/title9/agency25/chapter870/>

Virginia Administrative Code. Chapter 880. General VPDES Permit for Discharges of Stormwater from Construction Activities

<https://law.lis.virginia.gov/admincode/title9/agency25/chapter880/>

Virginia Administrative Code. Chapter 890. General VPDES Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems.

<https://law.lis.virginia.gov/admincode/title9/agency25/chapter890/>

6.0 Evaluation

This policy with procedures will be evaluated annually and updated as needed.