

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

APPROVED: *Executive Director of Facilities & Construction:*



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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, which is not entirely composed of stormwater runoff.

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 parking lot maintenance; vehicle and equipment maintenance; the application, storage, transport, and disposal of pesticides, herbicides, and fertilizers; the storage of erodible materials; the application of anti-icing and deicing agents and other procedures as required by law. 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 and other dewatering activities;
6. Minimize the pollutants in stormwater runoff from bulk storage areas (e.g., salt storage, topsoil stockpiles) using 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.
9. Prevent discharge of wastewater into the MS4 from renovation and significant exterior maintenance activities.

Discharges, other than stormwater runoff 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 9VAC25-875 code (water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated groundwater infiltration as defined in the regulations, 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, roof drains, riprap channels, ditches, grassed 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 for overseeing the University’s 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 appropriate policies and procedures.

Stormwater Coordinator: Responsible for fulfilling training requirements to FM employees. This will be done through annual stormwater training sessions, new Facilities Management employee orientation and as needed or requested when substantial updates are made to this policy.

4.0 Procedures

4.1 Anti-Icing & Deicing Agent Application, Storage, Transport and Snow Removal

During winter months, JMU applies deicing materials, generally salts, gravel, or sand to sidewalks, parking lots, and roadways to reduce ice buildup and improve conditions for pedestrians and vehicles.

Use of salt for roadway and walkway deicing, shall be applied as recommended by the manufacturer and only as needed using minimum quantities. The application of any anti-icing or deicing agent containing urea or other forms of nitrogen or phosphorus shall be prohibited. Excess snow should not be placed in stormwater treatment facilities such as bioretention filters, filtertraps, detention basins or in stormwater drainage ways.

4.1.1 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 to prevent access material and debris from entering the storm sewer system and allow drainage of snow melt.

Dry sweep or vacuum up any anti-icing or deicing material left behind after application and after the snow event and snowmelt to prevent further discharge of materials into the storm sewer system.

4.1.2 Storage

Deicing materials are stored under cover to protect throughout the year from weather. This makes the material easy to load and to apply. The primary storage area for road salt is the South Main Salt Shed. If stored at any other location, refer to Section 4.6 for Erodible Material Storage.



4.1.3 Loading and Unloading

Deliveries of materials by outside vendors to the Salt Shed must be monitored so that any spilled materials are swept up and placed in the shed. Trench drains should be covered during deliveries.

When loading deicing or anti-icing materials onto trucks for application, employees must be sure that any scattered materials are swept and returned to the stockpile under cover. Tracking of materials from the site must be prevented and addressed as soon as possible when observed.

4.1.4 Transport

For spinner set-up, use a chute or set spinners closer to the ground when possible and drive below 25 mph to reduce bounce and scatter to keep material on the road. When stopped, turn off auger or shoot. Based on conditions, in areas receiving successive passes, reduce application rate.

4.2 Building and Other Exterior Washing

Wastewater 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.

4.2.1 Cleaning with Potable Water (no chemicals)

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

- Wastewater 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.
- Wastewater 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 bioretention filters or manufactured stormfilters are not to be considered as adequate filters and must be protected from wastewater.
- If there is not an adequate amount of vegetated area nearby, wastewater 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.



4.2.2 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 wastewater 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.

Many companies provide products that allow for the recapture of cleaning products and rinse water so that it can be contained and safely disposed of in accordance with local, state, and federal laws and regulations. These products include Spill Blocker Dikes, absorbent pads, and other types of containment products.

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.



4.3 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 (inlets, channels, drains, etc.) or waterways.

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

4.4 Concrete and Related Masonry Work

Wastewater containing concrete and other masonry materials is caustic with a pH of approximately twelve 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.

Wastewater 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.

4.5 Dewatering Activities from Construction and Maintenance 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.

4.5.1 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.

Any groundwater or clean water discharged to a stormwater conveyance (inlet, drain, riprap, ditch, etc.) must be below 140 degrees Fahrenheit. Any dewatering of clean water above this temperature must be captured and stored until water is below 140 degrees Fahrenheit and then discharged into the storm sewer system.

4.5.2 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 in JMU's Risk Management department may be needed for proper disposal depending on the pollutant. Depending on the pollutant, check for limitations with the City of Harrisonburg and the Harrisonburg Rockingham Regional Sewer Authority (HRRSA) before discharging to the sanitary sewer.

4.6 Erodible Material Storage & Temporary Storage of Landscaping Materials

The University is well known for having beautifully maintained lawns, mulched flower beds and other aesthetic plantings. Creating and maintaining these areas requires temporary storage of landscaping materials, and proper placement for temporary storage of these materials is required to prevent potential loss into waterways.

Precipitation can cause stockpiles 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 Manager's office. If erodible material is to be stored at any other location, the following measures shall be applied as necessary:

- Depending on the location, store materials in a manner to ensure materials cannot drain into a waterway or storm system. If needed, install a berm, or use other methods at upslope edge of storage pile to prevent stormwater runoff from flowing through material.
- If placed near either a waterway or storm system, install erosion control measures such as silt fence or erosion eels to prevent loss of material. Do not place materials on top of storm drains, directly adjacent to waterways, or in drainage ditches.
- All bagged materials, such as fertilizer, should be stored indoors whenever possible. If they must be stored outdoors, place them under cover and on a pallet.
- Tarps are recommended to be placed over highly erodible materials such as sand and topsoil. Place temporary plastic sheeting (polyethylene, polypropylene, Hypalon, or equivalent material) over the material and anchor to prevent contact between erodible material and precipitation.
- Inspect after each runoff event to ensure no erosion or loss of material.

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

4.7 Landscape Wastes

Landscape wastes are typically high in nutrient content. Any organic, plant or soil wastes generated because 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.

4.7.1 Grass Clippings

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

4.7.2 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. Leaves should not be blown into or on top of storm drains.

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.

4.8 Pesticides, Herbicides, Fertilizers, and Other Chemical Applications

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

4.8.1 Application

Pesticides, herbicides, and fertilizers shall only be applied by certified personnel or personnel currently fulfilling the requirement for obtaining state applicator certification. All applications shall follow the guidelines included in the campus Integrated Pest Management (IPM) Plan and/or the Nutrient Management Plan (NMP). Application of fertilizer shall not exceed the maximum application rates established by applicable NMPs. For areas not covered under a NMP, application rates shall not exceed the manufacturer's recommendations. 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.
- Very limited and specific 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.
- Please note the areas in the NMP maps where fertilizers should never be applied, these include riparian stream buffers and vegetated stormwater management facilities (unless the bullet above applies with new installations of plants).
- Do not apply if it is raining or immediately before rain is expected (unless the label directs such timing).

4.8.2 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 runoff. 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).

4.8.3 Transport

Chemicals shall be transported in leak proof containers.

4.8.4 Disposal

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

4.9 Renovation and Significant Exterior Maintenance Activities

Renovation and exterior maintenance projects have a potential for the discharge of debris and considerations will be needed to ensure pollutants are contained and prevented from discharging to the storm sewer system. Most work can be protected with typical erosion and sediment control measures such as silt fence and inlet protection. For recommendations, please consult the stormwater team in Engineering and Construction.

4.9.1 HVAC Coil Cleaning

Always be aware of the surrounding areas when cleaning HVAC coils. If a storm or roof drain is in the vicinity of your cleaning activity, you may need to take additional precautions to ensure wastewater from cleaning is not discharged into the storm system.

If possible, use dry cleaning methods using a vacuum system to collect debris. If dry methods are not adequate, then proceed with wet cleaning.

Rinse water containing the cleaning product must be captured so that it does not enter a storm sewer system. Many companies provide products that allow for the recapture of cleaning products and rinse water so that it can be contained and safely disposed of in accordance with local, state, and federal laws and regulations. These products include Spill Blocker Dikes, absorbent pads, and other types of containment products.

Follow manufacturer recommendations for use and application of the product.

4.9.2 Painting

Use ground cloths and/or drip pans in outdoor locations where paints, finishes, and other liquid materials are mixed and applied.

Store chemical substances associated with painting, such as paint, solvents, stains, etc. under cover when not in use or during rain.

Do not clean paint brushes or rinse equipment with paint on it on a paved surface or over a storm drain, or any other conveyance system.

4.9.3 Roof Resealing

Ensure that any rinse water containing a cleaning product is not sent down the roof drains into the storm sewer system.

Rinse water containing a cleaning product must be captured so that it does not enter a storm sewer system. Many companies provide products that allow for the recapture of cleaning products and rinse water so that it can be contained and safely disposed of in accordance with local, state, and federal laws and regulations. These products include Spill Blocker Dikes, absorbent pads, and other types of containment products.

Sealant should only be applied in dry weather conditions and containers of chemicals associated with this process should be covered when not in use and appropriately stored under cover at the end of each working day.

4.10 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 wastewater collection and disposal, inlet protection, etc.).

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

4.11 Saw Cutting, Grinding and Drilling


Wastewater 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 wastewater. Standard erosion and sediment 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 any unprotected inlet(s). At the end of each day, sweep up or shovel any residual debris and dispose of properly.

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

4.12 Spill Control & Response

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

Festival Loading Dock Harrison Hall Huffman Hall ISAT Loading Dock Memorial Hall Power Plant Recycling Rose Library Showker Hall Taylor Hall	UREC USB Garage HAZWOPER SHEDS Harrison Hall Annex Power Plant ISAT/CS Building Spill kits can be unlocked with key A473	
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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.) Please refer to JMU's most updated version of the Spill Prevention, Control and Countermeasure Plan for more information related to spill control and response.

4.13 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.

4.13.1 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 and collect the leaking fluid in a drip tray or other container or store the vehicle in a garage.

4.13.2 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.

4.13.3 Vehicle and Equipment Maintenance

JMU's Garage Supervisor will ensure that vehicles and equipment receive routine maintenance as needed, but at a minimum of once per year. It is the responsibility of each operator to conduct daily maintenance checks of the vehicle/equipment that is assigned to them to ensure safe operation, checking for obvious damage and leaks. Maintenance and repair activities must be conducted indoors whenever possible.

If issues are noted, notify your supervisor or garage. 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 encountering 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 875. Virginia Erosion and Stormwater Management Program (VESMP) Regulation

<https://law.lis.virginia.gov/admincode/title9/agency25/chapter875/>

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.