

J. Sargeant Reynolds Community College **Staff Handbook of Good Housekeeping and Pollution Prevention**



Policies and Procedures to Protect Water Quality

Latest Revision: June 2021

(Incorporated, by reference, into the J. Sargeant Reynolds
Community College MS4 Program Plan)

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1.0 Background and Purpose

J. Sargeant Reynolds Community College (Reynolds) owns and operates a municipal separate storm sewer system (MS4). The MS4 consists of features such as curb and gutter, drop inlets, ditches, and stormwater management (SWM) facilities to convey, treat, and ultimately discharge stormwater runoff to surface waters. The discharge of runoff from the East Parham Road campus's (campus) MS4 is regulated under the Clean Water Act, as amended and pursuant to the State Water Control Law and Regulations. Reynolds is authorized to discharge stormwater from the MS4 under the Virginia SWM Program regulations, Virginia Pollutant Discharge Elimination System Regulations (VPDES), and the Virginia State Water Control Law.

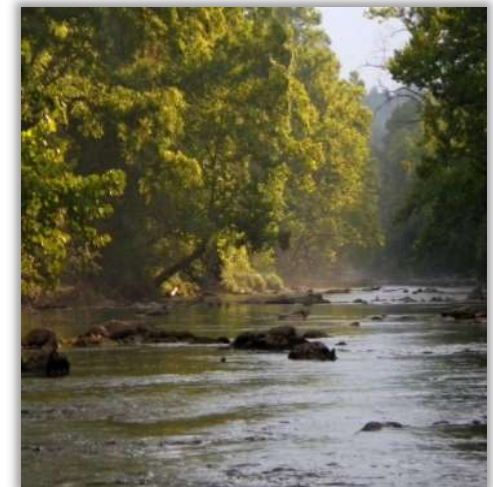
Reynolds has been issued permit coverage to discharge stormwater by the Virginia Department of Environmental Quality (DEQ) and in accordance with the General VPDES Permit for Discharges of Stormwater from Small MS4s (MS4 General Permit). Generally, compliance with the MS4 General Permit requires Reynolds to develop, implement, and enforce an MS4 program with goals designed to:

- ✓ Reduce the discharge of pollutants from the MS4 to the maximum extent practicable (MEP) and
- ✓ Protect water quality.

Towards addressing these goals, this Handbook incorporates written policies and procedures for the following activities:

- Detecting, identifying, and addressing unauthorized non-stormwater (illicit) discharges;
- Good housekeeping and pollution prevention procedures; and
- Inspections and maintenance of SWM facilities.

This Handbook serves as the guiding document for Reynolds staff engaged in any activity on the Reynolds campus that could potentially impact water quality. For each activity described, applicable staff shall follow the prescribed procedure(s) in this Handbook.



2.0 Illicit Discharge

Generally, an **illicit discharge** is defined as:

Any discharge to an MS4 that is not composed entirely of stormwater.

Characteristics representative of an illicit discharge can include:

1. Flow from a storm drain during dry weather;
2. A unique frequency, composition, and mode of entry into the storm drain system;
3. Interaction with sanitary sewers (e.g. overflows or illicit connections); or
4. Pollutants generated from specific source areas.

Sources of an illicit discharge to the Reynolds MS4 could originate from a variety of areas. Pollutants associated with activities performed by Reynolds staff would most likely occur in areas where materials are stored or where vehicles and equipment are maintained outdoors. However, sources could be generated from locations throughout the Reynolds campus, such as from the dumping of janitorial wash-water outdoors, a vehicle fluids leak in a parking lot, or a leaky dumpster.



2.1 Policy

Reynolds's policy **prohibits** non-stormwater (illicit) discharges, including illegal dumping, into the storm sewer systems. Elimination of any source of an illicit discharge and enforcement of the prohibition is implemented utilizing language within the *Standards of Conduct* for Reynolds employees and *Student Handbook* for Reynolds students. Disciplinary action, including restitution, can be taken, or required, by Reynolds in cases of negligent, willful or continued cause of an illicit discharge.

Certain activities performed on the Reynolds campus that could potentially contribute to an illicit discharge necessitate the need for training and/or certifications. Specifically, the following are required:

- Employees and contractors who apply pesticides and herbicides shall be trained or certified in accordance with the Virginia Pesticide Control Act (§ 3.2-3900 et seq. of the Code of Virginia). Certification by the Virginia Department of Agriculture and Consumer Services (VCACS) Pesticide and Herbicide Applicator program shall constitute compliance with this requirement.
- Employees and contractors serving as land disturbance plan reviewers, inspectors, program administrators, and construction site operators shall obtain the appropriate certifications as required under the Virginia Erosion and Sediment Control Law and its attendant regulations.
- Employees and contractors implementing the stormwater program shall obtain the appropriate certifications as required under the Virginia Stormwater Management Act and its attendant regulations.
- Reynolds employees whose duties include emergency response shall have been trained in spill response. Training of emergency responders such as firefighters and law-enforcement officers on the handling of spill releases as part of a larger emergency response training shall satisfy this training requirement. Documentation shall be provided to the Reynolds Buildings and Grounds Manager.



2.2 Recognition of Illicit Discharges

Illicit discharge violations not only include direct dumping to a storm sewer inlet or conveyance; but can also encompasses the improper storing of material, maintenance of equipment and vehicles, or other activities that results in material being left outdoors with potential to be transported in runoff to the MS4.

Pollutants, such as those in **Table 1**, are common examples of those susceptible to transport from impervious cover that cannot infiltrate stormwater into the ground, such as parking lots and streets. Impervious surfaces drain stormwater to the MS4 that directly discharges to nearby waterways. Therefore, an individual that dumps waste oil from an oil change or mop water from janitorial activities into the parking lot, or other outdoor location draining to the storm sewer, is contributing to an illicit discharge. In summary, if exposed to rain, it can get in the drain.



Table 1. Common pollutants that can contribute to illicit discharge.

- | | |
|---|--|
| ➤ Automotive fluids (oil, fuel, antifreeze) | ➤ Paints |
| ➤ Animal carcasses (bacteria) | ➤ Pet waste (bacteria) |
| ➤ Cooking oil and grease | ➤ Solvents (i.e. acetone, ethanol) |
| ➤ Chemical cleansers (e.g. detergents, soaps) | ➤ Salt and other deicing agents |
| ➤ Dumpster leachate | ➤ Sanitary sewer overflows |
| ➤ Misuse of fertilizer | ➤ Sediment (i.e. stockpiles, un-vegetated/mulched areas) |
| ➤ Misuse of pesticides & herbicides | ➤ Trash |
| ➤ Landscaping waste (i.e. grass clippings) | ➤ Vehicle/equipment washwater |

2.2 Recognition of Illicit Discharges continued ...

There are some discharges not considered as illicit unless Reynolds identifies them as a significant contributor of pollutants. Allowable discharges, as listed in **Table 2**, may not be easily identified as the source of a flow within the storm sewer. These flows can occur during dry weather, indicating a potential illicit discharge and resulting in an investigation to determine the source may be necessary. If the source is unknown, it should be reported to the Reynolds Buildings and Grounds Manager. Reporting contact information is also provided on the [Reynolds stormwater webpage](#). Procedures for investigating the source of an illicit discharge are further described in Section 2.5 of this Handbook.



Table 2. Discharges not typically considered as illicit discharges.

-
- | | |
|--|---|
| ➤ Water line flushing | ➤ Air conditioning condensation |
| ➤ Landscape irrigation | ➤ Irrigation water |
| ➤ Diverted stream flows | ➤ Springs |
| ➤ Rising ground waters | ➤ Water from crawl space pumps |
| ➤ Uncontaminated ground water infiltration | ➤ Footing drains |
| ➤ Uncontaminated pumped ground water | ➤ Lawn watering |
| ➤ Discharges from potable water sources | ➤ Individual residential car washing |
| ➤ Foundation drains | ➤ Flows from riparian habitats and wetlands |
| ➤ Dechlorinated swimming pool discharges | ➤ Street wash water |
-

2.3 Local Impaired Surface Waters

The Commonwealth has adopted water quality standards that consist of statements and numeric limits that describe water quality necessary to meet and maintain certain designated uses. Generally, the standards are intended to protect state waters for swimming and other water-based recreation, public water supply, wildlife, propagation and growth of aquatic life, and the production of edible and marketable fish and shellfish. Once a surface water, such as a creek, river, or bay, is designated as impaired by the Virginia DEQ, a study is required that determines necessary reductions of the impairing pollutant(s) to achieve the total maximum daily load (TMDL). The TMDL is a calculation of the maximum amount of the impairing pollutant a waterbody can assimilate and still meet water quality standards. Reynolds's stormwater ultimately drains to the following receiving waters that have been designated as impaired:

- **Chickahominy River and Tributaries:** Impaired due to exceedance of water quality standards for **bacteria** set to support recreation/swimming use; and the
- **Chesapeake Bay:** Impaired due to excessive sediment and nutrients.

Concerns related to the pollutants identified as causing local surface waters to be impaired include:

- ✘ Sediment discharged to surface waters blocks sunlight from reaching underwater grasses, smothering the aquatic homes of oysters and other life. As grasses and marine life die, fish and other creatures that rely on them are imperiled. Other pollutants also adhere to sediment.
- ✘ Nutrients, in excess, spur algae blooms that cause low oxygen and kill fish.
- ✘ Bacteria levels exceeding standards impacts human health with increased risk of contracting waterborne illness.



2.4 Dry Weather Outfall Screening

Towards achieving the goals of: (1) reducing the discharge of pollutants from the MS4 to the MEP and (2) protecting water quality, Reynolds implements a dry-weather outfall screening program. An **outfall** is generally defined as:

A point where an MS4 discharges to surface waters, including from pipes, ditches, swales, and other points of concentrated stormwater flow.

Reynolds implements dry-weather outfall screening as a proactive practice to identify any potential illicit discharge occurring from the Reynolds campus. Screening is performed during dry weather since stormwater would not be discharging from the pipe, allowing for observation of any occurring non-stormwater discharge or signs of a previous non-stormwater discharge (i.e. indicated by pipe discoloration). At a minimum, Reynolds performs annual screening of all outfalls at the campus with support of the Reynolds MS4 Mapping available on the [Reynolds stormwater webpage](#).

Outfall screenings are performed using the “Reynolds Outfall Reconnaissance Screening Form” provided in **Appendix A** of this Handbook. Completion of the form ensures the dry-weather field screening protocols are consistent with those required by the MS4 General Permit. Findings from the screenings are used to make a characterization regarding the potential occurrence, or past occurrence, of an illicit discharge at each outfall. Based on the characterization of an outfall, follow-up investigation to identify and eliminate the source of the discharge may be necessary.



2.5 Investigation and Resolution

If dry-weather outfall screening results in a characterization designated as a potential, a suspicious, or an obvious illicit discharge, Reynolds shall conduct an investigation based on the timeframes described in **Table 3**. An investigation may also be initiated from an observation or report from the campus community. Investigations are intended to identify and locate the source of any illicit discharge with the purpose of eliminating the discharge. In the case that the source of an illicit discharge is found to be generated from off-campus, Reynolds shall notify the MS4 operator from which the discharge is originating (e.g. VDOT or Henrico County). All investigations must be documented using the “Reynolds Illicit Discharge Investigation Form” in **Appendix B** of this Handbook. Forms shall be maintained by the Reynolds Buildings and Grounds Manager, electronically, for annual reporting to DEQ.

Table 3. Investigation timeframes based on dry-weather screening illicit discharge characterization.

Characterization	General Description ¹	Investigation Timeframe ²
Unlikely	No indication of an occurring or previously occurring illicit discharge.	No investigation needed.
Potential	There is potential an illicit discharge is occurring, or has occurred, generally as a result of a single indicator observed with low severity.	An investigation should be initiated no later than 10 business days from the screening date.
Suspect	There is suspicion an illicit discharge has occurred, generally as a result of ≥ 1 indicator observed with medium to high severity.	An investigation should be initiated no later than 5 business days from the screening date. If there is concern of a discharge that could be a threat to public health (i.e. sewage), the investigation should be initiated within 2 business days.
Obvious	It is obvious an illicit discharge is occurring or previously occurred.	If occurring, an investigation should begin immediately to eliminate the source as soon as possible. If obvious that the discharge had previously occurred, an investigation should begin within 2 business days.

¹ Refer to the Reynolds Outfall Reconnaissance Screening Form in Appendix A for description of indicators and severity characterizations.

² Priority of investigations shall be given to discharges of sanitary sewage and those believed to be a risk to human health and public safety.

2.5 Investigation and Resolution continued ...

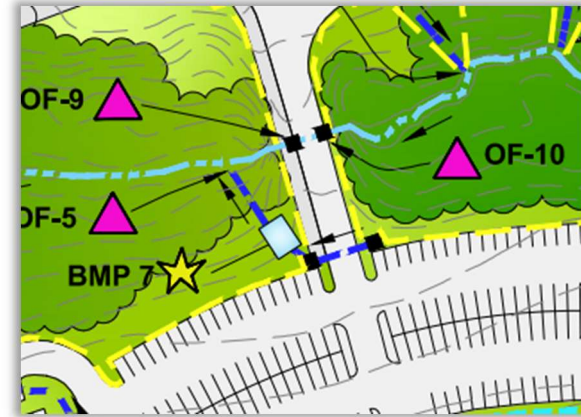
Once a potential, suspected or obvious illicit discharge has been identified, Reynolds staff, as designated by the Reynolds Buildings and Grounds Manager, shall attempt to track the source with the intent to eliminate the discharge.

Methods to identify and eliminate the source, if not immediately obvious, include:

1. Using the Reynolds MS4 Mapping, available on the [Reynolds stormwater webpage](#). The mapping provides the location of outfalls (OF), point of interconnection to other MS4s, and the upstream storm sewer infrastructure.

The investigator should use the map to:

- a) Follow the storm sewer upstream to attempt to identify the entry point of the discharge into the system. If the discharge is occurring, follow the flow path. If the discharge is not occurring, search for signs, such as stains, odors or other indicators. If the source originates from off-campus, notify the offsite MS4 program administrator (e.g. VDOT or Henrico County).
 - b) Once the entry point has been identified, visually survey the area draining to the entry point to see if the source can be identified. If the discharge is not occurring at the time of inspection and the source is not readily identifiable, monitor the area over time at varying days of the week and times of day to determine if they source can be identified or is recurring.
2. Documenting the investigation using the “Illicit Discharge Investigation Form” in **Appendix B**. If the investigator is unable to identify the source of an illicit discharge within six months of beginning the investigation, then it shall be documented that the source remains unidentified. If the observed discharge is intermittent, the investigator shall document that attempts to observe the discharge flowing were unsuccessful.
 3. Conducting and documenting a follow-up investigation for illicit discharges that could be continuing or expected to occur more frequently than a one-time discharge to verify the discharge has been eliminated.



3.0 Good Housekeeping and Pollution Prevention

The MS4 General Permit requires Reynolds to **maintain and implement written procedures** for activities that occur on campus such as any road, street, and parking lot maintenance; equipment maintenance; and the application, storage, transport, and disposal of pesticides, herbicides, and fertilizers. The intent of the procedures is to minimize/prevent pollutant discharge into stormwater from daily operations by:

1. Preventing illicit discharge;
2. Ensuring proper disposal of waste ;
3. Preventing discharge of vehicle wash water to storm sewer;
4. Preventing discharge of wastewater to storm sewer;
5. Requiring practices to filter water pumped from maintenance activities;
6. Requiring practices to prevent pollutants in runoff from bulk storage (salt storage, topsoil stockpiles);
7. Preventing pollution discharge from leaking automobiles & equipment; and
8. Ensuring proper application of pesticides and fertilizers.



To assist Reynolds staff with achieving the goals listed above, the following sections provide:

- **Section 3.1:** A list of materials and activities that are prohibited on the campus; and
- **Section 3.2:** Sub-sections for various activities that may occur on the campus with:
 - ✓ A description of the pollutants that could result from the activity and be introduced into stormwater runoff; and
 - ✓ A listing of best practices that should be implemented when conducting the activity.

3.1 Prohibited Practices and Activities

Reynolds seeks to **eliminate** certain materials and activities that could be expected to impact water quality as a result of pollutant exposure to stormwater resulting from rain, snow, snowmelt or runoff. As a result, the following are prohibited on campus:

- ✘ Areas where residuals from using, storing or cleaning machinery or equipment remain and are exposed to stormwater;
- ✘ Materials or residuals on the ground or in stormwater inlets from spills or leaks;
- ✘ Material handling equipment (maintained outdoors and exposed to stormwater);
- ✘ Materials or products that would be expected to be mobilized in stormwater runoff during loading or unloading or transporting activities (e.g., rock, salt, fill dirt);
- ✘ Materials or products stored outdoors (except final products intended for outside use where exposure to stormwater does not result in the discharge of pollutants);
- ✘ Materials or products that would be expected to be mobilized in stormwater runoff contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers;
- ✘ Waste material, except waste in covered, non-leaking containers (e.g., dumpsters);
- ✘ Application or disposal of process wastewater or vehicle washwater (unless otherwise permitted); or
- ✘ Particulate matter or visible deposits of residuals from roof stacks, vents or both, not otherwise regulated



In the case that any of the instances listed above occur on the Reynolds campus, the Reynolds Buildings and Grounds Manager shall immediately have the instance eliminated by ceasing the activity or by having removed any materials susceptible to runoff. If the instance cannot be eliminated and is expected to be recurring, the Manager shall complete, or have completed, the annual Stormwater Pollution Prevention Plan (SWPPP) Assessment Form, in **Appendix C**, within 2 weeks of the start of the recurring instance.

3.2 Best Practices

3.2.1 Vehicle and Equipment Maintenance

Potential Pollutants (Examples)

- ✗ Fuels, solvents, grease, fluids, cleaning detergents, oil, and other products either dripped, spilled or on parts.

Best Management Practices

- ✓ Preform all maintenance and repair activities indoors, if possible.
- ✓ Properly dispose of materials in designated containers/receptacles.
- ✓ Discharge wastewater generated from steam cleaning and pressure washing to an appropriate treatment control.
- ✓ Store all equipment and parts under cover when not in use.
- ✓ Clean receiving storm drain inlets(s) regularly.
- ✓ Provide a designated area for vehicle maintenance and, keep equipment clean, don't allow excessive build-up of oil and grease.
- ✓ If work is being conducted outside, use a tarp, ground cloth, or drip pans to capture all spills and drips.
- ✓ Regularly inspect vehicles and equipment for leaks, and repair immediately.
- ✓ If outdoors, non-caustic detergent should be used instead of caustic cleaning agents.
- ✓ Use detergent-based or water-based cleaning systems in place of organic solvent degreasers.
- ✓ Non-chlorinated solvent should be used in place of chlorinated organic solvents for parts cleaning.
- ✓ Designate a special area to drain and replace motor oil, coolant, and other fluids. This area should not have any connections to the storm drain or the sanitary sewer.
- ✓ Keep adequate stockpiles of cleanup materials where they are readily accessible.
- ✓ Remove and dispose of materials used for cleaning spills promptly and properly.
- ✓ Do not pour liquid waste to floor drains, sinks or outdoor storm drain inlets

3.2 Best Practices continued ...

3.2.2 Vehicle and Equipment Storage

Potential Pollutants (Examples)

- ✘ Fuels, solvents, grease, fluids, oil, and other products either dripped or on parts and exposed to stormwater.

Best Management Practices

- ✓ Store equipment and unused vehicles inside or under cover, if possible.
- ✓ Store equipment as far away from storm drains as possible if it must be stored outside. Equipment is best stored over pervious cover such as grass or gravel to minimize potential of impact to the storm sewer.
- ✓ Conduct regular inspection of stored equipment and storage areas for leaks or spills and properly clean any spills or leaks observed.
- ✓ Provide drip pans beneath vehicles that are stored outdoors and will not be used for periods of time. Inspect pans and dispose of any fluids properly.

3.2.3 Vehicle and Equipment Fueling

Potential Pollutants (Examples)

- ✘ Fuels and associated hydrocarbons and heavy metals.

Best Management Practices

- ✓ Maintain a spill-kit nearby. Properly dispose of any materials resulting from cleaning a spill or leaks.
- ✓ Do not overfill tanks so as not to cause spillage.
- ✓ Routinely inspect fueling pumps and equipment for proper function. If malfunctions are noted, have immediately corrected.

3.2 Best Practices continued ...

3.2.4 Vehicle and Equipment Washing

Potential Pollutants (Examples)

- ✘ Sediment, grease, solvents, petroleum products, detergents.

Best Management Practices

- ✓ Vehicle washing should occur at commercial car washes.
- ✓ Wash in designated wash bays only. For rinsing equipment on campus, perform the activity in a designated areas with the proper drainage to capture runoff into an inspected/maintained oil/water separator.
- ✓ Never rinse over impervious cover. If a designated area is not available and rinsing is necessary on campus, rinsing should occur over pervious cover, such as gravel or grass, without soaps or detergents and away from any type of surface water or stormwater conveyance (i.e. ditches) to allow for infiltration of washwater.

3.2.5 Material Stockpiling

Potential Pollutants (Examples)

- ✘ Various erodible materials subject to outdoor stockpiling such as sediment and salt.

Best Management Practices

- ✓ If possible, stockpile materials indoors or under cover in a manner that the material cannot be exposed to rainfall or runoff.
- ✓ Avoid placing materials on impervious cover, near storm sewer inlets, conveyance channels or surface waters.
- ✓ If stored outdoors, provide cover (e.g. tarp) and/or perimeter controls, such as silt fence. Routinely inspect to ensure covering and/or perimeter controls are appropriately maintained and functioning as intended.

3.2 Best Practices continued ...

3.2.6 Outdoor Material Storage

Potential Pollutants (Examples)

- ✗ Varies dependent on material stored; but could include chemicals, waste oils, and other bulk materials.

Best Management Practices

- ✓ Protect materials and containers from rainfall, run-on, runoff, and wind dispersal as much as possible.
- ✓ Materials should not be stored in the vicinity of storm drains, conveyances, or surface waters.
- ✓ Containerized materials should always be labeled to identify the contents, ideally maintained in original containers.
- ✓ Ensure lids are properly secured to prevent stormwater from entering the storage container.
- ✓ Routinely inspect to ensure there are no leaks or corrosion of storage containers. If found, immediately clean any spills and provide a container in good condition.
- ✓ Provide secondary containment as needed to ensure the capture of leaked materials.
- ✓ As deemed necessary, protection from the potential of vandalism.



3.2 Best Practices continued ...

3.2.7 Waste Receptacles

Potential Pollutants (Examples)

- ✗ Garbage, leachate, and other waste materials that could include various toxic compounds and chemicals.

Best Management Practices

- ✓ Waste receptacles should always be covered. Signage on dumpsters to close the cover after use is recommended.
- ✓ Place receptacles in strategic areas to minimize littering and dumping. Providing a sufficient number on campus.
- ✓ Routinely inspect to ensure: (1) receptacles are not overfilled; (2) covers are secure and (3) there are no leaks. Address issue as soon as possible. If a leak is occurring, provide controls such as berms to prevent discharge to the storm sewer, as necessary.
- ✓ Ensure adequate location and number of receptacles for special events are provided.
- ✓ After emptying or dumping of receptacles, ensure the area is cleaned, as necessary, to prevent transport of waste in runoff. If on impervious cover, any leachate should be cleaned with absorbent and properly disposed of instead of rinsing. Use berms or other devices, as necessary, to prevent discharge to the storm sewer.
- ✓ Place receptacles under cover, when possible.



3.2 Best Practices continued ...

3.2.8 Loading Operations

Potential Pollutants (Examples)

- ✘ Varies, dependent on the material being loaded or unloaded and potential exposure to stormwater.

Best Management Practices

- ✓ Only perform loading and unloading in designated areas, preferably undercover and during dry weather, when possible.
- ✓ Avoid loading and unloading in the vicinity of storm drains. If loading occurs over impervious cover that directly drains to a storm sewer inlet, a filtering practice at the inlet or a berm is suggested if materials loaded or unloaded are susceptible to spillage and transport in stormwater.
- ✓ Ensure materials, whether those being loaded or unloaded, are placed indoors or undercover as part of the loading/unloading procedures, unless materials are otherwise suited to be maintained outdoors without concern of contribution to pollution.

3.2.9 Washwater (Non-vehicle and Equipment Washing)

Potential Pollutants (Examples)

- ✘ Varies, dependent on the type of washing (i.e. power washing or rinsing various surface types)

Best Management Practices

- ✓ Use dry methods to perform as much cleaning as possible prior to water application.
- ✓ Minimize water used for washing/rinsing by prioritizing areas needed for cleaning.
- ✓ Avoid using detergents or other cleaning agents, if possible. In the case detergents or other cleaning agents are used, a written plan should be developed to ensure washwater is captured, detained and properly disposed of, dependent on the agent used, unless otherwise previously deemed acceptable for discharge.
- ✓ Provide filtering measures for any drains or other stormwater conveyances that may receive the washwater.

3.2 Best Practices continued ...

3.2.10 Pumped Water (Utility Construction and Maintenance Activities)

Potential Pollutants (Examples)

- ✘ Sediment from pumped water and fuel and oil from pumps.

Best Management Practices

- ✓ Pumped water shall be directed through a filtering device consistent with those identified in the Virginia Erosion and Sediment Control Handbook (VESCH), latest edition.
- ✓ Routinely inspect and maintain filtering devices per VESCH or the manufacturer's specifications. Repair/replace, as needed to ensure the proper function of the device.
- ✓ Place pumps within secondary containment to prevent spills of fuel or oil to the ground surface.

3.2.11 Pesticides, Herbicides, Fertilizers

Potential Pollutants (Examples)

- ✘ Chemicals associated with pesticides and herbicides and excess nutrients associated with fertilizer.

Best Management Practices

- ✓ As described in Section 2.1 of this Handbook, employees and contractors who apply pesticides and herbicides shall be trained or certified in accordance with the Virginia Pesticide Control Act (§ 3.2-3900 et seq. of the Code of Virginia). Herbicides and pesticides shall be applied in accordance with the manufacturer's recommendations.
- ✓ Store containers in covered areas on impervious flooring in labeled and closed containers.
- ✓ Fertilizer shall not be applied unless in accordance with the Reynolds current Nutrient Management Plan.
- ✓ Fertilizers should be worked into the soil rather than dumped or broadcast onto the surface
- ✓ Sweep pavement and sidewalk if fertilizer is spilled on these surfaces before applying irrigation water.

3.2 Best Practices continued ...

3.2.12 Road, Street and Parking Lot Maintenance

Potential Pollutants (Examples)

- ✘ An abundance of pollutants exists on the surface of streets and parking lots, including sediment and associated nutrients, heavy metals, and other chemicals.

Best Management Practices

- ✓ Routinely observe parking lots, especially within curb and gutter and around drop inlets, for the accumulation of sediment. Conduct sediment removal operations, whether hand sweeping or street sweeping, as necessary to minimize the accumulation of sediment. Do not rinse or power wash roads, streets or parking lots to remove sediment unless sediment trapping devices are employed (refer to Section 3.2.11 of this Handbook).
- ✓ In the case the excessive sediment has accumulated on the road, street or parking lot surface, provide filtering controls, as described in the Virginia Stormwater Management Handbook (VESCH) at locations where the sediment could be transported from the surface to the storm sewer system (i.e. inlets or adjacent channels).
- ✓ Dispose of materials collected during cleaning operations at an approved landfill. In the case it is necessary to temporarily stockpile collected materials, ensure the practices described in Section 3.2.5 are applied.
- ✓ Track the weight or volume of material collected as a result of each cleaning operation.



3.3 Waste Disposal

The **proper disposal of waste** materials can greatly reduce the amount of pollution in stormwater runoff. **Table 4** lists types of waste that could occur on campus and may impact stormwater quality along with the proper way to dispose of the type of waste. For types of wastes not specifically listed, staff shall contact the Buildings and Grounds Supervisor for investigation and instruction.

Table 4. Proper disposal of waste materials to protect water quality.

Common Campus Waste	Proper Waste Management
Animal Carcasses	Collect and place in dumpster as soon as possible
Landscape waste	Maintain any stockpiled waste (i.e. grass clippings, tree limbs) on pervious areas so as not to allow leaching of nutrients into the storm sewer, instead allowing for infiltration. Landscape waste shall not be disposed of in the storm sewer system or maintained on impervious cover.
Solid waste	When outdoors, contain solid waste within receptacles in accordance with Section 3.2.7 of this Handbook.
Spent or remaining pesticides/herbicides	Maintain in labeled and designated containers for collection by licensed vendors for hazardous waste.
Surplus and excess property	When outdoors, maintain surplus and excess material that could potentially contribute pollutants to stormwater in accordance with Section 3.2.6 of this Handbook.
Waste fluids and filters associated with vehicles and equipment maintenance	Dispose of in labeled and designated containers for collection by licensed vendors, as applicable and in accordance with hazardous waste regulations. Maintain documentation of materials collected by vendors.

4.0 Stormwater Management Facilities

Reynolds maintains stormwater management (SWM) facilities on the campus that are intended to protect water quality using various processes such as detaining stormwater to allow for the settling of pollutants or filtering pollutants through soils media. Each of the SWM facilities are shown on the Reynolds MS4 Mapping available on the [Reynolds stormwater webpage](#). For a SWM facility to function properly, Reynolds implements an inspection and maintenance program described with the following written procedures:

1. **Inspections:** Perform, or have performed, a SWM facility inspection for each facility annually. Inspections shall:
 - Be performed by an individual with a current DEQ stormwater inspector certification; and
 - Include completion of the operations and maintenance (O&M) inspection forms provided in **Appendix D**. The inspection shall complete the form specific to the SWM facility type provided in the appendix or otherwise maintained by Reynolds (i.e. extended detention, bioretention, etc.).
2. **Maintenance:** In a timely manner, dependent on the severity of any issues identified during inspection, Reynolds staff will perform, or have performed, maintenance needs identified on the completed inspection forms. Specifically, Reynolds will:
 - Correct all issues identified as a “Problem” on the inspection form. Actions to be taken are provided in the “How to Fix” column of the form, or otherwise described in the “Comments” column. Depending on the effort necessary, if actions to correct an identified problem cannot be taken within 60 days from the time of inspection, the Buildings and Grounds Manager shall develop, or have developed, a written plan of the actions to be taken with a schedule identifying timeframes the actions will be completed.
 - Investigate all issues identified with “Investigate” on the inspection form. If the investigation cannot be performed within 60 days from the date of inspection, a written plan should be developed as described above. Similarly, any maintenances needs identified should be completed within 60 days, or a written plan developed.
3. **Documentation:** Indicate “yes” within the “Repaired” column of the original inspection form once all actions to correct or investigate a problem have been completed. Attach additional supportive documentation regarding the actions, as needed to demonstrate the procedures in this Section have been implemented.

Reynolds OUTFALL RECONNAISSANCE FORM

Section 1: Background Data

Outfall ID:	
Date of Screening:	Time:
Investigator(s):	
Temperature (°F):	Form completed by:
Photo #s: (See attached to the end of this form if necessary to demonstrate a concern)	Days since last rainfall (days):
Notes:	Depth of last rainfall (in.):

Section 2: Outfall Description

LOCATION	MATERIAL	CROSS-SECTION (SHAPE)	DIMENSIONS (IN.)	SUBMERGED
<input type="checkbox"/> Closed Pipe <input type="checkbox"/> Open channel	<input type="checkbox"/> Concrete <input type="checkbox"/> Corrugated Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Other: _____	<input type="checkbox"/> Circular <input type="checkbox"/> Elliptical <input type="checkbox"/> Box <input type="checkbox"/> Other: _____	Diameter/Dimensions: _____	In Water: <input type="checkbox"/> No <input type="checkbox"/> Partially <input type="checkbox"/> Fully With Sediment: <input type="checkbox"/> No <input type="checkbox"/> Partially <input type="checkbox"/> Fully
	<input type="checkbox"/> Concrete <input type="checkbox"/> Earthen <input type="checkbox"/> Rip-Rap <input type="checkbox"/> Other: _____	<input type="checkbox"/> Trapezoid <input type="checkbox"/> Parabolic <input type="checkbox"/> Other: _____	Depth: Top Width: Bottom Width:	
Flow Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<i>If No, Skip to Section 5</i>		
Flow Description (If present)	<input type="checkbox"/> Trickle <input type="checkbox"/> Moderate <input type="checkbox"/> Substantial			

Section 3: Quantitative Characterization for Flows where Illicit Discharge is Occurring

FIELD DATA FOR FLOWING OUTFALLS			
PARAMETER	RESULT	UNIT	EQUIPMENT
<input type="checkbox"/> Flow #1	Volume	N/A – Not Illicit Discharge	Bottle
	Time to fill	"	Sec
<input type="checkbox"/> Flow #2	Flow depth	"	Tape measure
	Flow width	" (Top) – " (Bottom)	Tape measure
	Measured length	" – "	Tape measure
	Time of travel	"	Stop watch
Temperature	"	°F	Thermometer
pH	"	pH Units	Test strip
Ammonia	"	mg/L	Test strip

Outfall Reconnaissance Inspection Form

Section 4: Physical Indicators for Flowing Outfalls Only

Any Physical Indicators Present in the flow? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No Flow <i>(If No Indicators or No Flow, skip to Section 5)</i>					
INDICATOR	CHECK if Present	DESCRIPTION	RELATIVE SEVERITY INDEX (1-3)		
Odor	<input type="checkbox"/>	<input type="checkbox"/> Sewage <input type="checkbox"/> Rancid/sour <input type="checkbox"/> Petroleum/gas <input type="checkbox"/> Sulfide <input type="checkbox"/> Other:	<input type="checkbox"/> 1 – Faint	<input type="checkbox"/> 2 – Easily detected	<input type="checkbox"/> 3 – Noticeable from a distance
Color	<input type="checkbox"/>	<input type="checkbox"/> Clear <input type="checkbox"/> Brown <input type="checkbox"/> Gray <input type="checkbox"/> Yellow <input type="checkbox"/> Green <input type="checkbox"/> Orange <input type="checkbox"/> Red <input type="checkbox"/> Other:	<input type="checkbox"/> 1 – Faint colors in sample bottle	<input type="checkbox"/> 2 – Clearly visible in sample bottle	<input type="checkbox"/> 3 – Clearly visible in outfall flow
Turbidity	<input type="checkbox"/>	See severity	<input type="checkbox"/> 1 – Slight cloudiness	<input type="checkbox"/> 2 – Cloudy	<input type="checkbox"/> 3 – Opaque
Floatables -Does Not Include Trash!!	<input type="checkbox"/>	<input type="checkbox"/> Sewage (Toilet Paper, etc.) <input type="checkbox"/> Suds <input type="checkbox"/> Petroleum (oil sheen) <input type="checkbox"/> Other:	<input type="checkbox"/> 1 – Few/slight; origin not obvious	<input type="checkbox"/> 2 – Some; indications of origin (e.g., possible suds or oil sheen)	<input type="checkbox"/> 3 – Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

Section 5: General Physical Indicators for both Flowing and Non-Flowing Outfalls

Are physical indicators that are not related to flow present? Yes No *(If No, Skip to Section 6)*

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage	<input type="checkbox"/>	<input type="checkbox"/> Spalling, Cracking or Chipping <input type="checkbox"/> Peeling Paint <input type="checkbox"/> Corrosion	
Deposits/Stains	<input type="checkbox"/>	<input type="checkbox"/> Oily <input type="checkbox"/> Flow Line <input type="checkbox"/> Paint <input type="checkbox"/> Other:	
Abnormal Vegetation	<input type="checkbox"/>	<input type="checkbox"/> Excessive <input type="checkbox"/> Inhibited	
Poor pool quality	<input type="checkbox"/>	<input type="checkbox"/> Odors <input type="checkbox"/> Colors <input type="checkbox"/> Floatables <input type="checkbox"/> Oil Sheen <input type="checkbox"/> Suds <input type="checkbox"/> Excessive Algae <input type="checkbox"/> Other:	
Pipe benthic growth	<input type="checkbox"/>	<input type="checkbox"/> Brown <input type="checkbox"/> Orange <input type="checkbox"/> Green <input type="checkbox"/> Other:	

Section 6: Illicit Discharge Characterization

An illicit discharge characterization can generally be defined as described below. However, the investigator shall use best judgement.

Unlikely: No indicator in Section 4 AND only outfall damage or abnormal vegetation in Section 5.

Potential: One indicator in Section 4 with severity index of one OR \geq one indicator in Section 5, unless outfall damage and abnormal vegetation.

Suspect: \geq one indicator(s) checked in Section 4 with a severity index \geq two OR $>$ 2 indicators in Section 5.

Obvious: \geq one indicator(s) checked in Section 4 with a severity index of three OR \geq 3 indicators in Section 5.

Section 7: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)? _____

ILLCIT DISCHARGE INVESTIGATION FORM

- 1) Date potential, suspect or obvious Illicit Discharge observed or reported: _____
- 2) Initial Characterization (as identified on screening form):
 Potential Suspect Obvious None (reported)
- 3) Description of the potential, suspect or obvious Illicit Discharge:

- 4) Date of the start of the investigation: _____
- 5) Investigation methods and findings:

- 6) Was the discharge eliminated (resolved)?
 Yes No If yes, date resolved: _____
- 7) If “Yes” answered in Item # 6, provide the resolution to eliminate the discharge:

- 8) If “No” answered in Item # 6, described the reasons:

- 9) Are any addition follow up action necessary (i.e. the discharge anticipated to recur)?
 Yes No
- 10) If yes, describe follow up actions with a time line to perform the actions.

Please attach supporting information to this form, as applicable, to support the responses provided. If the investigation was initiated from a dry weather outfall screening, attach the associated Outfall Reconnaissance Form. Maintain form and documentation in files for annual reporting.

Reynolds Annual Assessment Form: Determination of the Presence of High Priority Facilities with High Potential for Discharging Pollutants to determine if a Stormwater Pollution Prevention Plan (SWPPP) must be developed for the area in accordance with Part I E 6 d of the MS4 General Permit.

Assessment Performed by: _____

Date of Field Assessment: _____

Indicate below if any of the following are present on campus:

1. Areas where residuals from using, storing or cleaning machinery or equipment remain and are exposed to stormwater?
 Yes No
2. Materials or residuals on the ground or in stormwater inlets from spills or leaks?
 Yes No
3. Material handling equipment?
 Yes No
4. Materials or products that would be expected to be mobilized in stormwater runoff during loading or unloading or transporting activities (e.g., rock, salt, fill dirt);
 Yes No
5. Materials or products stored outdoors (except final products intended for outside use where exposure to stormwater does not result in the discharge of pollutants);
 Yes No
6. Materials or products that would be expected to be mobilized in stormwater runoff contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers;
 Yes No
7. Waste material except waste in covered, non-leaking containers (e.g., dumpsters); or
 Yes No
8. Application or disposal of process wastewater (unless otherwise permitted); or
 Yes No
9. Particulate matter or visible deposits of residuals from roof stacks, vents or both not otherwise regulated (i.e., under an air quality control permit) and evident in the stormwater runoff.
 Yes No

NOTE: If yes is answered to any of the items above and: (1) residuals are expected to be exposed to stormwater and (2) immediate action cannot be taken to prevent exposure, a Stormwater Pollution Prevention Plan (SWPPP) must be developed for the area in accordance with Part I E 6 d of the MS4 General Permit.

First Page of Sample Form is provided as Context for Section 4.0

Full versions of the SWM Facility O&M Inspection Forms are available upon request from the Reynolds Buildings and Grounds Manager. The forms are incorporated into this Handbook, by reference.

Adapted from Contech Engineering Solutions' "Filterra Owner Manual"

Reynolds Filterra: O&M Checklist

Facility ID: BMP-1	
Date of Inspection:	
Investigator(s):	DEQ Certification(s) #:
Photo #s:	
General Notes:	

BMP Element	Potential Problem	Problem? Y / N	Investigate? Y / N	How to fix problem	Comments	Corrected? Y / N / NA
Structure	Structure has visible cracks. Cracks wider than 1/2 inch or evidence of soil particles entering the structure through the cracks.			Vault should be repaired.		
Inlet(s)	Excessive sediment/trash impair free flow of water into Filterra.			Sediment and/or trash should be removed.		
Mulch Cover/Filter Surface	Trash and floatable debris accumulation.			Trash and debris should be removed and mulch cover raked level. Mulch replacement shall be double shredded.		
	"Ponding" of water on mulch cover.			Likely due to find sediment clogging upper surface. Remove and replace mulch layer.		
Vegetation	Excessive sediment accumulation on surface filter.			Remove sediment layer and replace mulch as needed to ensure 3" depth of mulch over underlying soil mixture. Use double shredded mulch.		
	Tree not growing or in poor condition.			Ensure soil is not holding water and pest are not present. Replace tree per manufacturer specifications.		
Bypass	Plant growth excessive preventing grates to be opened.			Trim/prune plants in accordance with typical landscaping and safety needs. Replace tree is preventing grate access and maintenance.		
	Clogged with trash/debris.			Remove debris to ensure functionality.		
	Underdrain blocked.			Remove any blockage to ensure drainage from the Filterra Unit.		