



Kay Cabe, P.E.
EEE Consulting, Inc.

NVCC 2016 MS4 Staff Training

- Illicit Discharge Detection & Elimination**
- Good Housekeeping/Pollution Prevention**
- Stormwater Facility Inspections & Maintenance**

May 2016



AGENDA

- Regulatory requirements
 - Written procedures and training
 - Implementation Tools
- Recognizing Illicit Discharges
 - Prevention, screening, and reporting
- Good Housekeeping/Pollution Prevention Measures
 - Best Management Practices
 - Generating sources/sites
 - Inspections/documentation
- Closing the Compliance Loop
- Stormwater Facility Inspections





APPLICABLE STORMWATER REGULATIONS

Clean Water Act (CWA)
authorization to regulate
“point source” discharges



Compliance &
Enforcement

MS4 General Permit

- Localities & State Entities within urbanized areas
 - Minimum Control Measures
 - Special Conditions for TMDLs



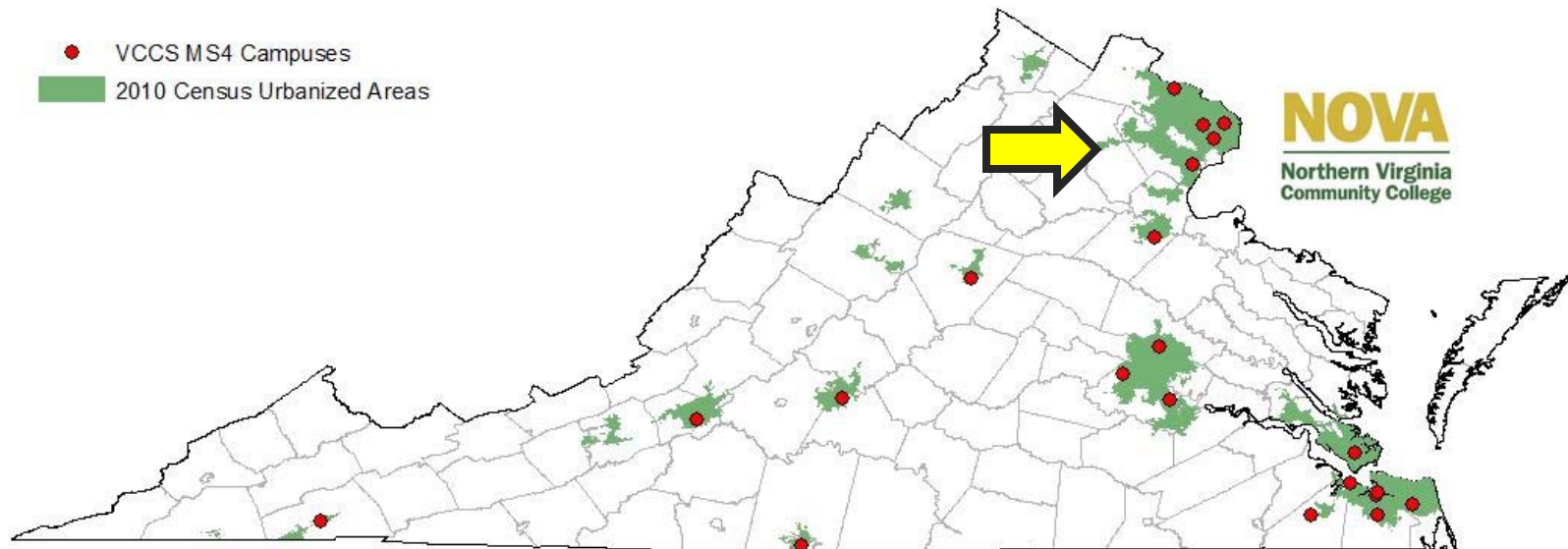
MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4)

- Collects & conveys stormwater
 - Potential to convey pollutants downstream
 - Ultimately leads to a point discharge at a natural drainage way (outfall)
- Activities/operations draining to outfalls are regulated if within a Census Urbanized Area (MS-4 Area)





MS4 REGULATED VCCS CAMPUSES



- Areas identified by population census
- MS4 entities are cities, counties, towns, and federal and state facilities
- Must own and operate a storm sewer system



MS4 GENERAL PERMIT

Requires the operator to:

“ ... develop, implement, and enforce a MS4 Program designed to reduce the discharge of pollutants from the regulated small MS4 to the maximum extent practicable ...”

Maximum Extent Practicable (MEP)

- Ensures compliance to water quality standards if the MS4 Program:
 - Addresses Minimum Control Measures with Best Management Practices (BMP) implementation
 - Structural and nonstructural BMPs
 - Addresses Special Conditions for TMDLs



TOTAL MAXIMUM DAILY LOAD (TMDL)



Waterbody not meeting water quality standards



Assign Waste Load Allocations (WLAs) for pollutant(s) of concern (POC)

- **TMDL** is a plan (pollution diet) that establishes the maximum amount of a pollutant the waterbody can hold and meet water quality standards.
- **WLA** is the quantity of the pollutant (sediment, nitrogen, bacteria, etc.) that may be discharged.





MS4 GENERAL PERMIT

Special Conditions

- ➔ 1. Local Waterbody TMDLs
- ➔ 2. Chesapeake Bay TMDL

Minimum Control Measures

- 1. Public Education & Outreach
- 2. Public Involvement/Participation
- ➔ 3. Illicit Discharge Detection & Elimination
- 4. Construction Site Runoff Controls
- ➔ 5. Post-construction Runoff Controls
- ➔ 6. Pollution Prevention/Good Housekeeping



PAST DEQ/EPA AUDIT VIOLATIONS IN VIRGINIA

- **DEQ audits approx. 10 MS4s per year (100 MS4s total)**
- **Common violations include failure to:**
 - Implement/enforce illicit discharge program
 - Adequately address runoff from construction sites/implement ESC regs
 - Adequately manage stormwater discharges from maintenance facilities
 - Adequately document
 - Reduce pollutants to the Maximum Extent Practical
- **Penalties**
 - Not to exceed \$32,500/day/violation
 - Typically include a consent order





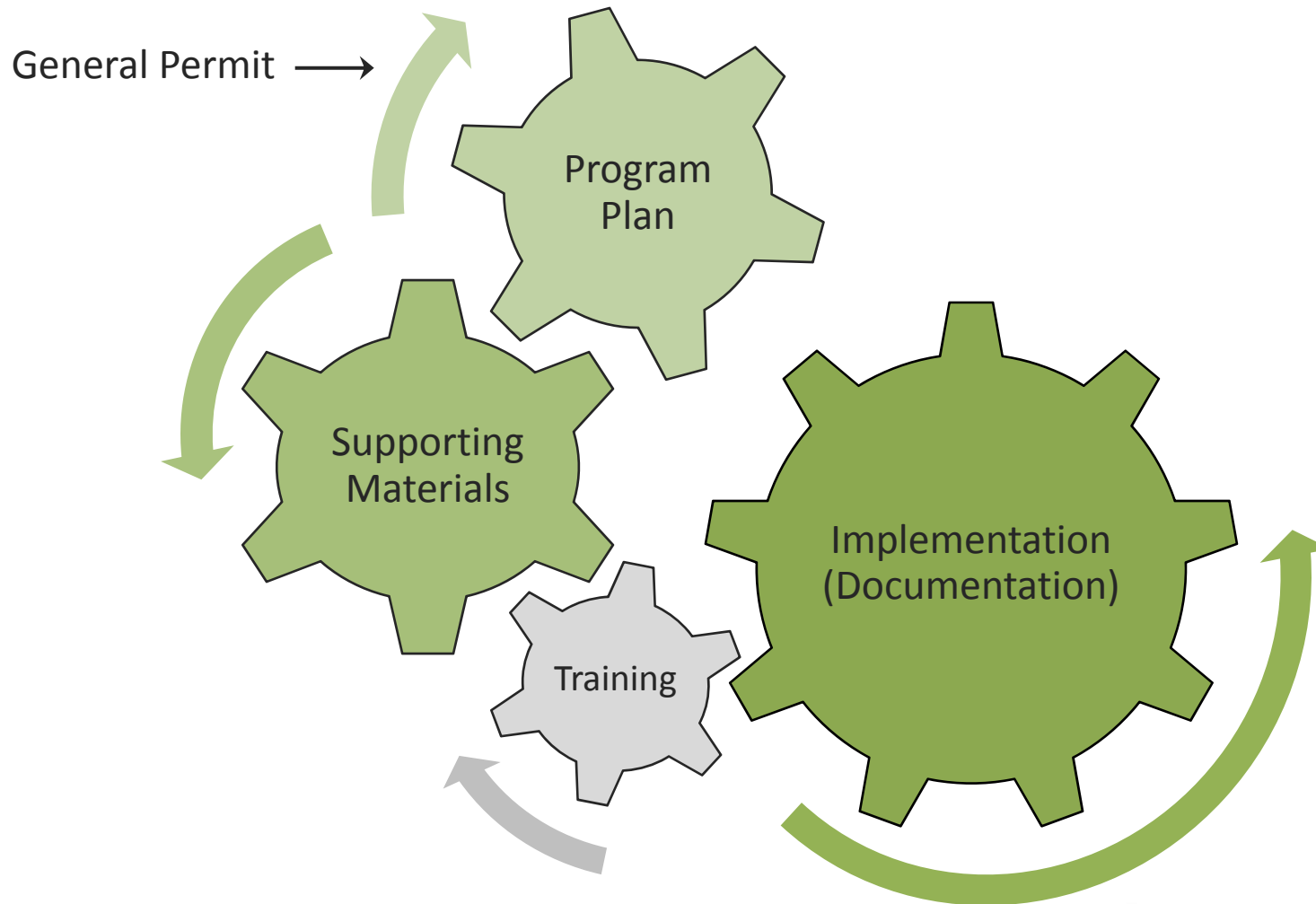
MS4 TRAINING

- **Effective Training = Implementation = Compliance**
 - Program overview
 - Familiarize staff with written procedures
 - Available resources
 - Documentation
 - Implementation Tools
 - Closing the compliance loop
 - Protect surface water quality
 - Elimination of non-stormwater discharge





MS4 PROGRAM COMPONENTS





GUIDANCE DOCUMENTS (BINDERS)

NOVA
Northern Virginia
Community College



Good Housekeeping/Pollution Prevention Program Manual and Inspection Manual

Programmatic Overview of
Good Housekeeping/Pollution Prevention

NVCC - Alexandria Campus
5000 Dawes Avenue
Alexandria, VA 22311

NVCC - Loudoun Campus
21200 Campus Drive
Sterling, VA 20164

June 2014

NOVA
Northern Virginia
Community College



Illicit Discharge Detection PROGRAM MANUAL

Programmatic Overview of NVCC's IDDP

NVCC - Alexandria Campus
5000 Dawes Avenue
Alexandria, VA 22311

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NVCC - Loudoun Campus
21200 Campus Drive
Sterling, VA 20164

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Post-Construction Stormwater Management Inspection & Maintenance PROGRAM MANUAL

NVCC - Alexandria Campus
5000 Dawes Avenue
Alexandria, VA 22311

NVCC - Annandale Campus
8333 Little River Turnpike
Annandale, VA 22003

NVCC - Loudoun Campus
21200 Campus Drive
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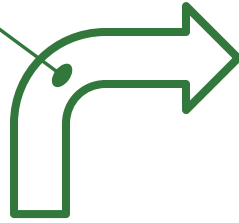
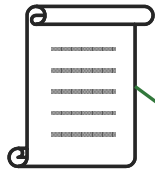
NVCC - Woodbridge Campus
15200 Neabsco Mills Road
Woodbridge, VA 22191

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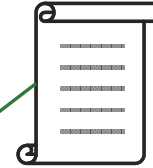


CLOSING THE COMPLIANCE LOOP

Program Inspection



Guidance



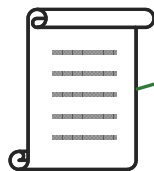
COMPLIANCE to the
Maximum Extent
Practical

Training

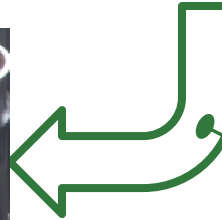
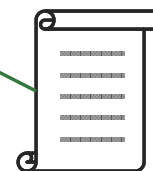


- Good Housekeeping
Manual
- Scrub with broom
 - Remove in timely manner

Documentation



Guidance



Retain
for 3
Years



DEFINING AN ILLICIT DISCHARGE

- *Illicit Discharge - Any discharge to an MS4 that is not composed entirely of stormwater, except discharges specifically identified in the Virginia Administrative Code and determined by NVCC not to be a significant contributor of pollutants to the MS4.*





DEFINING AN ILLICIT DISCHARGE



An illicit discharge can:

1. Be a measurable flow from a storm drain during dry weather that contains pollutants or pathogens;
2. Have a unique frequency, composition, and mode of entry in the storm drain system;
3. Be caused when the sewage disposal system interacts with the storm drain system; and
4. Can be discharges from pollutants from specific source areas

Table 1. Examples of source pollutants of an illicit discharge.

- | | |
|---|---|
| • Automotive fluids (oil, fuel, antifreeze) | • Landscape waste (grass clippings, etc.) |
| • Cooking oil and grease | • Improperly applied fertilizer |
| • Solvents | • Sediment |
| • Paints | • Vehicle wash water |
| • Chemical cleansers (detergents, soaps) | • Sanitary sewer wastewaters |
| • Improperly applied pesticides/herbicides | • Dumpster leachate |
| • Improperly managed salts | • Trash |



DEFINING AN ILLICIT DISCHARGE

Table 2. Examples of sources that are not considered illicit discharges.

- Fire-fighting activities
- Water line flushing
- Landscape/lawn irrigation
- Diverted stream flows
- Rising groundwater
- Uncontaminated groundwater infiltration
- Uncontaminated pumped groundwater
- Air conditioning condensate
- Footing or foundation drains
- Springs
- Water from crawl space pumps
- Dechlorinated swimming pool wastewater
- Discharges from potable water sources
- Flows from riparian habitats and wetlands



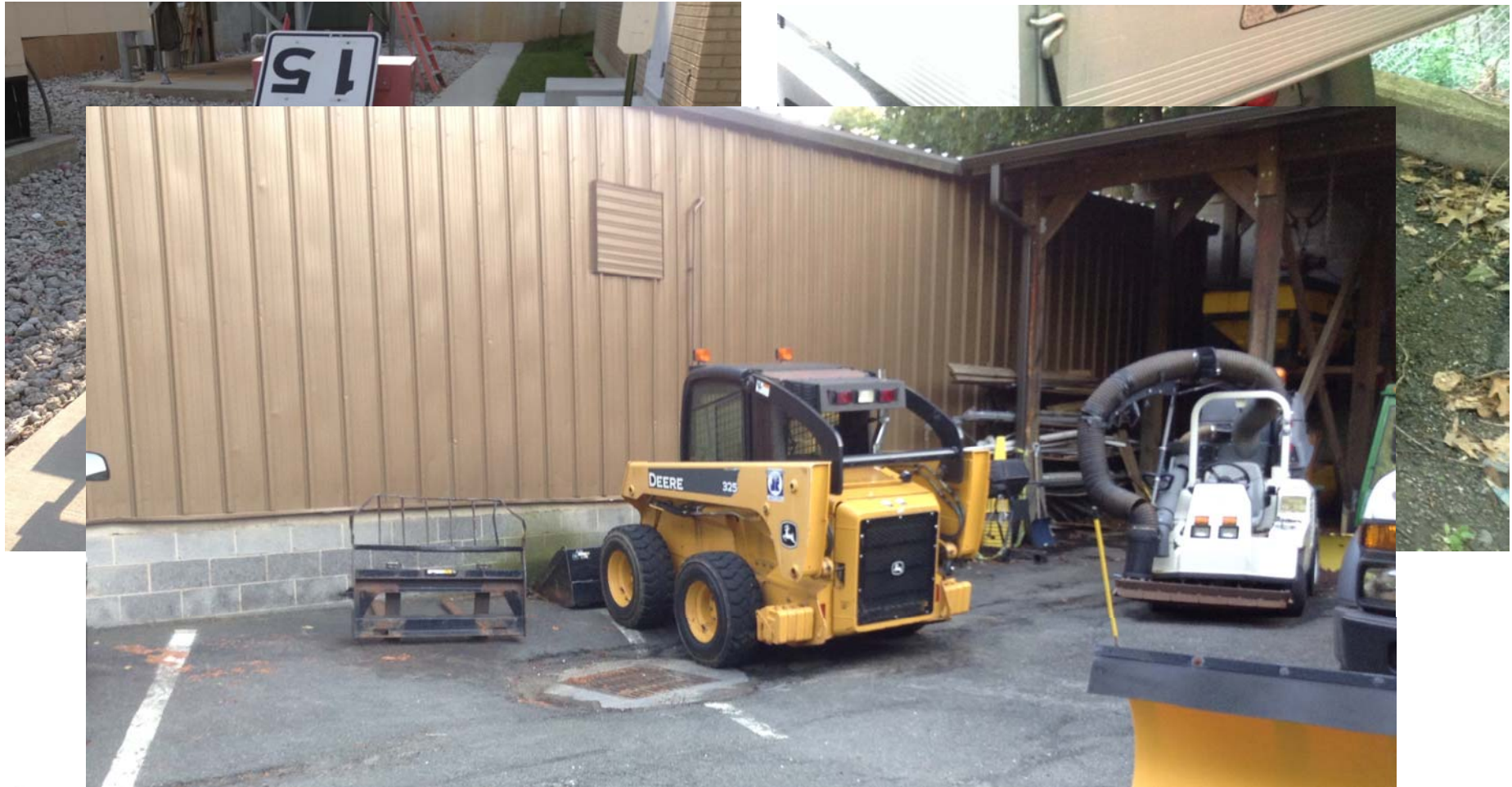


DEFINING AN ILLICIT DISCHARGE





DEFINING AN ILLICIT DISCHARGE





DEFINING AN ILLICIT DISCHARGE



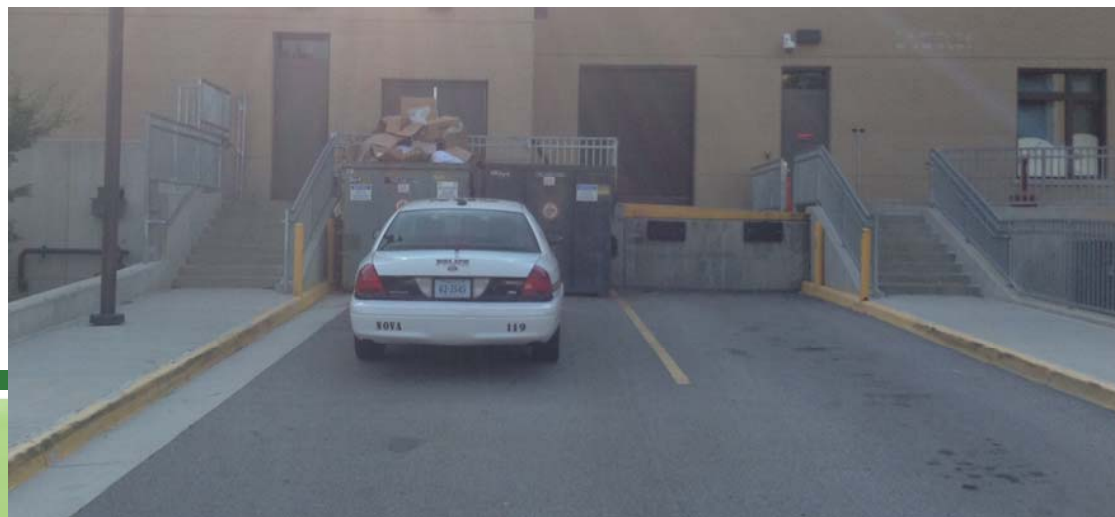


DEFINING AN ILLICIT DISCHARGE





DEFINING AN ILLICIT DISCHARGE

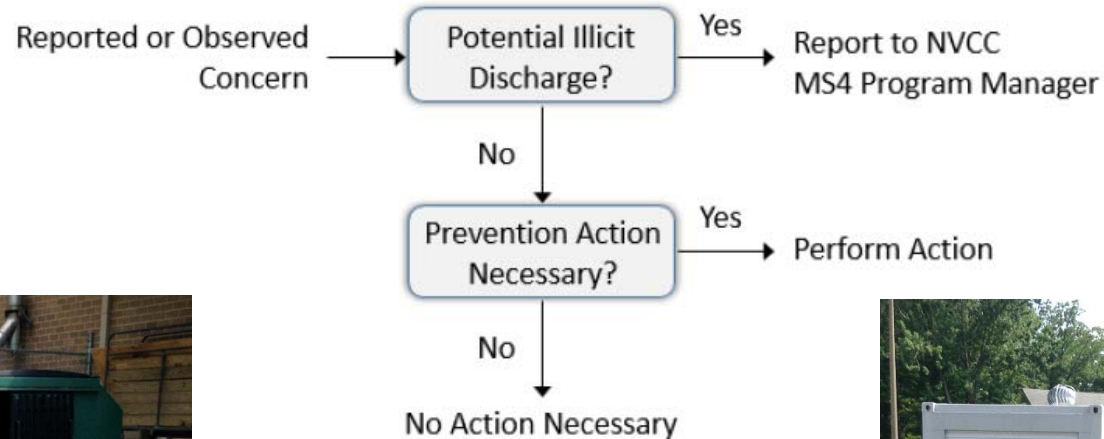


DEFINING AN ILLICIT DISCHARGE





REPORTING AN ILLICIT DISCHARGE



| <u>Observation</u> | <u>Action</u> |
|------------------------------|-------------------------------|
| Uncovered dumpster | → Cover dumpster |
| Uncovered container | → Store container indoors |
| Oil/hydraulic fuel on ground | → Clean & dispose of properly |



NVCC'S PROHIBITION OF ILLICIT DISCHARGE

Source/Discharge Type

Intentional by Student

Intentional by Faculty/Staff

Staff During Daily Operations

Contractor Operations



Elimination Authority

Student Handbook

Standards of Conduct for Employees

Good Housekeeping/Pollution Prevention Manual

Contract Language



STUDENT CONDUCT
& INTEGRITY

NOVA | Northern Virginia
Community College





QUICK QUESTION AND ANSWER

Question # 1: NOVA enforces a pollution prevention policy that prohibits non-stormwater discharges.

- > A. True
- B. False

Question # 2: Which of the following are sources of an illicit discharges?

- > A. Vehicle wash-water
- B. Air conditioner condensate
- > C. Areas of erosion or sediment transport
- D. Discharge from foundation drains



QUICK QUESTION AND ANSWER

Question # 3: Vehicles can be washed under the following conditions


- > A. In a designated wash bay that drains to sanitary sewer
- B. Near a storm drain
- > C. Over grass with no soap or detergents
- > D. At a commercial car wash

Question # 4: What would you do if hydraulic fuel is observed on the ground beneath stored/parked equipment?

- A. Hose it down with water to a storm drain.
- B. Leave it there for the rain to wash it off.
- > C. Place absorbent, sweep it all up and dispose of it in a container.
- > D. Fill out a Findings and Follow up form.



GOOD HOUSEKEEPING/POLLUTION PREVENTION

- Develop and implement written procedures to minimize or prevent pollutant discharge from daily operations to:
 - Prevent illicit discharge
 - Ensure proper disposal of waste (including landscape wastes)
 - Prevent discharge of vehicle wash water to storm sewer
 - Prevent discharge of wastewater to storm sewer
 - Require BMPs to filter water pumped from maintenance activities
 - Require BMPs to prevent pollutants in runoff from bulk storage (salt storage, topsoil stockpiles)
 - Prevent pollution discharge from leaking college automobiles/equipment
 - Ensure proper application of pesticides and fertilizers

NVCC GOOD HOUSEKEEPING AND POLLUTION PREVENTION PROGRAM MANUAL

NOVA
Northern Virginia
Community College



Good Housekeeping/Pollution Prevention Program Manual and Integrated SWPPP

Programmatic Overview of NVCC's
Good Housekeeping/Pollution Prevention Practices

NVCC - Alexandria Campus
5000 Dawes Avenue
Alexandria, VA 22311

NVCC - Loudoun Campus
21200 Campus Drive
Sterling, VA 20164

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Annandale, VA 22003

NVCC - Woodbridge Campus
15200 Neabsco Mills Road
Woodbridge, VA 22191

June 2014

- Training Plan
- Reporting/Documentation
- Inspection Guidance
 - Checklist/Mapping
 - Documentation
- Maintenance & operations procedures as non-structural BMP
 - Manage vehicle washing and maintenance, dumpster operations/locations, power washing, fueling, chemical storage, and other applicable practices
- Waste Management
 - Oil, gas, and diesel
 - Absorbents
 - Other applicable wastes

IMPLEMENTATION TOOLS: SWPPP MAP



**NORTHERN VIRGINIA COMMUNITY COLLEGE
ANNANDALE CAMPUS
STORMWATER POLLUTION PREVENTION PLAN MAP**

NOVA
Northern Virginia
Community College

3e EEE Consulting, Inc.
Environmental, Engineering and Educational Solutions

3e



IMPLEMENTATION TOOLS: SWPPP MAP

- Flip the map ...
 - List & discussion of potential pollutants and potential nonstormwater discharges
 - General BMP information for each activity
 - References to relevant Sections of the Good Housekeeping/Pollution Prevention Manual
 - Lists of source controls
 - Documentation instruction
 - Procedures for comprehensive site compliance evaluation
 - Campus specific supports implementation

NVCC MS4 CAMPUS COMPLIANCE EVALUATION MAPPING TOOL & SWPPP

Individuals utilizing this SWPPP map for annual inspections are required to have completed the training program described in the NVCC MS4 Program Plan. Procedures for completing the annual comprehensive compliance evaluation and associated reporting are provided in Section 4.5 of the NVCC Good Housekeeping/Pollution Prevention Manual.

Updates:

SWPPP Maps are required to be updated when any new infrastructure is built (i.e. buildings, storm sewer, outfalls, etc.) or any possible pollutant generating activities are created, moved, or eliminated (i.e. dumpsters, new maintenance building, etc.).

Reportable Spills:

If any unusual or extraordinary discharge should occur from a facility and the discharge enters or could be expected to enter surface waters, the operator shall promptly notify, in no case later than within 24 hours, DEQ by telephone after the discovery of the discharge. This notification shall provide all available details of the incident, including any adverse effects on aquatic life and the known number of fish killed. Unusual and extraordinary discharges include but are not limited to any discharge resulting from:

- Unusual spillage of materials resulting directly or indirectly from processing operations;
- Breakdown of processing or accessory equipment;
- Failure or taking out of service some or all of the facilities; and
- Flooding or other acts of nature.

NOTE: The Immediate (within 24 hours) reports required to be provided to DEQ may be made to the appropriate Regional Office Pollution Response Program as found at <http://deq.virginia.gov/Programs/PollutionResponsePreparedness.aspx>. Reports may be made by telephone or by fax. For reports outside normal working hours, leave a message and this shall fulfill the immediate reporting requirement. For emergencies, the Virginia Department of Emergency Services maintains a 24-hour telephone service at 1-800-468-8892.

* Use this map in conjunction with the NVCC Campus Comprehensive MS4 Compliance Evaluation Form. The activities and pollutants below are most likely to occur at the specified location. General BMPs are provided and reference to the applicable section of the 'NVCC Good Housekeeping and Pollution Prevention Program Manual' if additional information is needed to address an identified issue.

CW WAREHOUSE ①

- **Vehicle Storage:** Store vehicles under cover or away from storm drains, contain any leaking fluid and spills. (Section 6.17)
Potential Pollutants: Solvents, Grease, Sediment, Petroleum Products
Source Controls: (1) Drip pans, (2) spill kits

- **Dumpster:** Keep dumpster covered. If leaking, use absorbent, scrub with a broom to remove as much of the chemical as possible, and promptly recover all material. For recurring issues, provide drip pan or absorbent pad. (Section 6.11)

Potential Pollutants: Various
Source Controls: Cover provided.

- **Outdoor Loading:** Load material in dry weather, address spills in timely fashion to avoid contaminating storm drains (Section 6.15)
Potential Pollutants: Leaked materials
Source Controls: (1) Sweep (2) Spill Kit

MAINTENANCE BUILDING ②

- **Vehicle Maintenance:** Use absorbent, scrub with a broom to remove as much oil as possible, and promptly recover all material. For recurring issues, provide drip pan or absorbent pad. (Section 6.2)
Potential Pollutants: Oil
Source Controls: Spill Kit

- **Vehicle Storage:** Store vehicles under cover or away from storm drains, contain any leaking fluid and spills. (Section 6.17)
Potential Pollutants: Solvents, Grease, Sediment, Petroleum Products
Source Controls: (1) Drip pans, (2) spill kits

- **Vehicle Washing:** Wash in designated wash bays that drain directly to the sanitary sewer. (Section 6.1)
Potential Pollutants: Solvents, Grease, Sediment, Petroleum Products
Source Controls: Avoidance

- **Chemical Storage:** Keep chemicals indoors. Use absorbent, scrub with a broom to remove as much of the chemical as possible, and promptly recover all material. (Section 6.13)
Potential Pollutants: Various
Source Controls: (1) Spill Kit (2) Secure all chemical storage system (3) Ultratech SPCC Containment system.

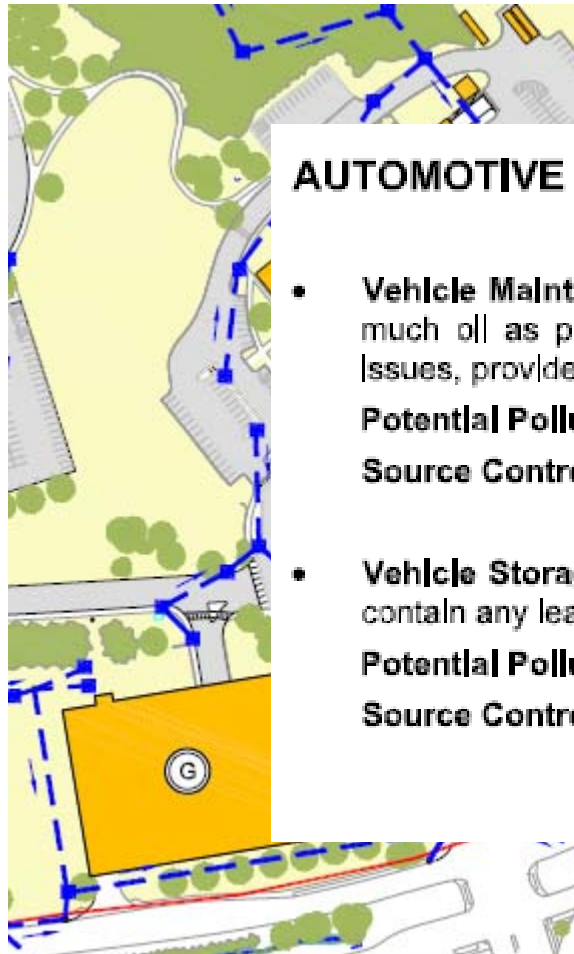
- **Fueling Areas:** Fuel in designated or offsite areas and isolate area from storm sewer or water bodies. (Section 6.12)
Potential Pollutants: Toxic fuel
Source Controls: Spill Kit

DUMPSTERS ③ ④ ⑥ ⑦ ⑧

- **Dumpster:** Keep dumpster covered. If leaking, use absorbent, scrub with a broom to remove as much of the chemical as possible, and promptly recover all material. For recurring issues, provide drip pan or absorbent pad. (Section 6.11)
Potential Pollutants: Various
Source Controls: Cover provided.



CAMPUS MS4 COMPLIANCE MONTHLY INSPECTIONS



AUTOMOTIVE

- **Vehicle Maintenance**
much oil as possible
Issues, provide
Potential Pollution
Source Control
- **Vehicle Storage**
contain any leaks
Potential Pollution
Source Control

| | | | |
|---|--|--|--|
| 4 AUTOMOTIVE SHOP | | | |
| Vehicle Maintenance | | | |
| Indicators of vehicles leaking oil or other fluids? Indicators of leaks, drips, or spills? | | | |
| Any containers of fluids on the ground or exposed to precipitation? | | | |
| Any batteries stores outside or exposed to precipitation? | | | |
| Any oily vehicle parts exposed to precipitation? | | | |
| Are vehicles maintained near storm drains? | | | |
| If answered yes to any of the above, consult the Good Housekeeping/Pollution Prevention Manual section 6.2. Provide documentation on any applicable item and complete a follow-up inspection. | | | |
| Comments: | | | |
| | | | |
| Vehicle Storage | | | |
| Indicators of vehicles leaking oil or other fluids? Indicators of leaks, drips, or spills? | | | |
| Indicators of corrosion on vehicles that could affect water quality or possibly cause chemical releases in the future? | | | |
| Any containers of fluids on the ground or exposed to precipitation? | | | |
| Any batteries stores outside or exposed to precipitation? | | | |
| Any oily vehicle parts exposed to precipitation? | | | |
| Are vehicles maintained near storm drains? | | | |
| If answered yes to any of the above, consult the Good Housekeeping/Pollution Prevention Manual section 6.3. Provide documentation on any applicable item and complete a follow-up inspection. | | | |
| Comments: | | | |
| | | | |



REPORTING FORMS

Good Housekeeping FINDINGS &

This finding was a result of: Routine Inspection Day to Day Good

If a result of a complaint, who was the source? _____

Location of incident or finding: _____

Date of incident or finding: _____ Material Discharged, n

Quantity discharged, released, or spilled: _____

Was finding resolved? Yes No

If yes, please explain clean-up measures and disposal. If no, please explain w

Is any follow-up action required? Yes No

If yes, please explain.

Notes:

Attach photographs to this form and retain for records.

Contractor Oversight FORM

Use this form in conjunction with bi-weekly inspections of work being performed by contractors that could potentially pollute stormwater and retain records for annual reporting.

Contractor Name: _____

Campus location: _____ Dates and duration of work: _____

General description of the work: _____

First Inspection Followup Inspection

If this is a followup inspection, were any previous inspection items that needed to be addressed? Yes No

If yes, please describe: _____

Describe the potential pollutants associated with this work and how they will be contained: _____

Are there any areas of concern regarding pollution prevention/good housekeeping best management practices? Yes No

If yes, describe the concern and how it should be addressed:

Is any follow-up action required? Yes No

If yes, please explain.



WRITTEN PROCEDURES FROM PROGRAM MANUAL

7.1 Power washing

Overview

Power washing can concentrate organic sediment, into wash water, which is characterized as an illicit cleaning agents, and other compounds should not should be taken to prohibit the wash water from fl downspouts, and any other conveyances leading to

Best Management Practices

- Identify storm drains and possible conveyance cleaning or washing, and take measures to
- Use dry cleanup methods to remove debris
- Determine where wash water may pool and
- Water not containing chemicals or cleaning agents should be disposed of in the sanitary sewer. Wash water containing chemical pollutants should be captured on absorbent pads, or other devices.
- Apply minimal water and prioritize dirty areas on the entire surface.

7.4 Parking Structure Cleaning

Overview

Parking structures can accumulate the same materials associated with parking lots, roads, and vehicle storage areas. Automotive lubricants, oils, and antifreeze, even in covered areas of a garage, may be swept into the storm drain system or tracked elsewhere by way of stormwater or vehicle tires. An additional, larger concern with parking structures is the need to apply sand and salt more often than regular parking lots, as the structure will freeze before the ground. These materials can accumulate in significant amounts and pose a serious threat to local waterways, clog stormwater inlets, as well as increase the sediment load to stormwater basins. Regular parking structure cleaning will extend the useful life of stormwater basins and reduce accumulation in inlet sumps and downstream transport.

Best Management Practices

- Contract a local street sweeping service provider to clean accessible areas of the parking structure. Use smaller, more portable machines to access tighter spaces. Clean remaining areas with vacuum recovery surface cleaners, rather than a standard power washers.
- If vacuum recovery cleaners cannot be employed, all power washing material and wash water must be prevented from entering the stormwater system. Use a series of dams, berms, and diversions to isolate water and material for recovery. Water may be allowed to evaporate, at which point leftover material can be collected. Only wash water free of oils, grit, and material that could clog pipes should be disposed of in the sanitary sewer.
- Materials collected should be directly transported to an offsite landfill.
- Establish a schedule that best addresses the rate of accumulated salt and sand on parking structures, and amend the schedule as needed after precipitation events.
- Ensure oil drippings and spills are managed appropriately. If leaking vehicles are stored in parking garages or structures, consider moving the vehicle away from storm drains and placing a drip pan beneath the leaking equipment. Captured leaking fluids should be disposed in designated hazardous waste containers and any absorbents swept up and properly disposed of.
- Validate inlet protection and other erosion and sedimentation control measures are installed correctly before performing any maintenance operations where sediment or other pollutants could enter the storm system.



GROUP EXERCISE

Please get together in Groups of about two (2) and answer the following questions:

1. Identify the areas on the SWPPP maps where pollutants could be generated that effect water quality?
2. What are some of the pollutants?
3. What is done to ensure that these potential pollutants are managed properly and not exposed to precipitation?



GOOD HOUSEKEEPING & POLLUTION PREVENTION PRACTICES





GOOD HOUSEKEEPING & POLLUTION PREVENTION PRACTICES





GOOD HOUSEKEEPING & POLLUTION PREVENTION PRACTICES





GOOD HOUSEKEEPING & POLLUTION PREVENTION PRACTICES





GOOD HOUSEKEEPING & POLLUTION PREVENTION PRACTICES





GOOD HOUSEKEEPING & POLLUTION PREVENTION PRACTICES






NVCC SPECIAL POLLUTANTS OF CONCERNS

| Campus | TMDL | Pollutant | Approval Date |
|------------|-------------------------|-----------|---------------|
| Annandale | Accotink Creek (Lower) | E. Coli | 4/28/2009 |
| | Chesapeake Bay | N, P, TSS | - |
| Alexandria | Ches Bay | N, P, TSS | - |
| | Potomac River Watershed | PCB | 4/11/2008 |
| Woodbridge | Neabsco Creek Watershed | E. Coli | 4/28/2009 |
| | Chesapeake Bay | N, P, TSS | - |
| | Potomac River Watershed | PCB | 4/11/2008 |
| Loudoun | Chesapeake Bay | N, P, TSS | - |



IDDE PROGRAM MANUAL

NOVA
Northern Virginia
Community College



**Illicit Discharge Detection and Elimination
PROGRAM MANUAL**

Programmatic Overview of NVCC's IDDE Program and Process

| | |
|---|--|
| NVCC - Alexandria Campus 5000 Dawes Avenue Alexandria, VA 22311 | NVCC - Annandale Campus 8333 Little River Turnpike Annandale, VA 22003 |
| NVCC - Loudoun Campus 21200 Campus Drive Sterling, VA 20164 | NVCC - Woodbridge Campus 15200 Neabsco Mills Road Woodbridge, VA 22191 |

June 2014



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IDDE IMPLEMENTATION TOOLS





IDDE IMPLEMENTATION TOOLS

SAMPLE OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

| | | | |
|--|-----------------|--------------------|----------------|
| Campus: | | Outfall ID: | |
| Today's date: | | Time: | |
| Investigators: | | Form completed by: | |
| Temperature (°F): | Rainfall (in.): | Last 24 hours: | Last 48 hours: |
| Camera: | | Photo #: | |
| Notes (e.g., origin of outfall, if known): | | | |

Section 2: Outfall Description

| LOCATION | MATERIAL | CROSS-SECTION (SHAPE) | DIMENSIONS (IN.) | SUBMERGED |
|---------------------------------------|---|---|---|-----------|
| <input type="checkbox"/> Closed Pipe | <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: _____ | <input type="checkbox"/> Single <input type="checkbox"/> Double <input type="checkbox"/> Triple <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"/> Open channel | <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

| PARAMETER | FIELD DATA FOR FLOWING OUTFALLS | | | EQUIPMENT |
|----------------------------------|---------------------------------|----------------------------|------------------|--------------|
| | RESULT | UNIT | | |
| <input type="checkbox"/> Flow #1 | Volume | | Liter | Bottle |
| | Time to fill | | Sec | Stop watch |
| <input type="checkbox"/> Flow #2 | Flow depth | | In | Tape measure |
| | Flow width | ____' (Top) ____' (Bottom) | Ft | Tape measure |
| | Measured length | ____' ____' | Ft | Tape measure |
| | Time of travel | | S | Stop watch |
| Temperature | | °F | Thermometer | |
| pH | | pH Units | Test strip/Probe | |
| Ammonia | | mg/L | Test strip | |

Outfall Reconnaissance Inventory Field Sheet

Section 4: Physical Indicators for Flowing Outfalls Only
 Are Any Physical Indicators Present in the flow? Yes No (If No, Skip to Section 5)

| 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"/> Excessive Algae <input type="checkbox"/> Floatables <input type="checkbox"/> Oil Sheen <input type="checkbox"/> Suds <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: Severity Index

An IDDE score will be calculated by summing the Severity Indexes in section 4 and adding the number of indicators checked as present in section 5

- Unlikely (No indicator checked as present in Section 4 OR only one (1) indicator checked as present in Section 5)
- Potential - (one (1) indicator with a severity of one (1) in Section 4 OR two (2) indicators checked as present in Section 5)
- Suspect - IDDE score of Three (3) (one or more indicators checked in Section 4 with a total of severities equal to three (3) OR more than two (2) indicators checked as present in Section 5 OR a total of severities in Section 4 plus indicators checked as present in Section 5 is equal to three (3))
- Obvious - IDDE score of greater than Three (3) (one or more indicators checked in Section 4 with and the total of the severities is greater than three (3) OR a total of severities in Section 4 plus indicators checked as present in Section 5 is greater than three (3)).

IDDE Notes:

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





IDDE IMPLEMENTATION TOOLS

IDDE TRACKING FORM

Date Illicit Discharge Observed/Reported: _____ Outfall # (if applicable): _____

Description of IDDE: _____

Date of Investigation: _____

Was the Source found? Yes No

If "Yes", please describe: _____

Was IDDE Resolved? Yes No

If "Yes", please explain how it was resolved (Please include any personnel or outside parties contacted or involved):

If "No", please explain why it was not resolved: _____

Is any follow-up action required? Yes No

If "Yes", please explain: _____

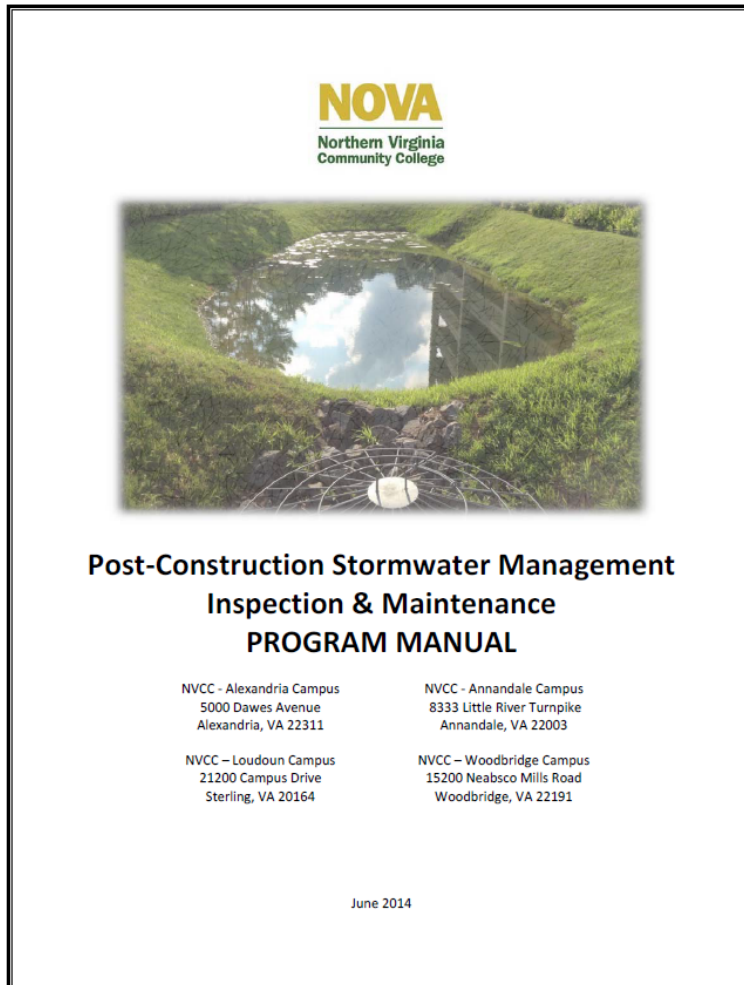
Date investigation closed: _____

Attach photos to this form and retain for records.





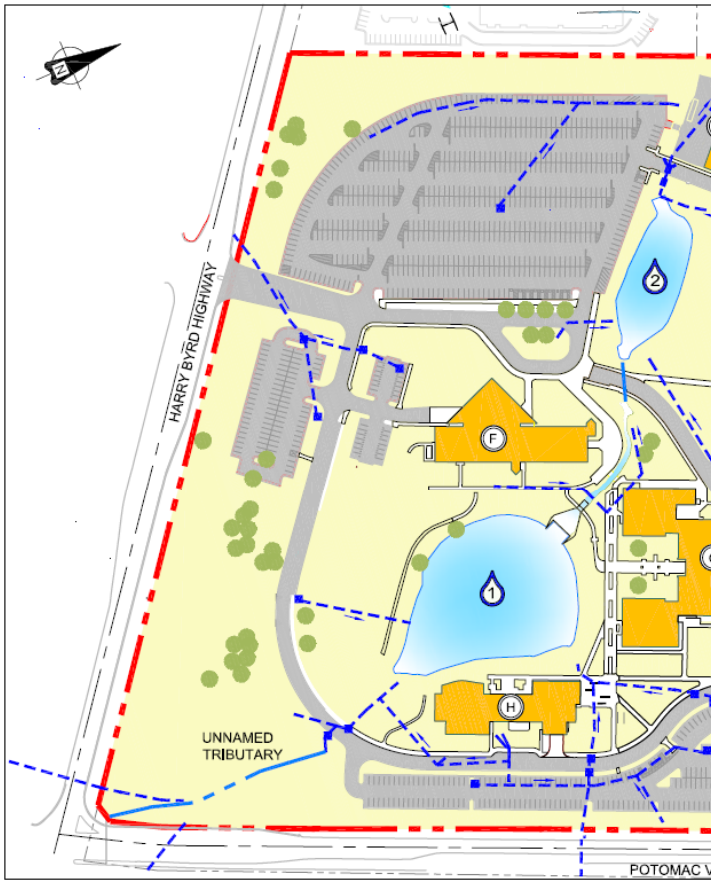
POST-CONSTRUCTION STORMWATER MANAGEMENT INSPECTION AND MAINTENANCE PROGRAM MANUAL



- Training Plan
- Reporting/Documentation
- Inspection Guidance
 - Checklist/Mapping
 - Documentation
- Maintenance & operations procedures as non-structural BMPs
 - Vehicle washing, vehicle maintenance, dumpster operations/locations, power washing, fueling, chemical storage, other applicable practices
- Waste Management
 - Oil, gas, and diesel
 - Absorbents
 - Other applicable wastes



POST-CONSTRUCTION COMPLIANCE



**NORTHERN VIRGINIA
LOUDOUN COUNTY
POST-CONSTRUCTION COMPLIANCE**



Northern Virginia Community College BMP Operation & Maintenance Inspection for Bioretention

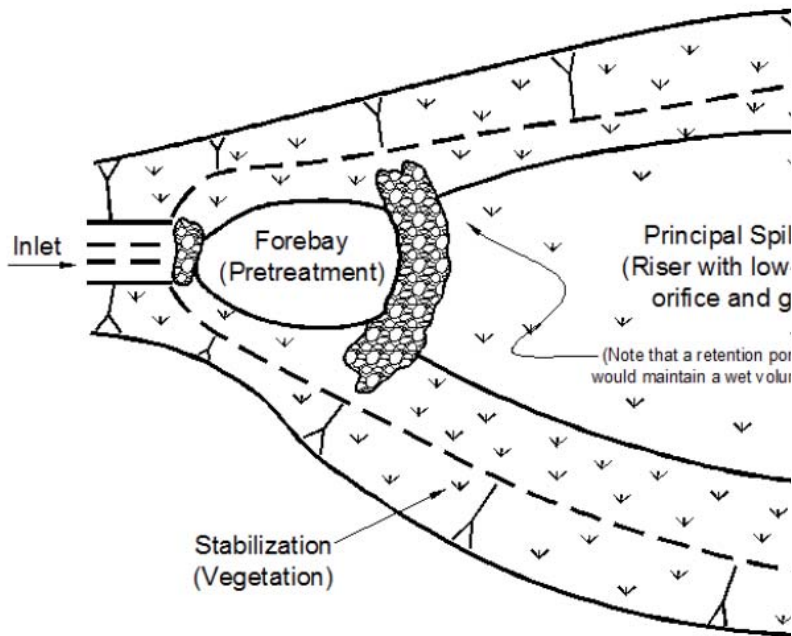
| | |
|---|-------------------------------|
| Owner Name: JTCC | Facility ID # (See Mapping): |
| Date of Inspection: | As-built plans available: Y N |
| Date of Last Inspection: | Inspector: |
| Were issues identified during the previous inspection that required maintenance? | Y N |
| If so, was the maintenance performed and recorded on a BMP Maintenance Follow-up Form? | Y N |
| If no, explain: | |
| Does the current inspection, as summarized herein, identified maintenance needs? | Y N |
| If yes, please complete a BMP Maintenance Follow-up Form and provide to the Director of Facilities upon completion. | |

| BMP Element | Problem | Yes | No | N/A | Corrective Action |
|---------------------------------------|---|-----|----|-----|---|
| Contributing Drainage Area | Excessive trash/debris | | | | Remove trash/debris and properly dispose of. |
| | Bare exposed soil | | | | Stabilize with seed and mulch. E&S measures may be warranted until the area is stabilized. |
| | Evidence of erosion | | | | Backfill area, seed, mulch and consider matting. E&S measures may be warranted until stabilization. |
| | Excessive landscape waste/yard clippings | | | | Remove landscape waste and yard clippings to prevent clogging and properly dispose of them. |
| Pretreatment (if applicable) & Inlets | Excessive trash/debris/sediment | | | | Remove trash/debris/sediment and properly dispose of. |
| | Evidence of clogging | | | | Rake material to determine level of clogging, removed clogged material and replace with clean material per the plan specifications. |
| | Dead vegetation, exposed soil | | | | Replace vegetation and stabilize with seed and mulch according to plans. E&S measures may be warranted until area is stabilized. |
| | Evidence of erosion | | | | Backfill area, seed, mulch and consider matting. E&S Measures may be warranted until stabilized. |
| | Evidence of ponding, noticeable odors, water stains, presence of algae or floating aquatic vegetation | | | | Determine source of issue and remove/repair it. Consult management and the IDDE manual as needed. |
| | Inlets provide inadequate conveyance into facility | | | | Repair inlets to drain to facility per plans. |
| | Presence of invasive species/weeds | | | | Remove invasive species/weeds |





POST-CONSTRUCTION COMPLIANCE



BMP Maintenance Follow-up FORM

To be completed by inspector

Campus: _____ BMP ID # (see campus BMP Inventory map): _____

Was the maintenance need generated from an inspection? _____ If yes, date on inspection form: _____

Description of required maintenance: _____

Is maintenance critical to the function of the BMP? Yes No Not sure

To be completed by the Director of Facilities

Individual performing or overseeing maintenance: _____

Requested date for maintenance to be completed by: _____

Date(s) maintenance completed: _____

Did maintenance solve the identified problem? Yes No Not sure

If no or not sure, describe further necessary maintenance and a date for the additional maintenance to be performed:

Description of maintenance performed: _____

Attach photographs to this form and retain for records.



POTENTIAL COMPLIANCE ISSUES





POTENTIAL COMPLIANCE ISSUES





QUESTIONS?

NVCC

Pat Didonato (MS4 Program Administrator)

EEE

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