John Rocha
Facilities Management

CVCC Stormwater Program

Spring 2019

IMPACTS OF STORMWATER RUNOFF

Sediment from construction sites, bare and denuded areas without vegetative cover, and streambank erosion due to high volumes of rainwater runoff caused by urbanization.

- **Carries other pollutants** to water bodies which adversely affects wildlife.
- **Clogs fish gills** which interferes with breathing and kills fish.
- **Creates a muddy bottom** which adversely affects spawning beds.
- **Reduces visibility** due to suspended particles affecting the ability of fish to locate prey.
- **Decreases the depth of the water** which increases water temperatures which forces fish and animals to find a more suitable environment to live.
- **Reduces light penetration** which adversely affects plant growth.
- **Interferes** with navigation, flood control, recreation and fishing industries.

EFFECTS OF POLLUTION ON ENVIRONMENT

Improperly disposed of **animal waste and human waste** from sanitary overflows cause high levels of bacteria (E.coli) in water bodies. Excessive E.coli makes water bodies unsafe for swimming and can sicken or kill people and wildlife.

Nitrogen and Phosphorous in **fertilizers** cause algae blooms in water bodies. Excessive algae produce toxins that sicken or kill people and wildlife.

APPLICABLE STORMWATER REGULATIONS

WHY WE HAVE TO?
Clean Water Act (CWA) protects Virginia's waters

WHO SAYS?
Compliance & Enforcement

WHERE APPLICABLE?

MS4 General Permit Entity

- Localities & State Entities within urbanized areas
- 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)

TOTAL MAXIMUM DAILY LOAD (TMDL)

Waterbody not meeting water quality standards

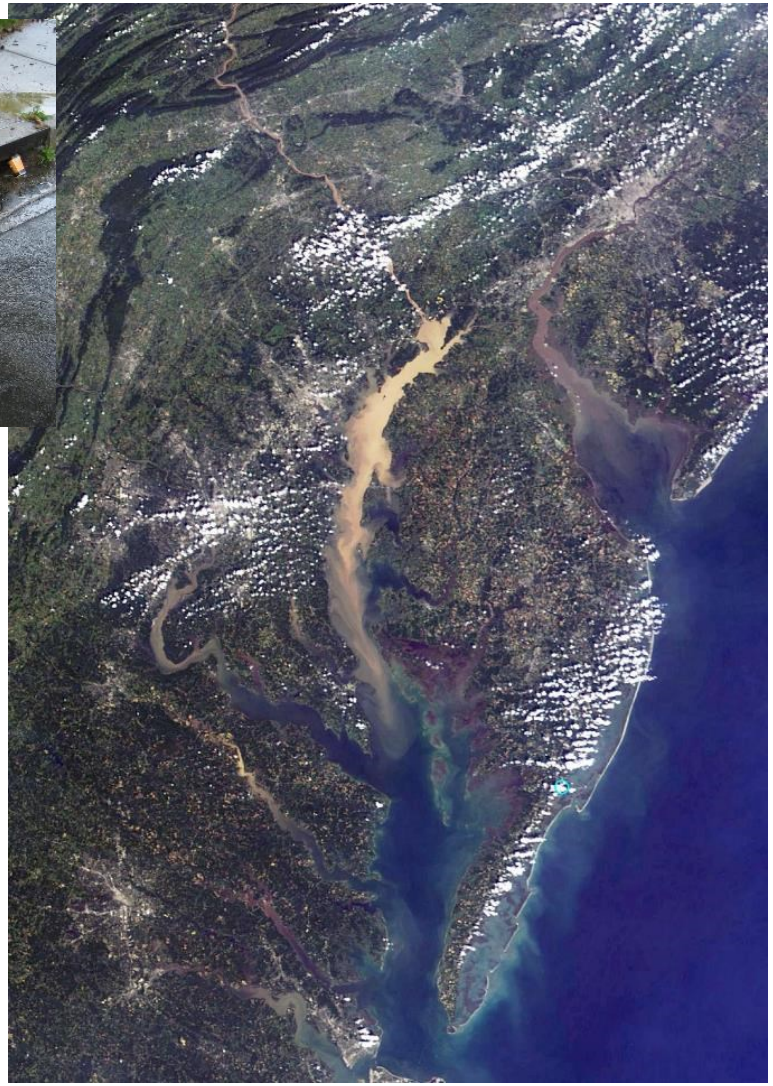
- **TMDL** is a plan (pollution diet) that establishes the maximum amount of a pollutant the waterbody can hold and meet water quality standards.
- **WLA** is the quantity of the pollutant (sediment, nitrogen, bacteria, etc.) that may be discharged.

Assign WLA for pollutant(s) of concern (POC) to point sources

CHESAPEAKE BAY TMDLS

- The Chesapeake Bay is impaired for Nitrogen, Phosphorous and Sediment.
- CVCC implements a Chesapeake Bay TMDL Action Plan to reduce the Pollutants of Concern (POCs) based on the amount of impervious area (hard surfaces like roads, sidewalks and building footprints) on campus.
- Currently, CVCC uses street sweeping as a Best Management Practice to achieve the required reductions.
- CVCC also abides by the construction laws and regulations that reduces the amount of sediment from construction activities.
- CVCC also implements a Nutrient Management Plan to reduce the amount of Nitrogen and Phosphorous applied in the form of fertilizer on the campus.

SEDIMENT AS A POLLUTANT (TMDL)



LOCAL IMPAIRED WATERWAYS

- CVCC directly discharges into an unnamed tributary of Burton Creek which is not impaired; however, downstream of the College is the James River which is designated as an impaired waterway.

- DEQ's 2016 impaired waters list identifies James River as impaired for:
  - E. coli (bacteria).

- Pollutant sources of E. coli: livestock and pet waste and sanitary sewer overflows.

- Steps taken to reduce pollution of impaired waterways:
  - Pick-up pet waste; and
  - Inspect sanitary sewer system for signs of overflows.

BACTERIA (E. COLI) TMDL

- Animal waste and human waste
  - Sewer overflows
  - Leaking sewer lines
  - Failing/unmaintained septic systems
  - Urban stormwater runoff
  - Livestock operations
  - Pet waste
  - Wildlife
- Excessive E.coli makes water bodies unsafe for human contact
  - may exhibit fever, diarrhea and abdominal cramps, chest pain, or hepatitis

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 CVCC not to be a significant contributor of pollutants to the MS4.*

DEFINING AN ILLICIT DISCHARGE (IMAGES)

DEFINING AN ILLICIT DISCHARGE (EXAMPLES)

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.

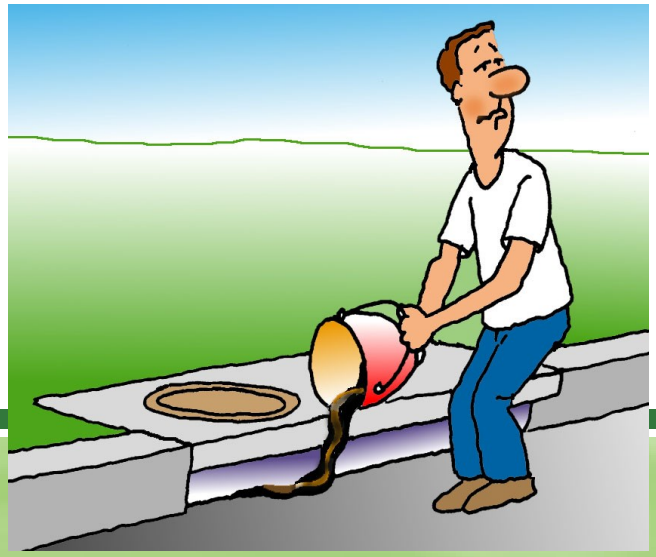
- Automotive fluids (oil, fuel, antifreeze)
- Cooking oil and grease
- Solvents
- Paints
- Chemical cleansers (detergents, soaps)
- Improperly applied pesticides/herbicides
- Improperly managed salts
- Landscape waste (grass clippings, etc.)
- Improperly applied fertilizer
- Sediment
- Vehicle wash water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

DEFINING AN ILLICIT DISCHARGE (NOT ILLICIT)

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 (CARTOONS)



CVCC'S PROHIBITION OF ILLICIT DISCHARGE

Source/Discharge Type	Elimination Authority
Intentional by Student	Student handbook
Intentional by Faculty/Staff	Standards of Conduct for Employees
Staff During Daily Operations	Good Housekeeping/Pollution Prevention Manual
Contractor Operation	Contract Language

Central Virginia
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REPORTING AN ILLICIT DISCHARGE

Report observed concerns to Facilities Management Office:

- Call 434.832.7736

or

- Email: facilities@centralvirginia.edu

or

- Check out our website by searching Facilities Management

or

https://www.centralvirginia.edu/Facilities-Management

QUESTIONS?

CVCC

John Rocha (Facilities Supervisor)