MCM #3: ILLICIT DISCHARGE DETECTION & ELIMINATION (IDDE)

MARYLAND MS4 PHASE II GENERAL PERMIT WORKSHOPS

AUGUST 8TH: COLUMBIA, MD

AUGUST 13TH: BEL AIR, MD

AUGUST 15TH: HAGERSTOWN, MD

cwea
Chesapeake Water Environment Association

WHO ARE YOU?

- WHO WORKS ON A STATE/FEDERAL PROPERTY?
- WHO WORKS FOR A LOCAL MUNICIPALITY?
- WHO IS A NEW PERMITTEES?
- WHO HAS AN EXISTING PERMIT?
- WHAT IS YOUR LEVEL OF UNDERSTANDING OF THE PERMIT, STORMWATER, IDDE?
  - NO CLUE
  - BASIC UNDERSTANDING
  - EXPERT – I JUST NEEDED AN EXCUSE TO GET OUT OF THE OFFICE

WHO AM I?

- ORIGINALLY FROM NEW ORLEANS, LA
- GRADUATE OF OREGON STATE UNIVERSITY
- MOVED TO MARYLAND IN 2002 TO SERVE IN AMERICORPS
- WORKED FOR FREDERICK COUNTY FROM 2004-2013
- STARTED WITH DEWBERRY IN 2013

Oregon State University

Self proclaimed stormwater nerd!

OUTLINE

- WHAT IS IDDE?
- MCM #3 REQUIREMENTS - MARYLAND MS4 PHASE II GENERAL PERMIT
  - IDDE ORDINANCE DEVELOPMENT
  - STORM DRAIN MAPPING
  - STANDARD OPERATING PROCEDURES

Photo: Discharge from well drilling

- Does anyone have any burning questions?
- What information are you all hoping to walk away with after this presentation?

WHAT IS IDDE?

- IDDE = **I**LLICIT **D**ISCHARGE **D**ETECTION & **E**LIMINATION
- 40 CFR 122.26(b)(2)

  > "ANY DISCHARGE TO AN MS4 THAT IS NOT COMPOSED ENTIRELY OF STORMWATER, EXCEPT ALLOWABLE DISCHARGES PURSUANT TO AN NPDES PERMIT, INCLUDING THOSE RESULTING FROM FIRE FIGHTING ACTIVITIES."

- NOT JUST ABOUT CONNECTIONS TO THE STORM DRAIN

In addition to fire fighting activity discharges, air conditioner condensate and groundwater are expected and acceptable

Any illegal process or wash water discharges or connections are considered IDDEs. IDDE also includes spills and/or leaks from damaged infrastructure

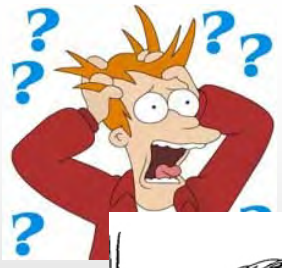
MCM #3 REQUIREMENTS

PART IV.C AND **APPENDIX B.II** OF THE MARYLAND MS4 PHASE II GENERAL PERMIT:

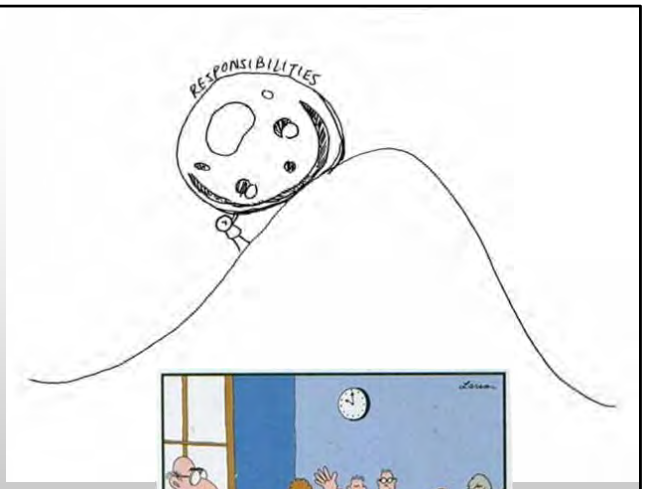
- PART IV.C.1: STORM SEWER SYSTEM MAPPING
- PART IV.C.2: ILLICIT DISCHARGE ORDINANCE
- PART IV.C.3: ESTABLISH & DOCUMENT LEGAL MEANS FOR GAINING ACCESS TO PRIVATE PROPERTY
- PART IV.C.4: STANDARD OPERATING PROCEDURES (SOPS)
- PART IV.C.5: SUBMIT SOPS TO MDE FOR REVIEW AND APPROVAL
- PART IV.C.6: DOCUMENT INSPECTION RESULTS
- PART IV.C.7: MAINTAIN RECORDS

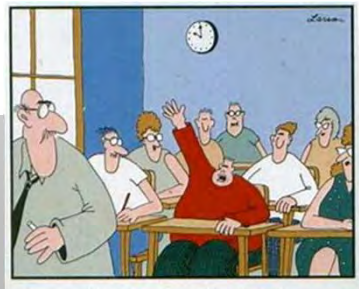
IDDE PROGRAM MUST BE UNDER DEVELOPMENT BY OCTOBER 31, 2019 AND FULLY IMPLEMENTED BY OCTOBER 30, 2023

While all IDDE programs will have common elements, each needs to be tailored to the permittee's storm drain size, land uses, mix of commercial/industrial land uses, traffic conditions, and infrastructure



"I can't worry about that now.
I'm worrying about something else."

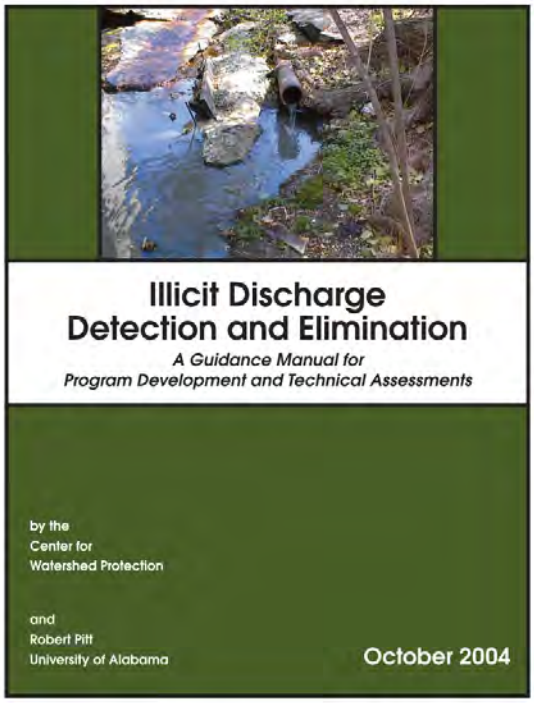




"Mr. Osborne, may I be excused?
My brain is full."

IDDE RESOURCE

HTTPS://WWW3.EPA.GOV/NPDES/PUBS/IDDE_MANUALWITHAPPENDICES.PDF



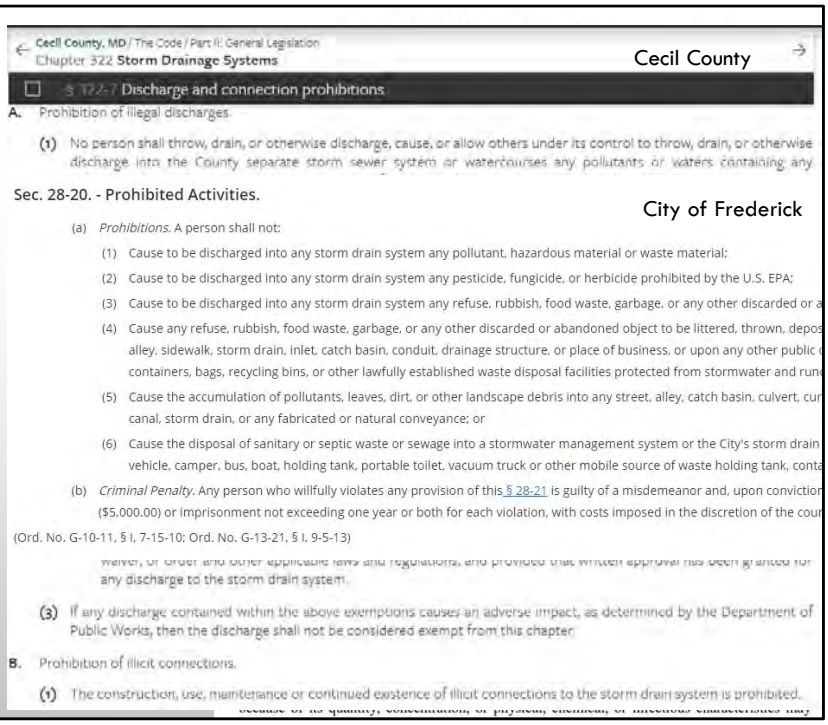
MCM #3 REQUIREMENTS

- PART IV.C.1: STORM SEWER SYSTEM MAPPING
- **PART IV.C.2: ILLICIT DISCHARGE ORDINANCE**
- **PART IV.C.3: ESTABLISH & DOCUMENT LEGAL MEANS FOR GAINING ACCESS TO PRIVATE PROPERTY**
- PART IV.C.4: STANDARD OPERATING PROCEDURES (SOPS)
- PART IV.C.5: SUBMIT SOPS TO MDE FOR REVIEW AND APPROVAL
- PART IV.C.6: DOCUMENT INSPECTION RESULTS
- PART IV.C.7: MAINTAIN RECORDS

Part IV.C.3 is only applicable to municipalities; not state/federal properties

ILLICIT DISCHARGE ORDINANCE

- **PART IV.C.2** REQUIRES PERMITTEE TO ADOPT AN ORDINANCE OR OTHER REGULATORY MEANS THAT PROHIBITS ILLICIT DISCHARGES INTO THE MS4
- **PART IV.C.3** REQUIRES PERMITTEE TO ESTABLISH & DOCUMENT LEGAL MEANS FOR ACCESSING PRIVATE PROPERTY TO INVESTIGATE & ELIMINATE



Cecil County, MD / The Code / Part II: General Legislation
Chapter 322 Storm Drainage Systems

§ 322-7 Discharge and connection prohibitions

A. Prohibition of illegal discharges.

(1) No person shall throw, drain, or otherwise discharge, cause, or allow others under its control to throw, drain, or otherwise discharge into the County separate storm sewer system or watercourses any pollutants or waters containing any

Cecil County

Sec. 28-20. - Prohibited Activities.

City of Frederick

(a) *Prohibitions.* A person shall not:

(1) Cause to be discharged into any storm drain system any pollutant, hazardous material or waste material;

(2) Cause to be discharged into any storm drain system any pesticide, fungicide, or herbicide prohibited by the U.S. EPA;

(3) Cause to be discharged into any storm drain system any refuse, rubbish, food waste, garbage, or any other discarded or a

(4) Cause any refuse, rubbish, food waste, garbage, or any other discarded or abandoned object to be littered, thrown, depos alley, sidewalk, storm drain, inlet, catch basin, conduit, drainage structure, or place of business, or upon any other public containers, bags, recycling bins, or other lawfully established waste disposal facilities protected from stormwater and run

(5) Cause the accumulation of pollutants, leaves, dirt, or other landscape debris into any street, alley, catch basin, culvert, cur canal, storm drain, or any fabricated or natural conveyance; or

(6) Cause the disposal of sanitary or septic waste or sewage into a stormwater management system or the City's storm drain vehicle, camper, bus, boat, holding tank, portable toilet, vacuum truck or other mobile source of waste holding tank, conta

(b) *Criminal Penalty.* Any person who willfully violates any provision of this § 28-21 is guilty of a misdemeanor and, upon conviction ($5,000.00) or imprisonment not exceeding one year or both for each violation, with costs imposed in the discretion of the cour

(Ord. No. G-10-11, § I, 7-15-10; Ord. No. G-13-21, § I, 9-5-13)

any discharge to the storm drain system.

(3) If any discharge contained within the above exemptions causes an adverse impact, as determined by the Department of Public Works, then the discharge shall not be considered exempt from this chapter.

B. Prohibition of illicit connections.

(1) The construction, use, maintenance or continued existence of illicit connections to the storm drain system is prohibited.

State/Federal properties will be slightly different

Do not re-create the wheel – plenty of examples from other jurisdictions &/or model ordinance from EPA

Review what code already exists - your jurisdiction may already have an ordinance in place which meets some (or most) of the requirement and may need minor revisions for compliance:

1) Stormwater ordinance that prohibits illicit discharges to the drainage network
2) Plumbing code that prohibits illicit connections to the drainage network
3) Health code that regulates the discharge of harmful substances to the drainage network.

MCM #3 REQUIREMENTS

- **PART IV.C.1: STORM SEWER SYSTEM MAPPING**

✓ PART IV.C.2: ILLICIT DISCHARGE ORDINANCE

✓ PART IV.C.3: ESTABLISH & DOCUMENT LEGAL MEANS FOR GAINING ACCESS TO PRIVATE PROPERTY

- PART IV.C.4: STANDARD OPERATING PROCEDURES (SOPS)
- PART IV.C.5: SUBMIT SOPS TO MDE FOR REVIEW AND APPROVAL
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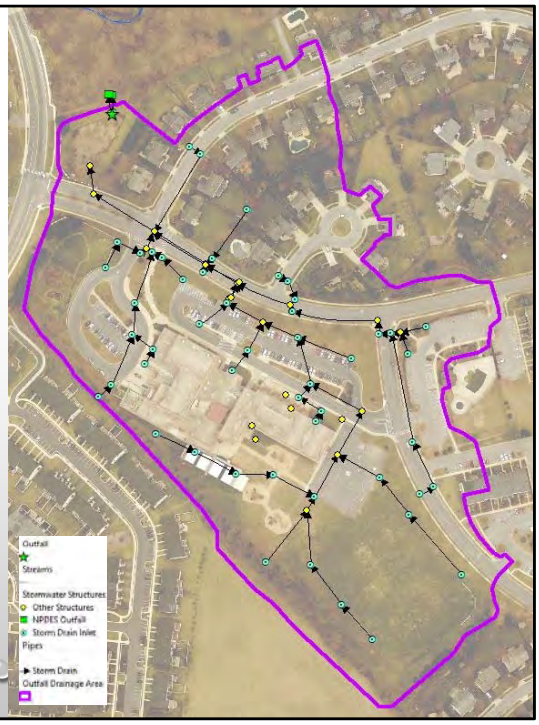
- PART IV.C.7: MAINTAIN RECORDS

STORM SEWER SYSTEM MAPPING

- **PART IV.C.1** REQUIRES PERMITTEE TO DEVELOP & MAINTAIN STORM SEWER SYSTEM MAPPING
- AT A MINIMUM, THE INFRASTRUCTURE WITHIN THE MS4 WHICH MUST BE MAPPED INCLUDES:
  - STORMWATER CONVEYANCES (PIPES, SWALES, ETC)
  - OUTFALLS
    - "A POINT SOURCE AT THE POINT WHERE THE MS4 DISCHARGES TO WATERS OF THE U.S."
  - BMPS
  - WATERS OF THE U.S.



Keep in mind - Outfalls may or may not coincide with a stormwater BMP

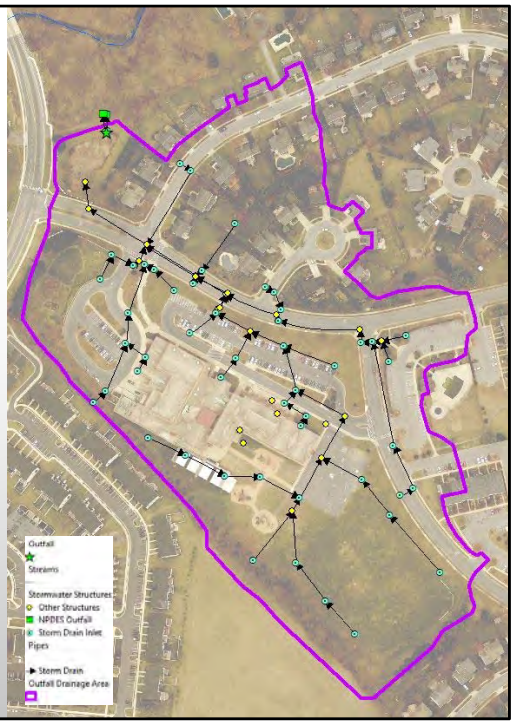
This is the minimum that is required – in addition, inlets and drainage areas can be helpful but are NOT required!
With respect to tracking potential illicit discharges, it is also helpful to have the drainage area to the outfall mapped as well – but NOT required!

As discovered, private outfalls must also be added
NOTE – the intent is to aid in completion of the illicit discharge investigations but should not be included in the number of outfalls used as the basis for the minimum screening requirement. This is only applicable to municipalities and not state/federal properties.

STORM SEWER SYSTEM MAPPING

- CAN BE CAPTURED IN A VARIETY OF WAYS:
  - COLLECTED FROM DEVELOPMENT PLANS VIA GIS
  - COLLECTED VIA FIELD TRUTHING WITH GPS AND GIS-ENABLED DEVICES

CULVERTS **ARE NOT** OUTFALLS!

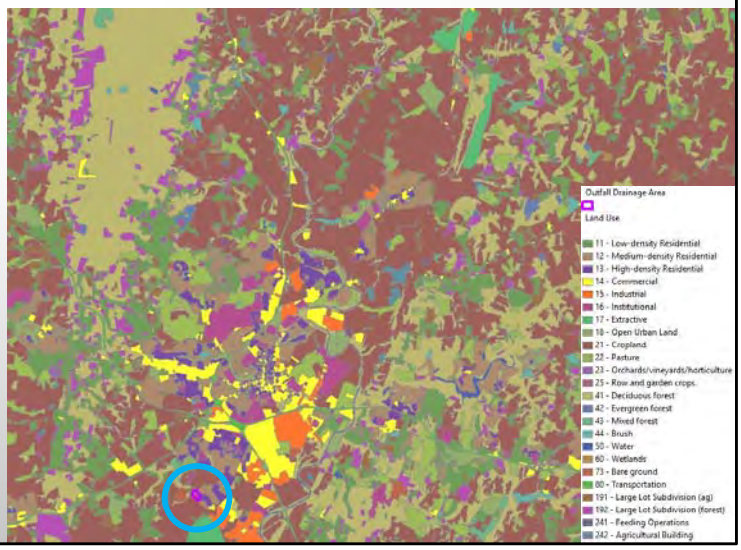


Can be captured in a variety of ways:
- Collected via GIS from georeferenced development plans
- Collected via field truthing with GPS and GIS-enabled devices

State/Federal properties may have drainage from neighboring jurisdictions – will require coordination
Same with municipalities located within a permitted County or with SHA roads

STORM SEWER SYSTEM MAPPING

- IN THIS PERMIT TERM, PERMITTEES MAY PRIORITIZE INITIAL MAPPING EFFORTS TO AREAS WITH HIGHER POTENTIAL TO POLLUTE:
  - URBANIZED
  - COMMERCIAL/INDUSTRIAL
  - RAPIDLY DEVELOPING
- OTHER MAPPING CONSIDERATIONS:
  - ADJACENT MS4 DRAINAGE (I.E. SHA, COUNTY)



Use Maryland Department of Planning – Land Use/Land Cover data to identify priority areas

PRIORITIZING MAPPING & INSPECTIONS

SECTORS OF PARTICULAR CONCERN INCLUDE:

- AUTOMOTIVE REPAIR SHOPS & MAINTENANCE YARDS
- GOLF COURSES
- CAR WASH FACILITIES
- COMMERCIAL LAUNDRIES
- STRIP MALL/SHOPPING MALL PARKING LOTS
- SPILLS FROM TRAFFIC ACCIDENTS
- POOR DUMPSTER MANAGEMENT
- RESIDENTIAL DUMPING
- POOL DISCHARGES
- WATER BREAKS
- LIGHT/HEAVY INDUSTRY
- FAILING SEPTIC/SEWER SYSTEM

MCM #3 REQUIREMENTS

- ✓ PART IV.C.1: STORM SEWER SYSTEM MAPPING
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STANDARD OPERATING PROCEDURES

- **PART IV.C.4** REQUIRES PERMITTEE TO DEVELOP & IMPLEMENT SOPs THAT SPECIFY:
  - DRY WEATHER FLOW OUTFALL INSPECTION CHECKLIST
  - OUTFALL SCREENING FREQUENCY
  - IDENTIFICATION AND ELIMINATION PROCEDURES
  - IDENTIFICATION OF PRIORITY SCREENING AREAS
  - ENFORCEMENT AND PENALTY PROCEDURES
  - IDDE OUTREACH PROCEDURES
  - COORDINATION WITH ADJACENT/INTERCONNECTED MS4

Photo: trash compactor discharge into a stormwater pond

STANDARD OPERATING PROCEDURES
DRY WEATHER FLOW OUTFALL INSPECTION CHECKLIST

- CHECKLIST SHOULD CONTAIN:
  - BACKGROUND DATA

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subwatershed:		Outfall ID:	
Today's date:		Time (Military):	
Investigators:		Form completed by:	
Temperature (°F):	Rainfall (in.): Last 24 hours:	Last 48 hours:	
Latitude:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	
Land Use in Drainage Area (Check all that apply):			
☐ Industrial		☐ Open Space	
☐ Ultra-Urban Residential		☐ Institutional	
☐ Suburban Residential		Other: _____	
☐ Commercial		Known Industries: _____	
Notes (e.g., origin of outfall, if known):			

Again, don't re-create the wheel – there are plenty of sample checklists that can be customized to your MS4.

Background data: date, time, inspectors, watershed/subwatershed, outfall ID, date of last rainfall, flow present?

STANDARD OPERATING PROCEDURES
DRY WEATHER FLOW OUTFALL INSPECTION CHECKLIST

- CHECKLIST SHOULD CONTAIN:
  - BACKGROUND DATA
  - OUTFALL DESCRIPTION

MDE Outfall ID _____ Complaint Driven _____
Local Outfall ID _____ Illicit Found _____
Watershed _____ Illicit Eliminated _____
Sub Watershed _____
Test Number _____
Personnel _____
Screen Date _____
Last Rain Date _____
Screen Time _____
Observed Flow _____
CFS Flow _____
Outfall Dimensions _____

Outfall Shape: Round Oval Box Pipe Arch Other_____

Outfall Material: RCP CMP HDPE Other_____

Structural Condition: Normal(N) Concrete Cracking(CC) Concrete Spalling(CS) Metal Corrosion(MC) Peeling Paint(PP) Outfall Damage(OD) Submerged(S) Other(O)

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☐ Closed Pipe	☐ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☐ Circular ☐ Eliptical ☐ Box ☐ Other: ____	☐ Single ☐ Double ☐ Triple ☐ Other: ____	Diameter/Dimensions: _____	In Water: ☐ No ☐ Partially ☐ Fully With Sediment: ☐ No ☐ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: ____	☐ Trapezoid ☐ Parabolic ☐ Other: ____		Depth: ____ Top Width: ____ Bottom Width: ____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☐ No	*If No, Skip to Section 5*			
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Again, don't re-create the wheel – there are plenty of sample checklists that can be customized to your MS4.

Emphasis on customize – think about what information is going to be helpful to you for tracking and maintaining your system and addressing illicit discharges

Outfall description: pipe shape, pipe type/material, pipe size, flow present?

STANDARD OPERATING PROCEDURES
DRY WEATHER FLOW OUTFALL INSPECTION CHECKLIST

- CHECKLIST SHOULD CONTAIN:
  - BACKGROUND DATA
  - OUTFALL DESCRIPTION
  - QUALITATIVE & PHYSICAL INDICATORS (IF FLOW PRESENT)

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Chemical Test Performed _____
Water Temperature(Fah.) _____
Air Temperature(Fah.) _____
pH _____
Phenol _____ mg/L
Chlorine _____ mg/L
Detergents _____ mg/L
Copper _____ mg/L
Ammonia _____ mg/L
Algae Growth _____

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	☐	☐ Sewage ☐ Rancid/sour ☐ Petroleum/gas ☐ Sulfide ☐ Other:	☐ 1 – Faint	☐ 2 – Easily detected	☐ 3 – Noticeable from a distance
Color	☐	☐ Clear ☐ Brown ☐ Gray ☐ Yellow ☐ Green ☐ Orange ☐ Red ☐ Other:	☐ 1 – Faint colors in sample bottle	☐ 2 – Clearly visible in sample bottle	☐ 3 – Clearly visible in outfall flow
Turbidity	☐	See severity	☐ 1 – Slight cloudiness	☐ 2 – Cloudy	☐ 3 – Opaque
Floatables -Does Not Include Trash!!	☐	☐ Sewage (Toilet Paper, etc.) ☐ Suds ☐ Petroleum (oil sheen) ☐ Other:	☐ 1 – Few/slight; origin not obvious	☐ 2 – Some; indications of origin (e.g., possible suds or oil sheen)	☐ 3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

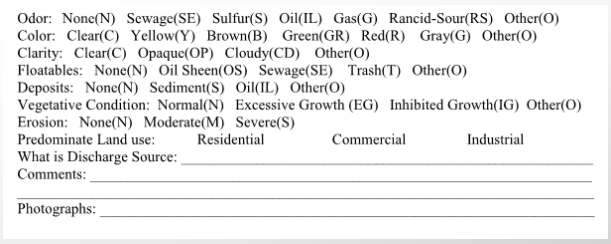
Again, don't re-create the wheel – there are plenty of sample checklists that can be customized to your MS4.

Qualitative & physical indicators of flow – flow depth, flow velocity/amount, temperature, odor, color, turbidity, floatables (not trash), damage, sediment, abnormal vegetation

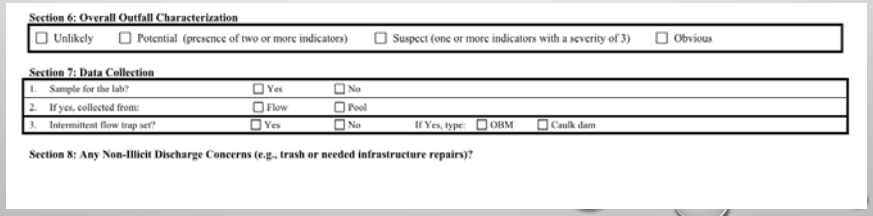
NOTE – these could of examples show chemical tests, these are not required – at a minimum visual and olfactory indicators are to be used. Chemical tests can be helpful in identifying the potential type of discharge and thus tracking its source but they are not required

STANDARD OPERATING PROCEDURES
DRY WEATHER FLOW OUTFALL INSPECTION CHECKLIST

- CHECKLIST SHOULD CONTAIN:
  - BACKGROUND DATA
  - OUTFALL DESCRIPTION
  - QUALITATIVE & PHYSICAL INDICATORS (IF FLOW PRESENT)
  - OVERALL OUTFALL CHARACTERIZATION
  - DATA COLLECTION
  - NON-ILLICIT CONCERNS



Odor: None(N) Sewage(SE) Sulfur(S) Oil(IL) Gas(G) Rancid-Sour(RS) Other(O)
Color: Clear(C) Yellow(Y) Brown(B) Green(GR) Red(R) Gray(G) Other(O)
Clarity: Clear(C) Opaque(OP) Cloudy(CD) Other(O)
Floatables: None(N) Oil Sheen(OS) Sewage(SE) Trash(T) Other(O)
Deposits: None(N) Sediment(S) Oil(IL) Other(O)
Vegetative Condition: Normal(N) Excessive Growth (EG) Inhibited Growth(IG) Other(O)
Erosion: None(N) Moderate(M) Severe(S)
Predominate Land use: Residential Commercial Industrial
What is Discharge Source: _____
Comments: _____
_____
Photographs: _____



Section 6: Overall Outfall Characterization

☐ Unlikely ☐ Potential (presence of two or more indicators) ☐ Suspect (one or more indicators with a severity of 3) ☐ Obvious

Section 7: Data Collection

1. Sample for the lab?	☐ Yes	☐ No		
2. If yes, collected from:	☐ Flow	☐ Pool		
3. Intermittent flow trap set?	☐ Yes	☐ No	If Yes, type: ☐ OBM	☐ Caulk dam

Section 8: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)?

Again, don't re-create the wheel – there are plenty of sample checklists that can be customized to your MS4.

Section 7 not required – only if chemical tests performed

STANDARD OPERATING PROCEDURES
OUTFALL SCREENING FREQUENCY

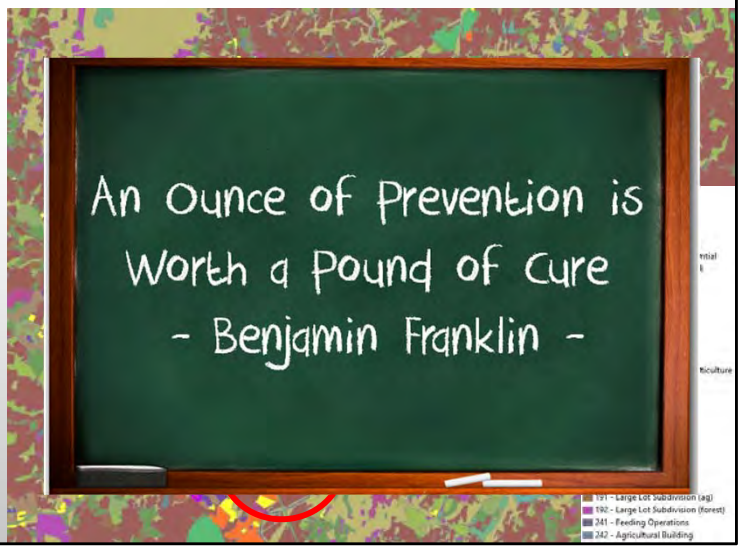
- MUST SCREEN 20% OF TOTAL OUTFALLS PER YEAR, UP TO 100 OUTFALLS
- FREQUENCY IS TIERED FOR STATE/FEDERAL PROPERTIES:
  - SMALL PROPERTY (<100 ACRES) – ALL OUTFALLS SCREENED EACH YEAR
  - MEDIUM PROPERTY (100 – 2,000 ACRES) – MUST SCREEN 50% OF TOTAL OUTFALLS EACH YEAR
  - LARGE PROPERTY (>2,000 ACRES) – MUST SCREEN 20% OF TOTAL OUTFALLS EACH YEAR

Permittees have the flexibility to screen some outfalls or priority locations more often based on pollution potential

STANDARD OPERATING PROCEDURES

IDENTIFICATION OF ANNUAL PRIORITY SCREENING AREAS

- PRIORITIZE INSPECTION EFFORTS TO AREAS WITH HIGHER POTENTIAL TO POLLUTE:
  - URBANIZED
  - COMMERCIAL/INDUSTRIAL
  - RAPIDLY DEVELOPING



Use Maryland Department of Planning – Land Use/Land Cover data to identify priority areas

STANDARD OPERATING PROCEDURES

IDENTIFICATION OF ANNUAL PRIORITY SCREENING AREAS

- IDDE INSPECTIONS DON'T NECESSARILY HAVE TO OCCUR AT THE OUTFALL
  - CONSIDER HOTSPOT/SOURCE CONTROL INSPECTIONS
- CITIZEN REPORTS/COMPLAINTS

Citizen reports/complaints are a good way to identify hotspot areas but responding to complaints does not "count" toward the numeric screening requirement. Responding to complaints should be part of your program but the screening requirement is intended to discover/detect illicit discharges

Photos: open grease bins & spill

STANDARD OPERATING PROCEDURES
IDENTIFICATION OF PRIORITY SCREENING AREAS

- DETERMINE THE ILLICIT DISCHARGE POTENTIAL (IDP)
- CATEGORIZE OUTFALLS INTO HIGH, MEDIUM, LOW IDP
  - ARE THERE AREAS WITH:
    - PREVIOUS DISCHARGE COMPLAINTS?
    - POOR IN-STREAM WATER QUALITY?
    - AGING SEWER INFRASTRUCTURE OR SEPTICS?
    - HIGH CONCENTRATION OF COMMERCIAL OR INDUSTRIAL PROPERTIES?
- SCREEN "HIGH" RISK OUTFALLS FIRST

Table 14: Defining Discharge Screening Factors in a Community

Discharge Screening Factors	Defining and Deriving the Factor
1. Past Discharge Complaints and Reports	Frequency of past discharge complaints, hotline reports, and spill responses per subwatershed. Any subwatershed with a history of discharge complaints should automatically be designated as having high IDP.
2. Poor Dry Weather Water Quality	Frequency that individual samples of dry weather water quality exceed benchmark values for bacteria, nutrients, conductivity or other predetermined indicators. High risk if two or more exceedances are found in any given year.
3. Density of Generating Sites or Industrial NPDES Storm Water Permits	Density of more than 10 generating sites or five industrial NPDES storm water sites per square mile indicates high IDP. Density determined by screening business or permit databases (Appendix A).
4. Storm Water Outfall Density	Density of mapped storm water outfalls in the subwatershed, expressed as the average number per stream or channel mile. A density of more than 20 outfalls per stream mile indicates high IDP.
5. Age of Subwatershed Development	Defined as the average age of the majority of development in a subwatershed. High IDP is often indicated for developments older than 50 years. Determined from tax maps and parcel data, or from other known information about neighborhoods.
6. Sewer Conversion	Subwatersheds that had septic systems but have been connected to the sanitary sewer system in the last 30 years have high IDP.
7. Historic Combined Sewer Systems	Subwatersheds that were once served by combined sewer system but were subsequently separated have a high IDP.
8. Presence of Older Industrial Operations	Subwatersheds with more than 5% of its area in industrial sites that are more than 40 years old are considered to have high IDP. Determined from historic zoning, tax maps, and "old-timers."
9. Aging or Failing Sewer Infrastructure	Defined as the age and condition of the subwatershed sewer network. High IDP is indicated when the sewer age exceeds design life of its construction materials (e.g., 50 years) or when clusters of pipe breaks, spills, overflows or I/I are reported by sewer authorities.
10. Density of Aging Septic Systems	Subwatersheds with a density of more than 100 older drain fields per square mile are considered to have high IDP. Determined from analysis of lot size outside of sewer service boundaries.

It is important to note that if you continuously report that you are meeting the outfall screening requirement and are finding no illicit discharges, MDE will likely advise you to re-visit your SOPs and consider prioritizing screening commercial/industrial areas

STANDARD OPERATING PROCEDURES
IDENTIFICATION OF PRIORITY SCREENING AREAS

SECTORS OF PARTICULAR CONCERN INCLUDE:

- AUTOMOTIVE REPAIR SHOPS & MAINTENANCE YARDS
- GOLF COURSES
- CAR WASH FACILITIES
- COMMERCIAL LAUNDRIES
- STRIP MALL/SHOPPING MALL PARKING LOTS
- SPILLS FROM TRAFFIC ACCIDENTS
- POOR DUMPSTER MANAGEMENT
- RESIDENTIAL DUMPING
- POOL DISCHARGES
- WATER BREAKS
- LIGHT/HEAVY INDUSTRY
- FAILING SEPTIC/SEWER SYSTEM

This is just a reminder of the sectors of particular concern

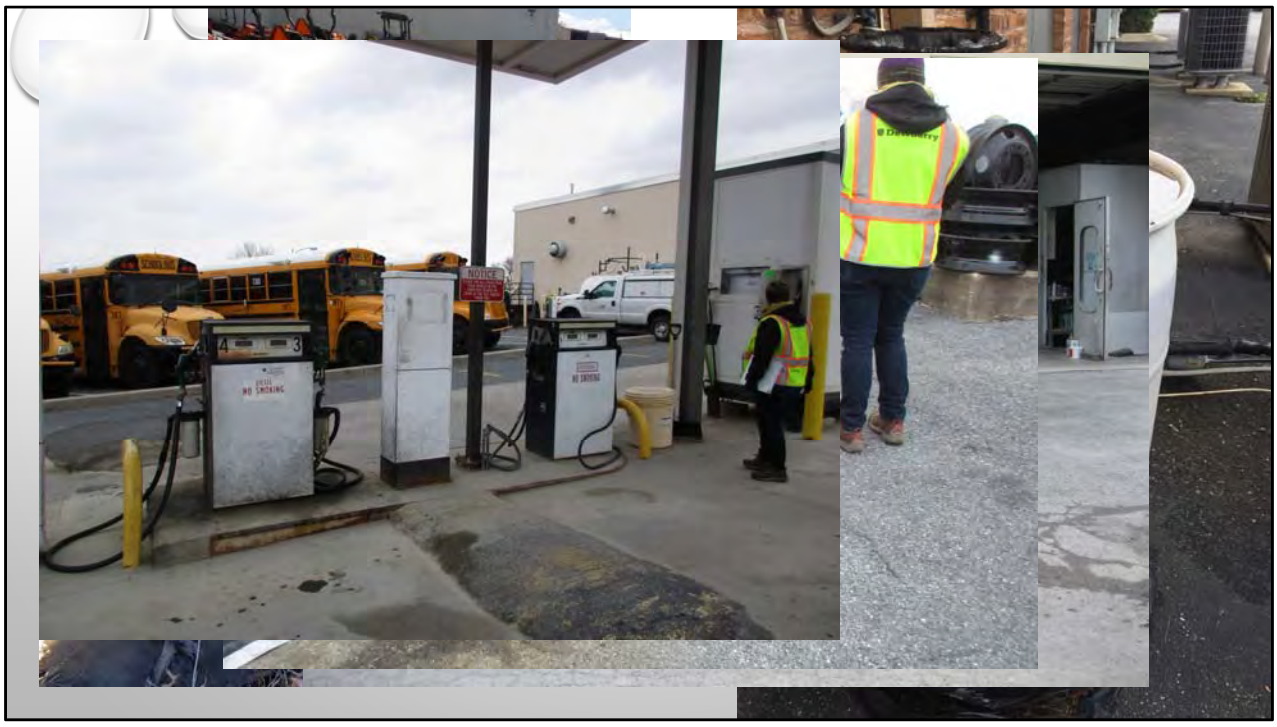
STANDARD OPERATING PROCEDURES
IDENTIFICATION AND ELIMINATION PROCEDURES

- DRY WEATHER SCREENINGS OF OUTFALLS SHOULD OCCUR FOLLOWING A 48-HOUR DRY TIME
- IF POSSIBLE, CONSIDER COMPLETING DURING FALL (OCTOBER/NOVEMBER)
- EVEN THOUGH IT'S A DRY WEATHER SCREENING, YOU'RE GOING TO HAVE TO GET YOUR FEET WET – MOST OUTFALLS DISCHARGE TO A STREAM
- SOMETIMES THE OUTFALL ISN'T THE MOST APPROPRIATE PLACE TO PERFORM THE INSPECTION
  - IF OUTFALL IS SUBMERGED, GROUNDWATER FLOW PRESENT, OR A LARGE DRAINAGE AREA
  - USE YOUR MAPPING TO IDENTIFY THE NEXT LOGICAL PLACE UPSTREAM FOR INSPECTION
- IF FLOW IS PRESENT:
  - DETERMINE FLOW CONTENT (VISUAL OR OLFACTORY INDICATORS)
  - DETERMINE FLOW SOURCE

IDDE is all about finding discharges when it's not raining! If flows are observed, it can be an indication of an illicit discharge or connection.

Chemical sampling of the discharge is optional – not required

Key point is the SOP must indicate how the permittee intends to determine the flow content



Photos:
1 – Mining sediment discharged into stream
2 – Evidence of salt leaching
3 – Exposed oil drum with insufficient secondary containment exposed to elements – not a problem yet but it can be!
4 – Evidence of vehicle washwater discharge (requires MDE 16-VW permit)
5 – Exterior oil tank with secondary containment – evidence of potential contamination when secondary containment is drained
6 – Fueling operation, under cover but evidence of spills and possibly improper clean up

FLOW TESTING EQUIPMENT
(IF CHEMICAL TESTING IS PERFORMED)

- CAMERA
- COLOR COMPARATOR KITS
- PH/WATER PROBE
- CLEARLY MARKED GLASS AND PLASTIC JUGS FOR SAMPLE & WASTE COLLECTION
- TAPE MEASURE
- MANHOLE PICK
- PPEs

PPEs – gloves, safety vests, safety glasses

HACH Stormwater Test kit – pH, total chlorine, copper, detergents, phenols (~$400-500)
HACH Ammonia Nitrogen kit - ~$100-150

Make sure you're disposing of processed sample waste. Typically waste produced from copper, chlorine, and phenols can be washed down sanitary sewer with excess water. Ammonia and detergent waste requires additional remediation. Make sure to check!

Multiparameter sonde able to obtain several water quality parameters simultaneously (~$2000+) – typically YSI or equivalent

TESTING PARAMETERS
(IF CHEMICAL TESTING IS PERFORMED)

- pH
- CHLORINE
- COPPER
- DETERGENTS
- PHENOLS
- NITROGEN
- AMMONIA
- WATER TEMPERATURE

Analyte	Effluent Type Indicated	Action Criterion	Minimum Detection Limit	Instrument Range	Kit or Probe
residual chlorine (Cl)	industrial, drinking water, sewage,	> 0.05 mg/l[a]	0.05 mg/l	0 to 5 mg/l	color comparator
color	sewage , washwater	> 20 color units	NA	NA	color kit
copper (Cu)	industrial	> 0.05 mg/l[a]	0.05 mg/l	0 to 10 mg/l	color comparator
phenols	dry cleaning	> 0.05 mg/l[a]	0.05 mg/l	0 to 12 mg/l	color comparator
turbidity	industrial, sewage, washwater	≥ 1000 NTU[b]	0 NTU	NA	sonde
surfactants (detergents)	sewage, washwater	> 0.25 mg/l (residential)[b]	0.15 mg/l	0.15 to 1 mg/l	single analyte meter
dissolved oxygen (DO)	sewage	NA	NA	NA	sonde
water temperature	sewage	> 23.9 C[c]	NA	NA	sonde
pH	industrial, washwater	≤ 5 (industrial)[a]	NA	0 to 14	sonde
conductivity	industrial	> 2 mS/cm^2 (industrial)[a]	NA	NA	sonde

[a] Exceedance criterion based on the test range of the field kit
[b] Brown et al. 2004
[c] Source: Baltimore County (2007)
NA: Not Applicable

Assuming the dry weather flow is identified at the outfall

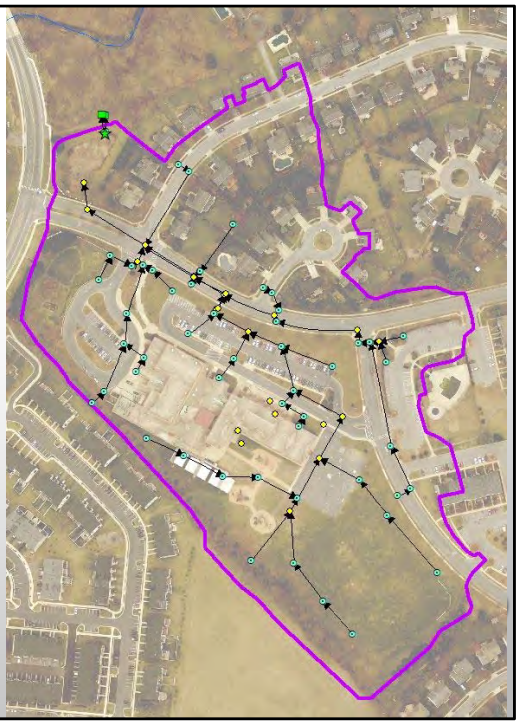
The outfall is for a BMP. Check the inflow to see if the same flow is present. If so, continue upstream. If not, then look for potential dumping/spill within BMP footprint.

If flow is present at inflow, start working your way up the pipe configuration. Pop manholes along the way. When you come to a junction, try to determine which direction the flow is coming from

Let’s assume for this example we determine flow is coming from the north so we proceed upstream to the inlets…

SOURCE TRACKING

- CONSIDER DRAINAGE AREA SIZE
  - IF THE DA IS TOO LARGE &/OR THE DISCHARGE TOO SMALL, IT MAY NOT GET ALL THE WAY TO THE OUTFALL
- THIS IS WHERE YOUR OUTREACH AND CITIZEN REPORTING WILL COME IN HANDY!

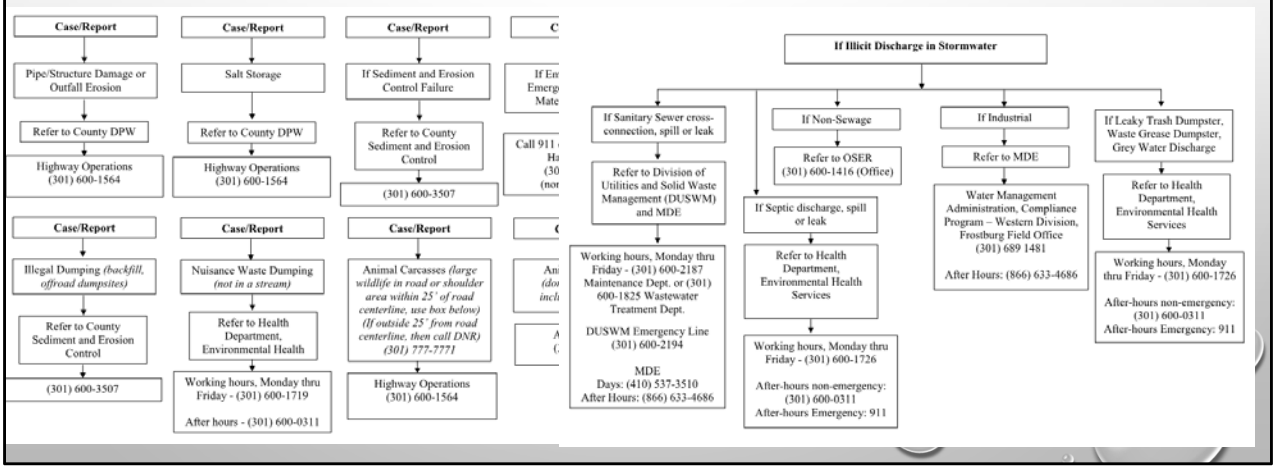


STANDARD OPERATING PROCEDURES
ENFORCEMENT AND PENALTY PROCEDURES

- ONCE ILLICIT DISCHARGE SOURCE IS IDENTIFIED - NOTICES OF VIOLATION MUST BE ISSUED AS WARRANTED AND APPROPRIATE TO HALT THE DISCHARGE
- MUST INCLUDE A TIMELINE FOR THE REQUIRED CORRECTION
- MAY NEED TO BE FORWARDED TO ANOTHER AGENCY FOR RESPONSE (MDE OR SHA)

IDENTIFY RESPONSIBLE DEPARTMENT/AGENCY

- YOUR DEPARTMENT/DIVISION MIGHT HAVE RESPONSIBILITY OVER THE PERMIT AND CONDUCTING THE INSPECTIONS BUT WHAT ABOUT THE RESPONSE?

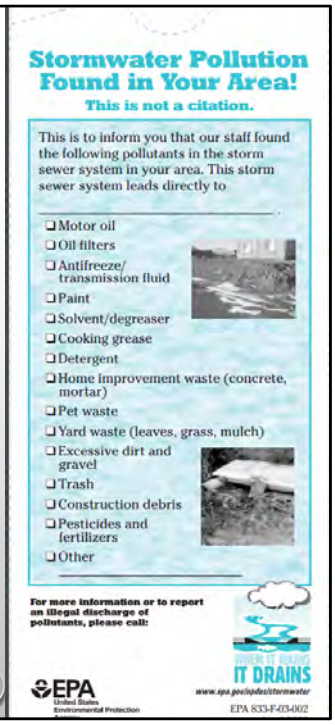


As part of your SOPs, you'll need to consider how to respond, follow-up, etc.

Evaluate the roles/responsibilities/capabilities of other departments. Determine what services/assistance they can provide

STANDARD OPERATING PROCEDURES
IDDE OUTREACH PROCEDURES

- LOOK FOR OPTIONS THAT HAVE LITTLE OR NO COST:
  - ADD INFORMATION TO YOUR WEBSITE
  - DEVELOP AN ONLINE REPORTING FORM
  - SET UP A HOTLINE OR ESTABLISH A DEDICATED CALL NUMBER
    - RESPOND AS QUICKLY AS POSSIBLE, WITHIN 24 HOURS AT A MINIMUM
    - DISCHARGES ARE OFTEN EPHEMERAL
  - USE FREE ONLINE RESOURCES FROM EPA



Stormwater Pollution Found in Your Area!

This is not a citation.

This is to inform you that our staff found the following pollutants in the storm sewer system in your area. This storm sewer system leads directly to

_____.

- ❑ Motor oil
- ❑ Oil filters
- ❑ Antifreeze/ transmission fluid
- ❑ Paint
- ❑ Solvent/degreaser
- ❑ Cooking grease
- ❑ Detergent
- ❑ Home improvement waste (concrete, mortar)
- ❑ Pet waste
- ❑ Yard waste (leaves, grass, mulch)
- ❑ Excessive dirt and gravel
- ❑ Trash
- ❑ Construction debris
- ❑ Pesticides and fertilizers
- ❑ Other

_____

For more information or to report an illegal discharge of pollutants, please call:

WHERE IT RAINS IT DRAINS

www.epa.gov/npdes/stormwater

EPA

United States Environmental Protection

EPA 833-F-03-002

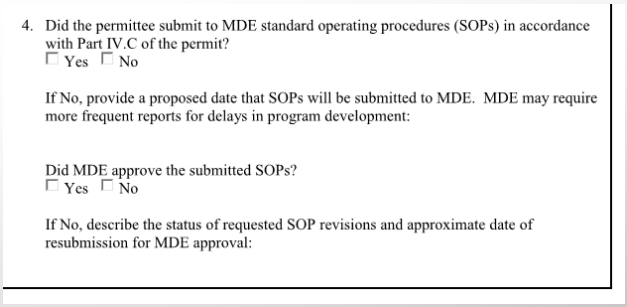
You will need to consider after hour responses to emergency spills

MCM #3 REQUIREMENTS

- ✓ PART IV.C.1: STORM SEWER SYSTEM MAPPING
- ✓ PART IV.C.2: ILLICIT DISCHARGE ORDINANCE
- ✓ PART IV.C.3: ESTABLISH & DOCUMENT LEGAL MEANS FOR GAINING ACCESS TO PRIVATE PROPERTY
- ✓ PART IV.C.4: STANDARD OPERATING PROCEDURES (SOPS)
- **PART IV.C.5: SUBMIT SOPS TO MDE FOR REVIEW AND APPROVAL**
- PART IV.C.6: DOCUMENT INSPECTION RESULTS
- PART IV.C.7: MAINTAIN RECORDS

SOP APPROVAL

- SUBMIT SOPS TO MDE FOR REVIEW & APPROVAL WITHIN 2 YEARS OF PERMIT ISSUANCE (OCTOBER 31, 2020)
- 1ST PROGRESS REPORT IS DUE OCTOBER 31, 2019
  - WILL NEED TO DOCUMENT PROGRESS



4. Did the permittee submit to MDE standard operating procedures (SOPs) in accordance with Part IV.C of the permit?
☐ Yes ☐ No

If No, provide a proposed date that SOPs will be submitted to MDE. MDE may require more frequent reports for delays in program development:

Did MDE approve the submitted SOPs?
☐ Yes ☐ No

If No, describe the status of requested SOP revisions and approximate date of resubmission for MDE approval:

Although permittees have the entire 5-year permit term to fully implement a program, you should not wait until the end of the permit term to submit SOPs. New permittees must begin program development in Year 1 and initiate implementation thereafter.

MCM #3 REQUIREMENTS

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- **PART IV.C.7: MAINTAIN RECORDS**

INSPECTION DOCUMENTATION & RECORD MAINTENANCE

- DOCUMENT INSPECTIONS AND FOLLOW-UP
- MUST MAINTAIN RECORDS FOR AT LEAST 3 YEARS FOLLOWING TERMINATION OF THE PERMIT
  - **OCTOBER 30, 2026**

QUESTIONS?

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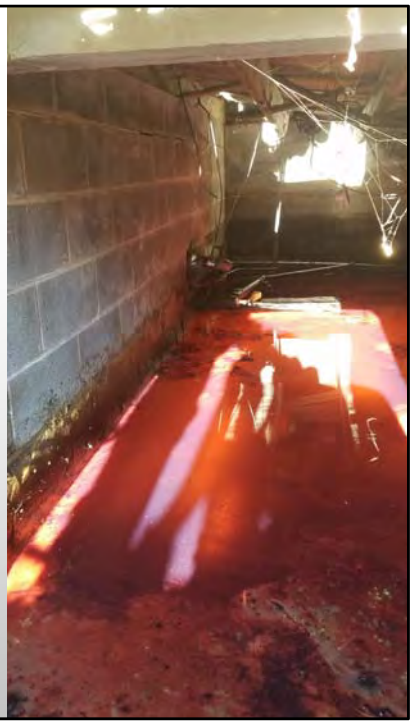

Photo: heating oil spill into a spring house