



# MS4 Nutrient Discovery Program Credit

Water Quality Goal Implementation Team

May 22, 2017



# Background


- Report approved in November 2014
- Addresses the elimination of nutrient discharges from gray infrastructure

## Two Types of Credit:

- Elimination of Individual Discharge Credit
- Advanced MS4 Nutrient Discovery Program Credit




# Elimination of Individual Discharges

- ▶ Provides credit for the elimination of 8 types of discovered discharges
    - ▶ Ex: Laundry Washwater, Sanitary Direct Connections, Dry Weather SSOs, etc.
  - ▶ The Individual Nutrient Discharge Credit is available to "discovered" nutrient discharges if:
    - ▶ (1) The nutrient discharges are detected and physically eliminated,
    - ▶ (2) The on-site discharge is sampled to define one or more critical parameters -  
- nutrient concentration, flow rate and flow duration, and
    - ▶ (3) Subsequent inspections or sampling occur to verify that the discharge no longer exists.
  - ▶ Available in 2018
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# Advanced Program Credit

- ▶ Goes above and beyond the minimum MS4 permit requirements for an IDDE program
  - ▶ Provides 0.2% reduction in the annual nutrient load discharged from urban pervious land targeted by an advanced program
  - ▶ The Advanced Program Credit lasts 5 years and is non-renewable. Allows transition to “Elimination of Individual Discharges” credit option.
  - ▶ Temporary credit originally set to sunset at end of 2017
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## Qualifying Criteria for Advanced Programs

The locality must meet five criteria to qualify as an advanced program. They can document this in their annual MS4 permit report:

1. Collect dry weather stream monitoring data to prioritize the catchments and/or sewer-sheds with the highest nutrient and bacteria levels that warrant more detailed investigation.



## 2. Identify number of outfalls in the priority catchments/sewer-sheds during the Outfall Reconnaissance Inventory (ORI)



### OUTFALL RECONNAISSANCE INVESTIGATION 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"/> GREY <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"/> 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 secondary materials)

#### SECTION 5. PHYSICAL INDICATORS FOR BOTH FLOWING AND NON-FLOWING OUTFALLS

ARE PHYSICAL INDICATORS 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	
DEPOSIT/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. OVERALL OUTFALL CHARACTERIZATION

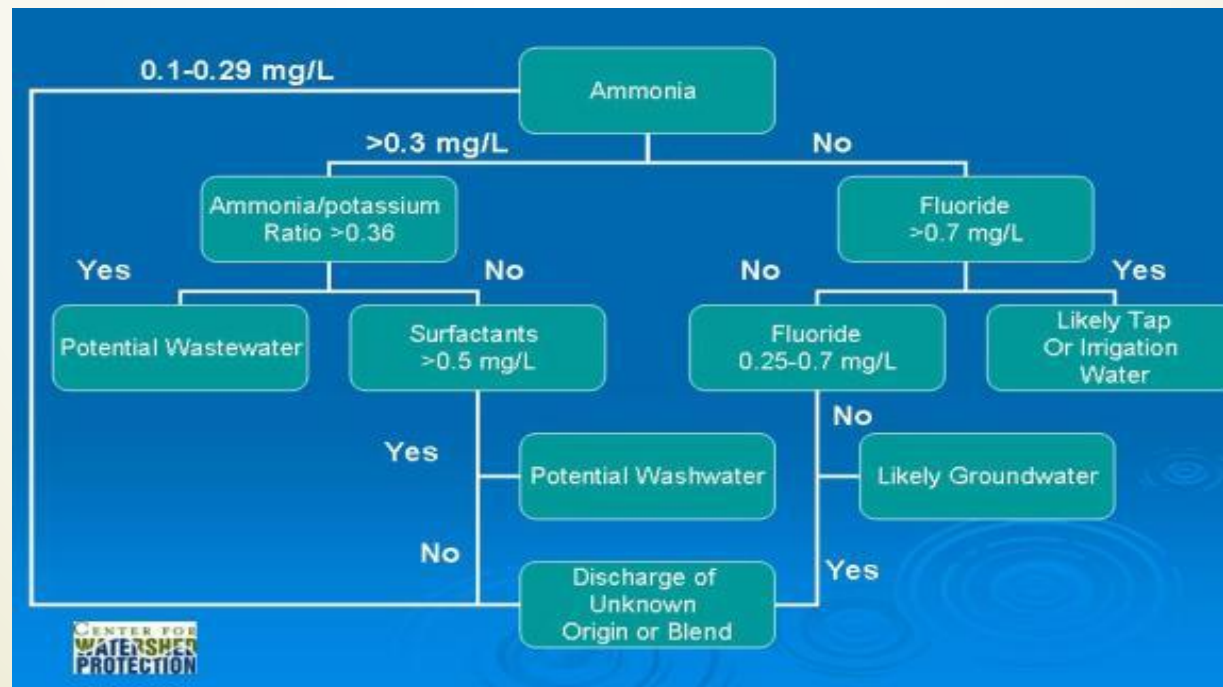
No indication of illicit discharges  Some likelihood of illicit discharge (e.g., presence of 2 or more indicators)  Almost certain a discharge exists (e.g., 1 or more indicator with a severity of 3)

#### SECTION 7. DATA COLLECTION

- SAMPLE FOR THE LAE?  YES  NO
- IF YES, COLLECTED FROM:  FLOW  POOL
- OBM TRAP SET?  YES  NO

#### SECTION 8. ANY NON-ILLCIT DISCHARGE CONCERNS (E.G., TRASH OR NEEDED INFRASTRUCTURE REPAIRS)?

3. Identify the number of outfalls in the priority catchments/sewer-sheds that were subject to nutrient testing, using the Flow Chart Method or equivalent.
- ▶ The testing must focus on outfalls of all diameters.
  - ▶ Nutrient testing should be conducted on at least 10% of flowing outfalls every year.



#### 4. Utilize specific methods and techniques to track a suspect illicit discharge to its source in the storm drain network

##### **Summary of Methods to Discover Nutrient Discharges from Grey Infrastructure**

- |  |  |
|--|--|
| <ul style="list-style-type: none"><li>• Visual Inspection and Outfall Screening</li><li>• Flow Chart Method to Sample Suspect Outfalls</li><li>• Source Tracking</li><li>• Smoke Testing</li><li>• Dye Testing</li><li>• Optical Brightener Testing</li><li>• Closed Circuit Television</li><li>• HVAC testing</li></ul> | <ul style="list-style-type: none"><li>• Trained Sewage Sniffing Dogs</li><li>• Stream Walks to Look for Small Diameter Pipes</li><li>• GIS Analysis of Storm and Sewer Pipe Interactions</li><li>• Sewer pipe flow metering</li><li>• Continuous tracers in sewers</li><li>• Nitrate Isotopes</li><li>• Human Markers (caffeine, Bifidobacterium)</li><li>• Overflow reporting</li><li>• CMOM and other sewer asset programs</li></ul> |
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5. Report number and type of illicit discharges that were discovered and actually eliminated each year



*Photo credit: Arlington County, DES*

# Additional Qualifying Criteria

In addition, localities will need to document that they are conducting **at least two** of the following activities to receive credit:

- GIS assessments of storm and sanitary sewer network to identify high risk segments for cross-connections or exfiltration
- CCTV inspections, dye testing or other methods to investigate for sewer leaks in problem storm drain systems
- Targeted inspection and outreach to businesses and/or industrial facilities subject to high risk for illicit discharges or sewer clogging (e.g. restaurants, car rental agencies, etc.)
- Detailed modeling and metering of the sewer network to identify pipe segments with high risk due to sewage exfiltration or dry weather overflows

# Current Status

- ▶ To date, neither BMP has ever been reported to NEIEN
- ▶ The Advanced Program Credit has not been removed from Phase 6
- ▶ Urban Stormwater Workgroup recommended an extension to the MS4 Advanced Program Credit to 2020





Questions?