Illicit Discharge Detection and Elimination (IDDE) Procedures

MARCH 2021

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Section 1 Introduction

The following *Illicit Discharge Detection & Elimination (IDDE) Procedures* document is intended to provide staff and contractors of the City of Fairfax with guidance for conducting detection, investigation, and elimination regarding illicit discharges in compliance with the City of Fairfax's Virginia Pollutant Discharge Elimination System (VPDES) permit, VAR040064. The General Permit (VAR04, effective November 1, 2018 - October 31, 2023) mandates that the operator (City of Fairfax) effectively prohibit non-stormwater discharges into the storm sewer system and develops, implements, and updates procedures to detect, identify, and address unauthorized non-stormwater discharges into the MS4. This document will also serve to provide guidance for conducting outfall reconnaissance.

Section 2 Permit Requirments

As defined in *Part I E.3.c* of the City's MS4 permit , The City is required to *"maintain, implement, and enforce illicit discharge detection and elimination (IDDE) written procedures designed to detect, identify, and address unauthorized nonstormwater discharges, including illegal dumping, to the small MS4 to effectively eliminate the unauthorized discharge."*

The IDDE written procedures shall include*:*

(1) A description of the legal authorities, policies, standard operating procedures or other legal mechanisms available to the permittee to eliminate identified sources of ongoing illicit discharges including procedures for using legal enforcement authorities.

(2) Dry weather field screening protocols to detect, identify, and eliminate illicit discharges to the MS4. The protocol shall include:

- *a. A prioritized schedule of field screening activities and rationale for prioritization determined by the permittee based on such criteria as age of the infrastructure, land use, historical illegal discharges, dumping or cross connections;*
- *b. If the total number of MS4 outfalls is equal to or less than 50, a schedule to screen all outfalls annually;*
- *c. If the total number of MS4 outfalls is greater than 50, a schedule to screen a minimum of 50 outfalls annually such that no more than 50% are screened in the previous 12-month period. The 50% criteria is not applicable if all outfalls have been screened in the previous three years; and*
- *d. A mechanism to track the following information:*
  - *i. The unique outfall identifier;*
  - *ii. Time since the last precipitation event;*
  - *iii. The estimated quantity of the last precipitation event;*
  - *iv. Site descriptions (e.g., conveyance type and dominant watershed land uses);*
  - *v. Whether or not a discharge was observed; and If a discharge was observed, the estimated discharge rate (e.g., width and depth of discharge flow rate) and visual characteristics of the discharge (e.g., odor, color, clarity, floatables, deposits or stains, vegetation condition, structural condition, and biology).*

(3) A timeframe upon which to conduct an investigation to identify and locate the source of any observed unauthorized nonstormwater discharge. Priority of investigations shall be given to discharges of sanitary sewage and those believed to be a risk to human health and public safety. Discharges authorized under a separate VPDES or state permit require no further action under this permit.

(4) Methodologies to determine the source of all illicit discharges. If the permittee is unable to identify the source of an illicit discharge within six months of beginning the investigation then the permittee shall document that the source remains unidentified. If the observed discharge is intermittent, the permittee shall document that attempts to observe the discharge flowing were unsuccessful.

(5) Methodologies for conducting a follow-up investigation for illicit discharges that are continuous or that permittees expect to occur more frequently than a one-time discharge to verify that the discharge has been eliminated except as provided for in Part I E 3 c (4);

(6) A mechanism to track all illicit discharge investigations to document the following:

a. The dates that the illicit discharge was initially observed, reported, or both;

b. The results of the investigation, including the source, if identified;

c. Any follow-up to the investigation;

d. Resolution of the investigation; and

e. The date that the investigation was closed.

Section 3 Illicit Discharge Definition

The City of Fairfax Zoning Ordinance defines an illicit discharge as any discharge to a municipal separate storm sewer that is not composed entirely of stormwater, except discharges pursuant to a separate VPDES or state permit (other than the state permit for discharges from the municipal separate storm sewer), and discharges identified by and in compliance with 9VAC25-870-400 and in §4.16 of the City of Fairfax Zoning Ordinance.

Section 4 Illicit Discharge Contaminates and Sources

City field staff should be aware of contaminates and sources of illicit discharges. Potential contaminates include but are not limited to the following:

- Trash or debris
- Construction materials
- Petroleum products (oil, gasoline, grease, fuel oil, heating oil, etc.)
- Antifreeze or other vehicle products
- Metals (particulate or dissolved)
- Flammable or explosive materials
- Radioactive material
- Batteries
- Acids, alkalis, or bases
- Paints, stains, resins, lacquers, or varnishes
- Degreasers and/or solvents

- Drain cleaners
- Pesticides, herbicides, or fertilizers
- Steam cleaning wastes
- Soaps, detergents, or ammonia
- Swimming pool filter backwash
- Chlorine, bromine, or other disinfectants
- Heated water
- Domestic animal waste
- Sewage
- Recreational vehicle waste
- Animal carcasses
- Food wastes
- Bark or other fibrous materials
- Lawn clippings, leaves, or branches
- Silt, sediment, concrete, cement, or gravel
- Dyes
- Chemicals, including suspected metals, not normally found in uncontaminated water
- Any other process-associated discharge
- Any hazardous material or waste not listed above

Section 5 Legal Procedures/First Response

Reports of suspected illicit discharges can come from a variety of sources, including: the City staff, colleagues of City staff, and the general public via telephone or the online "Reporting Illicit Discharge" link on the City website (*https://www.fairfaxva.gov/government/public-works/stormwater-and-floodplain-management/municipal-separate-storm-sewer-system-ms4*). The Fire Marshal's Office shall respond to all spills and issues regarding code compliance and may be the initial contact when a suspected illicit discharge is identified. If the discharge is identified as dangerous or hazardous, the Fire Marshal shall be notified immediately. If the nature and the source of the discharge can be immediately identified, the party responsible for causing the illicit discharge shall be immediately notified to cease the operations of activities at fault. The penalties and legal procedures regarding illicit discharge are found in Section §4.16.7.I. of the City of Fairfax Zoning Ordinance.

Section 6 IDDE Investigations Resulting from Dry Weather Screening

The Department of Public Works – Stormwater and Floodplain Management Division is responsible for all illicit discharge spill investigations that result from Dry Weather Screening activities. If the nature of the discharge is not immediately obvious, the Stormwater and Floodplain Management Division will use investigative strategies, as described in Section 8, to identify the discharge and locate the source. Potential Illicit Discharges identified during Dry Weather Screening shall be responded to with an investigation as soon as practicable, as follows:

- If the illicit discharge is active, an investigation shall be conducted as soon as practicable.
- If the illicit discharge is intermittent or historic, an investigation shall be conducted as soon as practicable, but within five days of receiving the report.

- If the illicit discharge is suspected of being sanitary sewage or significantly contaminated, it shall be prioritized for investigation first.
- If the illicit discharge is suspected of being less hazardous to human health and safety, the investigation may be delayed until after all suspected sanitary sewage or significantly contaminated discharges have been investigated and addressed.

Section 7 Dry Weather Screening

7.1 Storm Sewer Inventory Plan/Schedule of Activities

The City located all 180 MS4 outfalls that were present in Year 1 of the 2013-2018 Permit and continues to actively identify and track any newly constructed outfalls. The city plans to screen a minimum of 50 outfalls annually such that no more than 50 % of the outfalls were screened in the previous 12-month period. Priority will be given to outfalls based on the following criteria:

- Number of Historical illicit discharges
- Size of Contributing Drainage Area
- Variety of Land Use in the Drainage Area
- Geographic distribution within the MS4 regulated area

7.2 Dry Weather Screening Methodologies

A separate MS4 Outfall Dry Weather Screening Field Sheet, as shown in Appendix A, should be completed for each outfall. Biological indicators of the presence of bacteria should be used whenever possible and recorded when observed. The following additional observations shall be recorded, when applicable: pet stations, septic systems, uncontrolled discharges, and wildlife activity present in the contributing drainage area.

In addition to visual observation and documentation on the MS4 Outfall Dry Weather Screening Field Sheet, photo-documentation of each outfall shall also be recorded, including: the outfall; the receiving channel (looking upstream and downstream); and a broad perspective site photograph. Further, when applicable and feasible, the following additional parameters should also be photographed, particularly during the initial reconnaissance visit: representative land use/ land cover of the contributing drainage area; any outfalls observed, but not yet inventoried; and any notable evidence of bacteria sources in the contributing drainage area.

7.3 Dry Weather Screening Tracking

The City of Fairfax Department of Public Works - Stormwater and Floodplain Management Division will track all dry weather outfall screening information. Hard copies of each dry weather screening form and subsequent report will be kept for the length of the MS4 Permit term at minimum. Each form and report will also be scanned and maintained in electronic format.

Section 8 IDDE Tracking, Elimination, and Documentation

8.1 IDDE Investigations

Investigations should be conducted in one of the following manners:

- Storm drain network investigations: This isolates the discharge to a specific section of the drainage network through strategic manhole inspections.
    - Manhole inspections – Moving through the storm sewer system upstream from the outfall point or point in the system where an illicit discharge has been identified. Manholes closest to the outfall or discharge point should be investigated first, with staff progressively moving up the storm sewer system and inspecting manholes until it can be determined either where the source is coming in or between which two manholes the source is coming into the system. Visual observations should be used to look for presence of flow, colors, odors, floatable materials, or deposits or stains. **Do not enter the pipe** unless properly equipped and the required approval for confined space entry has been obtained**.** Photographs should be taken whenever possible.
- Drainage area investigations: Conducting surveys and analyses of the drainage area where the discharge has been located. This method is useful when the discharge has distinct or unique characteristics that can be linked to a specific business or operation.
    - Can include drive-by surveys of the drainage area to locate possible generating sites; and/or
    - GIS analysis to identify potential properties with septic systems, industrial and other potential generating sites.

A separate Illicit Discharge Investigation Form, as shown in Appendix B, should be completed for each suspected illicit discharge. Biological indicators of the presence of bacteria should be noted whenever possible and recorded when observed. The following observations shall be recorded, when applicable: location; time; date; name of observer; presence of flow; odors; color and presence of sheen; presence of floatables; stains/algae; and vegetative conditions.

In addition to visual observation and documentation on the Illicit Discharge Investigation Forms, photo-documentation of each suspected discharge shall also be recorded, whenever possible.

8.2 Source Tracking and Follow-up Procedures

The City of Fairfax will continually identify priority areas that are considered to be likely sources of illicit discharges. Priority areas include, but are not limited to:

- Commercial/industrial areas
- Areas with construction activities taking place
- Areas where repeated complaints have been reported
- Areas identified from water quality sampling data

If an illicit discharge is found, but within six months of the beginning of the investigation neither the source has been identified nor the same discharge has been observed again, it shall be documented and the investigation can be closed. If the observed/reported discharge is intermittent, separate attempts to observe the active discharge shall be made and documented. If these attempts are not successful, it shall be documented and the investigation can be closed. If the source of the discharge is determined to be the result of an operational activity, the activity shall be immediately stopped. Any remedial actions that can be taken to mitigate the discharge are assessed and implemented as appropriate.

If the source of the discharge is a spill or release of hazardous material, the City of Fairfax Fire Marshal's Office shall be called to respond to the situation and employ appropriate spill response measures. If the source of the discharge is the result of an illegal or illicit connection to the storm sewer system, measures to eliminate or disconnect the connection shall be employed in accordance with Section §4.16.7.I. of the City of Fairfax Zoning Ordinance.

8.3 Illicit Discharge Investigation Tracking

The City of Fairfax Department of Public Works will track all illicit discharge investigations. Hard copies of each investigation form and subsequent report will be kept for the length of the MS4 Permit term at minimum. Each form and report will also be scanned and maintained in electronic format.

APPENDIX A

MS4 Outfall Dry Weather Screening Field Sheet

City of Fairfax

MS4 Outfall Dry Weather Screening Field Sheet

Section 1: Background Data

Subwatershed:	Outfall ID:	
Today's date:	Time:	
Investigators:	Latitude:	Longitude:
Temperature (°F):	Last Rainfall (in.): End Date: End Time:	

Land Use in Drainage Area (Check all that apply):

☐ Industrial	☐ Open Space
☐ Urban Residential	☐ Institutional
☐ Suburban Residential	Other:
☐ Commercial	Known Industries:

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☐ **Closed Pipe**	☐ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other:	☐ Circular ☐ Elliptical ☐ 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:	
Flow Present?	☐ Yes ☐ No				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				
Approximate Depth of Flow (in.)					

City of Fairfax

Outfall Dry Weather Screening Field Sheet

Section 3: Physical Indicators for Flowing Outfalls Only

Are Any Physical Indicators Present in the flow? ☐ Yes ☐ No

INDICATOR	CHECK if Present	DESCRIPTION	RELATIVE SEVERITY INDEX (1-3) / COMMENTS		
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)
Deposits/Stains	☐	☐ Oily ☐ Flow Line ☐ Paint ☐ Other:			
Abnormal Vegetation	☐	☐ Excessive ☐ Inhibited			
Poor pool quality	☐	☐ Odors ☐ Colors ☐ Floatables ☐ Oil Sheen ☐ Suds ☐ Excessive Algae ☐ Other:			
Pipe benthic growth	☐	☐ Brown ☐ Orange ☐ Green ☐ Other:			

Section 4: Overall Outfall Characterization

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

Section 5: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)?

CONCERN	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage	☐	☐ Spalling/Cracking ☐ Misaligned/Separated Joints ☐ Other:	
Trash	☐	☐ Typical Trash ☐ Large Debris ☐ Other:	
Erosion	☐		
Other	☐		

APPENDIX B

Illicit Discharge Detection & Elimination Investigation Form

CITY OF FAIRFAX

Illicit Discharge Investigation Form

Responder Information				
Discharge Identified by Dry Weather Screening Program:		Yes:		No:
Call Taken By:_____		Call Date:_____		
Call Time:_____		Precipitation (in.) in the past 24-48 hrs.:_____		
Reporter Information				
Incident Time:_____		Incident Date:_____		
Caller Contact Information (*optional*):				
Incident Location				
Address or Outfall ID#:				
Closest Street Access:				
Nearby Landmark:				
Date of Field Investigation:		Time of Field Investigation:		
Outfall Location Description				
□ Stream Corridor (*In or adjacent to stream*)		□ Piped Outfall	□ In-stream Flow	□ Along Banks
□ Upland Area (*Land not adjacent to stream*)		□ Near Storm Drain	□ Near Other Water Source (stormwater pond, wetland, etc.)	
Narrative Description of Location and Outfall Appearance/Problem Indicators:				

Outfall Location Problem Indicator Description				
Odor	□ None	□ Sewage	□ Rancid/Sour	□ Petroleum
	□ Sulfide; Natural Gas	□ Other: Describe in Narrative Section		
Appearance	□ Normal	□ Oil Sheen	□ Cloudy	□ Suds
	□ Other: Describe in Narrative Section			
Floatables	□ None	□ Sewage	□ Algae	□ Dead Fish
	□ Other: Describe in Narrative Section			
Upland Problem Indicator Description				
□ Dumping		□ Oil/Solvents/Chemicals	□ Sewage	
□ Wash water, Suds, etc.		□ Other:_____		
Suspected Violator (Name, personal or vehicle description, license plate #, address, etc.):				
Narrative Description of IDDE Investigation:				
Is a Photolog Include With This Report:		Yes:	No:	
Description of Necessary Actions:				
Next inspection date:				