# Monitoring Location Inspection and Sampling Program

Jefferson County Stormwater Coalition

Updated: 2025

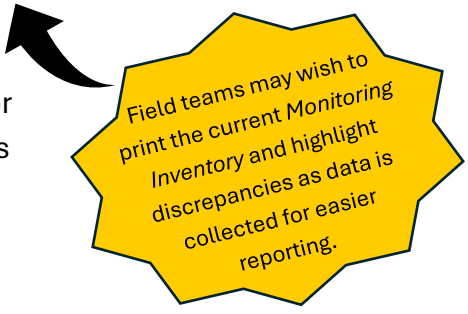
## Training Requirements:

1) If new staff are added, training on the MS4 Operator's monitoring locations inspection and sampling procedures must be given prior to conducting monitoring inspections and/ or sampling procedures.
2) For existing staff, training on the MS4 Operator's monitoring locations inspection and sampling procedures must be given at least once every five (5) years, thereafter.
3) If the monitoring locations inspection and sampling procedures are updated, training on the updates must be given to all staff prior to conducting monitoring locations inspections and sampling.

**The names, titles, and contact information for the individuals who have received monitoring locations inspection and sampling procedures training must be updated annually by April 1 and recorded in the SWMP Plan.

## Sampling Program Overview:

- Each monitoring location listed in the MS4's Monitoring Inventory will be inspected **at least once** every five years
- Sampling must be done during dry weather[1]
- Documentation of all monitoring location inspections, including any sampling results, will be recorded using the Monitoring Locations Inspection and Sampling Field Sheet[2] (Appendix D of the MS4 General Permit: GP-0-24-001).
    - Completed Field Sheets will be kept in a binder in the municipal office for inclusion in the SWMP Plan.
        - Any photos taken should accompany the corresponding sheet
    - If material, shape, dimensions, or submersion level in water/ sediment has changed since the previous inspection, this information **must** be reported to Jefferson County SWCD for inclusion in the annual SWMP and GIS mapping
- **All** monitoring locations with inspections indicating *suspect* or *obvious* illicit discharge must be sampled **unless** the source is clear and discernible (e.g. sewage).




[1] Dry weather is defined as: prolonged dry periods; at least 48 hours after the last runoff event
[2] Included as Appendix A of this document for ease of reference

- Sampling requirements will be based on the number and severity of physical indicators present in the flow to better inform track-down procedures
    - Sampling may be done with field test kits or field instrumentation that are sufficiently sensitive to detect the parameter below the sampling action level.[3] Table 39 indicates which parameter(s) crews may want to test for, depending on the suspected pollutant source.

**Table 39: Indicator Parameters Used to Detect Illicit Discharges**

| Parameter | Discharge Types It Can Detect | | | | Laboratory/Analytical Challenges |
|---|---|---|---|---|---|
| | Sewage | Washwater | Tap Water | Industrial or Commercial Liquid Wastes | |
| Ammonia | ● | ◉ | ○ | ◉ | Can change into other nitrogen forms as the flow travels to the outfall |
| Boron | ◉ | ◉ | ○ | N/A | |
| Chlorine | ○ | ○ | ○ | ◉ | High chlorine demand in natural waters limits utility to flows with very high chlorine concentrations |
| Color | ◉ | ◉ | ○ | ◉ | |
| Conductivity | ◉ | ◉ | ○ | ◉ | Ineffective in saline waters |
| Detergents – Surfactants | ● | ● | ○ | ◉ | Reagent is a hazardous waste |
| *E. coli*<br>Enterococci<br>Total Coliform | ◉ | ○ | ○ | ○ | 24-hour wait for results<br>Need to modify standard monitoring protocols to measure high bacteria concentrations |
| Fluoride* | ○ | ○ | ● | ◉ | Reagent is a hazardous waste<br>Exception for communities that do not fluoridate their tap water |
| Hardness | ◉ | ◉ | ◉ | ◉ | |
| pH | ○ | ◉ | ○ | ◉ | |
| Potassium | ◉ | ○ | ○ | ● | May need to use two separate analytical techniques, depending on the concentration |
| Turbidity | ◉ | ◉ | ○ | ◉ | |

● Can almost always (>80% of samples) distinguish this discharge from clean flow types (e.g., tap water or natural water). For tap water, can distinguish from natural water.
◉ Can sometimes (>50% of samples) distinguish this discharge from clean flow types depending on regional characteristics, or can be helpful in combination with another parameter
○ Poor indicator. Cannot reliably detect illicit discharges, or cannot detect tap water
N/A: Data are not available to assess the utility of this parameter for this purpose.
Data sources: Pitt (this study)
*Fluoride is a poor indicator when used as a single parameter, but when combined with additional parameters (such as detergents, ammonia and potassium), it can almost always distinguish between sewage and washwater.

**Source:** *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments* (2024), p. 122

[3] Refer to Chapter 12 of the *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments* (Oct 2024). Kit requirements for testing each parameter can be found in Table 42, on page 127.

        - If sent for testing, samples **do not** need to be sent to an ELAP Certified laboratory, as required under most state programs
- If a monitoring location is characterized as having suspect or obvious illicit discharge, the MS4's Illicit Discharge Track Down Procedure should be initiated
    - **Timeframes for Track Down Procedure Initiation** are as follows:
        - Suspect illicit discharges: **5 days**
        - Obvious illicit discharges: **24 hours**
        - Obvious illicit discharges of sanitary water that are a **direct threat to human health**[4]: **2 hours**
            - Discharges that are threats to human health **must be reported** to the regional water engineer and health department

| Contact Information | |
|---|---|
| **Regional Water Engineer:** | matthew.duffany@dec.ny.gov |
| **Health Department:** | 315-785-2277 |

- Monitoring locations with a physical indicator not related to flow[5] must be reinspected within 30 days
    - This inspection must follow the techniques described in Chapter 12.6 of the Center for Watershed Protection Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assistance, October 2004 (CWP 2004) or equivalent.

      These techniques include:
        - Odd hours Monitoring (p139)
        - Optical brightener traps (p 139)
        - Caulk damns (p140)
        - Pool sampling (p 140)
        - Toxicity monitoring (p140)
    - If physical indicators persist OR the above tests show suspected illicit discharges, the MS4 Operator **must initiate** illicit discharge **Track Down Procedures**

[4] Sewage discharging to bathing areas, shell fishing areas, or public water intakes

[5] Potential indicators include: monitoring location deposits or stains, toilet paper residue, abnormal vegetation growth, poor pool quality, etc. Any of these signs may indicate the presence of intermittent or transitory illicit discharges.

# Appendix A:

## *Monitoring Locations Inspection and Sampling Field Sheet*

(see next page)

# Monitoring Locations Inspection and Sampling Field Sheet

## Section 1: Background Data

| | | | |
|---|---|---|---|
| Subwatershed: | | Monitoring Location 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
- ☐ Ultra-Urban Residential
- ☐ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

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

## Section 2: Monitoring Location Description

| LOCATION | MATERIAL | SHAPE | DIMENSIONS (IN.) | SUBMERGED |
|---|---|---|---|---|
| ☐ **Closed Pipe** | ☐ RCP ☐ CMP<br>☐ PVC ☐ HDPE<br>☐ Steel<br>☐ Other: _____ | ☐ Circular ☐ Single<br>☐ Elliptical ☐ Double<br>☐ Box ☐ Triple<br>☐ Other: _____ ☐ Other: _____ | Diameter/Dimensions:<br>_____ | In Water:<br>☐ No<br>☐ Partially<br>☐ Fully<br>With Sediment:<br>☐ No<br>☐ Partially<br>☐ Fully |
| ☐ **Open drainage** | ☐ Concrete<br>☐ Earthen<br>☐ Rip-Rap<br>☐ Other: ____ | ☐ Trapezoid<br>☐ Parabolic<br>☐ Other: ____ | Depth: ____<br>Top Width: ___<br>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 | | | |

## Section 3: Quantitative Characterization

| FIELD DATA FOR FLOWING MONITORING LOCATIONS | | | | |
|---|---|---|---|---|
| **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 | Stopwatch |
| Temperature | | | °F | Thermometer |
| pH | | | pH Units | Test strip/Probe |
| Ammonia | | | mg/L | Test strip |

## Monitoring Locations Inspection and Sampling Field Sheet

### Section 4: Physical Indicators for Flowing Monitoring Locations 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 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) |

### Section 5: Physical Indicators for Both Flowing and Non-Flowing Monitoring Locations

Are physical indicators that are not related to flow present? ☐ Yes ☐ No (*If No, Skip to Section 6)*

| INDICATOR | CHECK if Present | DESCRIPTION | COMMENTS |
|---|---|---|---|
| Monitoring Location Damage | ☐ | ☐ Spalling, Cracking or Chipping ☐ Peeling Paint ☐ Corrosion | |
| 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 6: Overall Monitoring Location 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)?