ILLICIT DISCHARGE DETECTION & ELIMINATION PLAN:

WHAT IS IT AND WHY DO I NEED ONE?

2022 IAFSM Conference

March 9, 2022

Presentation Outline:

- What is an IDDE?
- Why is an IDDE Necessary?
- Types of Illicit Discharges
- Common Conditions Generating Illicit Discharges
- General NPDES ILR40 Requirements
- Simple IDDE Plan Components
- IDDE Reality Check
- IDDE Guidance Materials

Stormwater Best Management Practice

Illicit Discharge Detection and Elimination Program Development

Minimum Measure: Illicit Discharge Detection and Elimination and the Subcategory
Subcategory: Developing an IDDE Program

Permits for Clean Water

NPDES

Description

Illicit discharges generally include any discharge into a municipal separate storm sewer system (MS4) permitted storm drain that does not consist entirely of stormwater. Illicit discharges are a problem because, unlike wastewater that flows to a treatment plant, stormwater generally flows to waterways without any additional treatment. Illicit discharges can contain pathogens, nutrients and various toxic chemicals. Common examples of illicit discharges include concrete or paint washout, waste from restaurants and mechanics, trash, and sewage.

Exceptions are referred to as "allowable discharges," and each MS4's permit outlines them. They typically include water from firefighting activities and residential car washes, potable water, and discharges from facilities already under a National Pollutant Discharge Elimination System permit.

Program Development

MS4s need to develop an illicit discharge detection and elimination (IDDE) program, which primarily includes creating:

- Storm sewer system maps
- Ordinances prohibiting illicit discharges
- Inspection and enforcement programs
- Education programs on the hazards associated with illicit discharges
- Plans to detect and address illicit discharges

As the name "IDDE" suggests, detecting and addressing illicit discharges are the main goals of an IDDE program. Illicit discharges have two modes of entry into the MS4: direct or indirect entry. Direct entry means the source connects directly to the MS4 through a pipe or drain-type conveyance. Examples of direct discharges are sanitary sewer cross connections or straight pipes intentionally connected to the MS4. Indirect entry occurs when the source of the illicit discharge flows into the MS4 via

Potential illicit discharge flowing out of a concrete outfall. Confirming an illicit discharge may require sampling or other investigative methods to determine the pollutant and responsible party.

Credit: Photo by Pikrepo

storm drain inlets or infiltration through cracks or joints in the storm sewer network. Indirect entry is far more common than direct entry. Examples of sources of indirect entry include failing septic systems, sanitary sewer overflows, groundwater seepage, spills and dumping, irrigation, and washing activities. The *Illicit Discharge Detection and Elimination* guidance manual (see link below) contains additional information.

Sewage has the greatest potential to produce direct illicit discharges within any urban sub-watershed, regardless of the diverse land uses that the sub-watershed comprises. The most common sewage-related direct discharges are broken sanitary sewer lines, cross connections and straight pipe discharges. There are a variety of techniques to locate and eliminate illegal sewage connections, including tracing sewage flows from the stream or outfall back up the sewer system or conveyances to reach the problem connection. Sewage can also be linked to significant indirect illicit discharges in the form of sanitary sewer overflows, sewage infiltration/inflow and sewage dumping from recreational vehicles.

An effective IDDE program should be proactive to prevent and eliminate illicit discharges through

https://www.epa.gov/npdes

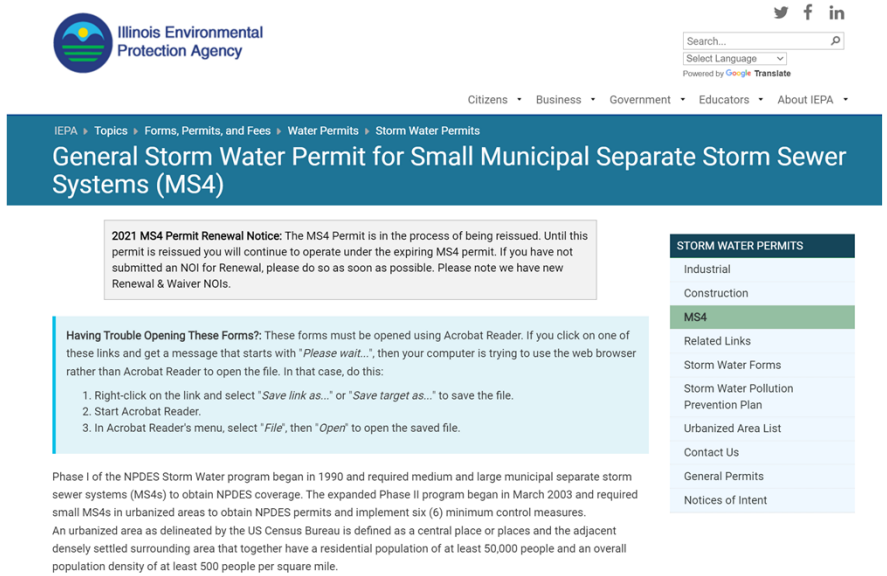
EPA-832-F-21-029D
December 2021

What is an IDDE Plan?

- An IDDE plan is a program that lays out the procedures to detect, eliminate, and prevent illicit or illegal connections to the Municipal Separate Storm Sewer System (MS4).
- Illicit Discharge defined in General NPDES Permit ILR40.
- An illicit discharge is any discharge to the storm sewer system that is not entirely composed of storm water, except:
  - Flows authorized by an NDPES permit (e.g., fire hydrant flushing & foundation drains).
  - Discharges resulting from fire fighting activities.
- An illicit connection is any man-made conveyance connecting an illicit discharge directly to an MS4 (e.g., cross connection from sanitary sewer).

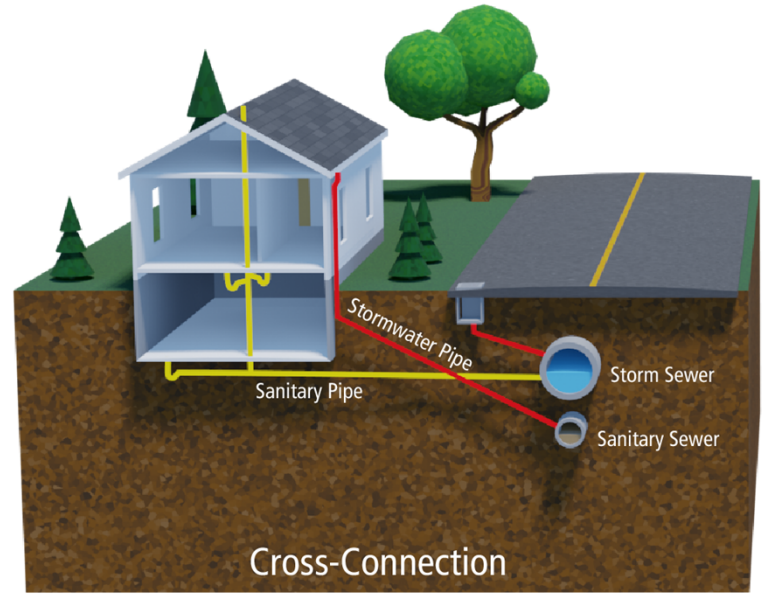
Why is an IDDE Necessary?

- As an MS4 owner, the NPDES Permit ILR40 issued by IEPA requires the permittee to have an IDDE plan, implement the plan, and keep it up to date.
- Illicit connections to the storm sewers may be discharging pollutants of varying types and concentrations into the receiving streams. This causes water quality violations and deteriorates the water we depend on for supply, recreation, and habitat.
- It is a tool in the overall stormwater management toolbox to maintain the quality of public waters.
- As water professionals, we owe it to the public to monitor for these potential conditions.



Types of Illicit Discharges

- **Direct:**
  - Sewer service pipes connected to storm sewer.
  - Building floor drains connected to storm sewer.
  - Illegal dumping of pollutants into storm sewer.



- **Indirect:**
  - Nearby sanitary sewers leaking into storm sewers.
  - Failing septic systems leaking into cracked storm sewers.
  - Other underground leaking tanks (oil, fuel).

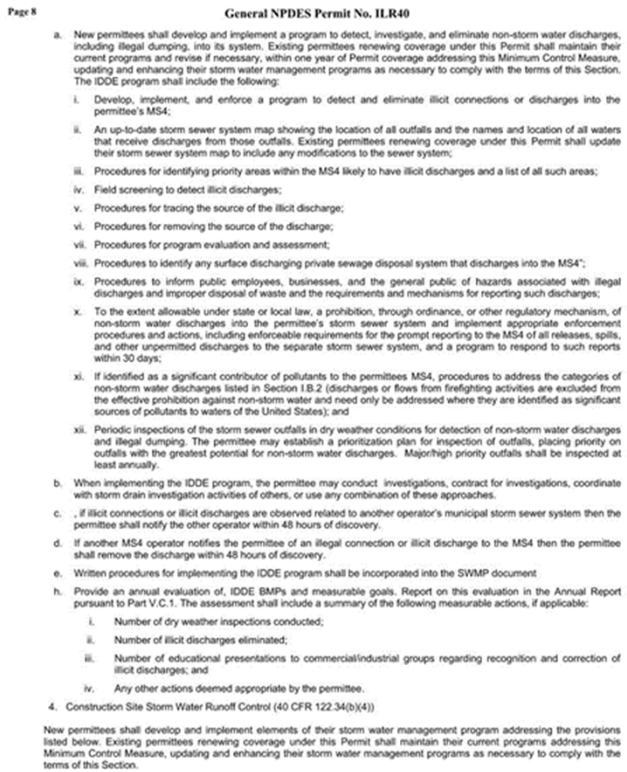
Common Conditions Generating Illicit Discharge

- Combined sewers converted to storm sewers but still have active services connected.
- Incomplete sanitary sewer network intended for failing septic systems.
- Areas with history of substandard construction techniques (e.g., sewer services connected to storm sewer).
- Uninformed property owners not sure what to do with used chemicals (e.g., dumping used motor oil).
- Illegal dumping – blatant violators that don't care.

Illinois Environmental Protection Agency

NPDES Permit ILR40 Requirements

- Under Part IV–Storm Water Management Programs
- 6 Minimum Control Measures (MCMs)
  1. Education and Outreach on Storm Water Impacts.
  2. Public Involvement and Participation.
  3. **Illicit Discharge Detection and Elimination (IDDE).**
  4. Construction Site Storm Water Runoff Control.
  5. Post Construction Storm Water Management for New Development and Redevelopment.
  6. Pollution Prevention / Good Housekeeping for Municipal Operations.



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General NPDES Permit No. ILR40

a. New permittees shall develop and implement a program to detect, investigate, and eliminate non-storm water discharges, including illegal dumping, into its system. Existing permittees renewing coverage under this Permit shall maintain their current programs and revise if necessary, within one year of Permit coverage addressing this Minimum Control Measure, updating and enhancing their storm water management programs as necessary to comply with the terms of this Section. The IDDE program shall include the following:

i. Develop, implement, and enforce a program to detect and eliminate illicit connections or discharges into the permittee's MS4;

ii. An up-to-date storm sewer system map showing the location of all outfalls and the names and location of all waters that receive discharges from those outfalls. Existing permittees renewing coverage under this Permit shall update their storm sewer system map to include any modifications to the sewer system;

iii. Procedures for identifying priority areas within the MS4 likely to have illicit discharges and a list of all such areas;

iv. Field screening to detect illicit discharges;

v. Procedures for tracing the source of the illicit discharge;

vi. Procedures for removing the source of the discharge;

vii. Procedures for program evaluation and assessment;

viii. Procedures to identify any surface discharging private sewage disposal system that discharges into the MS4";

ix. Procedures to inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste and the requirements and mechanisms for reporting such discharges;

x. To the extent allowable under state or local law, a prohibition, through ordinance, or other regulatory mechanism, of non-storm water discharges into the permittee's storm sewer system and implement appropriate enforcement procedures and actions, including enforceable requirements for the prompt reporting to the MS4 of all releases, spills, and other unpermitted discharges to the separate storm sewer system, and a program to respond to such reports within 30 days;

xi. If identified as a significant contributor of pollutants to the permittees MS4, procedures to address the categories of non-storm water discharges listed in Section I.B.2 (discharges or flows from firefighting activities are excluded from the effective prohibition against non-storm water and need only be addressed where they are identified as significant sources of pollutants to waters of the United States); and

xii. Periodic inspections of the storm sewer outfalls in dry weather conditions for detection of non-storm water discharges and illegal dumping. The permittee may establish a prioritization plan for inspection of outfalls, placing priority on outfalls with the greatest potential for non-storm water discharges. Major/high priority outfalls shall be inspected at least annually.

b. When implementing the IDDE program, the permittee may conduct investigations, contract for investigations, coordinate with storm drain investigation activities of others, or use any combination of these approaches.

c. , if illicit connections or illicit discharges are observed related to another operator's municipal storm sewer system then the permittee shall notify the other operator within 48 hours of discovery.

d. If another MS4 operator notifies the permittee of an illegal connection or illicit discharge to the MS4 then the permittee shall remove the discharge within 48 hours of discovery.

e. Written procedures for implementing the IDDE program shall be incorporated into the SWMP document

h. Provide an annual evaluation of, IDDE BMPs and measurable goals. Report on this evaluation in the Annual Report pursuant to Part V.C.1. The assessment shall include a summary of the following measurable actions, if applicable:

i. Number of dry weather inspections conducted;

ii. Number of illicit discharges eliminated;

iii. Number of educational presentations to commercial/industrial groups regarding recognition and correction of illicit discharges; and

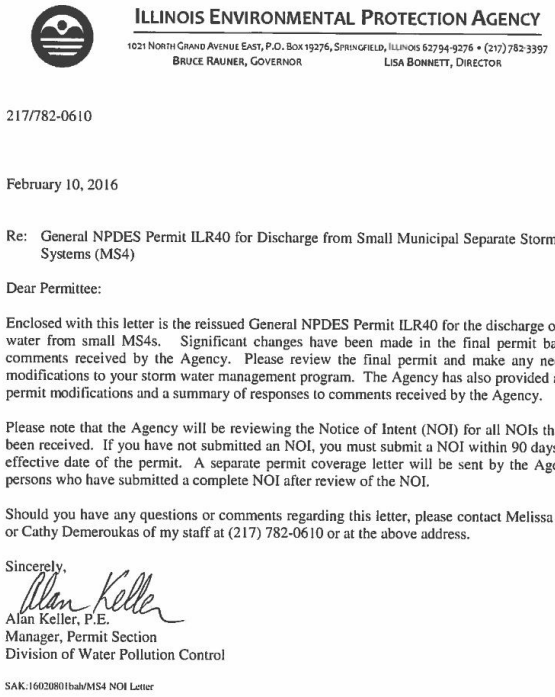
iv. Any other actions deemed appropriate by the permittee.

4. Construction Site Storm Water Runoff Control (40 CFR 122.34(b)(4))

New permittees shall develop and implement elements of their storm water management program addressing the provisions listed below. Existing permittees renewing coverage under this Permit shall maintain their current programs addressing this Minimum Control Measure, updating and enhancing their storm water management programs as necessary to comply with the terms of this Section.

NPDES Permit ILR40 Requirements

- Latest permit version expired on February 28, 2021. MS4's are to operate on this permit until new general permit is issued.
- Focus on the requirements of the Draft Permit released on August 27, 2021- Part IV.B.3, since IEPA is anticipating this version to become effective soon.
- IEPA requires compliance with new provisions by March 31, 2024.
- IDDE could be part of an overall storm water management document or stand-alone.
- Actions to mitigate illicit discharges are Best Management Practices (BMPs).



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 North Grand Avenue East, P.O. Box 19276, Springfield, Illinois 62794-9276 • (217) 782-3397

Bruce Rauner, Governor — Lisa Bonnett, Director

217/782-0610

February 10, 2016

Re: General NPDES Permit ILR40 for Discharge from Small Municipal Separate Storm Sewer Systems (MS4)

Dear Permittee:

Enclosed with this letter is the reissued General NPDES Permit ILR40 for the discharge of storm water from small MS4s. Significant changes have been made in the final permit based on comments received by the Agency. Please review the final permit and make any necessary modifications to your storm water management program. The Agency has also provided a list of permit modifications and a summary of responses to comments received by the Agency.

Please note that the Agency will be reviewing the Notice of Intent (NOI) for all NOIs that have been received. If you have not submitted an NOI, you must submit a NOI within 90 days of the effective date of the permit. A separate permit coverage letter will be sent by the Agency to persons who have submitted a complete NOI after review of the NOI.

Should you have any questions or comments regarding this letter, please contact Melissa Parrott or Cathy Demeroukas of my staff at (217) 782-0610 or at the above address.

Sincerely,

Alan Keller

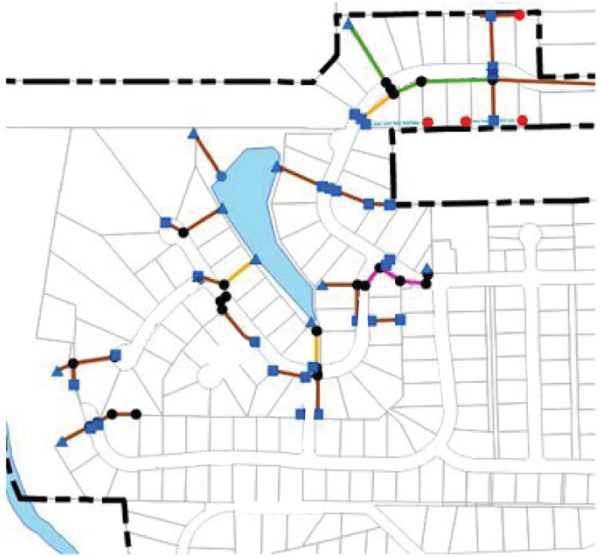
Alan Keller, P.E.
Manager, Permit Section
Division of Water Pollution Control

SAK:16020801bah/MS4 NOI Letter

NPDES Permit ILR40 Requirements

IV.B.3.a. An IDDE shall include (abbreviated descriptions):

- **i. Develop, implement, and enforce a program to detect and eliminate illicit discharges into the MS4**
  - This is the overarching goal
- **ii. Up-to-date storm sewer map showing all outfalls, including the name & location of waters that receive discharge from outfalls.**
  - Paper, Mylar, CAD, or GIS.
  - Check for internet sources available to establish base maps.
- **iii. Procedures for identifying priority areas in the system likely to have illicit discharges:**
  - When reviewing historical documents of the system, do you have any of the following likely to cause illicit discharges?
    - Former combined sewer areas?
    - Septic systems to be eliminated?
    - Areas with substandard construction?
    - Prior illegal dumping ?



NPDES Permit ILR40 Requirements

IV.B.3.a. An IDDE shall include (abbreviated descriptions):

- **iv. Field screening procedures to detect illicit discharges:**
  - Develop a routine for inspecting outfalls.
  - Dedicate a certain day of every quarter/year to examine outfalls.
  - Enlist the help of other departments or citizen groups to assist.
  - Maintain records of this screening, even if nothing is detected.
  - If televising storm sewers, take note of any pipe connections or discharges and follow-up to determine source.
- **v. Procedures for tracing the illicit discharge source:**
  - Have a form to document any illicit discharges.
  - Keep copies of the form in the truck(s).
  - If dry weather flow is detected, review for:
    - Temperature
    - Color
    - Odor
    - Turbidity
    - Floatables
  - Review outfall for deposits, stains, and heavy vegetation.

NPDES Permit ILR40 Requirements

IV.B.3.a. An IDDE shall include (abbreviated descriptions):

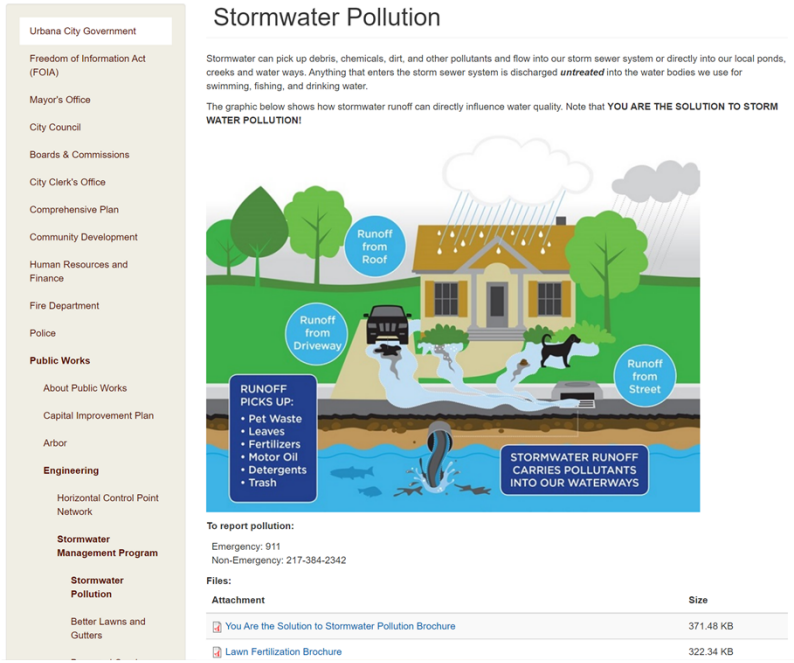
- **vi. Procedures for removing the source of discharges:**
  - Put standard operating procedures (SOP) in place to outline how illicit discharges will be removed once confirmed.
  - SOP should be posted and accessible to public works and municipal leaders.
- **vii. Procedures for program evaluation and assessment:**
  - Review performance annually at budget time.
  - What worked well last year and what did not?
  - Update the plan accordingly.
- **viii. Procedures to identify private septic systems that discharge into the MS4:**
  - Where are the septic systems in relation to storm sewer?
  - Review septic inspection records.
  - Are there any repeat offenders?
  - Follow up with non-compliant property owners.

NPDES Permit ILR40 Requirements

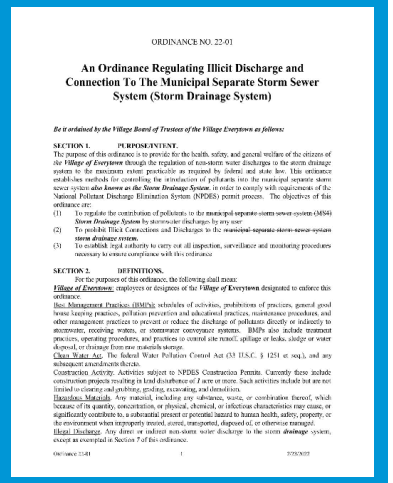
IV.B.3.a. An IDDE shall include (abbreviated descriptions):

- **ix. Procedures to inform the municipal employees, residents, businesses, and general public about**:
  - Hazards associated with illicit discharges.
  - Improper disposal of waste and ordinance requirements.
  - Mechanisms for reporting illicit discharges.

- Use communication methods you are comfortable with:
  - Bill inserts
  - Website
  - Social media
  - TV & radio ads
  - Count this effort towards MCMs 1 and 2



NPDES Permit ILR40 Requirements



ORDINANCE NO. 22-01

An Ordinance Regulating Illicit Discharge and Connection To The Municipal Separate Storm Sewer System (Storm Drainage System)

Be it ordained by the Village Board of Trustees of the Village Everytown as follows:

SECTION 1. PURPOSE/INTENT.

The purpose of this ordinance is to provide for the health, safety, and general welfare of the citizens of *the Village of Everytown* through the regulation of non-storm water discharges to the storm drainage system to the maximum extent practicable as required by federal and state law. This ordinance establishes methods for controlling the introduction of pollutants into the municipal separate storm sewer system *also known as the Storm Drainage System*, in order to comply with requirements of the National Pollutant Discharge Elimination System (NPDES) permit process. The objectives of this ordinance are:

(1) To regulate the contribution of pollutants to the ~~municipal separate storm sewer system (MS4)~~ ***Storm Drainage System*** by stormwater discharges by any user

(2) To prohibit Illicit Connections and Discharges to the ~~municipal separate storm sewer system~~ ***storm drainage system.***

(3) To establish legal authority to carry out all inspection, surveillance and monitoring procedures necessary to ensure compliance with this ordinance

SECTION 2. DEFINITIONS.

For the purposes of this ordinance, the following shall mean:

Village of Everytown: employees or designees of the *Village of* **Everytown** designated to enforce this ordinance.

Best Management Practices (BMPs): schedules of activities, prohibitions of practices, general good house keeping practices, pollution prevention and educational practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants directly or indirectly to stormwater, receiving waters, or stormwater conveyance systems. BMPs also include treatment practices, operating procedures, and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from raw materials storage.

Clean Water Act: The federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.), and any subsequent amendments thereto.

Construction Activity: Activities subject to NPDES Construction Permits. Currently these include construction projects resulting in land disturbance of *1* acre or more. Such activities include but are not limited to clearing and grubbing, grading, excavating, and demolition.

Hazardous Materials: Any material, including any substance, waste, or combination thereof, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, a substantial present or potential hazard to human health, safety, property, or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Illegal Discharge: Any direct or indirect non-storm water discharge to the storm ***drainage*** system, except as exempted in Section 7 of this ordinance.

Ordinance 22-01 1 2/23/2022

IV.B.3.a. An IDDE shall include (abbreviated descriptions):

- **x. Approve an IDDE ordinance that**:
  - Prohibits non-storm water discharges.
  - Includes appropriate enforcement procedures and actions.
  - Requires prompt reporting of all discharges and spills (typically within 24 hours).
  - Contains a program to respond to such reports (within 30 days).
- Use the template on USEPA website to get started.
- Review other municipal ordinances for ideas.
- Coordinate ordinance development/review with legal counsel.

NPDES Permit ILR40 Requirements

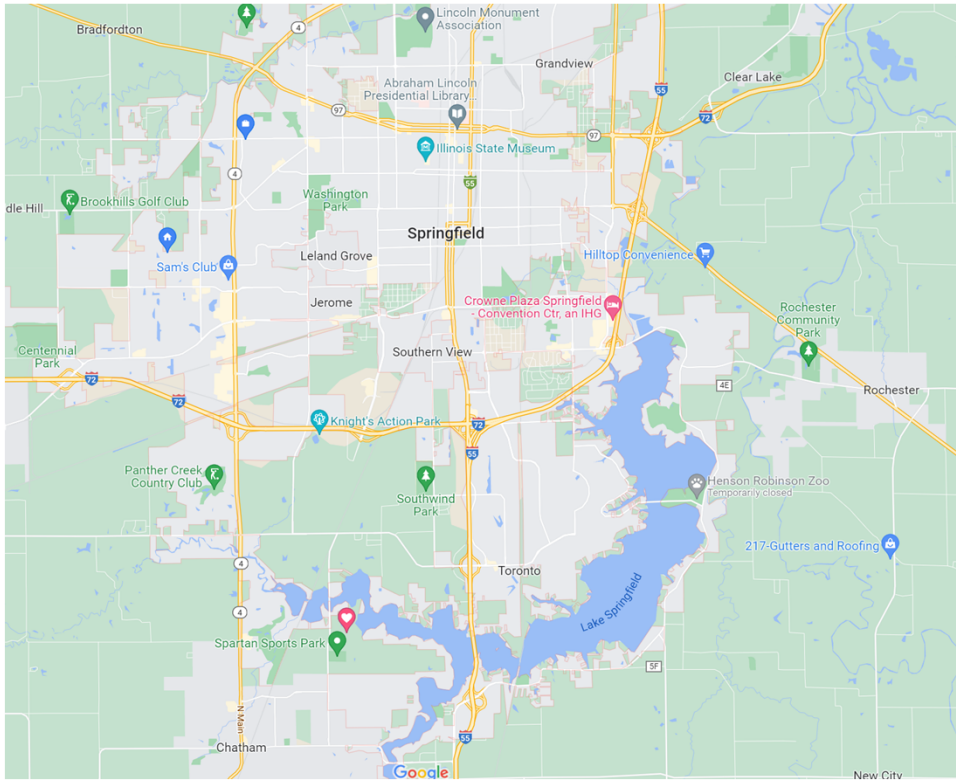
IV.B.3.a. An IDDE shall include (abbreviated descriptions):

- **xi. If any of the *permitted non-storm water discharges* are identified to be contributing significantly to pollutant loads, develop procedures to address these discharges:**
  - Examples: building washdown and storm sewer cleaning water.
  - Remedy: require those discharges to be captured for treatment.
- **xii. Periodic inspection of outfalls in dry weather conditions for illicit discharges**:
  - Prepare a prioritization plan that emphasizes outfalls with higher potential for non-storm water discharges (See IV.B.3.a.iii).
  - Inspect high priority outfalls annually (minimum)(suggest quarterly).

NPDES Permit ILR40 Requirements

IV.B.3.a. An IDDE shall include (abbreviated descriptions):

- **b. For implementation, conduct investigations, contract for investigations, coordinate with storm drain investigations, or a combination thereof.**
  - In other words, do what you need to do to investigate illicit discharges.
- **c. Notify other MS4 operators of illicit discharges observed in their system within 48 hours.**
- **d. If another MS4 operator notifies you of an illicit discharge, remove within 48 hours.**
  - Get to know neighboring municipal operators to share contacts, information, and data.



NPDES Permit ILR40 Requirements

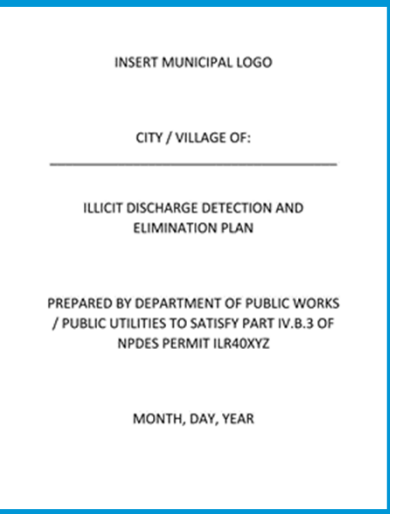
IV.B.3.a. An IDDE shall include (abbreviated descriptions):

- **e. Written procedures for implementing the IDDE program:**
  - Prepare a draft set of procedures and request peer review.
  - Keep it simple at first to see how it works and add more details as required.
  - Post the procedures on bulletin board / network and share with leadership.
  - Identify recurring activities on the department calendar.

NPDES Permit ILR40 Requirements

IV.B.3.a. An IDDE shall include (abbreviated descriptions):

- **h. Annually evaluate the IDDE BMPs and measurable goals. Evaluation shall include:**
  - i. Number of dry weather inspections performed.
  - ii. Number of illicit discharges eliminated.
  - iii. Number of educational presentations made to homeowner, commercial or industrial groups regarding illicit discharges.
  - Iv. Any other efforts by the permittee to reduce the potential for or eliminate an illicit discharge.
  - Document these conditions and activities, summarize your findings, and include them in your annual report to IEPA.



Simple IDDE Plan Outline

- **Introduction and Initial Field Screening Efforts:**
  - Provide short introduction to lay groundwork for this effort.
  - Utilize current storm sewer map to color code priority areas and outfalls.
- **Definitions / Terms:**
  - Define key terms so staff understands what to look for.
- **Establish annual dry weather and wet weather screening of outfalls:**
  - Determine dry weather inspection frequency (e.g., annually or more) (high priority outfalls must be inspected annually).
  - Determine wet weather frequency (e.g., after every rainfall > 0.5 inch).

Simple IDDE Plan Outline - Continued

- Establish the authorized enforcement agency:
  - Reference the approved IDDE ordinance # and its location.
  - Identify which municipal department is responsible for performing inspections and issuing fines:
    - Public Works Dept. or Code Enforcement?
  - List specific contact information for person responsible for issuing cease and desist orders, violation notices, fines, etc.:
    - Public Works Director, Code Official, or someone else?
- If hazardous spill discovered, notify IEPA immediately: **1-800-782-7860.**
- If dry a weather discharge is discovered with color, odor, turbidity, oil sheen, floatables, etc., collect a sample and test for detergents and ammonia.

Simple IDDE Plan Outline - Continued

- Establish procedures for responding to an illicit discharge:
  - Pollution concern contacts:
    - Determine who is *person in responsible charge:*
      - Public Works Director, Supt. Of Sewers, or someone else?
    - Respond within 48 hours, providing direction.
    - Collect evidence of discharge(s).
    - Follow-up with *person in responsible charge*.
  - Drainage area investigations:
    - Reasonable evidence of an illicit discharge?
    - Perform parcel-by-parcel review of discharge potential within the drainage area, checking the following:
      - Land use
      - Building permits
      - Construction drawings (plan or record)
      - Property ownership records

Simple IDDE Plan Outline - Continued

- Establish procedures for responding to an illicit discharge:
  - Storm drain network investigations:
    - Narrow source down to segment(s) of storm sewer.
    - Start at downstream end and work upstream.
    - Use available techniques to identify discharge sources:
      - CCTV
      - Smoke Testing
      - Dye Water Testing
      - Grab Sampling
    - Review investigation results.
    - If responsible property owner is clear, notify them immediately.
    - If responsible property owner is not clear, proceed with on-site discharge investigation.

Simple IDDE Plan Outline - Continued

- Establish procedures for responding to an illicit discharge:
  - On-site discharge investigation:
    - Illicit discharge has been isolated to a specific sewer segment.
    - Identify properties with potential for illicit discharge.
    - Start a conversation with property owners to see if any are having plumbing problems or have seen suspicious activity.
    - Offer to assist with checking plumbing systems.
    - Use ordinance authority to request permission to enter private property.
    - Test residential / building plumbing systems for discharge potential using same techniques noted above.
    - Assess findings and report to *person in responsible charge*.

Simple IDDE Plan Outline - Continued

- Establish procedures for responding to an illicit discharge:
  - Correction and enforcement:
    - Notify responsible property owner of violation as result of the aforementioned procedures (within 7 days).
    - Cite ordinance language.
    - Issue written violation notice and potential fines.
    - Deliver or send violation notice via courier or certified mail.
    - Follow up with responsible property owner if no response is received.

DEPARTMENT OF BUILDING INSPECTION
City and County of San Francisco
1660 Mission St. • San Francisco, CA 94103 - 2414

☐FIRST NOTICE
☐SECOND NOTICE
☐OTHER: _____

COMPLAINT NUMBER

ADDRESS _____ DATE _____

OCCUPANCY / USE _____ BLOCK _____ LOT _____

CONST. TYPE _____ STORIES _____ ☐BASEMENT

☐ If checked, this information is based upon site observation only. Further research may indicate that legal use is different. If so, a revised Notice of Violation will be issued.

OWNER / AGENT _____ PHONE # _____

MAILING ADDRESS _____ CITY _____ ZIP _____

PERSON CONTACTED @ SITE _____ PHONE # _____

VIOLATION DESCRIPTION:

☐WORK WITHOUT PERMIT (SFBC 103A); ☐ADDITIONAL WORK-PERMIT REQUIRED (SFBC 106A.4.7);

☐EXPIRED PERMIT (SFBC 106A.4.4); ☐CANCELLED PERMIT (SFBC 106A.3.7) PA# _____;

☐UNSAFE BUILDING (SFBC 102A); ☐SEE ATTACHMENTS

CODE / SECTION #

BC - Building Code HC - Housing Code PC - Plumbing Code EC - Electrical Code MC- Mechanical Code

  - **Suggestion: check your municipal facilities first to make sure you're in compliance and take credit in MCM 6!**

IDDE Reality Check

- Does your plan meet the minimum ILR40 requirements?
- Have IDDE processes been incorporated into routine field work?
- What are you observing and documenting?
- Do results necessitate doing more?
- Do you have funds budgeted to execute the plan?
- Start simple and keep it simple if you don't have problems with illicit discharges.
- Review other MCMs that support IDDE.

IDDE GUIDANCE

- New England Interstate Water Pollution Control Commission – Illicit Discharge Detection and Elimination Manual, January 2003 https://www.neiwpcc.org/neiwpcc_docs/iddmanual.pdf
- Center for Watershed Protection – Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments, October 2004 https://owl.cwp.org/mdocs-posts/idde-guidance-manual/
- https://owl.cwp.org/
- https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater-illicit-discharge-detection-and

THANK YOU.

QUESTIONS?

CMT
Crawford, Murphy & Tilly

Tim Sumner, PE, CFM, CSM

217-572-1051

tsumner@cmtengr.com