

THE CITY OF DELAWARE, OHIO

ILLICIT DISCHARGE DETECTION AND ELIMINATION PLAN



OCTOBER 2014

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1.0 Overview/Background

The Illicit Discharge Detection and Elimination Plan (IDDEP) is a program designed to prohibit and effectively eliminate illicit discharges and connections to the City's municipal separate storm sewer system (MS4). This IDDEP is one component of the City's overall Illicit Discharge Detection and Elimination Program, which includes, municipal storm sewer mapping, ordinances, the IDDEP, public education, reporting, recordkeeping, and staff training.

An illicit discharge is defined as any direct or indirect non-storm water discharge to the MS4. The National Pollutant Discharge Elimination System (NPDES) regulates the discharge of storm water under the authority of the Federal Clean Water Act. The Ohio Environmental Protection Agency (OEPA) is the designated authority to administer NPDES within the State of Ohio. Under this authority, OEPA has issued NPDES permits regulating the discharge of storm water. The City of Delaware is under the regulation on the Phase III Municipal Storm Water Permit issued on September 11, 2014. The current Phase III permit will remain in effect until September 10, 2019, after which a new Phase III permit will be issued.

This document was created by the City of Delaware to detail the approach to address public health concerns and water quality issues related to illicit discharges in the City of Delaware. It has been determined that failing home sewage treatment systems (HSTS), illegal connections to storm sewer lines, and spills as the major illicit discharges in the City's jurisdictional area.

This plan describes specific responsibilities of the City under the Storm Water Management Plan (SWMP), which was submitted to the Ohio EPA and available on the City's website. The City's IDDEP includes a dry weather storm water outfall screening protocol, the plan and approach for investigation, as well as the elimination of specific types of discharges. **Table 1** lists Ohio EPA permit requirements for illicit discharges and the City's corresponding response as contained in its SWMP.

The City is responsible for administering the plan and compiling compliance data for annual reporting to Ohio EPA.



Table 1. OEPA and the City's Requirements for MCM 3

Ohio EPA Phase III NPDES General Permit Requirements	Storm Water Management Plan Requirements
Ordinance or Other Regulatory Mechanism	Ordinance prohibiting illicit discharges into the storm sewer system and post to the City website and develops procedures to enforce the ordinance.
Storm Sewer System Map	Complete storm system inventory that locates outfalls including catch basins, pipes, ditches, flood control facilities, and post construction best management practices.
HSTS Mapping and List	Obtain standardized addresses from Delaware County Health Department and Delaware County GIS Department for HSTS locations.
IDDE Plan	Development of a plan to eliminate significant sources of pollution.
Dry-Weather Screening of Outfalls	Dry weather screening of all known outfalls within the City per the IDDE Plan developed in the above listed BMP's.

2.0 General Permit Information

The City of Delaware's Small MS4 Storm Water General Permit (OHQ000003) issued by the Ohio EPA, addresses the following six Minimum Control Measures (MCM):

1. Public education and outreach
2. Public participation and involvement
3. Illicit discharge detection and elimination (IDDE)
4. Construction site runoff control
5. Post-construction runoff control
6. Pollution prevention/good housekeeping for municipal operations

This document is required to assist the City is obtaining the regulations for fulfilling MCM 3 of their MS4 Permit.

3.0 Collaborating Agencies

The City collaborates with several other departments within and around Delaware that are dedicated to protecting and managing water resources. The following agencies that are involved with this effort include:

- Delaware County Engineer's Office
- Delaware County General Health District
- Delaware Soil and Water Conservation District
- Mid-Ohio Regional Planning Commission

4.0 Authority for Stormwater Regulations

The City of Delaware has the authority to enforce the City's Ordinance No. 12-36 (<http://www.delawareohio.net/UserUploads/IDDE%20plan%20ordinance.pdf>) and Ohio Revised Code 6111, 3718, 3767, 3718.011 and any other that pertain to storm water health for the resolution of known illicit discharges.

5.0 Stormwater and HSTS Identification

Mapping of the stormwater infrastructure is almost complete with only minimal portions of the system needing to be identified and put into the City's GIS system. All of the known HSTS have been reported by the Delaware County General Health District and acknowledged in the City's GIS system.

The City of Delaware has located all of the outfalls to the Olentangy River and has completed dry weather visual screening on these outfalls.

5.1 Dry Weather Outfall Identification

Dry weather outfall screening involves locating all known outfalls within the MS4 and performing inspections at these locations. The objective of dry weather field screening is to develop an assessment of dry weather discharges from MS4s in order to target future illicit discharge investigations toward sources with the highest probability of causing water quality concerns.

Dry weather inspections are a visual inspection of the outfall location. Dry weather is defined as a minimum of 72 hours of no rainfall (0.1") within an area. When dry weather flows are observed at an outfall, the flow is considered to be non-storm water related which can be from an illicit discharge or another action. Likewise, if no flow is observed during a dry weather screening, it does not mean there are no problems upstream.

The known storm water outfall locations within the City are shown on **Figure 1**.

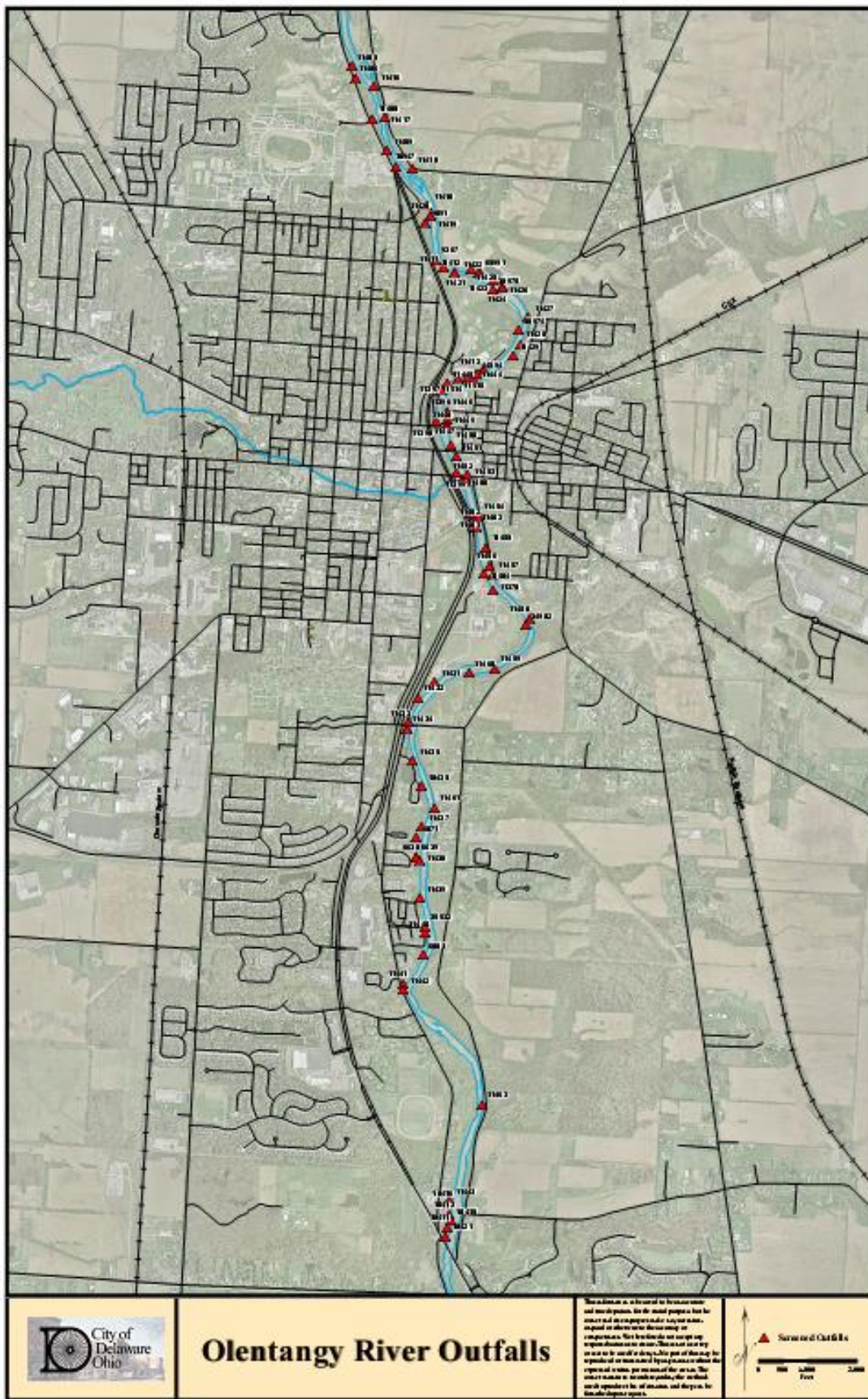


Figure 1 – Known outfall locations within City Boundaries

5.2 Priority Areas

A priority area within the community is a key area where the potential for an illicit discharge exists. These can be broken down into a list of commonly high probability locations where illicit discharges may occur such as:

- Past problems – Areas where problems have occurred in the past. This may include locations with known problematic water quality data as well as areas where numerous complaints have been received.
- Older areas – Areas within the community that are older and may be more suspect of illegal connections and/or have deteriorating sewer lines leading to stormwater infiltration.
- Commercial/industrial areas – Key development areas within the City of commercial or industrial users that have historically significant numbers of illegal connections or water quality concerns.

A list of the City's hot spots has been identified in Table 2.

Table 2. Priority Areas within the City of Delaware for Illicit Discharges

Priority Area	Suspected Source
Unincorporated areas	HSTS
Old Subdivisions	Illegal connections
Industrial Park	Spills, illegal connections
Highway Areas	Spills/Accidents

6.0 Inspection Process

A multi-faceted illicit discharge detection and elimination plan has been established to inspect and identify illicit discharges within the MS4. Once priority areas are established within the City as hot spots, visual inspection/identification and sampling/analysis will ensue.

6.1 Dry Weather Outfall Visual Screening

The dry weather inspection process will follow a number of steps including:

1. Notify the public prior to the field inspection visit via utility bill, City website, newsletter or other means.
2. Field teams will consist of at least two (2) staff members.
3. Current City GIS storm system mapping information will be used showing the outfall and using a numbering system.
4. Complete a field form (see Appendix A). This data is incorporated into an electronic database containing geographic references that allow the outfall information to be mapped and otherwise integrated with the City's GIS system. At a minimum, this will involve observations of the following:
 - Outfall Number
 - Date, Time, Crew names

- Time of last rainfall
- Flows during dry weather conditions
- Water clarity and color
- Presence of foam, oil sheen, trash, and/or floatable materials*
- Presence of bacterial sheen or slimes*
- Staining of the banks, outfall structure, and/or vegetation*
- Excessive vegetative growth*
- Odor*

* These characteristics are documented even if no flow was observed at the time of inspection.



Appendix B contains the field data collection form used in the outfall screening process.

6.2 Citizen Complaint Calls

The City maintains records of citizen complaints, including storm water related issues by CMMS Database. The City will work to identify relevant citizen complaint records to assist in identifying potential illicit discharge issues.



6.3 Staff Observations

During normal daily operations conducted by the City, staff may observe evidence of illicit discharges. In addition, these staff may conduct their routine activities in a manner that results in an illicit discharge. Under this Plan, staff will be trained regarding illicit discharges and provided information on appropriate channels for reporting them. This training is closely aligned with training regarding pollution prevention/good housekeeping activities under Minimum Control Measure (MCM) 6 and will be incorporated as part of the City's annual training program. Field staff that will participate in illicit discharge detection and elimination related activities will be trained regarding:

- The definition of illicit discharges/connections
- Techniques for finding and identifying and reporting
- Techniques for analyzing and recording
- Methods/procedures for eliminating

7.0 Visual Inspections/Manhole Observations

This technique involves following dry-weather flows from the identified illicit discharge outfall upstream along the drainage system to determine the potential boundaries of the source. The City's storm sewer mapping will be useful to determine the next upstream manhole with a junction to search for evidence of discharge. Utilize the mapping to determine if other junction lines are entering the main storm system that might need inspected. The visual inspection/observation is repeated until a junction is found with no evidence of flow. Key observations at this stage can include flow, odor, color, stains/deposits, oil sheen/scum/foam or standing water.

Sampling can also assist with this process. This investigation method is generally necessary before conducting other investigation efforts.

8.0 Communication and Outreach

The success of the IDDE plan relies on educating the public and stakeholders and providing opportunity for community participation. The information being communicated to the public will help them understand the IDDE plan, why it is required, its purpose, who is responsible for its implementation, how it will be implemented, and how it affects their community.

Sources

This document used a number of sources to compile relevant information and tailor to this specific community. The sources reviewed include:

Center for Watershed Protection and Robert Pitt. Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments. October 2004. U.S. Environmental Protection Agency, Washington, D.C.

Cuyahoga County Board of Health. Illicit Discharge Detection and Elimination Manual: A Guidance Manual for Municipalities in the State of Ohio. July 2006. Parma, Ohio.

Franklin County Stormwater Management Program. Illicit Discharge Detection and Elimination Plan. November 2013. Columbus, Ohio.

Appendix A

TEMPLATE FOR COMPLAINT CALL TRACKING

Illicit Discharge Hotline Incident Tracking Sheet

Incident ID:

Responder Information (for hotline incidents only)

Call taken by:

Call date:

Call time:

Reporter Information

Incident time:

Incident date:

Precipitation (inches) in past 24-48 hrs:

Caller contact information (optional):

Incident Location (complete one or more below)

Latitude and longitude:

Stream address or outfall #:

Closest street address:

Nearby landmark:

Primary Location Description

Secondary Location Description

Stream corridor
(In or adjacent to stream)

Outfall

In-stream flow

Along banks

Upland area
(Land not adjacent to stream)

Near storm drain

Near other water source (storm water pond, wetland, etc.):

Narrative description of location:

Upland Problem Indicator Description

Dumping

Oil/solvents/chemicals

Sewage

Wash water, suds, etc.

Other: _____

Stream Corridor Problem Indicator Description

Odor

None

Sewage

Rancid/Sour

Petroleum (gas)

Sulfide (rotten eggs);
natural

Other: Describe in "Narrative" section

Appearance

Normal

Oil sheen

Cloudy

Suds

Other: Describe in "Narrative" section

Floatables

None

Sewage (toilet paper, etc)

Algae

Dead fish

Other: Describe in "Narrative" section

Narrative description of problem indicators:

Suspected Violator (name, personal or vehicle description, license plate #, etc.):

Investigation Notes

Initial investigation date:		Investigators:	
<input type="checkbox"/> No investigation made		Reason:	
<input type="checkbox"/> Referred to different department/agency:		Department/Agency:	
<input type="checkbox"/> Investigated: No action necessary			
<input type="checkbox"/> Investigated: Requires action		Description of actions:	
Hours between call and investigation:			
Notification and Enforcement Actions (if any):			
Date case closed:			
Notes:			

SAMPLE

Appendix B

TEMPLATE FOR OUTFALL SCREENING

STORM WATER OUTFALL DRY WEATHER SCREENING INSPECTION FORM
PUBLIC UTILITIES DEPARTMENT
CITY OF DELAWARE, OHIO

Pipe/Outfall Location & Description: _____ Weather: _____

Waterway: _____ Outfall ID: _____ Pipe Size: _____ Pipe Material: _____

NOTES:

Inspector(s) Name(s): _____

Date of Inspection: _____

Time of Inspection: _____

Date of Last Rainfall: _____

Amount of Last Rainfall (in): _____

Is pipe/outfall active? _____

If active, is flow sufficient to sample? _____

FLOW/DISCHARGE ESTIMATE (for active outfalls)

Velocity: slow (<2 ft/s) Moderate (2-5ft/s) Fast (> 5ft/s)

Water Level in Pipe/Channel: _____ inches.

OUTFALL SCREENING RESULTS

VISUAL OBSERVATIONS (evaluate and add notes as applicable at each item or in the comments section)

Is outfall submerged? _____

Outfall Damaged? _____

Stains/Deposits/Sediment at Outfall? _____

Algae Growth at Outfall? _____

Abnormal Vegetation at Outfall? _____

Unusual Water Color? _____

Unusual Odor? _____

Turbidity? _____

Floatables? _____

Surface Sheen? _____

Detergents? _____

SAMPLE RESULTS

pH: _____ S.U.

TSS: _____ MG/L

CL2: _____ MG/L

Temp: _____ F

NH3: _____ MG/L

CU: _____ MG/L

Additional Comments/Observations:
