

ILLICIT DISCHARGE DETECTION AND ELIMINATION

Minimum Measure

(Draft Ohio EPA MS4 Permit Section 4.2.3.)

Recommended Model Plan-Draft December 5, 2002

Background

NOACA SWTF Illicit Discharge Subcommittee developed this Model Plan to assist communities in meeting the Illicit Discharge Detection and Elimination requirements outlined in the U.S. EPA Storm Water Phase II Final Rule and the Ohio EPA/U.S. EPA Model Permit Requirements. This Model Plan is broken down into the following sections:

- **Section 1 - Summary of Requirements**
 - ◆ **U.S. EPA Fact Sheet 2.5 Summary**
 - ◆ **Ohio EPA Draft MS4 Permit Language**

- **Section 2 – NOACA SWTF - Model SWMP Recommendations**
 - ◆ **Section 4.2.3.1.1 – Illicit Discharge Detection and Elimination Program**
 - ◆ **Section 4.2.3.1.2 – Storm Sewer System Map**
 - ◆ **Section 4.2.3.1.3 – Ordinances and Enforcement Procedures**
 - ◆ **Section 4.2.3.1.4 – Illicit Discharge Detection and Elimination Plan**
 - ◆ **Section 4.2.3.1.5 – Public Education on Hazards of Illicit Discharges**
 - ◆ **Section 4.2.3.1.6 – Non-Storm Water Discharges Identified as Significant Contributors of Pollutants to MS4s**
 - ◆ **Section 4.2.3.1.7 – Occasional Non-Storm Water Discharges Not Addressed as Illicit Discharges**

Section 1 Summary of Requirements

The NOACA SWTF Illicit Discharge Subcommittee utilized the U.S. EPA Fact Sheet 2.5 (<http://www.epa.gov/npdes/pubs/fact2-5.pdf>) and the Ohio EPA Draft MS4 General Permit to identify the Phase II requirements and the Model SWMP recommendations.

USEPA Guidance Summary (U.S. EPA Fact Sheet 2.5)

Requirement #1 – Storm Sewer System Map

- Showing location of all outfalls; and
- Names and location of all waters of US that receive discharges from those outfalls.

Requirement #2 – Ordinance

- Effectively prohibit thru Ordinance, or other regulatory mechanism, non-storm water discharges into the MS4 and implement appropriate enforcement procedures and actions.

Requirement #3 – Plan to Detect and Address Illicit (non-storm water) Discharges

Requirement #4 – Public Education

- Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.

Requirement #5 – Best Management Practices & Measurable Goals

- How you will evaluate the success of this minimum measure, including how you selected the measurable goals for each of the BMPs

Summary – Ohio EPA Draft MS4 General Permit

The following are excerpts from the Ohio EPA Draft MS4 General Permit. Section 4.1 identifies general requirements for the community storm water management program and Section 4.2.3 identifies specific requirements in regards to illicit discharge detection and elimination.

4 Storm Water Management Programs

4.1 Requirements

4.1.1 You must develop, implement, and enforce a SWMP designed to reduce the discharge of pollutants from your small MS4 to the maximum extent practicable (MEP), to protect water quality, and to satisfy the appropriate water quality requirements of Ohio Revised Code (ORC) 6111. and the Clean Water Act. The SWMP should include management practices; control techniques and system, design, and engineering methods; and shall be modified to include provisions as Ohio EPA determines appropriate after its review of the program for the control of such pollutants. Your SWMP must include the following information for each of the six minimum control measures described in Part 4.2 of this permit:

4.1.1.1 The best management practices (BMPs) that you or another entity will or already does implement for each of the storm water minimum control measures;

4.1.1.2 The measurable goals for each of the BMPs including, as appropriate, the months and years in which you will undertake required actions, including interim milestones and the frequency of the action; and

4.1.1.3 The person or persons responsible for implementing or coordinating the BMPs for your SWMP.

4.1.2 In addition to the requirements listed above, you must provide a rationale for how and why you selected each of the BMPs and measurable goals for your SWMP. The information required for such a rationale is given in Part 4.2 of this permit for each minimum measure. You must develop and implement your program within five years of when your coverage under this general permit was granted.

4.2.3 Illicit Discharge Detection and Elimination

4.2.3.1 *Permit requirement.* You must:

4.2.3.1.1 Develop, implement and enforce a program to detect and eliminate illicit discharges, as defined Part 7 of this permit, into your small MS4 (for illicit discharges to your MS4 via a neighboring interconnected MS4, you are only required to inform the neighboring MS4 and Ohio EPA in your annual report submission, of their existence);

- 4.2.3.1.2 Develop, if not already completed, a storm sewer system map, showing the location of all outfalls and the names and location of all surface waters of the State that receive discharges from those outfalls;
- 4.2.3.1.2.1 Within three years of when your coverage under this general permit was granted, you must submit the following to Ohio EPA:
 - 4.2.3.1.2.1.1 A list of all on-site sewage disposal systems connected to discharge to your MS4 (aka home sewage treatment systems (HSTSs)) including the addresses; and
 - 4.2.3.1.2.1.2 A storm sewer map showing the location of all HSTSs connected to your MS4. This map shall include details on the type and size of conduits/ditches in your MS4 that receive discharges from HSTSs, as well as the water bodies receiving the discharges from your MS4.
- 4.2.3.1.3 To the extent allowable under State or local law, effectively prohibit, through ordinance, or other regulatory mechanism, illicit discharges into your storm sewer system and implement appropriate enforcement procedures and actions;
- 4.2.3.1.4 Develop and implement a plan to detect and eliminate non-storm water discharges, including illegal dumping, to your system;
- 4.2.3.1.5 Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste; and
- 4.2.3.1.6 Address the following categories of non-storm water discharges or flows (i.e., illicit discharges) only if you identify them as significant contributors of pollutants to your small MS4: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR §35.2005(20)), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, street wash water, and discharges or flows from fire fighting activities (by definition, not an illicit discharge).
- 4.2.3.1.7 You may also develop a list of other similar occasional incidental non-storm water discharges (e.g. noncommercial or charity car washes, etc.) that will not be addressed as illicit discharges. These non-storm water discharges must not be reasonably expected (based on information available to the permittees) to be significant sources of pollutants to the MS4, because of either the nature of the discharges or conditions you have established for allowing these discharges to your MS4 (e.g., a charity car wash with appropriate controls on frequency, proximity to sensitive water bodies, BMPs on the wash water, etc.). You must document in your SWMP any local controls or conditions placed on the

discharges. You must include a provision prohibiting any individual non-storm water discharge that is determined to be contributing significant amounts of pollutants to your MS4.

- 4.2.3.2 *Decision process.* You must document your decision process for the development of a storm water illicit discharge detection and elimination program. Your rationale statement must address your overall illicit discharge detection and elimination program and the individual BMPs, measurable goals, and responsible persons for your program. The rationale statement must include the following information, at a minimum:
- 4.2.3.2.1 How you will develop a storm sewer map showing the location of all outfalls and the names and location of all receiving waters. Describe the sources of information you used for the maps, and how you plan to verify the outfall locations with field surveys. If already completed, describe how you developed this map. Also, describe how your map will be regularly updated.
 - 4.2.3.2.2 The mechanism (ordinance or other regulatory mechanism) you will use to effectively prohibit illicit discharges into the MS4 and why you chose that mechanism. If you need to develop this mechanism, describe your plan and a schedule to do so. If your ordinance or regulatory mechanism is already developed, include a copy of the relevant sections with your program.
 - 4.2.3.2.3 Your plan to ensure through appropriate enforcement procedures and actions that your illicit discharge ordinance (or other regulatory mechanism) is implemented.
 - 4.2.3.2.4 Your plan to detect and address illicit discharges to your system, including discharges from illegal dumping and spills. Your plan must include dry weather field screening for non-storm water flows and field tests of selected chemical parameters as indicators of discharge sources. Your plan must also address on-site sewage disposal systems (including failing on-lot HSTs and off-lot discharging HSTs) that flow into your storm drainage system. Your description must address the following, at a minimum:
 - 4.2.3.2.4.1 Procedures for locating priority areas which includes areas with higher likelihood of illicit connections (e.g., areas with older sanitary sewer lines, for example) or ambient sampling to locate impacted reaches;
 - 4.2.3.2.4.2 Procedures for tracing the source of an illicit discharge, including the specific techniques you will use to detect the location of the source;
 - 4.2.3.2.4.3 Procedures for removing the source of the illicit discharge; and
 - 4.2.3.2.4.4 Procedures for program evaluation and assessment.

- 4.2.3.2.5 How you plan to inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste. Include in your description how this plan will coordinate with your public education minimum measure and your pollution prevention/good housekeeping minimum measure programs.
- 4.2.3.2.6 Who is responsible for overall management and implementation of your storm water illicit discharge detection and elimination program and, if different, who is responsible for each of the BMPs identified for this program.
- 4.2.3.2.7 How you will evaluate the success of this minimum measure, including how you selected the measurable goals for each of the BMPs.

Section 2 Model Plan Recommendations

The NOACA Model Plan recommends that communities utilize the following model plan components, or some applicable equivalent components as necessary, in order to meet and/or exceed the requirements of the Phase II Illicit Discharge Detection and Elimination Minimum Control.

The recommendations are broken down in accordance with the requirements of the U.S. EPA Phase II Regulations – as stated in the sources listed in Section 1 of this model plan. The requirements are as follows:

- **Section 4.2.3.1.1 – Illicit Discharge Detection and Elimination Program**
- **Section 4.2.3.1.2 – Storm Sewer System Map**
- **Section 4.2.3.1.3 – Ordinances and Enforcement Procedures**
- **Section 4.2.3.1.4 – Illicit Discharge Detection and Elimination Plan**
- **Section 4.2.3.1.5 – Public Education on Hazards of Illicit Discharges**
- **Section 4.2.3.1.6 – Non-Storm Water Discharges Identified as Significant Contributors of Pollutants to MS4s**
- **Section 4.2.3.1.7 – Occasional Non-Storm Water Discharges Not Addressed as Illicit Discharges**

Draft Permit Language

Develop, implement and enforce a program to detect and eliminate illicit discharges, as defined Part 7 of this permit, into your small MS4 (for illicit discharges to your MS4 via a neighboring interconnected MS4, you are only required to inform the neighboring MS4 and Ohio EPA in your annual report submission, of their existence).

NOACA Model Plan Recommendations

The community's storm water management program should contain a description of the community's Illicit Discharge Detection and Elimination Program. The NOACA Model Plan recommends that the following information be included for each BMP:

- Description of BMP – Provide a general description of the program and associated BMPs;
- Goal of BMP – Provide a description of the goal of the program and associated BMPs
- Implementation Schedule – Provide a schedule for BMP implementation for the 5-year permit period;
- Measurable Goals – Provide information on how the community will measure the success of the BMP;
- Decision Process – Provide a description on the decision process used for developing the Illicit Discharge Detection and Elimination Program; and
- Reporting Mechanism – Provide information on how the community will submit the associated BMP information in their annual report.

The NOACA SWTF Illicit Discharge Subgroup has developed a template that the community may use to assist in providing the recommended information. Please refer to the Illicit Discharge Detection & Elimination Program Storm Water Management Program Summary Sheets in Attachment B for this template.

The following sections detail the NOACA Model Plan recommendations for the additional Ohio EPA Draft Permit Requirements for the Illicit Discharge Detection and Elimination Minimum Control Measure.

Draft Permit Language

Develop, if not already completed, a storm sewer system map, showing the location of all outfalls and the names and location of all surface waters of the State that receive discharges from those outfalls.

NOACA Model Plan Recommendations***Community Storm Sewer System Map Development***

If the community does not have an existing community storm sewer system map, the following is recommended in regards to the development of the community storm sewer system map:

- *Format* – The community storm sewer system map should be developed in a digital format, preferably utilizing Geographic Information System (GIS) technology, such as *ESRI, AutoCAD MAP or other compatible format (Microstation, MapInfo, etc)*
- *Community Data Assessment* – The community should perform an internal assessment of available storm sewer system data, which should consider, at a minimum, the following:
 - Available storm drainage plans (e.g. construction drawings, subdivision plans, etc.)
 - Available information from other sources
- *Prioritization of Data Collection/Development* – As a result of the community data assessment, communities should develop a prioritization scheme for community storm sewer system data collection/development. Examples of prioritization are as follows:
 - Urban Community – Outfalls, Storm Sewers, Catch Basins, Storage Facilities
 - Rural Community – Outfalls, Culverts, Ditches, Detention Basins
- *Methodology for Storm Sewer System Map Development* - If storm sewer system maps/sources are not readily available, the communities should consider the following methodologies for developing their storm sewer system map
 - Stream Walks to ID Outfalls/Sources (MS4 vs. Private)
 - Digitize Available Construction Plans (Street by Street/Subdivision basis)
 - Field Survey – Manholes and Pipes
 - *Recommendation* – *If GPS is utilized for collection of storm sewer system data, it is recommended that data be collected with sub-meter (3') accuracy.*

Map Layers

For the Community Storm Sewer System Map, it is recommended that the communities include the following:

- *Basemap Layer* – Communities should utilize a digital basemap comprised of the following component layers:
 - Digital Orthophotography Layer
 - Hydrology Layer – consisting of rivers, streams, creeks and other waters of the state
 - Transportation Layer – consisting of interstate highways, local roads and railroads

- Political Boundary Layer – consisting of city, village and/or township borders
- *Storm Sewer System Layer* – Communities should develop a map comprised of the following component layers:
 - Outfalls – the following is recommended:
 - *Municipally-owned Outfalls* - Outfalls that are municipally-owned (i.e. from the community’s MS4) must be included on the community storm sewer system map;
 - *Privately owned Outfalls/Discharge Points* – Outfalls that are not municipally owned (i.e. from privately-owned storm sewer outfalls, household treatment systems/septic tank discharges to streams and ditches, etc.) should be included on the community storm sewer system map, if data on the locations of these facilities is available or will be collected during the development of the community storm sewer map.
 - *Note* – The NEORSD will be providing a Microsoft Access-based Outfall Database that the communities can use to track outfall surveys and sampling information.
 - Municipal Storm Drainage Facilities – Municipally-owned storm drainage facilities should be on the community storm sewer system map including, but not limited to the following:
 - Storm sewers and catch basins/inlets;
 - Culverts, road-side ditches, swales and other drainage paths;
 - Detention basins and storage facilities; and
 - Other municipally owned storm drainage facilities.
 - Private Storm Drainage Facilities – If data is available, privately-owned storm drainage facilities should be included on the community storm sewer system map.
 - Storm Water “Hot Spots” – If information is available, communities should include areas identified as storm water “hot spots” on the maps. Examples include the following:
 - Areas of routine illicit discharges (e.g. Industrial Sites)
 - Areas of Erosion/Flooding concern (e.g. Water Quality Impairment Sites)

Map Update Process

It is recommended that communities develop a procedure to update and maintain the community storm sewer system map as data becomes available. At a minimum, the storm sewer system map should be updated on an annual basis, showing any new development.

Draft Permit Language

To the extent allowable under State or local law, effectively prohibit, through ordinance, or other regulatory mechanism, illicit discharges into your storm sewer system and implement appropriate enforcement procedures and actions

NOACA Model Plan Recommendations

It is recommended that the communities must adopt an ordinance that prohibits illicit discharges in the community.

The following ordinances are recommended BMPs that the communities may utilize as part of their storm water management plans.

- Ordinance to ensure that sanitary and storm facilities are properly connected for all properties
 - Existing Construction
 - New Construction
- Ordinance to provide for municipal authority to access for property to conduct testing necessary to identify if sanitary and storm facilities are properly connected.

NOACA can assist in obtaining information that the communities may need. The following information is available from local agencies;

- Examples of model ordinances;
- Recommendations on “Enforcement Mechanisms”; and
- Information on “Memorandum of Understanding” with County Health Departments.

Draft Permit Language

Develop and implement a plan to detect and eliminate non-storm water discharges, including illegal dumping, to your system.

NOACA Model Plan Recommendations

The NOACA Model Plan recommends that communities include the following items in order to meet or exceed this Requirement:

Detection of Illicit Discharges

- **Identification of Illicit Discharges** – The following are recommended:
 - *Develop Investigation Program* – The communities should develop an investigation program to perform initial and follow-up investigations of all outfalls in the MS4. The following is a recommended program.
 - *Initial Inspection* – The community should perform an initial inspection visually of all outfalls in year 1 (2003). If performing all initial inspections in 2003 is insufficient, then the communities should perform inspections until all outfalls have been inspected.
 - *Routine Follow-up Investigation* – The communities should perform Routine Follow-up Investigations (Visual Screening) on an annual basis, if feasible. Additional Follow-up Investigations should also be performed as-needed in response to any complaints made to the community.
 - *Customized Program* - If the Initial and Annual Routine Follow-up Investigations are not feasible, the community should develop a program to perform these investigations on a continuous basis – until all are complete. The community should maximize the use of available regional resources as necessary to assist in the performance of Follow-up Investigations as necessary.
- **Problem Follow-up Investigations - (4.2.3.2.4.1)** The NOACA SWTF recommends that the communities perform two types of follow-up investigations, depending on the situation. The types of follow-up investigations are categorized as Problem Tracking Follow-up Investigation and Routine Follow-up Investigation. Details as follows:
 - *Problem Tracing Follow-up Investigation*
 - Communities should develop a prioritization scheme for follow-up investigations based on the results of the dry-weather sampling and/or reports from complaints.
 - The Prioritization should be based on the following
 - Outfalls with continuous flow during dry-weather
 - Outfalls with intermittent flow during dry-weather
 - Communities should try to develop some sort of rank (i.e. high, medium, low) based on sampling results. For example, it is recommended that outfalls with

higher flow volumes and contamination levels be investigated prior to those with lower flow volumes and contamination levels.

- *Dry-Weather Sampling* – If outfalls are identified as flowing in dry-weather (dry-weather defined as less than .1” rain in past 72 hours), the communities should take samples of the dry-weather flow to determine if the flow is contaminated due to illicit discharges
 - Sampling Protocol – To be developed using CWRP document as model – will include information on the following:
 - Quality Recommendations – based on Ohio EPA Standard (Reference to be provided) 5000 fecal/100 mL
 - Quantity Recommendations
 - Intermittent Flow Investigation Recommendations – utilize best professional judgment and revisit periodically.
 - Sampling/Analysis-Testing Service Providers
 - Parameters - Parameters to be sampled during dry-weather should be based on a logical decision based on observation of physical characteristics. For example,
 - Bacteriological sampling should be done based on flow appearance and odor - representing sanitary/gray water conditions.

- *Wet-Weather Sampling* – **At this time, wet-weather sampling is NOT recommended due to the lack of statistically valid results.**

- **Illicit Discharge Source Identification** – Communities should perform the necessary follow-up investigations to identify the source of illicit discharge. The following represents a recommended scheme for source identification:
 - *Upstream Tracing* – The community should start to trace the illicit discharge upstream – beginning at the outfall. The following items should be performed to help isolate the source of the illicit discharge:
 - Visual Inspection of Storm Sewer System
 - Start at Outfall
 - Check Upstream Manholes to identify where flow may be coming from. Additional samples may be needed to isolate/prioritize areas.
 - ◆ Utilize available storm sewer mapping to assist in upstream tracing.
 - ◆ Notes to assist in isolation of sources
 - Sanitary Blockages (usually higher flows)
 - Cross-Connects (usually much lower flows)
 - Narrow down areas and potential sources
 - ◆ Isolate an area (Point A to B)
 - ◆ Try to isolate sources even further
 - Perform dye-testing of connections (storm & sanitary)
 - Perform testing of sanitary sewers if Infiltration/Inflow is suspect
 - Perform televising as necessary
 - Communities may need access to facilities to perform necessary test.
 - *Training* – Communities should include a general statement on the training received – if and when such is offered regionally. (*Service Provider List - Future*)
 - *This section will be modified in the future and may be included as part of the sampling protocol document.*

Elimination of Illicit Discharges

- **Assessment of Problem/Sources** – Based on results of additional investigations (Visual Inspection, Dye-testing, additional sampling, etc.), the community should develop an assessment of the source of the problem to determine if the problem is attributed to a point source or if it widespread (multiple sources). The assessment should assist the communities in identifying elimination options

- **Enforcement/Elimination Options**
 - **Private Sources - Option #1 – MOU with Health Dept.**
 - OAC 3701-29-02 (Board of Health powers)
 - ORC 3707.01
 - County Nuisance Regs
 - **Private Sources - Option #2 – Community Ordinances**

SECTION 4.2.3.1.5

Public Education on Hazards of Illicit Discharges

Draft Permit Language

Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.

NOACA Model Plan Recommendations

The NOACA Model Plan recommends that Public Involvement and/or Public Education portion of the SWMP include the necessary Illicit Discharge Hazards educational items in order to meet or exceed this Requirement. The target audiences for Illicit Discharge Hazard education should include the General Public, Municipal Employees and Commercial/Industrial businesses.

SECTION 4.2.3.1.6**Non-Storm Water Discharges Identified as Significant Contributors of Pollutants to MS4s****Draft Permit Language**

Address the following categories of non-storm water discharges or flows (i.e., illicit discharges) only if you identify them as significant contributors of pollutants to your small MS4: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR §35.2005(20)), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, street wash water, and discharges or flows from fire fighting activities (by definition, not an illicit discharge).

SECTION 4.2.3.1.7**Occasional Non-Storm Water Discharges Not Addressed as Illicit Discharges****Draft Permit Language**

You may also develop a list of other similar occasional incidental non-storm water discharges (e.g. noncommercial or charity car washes, etc.) that will not be addressed as illicit discharges. These non-storm water discharges must not be reasonably expected (based on information available to the permittees) to be significant sources of pollutants to the MS4, because of either the nature of the discharges or conditions you have established for allowing these discharges to your MS4 (e.g., a charity car wash with appropriate controls on frequency, proximity to sensitive water bodies, BMPs on the wash water, etc.). You must document in your SWMP any local controls or conditions placed on the discharges. You must include a provision prohibiting any individual non-storm water discharge that is determined to be contributing significant amounts of pollutants to your MS4.

NOACA Model Plan Recommendations

For these two Draft Permit requirements, the NOACA Model Plan recommends that communities perform an assessment of available community to determine if the communities have non-storm water discharges that should be included in these classifications.

(This section may be developed further pending review and discussion with the Euclid Creek Watershed Council Communities).