

Description

Illicit discharges are non-stormwater discharges into a storm drain system, with some limited exceptions specified in state and local discharge permits (e.g., fire fighting water, springs, and others). Examples of illicit discharges include illegal dumping (e.g., used oil), accidental spills, failing septic systems, improper disposal of sewage from recreational activities such as boating or camping, and improper plumbing of sanitary discharges from residences and commercial or industrial establishments into the storm sewer system. A common cause of illicit discharges is connection of building or garage or floor drains to the storm sewer system.



Photograph IDC-1. Mapping and dry weather investigation of storm sewer outfalls is an important tool in identifying and removing illicit connections. Photo courtesy of WWE.

Control of illicit discharges involves a multi-faceted effort based on knowledge of the storm sewer system, use of ordinances to prohibit illicit discharges, development of a coordinated plan to detect and address illicit discharges, and a public education program to increase awareness of the problems caused by illicit discharges.

Appropriate Uses

Illicit discharge control measures are usually implemented by municipal governments and metropolitan districts, but may also be relevant to campus-scale developments or industries. Illicit discharge controls are closely related to practices identified in the Good Housekeeping BMP Fact Sheet.

Practice Guidelines

Practice guidelines for illicit discharge controls are discussed in three general categories:

1. Public education to reduce illegal dumping and discharges,
2. Municipal actions to identify and remove illegal connections to the storm sewer system, and
3. Accidental spill response measures.

Public Education to Reduce Illegal Dumping and Discharges

Public education and awareness are the foundation for reducing illegal dumping and some types of illicit discharges. For example, many citizens may not be aware that storm sewers drain to streams rather than wastewater treatment plants or may not be aware of the environmental damage caused by discharging soapy water, pet waste and other household wastes into the storm sewer system. Local governments should select public awareness and education approaches most effective for their communities, which may include a combination of some of these practices:

- Enactment of clearly written ordinances prohibiting illegal dumping and illicit connections. Many local governments already have such ordinances; however, citizens are often unaware of these. Publicity including news articles, door hangers, utility bill inserts, radio or TV advertisements, website highlights and other measures can be used to increase awareness. Such efforts may be particularly effective when connected to a specific water quality problem such as stream or lake impairments due to bacteria and/or nutrients.
- Storm drain stenciling involves placing a marker or using a stencil to paint a message on storm drains to discourage dumping down the storm drain. These messages are a public education tool so that citizens are aware that the materials that they dump down to the storm drain are discharged to a stream, as opposed to a wastewater treatment plant.
- Provide citizens with readily available contact information to report illegal dumping. Install a "hotline" telephone number to handle calls from citizens reporting illegal dumping or accidental spills.
- Create brochures and other guidance for businesses related to illegal discharges to the storm drain. Educational efforts should not only alert business owners that non-stormwater discharges are not allowed, but also provide guidance on BMPs to implement. For example, power washing discharges are process wastewater that may not be discharged to the storm sewer system. When power washing is conducted, storm drain inlet protection, wet vacuuming, collection systems, and/or other appropriate measures to prevent washwater from entering the storm drain system should be implemented.

Illicit Connections

Eliminating illicit connections plumbed into the storm drain system involves two different components:

1. Identifying and removing existing illicit connections; and
2. Preventing new illicit connections.

Removing Existing Connections

Existing illicit connections of sanitary sewers to the storm drainage system in existing developments can be identified by a systematic dry weather inspection of storm sewer outfalls following readily available illicit discharge detection and elimination guidance available from EPA. Initial screening typically involves mapping all storm sewer outfalls and conducting field inspections to identify suspect outfalls based on odor, sewage-related residue (e.g., toilet paper), discoloration, dry weather flows, etc. Grab samples of dry-weather discharges can be collected at suspect locations and analyzed for targeted water quality constituents (e.g., E. coli, temperature, pH, surfactants). Where illicit connections are probable, more advanced techniques can be used to isolate the likely source of the connection. Techniques such as temperature probes (to track diurnal temperature changes indicative of shower use suggesting a sanitary connection to a storm sewer), optical brightener screening (indicator of detergents), zinc chloride smoke testing, fluorometric dye testing, television camera inspections and other approaches can be used as follow-up measures. Once the illicit connection has been identified, the plumbing can be corrected and proper connections to the sanitary sewer system implemented.

Preventing Illicit Connections

Program elements to prevent illicit connections include:

- Ensure that existing building and plumbing codes prohibit physical connections of non-stormwater discharges to the storm drain system.
- Have a program in place to review and approve any proposed connection into a storm sewer.
- Require visual inspection of new developments or redevelopments during the construction phase to ensure that proper plumbing connections are implemented. Train field inspectors and develop field inspection procedures that prevent new illicit connections of sanitary sewer lines to storm sewers.

Accidental Spill Response

Although the storage, transport and disposal of hazardous and toxic substances is a highly regulated activity under state and federal laws, accidents will inevitably occur, resulting in potential release of chemicals and wastes into the storm sewer system. Most local police, fire, or other departments are trained and equipped to respond to such spills. Local governments should work with response personnel to ensure current mapping of storm drains and BMPs and review training procedures for spill response and cleanup. Proper training combined with readily available knowledge of the storm sewer system and appropriate spill control materials can result in more effective protection and blocking of the drainage system during spill response.

Additional Illicit Discharge Detection and Elimination Guidance

The Center for Watershed Protection and Robert Pitt (2004) prepared *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments* under EPA funding to provide guidance to communities in developing effective management programs and field guidance to reduce illicit discharges. This manual provides detailed guidance and field forms that can be used to identify illicit connections.