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Training and Education Series

OPP Stormwater Management

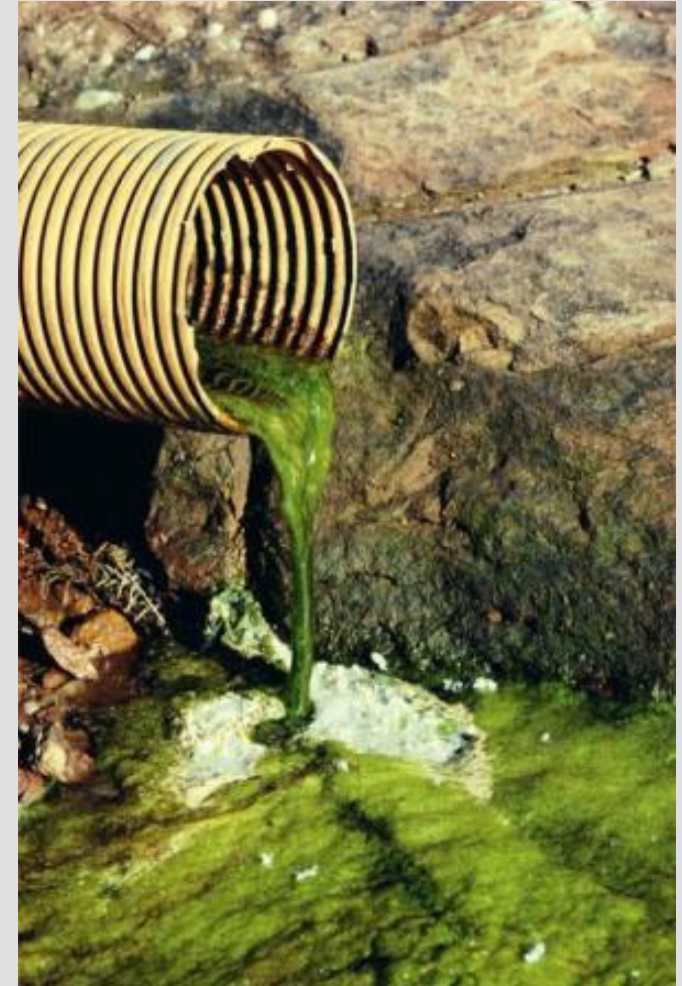
Stormwater Management Information Regarding Illicit Discharges

What is an illicit discharge?

The EPA defines an illicit discharge as any discharge to the municipal separate storm sewer system (MS4) that is not composed entirely of stormwater, except for discharges allowed under a NPDES permit or waters used for firefighting operations.

Since the University holds a MS4 permit, it's required to have an illicit discharge detection and elimination program.

The University's program can be found on the MS4 page of this website



Where do illicit discharges come from?

These non-stormwater discharges occur due to illegal connections to the storm drain system from business or commercial establishments. Illicit connections may be intentional or may be unknown and often are due to the connection of floor drains to the storm sewer system.

Additional sources of illicit discharges can be failing septic systems, illegal dumping practices, and the improper disposal of sewage from recreational practices such as boating or camping.



PaDEP under the MS4 permit even considers grass clippings and leaf litter illicit discharges if placed in the storm system.



Why do illicit discharges matter?

As a result of these illicit connections, contaminated wastewaters enter into storm drains or directly into local waters before receiving treatment from a wastewater treatment plant.

The result is untreated discharges that contribute high levels of pollutants, including heavy metals, toxins, oil and grease, solvents, nutrients, viruses, and bacteria to receiving waterbodies, which degrade receiving water quality and threaten aquatic, wildlife, and human health.





The rule of thumb is if it doesn't fall from the sky as precipitation, its not allowed into the storm system.






What are some examples of non-stormwater discharges that are permitted?

1. Discharges or flows from firefighting activities.
2. Discharges from potable water sources including water line flushing and fire hydrant flushing, if such discharges do not contain detectable concentrations of Total Residual Chlorine (TRC).
3. Non-contaminated irrigation water, water from lawn maintenance, landscape drainage and flows from riparian habitats and wetlands.
4. Diverted stream flows and springs.
5. Non-contaminated pumped ground water and water from foundation and footing drains and crawl space pumps.
6. Non-contaminated HVAC condensation and water from geothermal systems.
7. Residential (i.e., not commercial) vehicle wash water where cleaning agents are not utilized.
8. Non-contaminated hydrostatic test water discharges, if such discharges do not contain detectable concentrations of TRC.

Where can I find out more information?

United States
Environmental Protection
Agency
Office of Water
(4203) January 2000 (revised December 2005)
Fact Sheet 2.5
EPA 833-F-00-007



Stormwater Phase II Final Rule

Illicit Discharge Detection and Elimination Minimum Control Measure

**Stormwater Phase II
Final Rule
Fact Sheet Series**

Overview

1.0 – Stormwater Phase II Final Rule: An Overview

Small MS4 Program

2.0 – Small MS4 Stormwater Program Overview

2.1 – Who's Covered? Designation and Waivers of Regulated Small MS4s

2.2 – Urbanized Areas: Definition and Description

Minimum Control Measures

2.3 – Public Education and Outreach

2.4 – Public Participation/Involvement

2.5 – Illicit Discharge Detection and Elimination

2.6 – Construction Site Runoff Control

2.7 – Post-Construction Runoff Control

2.8 – Pollution Prevention/Good Housekeeping

2.9 – Permitting and Reporting: The Process and Requirements

2.10 – Federal and State-Operated MS4s: Program Implementation

Construction Program

3.0 – Construction Program Overview

3.1 – Construction Rainfall Erosivity Waiver

Industrial "No Exposure"

4.0 – Conditional No Exposure Exclusion for Industrial Activity

This fact sheet profiles the Illicit Discharge Detection and Elimination minimum control measure, one of six measures the operator of a Phase II regulated small municipal separate storm sewer system (MS4) is required to include in its stormwater management program to meet the conditions of its National Pollutant Discharge Elimination System (NPDES) permit. This fact sheet outlines the Phase II Final Rule requirements and offers some general guidance on how to satisfy them. It is important to keep in mind that the small MS4 operator has a great deal of flexibility in choosing exactly how to satisfy the minimum control measure requirements.

What Is An "Illicit Discharge"?

Federal regulations define an illicit discharge as "...any discharge to an MS4 that is not composed entirely of stormwater..." with some exceptions. These exceptions include discharges from NPDES-permitted industrial sources and discharges from fire-fighting activities. Illicit discharges (see Table 1) are considered "illicit" because MS4s are not designed to accept, process, or discharge such non-stormwater wastes.

Why Are Illicit Discharge Detection and Elimination Efforts Necessary?

Discharges from MS4s often include wastes and wastewater from non-stormwater sources. A study conducted in 1987 in Sacramento, California, found that almost one-half of the water discharged from a local MS4 was not directly attributable to precipitation runoff. A significant portion of these dry weather flows were from illicit and/or inappropriate discharges and connections to the MS4.

Illicit discharges enter the system through either direct connections (e.g., wastewater piping either mistakenly or deliberately connected to the storm drains) or indirect connections (e.g., infiltration into the MS4 from cracked sanitary systems, spills collected by drain outlets, or paint or used oil dumped directly into a drain). The result is untreated discharges that contribute high levels of pollutants, including heavy metals, toxics, oil and grease, solvents, nutrients, viruses, and bacteria to receiving waterbodies. Pollutant levels from these illicit discharges have been shown in EPA studies to be high enough to significantly degrade receiving water quality and threaten aquatic, wildlife, and human health.

Table 1

**Sources of
Illicit Discharges**

- Sanitary wastewater
- Effluent from septic tanks
- Car wash wastewaters
- Improper oil disposal
- Radiator flushing disposal
- Laundry wastewaters
- Spills from roadway accidents
- Improper disposal of auto and household toxics

Complete EPA IDDE fact Sheet: <http://www.epa.gov/npdes/pubs/fact2-5.pdf>



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The University is required check for illicit discharges during dry periods. The University has found several utility line breaks during these inspections.



Flow at University Park due to a broken water line



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The University has tested almost every drain in its building. Some sanitary type drains have been found to discharge into the storm and have been corrected, plugged, or had signs posted.





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If sinks are marked as being cross connected to the storm system, nothing may be placed down them except clean water. These are water source only sinks.





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Faculty and staff sometimes run hoses or pipes to storm inlets. Even potable water can't be directed to an inlet if it contains any detectable residual chlorine or other pollutant.





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If you're in an older building where the floor drain is posted as going to the storm system, or you simply know it does, then utility blow downs like this can be an illicit discharge.





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If roof top utilities have chemicals added to them, then blow downs or intentional releases are illicit discharges.




Cleaning roof top equipment such as cooling towers without neutralizing cleaning chemicals can result in an illicit discharge.

Nu-Calgon Product Bulletin 3-31

- Cuts through grease and grime better than acids
- High foaming
- Brightens the condenser coils extremely well
- Safer than acids
- Biodegradable
- Authorized by the U.S.D.A.

Coil Cleaners

Nu-Brite



VIII - SPILL OR LEAK PROCEDURE

Spill Management: Safely stop spill at source. Contain spill by diking with soil or other inert material and CAREFULLY neutralize with dilute acid. Mop, pump or absorb with inert material and reclaim into sound containers for proper disposal.

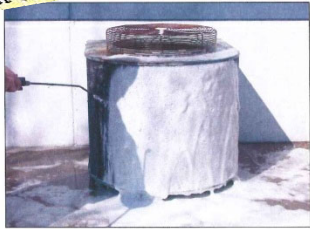
Waste Disposal Methods: Dispose of in an approved waste facility according to Federal, State and local regulations. **Keep non-neutralized material out of sewers, storm drains, surface water and soil.**

Packaging

1 gallon bottle	4291-08
2.5 gallon bottle	4291-05
55 gallon drum	4291-01


Directions for Use

- Use only on condenser coils, or other finned coils that are located outside.
- Goggles, gloves and other protective garments should be worn when using this product. System should be shut off.
- Prepare cleaning solution by mixing one part Nu-Brite with three to four parts of water. Add the water to the sprayer first, then add the cleaner. If using the No. 200P, you will add the Nu-Brite first.



Read and understand the product's label and Material Safety Data Sheet ("MSDS") for precautionary and first aid information.

The MSDS is available on the Nu-Calgon website at www.nucalgon.com or is returnable by U.S. Mail upon request.



2008 Albion Ct. • St. Louis, MO 63146 • 800-554-5499 • www.nucalgon.com



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Pool water can't be drained to the ground or the storm system even if its dechlorinated. It must be drained slowly to the sanitary sewer system.



Courtesy Penn State Live



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Large stormwater vaults are frequently required to be tested for water tightness using the University's potable water. They must also be dechlorinated and tested before discharging.





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Washing out garbage cans into a storm drain inlet is prohibited, regardless of how clean you think they are.





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Washing out small containers into a storm drain inlet is prohibited, even if only has minimal “juice” in the bottom.





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Dumping mop buckets, rinsing out paint cans or brushes into an inlet is also prohibited and may result in an environmental cleanup.



Courtesy Old Dominion University



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The EPA even considers all of these examples to be illicit discharges.





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The washing of any vehicles on University property is prohibited unless it occurs at a specifically designed wash facility.





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Any chemicals that drain to the storm system must be checked to ensure they are not considered an illicit discharge.



Never rake leaves over inlets, into swales or into the road gutters



Courtesy North Central Texas Council of Governments



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Discharging chlorinated water or other pollutants down storm drains can result in fish kills and other adverse affects. Always know for sure where a drain discharges.





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Fluids from vehicular accidents need to be cleaned up, removed from the site and properly disposed, which includes absorbent material. Significant spills may require a Hazmat cleanup.

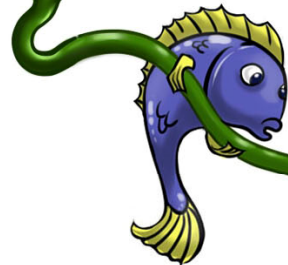




Help educate others about illicit discharges.



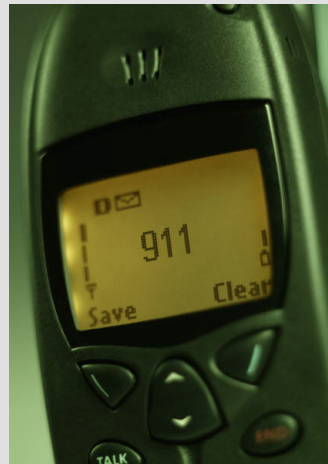
**ONE GALLON
of MOTOR OIL
can pollute up to
A MILLION GALLONS
of FRESHWATER**



Courtesy Shruthi Baskaran

If you see a problem, who do you notify?

If you observe a problem that is an emergency that may result in the loss of life or property, please call 911.



If you observe a suspected illicit discharge, or would like to report another type of stormwater related problem that needs immediate attention, please contact the Office of Physical Plant Service Desk at (814) 865-4731. The Service desk is staffed 24 hours every day.



If you're being directed to do something you know is wrong, you can anonymously report it on the PSU website.

The screenshot shows two browser windows. The top window displays the Penn State website's 'Compliance and Ethics Hotline Overview' page. The bottom window shows the 'mycompliancereport.com' website, which is used for reporting concerns.

Compliance and Ethics Hotline Overview

Through the services of Compliance Concepts Inc. (CCI), the University community can report concerns relating to athletics, research and affirmative action issues. Included in the area of athletic issues are matters related to and any of the areas listed in that agreement with respect to Athletic Department policies and procedure. N Ten handbook, and matters related to the principles regarding institutional control, responsibility, ethical conduct can be filed anonymously. Concerns can be reported 24 hours a day, seven days a week to CCI via telephone at www.mycompliancereport.com/brand/psu.

The use of CCI's services allows for the anonymity of the individual reporting the concerns to maintain an effective retaliation. At the same time it allows the pertinent details of the concern to be fully investigated by the University if needed. Phone calls to the hotline are received by trained CCI personnel. Individuals making reports are assigned a unique code that will allow them to follow up to determine the outcome of their concern or to provide feedback. Notifications of reports received by CCI are sent to the University's Office of Internal Audit and investigated by the Office of Internal Audit, and non-financial matters are directed to the appropriate University system also allows for University personnel investigating the concern to ask questions of the person making the concern thoroughly investigated until there is a final resolution and resolutions are issued through CCI's secure online system.

University Resources

- University Police and Public Safety
- Sexual Assault and Relationship Violence Hotline: 800-550-7575 (TTY 866-714-7177)
- Behavioral Threat Management Team Hotline: 1-855-863-BTMT (2868)
- Assault resources by campus
- Counseling and Psychological Services
- Center for Women Students
- University Ethics Policies and University Statement on Conflicts of Interest and Commitment
- Rock Ethics Institute

Community Resources

- Attorney General Hotline: 814-863-1053
- Pennsylvania State Police: 814-470-2238

mycompliancereport.com

Home | Frequently Asked Questions | Logoff

New Report

1. Select Category | 2. Start Report | 3. Assign Report #

Select Category

Select the category that best describes your concern or question.

<input type="radio"/> Child Safety	Any behavior/practice which creates a risk or threat to the health and safety of a child.
<input type="radio"/> Conflict of Interest	A conflict between the private interest and the official responsibilities of a person in a position of trust.
<input type="radio"/> Discrimination	The treatment or consideration of, or making a distinction in favor of or against, a person or thing based on the group, class, or category to which that person or thing belongs rather than on individual merit.
<input type="radio"/> Employee Relations/Human Resources	Issues, conflicts and concerns involving employees and their co-workers, their managers and the company.
<input type="radio"/> Environmental	Concerns about environmental issues (unlawful or accidental).
<input type="radio"/> Export Control	Any concern regarding the transfer, by whatever means, of information, technology, commodities, and software considered to be strategically important to the U.S.
<input type="radio"/> Fraud	Intentional perversion, deceiving, or misrepresenting of the truth in order to induce another to part with something of value or to surrender a legal right (deceit, trickery, deception).
<input type="radio"/> Health Violation/Environmental Health & Safety	Any behavior/practice which creates a threat to the health of employees, customers, or the public.
<input type="radio"/> NCAA Compliance / University Athletics	The violation of NCAA rules with respect to the University.
<input type="radio"/> Other	Any concern that does not fall under any of the described categories.
<input type="radio"/> Policy Violation	Behavior from an employee(s), which violates the Code of Conduct, or the company's directives and/or policies and procedures.
<input type="radio"/> Release Proprietary Information	Any concern of the unauthorized use of confidential information that is not public knowledge (such as certain financial data, test results or trade secrets) and is viewed as the property of the holder.
<input type="radio"/> Research Issues/Concerns	
<input type="radio"/> Research Misconduct	Concern about the improper or unethical conduct of University research.
<input type="radio"/> Retaliation	Concerns involving any adverse action or punishment taken



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OPP Stormwater Management

Thanks for taking the time to view this presentation

If you would like additional information or have questions, comments, or suggestions, or for questions regarding the University's stormwater program contact Larry Fennessey, the University's stormwater operations engineer, at (814) 863-8743, or email: laf8@psu.edu