Municipal Stormwater General Permits: Getting Us to Clean Water by Finding and Fixing Problems

Communities across Washington State differ in their interests and industries, but they also have many activities in common. We do not usually think that the following places have much in common – a winery in Woodinville, a fish processing plant in Port Angeles, a fruit packing plant in Wenatchee, a housing development in Seattle, and an office building in Vancouver.

However, what they have in common is that all were unknowingly polluting Washington's lakes, rivers, and marine waters. Local programs to manage stormwater found and fixed these polluted stormwater discharges into Washington's waters.

The municipal stormwater discharge permits issued by the state Department of Ecology (Ecology) in 2007 required the state's most populated cities and counties to be covered by a stormwater permit. Part of their permit required them to adopt ordinances to prohibit *illicit* discharges and connections into the stormwater system. An illicit discharge is any discharge that is not entirely made up of stormwater, with exceptions for discharges from activities such as emergency fire fighting. Each city and county also has a program to find and fix illicit discharges, known as the Illicit Discharge Detection and Elimination (IDDE) program. Although many of these programs are just starting, local governments already have successes worth noting.

Finding and Fixing Problems

Reducing stormwater pollution is a high priority for the state. Many of our stormwater problems come from everyday actions such as over-fertilizing lawns, or letting soapy water from car washing run into the storm drains. Another problem occurs when pipes that carry sewage or other wastewater are not hooked up properly to sanitary sewer lines. Instead, they may be incorrectly connected to stormwater systems. When this happens, the stormwater system carries untreated wastewater into a river, stream, or bay.

Through their IDDE programs, municipalities find problems in a variety of ways:

- Citizens and business members call their local stormwater hotlines to report an unusual flow, discharge, odor, or color.
- Municipal employees — such as utility workers and law enforcement officers — notice problems and report them.
- Jurisdictions share information when they find pollution that is moving through interconnected stormwater systems.

- Public works staff hunt for illicit discharges through methods such as:
  - Dry weather inspections of outfalls and ditches for unusual drainage.
  - Business inspections to educate businesses on best practices to prevent stormwater pollution.
  - Tracing sources, such as putting non-toxic dye down a suspect drain to find where the drain leads.
  - Water quality monitoring to find where pollutants are present.
  - Smoke testing stormwater pipes in order to map their systems.

Smoke testing of the stormwater system in the New Holly development in Seattle identifies a home with an illicit connection.

Illicit Connections to Stormwater Pipes

City of Yakima sewage discharges

In Yakima, city and county officials found sewage pipes from homes, warehouses with wastewater pipes, and even a local hospital mistakenly connected to the stormwater system. They discovered these when wastewater and stormwater staff injected smoke into the pipe system to identify and eliminate any improper connections. Correcting these illicit connections will stop discharges of raw sewage into the Yakima River that may have been occurring for years.

City of Seattle housing development

In one new housing development in Seattle, Seattle Public Utilities (SPU) discovered nearly 50 homes with sewer pipes connected to the stormwater system that were discharging untreated sewage into Lake Washington. City staff found the problem during dry weather screening, when the team sampled the drainage system to find pollutants and trace them to their source. SPU installed a temporary diversion to direct the sewage into the sanitary sewer. The city is working with the owners to permanently correct the illicit connections, some of which have been in place up to 10 years, to stop the flow of untreated sewage directly to Lake Washington.

Duwamish Waterway industrial discharge

Not all illicit connections are associated with sewage. Seattle Public Utilities inspected a business that had been pumping wastewater from their industrial process into a drain. The city inspector dye-tested the drain and found that instead of connecting to the sanitary sewer, it drained into the stormwater system, which then discharged into the Duwamish River. To correct the problem, the business re-routed the

connection to the sanitary sewer system and applied for a local industrial waste permit for the sanitary sewer discharge. It is possible that this polluting discharge had occurred for 20 years.

Yakima County Drainage Improvement District (DID) pipes

Much of the land in Yakima's West Valley used to be orchard land. This orchard land had underground drainage systems to help drain the fields of all the irrigation water that often was over-applied in the old days. Some pipes also drained the fields of high groundwater. As development spread, housing or shopping malls replaced the orchards, but the builders did not always remove the drainage pipes. Although the new development was annexed into the City of Yakima, Yakima County still owns and operates the drainage infrastructure or systems.

While mapping these systems through smoke testing, the county identified sewer pipes from several houses and a school that were connected — and had been discharging — into Wide Hollow Creek for years. These illicit connections are being fixed and the houses properly connected to the sewage system. Another drainage district recently identified a fruit packing plant discharging some wastewater into the drainage system. The county is working with the City of Yakima to remove this discharge.

Western Washington University Fisher Fountain

In April 2007, Western Washington University (WWU), a secondary permittee under the municipal stormwater permit, found an illicit connection when maintenance staff drained Fisher Fountain in Red Square after students dumped laundry soap into the fountain as a spring prank. When soapy and super-chlorinated water was found downstream at the campus stormwater outfall, staff realized the fountain drain was piped to the stormwater system, rather than sanitary sewer.

The WWU facilities staff immediately put a policy in place that if the fountain had to be drained, the water first would be tested to ensure it met state water quality standards. If it did not, then it they would vacuum it out and pump it to the sanitary sewer. They completed construction in February 2009 to re-pipe the fountain drain directly to the sanitary sewer in order to permanently correct this illicit connection.

Other Illicit Discharges

Illicit discharges are not always from a bad pipe connection. Actions of local residents and businesses cause illicit discharges. These can include runoff from construction sites where the project doesn't follow best management practices, accidental spills, intentional dumping, and over-applying chemicals in yards.

Examples might be:

- A restaurant worker dumping the mop bucket's dirty wash water — or hood-cleaner spraying grease — into the storm drain.
- A homeowner's failing septic system seeping into a roadside ditch.

- A pet owner leaving dog waste on ground instead of scooping, bagging, and trashing it.
- People changing their oil who let it run down their driveway to the storm drain or ditch—or dump it there intentionally.
- A painter dumping left over paint or other chemicals down a storm drain.
- A carpet cleaner dumping dirty wash water in a roadside ditch.

Port Angeles fish processing plant bypass

One successful action to stop a polluting discharge happened in the City of Port Angeles. After hotline reports from resident-boaters, the city staff found that a fish processing plant was bypassing backed up sewer lines approximately seven times per year. The plant was discharging fish debris directly into the marina. Correcting this discharge boosted local efforts to clean up Port Angeles Harbor.

Woodinville winery wastes

Following reports of stormwater ditches running "purple" in early 2009, City of Woodinville staff identified a few small wineries dumping winery waste products into parking lot drains. The city eliminated these specific illicit discharges and then, together with Ecology and the King County Industrial Wastewater Division, met with the Woodinville Wine Association to educate the broader winery community.

The education covered good waste disposal practices, Woodinville's Prohibited Discharge ordinance, and the consequences of future illicit discharges. This incident sharpened the city's illicit discharge response and helped educate a growing business interest about the importance of proper waste disposal. Building on these contacts, the city continues to remind and work with the wine industry each year to eliminate discharges from wine production into the storm drainage system and the Sammamish River.

Wenatchee fruit packing company

In December 2010, a passerby noticed raw sewage coming out of a manhole and running across a parking lot of a fresh fruit packer and called the City of Wenatchee's stormwater hotline. City staff arrived within 10 minutes to investigate. The fresh fruit packer's sewer pipe was plugged with whole apples and this caused the sewage overflow. The overflow ran across the parking lot into a city stormwater system swale and then into a catch basin in the street. The catch basin is an inlet to the city's stormwater system, which drains untreated into the Columbia River. The fruit packer removed the apple plug, and the city cleaned up the sewage before it reached the Columbia River. The fruit packer will repay the city for the cleanup work.

Oak Harbor failing septic system

In spring of 2007, staff from the City of Oak Harbor found high bacteria levels in the stormwater system and worked with the Island County Health Department to locate a failing septic system. The homeowners had their septic system pumped, and the city installed a temporary bypass line until the city sewer line

could be extended and the home connected. After the sewer line was extended, two other neighbors on septic systems also connected to the sewer line, eliminating future failure of those septic systems.

Oak Harbor restaurant grease and oil

When an accidental spill of restaurant oil occurred in October 2010, City of Oak Harbor staff responded quickly to help the business contain the spill and remove the oil from the stormwater pipes. As follow-up to this spill, City staff are doing outreach to local restaurants on how to manage their grease and oil to help eliminate potential spills.

Kitsap County Inspection & Illicit Discharge Correction Program

In 2010, Kitsap County Health District, working with Kitsap Surface and Stormwater and four local cities, conducted almost 2,000 commercial stormwater system inspections in the cities of Poulsbo, Bainbridge Island, Port Orchard, Bremerton, and unincorporated Kitsap County. These inspections identified at least 391deficiencies related to stormwater drainage systems. These commercial property investigations and other complaint response activities identified 211 potential illicit discharges across Kitsap County in 2010. Owners have corrected 130 of the 149 confirmed illicit discharges, and have scheduled 19 additional corrections.

Leaky Pipes

Leakage from sanitary sewer pipes is another type of illicit discharge, but it happens under ground. Sometimes, existing sanitary sewer pipes leak, break, or are made of old materials (such as brick), and wastewater seeps into the ground or bedding around the sewer pipe. This polluted water makes its way into stormwater conveyance pipes or other underground stormwater facilities and goes untreated to Washington waters.

King County sewer main leak entering stormwater system

While inspecting a new drainage pond at a King County Housing Authority complex, a neighbor approached a King County engineer and complained about foul odors that had persisted for weeks. The county's IDDE team sampled the pond for bacteria and found extremely high counts. Staff noticed a small pipe leading into the upstream manhole, with seepage that looked like sewage. They contacted the local sewer agency to video the lines to look for illicit connections, but none were found and the suspect pipe led to nowhere, apparently just discharging into the ground.

Upon further investigation, the sewer agency discovered that its new sewer force main that runs parallel to the stormwater pipes was leaking. The seepage entered the stormwater system through the abandoned pipe. They applied a temporary grout and called in a contractor to make a permanent repair. Several days later, the IDDE team measured low bacteria counts in the pond water to confirm that the fix worked.

Ecology's Firsthand Experience Finding Polluting Discharges

Vancouver Field Office

Even the Department of Ecology is not immune to the problems of illicit connections or illicit discharges. Ecology experienced firsthand what it is like to learn that its building is not properly connected to a sewer system. In 2009, the City of Vancouver's IDDE team was surprised to find that part of Ecology's Vancouver field office (a leased building) was connected to a storm drain rather than a sanitary sewer

line. This apparently went undetected for years. The city contacted the owner, who made corrections within a few days. Ecology and the other agencies leasing space returned to work in the building only after the wastewater was connected to the sewer.

Central Regional Office in Yakima

Another firsthand experience happened when Ecology's Central Regional Office hired a contractor for carpet cleaning. The cleaning began on a Saturday and a City of Yakima staff member observed a hose coming out of a second story window of the building and discharging the dirty wash water down the storm drain. The City of Yakima, Ecology permit managers and Ecology's building and facilities staff worked to bring the operator into compliance and provide education about best management practices for carpet cleaners.

These incidents, while embarrassing to Ecology, illustrate the success of the municipal IDDE programs. They also demonstrate the need for an emphasis on stormwater education and outreach across the state to help citizens and businesses prevent polluted runoff and illicit discharges from reaching Washington waters.

Did you know?

1. **Most local governments have hotlines for concerned citizens to report illicit discharges to the local jurisdiction.**
2. **Without citizen reporting, these illicit discharges go unreported and are not cleaned up.**
3. **You can find your local hotline number by searching your city or county website.**

The Yakima office incident also prompted Ecology to clarify its contract language to ensure that when the agency contracts out for services like carpet cleaning, contractors will use the proper and legal best management practices to dispose of wastewater.

Washington Waters Are Getting Cleaner

Ultimately, what all of these IDDE program successes mean is that Washington's waters are getting cleaner. Work by local governments and other permittees is making a difference. Finding and fixing all of these illicit discharges and connections adds up to less pollution and cleaner stormwater entering our lakes, rivers, and streams.

For more information

Municipal Stormwater Permit Web Page:
www.ecy.wa.gov/programs/wq/stormwater/municipal/index.html

Illicit Discharge Detection and Elimination (IDDE) Program Resources:
www.ecy.wa.gov/programs/wq/stormwater/municipal/IDDEresources.html

How to Report an Environmental Problem:
www.ecy.wa.gov/reportaproblem.html

Contact

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