

CITY OF BLACK DIAMOND

**ILLICIT DISCHARGE DETECTION and
ELIMINATION (IDDE) PROGRAM**

August 2011



PREPARED BY
Public Works Department
CITY OF BLACK DIAMOND
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ADOPTION

WHEREAS, the City of Black Diamond is required by the Department of Ecology to have an Illicit Discharge Detection and Elimination (IDDE) program; and

WHEREAS, the City's Municipal Code has been updated to address issues concerning illicit discharges; and

WHEREAS, it is important for the City to regulate illicit discharge to protect lakes and creeks within City limits as well as downstream waterways in the Puget Sound region;

Now, therefore, The City of Black Diamond, Washington hereby adopts this Illicit Discharge Detection and Elimination (IDDE) Program, dated this _____ day of August, 2011.

Rebecca Olness, Mayor

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LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|-------|---|
| BMP | Best Management Practices |
| DOE | Washington State Department of Ecology |
| GIS | Geographic Information System |
| GPS | Global Positioning System |
| IDDE | Illicit Discharge Detection and Elimination |
| MS4 | Municipal Separate Storm Sewer System |
| NPDES | National Pollutant Discharge Elimination System |
| TMDL | Total Maximum Daily Load |

SECTION 1 – OVERVIEW

An illicit discharge is generally any discharge, release, or pumping of a pollutant or polluted water into the stormwater system. The National Pollutant Discharge Elimination System (NPDES) regulates the discharge of stormwater under the authority of the Federal Clean Water Act. Washington State Department of Ecology (DOE) has the designated authority to administer NPDES within the State of Washington. Under this authority, DOE has issued NPDES permits regulating the discharge of stormwater. The City of Black Diamond is under the regulation of the Phase II Municipal Stormwater Permit issued on February 16, 2007. The current Phase II permit will remain in effect until February 15, 2012, after which a new Phase II permit will be issued.

The Phase II permit mandates permittees to prepare and implement an Illicit Discharge Detection and Elimination (IDDE) program. This plan and its implementation satisfy this requirement. The goal of this plan is to identify and then eliminate illicit discharges.

Examples of illicit discharges include:

- Direct or indirect sanitary wastewater discharges that connect to the storm sewer or watercourse, such as a shop floor drain connected to a storm drain, a cross-connection between the municipal sanitary sewer and storm sewer systems, a damaged sanitary sewer line that is leaking sewage into a cracked storm sewer line, or a failing septic system that is leaking into a water course.
- Materials (e.g., gasoline) that have been dumped illegally into a storm catch basin.
- Improper home or business owner activities such as washing paint brushes into a catch basin, washing new textured concrete driveways into a storm drain, draining swimming pools to the storm system (swimming pools have high pH and chlorine), excessive use of fertilizers, or washing cars with chemicals that enter the storm system.

The NPDES Permit sets forth the minimum elements of the plan which are listed below. These minimum elements are described throughout the remainder of this document.

- Municipal Storm Sewer System Mapping
- Ordinances (that effectively prohibit illicit discharges)
- Detection and Elimination Program
- Public Education
- Staff Training

LOCAL BACKGROUND INFORMATION

The City of Black Diamond is located in southeast King County and has several significant water bodies, including: Lake Sawyer, Jones Lake, Black Diamond Lake, Lake Marjorie, Ravensdale Creek, Ginder Creek, Lawson Creek and Rock Creek. Covington Creek also originates from Lake Sawyer and flows into Covington. The storm sewer system is made up of pipes, swales, culverts, catch basins, storm ponds, and other storm facilities. The City has a Total Maximum Daily Load (TMDL) limitation for phosphorus on Lake Sawyer.

SECTION 2 – MUNICIPAL STORM SEWER SYSTEM MAPPING

CURRENT PROGRAM

The current program is compliant with the NPDES permit requirements and was completed in advance of the established February 2011 deadline within the permit. Some of the more specific elements of the program as required by the permit are listed below:

1. A map of all structural BMPs owned, operated, or maintained by the City.
2. A map showing all storm sewer outfalls with a 24-inch nominal diameter or larger, or an equivalent cross-sectional area for non-pipe systems and includes tributary conveyances, associated drainage areas and land use. Although the City of Black Diamond does not have any outfalls with a 24-inch nominal diameter, the City has elected to consider and map all of the known pipe outfalls.
3. A program to develop and maintain a map of all connections (ditch or pipe) to the City's storm system allowed or authorized after January 2007.
4. A map of areas of the City that do not discharge stormwater to surface waters. This would be any enclosed depression, isolated wetlands, or large areas relying on infiltration. The City has prepared a map and it is currently available in the City's Geographic Information System (GIS) database.

This data is preferred to be in electronic format with documented mapping standards. The City's maps are available in pdf format.

PROGRAM GOALS

Current goals the City has for mapping include:

- Utilizing the recently purchased Global Positioning System (GPS) unit to more accurately map the City's storm facilities.
- Updating current City maps and putting them in GIS format upon collecting data with the GPS unit.

SECTION 3 – ORDINANCES

CURRENT ORDINANCES

Section 14.04.390 (Ordinance 09-917, passed by the City Council and approved by the Mayor on August 6, 2009) of the City's current municipal code prohibits illicit discharges. The section references the fines and penalties that can be levied against violators in accordance with Section 14.04.400 (Ordinance 09-914, passed by the City Council and approved by the Mayor on June 25, 2009).

Ordinance 10-945 amended Ordinance 09-917 (passed by the City Council and approved by the Mayor on July 15, 2010) to provide further clarification of certain maintenance and inspection obligations of property owners.

SECTION 4 – DETECTION AND ELIMINATION PROGRAM

CURRENT RESOURCES

The City's maintenance staff is currently able to respond to suspected or reported illicit discharges during regular business hours. Outside of regular business hours, one staff member is on-call and can respond to suspected or reported illicit discharges.

The City of Black Diamond maintains a hotline that citizens can call during business hours to report a suspected illicit discharge, and the Public Works Department has an after hours emergency pager as well.

City of Black Diamond Phone Numbers:

(360) 886-2560 – regular business hours

(253) 333-5555 – after hours emergency pager

Website with phone number and information:

<http://www.ci.blackdiamond.wa.us/Depts/PubWorks/stormwater.html>

The hotline representative will contact the appropriate City department/staff to visit the location of the complaint, if appropriate. If the emergency is a major spill or associated with hazardous chemicals, the City will contact the Department of Ecology. The City is currently researching local contractors that can be called in for emergency clean up situations.

PROACTIVE INVESTIGATION

PRIORITIZATION PROCEDURES

The City is required to conduct field assessments to check for illicit discharges and illegal connections to the City's stormwater system and receiving waterbodies. During dry, low water table periods, the City surveys the City's major stormwater outfalls for illicit discharges and surveys the major natural receiving waterbodies as well.

In addition to the "end of the pipe" assessments, the City will be proactively meeting with businesses and homeowners associations to:

- Ensure proper maintenance is being performed
- Educate responsible persons
- Assess practices and risks to stormwater on private property

The first step of this proactive work is to prioritize those areas most likely to contain illicit discharges ("hot spots") based on an analysis of land use and other specific information. Based on previous research, the following types of areas are more likely to generate polluted discharges than others (Center for Watershed Protection & Pitt, 2004):

1. Locations with a history of repeated problems. This would also include areas with existing water quality data or where repeated complaints have been filed.

2. Older areas of a community typically have a higher percentage of illegal connections. Deteriorating sewer pipes can allow wastewater to exfiltrate out of the sanitary sewer lines and into the surrounding area.
3. Industrial and commercial areas usually have a higher percentage of illicit discharges.
4. Areas with large/many storage vessels of hazardous solids or liquids.

Another consideration for the City of Black Diamond is the proximity of the higher risk land uses (commercial/industrial) to receiving waters, especially local creeks. These areas will have a short flow path and greater chance of adversely affecting a larger aquatic system in the event of an illicit discharge or spill.

The City has conducted and will continue to conduct qualitative assessments of the City's surface waters by walking the streams to identify areas of concern. This activity can also be used to determine the accuracy of the outfall map, determine the accessibility of the streams for future monitoring, and provide a photographic record of existing conditions.

As of September 2010, the City conducted field assessments of high priority outfalls and three high priority water bodies. The City is required to annually inspect one water body beginning in 2011. During each "dry weather" inspection, it is expected that field personnel will collect data on the physical conditions at the outfall as well as water samples for lab analysis, as necessary.

A GIS-based map can be developed that identifies potential hot spots and prioritized water bodies. It is expected that, due to internal training of staff and public outreach efforts required by the NPDES permit, the City will develop a better understanding of the causes and locations of illicit discharges. The GIS map, along with any other tracking tools, can be regularly updated to reflect reports from staff and the public as well as information learned by the on-going field assessment work as the City's IDDE program matures.

GENERAL FIELD ASSESSMENT PROCEDURES

The following general recommendations apply to the dry weather field inspection and water sampling work (Center for Watershed Protection & Pitt, 2004):

1. Notify the public during field work projects. Public notices and informational mailers can improve the success of the program by educating the citizens.
2. Develop training and protocols to keep workers safe during field work.
3. Make good use of mapping information that has been developed by the City.
4. Fill out a standard field inspection form (see Appendix C)

PHYSICAL PARAMETERS

During dry weather field inspections, a variety of physical parameters will be recorded at each site to assess conditions. At flowing outfalls, this includes flow, odor, color, turbidity, and presence or absence of floatables. The information is obtained from the physical characteristics observed are indicators and cannot be fully relied upon by themselves.

A qualitative observation of flow (none, trickle, moderate, or substantial) should be made. Flow rates can be estimated by one of the following simple methods:

- a. Record the time required for the full flow to fill container of a known volume.
- b. Multiply cross-sectional flow area by flow velocity. For most instances, flow area is based on an estimate of mean depth and width. Flow velocity is based on the time of travel for an object floating near the surface over a known length.

Odor can be described by one of the following terms: sewage, sour/rancid, sulfide, gas/petroleum, or other. The severity of the odor should also be recorded in the field.

Color can be described by type and intensity.

Turbidity can be a qualitative descriptor (cloudy, slight cloudiness, clear, or opaque). Alternatively, it can be measured in the field or in the office with a handheld turbidimeter. It is recommended that the City always use the same make and model of meter to reduce the differences in readings.

Floatables are the best physical indicator. The most common floatables are sewage, suds, and oil sheens. Floatables do not include trash. The observation of sewage at an outfall location indicates that there is a severe problem with that Municipal Separate Storm Sewer System (MS4) and should be looked at as to where the source for the sewage is emanating from. Suds can indicate a variety of things. Some suds are naturally formed by the movement of the water. If the suds are located at a water drop off and break up quickly, this may only be water turbulence related. If the suds have a fragrant odor, this can indicate the presence of laundry water or wash water in the waterbody. Oil sheens need to be looked at to try and determine the source of the oil sheen. Some oil sheens are common and occur naturally by instream processes. This occurs when an iron bacteria forms a sheet-like film. This can be determined by looking at the sheen and seeing if it cracks when disturbed. Synthetic oil sheens, on the other hand, will swirl when disturbed. If this occurs, then the sheen is from an oil source.

The City may select a few water quality parameters that can be measured with inexpensive probes and test kits/strips in the field. These include temperature, pH, ammonia, conductivity, chlorine, and hardness. Other than conductivity, temperature and pH, these same parameters can be assessed during laboratory analyses so the field testing is usually unnecessary. It is generally recommended that the majority of analyses be conducted in a more controlled “lab” setting, when available (Center for Watershed Protection & Pitt, 2004).

There may be physical indicators of illicit discharges even if no flow is present. These include: outfall damage, deposits/stains, abnormal vegetation, poor quality of pooled water, and/or benthic growth on pipe.

During a dry weather inspection, observed flows are considered non-stormwater related. The flow may or may not be the result of an illicit discharge. Also, the absence of a flow does not indicate the absence of an illicit discharge since these discharges can be intermittent or transitory. It is important to observe carefully during the dry weather inspection to determine if an intermittent or transitory pollution problem has occurred.

WATER QUALITY SAMPLING AND TESTING

During dry weather inspections, physical clues indicating a pollution problem often are not observable. Therefore, water quality sampling and testing can be an essential part of the City's IDDE program. Some parameters can be directly measured in the field using a portable instrument or test kit, whereas others may require laboratory analysis.

IMMEDIATE RESPONSE PROCEDURES

City staff will be prepared to take immediate action in the event of encountering one of the following situations:

- Individuals possibly introducing illegal substances or materials to the storm system
- Strong chemical odor coming from the storm system
- Fumes or smoke coming from the storm system
- Visible stream of a controlled chemical or petroleum product flowing in the storm system or downstream waters
- Large chemical plume in stream or lake downstream of a City outfall
- Any condition that could pose an immediate threat to human health or safety, property, or aquatic life.

City staff will take the following steps if one of the above situations is encountered:

1. Ensure staff and public safety by instructing people to stay clear of the area.
2. Call 911 to report active illegal dumping or significant chemical incident.
3. Call City Hall to report a possible illegal discharge.
4. Call the Washington Emergency Management Division (1-800-OILS-911), the National Response Center (1-800-424-8802), and DOE (425-649-7000).
5. If a spill is encountered, the following information should be recorded, if possible:
 - a. Where is the spill?
 - b. What spilled?
 - c. How much spilled?
 - d. How concentrated is the material?
 - e. Who spilled the material?
 - f. Is there anyone cleaning up the spill?
 - g. Are there resource damages(e.g. oiled birds, dead fish)?
 - h. Who reported the spill?
 - i. Your contact information.
6. Isolate/contain visible chemical pollution in the effected water body, if possible, with any materials that are accessible. For smaller discharges, containers, absorbent pads, and earth dams can be useful for containment.

7. Take detailed notes and photos for subsequent investigations by other agencies.

At a minimum, follow-up work includes contacting DOE (425-649-7000) to determine if any additional reporting or investigative actions are necessary.

For incidents not determined to be emergencies, the City should investigate or refer to the appropriate agency any complaints, reports or monitoring information that indicates a potential illicit discharge, spill or illegal dumping.

ISOLATING ILLICIT DISCHARGES (SOURCE TRACING)

The City's contact numbers will continue to be an effective tool for locating illicit discharges. In situations where illicit discharges have been identified or detected by alert, trained staff persons, several methods can be used to trace the source of the illicit discharge. Tracing techniques include visual inspections of drainage structures and lines, dye testing, damming lines to isolate areas, video inspection, indicator monitoring, smoke testing, and optical brightener monitoring traps. Other more elaborate approaches include using remote sensing tools to identify soil moisture, water temperature, and vegetation anomalies associated with failing septic systems and tracking illegal dumping activities. The City will rely on visual inspections before trying any of the other mentions listed.

Several resources exist to assist in evaluating the likely source of an illicit discharge. The sources are usually washwater, sanitary sewer or septic, potable water leak, animal contamination, illegal dumping, or industrial discharge.

INVESTIGATION AND RESPONSE PROCEDURES

Once an illicit discharge or illegal connection has been found, details about the connection should be documented. Photographs may be helpful to record the location and nature of an illicit connection. The City will determine the name and contact information of the property owner.

The response by the City will depend on the type, location, frequency, severity, and source of the illicit discharge. The City should have several options available to address a specific discharge. In most cases where the violator is identified, it is expected that the violator will voluntarily comply with any action required by the City to eliminate the potential for further illicit discharges. When the violation is the result of an illegal connection from a building, the property owner should respond immediately of being made aware of the connection, the environmental consequences, the applicable regulations, and the recommended remedy.

The City will prepare a certified letter to be sent to the property owner for any illicit discharge or illegal connection. The letter will describe the findings of the investigation, the required remedy, the required deadline for compliance, technical resources, and the enforcement actions, fines, and legal actions that could ensure for non-compliance. The letter will also describe relevant codes and laws. The letter should specify who the property owner should contact for additional information and to notify the City when the required remedy has been completed.

The City will conduct a follow-up inspection following notification that any required remedies have been completed.

If the owner does not remedy the discharge, the City may proceed to enforcement actions outlined in Section 14.04.400 in the municipal code.

SECTION 5 – PUBLIC EDUCATION

PUBLIC INFORMATION

As part of the City's public outreach, material will be made available to citizens. The education campaign will rely upon articles in the City newsletter, inserts in utility bills, the City's website (<http://www.ci.blackdiamond.wa.us>), website ads, print ads, brochures, and/or fact sheets to make citizens aware of stormwater, water pollution, and inform them of the City's phone numbers for reporting possible illicit discharges. In addition to these methods, target audiences with a high risk as a potential source of illicit discharge, such as auto shops, mobile businesses, and commercial property owners/managers, may receive specialized educational material.

City staff will proactively meet with each business within the City to educate them on proper storm system maintenance requirements and to educate them on proper Best Management Practices (BMP) to keep stormwater from their business site clean and to prevent illicit discharges.

SECTION 6 – REPORTING AND RECORDKEEPING

TRACKING (SPILLS, INSPECTIONS, AND PUBLIC FEEDBACK)

Per section S5.C3.e of the NPDES permit, tracking and documentation is a requirement of the IDDE program. The City of Black Diamond Public Works department tracks and documents all reports of possible illicit discharges and illegal connections.

Public feedback is routed to the Public Works department where all complaints and suggestions will be addressed.

SECTION 7 – STAFF TRAINING

TRAINING COORDINATION

For those staff responsible for implementing the IDDE program, on the job training will be overseen by the Public Works Director. The Public Works Director and Public Works Administrative Assistant will help coordinate the necessary training, as needed.

DETAILED TRAINING

Detailed training will be assigned, as needed, to those individuals specifically involved in immediate response, source tracking, and sampling of potential illicit discharges.

GENERAL TRAINING

General training targets city staff who may potentially see an illicit discharge, including staff from the following departments: Public Works, Community Development, Parks and Natural Resources, and Police. General training may involve PowerPoint presentation and printed material distributed to staff at meetings. DVD, print or webcast material may be distributed as the need arises and as the program develops.

REFERENCES

The following reference was used to prepare this plan and contains supplemental information that may be useful to City staff:

1. IDDE Program Manuals

Center for Watershed Protection and Robert Pitt, “*Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments*”, October 2004, US Environmental Protection Agency, Washington D.C.
www.cwp.org

APPENDIX A – IDDE ASSESSMENT FORM

Form provided courtesy of Otak, Inc.

Inspector: _____ **Date:** _____ **Facility:** _____

Waste Management

Observe and comment on any dumpsters, trash compactors, recycling containers, used oil containers, etc. Are any containers leaking or stored incorrectly? Is the garbage dumpster under cover or is the lid kept closed? Sketch on the facility map the location of used oil containers and garbage dumpsters.

| Picture # | Pollutant Issue(s) | Appropriate BMPs |
|-----------|--------------------|------------------|
| | | |

Cleaning and Washing

Observe cleaning/wash area for vehicles, heavy and light equipment, and tools. What types of materials are washed off the vehicles/equipment/tools? Sketch on the facility map the drainage characteristics of the wash area. Where does the washwater drain to (catchbasin, swale, dirt, etc)? Are there any existing treatment BMPs and what is the condition of those BMPs?

| Picture # | Pollutant Issue(s) | Appropriate BMPs |
|-----------|--------------------|------------------|
| | | |

Transfer of Solids and Liquids

Observe any solid or liquid container loading or unloading areas. Is there a potential to contaminate stormwater through spills or leaks of the transferred material? How is used oil or antifreeze stored? Are there secondary containment structures? Are the Material Safety Data Sheets (MSDS) accessible? Are the spill cleanup kits easily accessible?

| Picture # | Pollutant Issue(s) | Appropriate BMPs |
|-----------|--------------------|------------------|
| | | |

Production and Application Activities

Production and Application activities involve the application of product to an object such as painting, coating, spraying, or other treatment. Are these or any other similar activities taking place outdoors? Is there a designated location for production/application activities? Sketch on the facility map the location of production/application activities, and drainage characteristics of the work area.

| Picture # | Pollutant Issue(s) | Appropriate BMPs |
|-----------|--------------------|------------------|
| | | |

Vehicle and Equipment Storage and Parking

Sketch on the facility map the location of storage or parking area(s), storage/parking area structure(s), surface of storage/parking area(s), and drainage characteristics. Is there evidence of any oil leaks underneath stored vehicles or equipment?

| Picture # | Pollutant Issue(s) | Appropriate BMPs |
|------------------|---------------------------|-------------------------|
| | | |

Material Storage

Materials stored outside may contaminate stormwater through erosion of granular materials, spills or leaks from liquids or equipment containing liquids, and dissolution of soluble materials. List the type of materials stored, and sketch on the facility map the storage area locations and drainage characteristics. Do the storage areas or facilities prevent spills or leaks and stormwater run-on?

| Picture # | Pollutant Issue(s) | Appropriate BMPs |
|------------------|---------------------------|-------------------------|
| | | |

Vehicle and Equipment Maintenance and Repair

Is the shop floor kept clean or does it appear that pollutants could be tracked outside? Are there any floor drains? Improperly connected floor drains can discharge oils, grease, and other equipment/vehicle fluids to the storm sewer system. Are the floor drains connected to the storm sewer, sanitary sewer, or other treatment system (vault, drywell, etc)? Are empty oil and fuel filters, oily rags, and other oily solid wastes disposed of into appropriately closed and properly labeled containers? Are spill cleanup kits easily accessible? List or sketch on the facility map the location of spill cleanup kits and floor drain outlet.

| Picture # | Pollutant Issue(s) | Appropriate BMPs |
|------------------|---------------------------|-------------------------|
| | | |

Dust, Erosion, and Sediment

Dirt can act like a magnet to other pollutants such as metals and oils. Eroding soils can pick up other pollutants as it is washed into the storm system. Observe and identify any dust producing activities, exposed or eroded soils, and deposited sediment. Sketch these locations on the facility map as needed.

| Picture # | Pollutant Issue(s) | Appropriate BMPs |
|------------------|---------------------------|-------------------------|
| | | |

Landscape Management

If pesticides/herbicides are used to control any vegetation, observe where those chemicals are stored. Are they secured in a lockable cabinet with appropriate warning signage? Are those chemicals applied by licensed operators?

| Picture # | Pollutant Issue(s) | Appropriate BMPs |
|------------------|---------------------------|-------------------------|
| | | |

Stormwater Drainage System

Observe where stormwater flows at the facility and sketch flow directions on the site map. Does stormwater flow off-site, or does it flow to a storm drain inlet? Sketch on the site map the locations of stormwater inlets, manholes, drywells, etc. Does stormwater come into contact with pollutants before leaving the site? If so, list the potential pollutants. Are there any existing structural treatment BMPs and, if so, what is the condition of those BMPs?

| Picture # | Pollutant Issue(s) | Appropriate BMPs |
|------------------|---------------------------|-------------------------|
| | | |