Illicit Discharge Detection and Elimination (IDDE) Program

City of Aberdeen Public Works

August 2011

City of Aberdeen, Washington
Illicit Discharge Detection and Elimination (IDDE) Program

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Illicit Discharge Detection and Elimination (IDDE) Program

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 (Ecology) has the designated authority to administer NPDES within the State of Washington. Under this authority, Ecology has issued NPDES permits regulating the discharge of stormwater. The City of Aberdeen is under 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 satisfies this requirement. The goal of this plan is to identify and then eliminate illicit discharges. Examples of illicit discharges include:

- Direct of 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.; used motor oil) that have been dumped illegally into a storm drain 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), excess use of fertilizers, or washing cars with chemicals that enter the storm drain 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

Municipal Storm Sewer System Mapping

Current Program

The City currently has the following stormwater-related information in their geographic information system (GIS) database:

- Storm sewers
- Catch Basins and manholes
- Ditches
- Streams (watercourses)
- Outfalls

The current program is compliant with the NPDES permit requirements and is completed in advance of the established August 19, 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. For pipe outfalls 24-inch-diameter pipes and watercourse outfalls, a map with the following attributes for each outfall: tributary conveyances (type, material, and size where known), associated drainage areas, and land use. Although most of the watercourses and pipes have a cross-sectional area less than a 24-inch-diameter pipe, the City has elected to consider and map all of the known pipe outfalls 6 inches or greater and all flowing (dry weather) watercourses including seeps and drainages.
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 2011.

The City of Aberdeen is bisected by the Chehalis and Wishkah Rivers. There are also numerous small streams and drainage channels that run through the City. The City has implemented an IDDE outfall screening program and has physically inspected all 30+ outfalls of the stormwater drainage system.

Ordinances

Current Ordinances

Aberdeen Municipal Code Chapter 13.70 Storm and Surface Water Management prohibits illicit discharges and illicit connections and uses (section 13.70.200). Connections to the stormwater system must contain only stormwater and groundwater otherwise they are to be eliminated. The IDDE ordinance is included in the appendix for reference.

Detection and Elimination Program

Response to Suspected or Reported Illicit Charges

The City currently has a Surface and Stormwater Management Program to fulfill an illicit discharge detection and elimination (IDDE) program which includes: commercial property

inspections, outreach and education, water quality monitoring and stormwater system operation and maintenance.

The City of Aberdeen maintains a hotline that citizens can call during business hours to report a suspected illicit discharge. Calls relative to illicit discharges can be received by several Public Works offices.

Aberdeen Phone Numbers:

Hotline – (360) 537-3393
Street Department – (360) 537-3268
Sewer Department – (360) 537-3285
Engineering Department – (360) 537-3215

Calls to any of the above numbers will result in information being received and routed to the proper individuals.

Proactive Investigation

Prioritization Procedures

In addition to maintaining a hotline for citizen complaints, the City is required to proactively conduct field assessments to identify illicit discharges and illegal connections to the City's stormwater system and receiving water bodies.

The first step of the 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. It is felt that the following types of areas are more likely to generate polluted discharges than others:

1. Locations where there have been repeated problems in the past. This could include areas with water quality data or where repeated complaints have been filed.
2. Older areas of a community typically have a higher percentage of illegal connections. Also, deteriorating sewer pipes can allow wastewater to exfiltrate out of the sanitary lines and into the surrounding environment.
3. Commercial and industrial areas tend to have a higher percentage of illicit discharges.
4. Areas with large and/or many storage vessels of hazardous solids or liquids.

Another consideration for Aberdeen is the proximity of the higher risk land uses (commercial/industrial) to receiving waters. 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 may also choose to conduct a qualitative assessment of the City's surface waters by walking the marine shoreline and streams to identify additional areas of concern. This activity can also be used to ground-truth the outfall map, determine the accessibility of the streams for future monitoring, and provide a photographic record of existing conditions.

As of 2010, the City conducted field assessments of all outfalls discharging to water bodies in the City of Aberdeen. During those inspections the City determined if the tide gates needed any maintenance and performed what was needed. The City found evidence of normal stormwater debris (i.e. trash, plastic, Styrofoam, and garbage) at many locations but did not document the amounts or location. At the time of the inspections there wasn't any evidence of other types of illicit discharges and the exact findings were not documented. Future inspections will include photographs and written documentation of each inspection.

A GIS-based map can be developed of 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 (or other tracking tool) 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.

Based on IDDE considerations such as those above, the City has implemented a program. Beginning in 2012 the City will:

- **Sub-watershed Assessments:** The City has prioritized sub-watersheds for IDDE risk based on four screening factors: total impervious area, wastewater infrastructure material and age, land use, and previous problems.
- **Storm Facility Inspections:** PW will identify and inspect private commercial, private residential and City maintained stormwater facilities throughout the City limits. Work on this will begin when we receive our new aerial photographs and should be completed within the next year.
- **Fecal Coliform Receiving Water Trend Monitoring Program:** Implement an ongoing water quality monitoring program. Monitoring focuses on outfalls to streams and river waters. The data will assist in prioritizing additional detailed system inspections. The sampling will be preformed as required by Phase II guidelines.
- **Outfall Reconnaissance:** Will complete a document inspection program for the mapped outfalls in 2011. The inspection program will include outfall location and screening for illicit discharges.

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 citizenry.
2. Develop training and protocols to keep workers safe during field work.
3. Make good use of the mapping information that has been developed by the City.
4. Fill out a standard field inspection form (see Appendix C).
5. Report spills illicit discharges or connections as required by the NPDES permit (Appendix B).

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 that 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:

1. Record the time required for the full flow to fill container of a known volume.
2. 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 is described by one of the following terms: sewage, rancid/sour, petroleum/gas, sulfide, or other. The severity of the odor should also be recorded in the field.

Color can be a description of color type and intensity. It is also a quantitative measurement expressed in cobalt-platinum units (Table 1).

Turbidity can be a qualitative descriptor (clear, slight cloudiness, cloudy, or opaque). Alternatively, it can be measured in the field or in the office with a hand held turbidimeter. It is recommended that the City use a single make and model of meter to reduce the differences in readings associated solely with equipment 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 the 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 water body. 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.

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, benthic growth in 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 will 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 require laboratory analysis. Table 1 lists the parameters that must be sampled as well as suggested/optional parameters to be sampled to isolate an illicit discharge. The table also provides the analytical method used when samples are sent to an accredited laboratory and benchmark concentration that typically indicate when there is a problem. Note that these benchmark concentrations are based on samples collected from storm drains nationally. Therefore, benchmark concentrations would be lower for samples drawn from watercourses since the natural base flows would likely dilute any pollutants in water discharged from a contributing storm drainage system.

Table 1

Water Quality Parameter	Use	Analytical Method	Benchmark Concentrations
Specific conductance	B, I	SM 2510B	>2,000 _s/cm
Hardness	B, I	EPA 130.1/SM 2340B	<10 mg/L or >2,000 mg/L as CaCO3
Turbidity	B, I	SM 2130B	>1,000 NTU
Color	S, I	SM 2120 B	>500 units
Bacterial counts	B	SM 9222 D/SM 9223 B	>200/>50
Ammonia	R, I	EPA 350.2/SM4500-NH3	>50 mg/L
Surfactants (as MBAS)	R, I	EPA 425.1/SM5540C	>0.25 mg/L
pH	B, I	EPA 150.1/SM 4500H	< 5
Temperature	B	SM 2550 B	
Total chlorine	S	SM 4500-Cl G	
Fluoride	S	EPA 300.0	0.25 mg/L
Potassium	S, I	EPA 200.7	>20 mg/L
Optical brighteners (florescence)	S	Center for Watershed Protection 2004	
Dissolved oxygen	S	SM 4500-0 G	
Industrial (metals, metalloids, cyanide, oils, grease)	S (for industrial basins)	EPA 200.7/200.9 EPA 1664 Ecology NWTPH-Gx/Dx	
Other pollutants-nutrients, pesticides, automotive fluids	S	EPA 300.0 SM 2540 D	

Key:
B = basic parameter to be analyzed at all sites
R = key parameter to identify source of illicit discharge in a typical residential basin
S = possible supplemental parameter
I = key parameter to identify source of illicit discharge from an industrial/commercial area

Immediate Response Procedures

The field crew should be prepared to take immediate action in the event of encountering one of the following situations:

- Individuals actively in the process of introducing possible illegal substances or materials to the storm drain system
- Very strong chemical odor emanating from storm drain system
- Presence of fumes or smoke emanating from storm drain system
- Visible significant stream of a controlled chemical or petroleum product flowing in storm system or downstream waters
- Large chemical plume in stream or lake downstream of a City outfall
- Any condition that poses or could pose an immediate threat to property, human health or safety, or aquatic life.

The crew should take the following steps if one of the above situations is encountered:

1. Ensure crew and public safety by instructing people to stay clear of the area.
2. Call 911 to report active illegal dumping or potential fire or significant chemical incident.
3. Call the City's customer response number at 360-537-3393 to report a possible illegal discharge.
4. The following offices must all be called if an unauthorized discharge of oil or hazardous material such as a spill has occurred:

    a) The National Response Center at 1-800-424-8802;
    b) Washington Emergency Management Division at 1-800-OILS-911; and
    c) Washington State Department of Ecology – Southwest Regional Office at 1-360-407-6300.

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 spilled material?
    e) Who spilled the material?
    f) Is anyone cleaning up the spill?
    g) Are there resource damages (e.g. dead fish or oiled birds)?
    h) Who is reporting the spill?
    i) Your contact information?

6. If possible isolate or contain visible chemical pollution in the effected water body with any materials that are accessible. For small discharges earth dams, absorbent pads, and containers may be useful to contain part of the illicit

discharge.

7. Take detailed notes and photos/video for subsequent investigation by City or other agencies.

At a minimum, follow-up work includes contacting the Washington State Department of Ecology – Southwest Office (see phone number above) 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 current hotline will continue to be an effective tool for locating illicit discharges. However, in situations where outfall screening identifies an illicit discharge several methods can be used to trace to 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 most common approach for the City will likely rely upon visual inspections of the catch basins in the storm line above the outfall in which an illicit discharge is suspected.

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

Investigation and Response Procedures

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

The response by the City will vary greatly depending on the type, location, frequency, severity, and source of illicit discharge. In general, the City will have several options available to address a specific discharge. In most cases where the violator is identified it is expected that they 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 once they are made aware of the connection, the environmental consequences, the applicable regulations, and the recommended remedy. If the violation is a failing septic system the violation is transferred to the Grays Harbor County Health District for enforcement. These transferred violations are monitored closely by the City to assure compliance with permit requirements.

The City will prepare a letter to be sent to the property owner for any illicit discharge or illegal connection. Depending on the circumstances 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 ensue for non-compliance. The letter should also describe the 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 the required remedy has been completed.

Should the owner not remedy the discharge, the City may proceed to abate the violation as a public nuisance in accordance with established City nuisance abatement policies and procedures.

Public Education

Public Information

As part of the City's public outreach program, outreach material will be made available to the citizens. The education campaign will rely upon the City's website (http://www.aberdeeninfo.com), brochures, print ads, website ads, drain markers and/or fact sheets to make citizens aware of stormwater, water pollution, and inform them of the City's hotline for reporting on possible illegal dumping, connections, or discharges. Additionally, target audiences with a high risk as a potential source, such as auto shops, mobile businesses, and commercial property owners/managers may receive specialized educational material.

The City has established a customer phone number (360-537-3393) for reporting of spills or illicit discharges.

Reporting and Recordkeeping

Tracking (Spills, Inspections, and Public Comment/Feedback)

Tracking and documentation is a required part of the IDDE program (section S5C3e) and will be recoded on the appropriate form (see Appendix D).

IDDE inspections will be recorded on field forms (see Appendix B).

Public comment/feedback will be conveyed to the IDDE program manager to ensure that the program is responsive to citizen complaints. The public will be directed to either the program manager directly or the hotline if they have general comments they would like to make on the City's IDDE program.

Staff Training

Training Lead

For those staff responsible for implementing the IDDE program, on the job training will be managed by the City's IDDE program manager. The program manager will manage and assign training as described below and shown in the Training Summary Table below.

Detailed Training

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

General Training

General training targets City field staff who may potentially see an illicit discharge including staff from the following departments: Street, Department of Community Development, Facilities Maintenance, Traffic, Sewer and Stormwater Maintenance and Parks. General training will be via PowerPoint presentation and printed material distributed to staff at staff meetings. DVD, print or webcast material may be distributed if the need arises as the program develops.

Preliminary training activities, a schedule and identification of those to receive training are listed in the following table.

Training Topic	Attendees	Estimated Number of Staff	Training Type and Frequency	Description
Illicit Discharge Detection and Elimination-program field staff	Any staff responsible forassessing outfalls	2	In-field training	This training is for staff that will beresponsible for field assessment of outfalls.
Illicit Discharge Detection and Elimination - general information	All field staff	30	PowerPoint, webcast, or informational brochure	This training will explain the IDDE program. Included will be information on how to identify and report suspected illicit discharges.

Appendix A – IDDE Ordinance

City
of
Aberdeen

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ORDINANCE NO._____

AN ORDINANCE RELATING TO STORM AND SURFACE WATER MANAGEMENT, REPEALING CHAPTER 13.68 OF THE ABERDEEN MUNICIPAL CODE, ADOPTING A NEW CHAPTER 13.70, AMENDING ORDINANCE 5971, AND REPEALING ORDINANCES 6177, 6238, 6280, 6324, 6334, 6453.

WHEREAS, the state of Washington has imposed new state-wide storm and surface water management regulations that require updates to the city's current utility code to comply with the mandatory state standards; **NOW, THEREFORE,**

BE IT ORDAINED BY THE MAYOR AND CITY COUNCIL OF THE CITY OF ABERDEEN:

SECTION 1. CODE CHAPTER REPEALED. Chapter 13.68 of the Aberdeen Municipal Code, being Ordinance 6177 as amended by Ordinances 6238, 6280, 6334, and 6453, is hereby repealed and replaced by a new Chapter 13.70 AMC as adopted in Section 2 of this ordinance.

SECTION 2. NEW CODE SECTION ADOPTED. The following Chapter 13.70 – "Storm and Surface Water Management" is hereby added to the Aberdeen Municipal Code:

Chapter 13.70
STORM AND SURFACE WATER MANAGEMENT

Sections:

13.70.010 Purpose.

The purpose of this chapter is to protect, maintain, and enhance the public health, safety, and general welfare by establishing minimum requirements and procedures to control the adverse impacts associated with increased storm and surface water runoff. Proper management of storm and surface water runoff will minimize damage to public and private property, reduce the effects of development on land and stream channel erosion and sedimentation, assist in the attainment and maintenance of water quality standards, reduce local flooding, and maintain post-development, as nearly as possible, the predevelopment runoff characteristics, while meeting the Stormwater Management Manual for Western Washington as adopted by the Department of Ecology. This chapter also establishes a Storm and Surface Water System as a utility service of the city.

13.70.020 Definitions.

For the purposes of this chapter, the following definitions describe the meaning of the terms used in this chapter:

A. "Adverse impact" means any deleterious effect on water or wetlands, including their quality, quantity, surface area, species composition, aesthetics or usefulness for human or natural uses which are or may potentially be harmful or injurious to human health, welfare, safety or property, to biological productivity, diversity or stability, or which unreasonably interfere with the enjoyment of life or property, including outdoor recreation.

B. "Agricultural land management practices" means those methods and procedures used in the cultivation of land in order to further crop production and conservation of related soil and water resources.

C. "Applicant" means any person, firm or governmental agency who executes the necessary forms to procure official approval of a project or a permit to carry out construction of a project.

D. "Aquifer" means a porous water-bearing geologic formation generally restricted to materials capable of yielding an appreciable supply of water.

E. "City engineer" means the city of Aberdeen Public Works Director or his or her designee.

F. "Clearing" means the removal of trees and brush from the land, but shall not include the ordinary mowing of grass.

G. "Detention structure" means a permanent structure designed to store runoff for discharge at rates approximating what would have occurred under predevelopment conditions.

H. "Develop land" means to change the runoff characteristics of a parcel of land in conjunction with residential, commercial, industrial or institutional construction or alteration.

I. "Developer" means a person, group or company engaged in land or property development or proposed development.

J. "Director" or "Public Works Director" means the city of Aberdeen Public Works Director or his or her designee.

K. "Drainage area" means that area contributing runoff to a single point measured in a horizontal plane which is enclosed by a ridge line.

L. "Engineer" means a civil engineer or civil engineering firm that has been retained or employed by the city to perform engineering services.

M. "Easement" means a grant or reservation by the owner of land for the use of such land by others for specific purpose(s), and which must be included in the conveyance of land affected by such easement.

N. "Exemption" means those land development activities that are not subject to the storm and surface water management requirements contained in this chapter.

O. "Flow attenuation" means detaining or retaining runoff to reduce the peak discharge.

P. "Grading" means any act by which soil is cleared, stripped, stockpiled, excavated, scarified, filled or any combination thereof.

Q. "Infiltration" means the passage or movement of water into the soil surface.

R. "Off-site storm and surface water management" means the design and construction of a facility necessary to control storm and surface water from more than one development.

S. "On-site storm and surface water management" means the design and construction of systems necessary to control storm and surface water within an immediate development.

T. "Retention structure" means a permanent structure that provides for the storage of runoff by means of a permanent pool of water or infiltration.

U. "Sediment" means soils or other surficial materials transported or deposited by the action of wind, water, ice or gravity as a product of erosion.

V. "Site" means any tract, lot or parcel of land or combination of tracts, lots or parcels of land which are in one ownership, or are contiguous and in diverse ownership where development is to be performed as part of a unit, subdivision or project.

W. "Stabilization" means the prevention of soil movement by any of various vegetative and/or structural means.

X. "Storm and surface water management" means:

1. For quantitative control, a system of vegetative and structural measures that control the increased volume and rate of surface runoff caused by manmade changes to the land; and

2. For qualitative control, a system of vegetative, structural and other measures that reduce or eliminate pollutants that might otherwise be carried by surface runoff.

Y. "Storm drainage plan" means a set of drawings or other documents submitted by a person as a prerequisite to obtaining a storm drainage permit, which contains all of the information and specifications pertaining to storm and surface water management.

Z. "Stripping" means any activity which removes the vegetative surface cover, including tree removal, clearing, grubbing and storage, or removal of topsoil.

AA. "Variance" means the modification of the minimum storm and surface water management requirements for specific circumstances where strict adherence of the requirements would result in unnecessary hardship and not fulfill the intent of this chapter.

BB. "Watercourse" means any natural or artificial stream, river, creek, ditch, channel, swale, conduit, culvert, drain, or ravine, in and including any area adjacent thereto which is subject to inundation by reason of overflow or flood water.

CC. "Watershed" means the total drainage area contributing runoff to a single point.

DD. "Wetlands" means an area that has saturated soils or periodic high groundwater levels and vegetation adapted to wet conditions and periodic flooding.

13.70.030 Utility established.

For the purpose of carrying out the provisions of this chapter there is created and established a storm and surface water drainage utility for the city of Aberdeen pursuant to chapters 35.67, 35.92, 90.03, and 90.54 RCW, and by Article 11, Section 11, of the constitution of the state of Washington. The primary purpose of this utility shall be the planning, design, construction, maintenance, administration, and operation of all city storm and surface water facilities and for overseeing the design, construction, and maintenance of improvements on private property where these may affect storm and surface water management. The utility shall be administered by the public works director. The city council is authorized to make funds available to the utility by appropriation, borrowing, or by other means in accordance with laws of Washington state, for the establishment maintenance, and operation of this utility.

13.70.040 Transfer of property.

All properties, property rights, and interests of every kind or nature owned or held by the city, however acquired, insofar as they relate to or concern storm or surface water facilities, are hereby transferred to the Storm and Surface Water Utility, including by way of examples and not limitation, all properties, rights and interest acquired by adverse possession or by

prescription in and to the drainage and storage of storm or surface waters over and under lands, watercourses, streams, ponds, and estuaries to the full extent of inundation caused by the largest storm or flood condition.

13.70.050 Storm and surface water fund created.

A. Pursuant to state law, the city hereby declares its intention to designate the city's storm and surface water system as a utility and enterprise activity of the city to be supported all or in part by the imposition of user charges on all parcels of property within the city which discharge stormwater to the city's storm drainage facilities or are otherwise served by the city's storm drainage facilities.

B. The city hereby establishes a special fund within the city's fiscal system to be known as "The Storm and Surface Water Fund", hereinafter referred to as the fund.

C. All revenues from storm drainage user charges and other storm drainage related fees and charges as may be adopted by resolution shall be deposited to the fund.

D. Expenditures from the Fund shall be limited to those expenditures for the improvement, repair, operation, maintenance, and administration of the storm drainage facility as defined by the public works director of the city of Aberdeen. The fund may also transfer funds to the general fund of the city that represent the reasonable and proportionate share of the cost of general city government support of the utility not covered by direct payments from the fund.

13.70.060 Setting of fees and charges.

A. The city council shall by resolution establish a system of user charges for all parcels in the city.

B. To the extent practicable, user charges shall be based on each parcel's expected rate and volume of stormwater runoff from a parcel.

C. The city council may by resolution establish a charge for the connection of any parcel to the city's storm drainage facilities to reflect that parcel's fair share of the cost of the existing city storm drainage facilities serving the parcel.

D. The public works director shall establish appropriate fees for the review and inspection of storm drainage facilities proposed and constructed by private development.

13.70.070 Applicability.

It is not intended that this chapter repeal, abrogate, or impair any existing regulations, easements, covenants, or deed restrictions. The provisions of this chapter shall be held to be minimum requirements in their interpretation and application and shall be liberally construed to serve the purposes of this chapter. When any provision of any other chapter of the city regulations conflicts with this chapter, that which provides more environmental protection shall apply unless specifically provided otherwise in this chapter.

13.70.080 Review and approval of storm and surface water drainage plans.

A storm and surface water drainage plan or application for a variance shall be submitted to the city engineer by the developer for review and approval for any proposed development, unless otherwise exempted. The storm and surface water drainage plan shall be accompanied by supporting computations, drawings and sufficient information describing the manner, location and type of measures in which storm and surface water runoff will be managed from the entire development. The information supplied by the developer shall be in conformance with the Stormwater Management Manual for Western Washington as prepared by the Department of Ecology. The developer is responsible for submitting a storm and surface water management plan which meets the design requirements provided by this chapter. No person shall develop any land for residential, commercial, industrial or institutional uses without having provided for appropriate storm and surface water management measures that control or manage runoff from such developments.

13.70.090 Exemptions.

A. The following development activities are exempt from the provisions of this chapter and the requirements of providing storm and surface water management.

1. Agricultural land management activities;
2. Additions or modifications to existing single-family detached residential structures;
3. Developments that do not disturb over five thousand square feet of land area; or
4. City of Aberdeen owned facilities and streets.

13.70.100 Variances.

The city engineer may grant a written variance from any requirement of this chapter if there are exceptional circumstances applicable to the site such that strict adherence to the provisions of this chapter will result in unnecessary hardship and not fulfill the intent of this chapter. A written request for variance shall be provided to the city engineer and shall state the specific variances sought and reasons for their granting. The city shall not grant a variance unless and until sufficient specific reasons justifying the variance are provided by the person developing land.

13.70.110 Permits – plan approval required.

A grading/fill permit, building permit, or other development permit may not be issued for any parcel or lot unless a storm and surface water drainage plan has been approved by the city engineer. The approved plan shall be become part of the permit and be enforced as an element of any development permit issued by the city.

13.70.120 Plan approval - conditions.

In granting the plan approval, the city engineer may impose such conditions thereto as may be deemed necessary to ensure compliance with the provisions of this chapter and the

preservation of public health and safety. Any grading/filling permit, building permit, or other development permit issued by the city may be suspended or revoked, after written notice is given to the permittee, for any violations of the approved storm and surface water drainage plan.

13.70.130 Minimum control and management requirements.

The minimum storm and surface water control and management requirements shall be in accordance with standards adopted by the city and included in the Stormwater Management Manual for Western Washington.

13.70.140 Design criteria.

Storm and surface water systems shall be designed and constructed in accordance with the standards and specifications as set forth in the Standard Specifications for Road, Bridge and Municipal Construction published by the American Public Works Association (APWA) and the Washington State Department of Transportation, and Stormwater Management Manual for Western Washington published by the Washington State Department of Ecology.

13.70.150 Maintenance agreement.

Prior to issuance of a storm and surface water utility permit, the city shall require the applicant to execute an inspection and maintenance agreement binding on all subsequent owners of land served by the private storm and surface water drainage system. The maintenance agreement shall be recorded by the city. Such agreement shall provide for access to the system at reasonable times for regular inspection by the city or its authorized representative to ensure that the facility is maintained in proper working condition to meet design standards and any provisions established. The agreements shall include the right of the city to access the system to take such action as necessary to protect the public safety and health in any instance where the owner fails to make the appropriate correction. Such agreement may contain provisions for regular or special assessments.

13.70.160 Inspection.

A. The developer will submit to the city a proposed construction schedule ten days prior to commencing construction. The city engineer shall conduct inspections and file reports for periodic inspections necessary during construction of storm and surface water management systems to ensure compliance with the approved plans. The developer shall notify the city upon completion of the project when a final inspection will be conducted.

B. Any portion of the work which does not comply with city regulations will be promptly corrected by the developer, after written notice from the city. The notice shall set forth the nature of corrections required and the time within which corrections will be made.

C. A final inspection shall be conducted by the city upon completion of the elements of the storm and surface water drainage plan to determine if the completed work is constructed in accordance with approved plan and this chapter. The developer shall supply an

"as-built" certification by a registered professional engineer licensed in the state of Washington to certify that the facility has been constructed as shown in the "as-built" plans and meets approved plans and specifications. The city will provide the developer with a written notification of the results of the final inspection.

13.70.170 Preventive maintenance.

A. It shall be the responsibility of the developer or property owner to maintain all infiltration systems, retention, detention or other storm and surface water drainage structures as contained in the storm and surface water utility permit.

B. The city shall annually inspect all infiltration systems, retention, detention or other storm and surface water drainage structures.

C. If the inspection indicates improper maintenance, unsafe conditions, or danger to public health or safety, the city shall so inform the developer or property owner of those conditions as well as a schedule for remediation. The cost of such remediation is the cost of the developer or property owner. In any instance where the developer or property owner fails to make the appropriate correction, the city will take such action as necessary to protect the public health and safety. Any cost incurred by the city shall be recovered from the developer or property owner.

13.70.180 Penalties.

A. Any person convicted of violating the provisions of this chapter shall be guilty of a gross misdemeanor. Each day that the violation continues shall be a separate offense.

B. In addition to, or as an alternative to any criminal prosecution or other penalty or billable cost of abatement or inspection as provided by ordinance or statute, any responsible person who violates a provision of this chapter, or order of the director issued pursuant to this chapter, may be assessed a civil penalty under chapter 1.12 AMC.

C. In addition to imposition of a civil penalty, the director shall have the authority to order any responsible person to stop work if the work does not conform to the permit requirements and the severity is determined to be sufficient to warrant such action. The stop work order shall be issued in accordance with the procedures set forth in 1.12 AMC for notices and orders. Failure to comply with the terms of a stop work order shall result in enforcement actions including, but not limited to, the issuance of a civil penalty.

C. In addition, the city may institute injunctive, mandamus or other appropriate action or proceedings at law or equity for the enforcement of this chapter or to correct violations of this chapter, and any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent, injunctions or other appropriate forms of remedy or relief.

D. Any person who, through an act of commission or omission, aids or abets in the violation shall be considered to have committed a violation.

13.70.190 Cross connections prohibited.

The installation or maintenance of any cross connection, meaning a connection between any storm and surface water drainage system and any sanitary sewer system, is prohibited. Any such cross connections now existing, or hereafter installed, are declared to be public nuisances and shall be abated by the Director in the manner provided by chapter 8.08 AMC.

13.70.200 Illicit discharges prohibited – certain discharges allowed – conditions.

A. The stormwater system of the city of Aberdeen, natural and artificial, may only be used to convey stormwater runoff and discharges meeting the permit conditions within a current National Pollutant Discharge Elimination System Permit approved by the Washington State Department of Ecology. Except as provided in subsections B and C below, no person shall throw, drain or otherwise discharge, cause or allow others under it s control to throw, drain or otherwise discharge into the stormwater system any materials other than stormwater.

B. The following discharges into the stormwater system are permitted provided the following conditions are met:

1. Discharges from potable water sources, including waterline flushing, hyper chlorinated waterline flushing, fire hydrant system flushing and pipeline hydrostatic test water. Planned discharges shall be dechlorinated to a concentration of 0 1 ppm or less, pH adjusted, if necessary (to meet water quality standards) and volumetrically and velocity controlled to prevent re-suspension of sediments in the stormwater system. As an option to dechlorinating, planned discharges from potable water sources may be discharged directly to the municipal sanitary sewer system in a manner approved by the Director. Planned discharges of waterline and hydrant system flushing need not be dechlorinated at the point of discharge is the discharge methods, location, or dilution will result in a pH concentration less than 0.1 ppm at the point the water would enter a natural drainage channel.

2. Discharges from lawn watering and other irrigation runoff. Reasonable steps shall be taken to minimize runoff including limiting duration and over-spray.

3. Dechlorinated swimming pool discharges. The discharges shall be dechlorinated to a concentration of 0.1 ppm or less, pH adjusted, and re-oxygenized if necessary, and volumetrically and velocity controlled to prevent re-suspension of sediments in the stormwater system and the property owner shall obtain permission from the Director. Swimming pool cleaning waste water and filter backwash shall not be discharged to the stormwater system.

4. Street and sidewalk wash water, water used to control dust, and routine external building wash down that does not use detergents. To avoid washing pollutants into the stormwater system, the discharge must minimize the amount of street wash and dust control water used. At active construction sites, street sweeping must be performed prior to washing the street.

5. Other non-stormwater discharges. The discharges shall be in compliance with the requirements of the stormwater pollution prevention plan for the discharges as reviewed and approved by the City.

6. Any discharges from a construction site. Discharges must be in conformance with the stormwater pollution prevention plan (SWPPP) reviewed by the City.

7. Combined sewer overflow (CSO) discharges. This discharge must be in conformance with a current National Pollution Discharge Elimination System Permit, approved by the Washington State Department of Ecology.

C. The following categories of non stormwater discharges are specifically allowed:

1. Diverted stream flows;
2. Rising ground waters;
3. Uncontaminated ground water infiltration (as defined at AMC 13.52.390);
4. Uncontaminated pumped ground water;
5. Foundation drains;
6. Air conditioning condensation;
7. Irrigation water from agricultural sources that is commingled with urban stormwater;
8. Springs;
9. Water from crawl space pumps;
10. Footing drains;
11. Flows from riparian habitats and wetlands;
12. Non stormwater discharges covered by another NPDES permit;
13. Discharges from emergency fire fighting activities in accordance with the city of Aberdeen Stormwater NPDES Phase II Permit Section S2 Authorized Discharges. The city's Stormwater NPDES Phase II Permit is available to view in the office of the Director.

D. Except as provided in this section, no person shall use the stormwater system, directly or indirectly, to dispose of any solid or liquid matter other than stormwater. No person shall make or allow any connection to the stormwater system which could result in the discharge of polluting matter. Connections to the stormwater system from the interiors of structures are prohibited. Connections to the stormwater system for any purpose other than to convey stormwater or groundwater are prohibited and shall be eliminated.

E. Stormwater discharge into the sanitary system is prohibited - exceptions.

1. No person shall discharge or cause to be discharged any stormwater, surface water, ground water, roof runoff, subsurface drainage, uncontaminated cooling water, or unpolluted industrial process waters into any sanitary sewer, unless otherwise approved by the Director based on lack of feasible alternatives or unless the discharge meets the condition outlined in AMC 13.52.390.

2. No person shall make connection of roof downspouts, exterior foundation drains, area drains, or other sources of stormwater surface runoff or groundwater to a building sewer or building drain which in turn is connected directly or indirectly to a public sanitary sewer, unless such connection is otherwise approved in writing by the Director based on lack of feasible alternatives or other appropriate factors.

F. Stormwater shall be discharged to such sewers as are specifically designated as combined sewers or storm sewers, or to a natural outlet approved by the Director. Storm

drainage from hard-surfaced or graded areas, such as parking lots, service station yards, and storage yards, shall enter the public storm sewer system or other outlet approved by the Director and as required by this Chapter and as such facilities are available. Such storm drainage shall not be connected to or allowed to enter a sanitary sewer, unless otherwise approved in writing by the Director based on lack of feasible alternatives or other appropriate factors

13.70.210 Easements.

All public storm drainage systems shall be required to be located within a recorded public storm drainage easement or public right-of-way. An unobstructed ingress/egress maintenance easement shall be provided for city access to said storm drainage facilities. The minimum width of the required drainage easement shall be adequate to encompass all facilities and include room for access and maintenance, as determined by the city.

13.70.220 Appeals – filing deadlines.

A. Any billing statement, charge, or other fee assessed under this chapter may be appealed to the Director. The appeal may be decided informally, without a hearing, or in the sole discretion of the Director an informal hearing may be held. The Director's decision shall be in writing. The Director's decision shall be the final determination unless a written notice of appeal is filed with the Finance Director within fourteen days of the Director's decision. Appeals from the Director's decision shall be heard by the city council. The city council's decision on appeal shall be the final determination of the city.

B. Any appeal from the refusal to approve a storm and surface water drainage plan shall be considered in the same manner as an appeal from the denial of the development permit being applied for.

C. Any civil enforcement action taken under this chapter, that does not fall within subsections A or B of this section, may be appealed to the Director in the same manner as provided for appeals under chapter 1.12 AMC.

SECTION 3. CODE SECTION AMENDED. Ordinance 5971, in part, codified as AMC 1.12.050E, is amended to read as follows:

Appeal to Superior Court. An appeal of the decision of the board must be filed with Superior Court within ~~ten~~ twenty-one calendar days of the date of mailing of the decision of the board to the appellant or is thereafter barred.

SECTION 4. SAVINGS CLAUSE. Ordinance 6177, as amended, which is repealed by this ordinance, shall remain in force and effect until the effective date of this ordinance.

SECTION 5. SEVERABILITY. Should any section, subsection, paragraph, sentence, clause or phrase of this ordinance or its application to any person or situation be declared unconstitutional or invalid for any reason, such decision shall not affect the validity of the remaining portions of this ordinance or its application to any other person or situation.

SECTION 6. PUBLICATION BY SUMMARY. The Finance Director is authorized and directed to publish the attached summary in lieu of this ordinance.

SECTION 7. EFFECTIVE DATE. This ordinance shall take effect immediately upon its passage, signing, and publication.

PASSED and **APPROVED** this ____ day of _____, 2010.

_____
Bill Simpson, Mayor

ATTESTED:

_____
Kathryn Skolrood, Finance Director

Appendix B – Illicit Discharge Incident Reporting Forms

Illicit Discharge Incident Report Sheet

Responder Information

Call Taken By:	Call Date:	Call Time:

☐ Hotline Call

☐ Reported by other Department or Agency

Reporter Information

Incident Time:	Incident Date
Caller Contact Information:	
Organization:	
Precipitation (inches)	24 / 48 hours

Incident Location

Stream Address or Outfall #:	Latitude and Longitude
Closest Street Address:	Nearby Landmark:

Primary Location Description	Secondary Location Description		
☐ Stream Corridor (In or adjacent to stream)	☐ Outfall	☐ In-stream Flow	☐ Along banks
☐ Upland Area (Land not adjacent to stream)	☐ Near storm drain	☐ Near other water source (Stormwater pond, wetland, ect.)	

Narrative description of location:

Upland Problem Indicator Description

☐ Dumping	☐ Oil / solvents / chemicals	☐ Sewage
☐ Wash water , suds, ect.	☐ Other:	

Stream Corridor Problem Indicator Description

Odor	☐ None	☐ Sewage	☐ Rancid / Sour	☐ Petroleum (gas)
	☐ Sulfide	☐ Musky	☐ Other: Describe in "Narrative" section	
Appearance	☐ Normal	☐ Oil Sheen	☐ Cloudy	☐ Turbid
	☐ Other: Describe in "Narrative" section			
Floatables	☐ None	☐ Sewage	☐ Litter	☐ Dead Fish
	☐ Algae	☐ Suds	☐ Other: Describe in "Narrative" section	

Narrative description of problem indicators: _____

Suspected Violator (name, personal or vehicle description, license plate number, ect.) _____

Tracking Number (from top of sheet 2) _____

Required Notifications (Record in correspondence section of sheet two)		
Spill Type	Examples	Call / Notify All Listed
Emergency Situation An immediate and severe threat to human health or the environment Spills of gas, oil and hazardous substances in any amount	Sewage Main Break Gasoline Tank Rupture Spill with overwhelming chemical odor Gas / Oil spill in a stream, lake or river Gas / Oil spill flowing into a catch basin Gas / Oil spill into a ditch Motor oil spill flowing into a catch basin	911 National Response Center 800-424-8802 WA. Emergency Management 800-OILS-911 Ecology SW Regional Office 360-407-6300 Department of Health - Sewage 360-236-3330 Aberdeen Public Works 360-537-3393
Non Emergency Situation Small / Medium amount of known substance (generally 1 drop to 5 gallons and the responder is able to handle the situation	Leaking septic system broken side sewer Oil or vehicle fluids on pavement or gravel Concrete washout Muddy construction site runoff Suds Paint	Aberdeen Street Department 360-537-3241 Aberdeen Sewer Department 360-537-3285 Department of Health - Sewage 360-236-3330

Appendix C – Outfall Reconnaissance Inventory Field Sheet

(Sample)

Illicit Discharge Incident Investigation / Resolution Sheet

Tracking Number (Assign tracking numbers according to sequential order for year and date of occurrence)

Example: 1.1.20.2011 first incident of 2011 occuring Jan. 20, 2011

Site Assessment / Investigation

Site Investigated by:

Date: | Time:

Investigation Results:

- ☐ No Investigation Made
  - Reason:
- ☐ Referred to different department or agency
  - Contact information
  - Reason:
- ☐ Investigated - No Action Required
  - Reason:
- ☐ Investigated - Action Required
  - Complete next section

Narrative description of site assessment:

Environmental Remediation Action Plan

Enforcement Actions (if any)

Correspondence

Agency	Contact Person	Date / Time	Phone Number
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID:	
Today's date:		Time (Military):	
Investigators:		Form completed by:	
Temperature (°F):	Rainfall (in.): Last 24 hours:	Last 48 hours:	
Latitude:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☐ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☐ Closed Pipe	☐ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☐ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☐ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: _____	In Water: ☐ No ☐ Partially ☐ Fully With Sediment: ☐ No ☐ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☐ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Appendix D - Illicit Discharge Hotline Incident Tracking Sheet

Illicit Discharge Incident Investigation / Resolution Sheet			
Incident Number	Problem	Location	Resolution
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			