

# Illicit Discharge Detection and Elimination (IDDE) Program

Kitsap County Public Works

June 2011



# Kitsap County, 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. Kitsap County 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 satisfies 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., 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

Unincorporated Kitsap County has 156 miles of marine shoreline and numerous lowland streams. The storm system is exclusive of the Cities of Port Orchard, Bremerton, Poulsbo and Bainbridge Island, and military and tribal lands. No large rivers are found in

Kitsap County. Additionally, several small lakes are located in the county. Approximately 70 miles of shoreline are within the permit designated municipal separate storm sewer system (MS4) area. However, about 93 miles of marine shoreline was evaluated. Kitsap County Public Works Surface and Stormwater Management's (SSWM's) policy is to treat all receiving waters, whether in the designated MS4 or outside the MS4, as valuable water resources and subject to stormwater management activities, which will help protect and improve these resources. The remaining 63 miles of shoreline not evaluated was determined to be sparsely populated with little or no stormwater infrastructure discharging to marine water. Unincorporated Kitsap County's storm system includes rural areas with ditches and road cross culverts; urban centers with pipes, catch basins and storm facilities (ponds/vaults/tanks/swales); and residential areas with a combination of ditches, pipes, catch basins and storm facilities. Kitsap County SSWM implemented an extensive IDDE outfall screening program from 2000-2008. The program visited over 1,500 outfalls and 68% were connected to the County stormwater drainage system and the remaining 32% were private or natural drainage systems.

## **Municipal Storm Sewer System Mapping**

### ***Current Program***

The County 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 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 County.
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 County 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 County's storm system allowed or authorized after January 2007.

4. A map of areas of the County that do not discharge stormwater to surface waters. This would be any enclosed depression, isolated wetlands, or large areas relying on infiltration.

This data is preferred to be in electronic format with documented mapping standards. The County's mapping is already in electronic format and is available on the web at <http://www.kitsapgov.com/sswm/sitemap.htm>.

## Ordinances

### *Current Ordinances*

Kitsap County Code Chapter 12.30 Water Quality prohibits illicit discharges (section 12.30.020) and illicit connections and uses (section 12.30.030). Connections to the stormwater system must contain only stormwater and groundwater otherwise they are to be eliminated.

## Detection and Elimination Program

### *Response to Suspected or Reported Illicit Discharges*

The County currently has a Surface and Stormwater Management Program that is fully staffed 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.

Kitsap County maintains a hotline, Kitsap 1, that citizens can call during business hours to report a suspected illicit discharge.

Kitsap 1 Phone Numbers:  
(360) 337-5777 or  
(800) 825-4940

Website with Kitsap 1 information and Email Address:  
<http://www.kitsapgov.com>  
[help@kitsap1.com](mailto:help@kitsap1.com)

- Kitsap County (Public Works and Department of Community Development), Kitsap Conservation District (KCD) and the Kitsap County Health District (KCHD) respond to public reports of water quality problems. These reports provide a source of information which help SSWM respond quickly to spills, intentional dumping, leaks and on-going problems. SSWM funds complaint response for each partner agency. Agencies respond to complaints specific to their area of expertise (Appendix D):

- PW responds to water quality problems associated with the County road and stormwater system.
- DCD responds to water quality problems associated with construction and grading.
- KCD responds to water quality problems related to agriculture.
- KCHD responds to water quality problems related to municipal wastewater collection and treatment systems, on-site septic systems, solid waste and hazardous waste.

## ***Proactive Investigation***

### *Prioritization Procedures*

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

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 work, the following types of areas are more likely to generate polluted discharges than others (Center for Watershed Protection & Pitt, 2004):

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 Kitsap County 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 County may also choose to conduct a qualitative assessment of County'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 2008, the County conducted field assessments of all outfalls discharging to water bodies in unincorporated Kitsap County. 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.

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 County 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 County's IDDE program matures.

Based on IDDE considerations such as those above, the County has implemented an ongoing program. Beginning in 1995, Kitsap County SSWM has conducted the following IDDE related efforts:

- **Sub-watershed Assessments:** SSWM has prioritize sub-watersheds for IDDE risk based on five screening factors: KCHD water quality priority, Ecology Tier II reports, Water quality related calls to SSWM, total impervious area, and wastewater infrastructure material and age.
- **Storm Facility Inspections:** PW inspected private commercial, private residential and county maintained stormwater facilities throughout Kitsap County's unincorporated area.
- **Fecal Coliform Receiving Water Trend Monitoring Program:** Implemented an ongoing water quality monitoring program in 1996 (KCHD 2006) and is funded by SSWM. Monitoring focuses on the mouth of streams, lakes and marine waters. Annual trend data assist in prioritizing water bodies for cleanup projects. Additionally, this monitoring program provides an early warning system for deteriorating water quality.
- **Outfall Reconnaissance and Dry Weather Sampling:** Completed an outfall mapping and inspection program for the entire MS4 in 2008 (<http://www.kitsapgov.com/sswm/sitemap.htm>). The inspection program included outfall location and screening for illicit discharges. This program included sampling and testing of effluent and in some cases sampling of catch basin liquid and sediment upstream of an outfall. The information is part of the GIS stormwater layer and Cartegraph database.

### *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 County.
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 D).

### *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:

- 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 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 County 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 that 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 County 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 (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, 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 County’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 $\mu$ s/cm
Hardness	B, I	EPA 130.1/SM 2340B	<10 mg/L or >2,000 mg/L as CaCO <sub>3</sub>
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-NH <sub>3</sub>	>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 (fluorescence)	S	Center for Watershed Protection 2004	
Dissolved oxygen	S	SM 4500-O 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 County 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 County's customer response number (Kitsap 1) at 360-337-5777 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—Northwest Office at 1-425-649-7000.
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 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 County or other agencies.

At a minimum, follow-up work includes contacting the Washington State Department of Ecology—Northwest Office (see phone number above) to determine if any additional reporting or investigative actions are necessary.

For incidents not determined to be emergencies, the County 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 County'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 County 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 County should determine the name and contact information of the property owner.

The response by the County will vary greatly depending on the type, location, frequency, severity, and source of illicit discharge. In general, the County 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 County to eliminate the potential for further illicit discharges. When the violation is the result on 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 Kitsap County Health District for enforcement. These transferred violations are monitored closely by SSWM to assure compliance with permit requirements.

The County 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 County when the required remedy has been completed.

The County will conduct a follow-up inspection following notification that the required remedy has been completed.

Should the owner not remedy the discharge, the County may proceed to abate the violation as a public nuisance (following 21 days of certified notice as defined in Chapter 12.32.010 – Enforcement - Violation of this title) as well as to seek equitable payment to make this remedy.

## **Public Education**

### ***Public Information***

As part of the County's public outreach program, outreach material will be made available to citizens. The education campaign will rely upon the County's website (<http://www.kitsapgov.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 County'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/mangers may receive specialized educational material (Appendix E).

The County has established a customer phone number (Kitsap 1) for reporting of spills or illicit discharges. The hotline is a regional call center for unincorporated Kitsap County and the Cities of Bremerton, Bainbridge Island, Poulsbo and Port Orchard. It is operated during the work week at 360-337-5777 or 800-825-4940. An after-hours message directs callers to report emergencies to 911 or leave a message for a non-emergency situation.

## **Reporting and Recordkeeping**

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

Tracking and documentation is a required part of the IDDE program (section S5C3e). Illicit discharge reports are forwarded to the Kitsap County Kitsap1 (360-337-5777) call center where reports are added to the Customer Relations Management (CRM) database. Kitsap1 personnel notify first responders and the municipality where the spill is located. A CRM report is forwarded to SSWM for reporting purposes. The CRM database is queried monthly and annually. The annual report is provided to the partners for NPDES reporting purposes.

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

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 County'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 County'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.

Note that the County may elect to retain consultants for source tracking of potential illicit discharges and sampling. In the years that consultants are used, the training may be waived.

## ***General Training***

General training targets county field staff who may potentially see an illicit discharge including staff from the following departments: Roads, 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.

<b>Training Topic</b>	<b>Attendees</b>	<b>Estimated Number of Staff</b>	<b>Training Type and Frequency</b>	<b>Description</b>
Illicit Discharge Detection and Elimination— program field staff	Any staff responsible for assessing outfalls	2	In-field training	This training is for staff that will be responsible for field assessment of outfalls.
Illicit Discharge Detection and Elimination— general information	All field staff	60-90	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.

## References

The following reference was used to prepare this plan and contain supplemental information that may be helpful to County 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. U.S Environmental Protection Agency. Washington, D.C.

# Appendix A

## Permit Compliance Schedule



## Appendix B

### Dry Weather Monitoring Sampling Manual

## **DRY WEATHER MONITORING SAMPLING MANUAL**

### **1. Dry Weather Monitoring Field Equipment Checklist**

The field equipment listed below is used to conduct dry weather monitoring.

- Clipboard, pens, pencils, Sharpie or other waterproof pens
- Kitsap County Road Log, MS4 maps
- Digital camera
- Field notebook
- Latex gloves
- Protective eyeglasses or goggles
- Rubber boots
- Cooler and ice
- Paper towels
- Tape for securing cooler
- Sample bottles with preservatives
- Polypropylene bucket with rope, or sampling rod to collect samples from larger bodies of water
- Portable field turbidimeter and check standards for this meter.
- Multi-parameter probe to measure temperature, electrical conductivity, and pH
- Extra batteries for all meters
- Flow measurement equipment (required equipment will depend on method used)
  - Measuring tape for measuring stream width
  - Folding scale for measuring stream depth
  - Current meter or wristwatch
- De-ionized or ultra pure water in squeeze bottles for rinsing, dilutions, etc. (depending on methods used)
- Thermometer for measuring air temperature (optional)
- Waste disposal bottles
- Boat (for mud flats and other hard to reach sites)

### **2. Sampling Procedures and Submission**

Dry weather monitoring typically involves the collection of *grab* samples only. The following procedures apply:

1. Use appropriate containers. See 40 CFR Part 136 for container types. Laboratories routinely provide pre-cleaned sample bottles with preservatives already added.
  - a. Rinse the container with the sample at least twice. Do not rinse pre-cleaned, preserved containers, as the preservative will be lost.
  - b. Use the proper preservatives. Use only analytical or higher grade reagents for preserving samples. Store samples in an ice chest at 4°C until custody is transferred to the analytical laboratory directly or via contracted courier.
  - c. Avoid contaminating the sample. Wear latex gloves.

2. If practical, collect the outfall sample midstream below the lip of the pipe or at about 60% of the stream depth (from the surface) in an area of maximum turbulence (except when sampling for volatile organics). Avoid stagnant pools near the edge of flowing streams unless sampling stagnant pools. Enter the channel downstream of the sampling location and move upstream, disturbing as little of the bottom material as possible.
3. Record all qualitative observations and field testing results on the field data sheet. Estimate the flow rate as described on the back of the field data sheet. Also note any changes to standard procedures (for whatever reason), and describe any unusual or noteworthy conditions or results in detail on the bottom of the sheet.
4. Dispose of all spent reagents, reacted samples, and rinse solutions in the appropriate waste containers. Upon returning to the office or laboratory, decant these wastes into the sewer system of the office or laboratory unless otherwise instructed by the sewerage agency. Be sure to clean all equipment (recheck calibration if any results were questionable), and restock reagents (if necessary).
5. If filtering samples in the field for dissolved trace metals analysis, do not preserve with HNO<sub>3</sub> until after the sample is filtered. If field personnel are submitting unfiltered samples for dissolved trace metals analysis those samples should not be preserved with HNO<sub>3</sub>.
6. Samples collected for laboratory analysis should be submitted to the laboratory as soon as possible after collection. Complete the following tasks:
  1. Fill out the chain-of custody form making sure that all sample bottles are correctly labeled
  2. Carefully pack the sample bottles in the cooler
  3. Transport the samples to the laboratory
  4. Complete the chain-of-custody form

Automatic sampling methods may be useful during some source identification or enforcement investigations. Investigators should refer to the manufacturer's instructions for operating automatic sampling equipment.

### **3. Equipment Maintenance**

In order to ensure the quality of field results, maintenance of equipment must be given a high priority. All equipment must be cleaned and serviced at the end of a field shift.

1. All water quality meters must be calibrated in the laboratory or office before field use. Calibration solutions should remain uncontaminated and not be used after their expiration dates.
2. Field meters and cameras must be in proper working order. Make sure that batteries have sufficient voltage to power the equipment for the entire field trip. Recharge or replace them as necessary. Keep extra batteries in the instrument case. Probes should be inspected, cleaned and reconditioned regularly.
3. Clean and rinse all other sampling equipment after returning from the field. Store clean equipment in clear polyethylene bags or storage cases.

4. Glassware used in the field (e.g. graduated cylinders for sample dilutions, test kit flasks and/ or beakers) should be cleaned immediately after usage. Use laboratory detergent, a brush, and hot tap water or 10% Analytical Grade HCl. Rinse three to four times with deionized water and wipe the outside of the glassware dry with a white paper towel. Dry in an inverted position. Store the dry glassware in the cabinets with stoppers intact (volumetric flasks) or in an inverted position (beakers).

#### **4. Quality Control/ Quality Assurance**

QA samples can be in the form of replicates, spikes, field blanks, method blanks, or synthetic samples. Dry weather monitoring programs can use these various types of QA/ QC samples to assess the accuracy and precision of the field and laboratory analyses performed for their dry weather monitoring programs.

1. Replicate samples can be collected periodically and submitted to the analytical laboratory to assess the accuracy of the field analyses for nitrate, ammonia, phosphate, electrical conductivity, pH, and turbidity.
2. Replicate samples are used to assess laboratory or field precision. They should be collected in the field in one container and split into two samples for analysis.
3. Spiked samples can be prepared in the field or the permittee's laboratory/ office. A field sample is spiked with known amounts of analytes and the total volume of this fraction is adjusted to a specific volume (usually 1 liter) using a portion of the original sample as makeup water. *Make sure that the volume of the added spike is small compared to the volume of the sample to which it is added.*
4. Blank samples must be prepared with deionized or ultrapure water (resistivity greater than 17 mega ohms). A trip blank is prepared by filling a sample container in the laboratory/ office and transporting it on a routine monitoring assignment, preserving it in the field (noting the station location), and submitting it with a normal batch of samples. Method or equipment blanks are prepared using the same methods used to collect, process, or contain samples before submittal to the laboratory. An example of an equipment blank would be pouring deionized water into a sample container to test the cleanliness of the container.
5. Synthetic samples can be prepared using aliquots of commercially prepared standards or from EPA quality assurance ampules. Deionized water should be used as makeup water and analytical grade NaCl should be used to adjust the electrical conductivity of the QA sample into the range of the environmental samples.

#### **5. Health and Safety**

Dry weather water sampling may occur when the sampling environment and discharges create hazardous conditions. Use safety precautions at all times when conducting dry weather monitoring.

##### **Safety Guidelines**

- Keep a first aid kit with field equipment.

(Source: *Jurisdictional Urban Runoff Management Program (URMP), Illicit Connection/Illegal Discharge (IC/ID) Detection and Elimination Model Program Guidance*. San Diego Stormwater Copermittees. November 13, 2001. Appendices D and E.)

- Watch out for traffic along the access road when sampling or making observations.
- Do NOT remain in open areas or stand under trees if lightning is occurring in the vicinity.
- Watch your step; the ground may be wet and slippery, steep, or unstable. Do not attempt to climb down unsafe slopes.
- Always wear clean latex rubber gloves when sampling.
- Protect eyes and skin against contact with acids and other preservatives.
- Use common sense when deciding whether to sample during adverse weather conditions. *This program is intended to assess dry weather conditions*. Do not sample during dangerous conditions such as high winds, lightning storms, or flooding conditions that might be unsafe.
- Do not enter channels during periods of high flow. The general rule of thumb is: If the product of the water depth in feet and the velocity in feet per second is greater than 10, or the level is above your waist, don't go in.
- Do not enter confined spaces
- Follow all analytical procedures as prescribed in the equipment manuals. Heed all warnings and precautionary statements.
- Be familiar with Material Safety Data Sheets for all chemicals used in the field and when calibrating instruments. Know the health hazards and emergency medical treatments, and follow proper disposal instructions.

### **Safety Equipment**

The following safety equipment is recommended for use during dry weather sampling:

- First aid kit
- Safety glasses
- Latex gloves
- Rubber boots
- Safety rope

(Source: Jurisdictional Urban Runoff Management Program (URMP), Illicit Connection/Illegal Discharge (IC/ID) Detection and Elimination Model Program Guidance. San Diego Stormwater Copermittees. November 13, 2001. Appendices D and E.)

**Table B-1: Summary of Laboratory Sampling and Analysis Requirements**

Physical and Inorganic Non-Metals	Analytical Method	Container	Volume (mL)	Preservative (Always @ 4o C)	Holding Time
TDS	SM2540C	P	100		7 d
TSS	SM2540D	P	100		7 d
Turbidity	SM2130A	P	100		48 h
Alkalinity or Hardness	SM2320B	P	100		14 d
pH	EPA150.1	P	10		Field
Conductivity	SM2510B	P	20		28 d
Temperature		N/A	N/A	N/A	Field
Phosphorous, total	SM4500PE	P	100	H <sub>2</sub> SO <sub>4</sub>	28 d
Phosphorous, dissolved / reactive	SM4500PE	P	100	H <sub>2</sub> SO <sub>4</sub>	48 h
Nitrate	SM4500 NO3 E	P	100		48 h
Nitrite	SM4500 NO2 B	P	100		48 h
TKN	EPA351.1	P	200		28 d
Ammonia	SM4500 NH3 D	P	500	H <sub>2</sub> SO <sub>4</sub>	28 d
BOD	EPA405.1	P	1000		48 h
COD	EPA410.4	P	10	H <sub>2</sub> SO <sub>4</sub>	28 d
Chlorine, Residual	SM4500 Cl G	N/A	N/A	N/A	Field
<b>Organics</b>					
*Petroleum Hydrocarbons, total (d + g)	NWTPH-DX, NWTPH-GX	G + 2V	250 + 40 (2)	HCl	14 d
Oil and Grease	EPA 1664	G	500	H <sub>2</sub> SO <sub>4</sub>	14 d
Diazinon	EPA8140				
Chlorpyrifos	EPA8140	G	1000		7 d
Methylene Blue Substances (MBAS)	SM5540 C	P	250		48 h
Organochlorine Pesticides and PCBs	EPA8081, 8082	G	1000		7 d
*Volatile Organic Compounds	EPA8260	2V	40 (2)	HCl	14 d
Semivolatile Organic Compounds	EPA8270	G	1000		7 d
<b>Metals / Toxics</b>					
Antimony	EPA6010	P	500	HNO <sub>3</sub>	6 m
Arsenic	EPA6020	P			
Cadmium	EPA6010	P			
Chromium	EPA6010	P			
Copper	EPA6010	P			
Lead	EPA6010	P			
Nickel	EPA6010	P			
Zinc	EPA6010	P			
Thallium	EPA7470	P			
Silver	EPA6020	P			
Mercury	EPA6010	P			28 d
Cyanide	SM4500 CN C	P	500	NaOH	14 d
Phenols (from SVOC's)	EPA8270	G	1000		7 d
<b>Bacteriological (including dilutions)</b>					
Coliform, total	SM9221	P (sterile)	125	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	6 h
Coliform, fecal	SM9221	P (sterile)			
Coliform, <i>E. Coli</i>		P (sterile)	125		
Enterococcus	SM9230	P (sterile)	125		
Streptococcus	SM9230	P (sterile)			

\*ZHS (Zero Head Space Required) V=VOA / G=Amber Glass / P=Plastic

Appendix C  
Outfall Reconnaissance Inventory/  
Sample Collection Field Sheet



**KITSAP COUNTY OUTFALL  
FIELD OUTFALL SCREEN DATA SHEET**

**Watershed:** \_\_\_\_\_

**GENERAL INFORMATION**

**Date:** \_\_\_\_\_ **Time:** \_\_\_\_\_ **Outfall Id: #** \_\_\_\_\_ **Inspector:** \_\_\_\_\_

**Location: Lat.** \_\_\_\_\_ **Long.** \_\_\_\_\_ **Tide:** Ebb  Flood  Stack

**Current Weather:** Clear  Overcast  Rain  **Rain:** in/24 hrs \_\_\_\_\_ in/72 hrs \_\_\_\_\_

**SITE DESCRIPTION**

**Outfall Diameter:** \_\_\_\_\_ in. **Material:** Cmp.  Rcp  Plastic  **Water temp:** \_\_\_\_\_°C

**Flow Observed:** Yes  No  **Channel:** Yes  No  **Erosion at Outfall:** Yes  No

**VISUAL OBSERVATIONS**

**Biological:** None  Fish  Algae  Eggs  Bacteria  Larvae  Iron Bacteria

Other \_\_\_\_\_

**Clarity / Color:** None  Clear  Opaque  Turbid  Gray  Red  Green  Yellow  Brown

Other \_\_\_\_\_

**Deposits / Stains:** None  Mineralization  Petroleum  Sediments

Other \_\_\_\_\_

**Floatable:** None  Litter  Oil Sheen  Sewage  Suds

Other \_\_\_\_\_

**Odor:** None  Petroleum  Sewage  Rotten Eggs  Sour Milk  Musty

Other \_\_\_\_\_

**Structural Condition:** Normal  Cracking  Spalling  Corrosion  Clogged

Other: \_\_\_\_\_

**Vegetation Condition:** Normal  Inhibited Growth  Bare  Excessive Growth

Other: \_\_\_\_\_

**Comments:** \_\_\_\_\_

Sample #: \_\_\_\_\_

Photo #: \_\_\_\_\_

## Methods of Flow Measurement

### Calculating the Area (a) of the Cross Section of a Circular Pipe Flowing Partially Full

D = Depth of water a = area of water in partially filled pipe  
d = diameter of the pipe Ta = Tabulated Value

Then  $a = Ta \cdot d^2$

D/d	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.0000	0.0013	0.0037	0.0069	0.0105	0.0147	0.0192	0.0242	0.0294	0.0350
0.1	0.0409	0.0470	0.0534	0.0600	0.0668	0.0739	0.0817	0.0885	0.0951	0.1039
0.2	0.1118	0.1199	0.1281	0.1365	0.1440	0.1535	0.1623	0.1711	0.1800	0.1890
0.3	0.1982	0.2074	0.2187	0.2280	0.2355	0.2450	0.2540	0.2642	0.2780	0.2836
0.4	0.2934	0.3032	0.3130	0.3220	0.3328	0.3428	0.3527	0.3627	0.3727	0.3827
0.5	0.3980	0.4030	0.4130	0.4230	0.4330	0.4430	0.4520	0.4620	0.4720	0.4820
0.6	0.4920	0.5020	0.5120	0.5210	0.5310	0.5400	0.5500	0.5590	0.5690	0.5780
0.7	0.5870	0.5960	0.6050	0.6140	0.6230	0.6320	0.6400	0.6490	0.6570	0.6660
0.8	0.6740	0.6810	0.6890	0.6970	0.7040	0.7120	0.7190	0.7250	0.7320	0.7360
0.9	0.7450	0.7500	0.7560	0.7610	0.7660	0.7710	0.7750	0.7790	0.7820	0.7840

<b>AREA x VELOCITY (CREEK/CHANNEL METHOD)</b>	<b>TIME REQUIRED TO FILL A KNOWN VOLUME (FILL A BOTTLE METHOD)</b>	<b>AREA x VELOCITY (PARTIALLY FILLED PIPE)</b>
<ol style="list-style-type: none"> <li>a. Measure the width, depth, and velocity of the water.</li> <li>b. Convert each value to a common unit (i.e. all measurements converted to cm, ft, or in.).</li> <li>c. Multiply the width * depth * velocity to determine flow.</li> <li>d. Multiply the flow by 0.8 for creek measurements --or-- 0.9 for concrete channel measurements to account for channel roughness.</li> <li>e. The results if measured in                             <ul style="list-style-type: none"> <li>• Ft = Ft<sup>3</sup>/sec</li> <li>• cm = cm<sup>3</sup>/sec (mL/sec)</li> <li>• in = in<sup>3</sup>/sec</li> </ul> </li> <li>f. Convert to desired value.</li> </ol>	<ol style="list-style-type: none"> <li>1. Determine volume/capacity of the sample bottle.</li> <li>2. Measure time required to fill the bottle.</li> <li>3. Flow will be determined by initial volume units:                             <ul style="list-style-type: none"> <li>• mL/s</li> <li>• □oz/s</li> </ul> </li> <li>4. Convert to desired value.</li> </ol>	<ol style="list-style-type: none"> <li>a. All measurement must be converted to a common unit before calculation (ft, in, or cm).</li> <li>b. Let D = water depth.</li> <li>c. Let d = <i>inside</i> pipe diameter</li> <li>d. Calculate D/d.</li> <li>e. Find the tabulated (Ta) value on the partially filled pipe formula chart above using the D/d value. (i.e. if D/d = 0.263 then Ta = .1623).</li> <li>f. Find the area using the formula <math>a = Ta \cdot d^2</math>.</li> <li>g. Multiply area (a) by the water velocity.</li> <li>h. Convert to desired value.</li> </ol>

Appendix D  
Illicit Discharge Hotline

Table 1. Kitsap 1 Spill Call Out Reference Guide-Revised 03/17/2011		
Spill Type	Examples	Call/Notify All Listed
<p><b>EMERGENCY SITUATION</b></p> <ul style="list-style-type: none"> <li>▪ If the spill meets the definition of any of the following:</li> <li>▪ An immediate and severe threat to human health or the environment</li> <li>▪ <b>Oil and Hazardous Substances</b>, Any Amount</li> </ul>	<ul style="list-style-type: none"> <li>▪ Sewage main break</li> <li>▪ Gasoline tank rupture</li> <li>▪ Spill with overwhelming chemical odor</li> <li>▪ Oil in a stream, lake or Puget Sound</li> <li>▪ Motor oil spill flowing into a catch basin</li> <li>▪ Gasoline spilled into a ditch</li> </ul>	<p>Direct the caller to 911. If the caller refuses to call 911- call 911 for them. 911 (KCDEM) performs the notification:</p> <ul style="list-style-type: none"> <li>▪ National Response Center (NRC)</li> <li>▪ Wash Emergency Management Division (EMD)</li> <li>▪ Ecology Spill Tracker (ERTS)</li> <li>▪ KCHD</li> <li>▪ The Public Works where the spill occurs</li> </ul>
<p><b>NON EMERGENCY SITUATION</b> Small /Medium amount of known substance (generally, 1 drop to 5 gallons and the responder is able to handle the situation)</p>	<ul style="list-style-type: none"> <li>▪ Leaking septic system</li> <li>▪ Broken side sewer</li> <li>▪ Oil or vehicle fluids on pavement or gravel</li> <li>▪ Concrete washout</li> <li>▪ Muddy construction site runoff</li> <li>▪ Suds</li> <li>▪ Paint</li> </ul>	<ul style="list-style-type: none"> <li>▪ Public Works where the spill occurs</li> <li>▪ For raw or partially treated sewage and hazardous substances only-KCHD</li> </ul>

<sup>1</sup>Agency contacts are found in Table 2.

<sup>2</sup>Public Works is the jurisdiction where the spill has occurred: Cities of Bainbridge Island, Poulsbo, Port Orchard, Bremerton or Unincorporated Kitsap County

<sup>3</sup>911/Department of Emergency Management SOP 2.0 indicates 911/DEM will notify the Public Works and Ecology. However, this duplication of reporting assures NPDES permit compliance.

**Table 2 Spill Contact List-Revised 4/7/2011**

**Kitsap Agencies**

<b>Kitsap 1</b>	<a href="mailto:openline@co.kitsap.wa.us">openline@co.kitsap.wa.us</a> (360) 337-5777
<b>City of Bainbridge Island Public Works</b>	<a href="mailto:mhill@ci.bainbridge-isl.wa.us">mhill@ci.bainbridge-isl.wa.us</a> <b>Notify all e-mails listed</b> <a href="mailto:CApfelbeck@ci.bainbridge-isl.wa.us">CApfelbeck@ci.bainbridge-isl.wa.us</a> <a href="mailto:PWOM@ci.bainbridge-isl.wa.us">PWOM@ci.bainbridge-isl.wa.us</a> <a href="mailto:PWadmin@ci.bainbridge-isl.wa.us">PWadmin@ci.bainbridge-isl.wa.us</a> Main Public Works (206) 842-2016
<b>City of Bremerton Public Works</b>	<a href="mailto:Bremerton1@ci.bremerton.wa.us">Bremerton1@ci.bremerton.wa.us</a> (distributes to three e-mail boxes) Customer Response (360) 473-5920
<b>City of Poulsbo Public Works</b>	<a href="mailto:afunk@cityofpoulsbo.com">afunk@cityofpoulsbo.com</a> <b>Notify all e-mails listed</b> <a href="mailto:dwilson@cityofpoulsbo.com">dwilson@cityofpoulsbo.com</a> <a href="mailto:swood@cityofpoulsbo.com">swood@cityofpoulsbo.com</a> Office (360) 779-4078
<b>City of Port Orchard Public Works</b>	<a href="mailto:aarcher@cityofportorchard.us">aarcher@cityofportorchard.us</a> Notify first, if "out of office" go to next on list <a href="mailto:mdorsey@cityofportorchard.us">mdorsey@cityofportorchard.us</a> Public Works (360) 876-4991
<b>Kitsap County Public Works SSWM</b>	<a href="mailto:kchapman@co.kitsap.wa.us">kchapman@co.kitsap.wa.us</a> Notify first listed, if "out of office" go to the next <a href="mailto:mfohn@co.kitsap.wa.us">mfohn@co.kitsap.wa.us</a> KCSSWM Queue Custodian (360) 337-5662
<b>Kitsap County Health District (KCHD)</b>	<a href="mailto:browerj@health.co.kitsap.wa.us">browerj@health.co.kitsap.wa.us</a> <b>Notify all e-mails listed</b> <a href="mailto:crimeva@health.co.kitsap.wa.us">crimeva@health.co.kitsap.wa.us</a> <a href="mailto:ultics@health.co.kitsap.wa.us">ultics@health.co.kitsap.wa.us</a> Main Reception (360) 337-5285 (Press "0")

**Emergency Contacts**

<b>Department of Ecology Spill Tracker (ERTS)</b>	(425) 649-7000 24 hr. hotline On line reporting form <a href="http://www.ecy.wa.gov/programs/spills/forms/nerts_online/NWRO_nerts_online.html">http://www.ecy.wa.gov/programs/spills/forms/nerts_online/NWRO_nerts_online.html</a>
<b>National Response Center (NRC)</b>	(800) 424-8802 or <a href="http://www.nrc.uscg.mil">www.nrc.uscg.mil</a> fill out spill form
<b>Washington Emergency Management Division (EMD)</b>	(800) 258-5990
<b>Kitsap County Dept. of Emergency Management (Cencom)</b>	911

Appendix E  
Public Education

## Appendix E

The Kitsap County Surface and Stormwater Management (SSWM) program has informed a variety of audiences about the hazards associated with illegal discharges and improper disposal of waste. This Appendix provides some examples of the outreach activities performed from 2007 to 2011.

The target audience and outreach activities include the following:

### General Public:

- Advertising the Water Pollution Hotline in local newspapers (2010), magazines (2010), websites (2009-present), and news articles (2009, 2010 & 2011). The WasteWise newsletter (Summer 2010) contained an article about the water pollution hotline, and this newsletter was distributed to every household in Kitsap County.
- Distribution of water pollution hotline magnets (2010-2011).
- Distribution of paint sticks (2011).
- Drain Marker program. Over 600 drains are marked each year. As of 2011, 1800 drains in Kitsap County have been marked. In addition, the drain marker graphic was included on the new County street-sweepers.

### General public, businesses, including home-based and mobile businesses:

- Mobile Business Grant pledge card project targeting painting, carpet-cleaning and pressure washing businesses (2010-2011).
- Local Source Control site visits to businesses, includes home-based and mobile (2008-2011).
- Distribution of 4 C's poster (2010-2011).
- Distribution of paint sticks (2011).
- Commercial property inspections (2008-present).

### Homeowners, landscapers and property managers:

- Commercial Property Maintenance brochure mailed to all property owners (2010).
- Vehicle Wash Fact Card mailed to subset of commercial properties (2011).
- Fire District Outreach regarding vehicle washing (2011).
- School District Outreach regarding IDDE (2009-2011).

### Engineers, contractors, developers, review staff and land use planners:

- Training of DCD staff on identifying and reporting illicit discharges (2010).
- "Keep it on site" booklet for contractors and developers (created 1999, available on the web to present).



## Vehicle Washing

**Commercial Property Owners and Businesses**



As a property owner or manager, you are responsible for preventing wash water from leaving your site and entering storm drains. To wash vehicles, choose the following alternatives:

- Use a commercial car wash
- Create a designated covered wash area and install the proper treatment facilities
  - + Connect the drain to the sanitary sewer and oil/water separator.
  - + Obtain the proper permits.
  - + Do not connect the drain to a septic system.
- Collect the wash water and dispose it into the sanitary sewer.
- Wash on grass or landscaped area with cold water only if washing no more than 10 vehicles per week.

For technical assistance, please contact Kitsap 1 at (360) 337-5777 or [kitsap1@co.kitsap.wa.us](mailto:kitsap1@co.kitsap.wa.us).



Commercial property maintenance brochure and vehicle wash fact card

## We Keep it Clean Using the 4Cs

 <p><b>Yes ✓</b></p> <p><b>Cover</b> Cover outdoor work and storage areas</p>	 <p><b>Yes ✓</b></p> <p><b>Capture</b> Capture fluids before they run to the drain</p>	 <p><b>Yes ✓</b></p> <p><b>Clean</b> Clean up spills before they reach the drain</p>	 <p><b>Yes ✓</b></p> <p><b>Contain</b> Contain stored fluids to capture leaks</p>
 <p><b>No</b></p>	 <p><b>No</b></p>	 <p><b>No</b></p>	 <p><b>No</b></p>

 **SSWM**  
Solid and Storm Water Management  
Questions: 360-337-5777  
This project was funded by a grant provided by Washington State Department of Ecology

### Only Rain Down the Drain

No Oil • No Suds • No Paint • No Chemicals  
Even small amounts can pollute our waterways

4Cs poster for Auto Repair Shops

### The Drain is Just for Rain

It is illegal to dump anything into storm drains and ditches. Help keep our waterways clean by reporting spills of paint, petroleum products, chemicals, muddy runoff, sewage, suds, yard waste, and trash.

Call Kitsap 1 at (360) 337-5777 to report non-emergency spills and water pollution concerns 8:00AM-4:30PM Monday-Friday. Leave a message if calling after hours.

**Call 911 if there is an imminent threat to human health or the environment.**



Logo for Dump Smart pledge campaign – part of the Mobile Business grant project, targeting pressure washing, painters and carpet cleaners.

Appendix E



Water pollution hotline magnet



Online ad; this animation also is posted on SSWM's web site



Drain marker; this graphic also appears on the County's new street sweepers