

# **Knox County Illicit Discharge Detection and Elimination Program**

## **Illicit Discharge Detection and Elimination Introduction and Plan Overview**

Knox County began implementing this program in 2003 when the first NPDES Municipal Separate Storm Sewer System Permit (MS4) was issued to Knox County. The County implemented this program by using guidance and recommendations from the Center for Watershed Protection's Illicit Discharge, Detection, and Elimination Manual. Since then, Knox County has mapped all of the County's storm sewer system on public properties and rights-of-way (almost 40,000 assets surveyed); implemented several methods to detect illicit discharges, including over 1200 inspections during dry weather in the last 6 years; created standard operating procedures (SOP) and an enforcement response plan (ERP) for responding to spills and illicit discharge complaints; started issuing Special Pollution Abatement Permits (SPAPs) for "hot spot"/priority businesses and land uses; and doing general and targeted public education and outreach through special events, presentations, letters, and brochures in Knox County.

The current permit says that Knox County must develop, implement, and enforce a program to detect and eliminate illicit discharges as required by the State of Tennessee's NPDES Phase II permit. This includes an overall plan for how Knox County will meet these requirements. This plan is an important part of Knox County's Stormwater Program for detecting and eliminating pollution discharging to and from the Knox County MS4 and local waterways.

Knox County is currently using several methods to detect, identify and eliminate illicit discharges mainly in the unincorporated, urbanized areas of Knox County. One method is through the dry weather screening (DWS) program, which identifies and prioritizes sub-basins in the county into "high", "medium", and "low" priority. A sub-basin is a smaller working unit within a larger river basin or catchment area. They represent a distinct geographical area that is delineated based on the natural drainage patterns of rivers and their tributaries. These sub-basin prioritizations are currently determined by utilizing information such as land use maps, zoning maps, population density, complaint tracking, Special Pollutant Abatement Permits (SPAPs), development age, number of pipe end outfalls/infrastructure density, and septic density.

Issuing SPAP permits is a method Knox County is using to determine "hot spot" or priority businesses/land uses, which includes but not limited to automotive and restaurant related businesses and large parking areas. Also, the storm sewer infrastructure is updated on a regular basis, which helps in finding potential pollution through DWS and spill tracking. Illicit discharge complaints are also used to determine where there are repetitive issues and help determine what kind of education and outreach needs to be implemented and where it would be most effective. All these tools are administered through Knox County's robust GIS applications and maintained in an asset management database.

Knox County Stormwater in conjunction with the Knox County Health Department also administers 319 watershed grants through the Tennessee Department of Agriculture (TDA) to help citizens repair failing septic systems or connect them to the sewer, if available. Knox County has a relationship and procedures with local emergency agencies for spill response and clean-up and a website for citizens to report illicit discharges at any time. Knox County has an illicit discharge ordinance that effectively prohibits non-stormwater discharges (unless allowable by ordinance) into the storm sewer system. The illicit discharge ordinance is enforced through an enforcement response plan (ERP), which allows Notices of Violation and Civil Penalties to be issued from \$250 - \$5000 per day/per violation.

## Illicit Discharge Program Compliance - Plan Details

Knox County's Illicit Discharge Program must include the following:

- A storm sewer system map (GIS) that shows:
  - a. MS4 Outfalls
  - b. the names and locations of waters of the state that receive discharges from those outfalls;
  - c. inputs into the storm sewer collection system, such as inlets, catch basins, drop structures or other defined contributing points to the sewershed of that outfall; and
  - d. general direction of stormwater flow.

This map is updated and maintained at least quarterly to biannually and is a main component of the dry weather screening program where Knox County prioritizes sub-basins and delineates infalls and outfalls into and out of the MS4 for screening of potential pollution discharges during dry weather. It also helps Knox County track spills. See an example of the storm sewer map in Appendix A.

- An ordinance that effectively prohibits non-stormwater discharges (unless allowable by Knox County Ordinance Section 26-314) into the storm sewer system and implement an appropriate Enforcement Response Plan (ERP). Knox County meets these requirements. See the Illicit Discharge Ordinance in Appendix B and request to see the ERP in Appendix E.
- Develop and implement a program to detect, investigate and address non-stormwater discharges, including illegal dumping to the system. This includes standard procedures and forms to be followed to investigate illicit discharges throughout the MS4 jurisdiction. The plan must include the following:
  - 1. Procedures for locating priority areas likely to have illicit discharges:**
    - a. Knox County does this through the DWS program. DWS inspections are delineated through prioritization of Knox County's sub-basins using the Center for Watershed Protection's recommended factors to determine illicit discharge potential (IDP). The factors that were used in the current map are land use, zoning, population density, complaint tracking, Special Pollutant Abatement Permits (SPAPs), TDEC water pollution control permits, development age, number of pipe end outfalls/infrastructure density, and septic density. Any other relevant information that becomes available will be incorporated into the map for the next permit cycle. Knox County has a written SOP for prioritizing and delineating all sub-basins in the unincorporated county. The sub-basins are mapped and prioritized into "high", "medium", and "low" priority based off the screening factors listed above and the map (GIS) is a guide for the dry weather screening inspections. All high and medium priority sub-basin MS4 DWS outfalls (and infalls) are inspected at least once every five (5) years with any other hot spot areas within low priority sub-basins included in that rotation, as determined. See an example of current prioritization map in Appendix C. Request to see the Sub-Basin Prioritization SOP and DWS Infall/Outfall Delineation SOP in Appendix E.

- b. Knox County issues Special Pollution Abatement Permits (SPAPs) to hot spot or priority businesses. A **hot spot** is defined in the Knox County Stormwater Ordinance as an area where the land use or activities generate highly contaminated runoff, with concentrations of pollutants in excess of those typically found in stormwater. Hot spot businesses/land uses have requirements for water quality stormwater control measures (SCMs) and those SCMs have maintenance agreements and are inspected at least once every five (5) yrs. SPAP permits are given mainly to restaurant/food businesses, gas/automotive related businesses, and businesses with large parking areas (400+ spaces). The ordinance may require a SPAP for other types of land uses and businesses and the Director of Engineering and Public Works can require a SPAP for any land use/business at their discretion. See a SPAP example in Appendix D.

**2. Procedures for tracking, tracing, and removing the source of an illicit discharge as well as timeframes for initiating investigations, initial enforcement, and plans for elimination:**

All dry weather screening inspections and IDDE complaint inspections that indicate an illicit discharge or potential illicit discharge are documented in the asset management database with locations, times, parameters, sampling results (if necessary), discharge source, and any other pertinent information. All IDDE complaints will be addressed within seven (7) calendar days of complaint receipt. Initial enforcement actions (including referrals to other regulatory agencies with appropriate jurisdiction) shall be taken within seven (7) calendar days of the investigation on confirmed illicit discharges in accordance with the ERP. Confirmed illicit discharges shall be eliminated as soon as practicable. If it is going to take longer than fourteen (14) calendar days (from owner/operator notification of confirmed illicit discharge) a corrective action plan to eliminate the illicit discharges shall be developed by owner/operator of the source in concurrence with Knox County. If the responsible party or source of a confirmed illicit discharge cannot be identified after a comprehensive investigation in accordance with all procedures, the illicit discharge shall be referred to the Division within fourteen (14) calendar days of completing the investigation. Request to see DWS SOP, Illicit Discharge Investigation and Inspection SOPs, and Illicit Discharge ERP in Appendix E.

**3. Address all categories of non-stormwater discharges or flows as listed in section 4.2.3(d) of the MS4 general permit, only if the permittee identifies them as significant contributors to the MS4:**

This will be addressed when and if necessary, following all appropriate SOPs.

- Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste. The educational training for public employees as identified by job category in PIE plan shall be tracked for each employee:  
Education of public employees, businesses, and the general public concerning the hazards and damage to water quality associated with illegal dumping and connections to the storm sewer, and the improper disposal of waste is indicated in the PIE plan. Knox County employees take an online training and test annually. And for example, Knox County has educated lawn care professionals, chemical applicators, and implemented a storm drain art campaign to educate the general public about pollution just to name a few. Request to see the Public Involvement and Education Plan (PIE Plan) for details in Appendix E.

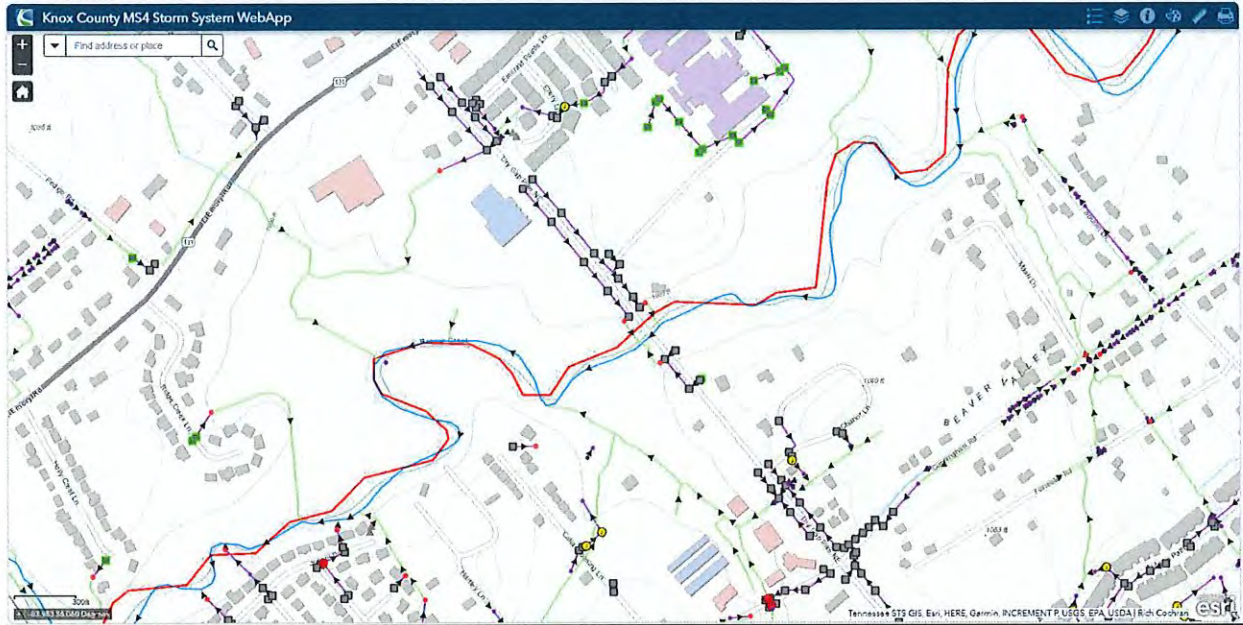
- A mechanism for the public to report via hotline or website, suspected illicit discharges:

Residents can utilize Knox County's website at any time, to report illicit discharges directly to employees in the Stormwater Department through email. The timeframe for initiating complaint investigations from the website is not to exceed seven (7) days from the receipt of the complaint and follows all the listed SOPs in Section 2 above. Request to see these SOPs in Appendix E.

- An interagency coordination for hazardous waste or material spills response and clean-up. Knox County shall inform local spill-response agencies and/or TEMA (Tennessee Emergency Management Agency) for the potential negative impacts to surface water (and ground water) of spill clean-up activities.
  - a. Knox County coordinates with the Knoxville Emergency Management Agency (KEMA) for reporting spills within the unincorporated areas of the county. Knox County also has spill response SOPs for working with Rural Metro Fire Department, Seymour Volunteer Fire Department, and Karns Volunteer Fire Department.
  - b. Knox County has SOPs for reporting spills to local spill response agencies including KEMA, the Tennessee Emergency Management Agency (TEMA), and the National Response Center (NRC).

Request to see the SOPs for spill response and interagency coordination in Appendix E.

## Appendix A Storm Sewer Map (example)



## Appendix B IDDE Ordinance – January 2008

- **Sec. 26-312. - Non-stormwater discharges—Illicit discharges.**

Except as hereinafter provided, all non-stormwater discharges into the municipal separate storm sewer system of the county are prohibited and are declared to be unlawful.  
(Ord. No. O-07-12-101, § 2(§ 12.1), 1-28-08)

- **Sec. 26-313. - Same—Prohibitions.**

No person shall:

(1) Connect, or allow to be connected, any sanitary sewer to the stormwater system.  
(2) Cause or allow an illicit discharge to the stormwater system, or any component thereof, or onto driveways, sidewalks, parking lots, sinkholes, creek banks, or other areas draining to the stormwater system. Illicit discharges include, but are not limited to:

- a. Sewage discharges or overflows, including sanitary sewer overflows (SSOs);
- b. Discharges of wash water resulting from the hosing or cleaning of gas stations, auto repair garages, or other types of automotive services facilities;
- c. Discharges resulting from the cleaning, repair, or maintenance of any type of equipment, machinery, or facility including motor vehicles, cement-related equipment, and port-a-potty servicing, etc.;
- d. Discharges of wash water from mobile operations such as mobile automobile washing, steam cleaning, power washing, and carpet cleaning, etc.;
- e. Discharges of wash water from the cleaning or hosing of impervious surfaces in industrial and commercial areas including parking lots, streets, sidewalks, driveways, patios, plazas, work yards, and outdoor eating or drinking areas, etc.;
- f. Discharges of runoff from material storage areas containing chemicals, fuels, grease, oil, or other hazardous materials;
- g. Discharges of pool or fountain water containing chlorine, biocides, or other chemicals; discharges of pool or fountain filter backwash water;
- h. Discharges of sediment, or construction-related wastes, etc.;
- i. Discharges of food-related wastes (e.g., grease, fish processing, and restaurant kitchen mat and trash bin wash water, etc.).

(Ord. No. O-07-12-101, § 2(§ 12.2), 1-28-08)

- **Sec. 26-314. - Same—Allowable discharges.**

(a)The following discharges shall not be in violation of this article:

- (1) Water line flushing;
- (2) Landscape irrigation;
- (3) Diverted stream flows or rising groundwater;

- (4) Infiltration of uncontaminated groundwater [as defined at 40 CFR 35.2005(20)] to separate storm drains;
- (5) Pumping of uncontaminated groundwater;
- (6) Discharges from potable water sources, foundation drains, uncontaminated air conditioning condensation, irrigation waters, springs, water from crawl space pumps, or footing drains;
- (7) Lawn watering;
- (8) Individual non-commercial car washing on residential properties; or car washing of less than two consecutive days in duration for a charity, non-profit fund raising, or similar non-commercial purpose;
- (9) Flows from riparian habitats and wetlands;
- (10) Dechlorinated swimming pool discharges;
- (11) Incidental street wash water from street cleaning equipment designed for cleaning paved surfaces and limiting waste discharges;
- (12) Street deicing for public safety;
- (13) Any activity authorized by a valid NPDES permit; and
- (14) Any flows resulting from firefighting.

(b) Discharge due to water line flushing through a direct connection to the waters of the state is prohibited. Persons responsible for water line flushing activities are required to de-chlorinate discharges before such discharges come in contact with waters of the state.

(c) If the director finds that any activity, including but not limited to any of the activities listed in this section, are found to cause or may cause sewage, industrial wastes, other wastes, or other non-stormwater discharges to be discharged into the stormwater system, the director shall so notify the person performing such activities, and shall order that such activities be stopped or conducted in such a manner as to avoid the discharge of sewage, industrial wastes or other wastes into the stormwater system. The director may require submittal of a stormwater pollution prevention plan if the activity, or actions taken to cease the activity, have the potential to cause further releases of pollution or non-stormwater discharges to the stormwater system.

(Ord. No. O-07-12-101, § 2(§ 12.3), 1-28-08)

- **Sec. 26-315. - Same—Notification and monitoring requirements.**

(a) As soon as any person has knowledge of any illicit spills or discharges to the stormwater system in violation of this article, such person shall immediately notify the department of engineering and public works of this discharge. If such person is directly or indirectly responsible for such discharge or responsible for the operation of the system or business, then such person shall also take immediate action to ensure the containment and cleanup of such discharge and shall confirm such notification with a written report to the director within three calendar days. At a minimum, the written report for any illicit discharge shall include:

- (1) Date and time of the discharge;
- (2) Location of the discharge;
- (3) Material or substance discharged;
- (4) Duration and rate of flow;
- (5) Total volume discharged;
- (6) Total volume recovered;
- (7) Cause or reason for the discharge;

- (8) Remediation and containment action taken;
- (9) Material Safety Data Sheets (MSDS) for the discharged material;
- (10) Action taken to prevent further discharges;
- (11) Description of any environmental impact.

(b)The director may require any person engaging in any activity or owning any property, building or facility (including but not limited to a site of industrial activity) to undertake such reasonable monitoring of any discharge(s) to the stormwater system operated by the county and to furnish periodic detailed reports of such discharges.

(Ord. No. O-07-12-101, § 2(§ 12.4), 1-28-08)

- **Sec. 26-316. - Same—Illegal dumping.**

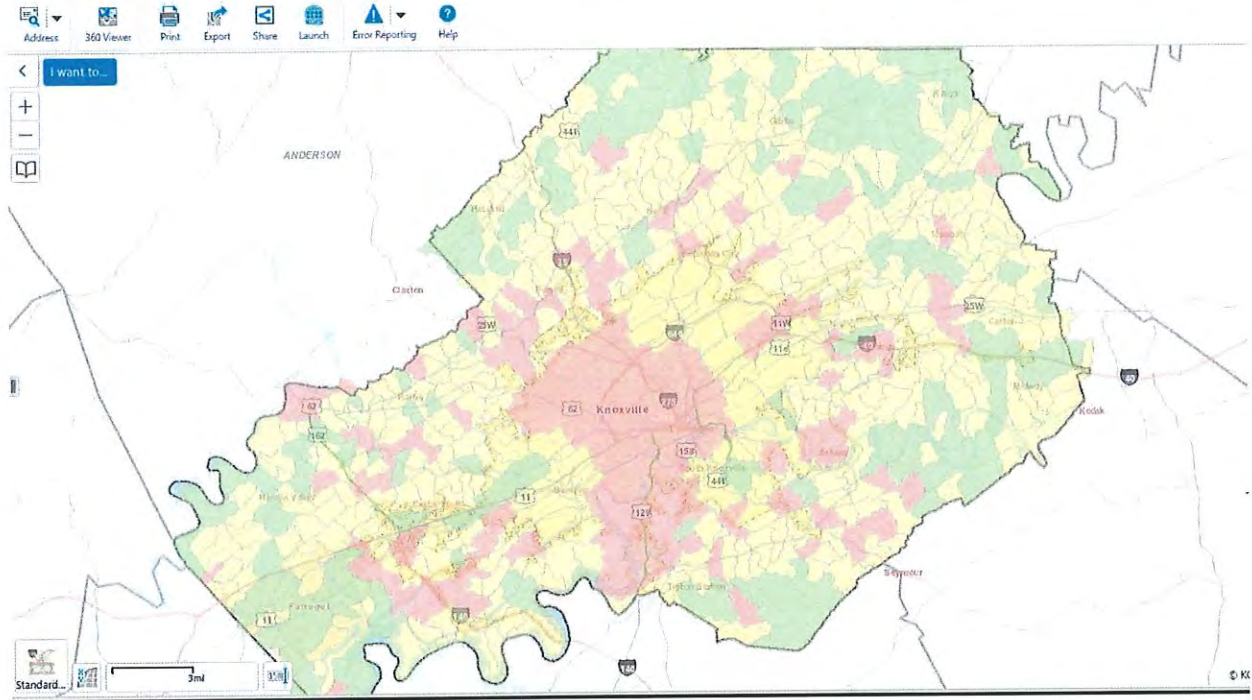
It shall be illegal for any person to intentionally dump liquids or solids that are considered priority pollutants by the U.S. Environmental Protection Agency (EPA) on the ground where there is potential exposure to rain or stormwater and potential for the pollutant to reach the municipal separate storm sewer system of the county.

(Ord. No. O-07-12-101, § 2(§ 12.5), 1-28-08)



# Appendix C

## Dry Weather Screening Prioritization Map Example (Knox County is not responsible for the City of Knoxville or the Town of Farragut)



**Appendix D**  
**Special Pollutant Abatement Permit (SPAP Example)**



## Special Pollution Abatement Permit Stormwater Management

### Automotive & Associated Facilities

*Polluted stormwater runoff is a leading contributor to the degradation of stream health in Knox County. Rushing storm water picks up litter, chemicals, dirt and other pollutants as it flows into a stormwater ditch and drain system and is deposited into a lake, stream, river or wetland. It is not clean water and, unlike drinking water and sewer wastewater, stormwater receives no treatment to remove any pollutants. Instead pollutants are carried into our waterways where they harm fish and wildlife, and ultimately pollute the places we enjoy for fishing, swimming, and other recreational activities. Because we use surface water for our drinking water source, these contaminants add to the cost of treating drinking water to make it safe.*

SWM Use Only (Engineering Department)

Date Received:	Fee: <b>\$100</b> Paid On:	Reviewer:
Date of Coverage:	Expiration Date:	Permit Number:

<b>I. Name of Facility</b>	
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- II. Type of Facility:**  
 vehicle maintenance & repair  
 vehicle fueling  
 vehicle washing  
 vehicle storage  
 parking lot maintenance  
 car lot  
 other: \_\_\_\_\_

<b>III. Site Information</b>	Watershed:
Mailing Address:	
Physical Address:	

<b>IV: Responsible Party for BMP Maintenance:</b>	Name:	Title:
Address: (street, city/state, zip)		
Phone:	Fax:	e-mail:

A map of the facility is attached with all stormwater facilities noted:  
 Yes  
 No

Please check each box to indicate that you understand, agree to, and will enforce the corresponding control at the facility. **Please provide a detailed justification for any unchecked box.**

#### V. Parking Area & Loading Dock

##### Structural Controls

- A. Stormwater Treatment facilities (e.g. catch basin inserts, oil-water separators, etc.) will be installed to treat runoff from all drainage basins.
- B. List Brand, Model, and Location of Units: \_\_\_\_\_
- C. List flow rates for site or sub-basin: 1 yr/24 hr storm = \_\_\_\_\_ 10 yr/24 hr storm= \_\_\_\_\_
- D. Verified treatment flow of unit = \_\_\_\_\_ & total bypass flow = \_\_\_\_\_

**Management Controls**

- E. Stormwater treatment facilities with low storage capacity (e.g. inserts, sumps, skimmers, etc.) will be inspected at least monthly and cleaned out at least quarterly. Documented maintenance records will be stored on site and made available to inspectors.
- F. Stormwater treatment facilities with large storage capacity (e.g. vaults, o/w separators, etc.) will be inspected at least quarterly and cleaned out at least annually. Documented maintenance records will be stored on site and made available to inspectors.
- G. All pressure washing and/or wastewater from parking areas will be:
  - Contained before it enters the storm drain system and disposed of properly **and/or**
  - Directed into a stormwater treatment facility or grassy landscaped area large enough to allow all wastewater into infiltrate the ground.

**VI. Vehicle Maintenance and/or Vehicle Wash Facilities (if applicable)  Check if Not Applicable**

**Structural Controls**

- A. All interior drains must discharge to the sanitary sewer.
- B. An emergency spill kit will be maintained on site.
- C. All repair work must be completed under cover.

**Management Controls**

- D. All wastewater from washing vehicles will be disposed properly, preferable using the indoor drains.
- E. All illicit discharges will be cleaned up promptly and reported to Knox County Stormwater Management at 865-215-5540.
- F. All leaking vehicles will be moved indoors, or a drop cloth or drip pan will be used to prevent any automotive fluids from entering the storm drain system.

**VII. Dumpsters**

**Structural Controls**

- A. Dumpster pads will be constructed with a raised surface (at least 2"-3") to prevent run-on from the surrounding paved area.
- B. No storm drain grates or inlets shall be constructed with the dumpster pad.
- C. Water spigot or supply will not be installed unless sanitary waste line is also provided.

**Management Controls**

- D. Dumpster lids and doors shall be kept closed when not in use and drain plugs shall be in place at all times.
- E. Only dry material shall be disposed in dumpsters.
- F. Dumpster pads shall be inspected at least weekly and any potential illicit discharges or spills shall be cleaned immediately to prevent non-stormwater discharges from entering the storm drain system.

**VII. Certifications and Signatures:**

**CERTIFICATION AND SIGNATURE (MUST BE SIGNED BY PRESIDENT, OWNER, OR RANKING OFFICIAL)**

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and attached exhibits. Based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of imprisonment."

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**ACCEPTANCE OF RESPONSIBILITY FOR PERMIT COMPLIANCE (MUST BE SIGNED BY CONTACT PERSON)**

"I also certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and attached exhibits. Based on my investigations, I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine or imprisonment."

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

- (a) Some facilities which are not yet constructed may not have selected a permanent contact person who will ultimately be responsible for permit compliance. In these instances, the contact person may be a technical person within the company who is generally responsible for environmental compliance issues.
- (b) The president, owner, or other ranking official who certifies this document is responsible for keeping Knox County Stormwater up-to-date concerning the name of the contact person. The president, owner, or other ranking official who certifies this document is also responsible for notifying Knox County Stormwater if he/she is no longer an official with the company.

If any information changes or is subsequently found to be in error, please resubmit necessary pages of the Special Pollution Abatement Permit application along with new signatures and dates.

Permit expires **five years** from the date of issuance, or as noted on the first page of this permit.

Submit this permit application promptly to the following address:

Knox County Stormwater Management  
205 West Baxter Avenue  
Knoxville, TN 37917

Telephone: 865-215-5540  
Fax: 865-215-5831

## Appendix E

To see any Standard Operating Procedures (SOPs), the Enforcement Response Plan (ERP), or the Public Involvement and Education Plan (PIE Plan) listed in the document above, please send an email request to [stormwater@knoxcounty.org](mailto:stormwater@knoxcounty.org) indicating which specific documents you would like to see and they will be emailed back to you within 10 business days.

**The following are the documents that are relevant to the IDDE Program and/or referenced in this plan:**

1. IDDE Enforcement Response Plan (ERP)
2. Public Involvement and Education Plan (PIE Plan)
3. IDDE Sub-Basin Prioritization SOP
4. Delineating DWS Infalls/Outfalls SOP
5. Dry Weather Screening SOP
6. Illicit Discharge Investigation SOP
7. Illicit Discharge Investigation SOP – Septic & Greywater
8. Illicit Discharge Spill Response SOP
9. Illicit Discharge Enforcement SOP