Appendix C. KCI Technologies 2009 Outfall Screening Summary Report.

DELDOT AGREEMENT 1495
WATER QUALITY MONITORING

OUTFALL SCREENING
2009 ANNUAL REPORT

As part of the Delaware Department of Transportation's National Pollutant Discharge Elimination System General Permit Program Regulations Governing Stormwater Discharge, KCI Technologies, Inc. was contracted to conduct dry weather outfall inspection and monitoring of DelDOT-owned storm drain outfalls in New Castle County. Other activities conducted under this task included: Investigation of Potential Illicit Discharges, NPDES Flyer Awareness Distribution, and New Castle County Outfall Wet Weather Monitoring.

A. OUTFALL SCREENING

In 2009, 755 outfalls were screened in New Castle County as part of the inventory, inspection and re-inspection tasks under Agreement 1354. All of these outfalls were DelDOT-owned. No dry weather flow was observed during these inspections.

Outfall Screening: BG22-2832

B. POTENTIAL ILLICIT DISCHARGES

In 2009, twelve Potential Illicit Discharges (PIDs) were investigated in New Castle County. **Table 1** lists those PIDS that had discharge with elevated sampling parameter levels, as well as PIDs that were investigated and determined to have no follow-up requirements.

PID: 147 Halcyon Dr.

PID: 255 Appleby Road

TABLE 1
2009 POTENTIAL ILLICIT DISCHARGE DETERMINATIONS *

Date	Location / Neighborhood	Investigation Results	Determination
01/16/09 02/16/09	255 Appleby Rd. *	01/16/09: Inconclusive 02/16/09: Discharge tested high for ammonia and detergents. 24-hour re-test: Discharge tested high for ammonia and detergents. Unable to pinpoint source.	Referred to DelDOT.
02/24/09 05/05/09	3712 Evelyn Dr. * Dunlinden Acres	02/24/09: Discharge tested high for ammonia and detergents. 05/05/09: Visible pet waste in catch basin	Distributed 20 Door Hangers 05/05/09.
05/11/09	147 Halcyon Dr. * Garfield Park Catch Basin 16225	Oil stains in/around catch basin appeared old and not from recent dumping. Nearby catch basins inspected - no signs of illicit discharge.	Distributed 30 Door Hangers 06/04/09.
05/11/09	108 Toucan Rd. Brookmeade II Structure 20963	Oil/gas odor in catch basin. No evidence found.	No further action taken.
05/11/09	3118 Heather Dr. Greenville Manor Structure 60204	Dumping of organic debris. No evidence found.	No further action taken.
05/11/09	Across 11 Patrick Henry Dr. Jefferson Farms Structure 15076	Paint poured in catch basin. No evidence found.	No further action taken.
05/11/09	Rear 428 Carver Dr. Dunleith	Sump drain and roof drain leading from house directly into catch basin through grate. Sample tested within acceptable parameter levels.	Discussed during DelDOT Status Meeting. Determined this is acceptable as long as water clean.

*Additional information regarding PIDs provided in **Appendix A**. *(Continued Next Page)*

Date	Location / Neighborhood	Investigation Results	Determination
06/22/09	1712 Forestdale Dr. Twin Oaks Structure 41152	1-2 inch cooper pipe discharging water into catch basin. Determined copper pipe is connected to water line/valve approximately 2' from catch basin. Sample tested within acceptable parameter levels, and appeared to be drinking water.	No further action taken.
07/02/09	10 Sorrel Dr. Surrey Park Structure 40533	Smell of natural gas. Faint odor of gas detected. Smell quickly dissipated and no other signs of illicit discharge were found.	No further action taken.
07/22/09	Heather Dr. Greenville Manor Structure 60204	Small pipe connected in pipe. Determined that connection originated from a nearby water valve. Sample tested within acceptable parameter levels.	No further action taken.
08/20/09	Across Wal-Mart. * Structure 17937	Stagnant water/decaying organic debris. Sample tested within acceptable parameter levels.	Referred to DelDOT.
01/18/10	Outfall * 320080407131737 into BMP 241	Dark green stain on outfall pipe dumping into BMP 241 (wet pond). Clear dry weather flow. Dead fish directly in front outflow pipe. Sample tested within acceptable parameter levels.	KCI will revisit site in February and March 2010.

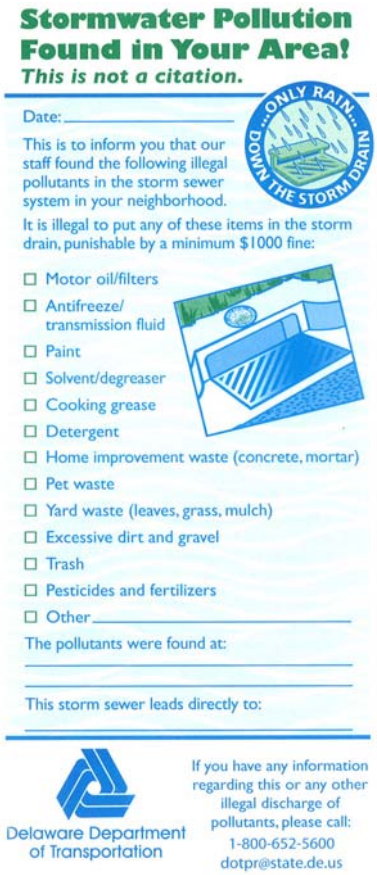
*Additional information regarding PIDs is provided in **Appendix A**.

PID: Structure 17937 across from Wal-Mart

PID: Outfall 320080407131737 into BMP 241

C. NPDES FLYER AWARENESS DISTRIBUTION

The purpose of the NPDES flyer awareness distribution (doorhangers) is to inform the public and increase awareness of illegal dumping of pollutants into the surrounding storm sewer systems. Doorhangers were distributed to those areas where suspected illegal discharge had occurred, as observed by the general public and/or field crews performing storm drain inventories. In 2009, 50 doorhangers were distributed in two neighborhoods in New Castle County, as summarized in **Table 3.**

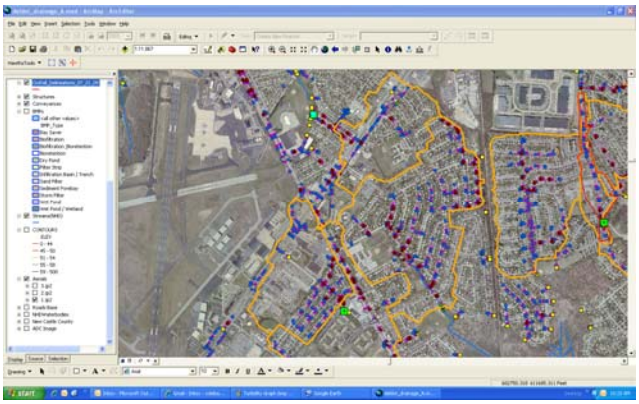

Stormwater Pollution Found in Your Area!
This is not a citation.
Date: _____
This is to inform you that our staff found the following illegal pollutants in the storm sewer system in your neighborhood.
ONLY RAIN... DOWN THE STORM DRAIN
It is illegal to put any of these items in the storm drain, punishable by a minimum $1000 fine:
- ☐ Motor oil/filters
- ☐ Antifreeze/ transmission fluid
- ☐ Paint
- ☐ Solvent/degreaser
- ☐ Cooking grease
- ☐ Detergent
- ☐ Home improvement waste (concrete, mortar)
- ☐ Pet waste
- ☐ Yard waste (leaves, grass, mulch)
- ☐ Excessive dirt and gravel
- ☐ Trash
- ☐ Pesticides and fertilizers
- ☐ Other _____

The pollutants were found at:
_____
This storm sewer leads directly to:
_____
Delaware Department of Transportation
If you have any information regarding this or any other illegal discharge of pollutants, please call:
1-800-652-5600
dotpr@state.de.us

TABLE 3
2009 DOORHANGER DISTRIBUTION

Date	Neighbor-hood	ADC Map / Grid	Type Waste	Water-body	No. Hangers
03-05-09	Dunlinden Acres	7/B11	Pet Waste	Red Clay Creek	20
06-04-09	Garfield Park	13/E4	Oil	Delaware River	30

D. OUTFALL DRAINAGE AREAS



Outfall Drainage Areas

Through December 2009, KCI delineated 503 outfall drainage areas in New Castle County and 25 outfalls in Kent County, for a total of 528 outfall drainage areas. Additionally, KCI delineated 239 BMP drainage areas in New Castle County.

Using GIS base data such as contour lines, road edges, building footprints, streams, storm drain infrastructure, and ortho-photography, drainage areas are delineated for outfalls and BMPs to encompass the entire area of flow and drainage for those points. Drainage areas are created as polyline features to prevent geometry errors such as overlaps and gapping. A point feature is created for every drainage area, and is assigned attributes for the *BMP ID* or *Structure ID* and *Flow To* information. If one drainage area flows into another, the upstream feature has the ID of the downstream drainage area populated in its *Flow To* field, to indicate that the downstream area encompasses everything upstream of it. Once all areas have been delineated, a polygonal feature class is generated from the polylines, and the attributes associated with the point are assigned to it.

E. NEW CASTLE COUNTY OUTFALL WET WEATHER MONITORING

In July 2008, DelDOT requested that KCI assist in the wet weather monitoring (WWM) performed by Duffield Associates for New Castle County. The County is responsible for WWM at five outfalls. KCI was contracted to conduct WWM at the following three outfalls:

- I-95 Roadway runoff
- Albe Drive Industrial runoff
- Dawe's Drive Residential runoff

Dawe's Drive Outfall

Table 4 summarizes the WWM Events for 2009. False Starts occurred on 03/26/09, 05/26/09, 06/18/09, 09/08/09, 09/10/09, and 10/07/09. KCI forwarded the ACL laboratory data associated with the WWM Events to Duffield Associates for their use in the preparation of an Annual Report for New Castle County. The WWM at the NCCo Outfalls has been completed.

TABLE 4
2009 NEW CASTLE COUNTY OUTFALL
WET WEATHER MONITORING

WWM	I-95	Albe Drive	Dawe's Drive
Date	04/20/09 11/19/09	10/15/09	09/16/09 10/15/09

F. NEXT STEPS

KCI's specific goal for 2010 is to complete the delineation of drainage areas for all major outfalls in New Castle County, and the delineation of drainage areas for all DelDOT-owned BMPs throughout the state. In addition, KCI will continue to provide as-needed outfall screening activities in 2010. This includes investigating dry weather flow and potential illicit discharges at outfalls and storm drain structures discovered by KCI field crews, DelDOT maintenance staff or the public.