

APPENDIX P

EXAMPLE ILLEGAL DISCHARGE SCREENING REPORT FORMS

<p>County of Franklin</p> <p>Outfall Identification and Flow Analysis Record</p>	<p>Field ID: _____ (AB)</p> <p>Ogden ID: _____</p> <p>ADC Map #: _____ (##L-##)</p> <p>Sheet No.: _____</p> <p>GIS ID: _____</p>	<p>Land Use in Drainage Area:</p> <p><input type="checkbox"/> Res <input type="checkbox"/> Com</p> <p><input type="checkbox"/> Ind <input type="checkbox"/> Ag</p> <p><input type="checkbox"/> Forest <input type="checkbox"/> Open</p>
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<input type="checkbox"/> Tar River Basin <input type="checkbox"/> Neuse River Basin <input type="checkbox"/> Falls Lake Watershed <input type="checkbox"/> Name of Creek: _____ 	<p>Weather:</p> <p>Air Temp: _____ °C</p> <p><input type="checkbox"/> Rain w/in 72 hrs?</p> <p><input type="checkbox"/> Ground wet?</p>	<p>Sky</p> <p><input type="checkbox"/> Clear</p> <p><input type="checkbox"/> P. Cloudy</p> <p><input type="checkbox"/> Cloudy</p> <p><input type="checkbox"/> Overcast</p>	<p>Flow:</p> <p><input type="checkbox"/> dry <input type="checkbox"/> Moderate</p> <p><input type="checkbox"/> stand. H₂O <input type="checkbox"/> High Flo</p> <p><input type="checkbox"/> Trickle</p>	<p>Outfall Information</p> <p>Size: _____ <input type="checkbox"/> in/ <input type="checkbox"/> ft <i>(diameter or width x height)</i></p> <p>Outfall Type (check one):</p> <p><input type="checkbox"/> Corrugated Metal Pipe</p> <p><input type="checkbox"/> Box culvert</p> <p><input type="checkbox"/> Concrete pipe</p> <p><input type="checkbox"/> Cast Iron</p> <p><input type="checkbox"/> Earthen Ditch</p> <p><input type="checkbox"/> RipRap/Concrete Chan.</p> <p><input type="checkbox"/> Other: _____</p>
<p>Nearest St. address _____</p> <p>Specific Location (direction & distance of fall from above address & nearby landmarks)</p> <p>_____</p> <p>_____</p>		<p>Investigation</p> <p>Date: _____</p> <p>Time: _____ <i>(24 hr clock)</i></p> <p>Team:</p> <p><input type="checkbox"/> CO <input type="checkbox"/> GP</p> <p><input type="checkbox"/> MF <input type="checkbox"/> BH</p> <p><input type="checkbox"/> FL <input type="checkbox"/> MR</p> <p><input type="checkbox"/> PW <input type="checkbox"/> JC</p>		

Physical Observations:

<p>Odor:</p> <p><input type="checkbox"/> none</p> <p><input type="checkbox"/> musty</p> <p><input type="checkbox"/> sewage</p> <p><input type="checkbox"/> sulfide</p> <p><input type="checkbox"/> fuel oil</p> <p><input type="checkbox"/> gasoline</p> <p><input type="checkbox"/> other: _____</p>	<p>Floatables:</p> <p><input type="checkbox"/> none</p> <p><input type="checkbox"/> petrol sheen</p> <p><input type="checkbox"/> sewage</p> <p><input type="checkbox"/> foam</p> <p><input type="checkbox"/> other</p>	<p>Turbidity:</p> <p><input type="checkbox"/> clear</p> <p><input type="checkbox"/> cloudy</p> <p><input type="checkbox"/> opaque</p> <p><input type="checkbox"/> particles</p> <p><input type="checkbox"/> black floc</p>	<p>Deposits/stains:</p> <p><input type="checkbox"/> none</p> <p><input type="checkbox"/> oily</p> <p><input type="checkbox"/> algae</p> <p><input type="checkbox"/> other</p>	<p>Damage to Outfall Structure: <input type="checkbox"/> N/A</p> <p><input type="checkbox"/> none</p> <p><input type="checkbox"/> concrete cracking/spalling</p> <p><input type="checkbox"/> concrete erosion</p> <p><input type="checkbox"/> Outlet capacity significantly reduced by sediment</p> <p><input type="checkbox"/> Outlet area significantly eroded</p> <p><input type="checkbox"/> paint peeling</p> <p><input type="checkbox"/> metal corrosion</p> <p><input type="checkbox"/> other: _____</p>
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Comments, description: _____

Vegetation condition: _____

Field Analysis:

Field Instrument Pens YSI

Sample 1 Location: _____	Date: _____ Time: _____
Temp: _____ °C	DO: _____ %
pH: _____	DO: _____ mg/L
TDS: _____ g/L	Turbid.: _____ NTU
Sp Cnd: _____ µs/cm	detergent: _____ mg/L
Chlorine: _____ mg/L <input type="checkbox"/>	Phosphate: _____ mg/L <input type="checkbox"/>
Copper: _____ mg/L <input type="checkbox"/>	Ammonia: _____ mg/L <input type="checkbox"/>
Phenols: _____ mg/L <input type="checkbox"/>	Nitrate: _____ mg/L <input type="checkbox"/>

Sample 2 Location: _____	Date: _____ Time: _____
Temp: _____ °C	DO: _____ %
pH: _____	DO: _____ mg/L
TDS: _____ g/L	Turbid.: _____ NTU
Sp Cnd: _____ µs/cm	detergent: _____ mg/L
Chlorine: _____ mg/L <input type="checkbox"/>	Phosphate: _____ mg/L <input type="checkbox"/>
Copper: _____ mg/L <input type="checkbox"/>	Ammonia: _____ mg/L <input type="checkbox"/>
Phenols: _____ mg/L <input type="checkbox"/>	Nitrate: _____ mg/L <input type="checkbox"/>

<p>Rate likelihood that water is contaminated (scale of 1 to 6)</p> <p><input type="checkbox"/> No Flow <input type="checkbox"/> Some possibility</p> <p><input type="checkbox"/> Very unlikely <input type="checkbox"/> Likely</p> <p><input type="checkbox"/> Unlikely <input type="checkbox"/> Very Likely</p>	<p><input type="checkbox"/> Investigate?</p> <p><input type="checkbox"/> Revisit?</p> <p>Investigation Number: _____ SI _____</p> <p>Photo? <input type="checkbox"/> File Name: _____</p>	<p>Office: _____</p>
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By: _____ (Staff initials)

(over for more)

County of Franklin

Note: Shaded areas should be filled in before going out to field

WATER QUALITY COMPLAINT / INSPECTION RECORD for 20__

CR File Number: _____ (97CR999)
 ADC Map #: _____ (#####L-###)

Complainant's Description of Problem and Location:

Description: _____
 Location: _____

<p>Complaint from: Name: _____ Address: _____ Home Phone #: _____ Work Phone #: _____ Other: _____ <i>(pager, e-mail, etc.)</i></p>	<p>Complaint Date and Source: Call date: _____ Time: _____ <input type="checkbox"/> Hotline <input type="checkbox"/> SW Staff Initiatd <input type="checkbox"/> Walk-In <input type="checkbox"/> Emerg. Mgt. <input type="checkbox"/> Call In <input type="checkbox"/> Health Dept. <input type="checkbox"/> WWW <input type="checkbox"/> Erosion Ctrl. <input type="checkbox"/> Other County employee <input type="checkbox"/> Other _____</p>	<p>First Callback: Date: _____ Time: _____ Results Callback: Date: _____ <input type="checkbox"/> Phone <input type="checkbox"/> Letter <input type="checkbox"/> In Person</p>	<p>INVESTIGATION Date: _____ Time: _____ Duration: _____ Team (initials of staff): <input type="checkbox"/> CO <input type="checkbox"/> BL <input type="checkbox"/> MF <input type="checkbox"/> BH <input type="checkbox"/> PW <input type="checkbox"/> JC <input type="checkbox"/> other _____</p>
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Field Observations (if different):

Investigator's Description: _____
 Street Address (Nearest): _____

<p>Property Type <input type="checkbox"/> Public <input type="checkbox"/> Commercial <input type="checkbox"/> Residential <input type="checkbox"/> Industrial <input type="checkbox"/> Unimproved</p>	<p>Observations: <input type="checkbox"/> Sheen _____ <input type="checkbox"/> Odor _____ <input type="checkbox"/> Floatables _____</p>	<p><i>Drainage Basin</i> Crk _____ Sub-Basin _____ <input type="checkbox"/> Flow reached storm drain? <input type="checkbox"/> Flow reached creek?</p>
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<p>Probable Source of Water Quality Problem (check main items that apply): Construction Erosion & Sed: <input type="checkbox"/> Controls not provided <input type="checkbox"/> Controls not maintained <input type="checkbox"/> Sediment in drainage system On-site sewage treatment: <input type="checkbox"/> Discharging sand filter system <input type="checkbox"/> Failing septic leachfield <input type="checkbox"/> Piping failure, leak, etc (on-site only) <input type="checkbox"/> Laundry discharge (household)</p>	<p>Private Connection to County System: <input type="checkbox"/> Sewer lateral (house/duplex) <input type="checkbox"/> Sewer lateral (apart/commercial) County Sanitary Sewer System: <input type="checkbox"/> Overflow <input type="checkbox"/> Leak (small flow) <input type="checkbox"/> Break (large flow) <input type="checkbox"/> Other _____ Sub: _____ Basin: _____ Manhole: Up-MH: _____ Down-MH: _____</p>	<p><input type="checkbox"/> Illicit Connection <input type="checkbox"/> Contaminated Groundwater <input type="checkbox"/> Petroleum spill/release <input type="checkbox"/> Paint spill/release/dumping <input type="checkbox"/> Grease/Cooking oil/food wastes <input type="checkbox"/> Improper Housekeeping <input type="checkbox"/> Trash/Garbage in Channel <input type="checkbox"/> Yard wastes/leaves <input type="checkbox"/> Source Unknown <input type="checkbox"/> Water Leak <input type="checkbox"/> Other WQ Prob (see details) <input type="checkbox"/> No WQ Problem Found <input type="checkbox"/> Drainage Problem _____</p>
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Details, Sample Locations, Findings, Actions:

Continue on back, if necessary

<p><input type="checkbox"/> Need NOV? Date Sent _____ Tax Map #: _____ NOV Sent to (usu. Prpty Owner): _____ Mailing Address: _____</p>	<p><input type="checkbox"/> Health Dept. <input type="checkbox"/> Land Qual <input type="checkbox"/> W&S Maint.. <input type="checkbox"/> DOT <input type="checkbox"/> W&S Eng. <input type="checkbox"/> Other : _____</p>	<p>Photo File Name: _____ Respond to Complainant By: (date) _____ <input type="checkbox"/> Phone <input type="checkbox"/> Letter <input type="checkbox"/> In Person</p>
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Entered In Database ?

By: _____ (staff initials)

Water Quality Complaint / Inspection Record, Cont.

Additional Details, Sample Locations, Findings, Actions:

Sample 1 Location: _____ Date: _____ Time: _____
 Details: _____
 Temp: _____ °C DO: _____ % Chlorine: _____ mg/L Phosphate: _____ mg/L
 pH: _____ DO: _____ mg/L Copper: _____ mg/L Ammonia: _____ mg/L
 TDS: _____ g/L Turbid.: _____ NTU Phenols: _____ mg/L Nitrate: _____ mg/L
 Sp Cnd: _____ µs/cm _____ detergent: _____ mg/L _____

Sample 2 Location: _____ Date: _____ Time: _____
 Details: _____
 Temp: _____ °C DO: _____ % Chlorine: _____ mg/L Phosphate: _____ mg/L
 pH: _____ DO: _____ mg/L Copper: _____ mg/L Ammonia: _____ mg/L
 TDS: _____ g/L Turbid.: _____ NTU Phenols: _____ mg/L Nitrate: _____ mg/L
 Sp Cnd: _____ µs/cm _____ detergent: _____ mg/L _____

Sample 3 Location: _____ Date: _____ Time: _____
 Details: _____
 Temp: _____ °C DO: _____ % Chlorine: _____ mg/L Phosphate: _____ mg/L
 pH: _____ DO: _____ mg/L Copper: _____ mg/L Ammonia: _____ mg/L
 TDS: _____ g/L Turbid.: _____ NTU Phenols: _____ mg/L Nitrate: _____ mg/L
 Sp Cnd: _____ µs/cm _____ detergent: _____ mg/L _____

Sample 4 Location: _____ Date: _____ Time: _____
 Details: _____
 Temp: _____ °C DO: _____ % Chlorine: _____ mg/L Phosphate: _____ mg/L
 pH: _____ DO: _____ mg/L Copper: _____ mg/L Ammonia: _____ mg/L
 TDS: _____ g/L Turbid.: _____ NTU Phenols: _____ mg/L Nitrate: _____ mg/L
 Sp Cnd: _____ µs/cm _____ detergent: _____ mg/L _____

Sample 5 Location: _____ Date: _____ Time: _____
 Details: _____
 Temp: _____ °C DO: _____ % Chlorine: _____ mg/L Phosphate: _____ mg/L
 pH: _____ DO: _____ mg/L Copper: _____ mg/L Ammonia: _____ mg/L
 TDS: _____ g/L Turbid.: _____ NTU Phenols: _____ mg/L Nitrate: _____ mg/L
 Sp Cnd: _____ µs/cm _____ detergent: _____ mg/L _____

Sample 6 Location: _____ Date: _____ Time: _____
 Details: _____
 Temp: _____ °C DO: _____ % Chlorine: _____ mg/L Phosphate: _____ mg/L
 pH: _____ DO: _____ mg/L Copper: _____ mg/L Ammonia: _____ mg/L
 TDS: _____ g/L Turbid.: _____ NTU Phenols: _____ mg/L Nitrate: _____ mg/L
 Sp Cnd: _____ µs/cm _____ detergent: _____ mg/L _____

Additional Details, Sample Locations, Findings, Actions:

Franklin County Industrial Inspections Report	Date _____ Time _____ Inspector _____ Account # _____	(Office Only) ADC Map # _____ Basin _____ Sub-Basin _____
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Industry Information

Site Name _____
(Business/industry name and identification of site)

Street Address _____

Contact _____ Phone _____
(name)

Mailing _____

Address _____

Field Observations **Inspection N/A?**

Material Waste (M/W) Storage Areas *(Petroleum products and hazardous materials/wastes)*

No.	Material or Waste	Storage	Containment?	Concerns?	Description of Concern (spill, leak, etc.)
1			<input type="checkbox"/> Secondary	<input type="checkbox"/> Yes	
2			<input type="checkbox"/> Secondary	<input type="checkbox"/> Yes	
3			<input type="checkbox"/> Secondary	<input type="checkbox"/> Yes	
4			<input type="checkbox"/> Secondary	<input type="checkbox"/> Yes	

M/W Drainage _____

Material Transfer Areas

- Loading Dock Conveyor
- Pipe nozzles Loader
- Other _____ Spill Containment?
- Evidence of spills/leaks? What material? _____

MT Drainage _____

Manufacturing Areas

- Spill Containment?
- Evidence of spills/leaks (Mfgr. Area)?
- If so, what material spilled? _____

Floor Drains

FD Locations _____

Housekeeping Comments _____

Vehicle Maintenance Area

- Spill Containment?
- Evidence of spills/leaks (Maint.)?
- If so, what material spilled? _____

Vehicle Fueling

Drainage _____

Storm Drainage System

- Stormwater drainage system accessible?
- Current Precipitation or Precipitation Within 72 Hours?

Stormwater Flow

- Dry, no flow
- Standing Water
- Dry Weather Flow
- Wet Weather Flow
- Other _____

Water

Characteristics

- Color
- Odor
- Stains
- Foam

Storm Drainage System Condition

- Erosion
- Sedimentation
- Corrosion

Comments _____

- Follow up needed? _____ Entered in D-Base? _____

FIELD SCREENING PROGRAM PROGRESS

Field screening is a component of the County's dry weather monitoring program to identify and eliminate illicit discharges and improper disposal. The dry weather monitoring program is an integrated outfall field survey program that incorporates outfall identification, inspection and inventory; field screening; and preliminary follow-up field investigation. Additional investigation and follow-up may be required to accomplish the elimination of an illicit discharge or improper disposal practice. Furthermore, the field survey program will identify and inspect additional stormwater outfalls located in the field.

When precipitation has occurred within 72 hours, outfalls would be located or identified, and inspected. Later, during dry weather, the field team would return to any outfall having evidence of flow to determine whether the outfall had a dry weather flow, and, for those dry weather flows, to conduct field screening.

When precipitation has not occurred within 72 hours, the outfall identification, inspection and inventory step will be followed immediately by field screening of any dry weather flows that were observed.

FIELD SCREENING PARAMETERS AND METHODOLOGY

The field screening conducted under the Part 1 permit application included physical observations at the selected field screening points, and grab sampling and field analysis of dry weather flows. Where dry weather flows were observed, a second follow-up grab sample was collected and field analyzed within the ensuing 24 hour period.

Field analysis evaluated pH, total chlorine, total soluble copper, phenols, and detergents (anionic surfactants) using the CHEMetrics M-1000 Stormwater Discharge Kit, using visual evaluation of colormetric results using color comparators.

The current field screening program incorporates the methodology and parameters used in the Part 1 permit application, with some minor modifications. One change is that the current methodology allows outfall identification and inspection to occur during periods that do not meet dry weather criteria, provided there is subsequent follow up during dry weather to determine whether a dry weather flows exist. In the 'old industrial areas' of the pilot basin, field investigators have found a number of pipes that terminate at the open channel and that were not identified in the stormwater outfall inventory. Some of these pipes appear to be abandoned, while others appeared to be floor drain or yard drain discharges. Where such pipes exist, performing the identification and investigation work during wet weather can help to establish whether the pipe is currently used to discharge stormwater. Furthermore, during wet weather it is easier to identify stormwater outfalls that may be overgrown and obscured by vegetation.

Unknown pipes terminating in stormwater channels are expected to be very rare outside of the 'old industrial areas' identified in the Part 2 permit application. In most other areas in the County, it is expected that outfall identification and inspection work will be accomplished during dry weather and will coincide with field analytical chemistry testing, as indicated in the Part II permit application.

Another modification to the field screening program is the availability of two additional monitoring parameters for field screening. Field investigators will carry CHEMetrics colormetric test kits for ammonia and phosphates. Existing data on water quality of urban streams within

the County indicates three sites periodically have some combination of high fecal coliform bacteria, high BOD, or low dissolved oxygen. In addition, ongoing discussions with Public Health personnel indicate that there are numerous failing on-site, non-discharge systems within the County. In drainage basins where fecal contamination is suspected, the availability of an ammonia test to the field screening parameters will be useful in identifying and isolating cross-connections, as well as flows originating from failing septic systems. Similarly, the availability of a phosphate test will be useful upstream of ponds that have been impacted by heavy growth of algae.

When deemed appropriate for follow-up investigations, field investigators will have the capability of measuring the additional parameters of dissolved oxygen and total dissolved solids in the field.

Copies of the field form for outfall identification and inspection and the field form for flow inspection and field analysis are attached. Note that the flow inspection form can also be used, when appropriate, for investigation of water quality complaints referred to the County by Citizen's or other agencies.

The screening methodology has been developed into a set of standard operating procedures (SOPs). These SOPs provide both general guidance and, where appropriate, detailed, step-by-step instructions for field investigators in order to promote safety, consistency and quality in data collection and field analysis. The procedures cover:

- checklists,
- personal protective equipment,
- instrument calibrations and maintenance,
- equipment maintenance
- observations and record keeping
- field analysis, and
- preliminary evaluation of field data.

The field SOPs for the dry weather program have been tested and refined. Additional refinements will be made as necessary.

SCHEDULING

A schedule has been established for completing the field screening within the permit period. This schedule is based on conducting field screening on approximately 35 outfalls per month. It is anticipated that the field screening would be substantially complete by the time a permit renewal application would be submitted.

The Part II application identified priority areas within the County, generally following land use patterns, with "old industrial areas" having the highest priority, followed by industrial/commercial areas, and then by older residential areas. Initial priority for the field screening program is based on completing field screening of the pilot basin selected in the Part II permit application.

TRAINING

A training program has been developed for field investigators. Initial training has been provided, but training is an on-going activity within the field screening component.

Classroom training has been provided on the overall intent of the program, the specific components of the outfall identification and inspection, and flow inspection and analysis tasks. Field investigators have received First Responder training in dealing with hazardous materials

spills, and have had classroom training in field safety, including a review of all MSDS sheets for chemicals being used in the program.

Hands-on training has been provided in the use and maintenance of field instruments, the use of the CHEMetrics field analytical chemistry kits, and the use of field data collection forms. Field practice sessions have been conducted using all tests and measurements.

Detailed standard operating procedures have been developed for the field outfall survey work covering: record keeping; safety and use of personal protective equipment; receipt and use of chemicals; use, calibration and maintenance of field analytical equipment; sample collection; field analysis; and dye testing to identify/locate illicit drains. These procedures also provide guidance in making a preliminary evaluation of field results to assist timely information collection for follow-up investigation. The SOPs also serve as a training resource for field personnel.

DATABASES AND GEOGRAPHIC INFORMATION SYSTEMS

Microsoft Access relational database software has been selected to maintain database information for the program as an interim measure. A database has been developed for the field screening component containing separate (but related) tables for:

- outfall identification and inspection, and
- dry weather flow inspection and analysis.

In addition, a table has been developed for water quality data from urban stream sampling, and one is planned for data from wet weather sampling.

A database on potential sources of contamination has also been developed incorporating tables for:

- NCDWQ Incident Management Contamination Sites
- Emergency Management spills reports
- NCDWQ General Stormwater Permits
- NCDWQ NPDES Permits
- NCDWQ Non-discharge Permits
- Fire Department Inspection Reports (inspections of industrial and related facilities)

A third database on potential sources of contamination contains information on hazardous substances reported pursuant to SARA Title III tier II reporting requirements.

The sources databases will be utilized to identify likely sources of illicit discharge and improper disposal, or of any other source of contamination encountered.

Reports are currently being developed to allow some data analysis and reporting within MS Access. For greater flexibility, data can be exported from MS Access to a MS Excel spreadsheet for analysis.

A grid system has been developed for tracking field screening and sources databases in MS Access, and is currently being implemented in all the appropriate source database tables. Once the GIS system has been developed for the pilot facilities inventory program, and existing facilities have been inventoried, it is planned that the field screening and sources databases will be imported into the GIS system to facilitate more accurate and more detailed geographic evaluation of data.