SANITATION DISTRICT NO. 1

July 10, 2009

Acting Director of the Division of Enforcement
Department for Environmental Protection
300 Fair Oaks Lane
Frankfort, KY 40601

Chief, Environmental Enforcement Section
Environmental and Natural Resources Division
U.S. Department of Justice
601 D street NW
Washington, DC 20005
DOJ Case No. 90-5-1-1-08591

Chief, Water Program Enforcement Branch
Water Management Division
U.S. Environmental Protection Agency, Region 4
Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, Georgia 30303

Re: Consent Decree Case No. 2:05-cv-00199-WOB

Dear Gentlemen:

Enclosed is Sanitation District No. 1's (SD1) recently amended Sewer Overflow Response Plan. The revisions made to this document were in response to comments received by Region 4 of the United States Environmental Protection Agency (EPA) and Kentucky Department for Environmental Protection (DEP) after their review of SD1's March 18, 2009 submittal.

Also enclosed is a compact disc containing the following two files:

- A document outlining all changes made to the report as a result of the comments received by the EPA/DEP, which reflect SD1's current operating procedures. Changes are tracked in red for ease of reference.

- A clean copy of the final revised report with all changes accepted into the document. Once approved, this document will serve as the final public document for the corresponding Consent Decree requirement.

1045 EATON DRIVE • FT. WRIGHT, KENTUCKY 41017-9681 • PH: (859) 578-7450 • FAX: (859) 331-2436

We are confident that our response to the regulatory comments and the changes made to the reports satisfies the intentions of the comments received, and we look forward to receiving approval of this document in the near future.

If you have any questions or concerns, do not hesitate to contact me at 859-578-7465 or by e-mail at jeger@sd1.org.

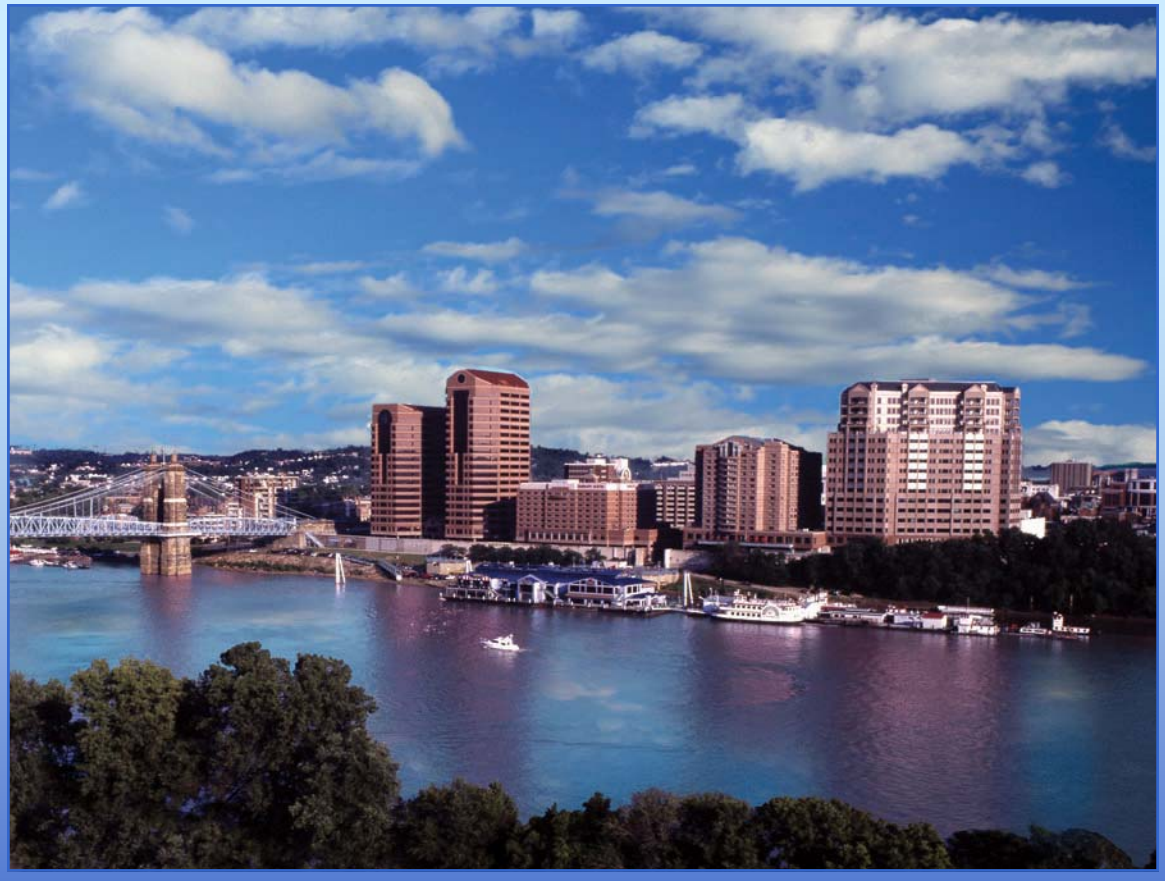
Best regards,

Jeffery A. Eger
General Manager

JAE/jlh
Enclosures

Sewer Overflow Response Plan

Sanitation District No. 1
July 10, 2009



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SANITATION DISTRICT NO. 1

CERTIFICATION

Sewer Overflow Response Plan (SORP) as Amended July 10, 2009
Consent Decree Case No. 2:05-cv-00199-WOB

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Jeffery A. Eger
General Manager

Date July 6, 2009

COMMONWEALTH OF KENTUCKY

)ss.

COUNTY OF Kenton

The foregoing instrument was acknowledged before me this 6 day of July, 2009 by Jeffery A. Eger, General Manager of Sanitation District. No. 1.

Linda Hamberg
NOTARY PUBLIC

State-at-Large County, Kentucky

My commission expires: May 9, 2010

1045 Eaton Drive • Ft. Wright, Kentucky 41017-9681 • Ph: (859) 578-7450 • Fax: (859) 331-2436

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SEWER OVERFLOW RESPONSE PLAN

As amended July 10, 2009

Sanitation District No. 1
1045 Eaton Drive
Ft. Wright, KY 41017

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FIGURES

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LIST OF ACRONYMS AND ABBREVIATIONS

Cabinet	Kentucky Energy and Environment Cabinet
CSO	Combined Sewer Overflow
EPA	U.S. Environmental Protection Agency
gbaMS	GBA Master Series (information tracking system)
KDOW	Kentucky Division of Water
SCADA	Supervisory Control and Data Acquisition
SD1	Sanitation District No. 1
SORP	Sewer Overflow Response Plan
SSO	Sanitary Sewer Overflow

SECTION 1. INTRODUCTION

On April 18, 2007, Sanitation District No. 1 (SD1) entered into a Consent Decree with the U.S. Environmental Protection Agency (EPA) and the Kentucky Energy and Environment Cabinet (Cabinet) to address sanitary sewer overflows (SSOs) and combined sewer overflows (CSOs) in an effort to improve water quality throughout SD1's service area. The Consent Decree required SD1 to submit a Sewer Overflow Response Plan (SORP), which received regulatory approval on May 14, 2008.

Pursuant to the Consent Decree, SD1 is required to perform annual reviews of its SORP and make adjustments as necessary. Specifically, Section 36(c) states that:

> **36.(c) Specific CMOM Program Development – Sewer Overflow Response Plan ("SORP").** …By no later than each anniversary date of the approval of the SORP, the District shall annually review the SORP and propose changes as appropriate subject to Cabinet/EPA review and approval.

The information contained herein incorporates amendments to the SORP as of its annual review conducted during December 2008. Upon approval, this document shall supersede any existing and past SORP and all procedures inconsistent with the new SORP.

1.1 SORP Overview

The SORP protects public health and the environment by establishing a standardized course of action to follow in the event of unpermitted discharges from SD1's sewer system, including measures to timely and effectively:

- Respond to, clean up, and/or minimize the environmental impact of unpermitted discharges
- Report unpermitted discharges to regulatory agencies
- Notify the impacted public

Additionally, this SORP includes a description of the resources used for overflow response, the methods used to review the quality and effectiveness of the SORP, and the training provided to SD1 personnel.

SECTION 2. RESOURCES

2.1 Response Personnel

Although all SD1 employees are aware of overflow response procedures, personnel from Capital Improvements, Collection Systems, and Plant Operations actively participate in emergency overflow response activities and are specifically trained to execute the SORP.

The Capital Improvements Department has a project coordinator who leads SD1's SORP and ensures the quality of program operations. The department's wet weather investigation group is responsible for assessing and monitoring recurring and potential wet weather SSOs, and the routine inspection of all CSOs. This group responds to wet weather recurring and potential SSOs and dry weather CSOs discovered during field inspections. In addition, construction jobsite inspectors who may discover overflows during field work are trained to implement response procedures.

The Collection Systems Department is divided into two subgroups – customer service and construction. In terms of SORP activities, the customer service group is responsible for dispatch duties, trouble call investigations, and responding to wet weather recurring and potential SSOs. During business hours, one crew member is assigned as a trouble call investigator and is the first response to public reports of an overflow event. Depending on the nature and type of clean-up needed, the trouble call investigator may contact other customer service or construction crews for additional assistance. One customer service crew has the responsibility of responding to recurring and potential SSOs. All customer service crew members perform on-call duties for after-hour investigation and response. Appendix A illustrates SD1's monthly customer service on-call schedule.

The Collection Systems' construction group is responsible for assisting customer service crews, as needed, during sewer overflow response, which may include conducting immediate and/or short-term line repair work. This group is also trained to appropriately respond to overflows that may occur while performing repairs to the collection system.

The Plant Operations Department is divided into several subgroups, of which the following have responsibilities for implementing response procedures: Dry Creek operations, small plant operations, pump station operations, and pump station maintenance personnel.

Dry Creek operators are responsible for responding to overflows occurring at the Dry Creek Water Reclamation Facility. In addition, Dry Creek operators manage calls from the public regarding suspected overflows and are responsible for the proper documentation and reporting of all overflows. Dry Creek operators are also responsible

for remote monitoring of SD1's pump stations, flood pump stations, and treatment plants through the Supervisory Control and Data Acquisition (SCADA) system.

Small plant operators are responsible for responding to overflows occurring at small treatment plants. Pump station operators and pump station maintenance personnel are responsible for response to overflows occurring at pump stations. Pump Station maintenance personnel perform on-call duties for after-hour investigation and response. Appendix B illustrates SD1's monthly pump station maintenance on-call schedule.

2.2 Public Outreach

The Public Relations Department is responsible for overseeing the ongoing outreach and awareness efforts educating the affected public of the dangers of sewer overflows. The Public Relations team provides information to the public through various communication channels, such as the media, signage, and the Internet. Public Relations personnel also administer SD1's Wet Weather Overflow Public Notification Program, which notifies Northern Kentucky residents when existing or predicted weather conditions could potentially cause sewer overflows. (For a more detailed description see Public Notification in section 3.8).

2.3 Information and Data Management

SD1 utilizes a computerized maintenance management system to efficiently schedule and track its operation and maintenance activities. Since 1999, SD1 has used GBA Master Series (gbaMS) software, which is designed for wastewater and storm water infrastructure management. The gbaMS software manages and tracks all fieldwork, schedules preventive maintenance activities, logs customer complaints and the resulting repair work and maintains detailed data and history on repairs of SD1's assets. It is also being used to inventory equipment and supplies. SD1 continues to refine its utilization of gbaMS by streamlining and standardizing data collection, which allows for complete and comprehensive tracking of work being completed on the collection and treatment systems. Laptops with gbaMS are available to SD1 employees in the field.

In addition, SD1 works cooperatively with LINK-GIS, a consortium of multiple planning agencies utilizing Geographic Information Systems in the Northern Kentucky area including the Northern Kentucky Area Planning Commission, Kenton County Fiscal Court, Kenton County Property Value Administration, Northern Kentucky Water District, Campbell County Fiscal Court and Campbell County Property Value Administration. SD1 also coordinates with the Boone County Planning Commission and the Boone County Property Value Administration to ensure seamless data across the three-county area.

These partnerships provide SD1 with access to an extensive network of spatial data layers including a detailed sewer network, a storm water network with connectivity, watersheds, parcels and buildings, street centerlines with addresses, zoning, soils, land use, aerial photography and numerous other political/governmental coverages.

SD1's Geographic Information System is linked to gbaMS, which allows staff to spatially associate structures/pipes with their attributes, repair history and relevant asset management information.

SECTION 3. IDENTIFYING UNPERMITTED OVERFLOWS

Sewer overflows and backups can occur in the collection system from excessive debris, roots, grease, damaged sewer lines, excessive inflow and infiltration from wet weather, hydraulic bottlenecks, sewer capacity issues and a host of other causes. Because of this, numerous methods are used to detect unpermitted overflows in SD1's collection system. Table 3.1 describes how SD1 detects unpermitted overflows. Section 4 describes how overflows are responded to and cleaned-up once detected.

Table 3.1 Detecting Unpermitted Overflows

Identification Method	Description
Public Inquiries	Public inquiries reported through SD1's 24-hour hotline (859) 331-6674.
	Notifications received from SD1 staff members not trained in response procedures, calls to the administrative office, and emails submitted through SD1's website.
Remote Monitoring Alarms	Activated SCADA alarms at pump stations, flood pump stations, and treatment plants.
Routine Pump Station Field Inspections and Maintenance	Overflows detected in person during routine pump station field inspections or maintenance activities.
Field Operations	Overflows detected in person during day-to-day field operations such as: structure repair work, service requests, or construction job-site inspections.
Routine CSO Inspections	Overflows detected in person during routine diversion and CSO outfall inspections.
Wet Weather Investigations[1]	Overflows detected in person during the routine investigations of confirmed recurring wet weather SSOs.
	Overflows detected in person during the routine investigations of potential wet weather SSOs, as indicated and guided by historical field and model data. (For more details about SD1's model see Appendix D).

1 The standard operating procedures for documenting wet weather inspections can be found in Appendix C.

SECTION 4. SEWER OVERFLOW REPONSE PROCEDURES

This section outlines SD1's procedures for providing consistent and effective response and clean-up of to unpermitted overflows. Regardless of how an unpermitted overflow is detected, as described in Section 3, all response personnel follow the same response procedures detailed below. Table 4.1 indicates the personnel groups responsible for implementing response procedures. The application of this protocol ensures adequate protection of public health and mitigation of the impact to the environment. In addition, it provides structure and guidance for SD1's staff in the selection and application of appropriate measures to meet the needs of each situation. SD1 personnel employ their best professional judgment in evaluating each event to determine the most appropriate actions.

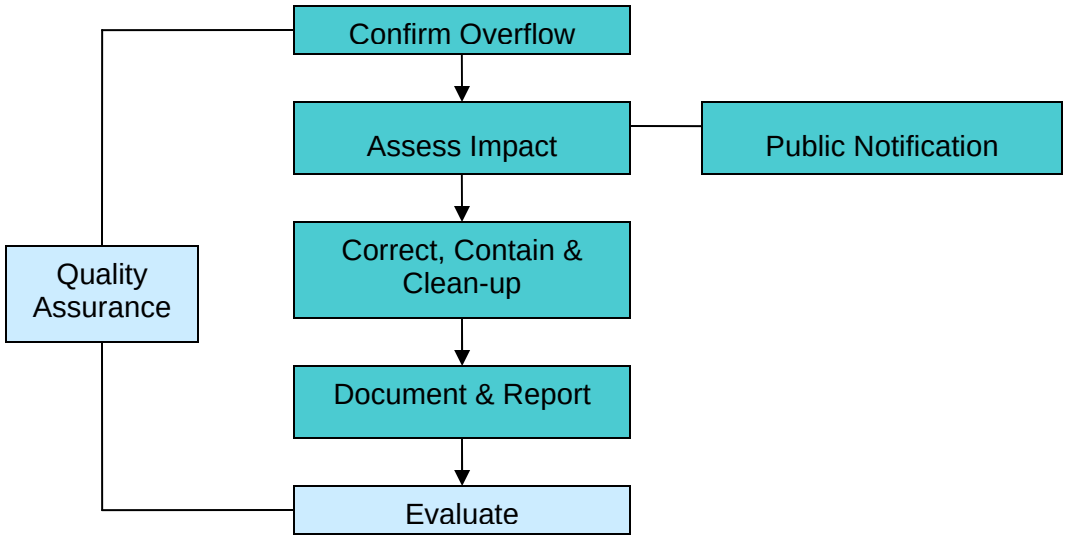
Table 4.1 Personnel Responsible for Implementing Response Procedures

Response Personnel	Identification Method	Notification Method	Response Location
Dry Creek Operations	Remote Monitoring Alarms	Overflows are detected onsite by Dry Creek operators monitoring SCADA.	Dry Creek Water Reclamation Facility
Customer Service – Assigned Wet Weather SSO Response Crew	Wet Weather Investigations	Wet weather investigation group notifies assigned customer service crew leader to activate response based on rainfall. The assigned locations typically require a large and more extensive clean-up.	Route sheet shown in Appendix E
Customer Service – Assigned Trouble Call Personnel	Public Inquiries	Customer service dispatch phones the assigned trouble call personnel to respond. Dry Creek operators phone the on-call trouble call personnel to respond after business hours.	Throughout service area – location identified by trouble call report
Pump Station Maintenance	Public Inquiries	Dry Creek operators phone the on-call maintenance personnel to respond after business hours.	Pump stations – location identified by trouble call report
	Remote Monitoring Alarms	Dry Creek operators phone on-call maintenance personnel to respond after business hours.	Pump stations – location identified by SCADA

	Routine Pump Station Maintenance	Overflows are detected by personnel onsite.	Pump stations – maintenance locations vary
Pump Station Operations	Public Inquiries	Customer service dispatch or Dry Creek operators phone the appropriate pump station operator to respond during business hours.	Pump stations – location identified by trouble call trouble call report
	Remote Monitoring Alarms	Customer service dispatch or Dry Creek operators phone the appropriate pump station operator to respond during business hours.	Pump stations – location identified by SCADA
	Routine Pump Station Field Inspections	Overflows are detected by personnel onsite.	Routine pump station field inspections shown in Appendix F
Small Plant Operations	Remote Monitoring Alarms	Dry Creek operators phone small plant operators to respond during business hours.	Varies – location identified by SCADA.
Various Field Personnel (Other customer service personnel, construction personnel, and construction jobsite inspectors)	Field Operations	Overflows are detected by personnel onsite.	Varies – location identified by field observation
Wet Weather Investigation Group – CSO Investigation Crew	Routine CSO Inspections	Overflows are detected by personnel onsite.	Route sheet shown in Appendix G
Wet Weather Investigation Group – SSO Investigation Crew	Wet Weather Investigations	The SSO investigation crew monitors weather conditions and initiates response procedures when weather conditions meet identified activation thresholds. The assigned locations are locations that typically require little clean-up.	Route sheet shown in Appendix E

Figure 4.1 outlines the general response procedures for unpermitted discharges throughout SD1's collection system. The following pages discuss each step in more detail.

Figure 4.1: General Response Procedure



4.1 Confirm Overflow

Once an unpermitted overflow has been detected, response personnel investigate to determine if an overflow has occurred. An initial confirmation of an unpermitted overflow is then communicated to Dry Creek plant operators and documentation of the overflow event commences. If an overflow is confirmed, response personnel begin assessment procedures. While performing each of the following steps, response personnel must collect all of the information needed to complete the System Release Report shown in Appendix H, which is then reported to plant operators for formal documentation and reporting. (A more detailed explanation of documentation procedures is included in a subsequent section of this report.)

4.1.1 Notification to SORP Quality Assurance Personnel

An email notification is sent to the quality assurance personnel and other key members of SD1's management team by Dry Creek plant operators once an overflow is confirmed. The quality assurance personnel replies to confirm receipt of the notification and begins his or her response duties as described in Section 4.6.

4.2 Assess the Impact

An environmental impact assessment is conducted to determine the extent and impact of the overflow. If an overflow is found active upon arrival, the initial impact assessment is abbreviated to ensure the appropriate response measures are taken so that procedures to correct and contain the overflow are quickly implemented. A more thorough impact assessment is completed once the emergency response procedures have been implemented.

The impacted area is determined through visual observation of the area surrounding the overflow. The responder looks for indicators such as standing water with sewage, water marks along trees, solids, paper or other debris consistent with sewage. The extent of the impact is determined by walking from the source of the overflow to the last area where indicators are found. The presence of sewer solids or debris, property damage, fish kill, and any other impact are observed and documented for proper notification to Kentucky Division of Water (KDOW).

Response personnel also investigate other issues that are found during their field reconnaissance work, such as evidence of illicit/illegal storm water discharges or flooding issues.

4.2.1 Detection of Hazardous Materials

If chemical or hazardous materials are suspected or detected in a sewer overflow, response personnel notify the appropriate local fire department, SD1's Safety Department and/or the Dry Creek Industrial Compliance Department. Response personnel then follow the direction of the Hazardous Material Response Team.

Response personnel follow the standard procedures for contacting plant operators to ensure that a System Release Report (Appendix H) is completed for the overflow. In addition, SD1's Safety Department completes a Notification of Hazardous Spill form (Appendix I), which is completed only for the purposes of reporting hazardous material spills and not for sanitary sewer overflows.

4.3 Correct, Contain & Clean-up

After the preliminary assessment of the overflow is complete, response personnel take measures to correct the cause of a non-capacity related overflow and implement appropriate clean-up activities, as discussed below. Where appropriate, overflow containment procedures are implemented to prevent public contact and further dispersion of the overflow until clean-up efforts are complete. Depending on the nature and type of clean-up needed, the quality assurance personnel or any response personnel may contact customer service or construction crews for additional assistance.

4.3.1 Correcting the Overflow Cause

The response personnel immediately begin the task of stopping the non-capacity related overflow. This may include removing a blockage from a mainline or repairing a force main break. The equipment available to responders is detailed in Appendix J. When necessary, additional personnel and equipment is requested from customer service dispatch.

4.3.2 Overflow Containment

Containment procedures vary on a case-by-case basis. The use of vacuum trucks and portable bypass pumping are evaluated for any condition that may warrant the release of excessive volumes of sewage. In some cases, physical barriers are established to control the further dispersion of sewage, which may reduce the impact on downstream areas. However, during intense rain events containment might not be practical due to high volumes of discharge exceeding the ability of field crews to successfully control it. When these types of events occur, post-event assessment and clean-up measures are taken to minimize the impact to the area.

4.3.3 Clean-up Procedures

SD1's clean-up measures are evaluated in coordination with KDOW's Florence Regional Office. Solids and debris are swept, raked, picked-up and hauled away for proper disposal. Where feasible, overflows that can be contained are pumped back into the sanitary sewer system. In accordance with instructions provided by KDOW's Florence Regional Office, flushing operations may be utilized in an effort to regain the stability of an impacted stream, and areas may be disinfected and deodorized. Local water utilities are notified when flushing is required. All clean-up measures are documented for proper notification to KDOW.

<u>Building Backups</u>
Overflows occurring in buildings are a top priority for mitigation due to the inherent health risks. An investigation is conducted to determine the cause of the backup. If the backup is determined to be SD1's responsibility, clean-up and containment procedures are promptly initiated and repair and remediation work are scheduled. If the discharge is determined not to be SD1's responsibility, the owner is informed that repairs are his or her responsibility. The owner is advised to avoid contact with the discharge and to contact a plumber.

If there is imminent danger to public health or if the discharge could reach a waterway, response personnel will assist with containment until the responsible party can assume control.

4.4 Document and Report

SD1 acknowledges that proper data collection and documentation is essential to establishing timely and effective methods of reporting the location, volume, cause and impact of unpermitted overflows. These measures are necessary to fulfill the reporting requirements mandated by 401 Kentucky Administrative Regulations 5:015 and SD1's Consent Decree. This information not only provides the basis for regulatory compliance, but also supplies data for tracking and characterizing overflow causes and histories associated with SD1's collection and treatment systems.

4.4.1 Documenting the Overflow

Once an overflow is confirmed, response personnel must provide plant operators with all of the information needed to complete the System Release Report shown in Appendix H. The most pertinent information to begin reporting procedures is provided during the initial confirmation of the overflow. Once the event has been mitigated, the response personnel again notify plant operators and provide more detailed information.

All the information gathered is entered into gbaMS and associated work orders are linked to the event and to the particular structure, which generates a historical log of overflow activity. One staff member is dedicated to quality control and verifies each overflow record in gbaMS to ensure that the event is properly documented and all fields of the System Release Report are complete.

Wet Weather Investigations

Wet weather investigations of recurring or potential SSOs not observed overflowing at the time of inspection, but evidence indicates that the location did overflow, are documented and recorded in gbaMS. If needed, clean-up procedures are implemented. The standard operating procedures for documenting wet weather inspections can be found in Appendix C, which accounts for the same data collected for observed overflows.

4.4.2 Regulatory Reporting

Initial Notification

All unpermitted overflows (including observed wet weather recurring or potential SSOs) that impact a receiving stream are, upon discovery, promptly reported to KDOW's Florence Regional Office by completing the electronic notification form on the Kentucky Department for Environmental Protection's Electronic Submittals website. If unavailable, initial notification is provided by phone at (859) 525-4923. When deemed necessary, KDOW's main office in Frankfort is notified by phone at 1-800-928-2380.

The intent of the initial electronic notification is to advise KDOW that a release has occurred and to provide enough basic information for KDOW to determine if it should also respond and/or offer advice on the release, such as collecting samples. When

unpermitted overflows are observed, SD1 uses the SSO Field Volume Estimate Guide (Appendix K) as its methodology for reporting discharge volumes in the initial and weekly notifications.

The information provided in the initial electronic notification includes:

- Type of overflow
- Date and time overflow began
- Date and time overflow stopped
- Location of overflow, including county
- Agency reporting overflow
- Nature of incident
- Cause and duration of overflow
- Action taken
- Quantity (i.e. estimated volume of overflow)
- Weather conditions during overflow
- Receiving stream type
- Name of receiving stream
- Final Overflow Destination

KDOW's electronic form is updated promptly after the overflow event has ended and additional information is provided such as volume estimates, environmental impact assessment and other pertinent details of the event.

Weekly Reporting

As a follow up to the initial electronic notification, SD1's internal System Release Report is generated from gbaMS for each observed overflow and faxed to KDOW's Florence Regional Office on a weekly basis to ensure proper notification.

Quarterly Reporting

As a requirement of the Consent Decree, SD1 provides EPA and KDOW a summary of all unpermitted discharges occurring each quarter and cumulatively, in the quarterly reports. However, modeled activation and volume statistics are reported in SD1's quarterly reports for all recurring wet weather SSOs and CSOs, regardless if an overflow is witnessed. Field volume estimates are reported for all other unpermitted overflow and pump station overflows. (Each quarter the activation and estimated discharge volumes for recurring wet weather SSOs, observed overflowing during field inspections, are compared to the model activation and volume statistics to verify model accuracy and confirm that the most accurate data is being generated for reporting.)

4.5 Evaluate

Unpermitted overflows are further assessed to determine what actions are necessary to address the potential for reoccurrence. Structures linked to unpermitted overflows are evaluated through SD1's Continuous Sewer Assessment Program, which includes steps

to proactively repair and prevent system failures such as pipe collapses and blockages that can cause or exacerbate overflows. These activities include closed-circuit television inspection, cleaning, and rehabilitation/replacement. This program provides the means for continuous and prioritized pipeline and manhole inspection and re-inspection, an appropriate schedule for routine cleaning based on the structure's condition, and rehabilitation/replacement to repair defects and eliminate future blockages and overflows.

SD1's wet weather investigation group are responsible for inspecting and monitoring all recurring and potential SSOs in order to verify overflow activity, clean-up of all SSOs as required, and further investigation of their causes. These overflows are prioritized and evaluated for short-term remediation and permanent solutions for capacity-related overflows in accordance with SD1's watershed planning efforts.

4.6 Quality Assurance

As previously described, a project coordinator from the Capital Improvements Department leads SD1's SORP. The project coordinator provides oversight and assistance to responding personnel in each overflow event. This position performs the following duties:

- Investigates the impact of an event in a holistic manner by evaluating the watershed in more detail
- Ensures that crews are consistently following procedures
- Provides response training
- Reviews the overall efficiency of the program

This direct relationship with each response gives the project coordinator insight as to which procedures are working or not working; thereby, allowing SD1 to take proactive measures to improve its performance through revised procedures and/or additional training. This approach ensures that SD1 provides a consistent and quality response and is adequately performing and adhering to the response protocol.

In the event the project coordinator is unavailable during an overflow event, two personnel have been assigned to share backup responsibilities and will oversee the overflow event to ensure that the proper procedures and clean-up are followed.

4.7 Public Notification

SD1 is committed to protecting public health and ensuring that the public is made aware of the hazards and locations of sewer overflows. SD1 provides messages to the public to alert them of overflows and to raise general overflow awareness both at overflow locations (event-based) and through ongoing educational programming (programmatic). The event-based activities focus on minimizing the immediate hazards associated with overflows by limiting access and notifying the surrounding area when an overflow has taken place. SD1's programmatic education activities raise awareness of the causes

and locations of overflows, possible public health hazards, how to minimize exposure and measures the public can take to help reduce overflows.

4.7.1 Event-Based Notification

As part of SD1's overflow response activities, responders at the overflow site take measures to limit public contact and alert area residents. When appropriate, notification is made by phone to local fire departments and water utilities. Public notification measures include establishing control zones and posting temporary signage in surrounding areas. These measures remain in place until the site has been thoroughly cleaned.

Control zones are established in areas where there is high potential for public contact with the overflow. This is determined on a site-by-site basis, but generally includes high volume/traffic areas, residential areas or areas near schools, parks or other public buildings.

If necessary, temporary signage is placed at overflow locations to alert the public, in both English and Spanish, of potential health risks. The signage includes contact information for obtaining additional information and is used in conjunction with other programmatic notifications.

4.7.2 Programmatic Education Activities

Signage

Permanent signs are installed at all of SD1's permitted CSO outfalls. These signs warn the public, in both English and Spanish, against contact with the overflows and provide SD1's contact information. SD1 continues to repair and replace these signs as necessary and adds signs as outfalls are permitted.

In addition, public education signs displayed at locations near the publics' access to water warn about unsafe conditions during and after rainfall events, provide a history of CSOs in the area, discussion on solutions, and provide SD1's contact phone number and website.

Notifications

SD1's Wet Weather Overflow Public Notification Program notifies residents and public officials when existing or predicted weather conditions could potentially cause sewer overflows. The wet weather investigation group crew leader monitors the amount of rainfall and if overflows are likely to occur, an advisory is issued through SD1's wet weather email notification system. The advisories warn the public when overflows are likely to occur, informs them of the potential health and water quality hazards and provides the appropriate steps for protecting themselves from the hazard. Residents can request to receive these advisories by email at info@sd1.org.

Internet
SD1's website includes information on CSOs and SSOs and how the public can protect themselves from the potential health hazards associated with overflows. Additional topics include the history of overflows, why they occur, how often they occur and what is being done to address them.

Print Media
SD1 publishes information in "What's Happening," a county-specific publication that is mailed to every resident in Boone, Campbell and Kenton counties. SD1 continues to utilize this publication to provide overflow information to the public.

Bill inserts are utilized to enhance customer outreach and education on various topics throughout the year. Inserts occasionally include information on overflows such as causes, avoidance measures, overflow prevention and sources for additional information.

Educational Programs
Educational and outreach materials developed as part of SD1's Grease Control Program target commercial and residential customers in areas where there is evidence of grease-related overflows. Residential door hangers and food service establishment posters, printed in both English and Spanish, are used to inform customers of the harmful effects of fats, oils and grease in sewer lines and proper grease handling techniques used to minimize the release of fats, oils, and grease into the collection systems.

SECTION 5. REVIEW AND TRAINING

5.1 Review

As required under the Consent Decree, this SORP is reviewed annually and amended as appropriate. Proposed changes are submitted for review and approval by the EPA and KDOW with changes submitted to KDOW's Florence Regional Office within 15 days of incorporation of the update.

Review of the SORP includes, at a minimum, the following activities:

- A workshop with managers and key personnel to review established response and clean-up activities and suggestions for new or revised procedures
- Review and update of all contact listings and numbers as necessary
- Review and update of all forms as necessary
- Updates to reflect operational changes
- Updates to address regulatory reviews or concerns
- Updates based on additional Kentucky Pollutant Discharge Elimination System permit requirements

5.2 Training

A comprehensive training program has been developed, and every employee at SD1 receives his or her appropriate level of training on an annual basis. The SORP Trainer's Guide, which outlines SD1's more detailed standard operating procedures for overflow clean-up, can be found in Appendix L.

The training program consists of the following eight modules:

- Module 1: SORP Overview
- Module 2: How SD1 Becomes Aware of an Overflow
- Module 3: SORP Response and Resources
- Module 4: Notification
- Module 5: Initial Response
- Module 6: Mitigation of Condition
- Module 7: Field Documentation
- Module 8: Review of Clean-up, Containment, and Field Documentation

While developing the SORP training program, it was determined that the majority of SD1 employees would only need to be provided with a basic overview of the program, while others involved in the execution of the SORP require more in-depth training. To meet the various learning needs of SD1 employees, two levels of training were established – the Awareness Level and the Operations Level. Employees involved in SORP at the Awareness Level, which includes slightly more than half of the workforce, receive SORP-related information through sources such as the organization's website and Intranet site, management meeting minutes that are distributed to each employee, and various other informational pieces distributed to employees throughout the year.
Employees involved in SORP at the Operations Level are required to attend an initial seven-hour training covering all eight modules, as well as annual refresher courses. Operations Level trainees also receive continuous hands-on training in the field during actual overflow response events. Personnel in Collection Systems Construction and Customer Service, Plant Operations, and Capital Improvements are involved in SORP at the Operations Level. Upon completion of the training sessions, each Operations Level trainee is required to confirm their knowledge through a written test.

A thorough SORP Trainer's Guide and Workbook were developed as part of the training program and are available to all employees via the Collection Systems Intranet site. Copies of these informational materials are also distributed during training sessions.

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APPENDIX A:

Customer Service On-Call Personnel

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ON-CALL LISTING JULY, 2009

MON.	TUES.	WED.	THURS.	FRI.	SAT.	SUN.
		1 327	2 398	3 734	4 734	5 411
6 327	7 521	8 475	9 359	10 478	11 384	12 384
13 456	14 395	15 734	16 622	17 735	18 386	19 386
20 769	21 489	22 401	23 623	24 471	25 417	26 417
27 327	28 398	29 385	30 521	31 475		

PROCEDURE FOR CONTACTING

1) CALL HOME PHONE, 2) CALL CELL PHONE, 3) CALL TRUCK RADIO

FIELD PERSONNEL & EMPLOYEE #

ELMO YOUNG-623, JEREMY SPADA-411, RICK MULLIKIN-471, DAVE ROSS-359, BILL MULLINS-384, GREG WATSON-385, CAP KISER-521, JOHN HALPIN-475, MIKE BORN-335, PRESTON MATHIS-395, DONNIE ROBERTS-422, SCOTT BREEZE-489, CRAIG MASSIE-456, OMER BLACKBURN-386, MIKE FRIEDHOFF-622, DARYL ROBBINS-568, MIKE MADDEN-413, RANDY MOORE JR.-366, MARK MANNING-478, MIKE HURST-417, AL CARSON-401, PAUL HARTMAN-397, MIKE MANNING –398, RAMIRO GARCIA – 734, CLAYTON ASHCRAFT – 769, AND DARRELL MEADER – 735.

FOR ANY CHANGES IN THIS SCHEDULE, PLEASE LIST AND SAVE THEM BELOW IN THE NOTES SECTION.

NOTES:

* SHIFTS WILL CHANGE AT 7:30 a.m. *

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APPENDIX B:

Pump Station Maintenance On-Call Personnel

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Pump Station Maintenance
On-Call List

Name	START	END	Truck #	Home Phone	Pager #	Cell Phone
Chris Foltz	2/23/2009	3/2/2009	117	363-3875	-	240-3780
Dave Koetting	3/2/2009	3/9/2009	1125	491-3210	513-730-5763	
Chris Crone	3/9/2009	3/16/2009	1239	640-7296	-	640-7296
Bob Gerrety	3/16/2009	3/23/2009	116	341-8985	-	240-3035
Chris Foltz	3/23/2009	3/30/2009	117	363-3875	-	240-3780
Mike Warner	3/30/2009	4/6/2009	1127	331-5794	513-730-3671	
Dave Koetting	4/6/2009	4/13/2009	1125	491-3210	513-730-5763	
Chris Crone	4/13/2009	4/20/2009	1239	640-7296	-	640-7296
Bob Gerrety	4/20/2009	4/27/2009	116	341-8985	-	240-3035
Mike Warner	4/27/2009	5/4/2009	1127	331-5794	513-730-3671	
Chris Foltz	5/4/2009	5/11/2009	117	363-3875	-	240-3780
Dave Koetting	5/11/2009	5/18/2009	1125	491-3210	513-730-5763	
Chris Crone	5/18/2009	5/25/2009	1239	640-7296	-	640-7296
Bob Gerrety	5/25/2009	6/1/2009	116	341-8985	-	240-3035
Mike Warner	6/1/2009	6/8/2009	1127	331-5794	513-730-3671	
Chris Foltz	6/8/2009	6/15/2009	117	363-3875	-	240-3780
Dave Koetting	6/15/2009	6/22/2009	1125	491-3210	513-730-5763	
Chris Crone	6/22/2009	6/29/2009	1239	640-7296		640-7296
Bob Gerrety	6/29/2009	7/6/2009	116	341-8985	-	240-3035
Mike Warner	7/6/2009	7/13/2009	1127	331-5794	513-730-3671	
Chris Foltz	7/13/2009	7/20/2009	117	363-3875	-	240-3780
Dave Koetting	7/20/2009	7/27/2009	1125	491-3210	513-730-5763	
Chris Crone	7/27/2009	8/3/2009	1239	640-7296	-	640-7296
Bob Gerrety	8/3/2009	8/10/2009	116	341-8985	-	240-3035
Mike Warner	8/10/2009	8/17/2009	1127	331-5794	513-730-3671	
Chris Foltz	8/17/2009	8/24/2009	117	363-3875	-	240-3780
Dave Koetting	8/24/2009	8/31/2009	1125	491-3210	513-730-5763	
Chris Crone	8/31/2009	9/7/2009	1239	640-7296	-	640-7296
Bob Gerrety	9/7/2009	9/14/2009	116	341-8985	-	240-3035
Mike Warner	9/14/2009	9/21/2009	1127	331-5794	513-730-3671	
Chris Foltz	9/21/2009	9/28/2009	117	363-3875	-	240-3780
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Dave Koetting	1/11/2010	1/18/2010	1125	491-3210	513-730-5763	

Pump Station Maintenance
On-Call List

Name	START	END	Truck #	Home Phone	Pager #	Cell Phone
Chris Crone	1/18/2010	1/25/2010	1239	640-7296	-	640-7296
Bob Gerrety	1/25/2010	2/1/2010	116	341-8985	-	240-3035
Mike Warner	2/1/2010	2/8/2010	1127	331-5794	513-730-3671	
Chris Foltz	2/8/2010	2/15/2010	117	363-3875	-	240-3780
Dave Koetting	2/15/2010	2/22/2010	1125	491-3210	513-730-5763	
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Mike Warner	11/8/2010	11/15/2010	1127	331-5794	513-730-3671	

APPENDIX C:

SOP for Entering SSO Inspections into gbaMS

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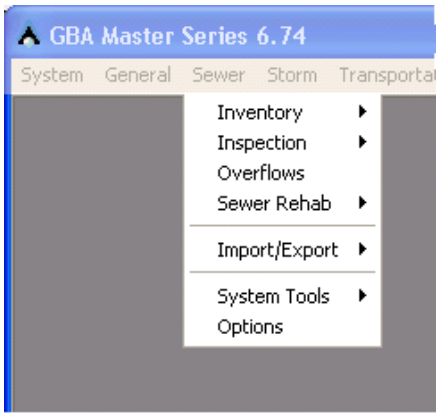
Sop: Overflow Inspections

1) **Find & identify mh.**
2) **Verify if overflowed or not & open mh lid & inspect.**
3) **Verify if mh has surcharge evidence or not.**
4) **Chalk steps or string line bypass pipe.**
5) **Document all activity on paper.**

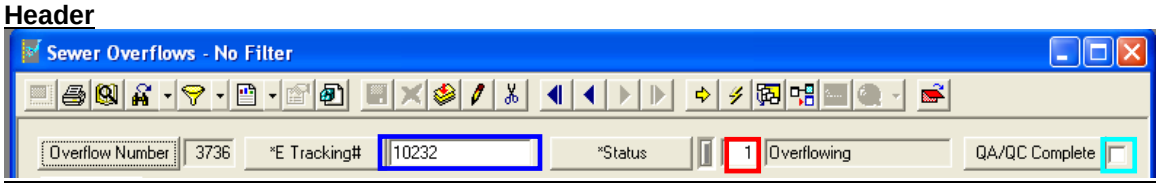
Procedures for Entering SSO Inspections into gbaMS



Open the Overflow Module from the Sewer menu in gbaMS.

***** Required fields
First response fields to be completed by operator or Flow Monitoring Crew.
Fields to be completed as follow-up to first response.
Fields to be completed only by the Flow Monitoring Crew.
Fields to be completed by the QA/QC staff.

Header



Overflow Number
This field is automatically populated by the program. If using the field module it will be populated when the computer is synchronized.

***E Tracking #**
This is the confirmation number that is given when a release is emailed into the EPA. If using the field module this number has to be populated before you synchronize.

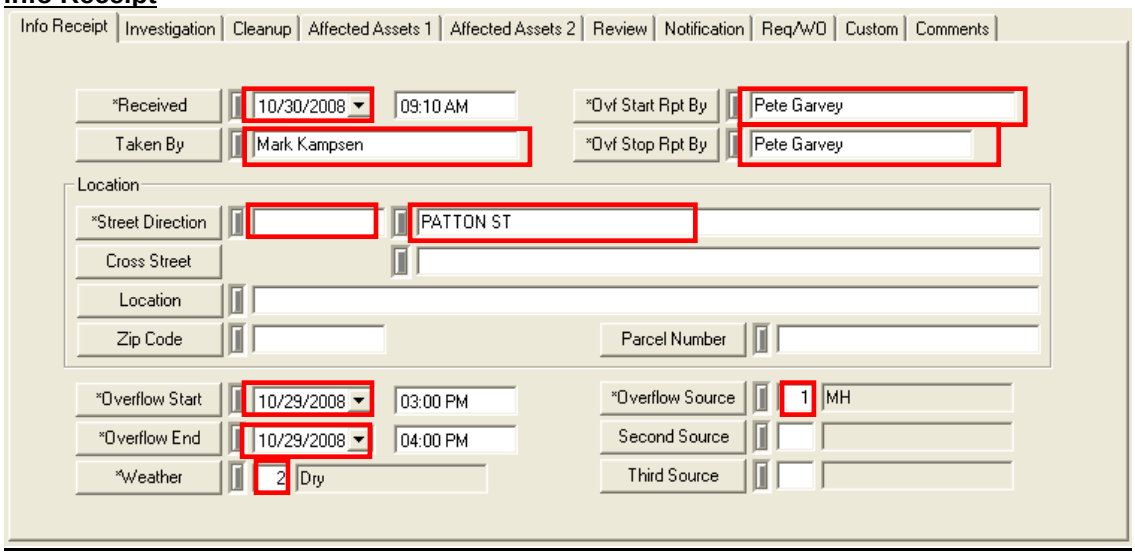
***Status**
This field has a pick list:

1. Overflowing — *Choose this option if overflowing at time of verification*
2. Overflow Evidence — *to be used by wet weather crew, overflow evidence during routine verification*
3. Surcharge Evidence — *to be used by wet weather crew, surcharge evidence during routine verification*
4. Verification — *to be used by wet weather crew, routine verification but no evidence of overflow*

QA/QC Complete

This box will be used to track the QA/QC process of the overflow record and can only be edited by the Overflow QA/QC staff or Administrators.

Info Receipt



***Received**
This field includes the date and time that the overflow was found by the field crew.

Taken By
This is the person/operator at Dry Creek WWTP that took the information from the field crew for an active overflow. Not to be used for SSO Verification.

***Ovf Start Rpt By**
This is the person who called the information into Dry Creek WWTP. SD1 employees will be the only ones calling overflow information in.

***Ovf Stop Rpt By**
This is the person that calls the stop overflow information to Dry Creek WWTP. This should be the same as the start report. The crew that called in the overflow will need to provide the stop time.

***Street Direction**
The first field contains the house address and the next contains the street name.

Cross Street
The nearest cross street should be entered into this field. If the overflow is in an intersection, the street name will be entered here and in street direction.

Location
This is the city where the overflow occurred. This can also be used for the pump station name.

Zip Code
Enter the zip code where the overflow occurred. (Not used)

Parcel Number
Enter the parcel number where the overflow occurred. (Not used)

***Overflow Start**
These fields contain the date and time that the overflow started.

***Overflow End**

These fields contain the date and time that the overflow ended. The crew that called in the overflow will need to provide the stop time.

***Weather**

This field has a pick-list

1. Wet
2. Dry

Note: Flow Monitor crew will log as much data as possible for dry weather overflows and then give the Overflow# to Dry Creek operator to complete.

***Overflow Source**

This field has a pick-list

1. MH — *If flow is coming out of the top of the MH*
2. Bypass Pipe — *If flow is coming out of the bypass pipe*
3. PS Bypass Pipe — *If flow is coming out of the PS bypass pipe*
4. Break in Pipe — *If flow is leaving system from a pipe break*
5. Air Release Valve — *If flow is coming out of the top of the ARV*
6. Diversion Structure — *If flow is coming out of the top of the Diversion*
7. Structure — *If flow is coming out of the top of the PS or other structure*

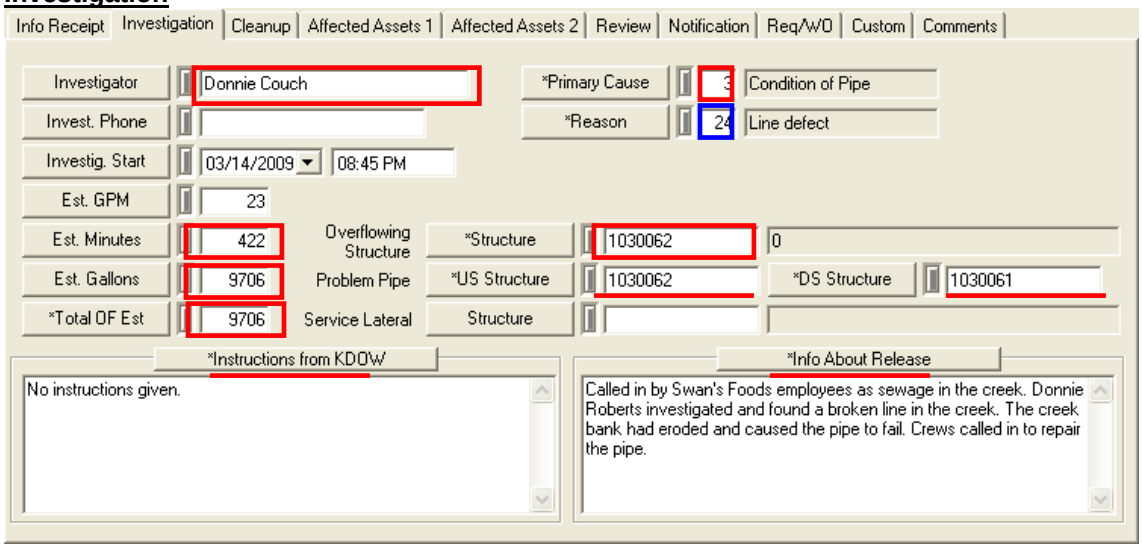
Second Source

This field has the same pick list as overflow source. Any sources that are overflowing or letting flow leave the system should be marked.

Third Source

This field has the same pick list as overflow source. Any sources that are overflowing or letting flow leave the system should be marked.

Investigation



Investigator

SD1 employee's name who investigated the overflow. Choose from list.

Invest. Phone

Investigator phone number auto populated from Investigator pick list.

Investig. Start

These fields include the date and time that the investigation started.

***Primary Cause**

This field has a pick-list

3. Condition of Pipe
6. Blockage
7. Power Failure
10. Vandalism
12. Condition of Structure
13. Construction
15. Other
16. High Flow
18. Mechanical Failure
19. Electrical Failure
21. ARV Failure
22. Force Main Failure

***Reason**

This field has a pick-list

1. Roots
2. Grease
5. Rocks
9. Debris
17. High River Level
20. Lack of Capacity
21. Tear Drop Failure
22. Deterioration
23. Collapsed pipe
24. Line defect
25. Area wide
26. Generator failed
27. Sand/Silt
28. Equipment malfunction
29. See Info About Release

Est. GPM

This field contains the estimated gallons per minute released from the overflow. This should be estimated from all sources.

Est. Minutes

This is an estimate of how long the overflow has been active.

Est. Gallons

This field is either manually populated or auto populated. It is auto populated if both the Est. GPM and Est. Minutes field were both filled out. (Does the calculation for you) This field is manually populated is Dry Creek uses either the Manning's pipe chart or the Volume Estimate Guide.

***Total of Est.**

This field is either manually populated or auto populated. It is auto populated if both the Est. GPM and Est. Minutes field were both filled out. (Does the calculation for you) This field is manually populated is Dry Creek uses either the Manning's pipe chart or the Volume Estimate Guide.

***Structure**

The structure number for the overflowing structure should be entered here if the overflow is coming from a structure either primary or secondary.

***US Structure *DS Structure**

The first field is the upstream manhole, and the second is the downstream manhole. Only add the pipe if it was the cause of the overflow (ie. Broken pipe).

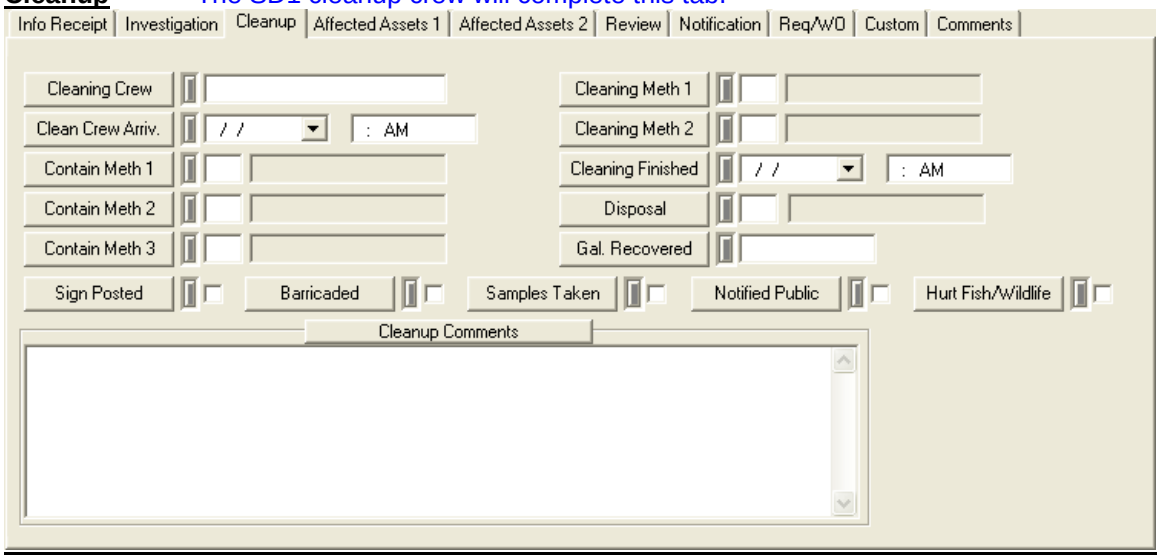
Service Lateral

Enter the structure number of the service lateral if the overflow was present in a service lateral.

***Instructions from KDOW**
This field contains the instructions from KDOW.

***Info About Release**
This field contains comments from the investigator about the release.

Cleanup The SD1 cleanup crew will complete this tab.



Cleaning Crew
This field will contain the crew name that is responsible for the overall clean up and containment of the overflow. First and last names are used.

Cleaning Crew Arriv.
The date and time that the cleaning crew arrived should be put into this field.

Containment Meth. 1
This field has a pick-list

1. Natural Depression *this is a low lying area or area with a "dam" in place like a curb around a grassy area*
2. Sandbag Dam *select this option if sandbags were used to contain or redirect the flow*
3. Earthen Dam *may be piles of dirt or sand used to contain or direct flow*
4. Blocked Storm Drain *if storm structure is plugged or covered to prevent flow from entering the storm sys.*
5. Stream Barriers *natural items that block a stream such as logs or rocks*
6. Netting

Containment Meth. 2
This field has a pick list

1. Natural Depression *this is a low lying area or area with a "dam" in place like a curb around a grassy area*
2. Sandbag Dam *select this option if sandbags were used to contain or redirect the flow*
3. Earthen Dam *may be piles of dirt or sand used to contain or direct flow*
4. Blocked Storm Drain *if storm structure is plugged or covered to prevent flow from entering the storm sys.*
5. Stream Barriers *natural items that block a stream such as logs or rocks*

Containment Meth. 3
This field has a pick list

1. Natural Depression *this is a low lying area or area with a "dam" in place like a curb around a grassy area*
2. Sandbag Dam *select this option if sandbags were used to contain or redirect the flow*
3. Earthen Dam *may be piles of dirt or sand used to contain or direct flow*
4. Blocked Storm Drain *if storm structure is plugged or covered to prevent flow from entering the storm sys.*
5. Stream Barriers *natural items that block a stream such as logs or rocks*

Cleaning Method 1

This field has a pick list

1. Flush and Pump — *flush sewage to specific area then use trash pump*
2. Flush and Vac — *vactor or tanker truck used to remove and dump back to system*
3. Pump — *trash pump is used but no flushing is used*
4. Vac — *sewage is vacuumed but no flushing is used*
5. Rake, Sweep, and Pick-up — *hand tools such as rakes, shovels, and brooms used to remove*
6. Soil removal
7. Replaced Netting

Cleaning Method 2

This field has a pick-list

1. Flush and Pump — *flush sewage to specific area then use trash pump*
2. Flush and Vac — *vactor or tanker truck used to remove and dump back to system*
3. Pump — *trash pump is used but no flushing is used*
4. Vac — *sewage is vacuumed but no flushing is used*
5. Rake, Sweep, and Pick-up — *hand tools such as rakes, shovels, and brooms used to remove*
6. Soil removal

Cleaning Finished

The date and time that the cleaning was finished.

Disposal

This field has a pick-list

1. Sanitary System — *contents of the overflow placed back in sanitary system*
2. Landfill — *contents or contaminated soil taken to landfill*
3. Sanitary system and landfill — *contents placed in sanitary system and taken to landfill*
4. Dumpster to landfill — *contents were picked up and disposed of in the trash*

Gallons Recovered

The amount that was removed from the overflow will be entered here. This includes flushing water, soil, and debris. Soil and debris is normally measured in yards, but should be converted to gallons and entered here.

Sign Posted

Check if sign was posted.

Barricaded

Check if overflow was barricaded.

Samples Taken

Check if samples were taken.

Notified Public

Check if public was notified.

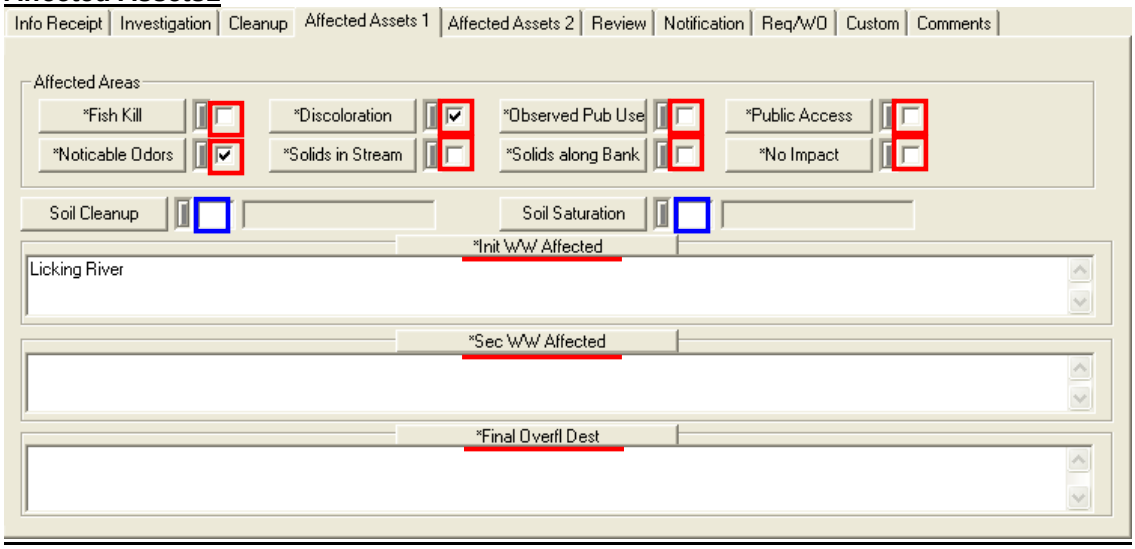
Hurt Fish/Wildlife

Check if fish or wildlife were affected.

Clean Up Comments

This area will be used to describe the actions taken to clean up the contents of the overflow. Detailed comments should be entered.

Affected Assets1



The following should be marked anytime any of the following are affected by the contents of an overflow.

***Fish Kill**
***Noticable Odors**
***Discoloration**
***Solids in Stream**
***Observed Pub Use**
***Solids along Bank**
***Public Access**
***No Impact**

Soil Clean Up
This field has a pick-list

0. N/A
1. Yes
2. No

Soil Saturation
This field has a pick-list

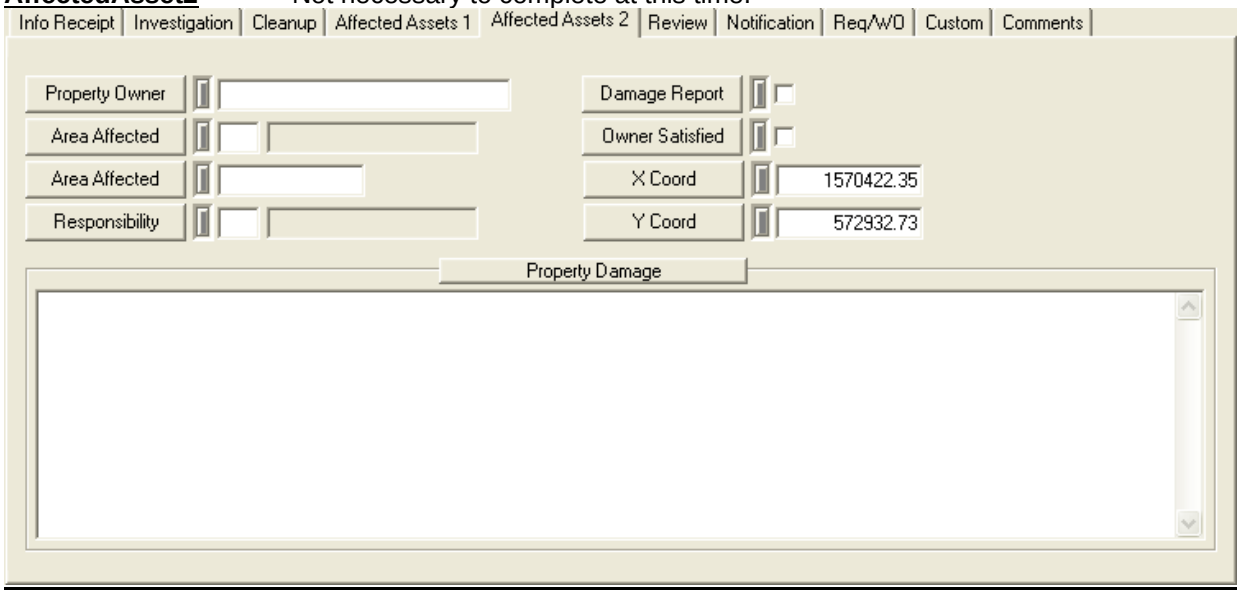
0. N/A
1. Light
2. Moderate
3. Heavy

***Initial WW Affected**
This field will contain the name of the initial waterway that was affected. If the waterway does not have a name or the name is unknown use the numbers and description assigned in the GIS program.

***Sec WW Affected**
This field will contain the name of the secondary waterway that was affected. If the waterway does not have a name or the name is unknown use the numbers and description assigned in the GIS program.

***Final overfl dest**
The creek or storm structure number where the contents of the overflow stopped will be entered into this field.

AffectedAsset2 Not necessary to complete at this time.



Property Owner
Enter in the owner of the property or the company name here. If a company name is entered a contact name should be put in the comments area.

Area Affected
This field has a pick-list

1. Interior
2. Interior and Exterior
3. Exterior

Area Affected
This field will contain the square footage of the area that was affected by the overflow.

Responsibility
This field has a pick-list

1. SD#1
2. Contractor/other utility
3. Other

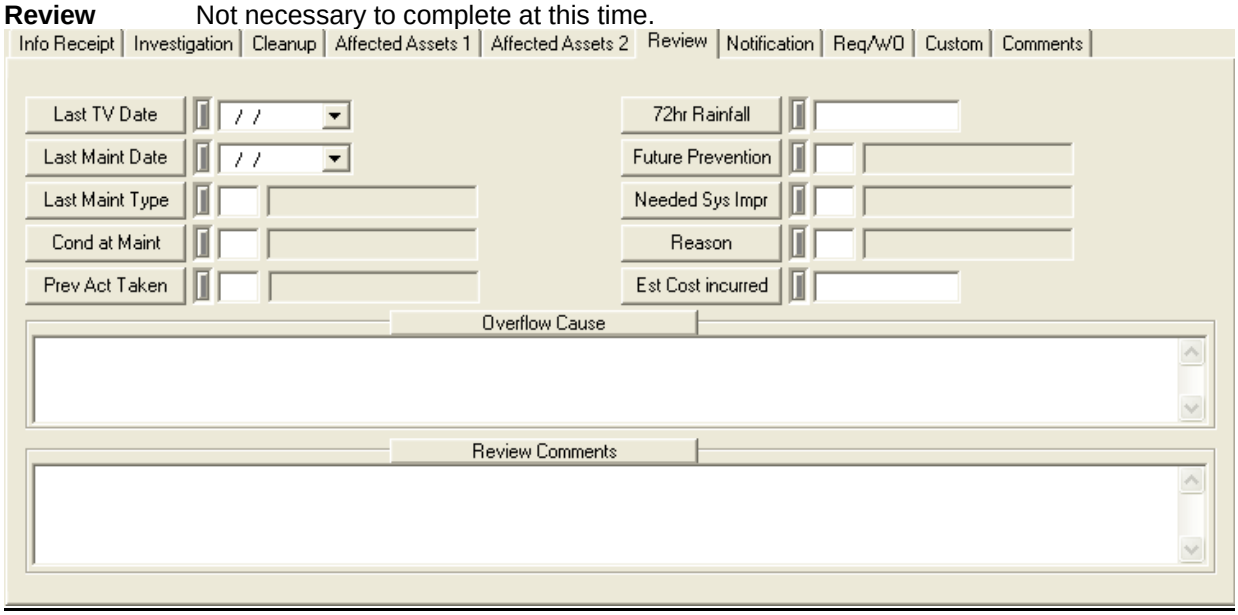
Damage Report
This field should be marked if a damage report was taken or an Insurance form was given out.

Owner Satisfied
This field should be marked when/if the owner or person responsible for the property is satisfied with the clean up, repair, etc.

X Coord
Y Coord
These two fields will be used to locate the property that was damaged. *May be auto-populated from structure inventory.*

Property Damage
This field will be used to explain the property damage in detail. Any other information pertaining to the property damage should also be entered here.

Review Not necessary to complete at this time.



Last TV Date
The date the line was last televised will be entered here.

Last. Maint date
The date the last time maintenance was preformed on the line will be entered here.

Last Maint Type
This field has a pick-list

1. Jet
2. Root saw
3. Grease Nozzle

Condition at Maint
This field has a pick-list *Use the SCREAM Category from pipe inventory.*

1. 1
2. 2
3. 3
4. 4
5. 5

Previous Act Taken
This field has a pick-list

1. Put on service PM
2. Put on TV inspection PM
3. Emergency repair done

72 Hr Rainfall
Enter the amount of rainfall in last 72 Hrs.

Future Prevention
This field has a pick-list

1. Service PM
2. Tele-inspection PM

Choose the appropriate action that was taken to prevent the overflow from occurring again.

Needed Sys. Imp
This field has a pick-list

1. Replacement of mainline
2. Replacement of manhole
3. Repair of mainline
4. Repair of manhole

Choose the appropriate action that needs to be done to correct the overflow.

Reason
This field has a pick-list

1. Mainline defect
2. Manhole defect
3. Re-route
4. Upsize

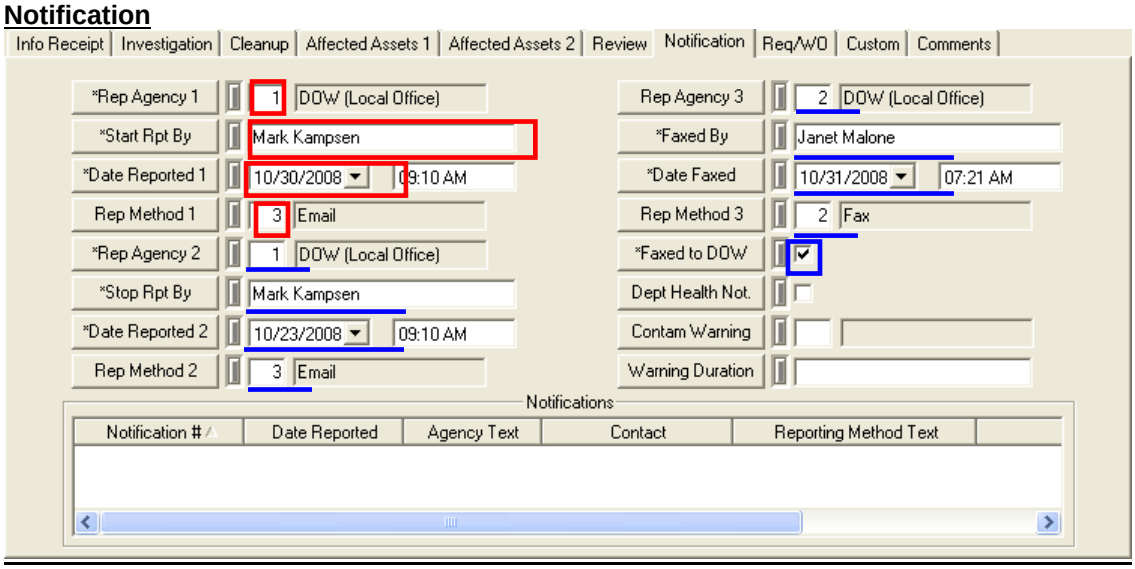
Choose the appropriate reason for the system improvement.

Est. Cost Incurred
(Not used)

Overflow Cause
This area will be used to explain the cause of the overflow.

Review Comments
This area will be used to comment on the overflow as a whole from response to system improvement.

Notification



***Rep Agency 1**
This field has a pick-list

1. DOW(local office)
2. DOW(Frankfort)
3. Fish and Wildlife
4. Health Department

***Start Rpt By**
Person/operator that started the report.

***Date Reported 1**
Use this area to record the date and time that the information was reported to the agency.

Rep Method 1
This field has a pick-list
1. Phone
2. Fax
3. E-mail

***Rep Agency 2**
This field has a pick-list
1. DOW(local office)
2. DOW(Frankfort)
3. Fish and Wildlife
4. Health Department

***Stop Rpt By**
Person/operator that stopped the report.

***Date Reported 2**
Use this area to record the date and time that the information was reported to the agency.

Rep Method 2
This field has a pick-list
1. Phone
2. Fax
3. E-mail

Rep Agency 3
This field has a pick-list
1. DOW(local office)
2. DOW(Frankfort)
3. Fish and Wildlife
4. Health Department

***Faxed By**
Person/operator that faxed the report.

***Date Faxed**
Date that the information was faxed to the agency.

Reported Method 3
This field has a pick-list
1. Phone
2. Fax
3. E-mail

***Faxed to DOW**
Check when faxed.

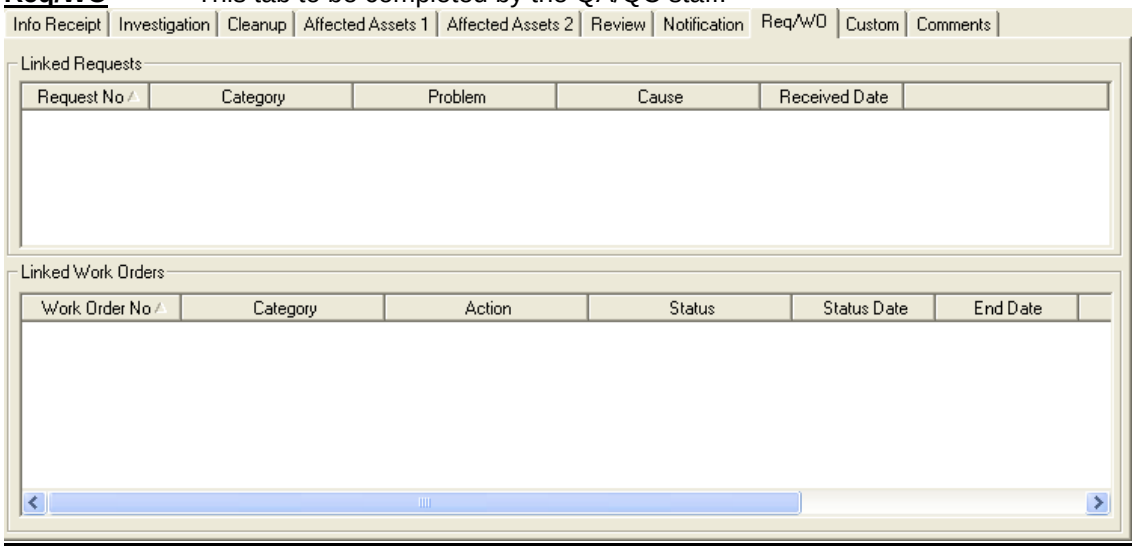
Dept Health Not.
Not Used

Contam Warning
This field has a pick-list
0. N/A
1. Yes
2. No

This field will indicate whether a contamination warning was issued. This could be for creeks, drinking water, etc.

Warning duration
This field will be used to keep track of the contamination warning and indicate when signs can come down Etc.

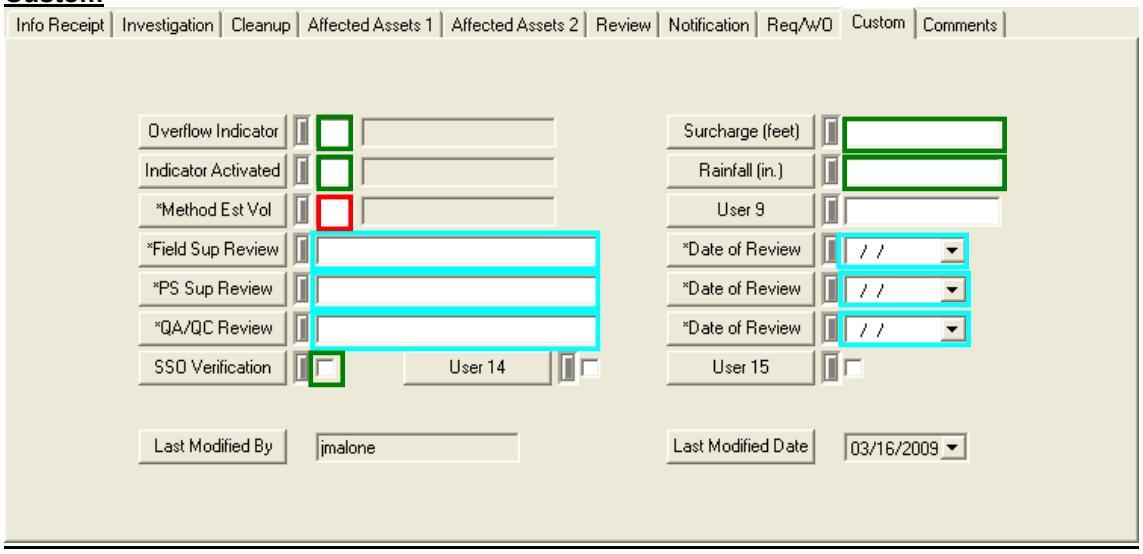
Req/WO This tab to be completed by the QA/QC staff.



Linked Requests
Right click in white space and choose Link to Existing Request. Choose request#, select and save.

Linked Work Orders
Right click in white space and choose Link to Existing Work Order. Choose Work Order#, select and save.

Custom



Overflow Indicator
This field has a pick-list

1. String line/Block
2. Chalk
3. Flow Meter
4. Visual *Note: Choose visual if no indicator is used but checked for flow (Diversion)*
5. Surcharge Meter

Indicator Activated
This field has a pick-list

1. Yes
2. No

***Method Est Vol**
This field has a pick-list

1. Volume Estimate Guide
2. Mannings Pipe Chart
3. Estimated by Operator

Surcharge (feet)
Depth of surcharge in feet if status is “Surcharge Evidence”.

Rainfall (in.)
Level of rainfall within 72 hrs. of wet weather verification.

***Field Sup Review**
Field supervisor name entered when review complete.

***Date of Review**
Field supervisor enters date when review complete.

***PS Sup Review**
Pump Station supervisor name entered when review complete.

***Date of Review**
Pump Station supervisor enters date when review complete.

***QA/QC Review**
QA/QC employee name entered when review complete.

***Date of Review**
QA/QC employee enters date when review complete.

Comments
This tab should be used for general comments about the overflow.

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APPENDIX D:

Use of Modeling Tools for Overflow Reporting

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USE OF MODELING TOOLS FOR OVERFLOW REPORTING

Sanitation District No. 1
1045 Eaton Drive
Ft. Wright, KY 41017

TABLE OF CONTENTS

TABLES

FIGURES

LIST OF ACRONYMS AND ABBREVIATIONS

CSO	Combined Sewer Overflow
SD1	Sanitation District No. 1
SSO	Sanitary Sewer Overflow

SECTION 1. INTRODUCTION

Sanitation District No. 1's (SD1) existing sanitary sewer system is represented in five distinct model networks all modeled using Wallingford Software's InfoWorks Collection Systems model, as shown in Figure 1. These include:

- **Bromley model:** represents the total area that is tributary to the Bromley pump station and contains the entire SD1 combined sewer network.
- **Dry Creek model**: represents the total area that is tributary to the Lakeview pump station and tributary to the Dry Creek Wastewater Treatment Plant by gravity (including pumped flows from the City of Florence).
- **Taylorsport model:** represents the total area that is tributary to the Taylorsport pump station.
- **Eastern Regional model:** represents the total area that is tributary to the Eastern Regional Water Reclamation Facility.
- **Western Regional model:** represents SD1's system tributary to the proposed Western Regional Water Reclamation Facility following construction of the treatment plant and the tributary gravity sewers and tunnel.

The hydraulic model was originally developed as part of other projects previously undertaken by SD1 and updated as part of characterization efforts. This was necessary so that the most recent changes within the SD1 sewer system, including updated sewer connectivity and pump station capacities, could be reflected in the model.

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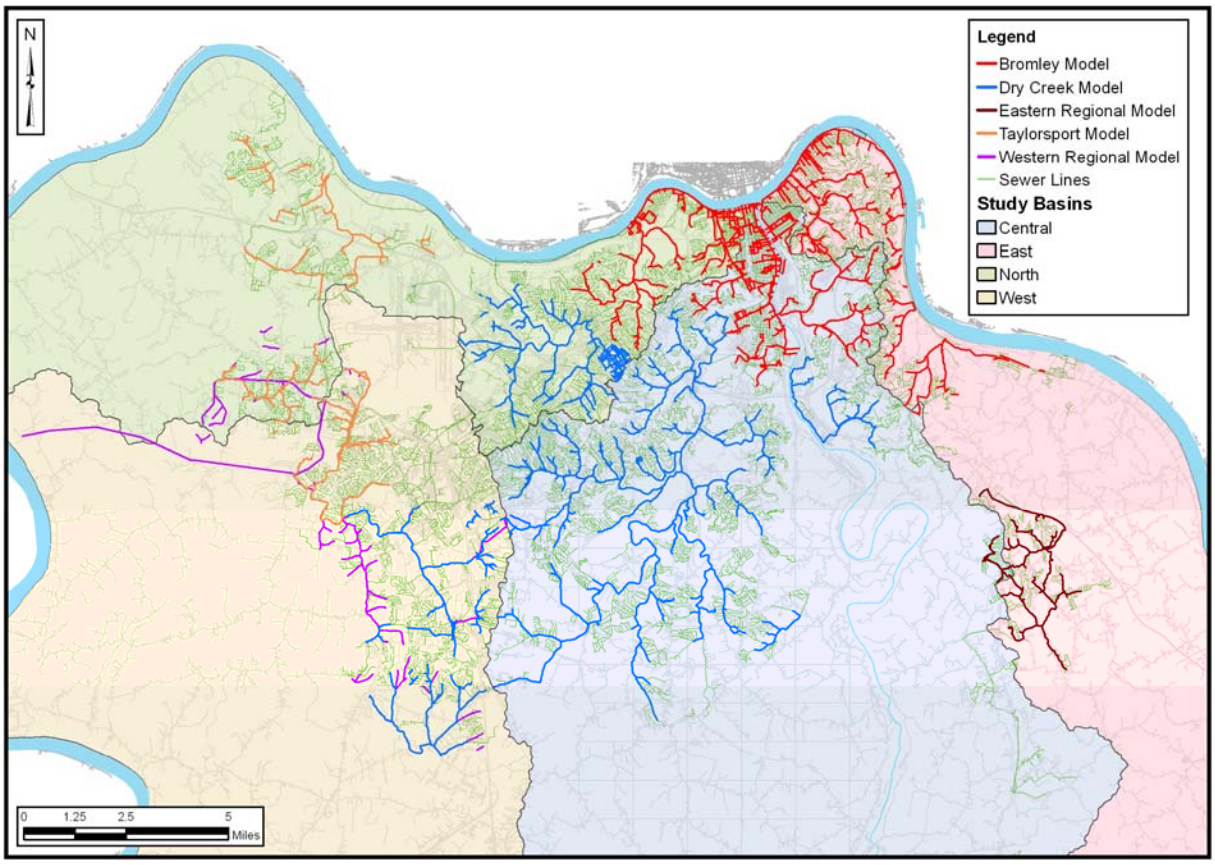
Figure 1.1 Extent and Location of SD1's Hydraulic Model



1.1 Model Calibration

Model calibration is the process of adjusting estimated model parameters to match observed flows and water depths in the system. This step is essential to create a predictive model that accurately represents the response of a sewer system to both dry and wet weather conditions. In general, there are few parameters that can and should be adjusted, and the final value should always fall within the range of reasonable values for that parameter.

The goal of the model calibration process was to adjust the parameters in the hydraulic model so that model calculations of flow, velocity, and depth would match monitoring data from multiple storm events. SD1's model was calibrated using a continuous simulation that covered a range of seasonal conditions.

Different monitored rainfall periods were utilized for the calibration to ensure the model could represent a range of varying rainfall conditions. In addition, the model was run continuously over the calibration period and compared against the collected flow monitoring data. This calibration methodology was devised to provide a hydraulic model that could be accurate in long-term continuous simulations for watershed planning. Because most of the sewers in SD1's sanitary service area are over 50 to 75 years old and the majority are clay pipe, the sewers are subject to varying levels of

inflow and infiltration based on ground water and seasonal conditions. These conditions produce different responses to rain events and varying overflow volumes in SD1's sewer system throughout the year. To accurately characterize and simulate sewer system response for long-term continuous simulations, it was critical to incorporate the impacts of the changing ground water conditions and antecedent moisture conditions to provide the most representative model of the conditions within the SD1 service area.
Data from June 25, 2007 through March 31, 2008 were used as the 9-month period simulated for the model calibration process. Within that timeframe, SD1 and the infrastructure consultants identified seven distinct periods to use as the comparison for calibration purposes. These seven periods represent the full range of seasons and the varying ground water and antecedent moisture conditions that occur in the SD1 service area. The seven periods and a brief description of each are shown in Table 1.1.

Table 1.1 Calibration Period Descriptions

Storm Period	Average Rainfall	General Description
July 4 – 7, 2007	0.9 inches	Mostly < 2 months for most durations but had some high intensity local bursts– contains some 5-minute, 1-year peak return intervals
September 27-29, 2007	1.2 inches	Low peak intensity event but had some 2- to 4-month return intervals for 1- to 6-hour durations
October 16-27, 2007	7.0 inches	Series of several smaller 0.5-inch storm events culminating in large storm event that was a 5- or 10-year, 24-hour event (~5 inches)
November 11-30, 2007	2.5 inches	Two smaller storms (< 0.3 inches) between November 11 and 15, a 0.75-inch storm on November 21-22 and a larger storm (~ 1.5 inches) on November 25-26
		No high intensities – approx 2 to 3 month 6- to 12-hour durations at some locations
January 8-13, 2008	1.3 inches	Two smaller storms (0.5 to 0.75 inches) with low return intervals < 2 month
January 29-February 11, 2008	3.0 inches	Smaller storm in late January (0.5 inches) and larger storm (2.5 to 3 inches) in February; 4- to 6-month, 6- to 24-hour durations storms
March 18- 25, 2008	5.0 inches	Large storm event that was 5 to 10+ year, 12- to 24-hour storm

By selecting these seven storm periods, the model calibration sufficiently covered dry and wet periods of varying duration, different types of storm events, and varying seasonal conditions. Within the InfoWorks Collection Systems software, there are a number of different methods that can be used to represent the different sources of water that enter a sewer. By using these methods together, the model could accurately simulate the performance of SD1's system under long-term simulations, including back-to-back storm events and storm events that occur under different antecedent conditions or at different times of the year. This approach to hydraulic modeling provided SD1 with an accurate understanding of the sewer system and its performance during a variety of wet and dry weather conditions. The output from the model also provided SD1 with an understanding of the magnitude of overflows so they can be put into context with other sources of pollution.

1.2 Calibration Goals

The degree of model calibration is evaluated by quantitative comparison of model calculations with the flow monitoring measurements, expressed in terms of percent deviation. The calibration standards are shown in Table 1.2 for the selected wet weather periods that were described above. The calibration was simulated as a continuous period, but the assessment as to whether the model complied with the calibration standards was based on individual storm periods.

Table 1.2 Wet Weather Calibration Criteria (for Seven Selected Periods)

Criteria	Calibration Standard
Peak Flow Rate:	-15% to + 25% of measured, or ±0.1 million gallons per day (MGD)
Flow Volume:	-10% to +20 % of measured, or ±0.1 million gallons
Maximum, Average, and Minimum Depth:	-0.33 feet to +1.67 feet at surcharged locations ± 0.33 feet at non-surcharged locations
Shape:	The shape of modeled and monitored curves should be similar for flow and depth.
Timing:	The timing of the peaks, troughs and recessions of modeled and monitored curves should be similar for flow and depth.

The comparison against the criteria shown in Table 1.2 was focused on flow monitors located within the pipe network upstream of the priority overflows. The monitors used in calibration were in place within the system for the entire 12 months. Additional flow monitors were also placed on certain overflows to monitor volume and frequency of activation. The model output was also compared against data from these monitors as a means of assessing overall calibration and to determine if any significant adjustments should be made to the model. In summary, the flow monitoring breakdown for calibration was as follows:

- 180 flow monitors located within the pipe network that were in place for a year and judged against the criteria in Table 1.2.
- 38 flow monitors located in combined sewer overflow (CSO) and sanitary sewer overflow (SSO) locations to monitor overflow magnitude and activation frequency.
- 32 flow monitors located across the system at different points and for different durations to assess specific modeling questions such as: new development impact, pump station performance, and potential sanitary sewer evaluation survey locations. These monitors were not used in the full system calibration due to limited data but were instead used to inform specific modeling decisions.

Of the 180 flow monitor locations that were examined for calibration standards, a monitor was considered calibrated for peak flow, volume, or peak depth if it met the accepted standards in at least 50% of the calibration periods. These goals could not be

met for all cases for a variety of reasons, including flow monitor malfunction, system repairs, system blockage, etc. When the calibration goals could not be met with reasonable parameter adjustments, the reason for the discrepancy was checked to ensure it was a plausible explanation and then a determination on impact to calibration was made. Often, when a monitor does not meet the calibration standards, upon close examination, it may be close to the standards. In many cases, it was not possible to meet a majority of calibration periods due to difficulty in replicating field conditions; SD1 worked to resolve those issues to ensure that the model was calibrated well overall.

SD1 developed a system to summarize the calibration results in a ranking system. For peak flow, volume, and peak depth, each monitor was judged to determine in how many of the seven periods (or fewer if the monitor failed during one of the selected periods) it met the required calibration goals. For summary, each monitor was placed in a range to signify the level of the calibration. The results of the calibration for the 180 flow monitor locations in the pipe network are shown in Table 1.3.

Table 1.3 Model Calibration Results for Flow Monitor Data Collected from June 25, 2007 to March 31, 2008

	Peak Flow	Volume	Peak Depth
(1) % FM met > 50% of the periods in that category	86%	85%	81%
(2) % FM met < 50% and > 15% of the periods in that category	13%	14%	16%
(3) % FM met15% periods in that category	1%	1%	3%
% of Monitors in Category 1 and 2	99%	99%	97%

FM = flow monitor

The in-system monitors represent individual locations across the entire system and a large percentage of those monitors were found to be calibrated well against observed data. In more than 80% of the locations, the model met the calibration goals in a majority of the examined periods; the remaining 15-20% of the locations were examined on an individual basis and determined that they represented all of the observed conditions at a sufficient level for planning purposes. Though individual locations or events may not have met the set standards, the sum total of all of the locations and events were determined to produce a highly calibrated model of the SD1 system.

Since this model was to be used for long-term planning of overflow reduction, an important metric was how the model matched observed data at a significant number of the overflow locations. Table 1.4 shows the total SSO and CSO volumes observed at the flow monitors when compared with the model calculations. In both cases, the agreement between the modeled and monitored volume was extremely good, providing SD1 with another measure of confidence that the hydraulic model were accurately representing the existing system and its performance. Given that these locations represented approximately 80% of the CSO and known SSO volume, the close match in terms of calculated volume was critical in determining that the model was calibrated well and could be used for planning purposes with a high degree of confidence. It is important to note that the values presented in Table 1.4 do not include the impacts of elevated river stage which occurred in 2007 and 2008. During the elevated river stage,

several monitors were influenced by river water and could not be used as reasonable points to calibrate the model against.

Table 1.4 Model Calculated Overflow Volume – June 25, 2007 to March 31, 2008

Overflow Category	Total Observed Volume (MG)	Total Model Calculated Volume (MG)	% Deviation
10 SSO Locations	115	112.6	- 2%
28 CSO Locations	731	790	+8%

1.3 Model Verification

SD1 used rainfall and flow data from April 1, 2008 to June 30, 2008 in a continuous simulation to independently verify the accuracy of the model's calibration. Table 1.5 shows the rainfall periods that were used as part of the model verification. Results showing the comparison for the in-system monitor locations based on the SD1 criteria (from Table 1.2) are shown in Table 1.6. The volumes in Table 1.7 include a comparison of the calculated model volumes for both the SSO and CSO locations that were monitored during the verification period (again excluding the elevated river stage which occurred in 2008 because of this influence on monitor operation).

Table 1.5 Verification Period Descriptions

Storm Period	Average Rainfall	General Description
April 3 -7 2008	2.0 inches	Generally, a 2 inch low-intensity storm that was around a 3-4 month, 12-24 hour event in most cases. No high intensity periods; ground was extremely saturated from wet March
May 13 - 23 2008	4.0 inches	3 total events, a 0.5 inch rain on May 14, a 2 inch rain on May 16, and a 1.5 inch rain on May 19. All storms were low-intensity, with the highest return interval being the 2 inch storm, which was about a 6 month, 12 hour event
June 3- 7 2008	3.0 inches	Back-to-back storms, the first 1.75 inches was a 6 month, 12 hour storm while the next storm started 12 hours later and was about 1.25 inches and only about a 2 month storm

Table 1.6 Model Verification Results for Flow Monitor Data Collected from April 1, 2008 to June 30, 2008

	Peak Flow	Volume	Peak Depth
(1) % FM met > 50% of the periods in that category	59%	53%	49%
(2) % FM met < 50% and > 15% of the periods in that category	25%	30%	25%
(3) % FM met < 15 % periods in that category	16%	17%	26%
% of Monitors in Category 1 and 2	84%	83%	74%

FM = flow monitor

Table 1.7 Model Calculated Overflow Volume – April 1, 2008 to June 30, 2008

Overflow Category	Total Observed Volume (MG)	Total Model Calculated Volume (MG)	% Deviation
10 SSO Locations	29.8	33.5	+ 12%
28 CSO Locations	345	352	+ 2%

In addition to the above verification process, SD1 had collected flow and rain monitoring data in 2005 and 2006 in several key areas within the sewer system for past studies. Rainfall collected during these periods in areas where the sewer system had not significantly changed was also run through the model and the collected flow monitoring data were compared against the model results. The comparisons of the collected data to the model results showed similar verification results as those presented in Tables 1.6 and 1.7 and provided an additional level of confidence in the accuracy of SD1's hydraulic model.

As part of the ongoing characterization work and model updates, SD1 has developed a prioritized field inspection program by watershed for field inspection staff to visit model calculated and recurring overflow locations in the sewer system during and after rain events to compare against the model results. This program is in addition to the ongoing Sewer Overflow Response Plan that SD1 currently employs. Inspections completed to date in the Banklick Creek watershed show good correlation between model calculations and field observations. The hydraulic model is continuing to be validated through ongoing field inspections of model-calculated overflow points where previous field inspections had not been conducted. SD1 will continue to refine the hydraulic model as needed based on this ongoing watershed prioritized overflow field inspection program for use in updating recurring SSOs and CSOs, SD1's Sewer Overflow Response Plan, and for future Watershed Plans.

1.4 Model Calibration & Verification Summary

As noted above, the most critical aspect of judging the model performance was in examining how the model calculated overflows at several critical locations within the system. SD1 monitored the 38 priority and major overflow locations in its sewer system over a full year and compared those results against the model calculations for the total volume that was spilled to provide evidence that the model was accurately representing overflow locations and was sufficient for use in the Watershed Planning process. The totals for the entire monitoring period are shown in Table 1.8

Table 1.8 Model Calculated Overflow Volume – June 25, 2007 to June 30, 2008

Overflow Category	Total Observed Volume (MG)	Total Model Calculated Volume (MG)	% Deviation
10 SSO Locations	145	146	+ 1%
28 CSO Locations	1,076	1,142	+ 6%

Based on the results of the model calibration and verification, SD1 has developed highly calibrated hydraulic models that accurately represent system response to rainfall under all conditions. The models are an accurate tool for:

- Long-term system-wide planning for Watershed Plans as part of Consent Decree
- Estimating CSO/SSO overflow activations and volume under all rainfall conditions
- Determining impacts of capacity and operational improvements
- The quarterly reporting requirements of the Consent Decree, to provide consistent and accurate representation of overflow activity

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APPENDIX E:

Wet Weather Investigation Routes

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Wet Weather Investigation Routes

Introduction

SD1's wet weather investigation program has been in place since 2005 and will continue to be expanded as warranted for ongoing field verification and response cleanup for recurring and potential sewer overflows. SD1's wet weather investigation group's SSO investigation crew continues to perform routine inspections during and after rain events at recurring SSO locations and prioritized, potential SSO locations to understand and verify overflow activity and the need for sewer overflow response cleanup. This is part of SD1's ongoing effort to characterize and verify overflows throughout the collection system and ensure they are categorized accurately and cleaned up after rain events as needed. In addition, proper characterization of overflows ensures that the hydraulic models that SD1 utilizes continue to maintain and provide the most accurate information available on overflow activations and volumes.

The route sheets provided herein are based upon both field observations and model data that indicate the need to provide inspections and a SORP response at confirmed wet weather recurring and potential SSO locations.

Recurring SSOs

SD1 has confirmed 98 locations throughout the collection system that have recurring wet weather overflows. Through field observations and model data, SD1 has identified the size of the rain event that triggers overflows at these locations. Crews are deployed to 87% (85) of these locations during or shortly after the threshold rain event to implement inspection and clean-up procedures. Historical field data and observations confirmed that the remaining 13% (13) do not require a regular cleanup due to either low frequency/low volume of activations or location of the manhole. These recurring locations are inspected periodically throughout the year to continue to confirm that a SORP cleanup is not required. 100% of all recurring SSO locations are characterized and reported on a quarterly basis. Table 1.1 presents these locations and how they are inspected, cleaned-up, and reported.

Pump Stations with Constructed Bypasses

SD1 has 29 pump stations throughout the collection system that have the potential to overflow during rain events. These pump stations are monitored by SCADA and pump station operation personnel are deployed to these locations to implement response procedures if an alarm is activated.

Table 1.1 Overview of Recurring SSO Response

	127 recurring SSOs			
Count	**29**	**32**	**53**	**13**
Monitoring	SCADA (continuous)	Inspected by SORP team after wet-weather events	Inspected by Wet Weather Investigation Group after wet-weather events	NR(1)
SORP cleanup	**YES** – using SORP SOP			
Event documentation	**YES** – entered in GBA – Same data as SRR form			
Event reporting	**YES** – when observed overflowing – using SRR form			
Quarterly reporting	**YES** – using modeled activations and volumes			

(1) Past inspections to characterize these overflows revealed no need for regular SORP cleanup, due to location or low frequency

---

Note: The numbers presented in the table above are slightly different than the numbers presented in our June 10, 2009 presentation to EPA and KDOW. The above numbers reflect our current number of recurring overflows and their allocation amongst our SORP cleanup crew and our wet weather investigation group based on our April Quarterly report, whereas the numbers presented in the June 10, 2009 presentation reflected the overflow numbers presented in our Watershed plans (prior to the update in our April Quarterly report). The above numbers represent the most accurate and recent information.

Potential SSOs

SD1 is following a systematic program to field-investigate potential overflows that are predicted by model data or have historical evidence based on past inspections that may indicate overflow activity. This information is summarized and grouped in excel spreadsheets and the wet weather investigation group uses these spreadsheets along with route sheets to inspect each location. The current program prioritizes locations for inspection and characterization by watershed. Currently, SD1 has identified approximately 214 potential SSOs across the collection system in addition to the confirmed recurring SSO locations. To date, SD1 has determined through field inspections that 30 of these locations require overflow cleanup after trigger rainfall events.

As demonstrated in the enclosed route sheets, crews are deployed at all 30 locations during or shortly after the trigger rain event to inspect and implement response and cleanup procedures, if needed. As SD1's systematic and prioritized inspection program continues, this list of potential SSOs requiring cleanup may be revised. Table 1.2 presents a summary of the potential overflows and how they are inspected, cleaned-up, and reported.

Table 1.2 Overview of Potential SSO Response

Count	Up to 214 potential SSOs
Monitoring	Inspected by Wet Weather Investigation Group after wet-weather events Program prioritizes locations for inspection and characterization by watershed 30 potential locations already identified as candidates for regular SORP inspection
SORP cleanup	**YES** – using SORP SOP
Event documentation	**YES** – entered in GBA
Event reporting	**YES** - when observed overflowing – using SRR form
Quarterly reporting	When added to Recurring SSO List

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Wet Weather Investigation Routes

Customer Service Route					
No.	**MHID**	**City**	**County**	**Type of Overflow**	**Rain Event**
1	0020005	Silver Grove	Campbell	SSO	1"
2	0020014	Silver Grove	Campbell	SSO	1"
3	0150086	Southgate	Campbell	SSO	1"
4	0060001	Unincorp Campbell County	Campbell	SSO	1"
5	0060002	Unincorp Campbell County	Campbell	SSO	1"
6	0150085	Unincorp Campbell County	Campbell	SSO	1"
7	0150058	Wilder	Campbell	SSO	1"
8	0150063	Wilder	Campbell	SSO	1"
9	0150064	Wilder	Campbell	SSO	1"
10	0150065	Wilder	Campbell	SSO	1"
11	0860003	Wilder	Campbell	SSO	1"
12	1850140	Covington	Kenton	SSO	1"
13	1850141	Covington	Kenton	SSO	1"
14	2070020	Elsmere	Kenton	SSO	1"
15	2100128	Elsmere	Kenton	SSO	1"
16	2100129	Elsmere	Kenton	SSO	1"
17	2110002	Elsmere	Kenton	SSO	1"
18	2120001	Elsmere	Kenton	SSO	1"
19	2120041	Elsmere	Kenton	SSO	1"
20	2300121	Independence	Kenton	Potential SSO	1"
21	1600050	Lakeside Park	Kenton	SSO	1"
22	2280010	Unicorp Kenton County	Kenton	SSO	1"
23	2280011	Unicorp Kenton County	Kenton	SSO	1"
24	2280016	Unicorp Kenton County	Kenton	SSO	1"
25	2300123	Unicorp Kenton County	Kenton	SSO	1"
26	0860016	Wilder	Campbell	SSO	2"
27	1760047	Edgewood	Kenton	SSO	2"
28	1760048	Edgewood	Kenton	SSO	2"
29	2040040	Edgewood	Kenton	Potential SSO	2"
30	2070019	Elsmere	Kenton	SSO	2"
31	1110161	Erlanger	Kenton	SSO	2"
32	1610114	Fort Mitchell	Kenton	SSO	2"
33	1610115	Fort Mitchell	Kenton	SSO	2"
34	1600029	Lakeside Park	Kenton	SSO	2"

Wet Weather Investigation Routes

SSO Investigation Crew Route					
No.	**MHID**	**City**	**County**	**Type of Overflow**	**Rain Event**
1	0220044	Fort Thomas	Campbell	SSO	1"
2	0220058	Fort Thomas	Campbell	SSO	1"
3	0410010	Fort Thomas	Campbell	SSO	1"
4	0410019	Fort Thomas	Campbell	SSO	1"
5	0100002	Highland Heights	Campbell	SSO	1"
6	0110010	Highland Heights	Campbell	SSO	1"
7	0530083	Newport	Campbell	SSO	1"
8	0020006	Silver Grove	Campbell	Potential SSO	1"
9	0020007	Silver Grove	Campbell	Potential SSO	1"
10	0020008	Unicorp Campbell County	Campbell	Potential SSO	1"
11	0150009	Wilder	Campbell	Potential SSO	1"
12	0550001	Bellevue	Kenton	Potential SSO	1"
13	1990018	Covington	Kenton	SSO	1"
14	1990029	Covington	Kenton	Potential SSO	1"
15	2020205	Covington	Kenton	Potential SSO	1"
16	2170097	Crestview Hills	Kenton	Potential SSO	1"
17	2090008	Elsmere	Kenton	SSO	1"
18	2110001	Elsmere	Kenton	Potential SSO	1"
19	2070018	Elsmere	Kenton	Potential SSO	1"
20	1110025	Erlanger	Kenton	SSO	1"
21	1110294	Erlanger	Kenton	SSO	1"
22	1240008	Erlanger	Kenton	SSO	1"
23	2300019	Erlanger	Kenton	SSO	1"
24	2300523	Erlanger	Kenton	SSO	1"
25	2300013	Erlanger	Kenton	Potential SSO	1"
26	1110067	Erlanger	Kenton	SSO	1"
27	1940006	Fort Wright	Kenton	SSO	1"
28	1960002	Fort Wright	Kenton	SSO	1"
29	0400002	Ft. Thomas	Kenton	Potential SSO	1"
30	1010025	Ft. Thomas	Kenton	Potential SSO	1"
31	0040003	Ft. Thomas	Kenton	Potential SSO	1"
32	1950014	Ft. Wright	Kenton	Potential SSO	1"
33	1990032	Unicorp Kenton County	Kenton	Potential SSO	1"
34	2390002	Unincorp Boone County	Boone	SSO	2"
35	2390006	Unincorp Boone County	Boone	SSO	2"
36	2390008	Unincorp Boone County	Boone	SSO	2"
37	1920163	Cold Spring	Campbell	SSO	2"
38	0020036	Cold Springs	Campbell	Potential SSO	2"
39	0410036	Fort Thomas	Campbell	SSO	2"
40	0440074	Fort Thomas	Campbell	SSO	2"
41	0300035	Ft. Thomas	Campbell	Potential SSO	2"
42	0100001	Highland Heights	Campbell	SSO	2"
43	0100003	Highland Heights	Campbell	Potential SSO	2"
44	0150356	Southgate	Campbell	SSO	2"
45	0020031	Unicorp Campbell County	Campbell	Potential SSO	2"
46	0020035	Unicorp Campbell County	Campbell	Potential SSO	2"
47	1870013	Covington	Kenton	SSO	2"
48	1990028	Covington	Kenton	SSO	2"
49	2290001	Crescent Springs	Kenton	SSO	2"
50	1110174	Elsmere	Kenton	SSO	2"

Wet Weather Investigation Routes

SSO Investigation Crew Route Continued					
No.	**MHID**	**City**	**County**	**Type of Overflow**	**Rain Event**
51	1110275	Elsmere	Kenton	SSO	2"
52	2100007	Elsmere	Kenton	SSO	2"
53	2100036	Elsmere	Kenton	SSO	2"
54	2100037	Elsmere	Kenton	SSO	2"
55	2100106	Elsmere	Kenton	SSO	2"
56	2090063	Elsmere	Kenton	Potential SSO	2"
57	1110051	Erlanger	Kenton	SSO	2"
58	1110164	Erlanger	Kenton	SSO	2"
59	1240012	Erlanger	Kenton	SSO	2"
60	2130027	Erlanger	Kenton	Potential SSO	2"
61	1220029	Erlanger	Kenton	SSO	2"
62	1560092	Fort Mitchell	Kenton	SSO	2"
63	1610102	Fort Mitchell	Kenton	SSO	2"
64	1730104	Fort Mitchell	Kenton	SSO	2"
65	2160004	Fort Mitchell	Kenton	SSO	2"
66	1560016	Fort Mitchell	Kenton	SSO	2"
67	1690043	Fort Wright	Kenton	SSO	2"
68	1040060	Independence	Kenton	SSO	2"
69	1590006	Lakeside Park	Kenton	SSO	2"
70	1890011	Lakeside Park	Kenton	SSO	2"
71	1860108	Taylor Mill	Kenton	SSO	2"
72	2130022	Villa Hills	Kenton	SSO	2"
73	0300008	Fort Thomas	Campbell	SSO	3"
74	1010027	Ft. Thomas	Campbell	Potential SSO	3"
75	0070044	Highland Heights	Campbell	Potential SSO	3"
76	1930007	Southgate	Campbell	SSO	3"
77	0020012	Unicorp Campbell County	Campbell	Potential SSO	3"
78	1090069	Edgewood	Kenton	SSO	3"
79	1560019	Fort Mitchell	Kenton	SSO	3"
80	2160005	Ft. Mitchell	Kenton	Potential SSO	3"
81	2160006	Ft. Mitchell	Kenton	Potential SSO	3"

No Clean Up Needed					
No.	**MHID**	**City**	**County**	**Type of Overflow**	
1	0050022	Fort Thomas	Campbell	SSO	
2	0270062	Fort Thomas	Campbell	SSO	
3	0860001	Wilder	Campbell	SSO	
4	1560074	Fort Mitchell	Kenton	SSO	
5	1690072	Fort Wright	Kenton	SSO	
6	1700025	Park Hills	Kenton	SSO	
7	1830020	Unincorp Boone County	Boone	SSO	
8	1830067	Unincorp Boone County	Boone	SSO	
9	2030097	Edgewood	Kenton	SSO	
10	2150050	Crestview	Kenton	SSO	
11	2160036	Fort Mitchell	Kenton	SSO	
12	2380001	Unincorp Boone County	Boone	SSO	
13	2390762	Unincorp Boone County	Boone	SSO	

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APPENDIX F:

Pump Station Operations

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Pump Station Operations

Pump Station Operator	Pump Station Name	Inspection Frequency / Week
Gary Ashcraft	Air Park West	2
	Airport Exchange	1
	Airport Terminal	2
	Airport Tower	2
	Arbortech	2
	Blackstone	1
	Bloomin' Springs	2
	Brentwood	2
	Bullittsville	2
	Cardinal Cove	2
	Deer Creek #1	2
	Deer Creek #2	2
	Hampton Ridge	1
	I D I	2
	Johnathan	2
	Lakeview	7
	Litton	1
	Mineola Pike	2
	Orchard Estates	2
	Ridgefield	2
	Sand Run	2
	Saturn	1
	Skyport	2
	South Park	2
	Taylorsport	2
	Thornwilde	2
	Tree Tops	1
	Wyndemere	2
	Youell Road	2

Updated: July 10, 2009

Pump Station Operations

Pump Station Operator	Pump Station Name	Inspection Frequency / Week
Chris Beil	American Sign	2
	Ashford Village	2
	Ashmont	2
	Banklick	3
	Catalpa	2
	Community Pentecostal (	1
	Eighth Street	2
	Fowler Ridge	2
	Gammon	2
	Golf Course	2
	Harvest Hill	2
	Independence City Bldg.	1
	Independence Station Rc	1
	Leather's Road	2
	Levi	2
	Marshall Road	2
	Meadow Lane	2
	Millhouse Crossing	2
	Patton Street	2
	Ria Vista	2
	Riverview Farms	2
	Saylor Woods	2
	Second Street	2
	Wedgewood	2

Pump Station Operations

Pump Station Operator	Pump Station Name	Inspection Frequency / Week
Gary Harney	Army Reserve	2
	Brantley Ridge	2
	Bunning Lane	2
	Carlisle	2
	Cedar Point	2
	Crestview	2
	Darmma	2
	Evergreen	2
	Gerard	2
	Harrison Harbor	1
	Highland Heights	2
	Jefferson	1
	Keavy Road	2
	Lamphill	2
	Mafred Drive	2
	Meadow Hill	2
	Newport Steel	1
	Ohio	1
	Overlook Circle	2
	Ridgeway Drive	1
	Ripple Creek	2
	Rosewood Lane	2
	Saint Anne	2
	Silver Grove	3
	Wilder	2
	Winter's Lane #2	2
	Wolf Road	2

Pump Station Operations

Pump Station Operator	Pump Station Name	Inspection Frequency / Week
Jeremy Rubensten	Allen Fork	2
	Arborwood	2
	Bromley	3
	Brushup	2
	Burlington	2
	Cinnamon Ridge	1
	Dublin Green 1	1
	Dublin Green 2	1
	Eagle's Landing	1
	Fowler Creek	1
	Gun Powder	2
	Hempstead	1
	Highland Acres	2
	Kentucky Aire	2
	Lantern Way	1
	Lassing Green	1
	Red Stone Village	1
	Richwood	2
	South Hampton	1
	Sycamore	1
	Union	1
	War Admiral	2
	Willow Bend	2

Pump Station Operations

Pump Station Operator	Pump Station Name	Inspection Frequency / Week
Doug Sweeney	Alexandria-Licking	5
	Barrs Branch	2
	Brook Stone Crossing	2
	Brookwood	2
	Cedar Ave	2
	Center Plex	2
	Cold Spring Crossing	2
	Cold Spring Plaza	2
	Douglas & James	2
	Enzweiler	2
	Jericho	2
	Kees	2
	Macke	2
	Maple Ave	2
	Meadow Hill	2
	Meyer Road	2
	Parkside 1	2
	Parkside 2	2
	Paul Lane	2
	Pond Creek	5
	Reily Road #1	2
	Reily Road #2	2
	Ridgewood Valley	2
	Shadow Lake	2
	Stillwater	2
	Sunset Avenue	3
	Taylor Mill Road	2
	Twin Lakes	2
	Wolpert Road	2

Flood Pump Station Operator	Pump Station Name	Inspection Frequency / Week
Bob Marshall	Columbia Street	2
	Court Street	2
	Eastern Avenue	2
	Eighth Street	2
	Fourth Street	2
	Kennedy Street	2
	Main Street (Covington)	2
	Main Street (Dayton)	2
	McKinney Street	2
	Nineteenth Street	2
	Patton Street	2
	Pleasant Street	2
	Russell Street	2
	Washington Street	2
	Willow Run	2

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APPENDIX G:

Routine CSO Inspection Routes

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CSO Inspection Routes

Introduction

SD1's CSO investigation crew inspects each CSO outfall and its associated diversions once per week as well as after every rainfall event. The information gathered from diversion inspections is used to characterize the activity of CSOs during wet weather and identify the location of dry weather overflows and measures to eliminate them from reoccurring.

The route sheets included herein outline the inspection of SD1's 92 CSO outfalls and associated diversions.

Dry Weather CSOs

During the weekly routine inspections, the CSO investigation crew visually looks for debris and blockages that may trigger a dry weather overflow or would affect the ability of the diversion to maximize the flow entering the interceptor during rainfall. All diversions are equipped with monitoring blocks to better detect dry weather overflows.

The CSO investigation crew implements response procedures as described in the SORP for any diversion found to have a dry weather overflow. In addition, assessment procedures are implemented as described in the NMC report to identify the cause of the dry weather overflow and implement solutions to ensure that the dry weather overflow does not reoccur.

The Table 1.1 summarizes how the CSOs are inspected, cleaned-up, and reported.

Table 1.1 Overview of CSO Response

	92 CSOs
Count	**92**
Monitoring	Inspected on a continuous basis by wet-weather crew; re-inspected after wet-weather events
SORP cleanup	**YES** – for Dry Weather Overflows - using SORP SOP
Event documentation	**YES** – for Dry Weather overflows – entered in GBA
Event reporting	**YES** – for Dry Weather overflows – using SRR form
Quarterly reporting	**YES** – using modeled activations and volumes

Note: The numbers presented in the table above are slightly different than the numbers presented in our June 10, 2009 presentation to EPA and KDOW. The above numbers reflect our current number of CSOs based on our April Quarterly report, whereas the numbers presented in the June 10, 2009 presentation reflected the overflow numbers presented in our Watershed plans (prior to the update in our April Quarterly report). The above numbers represent the most accurate and recent information.

Routine CSO Inspection Routes

CSO Crew Inspection Route - Campbell County					
No.	KPDES Outfall No.	County	Diversion MHID	SD1 GIS Outfall No.	Name
1	TBP	Campbell	1840055	1840130	33rd & Latonia
			1840072		33rd & Emerson
			1840069		33rd & Carlisle
2	76	Campbell	1850150	1850158	Church - North
			1850024		Church - West
			1850032		Church - East
3	78	Campbell	1870025	1870193	Decoursey
4	79	Campbell	1870031	1870194	47th St.
5	81	Campbell	1880021	1880090	Virgina
6	80	Campbell	1880028	1880091	Baltimore Golf course
			1880010	1880091	44th St. Golf course
7	34	Campbell	0870021	0870079	E. 38th St. #1
			0870019		E. 38th St. #2
			0870052		Earl & Gilbert
			0870039		Southern & Myrtle
			0870071		Southern Golf course
8	33	Campbell	0870007	0870078	Park Dr.
9	36	Campbell	0880017	0880081	34th St. - L&N Bridge
10	35	Campbell	0880004	0880082	East 33rd St.
11	38	Campbell	0910064	0910065	Ashland Oil
12	38	Campbell	0910055	0910065	Eastern - Meinken
13	TBP	Campbell	0910039	0910066	Eastern - Adams
14	TBP	Campbell	0840003	0840111	9th St.
			0840005		Lowell & 9th
15	TBP	Campbell	0840027	0840112	Lowell & 10th
16	TBP	Campbell	0730005	0730129	Fitzsimmons
17	27	Campbell	0730009	0840116	12 th St. #1
			0730028		12th St. #2
18	TBP	Campbell	0690008	0690059	Enterprise Rental
19	14	Campbell	0340034	0340050	Lester
20	TBP	Campbell	0650053	0650054	Glazier St.
21	25	Campbell	0650041	0650100	Geiger St.
22	TBP	Campbell	0550024	0550134	S. Ward & Covert Run
23	TBP	Campbell	0540009	To be Determined	Donnermeyer/Berry
24	TBP	Campbell	0540044	0540044	Donnermeyer/Lafayette
25	TBP	Campbell	0650025	0650098	Wildcat Dr
26	26	Campbell	0650084	0650090	Party Source
27	29	Campbell	0820001	0790086	4th St Chamber
28	31	Campbell	0790015	0790084	Columbia St. Chamber
29	28	Campbell	0770006	0770096	Saratoga (Purple Bridge)
30	24	Campbell	0640081	0640090	Washington St. Chamber
31	83	Campbell	0630001	0630061	Don Pablo
32	23	Campbell	0620031	0620075	Patchen
33	22	Campbell	0620015	0620077	Lafayette St.
34	21	Campbell	0610029	0610071	Taylor
35	20	Campbell	0610006	0610072	Washington
36	18	Campbell	0600002	0600094	Foote
37	19	Campbell	0600016	0600097	Ward
38	TBP	Campbell	0600037	0600104	Van Voast
39	TBP	Campbell	0600041	0600096	O' Fallon

Routine CSO Inspection Routes

CSO Crew Inspection Route - Campbell County Continued					
No.	KPDES Outfall No.	County	Diversion MHID	SD1 GIS Outfall No.	Name
40	16	Campbell	0570011	0570089	Mc Kinney
41	17	Campbell	0570030	0570090	Main St.
42	TBP	Campbell	0360018	0360079	Anchor Inn
43	12	Campbell	0330099	0330100	Tower Hill
44	13	Campbell	0340044	0340051	625 Mary Ingles
45	11	Campbell	0200066	0200069	617 Mary Ingles
46	10	Campbell	0030017	0030031	Carmel Manor
47	TBP	Campbell	0010001	0010220	Ash St.
48	TBP	Campbell	0010047	0010228	Maple & First
			0010042		103 Maple

Routine CSO Inspection Routes

CSO Crew Inspection Route - Kenton County					
No.	KPDES Outfall No.	County	Diversion MHID	SD1 GIS Outfall No.	Name
1	TBP	Kenton	1730053	1730262	Steve Tanner
2	74	Kenton	1730008	1730263	Rohman St.
3	75	Kenton	1730029	1730259	Pleasant St.
4	73	Kenton	1720005	1720109	Lagoon St.
5	68	Kenton	1710003	1710116	Adela St.
6	69	Kenton	1710054	1710114	Kenner St.
7	70	Kenton	1710068	1710119	Butler St.
8	71	Kenton	1710084	1710121	Carneal St.
9	72	Kenton	1710098	1710124	Ash St.
10	66	Kenton	1500010	1500131	Altamount St.
11	64	Kenton	1490015	1490172	Swain Ct.
12	65	Kenton	1490027	1490132	Parkway / Hwy
13	TBP	Kenton	1480017	1480185	Wright St.
14	30	Kenton	1480103	1480187	320 Cresent
			1480012		3rd St. @ L.S.
			1480097		3rd St. @ I-75
			1480108		4th St.
			1480123		Dalton St.
			1480129		8th & Philadelphia
			1480116		Willow Run
15	TBP	Kenton	1380054	1380132	Amsterdam & Parkvale
16	TBP	Kenton	1380083	1380146	Amsterdam & Arlington
17	TBP	Kenton	1320093	1320112	Dixie Hwy & S Arlington
18	49	Kenton	1350104	1350155	Park Hills / Dixie Hwy
19	TBP	Kenton	1510133	1510244	Marcella Dr.
20	62	Kenton	1470003	1470089	Philadelphia St.
21	63	Kenton	1470032	1470093	Bakewell St.
			1470052		Main St.
			1470072		Johnson St.
22	56	Kenton	1440002	1440209	2nd & Russell
			1440053		2nd & Washington
			1440072		Madison Ave.
			1440067		2nd & Madison
23	59	Kenton	1440100	1440204	Scott St.
24	60	Kenton	1440121	1440205	Greenup St.
25	61	Kenton	1440156	1440206	Garrard St.
26	TBP	Kenton	1440145	1440207	Kennedy St #1
			1440146		Kenneedy St. #2
27	50	Kenton	1420004	1420141	6th & Garrard
28	51	Kenton	1420022	1420142	8th & Garrard
			1420025		8th St.
			1420028		8th & Sanford
29	52	Kenton	1420032	1420144	9th St.
30	53	Kenton	1420043	1420145	10th St.
31	54	Kenton	1420076	1420146	Robbins St.
32	55	Kenton	1420079	1420147	11th St.
33	37	Kenton	0910025	0910068	Eastern Ave - Holmes
			0910031		Eastern Ave. - South
			0910027		Eastern Ave. - North
			0910007		Oakland St.
			0910005		Oakland & Florist
34	43	Kenton	0930083	0930102	Durette Ave.
35	42	Kenton	0930075	0930103	20th St.
36	41	Kenton	0930056	0930105	S.E. Ballpark #1
			0930066		S.E. Ballpark #2
			0930041		19th & Oakland
			0930050		Glenway & Park

Routine CSO Inspection Routes

CSO Crew Inspection Route - Kenton County Continued					
No.	KPDES Outfall No.	County	Diversion MHID	SD1 GIS Outfall No.	Name
37	40	Kenton	0930026	0930104	17th St.
38	39	Kenton	0930002	0930106	16th St
			0930014		16th & Water St.
39	45	Kenton	0960032	0960063	Patton St.
			0960027		Oliver St.
40	44	Kenton	0960003	0960064	15th St.
41	48	Kenton	0980036	0980081	Maryland St.
42	47	Kenton	0980016	0980080	13th St.
43	46	Kenton	0980002	0980073	12th St.
44	TBP	Kenton	Packaging Unlim.	1310100	Herman St.
			1310052		Herman St.
			1310062		Warren #1
			1310065		Warren #2

APPENDIX H:

System Release Report

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System Release Report

Location: **Weather:**

Overflow Source: **Structure number:**

Cause of Release:

Release Began: **Reported by:**

Dry Creek Operator on Duty initiating the report:

Notification	Date	Time	Phone Number

Instructions from KDOW:

Release Stopped: **Reported by:**

Dry Creek Operator on Duty initiating the report:

Notification	Date	Time	Phone Number

Volume of system Release (gal): **E-Notification Tracking Number:**

Method Used to Estimate Volume Released:

Please document all pertinent information about the release:

Environmental Impact Assessment

Fish Kill ..... **Noticeable Odor .....**

Discoloration ..... **Visible Solids in Stream .....**

Public Use Observed .. **Visible Solids Along Stream Bank .....**

Public Access ..... **There was minimal Stream Impact.....**

Initial Waterway Affected.....

Secondary Waterway Affected..

Final Overflow Destination.....

Delivery and Review Status

Faxed to the Division of Water: **Faxed By:** **Date Faxed:**

	Name	Date
Field Supervisor Review ..		
PS Supervisor Review		
QA/QC Review		

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APPENDIX I:

Internal Notification of Hazardous Material Spill Form

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SD1- Safety Department
Internal Notification of Hazardous Material Spill

This form is completed by SD1 Safety Department personnel for internal documentation and reporting of spills containing hazardous materials.

1. SANITATION DISTRICT NO.1 STAFF MEMBER RECEIVING CALL:

2. NAME OF PERSON CALLING:

3. REPRESENTING (AGENCY):

4. TELEPHONE # OF PERSON CALLING:

5. ADDRESS OF PERSON CALLING:

6. TIME OF CALL _____ A.M. _____ P.M. DATE OF CALL: (month) _____ (day) _____ (year) _____

7. AFFECTED WATERWAY:

8. LOCATION OF SPILL: TOWN/CITY _____

COUNTY: _____ STATE: _____

9. NEAREST STREET ADDRESS OR PUBLIC ROADWAY AND GENERAL DIRECTIONS (HIGHWAY OR RT. #, WHICH RAMP, ETC.)

10. TYPE OF INCIDENT: ( ) TRAFFIC ACCIDENT ( ) CUSTOMER COMPLAINT ( ) BYPASS ( ) EQUIPMENT FAILURE

( ) OTHER (IDENTIFY)

_____

11. TYPE OF MATERIAL SPILLED: ( ) SEWAGE ( ) PETROLEUM ( ) HAZARDOUS MATERIAL

( ) OTHER (IDENTIFY)

_____

12. AMOUNT OF MATERIAL: _____ LBS _____ GALS (INDICATE IF THIS IS AN ESTIMATE)

13. CAUSE OF SPILL OR ODOR?

14. SPILL OCCURRED: (check one)

( ) ON LAND NEAR CREEK ( ) ON ROADWAY ( ) DIRECTLY INTO RIVER ( ) OTHER (DESCRIBE) _____

( ) TO A STORM SEWER VIA A SEWER SYSTEM ( ) DIRECTLY INTO CREEK OR TRIBUTARY

15. DATE OF SPILL: (month) _____ (day) _____ (year) _____

16. TIME OF DAY SPILL: (began) _____ (stopped) _____

17. THE SPILL HAS BEEN REPORTED TO:

a. (Name) _____ (Agency) _____

b. (Name) _____ (Agency) _____

c. (Name) _____ (Agency) _____

d. (Name) _____ (Agency) _____

18. REMARKS / COMMENTS:

KENTUCKY NATURAL RESOURCES AND ENVIRONMENTAL MANAGEMENT: (502) 564-2741 U.S. EPA REGION IV (404) 562-8700

ORSANCO: (513) 231-7719 KENTUCKY DIVISION OF WATER: FRANKFORT: (502) 564-3410 FLORENCE OFFICE: (859) -292- 6411

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APPENDIX J:

Equipment List

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Equipment List

Code	Dept.	Description	Vehicle Identification #
134	1	1977 Ford Back Hoe	Dry Creek
3	2	2000 Ford F450 TV Truck	1FDXE45F9YHA30417
4	2	1996 Ford - Vactor Truck	1FDZW82E3TVA03040
5	2	1996 Ford - Vactor Truck	1FDZW82ESTVAD3041
6	2	1999 Sterling-Vactor	2FZHLJBB7XA990094
7	2	1995 Mack Dump Truck - DM690S	1M2B209C3SM016037
8	2	1995 Ford 1Ton Dump	1FDLE47F5SEAL3874
9	2	1993 Ford Vactor	1FDYR82E2PVA38788
11	2	IHI Trackhoe	
14	2	1995 Ford Camera Truck	1FDKE37F8SHC11856
16	2	1997 Ford P.U.	1FTDF172XVNB84404
22	2	John Deere Skid Loader	Customer Service / Construct.
23	2	1996 Ford Super Duty	1FDLF47F9TEB18872
24	2	1996 Kodiak Stet Truck(Chev)	1GBM7H1J8TJ100191
25	2	1973 GMC Flusher Truck	TCE67TV585663
29	2	1998 Ford TV Truck	1FDXE47F9WHA21369
30	2	1990 Ford F350 4X4	1FDKF38M4LNA19654
32	2	1990 Ford Dump L9000	1FDYR90L4LVA0614
33	2	1996 Ford P.U.	1FTHF35F7TEA89296
34	2	1988 GMC Stet Truck	1GBM7D135JV118729
39	2	1995 Ford Utility	1FDLF47F2SEA81162
41	2	1995 Ford F-150 P.U.	1FTEF15N4SLB92491
42	2	1995 Ford F-150 P.U.	1FTDF15Y9SLB81559
43	2	1998 Ford F-150 P.U.	1FTZX1720WNB63369
45	2	1995 Ford F-150 P.U.	1FTEF15N4SLB92492
46	2	1998 Ford Ranger P.U.	1FTYR14U4WPA59256
49	2	1998 Ford Panel Van	1FTRE1422WHB24260
50	2	2000 Ford F450 Utility	1FDXF4716XEE72100
53	2	1992 Ford F350 4x4 Utility Truck	1FDHF38G2NNA88558
54	2	1996 Ford Utility Bed	1FTHF35FITEA78360
55	2	1998 Ford F250 PU	1FTPF276WKB16344
56	2	1990 Ford Utility Bed - Diesel	2FDLF47M0LCA77813
57	2	1995 Ford Super Duty	1FDLF47F5SEA81169
58	2	1996 Dodge P.U.	1B7HC16XXTS79594
61	2	2000 Ford Super Duty	1FDXF46F2YEA26304
62	2	1995 Ford P.U.	1FTDF15Y9SLB81557
63	2	1986 Chevrolet - 3/4 Ton	2GCED24L6G1145459
64	2	1997 International - Vactor Truck	1HTJMADR2WH528329
70	2	1999 Freightliner Dump	1FV6HLBA9XHA08711
72	2	1990 Chevrolet Utility Bed	1GBGC24K3LE164156
76	2	1998 Ford Van	1FTRE1425WHA46041
78	2	1991 Mack - DM690X	1M2B205C3MM008884
79	2	1991 GMC Top Kick Flatbed	1GDJ6H1P0MJ521163
83	2	2000 Ford Super Duty	1FDXF46FXYEA26762
85	2	1994 3/4 Ton Chevrolet P.U.	1GCFC24Z3RZ175177
88	2	1994 Mack	1M2B209C2RM015004
92	2	2000 Ford Super Duty	1FDXF46FOYEA26303
95	2	(Silver) 1999 Ford Windstar	2FMZA514XXBB32271
99	2	2000 Ford Van E150	1FTRE1423YHB08166
100	2	John Deere 410 Back Hoe	Customer Service / Construct.
101	2	John Deere 310 Back Hoe	Customer Service / Construct.
102	2	2001 Ford F550 Dump	1FDAF56F81EB66522
105	2	Ingersoll Rand Air Compressor	Customer Service / Construct.

Equipment List

Code	Dept.	Description	Vehicle Identification #
106	2	Ingersoll Rand Air Compressor	Customer Service / Construct.
107	2	Ingersoll Rand Air Compressor	Customer Service / Construct.
108	2	931B Track Loader	Customer Service / Construct.
109	2	Rod Machine - SRECO	Customer Service
110	2	2001 F250 3/4 Ton Ford	1FTNF20L51EB70529
112	2	John Deere Track Hoe	Customer Service / Construct.
115	2	2000 Ford E450	1FDXE45F8YHA38167
119	2	2001 Ford F550 Utility	1FDAF56F11EC51041
120A	2	2006 Dodge 1500	1D7HA16K16J168141
125	2	2002 International Dump	1HTGKATR82H515666
126	2	2002 Ford F550 Dump	1FDAF92ED12296
129	2	Kubota Trailer	Customer Service / Construct.
130	2	1989 Case Back Hoe	Customer Service / Construct.
131	2	Case Back Hoe	Customer Service
132	2	Case Loader	Customer Service / Construct.
135	2	Caterpiller 953 Track Loader	Customer Service / Construct.
138	2	Takeuchi 175	Customer Service / Construct.
139	2	1997 International Dump	1HSSDAANZVH480152
141	2	Takeuchi 175	Customer Service / Construct.
145	2	1999 Sterling Vactor	2SZHRJBBX4AA73377
146	2	Takeuchi 145	Customer Service / Construct.
147	2	Stanley Track Horse	Customer Service / Construct.
148	2	Bobcat 863	Customer Service / Construct.
150	2	2000 Ford F150	2STZS1721YCB03449
151	2	Stanley Track Horse-Hose Reel	Customer Service
154	2	Easement Trailer	Customer Service
157	2	Hydro-Tech Pressure Washer	Customer Service
159	2	Generator attached to Truck 53	Customer Service
160	2	Trench Compaction Wheel	Customer Service
280	2	Control System	Construction Garage
281	2	Property & Grounds Maintenance	Construction Garage
800	2	Labor - Supplies - Services	
801	2	General Purchases	
803	2	Supervision and Control	
806	2	Employee Benefits, Salary, etc.	
808	2	Safety	
809	2	Sludge and Grit to Land Fill	
812	2	Contract Labor	
813	2	Equipment Rental	
814	2	Gas and Propane & Related Equipment	
815	2	Miscellaneous	
816	2	Sewer Lines	Customer Service
823	2	Hydraulic Breaker	Customer Service / Construction
824	2	Landscape Rake	Customer Service / Construction
866	2	FINN Straw Blower	Customer Service / Construct
867	2	Core Cut 3700 Saw	Customer Service / Construct.
868	2	Ex-Cell 5000W Generator	Customer Service / Construct.
869	2	Ex-Cell 5000W Generator	Customer Service / Construct.
870	2	Quickie Saw 144575598	Customer Service / Construct.
871	2	Quickie Saw 1404660	Customer Service / Construct.
872	2	Quickie Saw 141708138	Customer Service / Construct.
873	2	Quickie Saw 133989883	Customer Service / Construct.
874	2	Quickie Saw 191073076	Customer Service / Construct.

Equipment List

Code	Dept.	Description	Vehicle Identification #
877	2	Moritz Trailer	Customer Service / Construct.
880	2	Building & Grounds - 1045 Eaton Drive	
898	2	Bucket Machine - puller	Customer Service
899	2	Bucket Machine - dumper	Customer Service
900	2	Straw Blower	Customer Service / Construct.
904	2	1985 International Road Tractor	Customer Service / Construct.
909	2	18' Utility Trailer	Customer Service
910	2	16' Utility Trailer	Customer Service
911-A	2	Eager Beaver Trailer-Model 25GLB/L	Customer Service
969	2	Hurst Drag	Customer Service / Constr.
970	2	Lift All Forklift	Customer Service
1031	2	Eager Beaver Trailer	Customer Service / Construct.
1033	2	Rod Machine - SRECO	Customer Service
1034	2	Air- Smoke Blower	Customer Service
1043	2	Honda Trash Pump #1	Customer Service / Construct.
1044	2	Honda Trash Pump #2	Customer Service / Construct.
1045	2	Reciprocal Pump	Customer Service / Construct.
1046	2	Kubota Trailer	Customer Service / Construct.
1048	2	Coleman Generator	Customer Service
1050	2	Snow Thrower Craftsman 26 inch	Customer Service
1051	2	Sweepster	Customer Service / Construct.
1052	2	Cement Mixer	Customer Service / Construct.
1053	2	Sewer Line Locater	Customer Service
1054	2	Blacktop Tamper	Customer Service / Construct.
1055	2	Electric Portable Rodder Machine	Customer Service
1056	2	Gas Portable Rodder Machine	Customer Service
1057	2	Steam Cleaner/Pressure Washer	Customer Service
1080	2	1995 Ford Super Duty	1FDLF47F5SEA68325
1081	2	Club Car Golf Cart	Customer Service
1085	2	2005 3/4 Ton Chevrolet	1GCHC24U35E218382
1088	2	Kobelco Trackhoe	
1089	2	2006 Sterling Vactor	2FZHAZDE66AV12565
1090	2	Bobcat Rake - Soil Conditioner	
1093	2	2006 Chevy Silverado 3/4 Ton PU	1GCHC24U96E111757
1094	2	2006 Chevy Silverado 3/4 Ton PU	1GCHC24U46E111553
1095	2	2005 Ford E450 (Camera Truck)	1FDXE45P85HB09954
1096	2	Caterpillar 90 Forklift	
1099	2	Emergency Trench Trailer	Customer Service
1100	2	2006 Freightliner	1FUJC5DE06HW47094
1101	2	2006 Eager Beaver Trailer	Customer Service
1104	2	Bobcat Skidsteer/Model T250	Customer Service
1105	2	2006 Freightliner	1FVMC5DE86HW31752
1109	2	2003 Case Wheel Loader	Customer Service
1113	2	Harley Rake Soil Conditioner Serial #-232001091	Cust.Serv.
1115	2	2002 GMC 3/4 ton flat-bed truck	1GDHC24UX2E222971
1122	2	2007 Ford E-450 TV	1FOXE45P47DA12972
1126	2	1998 Ford Tractor 4x2/Dump Truck	1FDYY96P7WVA25845
1126-2	2	Dump Body for truck 1126	
1128	2	Freightliner Road Tracker	Customer Service
1134	2	2007 Ford Ranger	1FTYR14D67PA04793
1136	2	2003 Chevrolet 3/4 Ton	1GBHC24U23E235286
1137	2	2008 Utility Crane	1HTMNAAL78H679136

Equipment List

Code	Dept.	Description	Vehicle Identification #
1138	2	2007 Sterling Vactor	2FZHAZDE08AY47386
1139	2	2004 Ford 3/4 Ton	1FTNF21P14EA56596
1141	2	John Deere Street Sweeper	Customer Service
1142	2	Kubota 4x4	Customer Service
1143	2	International Trailer	Customer Service
1144	2	Toro Twister - Model 1600	Customer Service
1145	2	John Deere Skidsteer (VIN…50707)	Customer Service
1146	2	John Deere Skidsteer (VIN…50721)	Customer Service
1147	2	3000 Watt Generators-EZP1165580	Customer Service
1148	2	3000 Watt Generators-EZGP1165560	Customer Service
1149	2	Moritz Utility Trailer-ULB-18	Customer Service
1230	2	2001 Ford F 550	1FDAF56F81EC39176
1241	2	2000 Ford F550	Customer Service
1331	2	Honda Trash Pump/Serial#WABJ-1127444	Customer Service
1332	2	Honda Trash Pump/Serial#WABJ-1127433	Customer Service
1333	2	Wacker Light Station	Customer Service
1334	2	Takeuchi 175 Trackhoe/Serial#17516717	Customer Service
1335	2	Takeuchi 175 Trackhoe/Serial#17516447	Customer Service
1336	2	Briggs & Stratton Portable Generator	Customer Service
1338	2	Excavation/Trench Response Trailer	Customer Service
113	7	Centrifugal Pump	Field Technical
114	7	3" Diaphragm Pump	Field Technical
158	7	Fresh Air Blower (Electric)	Field Technical
1150	7	ONAN Portable Generator - 200KW Unit	Field Technical

APPENDIX K:

SSO Field Volume Estimate Guide

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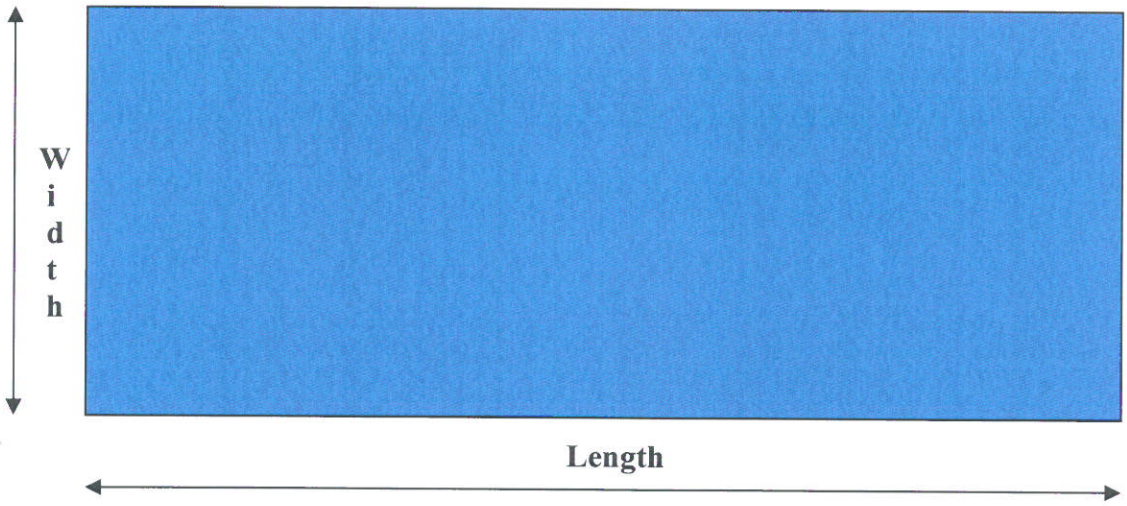
Discharge Volume Estimation

Calculating Rectangular Spill Areas



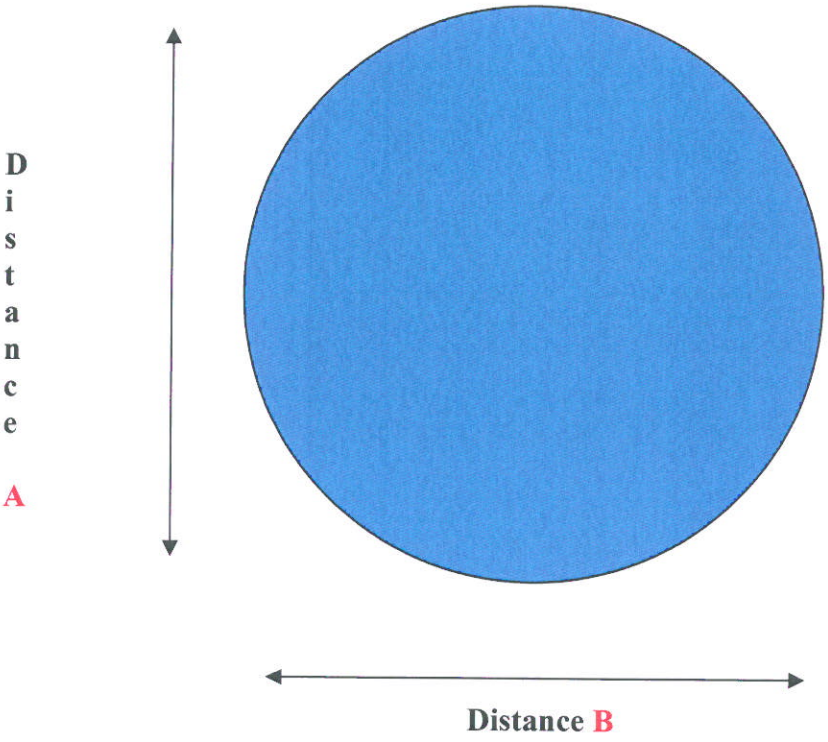
Example:	**Approximate length of the spill area -**	**100 feet**
	Approximate Width of the spill area -	**50 feet**
	Approximate Depth of the spill area -	**0.5 feet**
	(convert inches to feet by dividing by 12)	
	6 inches divided by 12 = .5 feet	

Estimated volume would be: 100 x 50 x .5 = 2,500 cu. ft.

Each cu. ft. will contain 7.48 gallons of sewage

Estimated Discharge Volume would be: 2,500 x 7.48 = 18,700 gallons spilled

Calculating Circular or Pond Spill Areas



Example:

Approximate Length of Distance A -	100 feet
Approximate Length of Distance B -	100 feet
Approximate Depth of the spill area -	0.5 feet

(convert inches to feet by dividing by 12)
6 inches divided by 12 = .5 feet

Estimated volume would be: 100 x 100 x 0.5 x 0.7* = 3,500 cu. ft.

*Factor for estimating area of a circle as a portion of the area of a square is 0.7

Each cu. ft. will contain 7.48 gallons of sewage

Estimated Discharge Volume would be: 3,500 x 7.48 = 26,180 gallons

Discharge Volume Estimation for Manholes

1 Rim/Casting On	Manhole Overflow Condition Gallons						
	1 Hour	3 Hours	6 Hours	12 Hours	24 Hours	36 Hours	48 Hours
A Water Seeping Out	2,300	6,800	14,000	27,000	54,000	81,000	110,000
B Water Pouring Out	11,000	34,000	68,000	140,000	270,000	410,000	540,000

2 Manhole Lid 1/4 Off	Manhole Overflow Condition Gallons						
Avg. Depth of Water above Rim/Casting (Ft.)	1 Hour	3 Hours	6 Hours	12 Hours	24 Hours	36 Hours	48 Hours
A 0.5	27,000	81,000	160,000	320,000	650,000	970,000	1,300,000
B 1	81,000	240,000	490,000	970,000	1,900,000	2,900,000	3,900,000
C 2	180,000	540,000	1,100,000	2,200,000	4,300,000	6,500,000	8,600,000
D 3	220,000	660,000	1,300,000	2,600,000	5,300,000	7,900,000	11,000,000
E 4	260,000	770,000	1,500,000	3,100,000	6,200,000	9,200,000	12,000,000
F 5	280,000	850,000	1,700,000	3,400,000	6,800,000	10,000,000	14,000,000

3 Manhole Lid 1/2 Off	Manhole Overflow Condition Gallons						
Avg. Depth of Water above Rim/Casting (Ft.)	1 Hour	3 Hours	6 Hours	12 Hours	24 Hours	36 Hours	48 Hours
A 0.5	54,000	160,000	320,000	650,000	1,300,000	1,900,000	2,600,000
B 1	160,000	470,000	950,000	1,900,000	3,800,000	5,700,000	7,600,000
C 2	360,000	1,100,000	2,200,000	4,300,000	8,600,000	13,000,000	17,000,000
D 3	440,000	1,300,000	2,600,000	5,300,000	11,000,000	16,000,000	21,000,000
E 4	510,000	1,500,000	3,100,000	6,100,000	12,000,000	18,000,000	24,000,000
F 5	570,000	1,700,000	3,400,000	6,900,000	14,000,000	21,000,000	27,000,000

4 Manhole Lid Completely Off		Manhole Overflow Condition Gallons						
Avg. Depth of Water above Rim/Casting (Ft.)		1 Hour	3 Hours	6 Hours	12 Hours	24 Hours	36 Hours	48 Hours
A	0.5	110,000	340,000	680,000	1,400,000	2,700,000	4,100,000	5,400,000
B	1	320,000	960,000	1,900,000	3,800,000	7,700,000	12,000,000	16,000,000
C	2	720,000	2,200,000	4,300,000	8,600,000	17,000,000	26,000,000	35,000,000
D	3	890,000	2,700,000	5,300,000	11,000,000	21,000,000	32,000,000	43,000,000
E	4	1,000,000	3,100,000	6,100,000	12,000,000	25,000,000	37,000,000	49,000,000
F	5	1,100,000	3,400,000	6,900,000	14,000,000	27,000,000	41,000,000	55,000,000

Another method of calculating the approximate discharge volume is as follows: If you are dealing with a spill that has been running into a stream or storm drain, you must estimate the gallons by the amount of time of the overflow times the number of connections on the sewer line upstream of the overflow. (assume 240 gallons per household per 24 hours. **EXAMPLE:** If you have a line with 6 houses upstream of the overflow and it has been overflowing for 24 hours then - 6 x 240 = 1,440 gallons spilled. If the overflow is less than 24 hours in duration, then the calculation must be prorate the daily sewage generation rate. **EXAMPLE:** If you have 60 housed on a lined that has been overflowing for 2 hours then - 60 x 240 x 2/24 = 1,200 gallons spilled. **Another EXAMPLE is :** If you have 6 housed on a line that has been overflowing for 12 hours then - 6 x 240 x 12/24 = 720 gallons spilled.

APPENDIX L:

SORP Trainer's Guide

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Sanitary Sewer Overflow Response Training

Table of contents

Introduction

Levels of Training

Training Modules

Module 1

SORP Overview - This module will summarize the SORP

- Key definitions;
- List of Acronyms and Abbreviations
- How the SORP complies with the Consent Decree;
- How implementing the SORP will protect the public, the environment and meet regulatory requirements;
- Regulatory Reporting;
- Wet Weather Overflows
- Overview of the SORP program

Module 2

How Sanitation District # 1 becomes aware of an Overflow – This module will discuss the ways that SD#1 is notified of overflows and what information is needed for an overflow response.

- Identify who may report overflows;
- Establishing and maintaining communication with person reporting the overflow;
- Actions to follow when an overflow is reported;
- Procedures to follow when an employee discovers an overflow.

Module 3

SORP Response and Resources – This module will ready operations personnel to respond to overflows by describing who and what will be involved with an overflow response.

- Communication to responders once notification has been made;
- How to evaluate resources needed for response

Module 4

Notification – This module will train employee's methods of informing the public, Regulatory and Health Agencies of overflows.

- Methods used to notify the public of overflows;
- Methods used to notify Regulatory and Health Agencies;
- What to communicate with the public about overflows;
- Examples of notification methods.

Module 5

Initial Response – This module will discuss investigation, verification and assessment of an overflow. It will also cover how and when to set up control zones.

- Actions of the first responder;
- Actions of the Control Room Operator;
- How to confirm an overflow has occurred;
- Different types of overflows;
- What to do if a hazardous material is detected;
- How to determine the cause and location of an overflow;
- How to determine the impacted area;
- How to determine the extent of impact;
- Volume estimation techniques and calculations;
- Components of a proper control zone, who sets it up, when it can be removed and proper placement.
- Different Types of control zones and sight specific control zones.
- How to determine what resources will be needed clean-up.

Module 6

Mitigation of Condition – This module discusses the procedures used to initiate and complete measures required to stop, contain and clean up overflows.

- Discuss the purpose and definition of mitigation;
- Resources that can be used for mitigation, containment, filtration and mitigation techniques;
- Abatement resolution activities and repairs that can be used;
- Clean-up
- Discuss the purpose and definition of containment;
- When to contain an overflow;
- Containment methods;
- Discuss the purpose and definition of filtration;
- When and how to use filtration;
- Filtration methods;
- Disinfection
- Private property sewer overflows
- Prolonged Overflow conditions
- Safety concerns;
- Follow up / Quality assurance

Module 7

Field Documentation – This module will explain what information will need to be documented in the field so that it can be reported both to the DOW and to Sanitation District #1.

- Work orders and tracking.
- Data collection techniques;
- Discuss regulatory reporting requirements,
- What information is required for reporting,
- Importance of accurate and timely notification and entry into GBA.
- Regulatory Compliance department

Module 8

Review of Clean-up, Containment and Field Documentation– This module will review the procedures for clean up, containment and documentation.

Introduction

As part of the CMOM program the District is required to Develop a Sanitary Sewer Overflow Plan which would comply with 401 KAR 5:015 to establish a timely and effective method of responding to, cleaning up and/or minimizing the impact of all SSO's, reporting the location, volume, cause and impact of all SSO's to the cabinet and local Division of Water. This training will provide employees with the skills and knowledge to minimize the impact of SSO's to the environment and customers served by the District.

Levels of Training

The district has determined that some employees need only basic training, but others who will be involved in the execution of the SORP will need more intense training. The district has established two levels of training awareness and operations.

- **Awareness level –** This is the Minimal level of training provided to District Employees. This training includes the purpose, objectives, and scope of the SORP. Awareness level training will include the following modules.

    - SORP Overview
    - How Sanitation District # 1 becomes aware of an Overflow

- **Operations level –** This level of training will be provided to field personnel that will be actively participating in sewer overflow response. This training will include the purpose, objectives, and scope and field demonstrations. These employees will be asked to confirm their knowledge by written test and field demonstrations. Operations Level training will include the following modules.

    - SORP Overview
    - How Sanitation District # 1 becomes aware of an Overflow
    - SORP response and resources
    - Notification
    - Initial Response
    - Mitigation of condition
    - Field documentation
    - Review of clean-up, containment and field documentation

Training Modules

Module 1
SORP Overview

This module will give an overview of the SORP

1. Key definitions;
2. List of Acronyms and Abbreviations
3. How the SORP complies with the Consent Decree;
4. How implementing the SORP will protect the public, the environment and meet regulatory requirements;
5. Regulatory Reporting;
6. Wet Weather Overflows
7. Overview of the SORP program

Definitions

Capacity, Management, Operations, and Maintenance (CMOM): A flexible program of accepted industry practices to properly manage, operate and maintain sanitary wastewater collection and transmissions systems, investigate capacity-constrained areas of these systems, and respond to SSO events.

Combined Sewer Overflow (CSO): Any wet weather discharge from any outfall currently identified, or identified in the future, as a combined sewer overflow or CSO in any District KPDES permit.

Combined Sewer Overflow Outfall or "CSO Outfall": The outfalls from which CSOs are discharged to waters of the United States.

Combined Sewer System (CSS): The portion of the District's Sewer System designed to convey municipal sewage (domestic, commercial and industrial wastewaters) and storm water runoff through a single-pipe system to the District's Dry Creek Wastewater Treatment Plant or Combined Sewer Overflow Outfalls.

Sanitary Sewer Overflow (SSO): Any discharge to waters of the United States from the District's Sewer System through point sources not specified in any KPDES permit, as well as any release of wastewater from the District's Sewer System to public or private property that does not reach waters of the United States, such as a release to a land surface or structure that does not reach waters of the United States; provided, however, that releases or malfunctions in a building lateral, or other piping or conveyance system that is not owned or operationally controlled by the District are not SSOs.

Sanitary Sewer System (SSS): All portions of the District's Sewer System that are not part of the District's combined sewer system. The SSS does not include any non-District owned sewer systems.

Sanitary Sewer System: The wastewater collection, retention, and transmission system owned or operated by the District designed to collect and convey municipal sewage (domestic, commercial and industrial) to the District's WWTPs or CSOs. The sewer system is comprised of both the SSS and CSS.

Un-permitted Discharge: Any discharge to waters of the United States from the District's Sewer System or WWTPs through a point source not specified in any KPDES permit or from the District's WWTPs which constitutes a prohibited bypass (as defined in 401 KAR 5:065, Section 1(13)(c)).

List of Acronyms and Abbreviations

24/7	24 Hours a Day, 7 Days a Week
Cabinet	Kentucky Environmental and Public Protection Cabinet
CIP	Capital Improvement Projects
CMMS	Computerized Maintenance Management System
CMOM	Capacity Management Operation and Maintenance
CSO	Combined Sewer Overflow
CSS	Combined Sewer System
District	Sanitation District No. 1
EIAT	Environmental Impact Assessment Team
FOG	Fats, Oils and Grease
GBA	George Butler Associates (information management system)
GIS	Geographic Information Systems
I/I	Inflow and Infiltration
KAR	Kentucky Administrative Regulations
KDOW	Kentucky Division of Water
KPDES	Kentucky Pollutant Discharge Elimination System
KRS	Kentucky Revised Statutes
LTCP	Long-Term Control Plan
MGD	Million Gallons per Day
NKAPC	Northern Kentucky Area Planning Commission
NMC	Nine Minimum Controls
O&M	Operations & Maintenance
PVA	Property Value Administration
SCADA	Supervisory Control and Data Acquisition
SORP	Sewer Overflow Response Plan
SRP	System Release Point
SSO	Sanitary Sewer Overflow
SSOP	Sanitary Sewer Overflow Plan
SSS	Sanitary Sewer System
SWP3	Storm Water Pollution Prevention Plan
US EPA	United States Environmental Protection Agency
USGS	United States Geologic Survey
WWTP	Wastewater Treatment Plant

How the SORP complies with the Consent Decree

The Sewer Overflow Response Plan (SORP) is an operational document that emphasizes emergency response activities in compliance with 401 KAR 5:015 as stated by the Consent Decree to establish timely and effective methods and means of:

1. responding to, cleaning up, and/or minimizing the impact of all SSO's;

2. reporting the location, volume, cause and impact of all SSO's to the Cabinet and EPA; and

3. Notifying the potentially impacted public.

It also addresses preventative measures taken as part of the routine maintenance procedures conducted by SD1. The long range objective of this document is to provide a framework whereby proper documentation of each event will help SD1 establish permanent overflow abatement programs that will be incorporated in the watershed planning documents.

How implementing the SORP will protect the public, the environment and meet regulatory requirements

The SORP identifies measures to protect public health and the environment by providing a standardized course of action to follow in the event of un-permitted discharges from the SD1 sewer collection system.

This includes any separate sanitary sewer overflow (SSO) or any other discharge to waters of the United States that is not specified in a KPDES permit.

In addition, this SORP outlines the District's long-term approach for abatement of SSO, including the identification, elimination of SSO causes, and proactive prevention of overflows from the system.

Regulatory Reporting

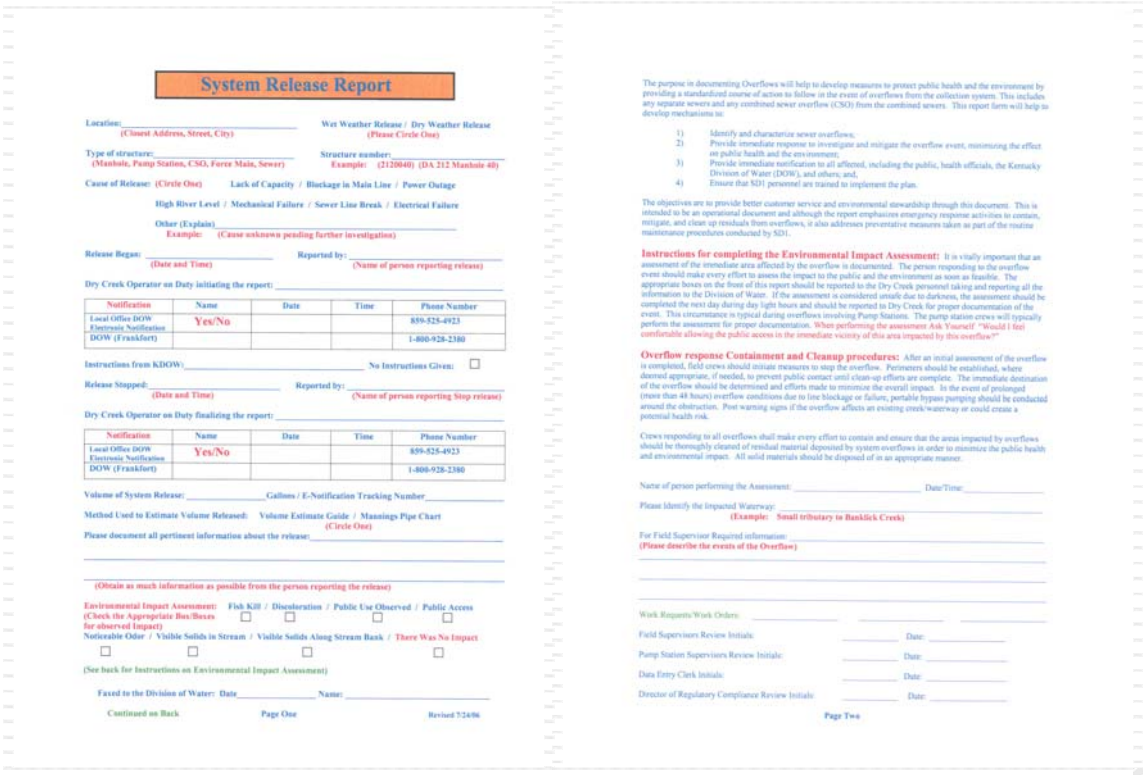
Proper data collection and documentation is essential to properly establishing timely and effective methods of Regulatory Reporting. This information not only provides the basis for regulatory compliance, but supplies data for tracking and characterizing overflow causes and histories associated with the collection and treatment systems.

Once an overflow has been confirmed documentation of the event is initiated by filling out a System Release Report and notifying the EPA by phone and E mail.

The intent of this initial notification is to advise KDOW that a release has begun and provide enough information for them to determine if they want to respond and/or offer advice on the release, such as collecting samples.

The information provided in the initial notification includes:

- Type of overflow
- Date and time overflow began
- Date and time overflow stopped
- Location of overflow, including county
- Agency reporting overflow
- Nature of incident
- Cause and duration of overflow
- Action taken
- Quantity (i.e estimated volume of overflow)
- Weather conditions during overflow
- Receiving stream type
- Name of receiving stream



System Release Report

Location: _____ Wet Weather Release / Dry Weather Release
(Closest Address, Street, City) (Please Circle One)

Type of structure: _____ Structure number: _____
(Manhole, Pump Station, CSO, Force Main, Sewer) Example: (2120040) (DA 212 Manhole 40)

Cause of Release: (Circle One) Lack of Capacity / Blockage in Main Line / Power Outage

High River Level / Mechanical Failure / Sewer Line Break / Electrical Failure

Other (Explain)_____
Example: (Cause unknown pending further investigation)

Release Began: _____ Reported by: _____
(Date and Time) (Name of person reporting release)

Dry Creek Operator on Duty initiating the report: _____

Notification	Name	Date	Time	Phone Number
Local Office DOW Electronic Notification	Yes/No			859-525-4923
DOW (Frankfort)				1-800-928-2380

Instructions from KDOW:_____ No Instructions Given: ☐

Release Stopped: _____ Reported by: _____
(Date and Time) (Name of person reporting Stop release)

Dry Creek Operator on Duty finalizing the report: _____

Notification	Name	Date	Time	Phone Number
Local Office DOW Electronic Notification	Yes/No			859-525-4923
DOW (Frankfort)				1-800-928-2380

Volume of System Release: _____Gallons / E-Notification Tracking Number_____

Method Used to Estimate Volume Released: Volume Estimate Guide / Mannings Pipe Chart
(Circle One)

Please document all pertinent information about the release:_____

_____

_____
(Obtain as much information as possible from the person reporting the release)

Environmental Impact Assessment: Fish Kill / Discoloration / Public Use Observed / Public Access
(Check the Appropriate Box/Boxes for observed Impact) ☐ ☐ ☐ ☐
Noticeable Odor / Visible Solids in Stream / Visible Solids Along Stream Bank / There Was No Impact
☐ ☐ ☐ ☐

(See back for Instructions on Environmental Impact Assessment)

Faxed to the Division of Water: Date_____ Name: _____

Continued on Back Page One Revised 7/24/06

The purpose in documenting Overflows will help to develop measures to protect public health and the environment by providing a standardized course of action to follow in the event of overflows from the collection system. This includes any separate sewers and any combined sewer overflow (CSO) from the combined sewers. This report form will help to develop mechanisms to:

1) Identify and characterize sewer overflows;
2) Provide immediate response to investigate and mitigate the overflow event, minimizing the effect on public health and the environment;
3) Provide immediate notification to all affected, including the public, health officials, the Kentucky Division of Water (DOW), and others; and,
4) Ensure that SD1 personnel are trained to implement the plan.

The objectives are to provide better customer service and environmental stewardship through this document. This is intended to be an operational document and although the report emphasizes emergency response activities to contain, mitigate, and clean up residuals from overflows, it also addresses preventative measures taken as part of the routine maintenance procedures conducted by SD1.

Instructions for completing the Environmental Impact Assessment: It is vitally important that an assessment of the immediate area affected by the overflow is documented. The person responding to the overflow event should make every effort to assess the impact to the public and the environment as soon as feasible. The appropriate boxes on the front of this report should be reported to the Dry Creek personnel taking and reporting all the information to the Division of Water. If the assessment is considered unsafe due to darkness, the assessment should be completed the next day during day light hours and should be reported to Dry Creek for proper documentation of the event. This circumstance is typical during overflows involving Pump Stations. The pump station crews will typically perform the assessment for proper documentation. When performing the assessment Ask Yourself "Would I feel comfortable allowing the public access in the immediate vicinity of this area impacted by this overflow?"

Overflow response Containment and Cleanup procedures: After an initial assessment of the overflow is completed, field crews should initiate measures to stop the overflow. Perimeters should be established, where deemed appropriate, if needed, to prevent public contact until clean-up efforts are complete. The immediate destination of the overflow should be determined and efforts made to minimize the overall impact. In the event of prolonged (more than 48 hours) overflow conditions due to line blockage or failure, portable bypass pumping should be conducted around the obstruction. Post warning signs if the overflow affects an existing creek/waterway or could create a potential health risk.

Crews responding to all overflows shall make every effort to contain and ensure that the areas impacted by overflows should be thoroughly cleaned of residual material deposited by system overflows in order to minimize the public health and environmental impact. All solid materials should be disposed of in an appropriate manner.

Name of person performing the Assessment: _____ Date/Time: _____

Please Identify the Impacted Waterway: _____
(Example: Small tributary to Banklick Creek)

For Field Supervisor Required information: _____
(Please describe the events of the Overflow)

_____

_____

_____

Work Requests/Work Orders: _____ _____ _____

Field Supervisors Review Initials: _____ Date: _____

Pump Station Supervisors Review Initials: _____ Date: _____

Data Entry Clerk Initials: _____ Date: _____

Director of Regulatory Compliance Review Initials: _____ Date: _____

Page Two

On a weekly basis, the Dry Creek WWTP control room faxes copies of the completed System Release Reports to KDOW's Florence Regional Office. All hard copy overflow reports are kept on file at the main office.

Wet Weather Overflows

The District has an agreement with the EPA through the CD to study and remove selected wet weather overflows within a chosen time frame. This list of overflows is referred to as the Priority SSO list. This list is evaluated, updated and reported to the EPA yearly in the wet weather report.

Due to the overflows on the Priority SSO list already being reported to the EPA, they do not need to be notified by electronic notification, nor does a System Release Report need to be filed out during wet weather events when the overflow is due to lack of capacity. A notification still needs to be sent to the internal System Release Group. This Priority SSO list will be on hand at Dry Creek WWTP in the System Release Report binder.

Overview of the SORP program

This SORP will enable the District to better protect the public from health risk associated with sanitary sewer overflows by better notification and education practices.

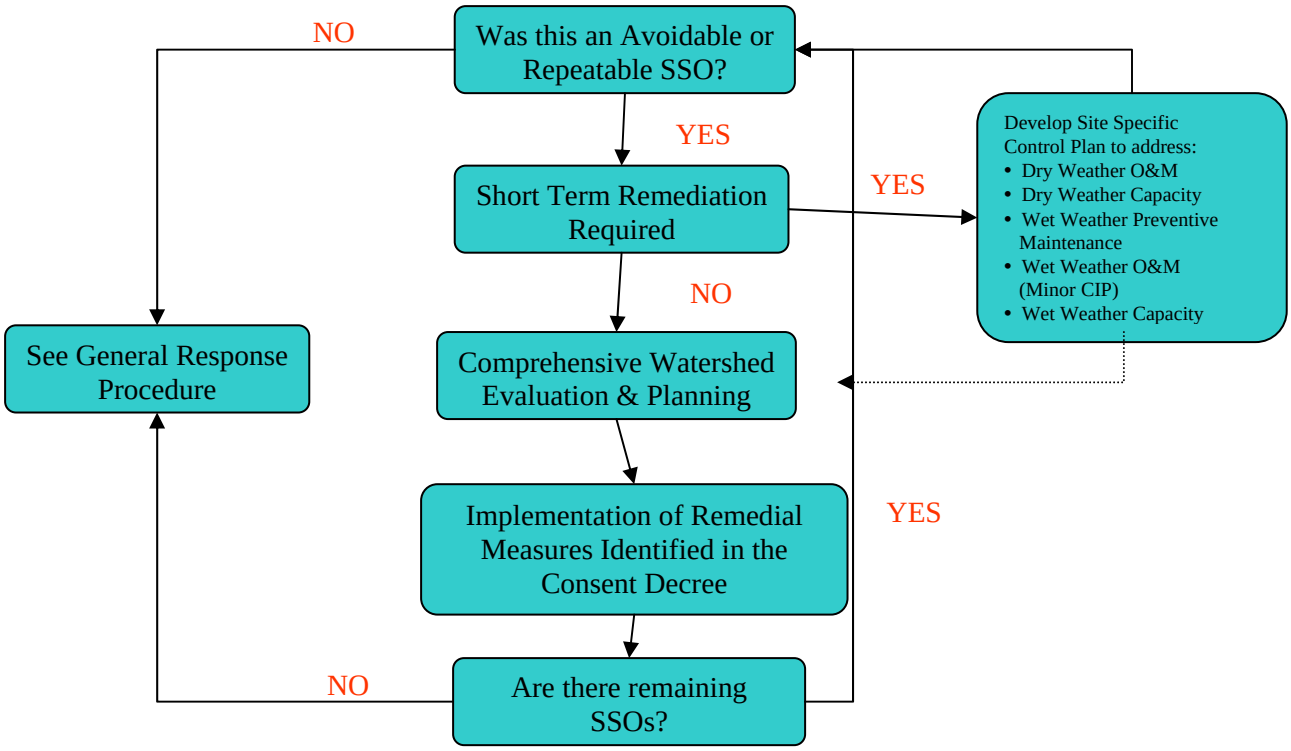
The SORP will also limit the impact to the environment by establish a timely and effective method of responding to the overflow.

The SORP incorporates not only notification, mitigation and clean up procedures, but it also lays out a long-term abatement strategy. This is a pragmatic approach for addressing and investigating locations of recurring overflows.

There is a three-step approach which includes

- overflow prioritization,
- watershed planning
- and preventive CMOM activities.

The strategy works to efficiently address prevent and eliminate overflows to the maximum extent practicable.


Was this an Avoidable or Repeatable SSO?
NO
YES
Short Term Remediation Required
YES
Develop Site Specific Control Plan to address:
• Dry Weather O&M
• Dry Weather Capacity
• Wet Weather Preventive Maintenance
• Wet Weather O&M (Minor CIP)
• Wet Weather Capacity
NO
See General Response Procedure
Comprehensive Watershed Evaluation & Planning
Implementation of Remedial Measures Identified in the Consent Decree
YES
NO
Are there remaining SSOs?

Module 2
How Sanitation District # 1 becomes aware of an overflow

This module will tell how Sanitation District # 1 becomes aware of an overflow

1. Identify who may report overflows;
2. Establishing and maintaining communication with person reporting the overflow;
3. Actions to follow when an overflow is reported;
4. Procedures to follow when an employee discovers an overflow.

Who may report overflows

In an effort to reduce sewer overflows and backups, the District responds to various service requests from more than 90,000 customers (residential, commercial and industrial). Sewer overflows and backups can occur in the collection systems from excessive debris, roots, damaged sewer lines, I/I, grease, hydraulic bottlenecks, sewer capacity issues and a host of other causes. The District learns of overflows by a number of different ways**.**

- Reported by the public
- Reported by sewer system remote monitoring alarms
- Reported by District personnel during routine inspection
- Reported during a response to a service call

The District also anticipates that further development and refinement of the Info Works model will offer additional assistance in identifying SSO activity and allow for verification of overflow points.

Reported by the Public

The public may report and inquire about potential overflows from the wastewater collection systems by contacting the District via the main phone number, (859) 587-7450, which is answered by an automated answering system. Callers can choose to be connected to dispatch durring regular business hours, or the Dry Creek WWTP control room after-hours (Table 2).

Reported by Sewer System Remote Monitoring Alarms

Of the District's 129 pump stations, 15 flood pump stations, two regional treatment plants and four small treatment plants, approximately 80% are currently monitored by the SCADA system. All of the pump stations with constructed bypasses are on the SCADA system and monitored by Dry Creek personnel for overflow conditions. The District plans to expand and improve the current SCADA system over the next five years. The remaining 20% of the above mentioned facilities will be equipped with SCADA.

Reported by District Personnel During Routine Inspection

Crew's continuously inspect the diversions and CSO outfalls during dry and wet weather. The District's wet weather crew also performs routine inspections of the collection systems while collecting data from flow monitoring locations. They also respond to trouble areas to monitor overflow activity. Any newly discovered overflows are tracked in the GBA software.

Reported During Response to Service Call

The District's customer service crew may also discover an overflow or SRP when responding to a report of a system problem or a customer service request, such as a service connection backup.

Establishing and maintaining communication with person reporting the overflow

It is the responsibility of the employee who receives the report about an over flow to document the callers name and contact information. This information will be used to notify the caller of the status of the overflow or to gain additional information on items such as overflow start time, location, or past history. It is important to keep the public informed about the status of the overflow. Most complaints that come in are a result of poor notification to residence.

Actions to follow when an overflow is reported

If a trouble call is received from the public during regular business hours, dispatch will then notify collection system customer service personnel to respond. All pertinent information will be entered into the GBA software in the form of a response to a trouble call.

When a call is received by the Dry Creek WWTP operations personnel after regular business hours, the trouble call is documented and the operator will contact the on-call customer service personnel who will investigate the problem. Responding personnel will notify the Dry Creek WWTP control room of the verified overflow and a System Release Report is initiated.

If the Dry Creek operators detect a possible pump station overflow from the SCADA system during dry weather, the District's electricians are contacted to address the alarm at the pump station. If the SCADA system detects an overflow during wet weather, Dry Creek will monitor the pump station, determine the activity of the overflow and record the event by initiating a System Release Report.

If District personnel encounter an overflow through their routine inspections or during a service call personnel will notify the dispatcher and Dry Creek WWTP control room of the verified overflow and a System Release Report is initiated. The dispatcher will then notify collection system customer service personnel to respond if needed.

Procedures to follow when an employee discovers an overflow

If District personnel encounter an overflow he/she will notify the dispatcher and Dry Creek WWTP control room of the verified overflow and a System Release Report will be initiated. If able, the personnel will then try to probe the manholes to try to remove the blockage.

The next step is public safety. Areas may need to be barricaded off and signs put up to avoid contact with the water.

Next, try to contain the overflow in the best possible way. This may include blocking storm drains or earthen dams.

The over all purpose is to protect the public and minimize the impact on the environment until personnel arrive with the appropriate equipment.

Module 3
Overflow Response and Resources

This module will ready operations personnel to respond to overflows by describing who and what will be involved with an overflow response.

1. Communication to responders once notification has been made;
2. How to evaluate the resources needed for response

Communication to responders once notification has been made

Once notification has been made to the dispatcher, he/she will then begin to notify the appropriate personnel. The Collections System trouble call person will be notified of the overflow by the dispatcher and given all pertinent information.

If the notification of the overflow is a dependable source a Crew Leader and Regulatory Compliance personnel should be notified immediately and mitigation equipment routed to the site as soon as possible.

A rapid response is critical to avoid further impact to the environment.

How to evaluate the resources needed for response

The District employs approximately 220 people committed to addressing overflows and protecting the environment. There are six main areas of operation: Dry Creek O&M, Field Technical Services, Collection Systems, Human Resources & Administration, Engineering and Water Resource Management.

The Collection Systems Department is the District's first line of response to SSO events that occur in the gravity part of the Districts system. It is comprised of dispatch personnel, trouble call investigators and field crews. On-call personnel are pulled from this group for after-hours investigation and response. The trouble call investigators serve as the District's first responders and are on-call 24/7.

The Districts Field Technical Service department responds to any reports of SSO events in the 129 collection systems pump stations, 15 flood pump stations, or four small WWTPs. Dry Creek WWTP personnel monitor this system 24/7 to determine the level of personnel required to respond to these situations. Bypasses have been constructed and are monitored for activity by the SCADA on 29 of the pump stations. When overflows are activated, Dry Creek WWTP personnel will begin the procedure of notification to the Electrician on call.

The Districts Collection Systems and Field Technical Service department combine efforts to mitigate overflows due to force main breaks. Both departments also have unlimited access to the safety department to address any acute risks to health or safety, such as hazardous materials.

Mitigation equipment and techniques for overflows in the gravity system include point repairs, combination trucks with jet heads and root saws, probe rods, and rod machines. Responders have access to all equipment 24/7 for the purpose of mitigating a line blockage. The responder shall use the equipment that will stop the overflow as promptly as possible. An emergency point repair is the last resort resource that should be used.

The following pages contain equipment resources that responders have access to mitigate overflows.

Cost Centers for Department 2

Code	Dept.	Description	Location	Updated
3	2	2000 Ford F450 TV Truck	Customer Service	
4	2	1996 Ford - Vactor Truck	Customer Service	
5	2	1996 Ford - Vactor Truck	Customer Service	
6	2	1999 Sterling-Vactor	Customer Service	
7	2	1995 Mack Dump Truck - DM690S	Customer Service / Construct.	
8	2	1995 Ford 1Ton Dump	Customer Service / Construct.	
9	2	1990 Ford Vactor	Customer Service	Trans. 9/24/2003
10	2	1996 Mack Dump Truck	Customer Service / Construct.	
11	2	IHI Trackhoe	Customer Service / Construct.	
14	2	1995 Ford Camera Truck	Customer Service	
16	2	1997 Ford P.U.	Customer Service	
22	2	John Deere Skid Loader	Customer Service / Construct.	
23	2	1996 Ford Super Duty	Customer Service / Construct.	
24	2	1996 Kodiak Stet Truck(Chev)	Customer Service	
25	2	1973 GMC Flusher Truck	Customer Service	
29	2	1998 Ford TV Truck	Customer Service	
30	2	1990 Ford F350 4X4	Customer Service	
32	2	1990 Ford Dump L9000	Customer Service / Construct.	**6-10-05 used 90%**
33	2	1996 Ford P.U.	Customer Service / Construct.	
34	2	1988 GMC Stet Truck	Customer Service	
39	2	1995 Ford Utility	Customer Service / Construct.	
41	2	1995 Ford F-150 P.U.	Customer Service	
42	2	1995 Ford F-150 P.U.	Customer Service	
43	2	1998 Ford F-150 P.U.	Customer Service	
45	2	1995 Ford F-150 P.U.	Customer Service / Construct.	
46	2	1998 Ford Ranger P.U.	Customer Service	
49	2	1998 Van	Customer Service	
50	2	2000 Ford F450 Utility	Customer Service / Construct.	
53	2	1992 Ford F350 4x4 Utility Truck	Customer Service	
54	2	1995 Ford Utility Bed	Customer Service / Construct.	
55	2	1998 Ford F250 PU	Customer Service / Construct.	
56	2	1990 Ford Utility Bed - Diesel	Customer Service / Construct.	
57	2	1995 Ford Super Duty	Customer Service / Construct.	
61	2	2000 Ford Super Duty	Customer Service / Construct.	
62	2	1995 Ford P.U.	Customer Service / Construct.	
63	2	1986 Chevrolet - 3/4 Ton	Customer Service	
64	2	1997 International - Vactor Truck	Customer Service	
70	2	1999 Freightliner Dump	Customer Service / Construct.	
78	2	1991 Mack - DM690X	Customer Service / Construct.	
79	2	1991 GMC Top Kick w/ Jet Machine	Customer Service	
83	2	2000 Ford Super Duty	Customer Service / Construct.	
85	2	1994 3/4 Ton Chevrolet P.U.	Customer Service	
92	2	2000 Ford Super Duty	Customer Service	
95	2	(**Silver**) 1999 Ford Windstar	Customer Service	
99	2	2000 Ford Van E150	Customer Service	
100	2	John Deere 410 Back Hoe	Customer Service / Construct.	
101	2	John Deere 310 Back Hoe	Customer Service / Construct.	
102	2	2001 Ford F550 Dump	Customer Service / Construct.	
105	2	Ingersoll Rand Air Compressor	Customer Service / Construct.	
106	2	Ingersoll Rand Air Compressor	Customer Service / Construct.	

107	2	Ingersoll Rand Air Compressor	Customer Service / Construct.	
108	2	931B Track Loader	Customer Service / Construct.	
109	2	Rod Machine - SRECO	Customer Service	
110	2	2001 F250 3/4 Ton Ford	Customer Service / Construct.	
112	2	John Deere Track Hoe	Customer Service / Construct.	
115	2	2000 Ford E450	Customer Service	2/3/2002
119	2	2001 Ford F550 Utility	Customer Service / Construct.	
120	2	2001 Dodge 2500	Customer Service / Construct.	
125	2	2002 International Dump	Customer Service / Construct.	11/12/2001
126	2	2002 Ford F550 Dump	Customer Service / Construct.	7/16/2002
129	2	Kubota Trailer	Customer Service / Construct.	
130	2	1989 Case Back Hoe	Customer Service / Construct.	
131	2	Case Back Hoe	Customer Service	
132	2	Case Loader	Customer Service / Construct.	
135	2	Caterpiller 953 Track Loader	Customer Service / Construct.	
138	2	Takeuchi 175	Customer Service / Construct.	12/8/2003
139	2	1997 International Dump	Customer Service / Construct.	6/6/2003
140	2	2004 Ford F-150 4x4	Customer Service / Construct.	10/28/2003
141	2	Takeuchi 175	Customer Service / Construct.	
146	2	Takeuchi 145	Customer Service / Construct.	
147	2	Stanley Track Horse	Customer Service / Construct.	
148	2	Bobcat 863	Customer Service / Construct.	
150	2	2000 Ford F150	Customer Service / Construct.	
151	2	Stanley Track Horse-Hose Reel	Customer Service	6/30/2003
154	2	Easement Trailer	Customer Service	7/29/2003
157	2	Hydro-Tech Pressure Washer	Customer Service	2/11/2004
159	2	Generator attached to Truck 53	Customer Service	3/24/2004
160	2	Trench Compaction Wheel	Customer Service	5/16/2005
823	2	Hydraulic Breaker	Customer Service / Construction	
824	2	Landscape Rake	Customer Service / Construction	
866	2	FINN Straw Blower	Customer Service / Construct	5/23/2003
867	2	Core Cut 3700 Saw	Customer Service / Construct.	2/14/2003
868	2	Ex-Cell 5000W Generator	Customer Service / Construct.	2/14/2003
869	2	Ex-Cell 5000W Generator	Customer Service / Construct.	2/14/2003
870	2	Quickie Saw 144575598	Customer Service / Construct.	
871	2	Quickie Saw 1404660	Customer Service / Construct.	
872	2	Quickie Saw 141708138	Customer Service / Construct.	
873	2	Quickie Saw 133989883	Customer Service / Construct.	
874	2	Quickie Saw 191073076	Customer Service / Construct.	
877	2	Moritz Trailer	Customer Service / Construct.	3/25/2002
898	2	Bucket Machine - puller	Customer Service	
899	2	Bucket Machine - dumper	Customer Service	
900	2	Straw Blower	Customer Service / Construct.	
904	2	1985 International Road Tractor	Customer Service / Construct.	
909	2	18' Utility Trailer	Customer Service / Construct.	
910	2	16' Utility Trailer	Customer Service / Construct.	
911	2	Talbert Drop Deck Drag	Customer Service / Construct.	
969	2	Hurst Drag	Customer Service / Constr.	
970	2	Lift All Forklift	Customer Service	
1031	2	Eager Beaver Trailer	Customer Service / Construct.	
1033	2	Rod Machine - SRECO	Customer Service	
1034	2	Air- Smoke Blower	Customer Service	
1043	2	Honda Trash Pump #1	Customer Service / Construct.	
1044	2	Honda Trash Pump #2	Customer Service / Construct.	
1045	2	Reciprocal Pump	Customer Service / Construct.	

1046	2	Kubota Trailer	Customer Service / Construct.	
1048	2	Coleman Generator	Customer Service	
1050	2	Snow Thrower Craftsman 26 inch	Customer Service	2/11/2003
1051	2	Sweepster	Customer Service / Construct.	6/24/2002
1052	2	Cement Mixer	Customer Service / Construct.	
1053	2	Sewer Line Locater	Customer Service	
1054	2	Blacktop Tamper	Customer Service / Construct.	
1055	2	Electric Portable Rodder Machine	Customer Service	
1056	2	Gas Portable Rodder Machine	Customer Service	
1057	2	Steam Cleaner/Pressure Washer	Customer Service	
1080	2	1995 Ford Super Duty	Customer Service	3/31/2004
1081	2	Club Car Golf Cart	Customer Service	6/1/2004
1085	2	2005 3/4 Ton Chevrolet	Customer Serivce	12/28/2004
1088	2	Kobelco Trackhoe	Customer Service	6/28/2005
1089	2	2006 Sterling Vactor	Customer Service	7/27/2005
1090	2	Bobcat Rake - Soil Conditioner	Customer Service	7/29/2005
1093	2	2006 Chevy Silverado 3/4 Ton PU	Customer Service	9/27/2005
1094	2	2006 Chevy Silverado 3/4 Ton PU	Customer Service	9/27/2005
1095	2	2005 Ford E450 (Camera Truck)	Customer Service	11/4/2005
1096	2	Caterpillar 90 Forklift	Customer Service	11/4/2005
1099	2	Emergency Trench Trailer	Customer Service	11/16/2005
1100	2	2006 Freightliner	Customer Service	1/5/2006
1101	2	2006 Eager Beaver Trailer	Customer Service	1/5/2006
1104	2	Bobcat Skidsteer/Model T250	Customer Service	3/7/2006
1105	2	2006 Freightliner	Customer Service	?????
1109	2	2003 Case Wheel Loader	Customer Service	10/30/2006
1113	2	Harley Rake Soil Conditioner	Serial #-232001091 Cust.Serv.	9/6/2006
1115	2	2002 GMC 3/4 ton flat-bed truck	Customer Service	1/30/2007

Module 4
Public Notification

This module will train employee's methods of informing the public, Regulatory and Health agencies of overflows.

1. Methods used to notify the public of overflows;
2. Methods used to notify Regulatory and Health Agencies;
3. What to communicate with the public about overflows;
4. Examples of notification methods.

Methods used to notify the public of overflows

The District is committed to protecting public health and ensuring that the public is made aware of the hazards and locations of sewer overflows. The District provides messages to the public to alert them of overflows and to raise the general awareness of the public both at overflow locations (event-based) and through ongoing educational programming (programmatic). The event-based activities focus on minimizing the immediate hazards associated with overflows by limiting access and notifying the surrounding area when an overflow has taken place. The District's programmatic education activities raise awareness of the causes and locations of overflows, possible public health hazards, how to minimize exposure and measures the public can take to help reduce overflows.

Event-Based Notification

As part of the District's overflow response activities, the responder will assess the event, and if feasible, implement measures to limit public contact and alert area residents. When appropriate, notification by phone is made to local fire and police departments and city officials. Measures include establishing control zones, posting temporary signage and/or distributing door hangers to area customers.

The signage includes contact information for obtaining additional information and will be used in conjunction with other event-based notifications. Signs should be posted where they can be seen by the public from all access points. Control zones will be established in areas where there is high potential for public contact with the overflow. This will be determined on a site-by-site basis, but will generally include high volume/traffic areas, residential areas or areas near schools, parks or other public buildings. Door hangers shall be passed out when the overflow occurs close to homes or in recreated areas where residents may not see signage. The Regulatory Compliance Department will determine the length of time that the signage and control zones should remain in place.

If the overflow is near a water intake the appropriate water district shall be notified of the event. Water intake locations will be posted on District maps.

Programmatic Education Activities

In 1995, permanent signs were developed and installed at all of the District's permitted CSO outfalls. These signs warn the public against contact with the overflows and provide the District's contact information. The District continues to repair and replace these signs as necessary and will add signs as additional outfalls are permitted.

The District is making improvements to the Wet Weather Overflow Public Notification Program, which notifies residents when existing or predicted weather conditions could potentially cause sewer overflows. Advisories warn the public when overflows are likely to occur, informs them of the potential health and water quality hazards and provides the appropriate steps for protecting themselves from the hazard. Advisories are currently issued through the District's wet weather hotline and e-mail notification system. The District is currently developing a way for residents to sign-up online to receive the notification.

The District recently enhanced its website to include more information on CSOs and SSOs and how the public can protect themselves from the potential health hazards associated with overflows. Additional topics include the history of overflows, why they occur, how often they occur and what is being done to address them.

The District publishes information in "What's Happening," a county-specific publication that is mailed to every resident in Boone, Campbell and Kenton counties. The District will continue to utilize this publication to provide overflow information to the public.

The District uses bill inserts to enhance outreach and education of customers on various topics throughout the year. Future inserts will include information on overflows such as causes, avoidance measures, overflow prevention and sources for additional information.

Educational and outreach materials developed as part of the District's Grease Control Program target commercial and residential customers in areas where there is evidence of grease-related overflows. Residential door hangers and food service establishment posters, printed in both English and Spanish, have been developed to inform customers of the harmful effects of fats, oils and grease (FOG) in sewer lines and proper grease handling techniques used to minimize the release of FOG into the collection systems. If the blockage was due to grease build up and grease continues to be a problem, Sara Griffith at the Dry Creek WWTP lab shall be contacted. She will investigate and determine if FOG door hangers need to be passed out.

Methods used to notify Regulatory and Health Agencies

Notification is the primary purpose of documenting the event with the System Release Report. The District acknowledges that proper data collection and documentation is essential to properly establishing timely and effective methods of reporting the location, volume, cause and impact of all SSOs. These measures are necessary to fulfill the reporting requirements mandated by 401 Kentucky Administrative Regulations (KAR) 5:015 and the District's Consent Decree.

Once an overflow has been confirmed, the response personnel will immediately notify the Dry Creek WWTP control room operator on duty. The operator will begin the documentation of the event by initiating a System Release Report form. The response personnel will report to Dry Creek all pertinent information for documentation on the report. This report is then used to fill out the EPA's Electronic Notification which notifies the EPA that an overflow has occurred. Once the event has been mitigated the respondent will again notify the Dry Creek WWTP operator on duty to complete the remaining information needed to close out the System Release Report. When the Dry Creek operator has closed out the System Release Report, the original is forwarded to the appropriate department.

Additional information such as fish kill, chlorinated water in creeks for flushing, hazardous materials etc. must be called into the local office of the EPA. Information should be passed on to Mark Jones or Todd Giles at 859-000-0000.

The Department of Fish and Wildlife must be called when there has been a kill of animals and/or sport fish. The Department of Fish and Wildlife headquarters are in Frankfort, Ky, but they will send out a local officer to investigate 502-564-4336.

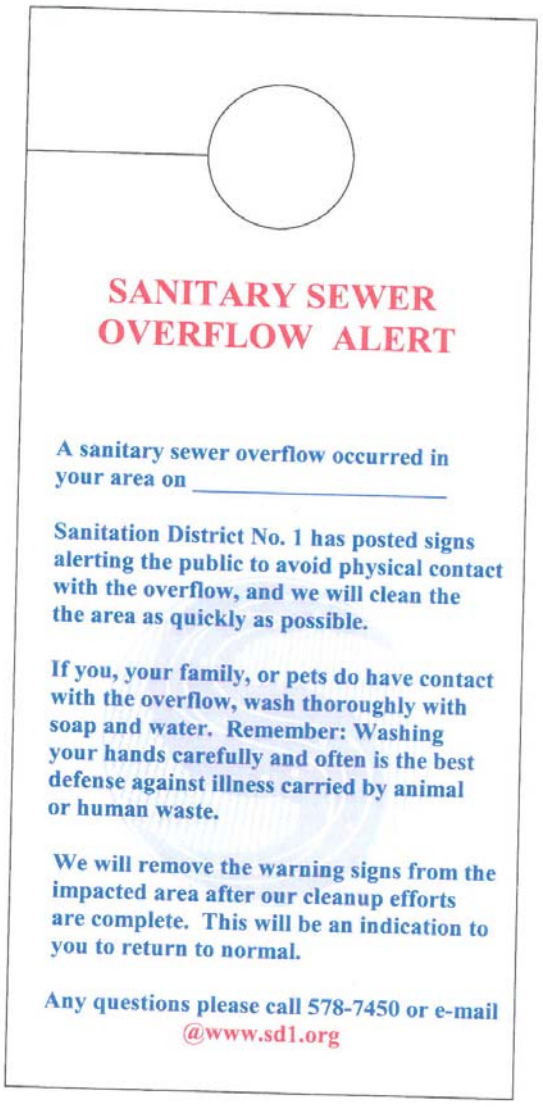
Health Department officials need to be notified if the overflow has or may cause health issues. They also need to be notified if the overflow is in a private system such as trailer parks 859-341-8254.

What to communicate with the public about overflows

Most complaints about overflows have been due to the public not being informed properly about the overflow and what is being done for mitigation and clean up. Most residence are understanding of the situation as long as they are informed, and can be a valuable source of information about the overflow. The public should be told exactly what is going on, if you can not answer the questions, find someone that can or get the answers for them. Do not guess or tell of plans that have not been decided on yet. Keeping your self educated and showing concern will reassure the public that you are doing everything possible to minimize the impact of the overflow and protect public health.

Examples of notification methods

Examples of notification include door hangers, signs, Information on the web sight, newspaper articles, and face to face contact with residents. The Districts public relations department is available to assist with notification if necessary.



SANITARY SEWER OVERFLOW ALERT

A sanitary sewer overflow occurred in your area on _____

Sanitation District No. 1 has posted signs alerting the public to avoid physical contact with the overflow, and we will clean the the area as quickly as possible.

If you, your family, or pets do have contact with the overflow, wash thoroughly with soap and water. Remember: Washing your hands carefully and often is the best defense against illness carried by animal or human waste.

We will remove the warning signs from the impacted area after our cleanup efforts are complete. This will be an indication to you to return to normal.

Any questions please call 578-7450 or e-mail @www.sd1.org


11/15/2007 03:00 PM
Sewer Overflow
WARNING
Avoid Contact With Water
When Sign is Posted
Please avoid all contact with water found on the ground, in drainage ditches or in nearby streams in this area as it may contain raw sewage.
Desbordamiento del alcantarillado
ADVERTENCIA
Evite el contacto con el agua
cuando el cartel esté colocado
Evite todo contacto con el agua que se encuentre en el suelo, en zanjas de desagüe o en corrientes de agua en esta zona ya que puede contener aguas residuales.
Sanitation District No. 1
859-331-6674

Module 5

Initial Response

This module will discuss investigation, verification and assessment of an over flow. It will also cover how and when to set up control zones.

1. Actions of the first responder;
2. Actions of the Control Room Operator;
3. How to confirm an overflow has occurred;
4. Different types of overflows;
5. What to do if a hazardous material is detected;
6. How to determine the cause and location of an overflow;
7. How to determine the impacted area;
8. How to determine the extent of impact;
9. Volume estimation techniques and calculations;
10. Components of a proper control zone, who sets it up, when it can be removed and proper placement.
11. Different Types of control zones and sight specific control zones.
12. How to determine what resources will be needed for clean-up.

Actions of the first responder

Once District personnel have responded to the event and confirmed an overflow with a System Release Report to Dry Creek, the overflow is quickly assessed to determine the proper response actions.

Basement backups are considered unauthorized overflows and are a top priority for mitigation. The responder should determine if the main sewer is blocked. If the problem is on private property the not the District's responsibility, then it is reported to the Dry Creek control room and the homeowner is informed that repairs are their responsibility.

The Responder shall check for a cleanout on property to see if it is releasing. If so, notify the homeowner of the situation and contact Dry Creek WWTP and follow the procedures for reporting an overflow. If there is imminent danger to public health or the discharge from the clean out could reach a waterway, District employees will assist with containment until the responsible party can assume control.

If the basement backup has occurred either from a defect in the home owners lateral or in the main sewer line, District employees should advise the occupants to avoid contact with the discharge and give them guidance on cleaning up. District employees may give the occupants the contact number for the Districts flood restoration contractor. Occupants shall be informed that this does not mean that the district will assume any cost of the clean up, but an insurance form maybe requested or given to them.

If the overflow is in a private sanitary sewer system, the owner of the system should be notified as soon as possible. All pertinent information should be passed along and assistance given to protect the public. The EPA shall be called to let them know that the release was not ours and that we have notified the appropriate personnel. The contact information for the responsible party shall also be given to the EPA for follow up purposes. If the system belongs to the City of Florence it is not necessary to fill out a System Release Report or call the EPA. They have their own reporting requirements.

If the Active Overflow is in our system, further assessment of the overflow shall be done after the overflow is called into Dry Creek WWTP and the appropriate personnel notified. The location of the blockage should be found and a quick assessment done to find the cause of the overflow. This may include probing the upstream and down stream manholes.

A crew is called if it is determined that additional equipment will be needed to mitigate the overflow. Once the crew leader is notified the responder shall do a secondary assessment to determine the extent of the impact and containment options should be determined and put into place if possible.

These same procedures are performed for such releases caused by, but not limited to:

- Pump station failures
- Force main failures
- Gravity line failures – such as cave-ins
- Other infrastructure failures

Actions of the Control Room Operator

Once the operator has initiated a System Release Report, electronic notification to the DOW is made and the tracking number is recorded. Next the operator shall email the overflow group and put “System Release” in the subject. This email is sent to notify members of the overflow group that an overflow has occurred and gives added responders a heads up if additional help is needed for mitigation or clean up. The following information should be put into the email:

- Reported by
- Active release? and the EPA tracking number
- Address with city name
- Status of overflow
- Where the overflow released to
- Start date and time , End date and time (if available)
- Volume of system release
- Additional information
- Operator on duty

If the release was active at the time the DOW and Overflow group was notified, additional emails shall be sent as more information is received by the operator.

How to confirm an overflow has occurred

Once the responder has arrived on scene he will then determine if an overflow has occurred. This will involve investigating the site and any local waterways for evidence of an overflow. The responder should look for solids or liquids that may have come from the sanitary system. If surcharged manholes are found then the manhole upstream shall be checked to make sure it did not overflow. Reports of sewage in the creek may involve walking the waterway to see where sewage may be coming from.

Different types of overflows

There are several different overflow types in the Districts system. A true overflow is when sewage discharges from the top of the manhole trough the lid. Overflows can also be from constructed by-passes. Constructed by-passes normally have a pipe core drilled into the structure and then ran to a near by waterway. Constructed by-passes can be from pump stations, wet wells, treatment plants or manholes.

Overflows can occur in the combined and separated system. Overflows in the combined system are referred to as CSO’s or combined sewer overflows. These overflows normally occur due to blockages or lack of capacity. Although combined sewers transport both sanitary and storm flows they were designed to release during periods of heavy rain events. They release by the use of wear walls, diversion plates and basic constructed by-passes and are permitted through the State. There are regulations on CSO’s that are referred to as the 9 minimal controls. Overflows that occur in the separate system are referred to as SSO’s or sanitary sewer overflows. These overflows normally occur due to a blockage, hydraulic bottle neck or lack of capacity due to inflow and infiltration.

What to do if a hazardous material is detected

If the responder observes a hazardous material in the overflow contents the Dry Creek WWTP operator shall be notified, who will then inform Rod Bell and Donnie Couch of the situation. If the responder deems it necessary the local fire department should also be notified. The responder should take every precaution to protect him/her self and the public. Avoid contact with the contents of the overflow and dawn the appropriate PPE.

How to determine the cause and location of an overflow

The location of a manhole overflow is determined by finding the next downstream manhole that is not overflowing or surcharged and has minimal or no flow. A metal probe rod is used to check the pipe for a blockage near the manhole. If no blockage is found or can not be removed, the line upstream of that manhole is then jetted to try and remove the blockage. A rake shall be placed in the downstream side of the manhole to catch the debris from the blockage and remove it from the system. The line shall be televised after the blockage has been removed or if the blockage cannot be removed to determine the cause of the blockage and the condition of the pipe.

How to determine the impacted area

The impacted area is determined by visual observation of the area around the overflow. The definition of the impacted area is where sewage has been collected or areas that have been affected due to the discharge. The indicators of an impacted area include standing water with sewage characteristics, water marks along trees, solids, paper or other debris consistent with sewage.

How to determine the extent of impact

The extent of the impact is found by walking from the source of the overflow to the destination or last area where indicators are found. The presents of sewer solids or debris, property damage, and fish kill shall be observed.

Volume estimation techniques and calculations

The volume of the overflow is estimated by the Dry Creek WWTP control room operator when a release is called in. The District has developed the following chart to determine how much sewage was discharged from a manhole.

Discharge Volume Estimation for Manholes

1 Rim/Casting On		Manhole Overflow Condition Gallons						
		1 Hour	3 Hours	6 Hours	12 Hours	24 Hours	36 Hours	48 Hours
A	Water Seeping Out	2,300	6,800	14,000	27,000	54,000	81,000	110,000
B	Water Pouring Out	11,000	34,000	68,000	140,000	270,000	410,000	540,000

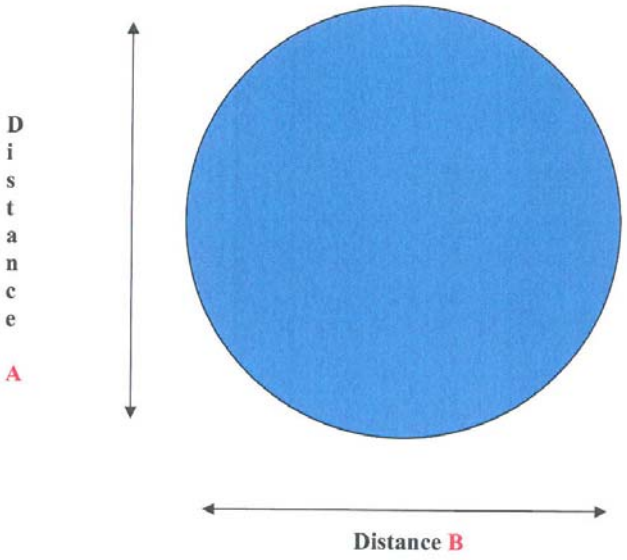
2 Manhole Lid 1/4 Off		Manhole Overflow Condition Gallons						
Avg. Depth of Water above Rim/Casting (Ft.)		1 Hour	3 Hours	6 Hours	12 Hours	24 Hours	36 Hours	48 Hours
A	0.5	27,000	81,000	160,000	320,000	650,000	970,000	1,300,000
B	1	81,000	240,000	490,000	970,000	1,900,000	2,900,000	3,900,000
C	2	180,000	540,000	1,100,000	2,200,000	4,300,000	6,500,000	8,600,000
D	3	220,000	660,000	1,300,000	2,600,000	5,300,000	7,900,000	11,000,000
E	4	260,000	770,000	1,500,000	3,100,000	6,200,000	9,200,000	12,000,000
F	5	280,000	850,000	1,700,000	3,400,000	6,800,000	10,000,000	14,000,000

3 Manhole Lid 1/2 Off		Manhole Overflow Condition Gallons						
Avg. Depth of Water above Rim/Casting (Ft.)		1 Hour	3 Hours	6 Hours	12 Hours	24 Hours	36 Hours	48 Hours
A	0.5	54,000	160,000	320,000	650,000	1,300,000	1,900,000	2,600,000
B	1	160,000	470,000	950,000	1,900,000	3,800,000	5,700,000	7,600,000
C	2	360,000	1,100,000	2,200,000	4,300,000	8,600,000	13,000,000	17,000,000
D	3	440,000	1,300,000	2,600,000	5,300,000	11,000,000	16,000,000	21,000,000
E	4	510,000	1,500,000	3,100,000	6,100,000	12,000,000	18,000,000	24,000,000
F	5	570,000	1,700,000	3,400,000	6,900,000	14,000,000	21,000,000	27,000,000

If the release is from a constructed by-pass pipe then the operator uses Manning's Pipe chart to determine the amount released.

The following are two other estimation guides, one for round of circular areas and the other for rectangular areas.

Calculating Circular or Pond Spill Areas



Example:

Approximate Length of Distance A -	100 feet
Approximate Length of Distance B -	100 feet
Approximate Depth of the spill area -	0.5 feet

(convert inches to feet by dividing by 12)
6 inches divided by 12 = .5 feet

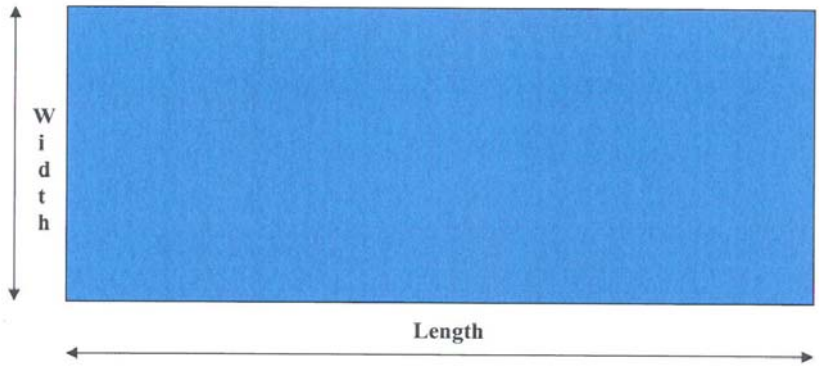
Estimated volume would be: 100 x 100 x 0.5 x 0.7* = 3,500 cu. ft.
*Factor for estimating area of a circle as a portion of the area of a square is 0.7

Each cu. ft. will contain 7.48 gallons of sewage

Estimated Discharge Volume would be: 3,500 x 7.48 = 26,180 gallons

Discharge Volume Estimation

Calculating Rectangular Spill Areas



Example:

Approximate length of the spill area -	100 feet
Approximate Width of the spill area -	50 feet
Approximate Depth of the spill area -	0.5 feet

(convert inches to feet by dividing by 12)
6 inches divided by 12 = .5 feet

Estimated volume would be: 100 x 50 x .5 = 2,500 cu. ft.

Each cu. ft. will contain 7.48 gallons of sewage

Estimated Discharge Volume would be: 2,500 x 7.48 = 18,700 gallons spilled

Components of a proper control zone, who sets it up, when it can be removed and proper placement

As always, safety of District employees and the public is number one priority. Employees must use their best judgment as to what perimeter controls are appropriate. A proper control zone will limit the public's contact and access to the overflow site. Control zones will be established in areas where there is high potential for public contact with the overflow. This will be determined on a site-by-site basis by the responder, but will generally include high volume/traffic areas, residential areas or areas near schools, parks or other public buildings. If a park or public area has to be shut down, public officials should be notified of the reason for the closure.

The regulatory Compliance department will determine when signs and perimeter controls may be removed.

Different Types of control zones and sight specific control zones

There are several ways to create a control zone. Employees have access to barricades, barrels, caution tape, orange construction fencing and traffic cones. Any combination of these can be use for a effective control zone.

How to determine what resources will be needed for clean-up

Overflow clean ups are strenuous and labor intensive work. The district has taken this into consideration and has provided responders with resources and equipment to perform the work safely and efficiently. To determine the resources that will be needed you will need to know the extent of the overflow. Large amounts of flow in a creek will require numerous sand bags which will require manpower. If by-pass pumping needs to be set up then manpower will be needed for that as well. When determining the resources needed keep in mind that containment and set up will take the most manpower, once this is done less manpower is needed to operate and maintain the equipment. The quicker containment is accomplished the less clean up and affect on the environment we have.

Module 6

Mitigation of Condition

This module discusses the procedures used to initiate and complete measures required to stop, contain and clean up overflows.

1. Discuss the purpose and definition of mitigation;
2. Resources that can be used for mitigation, containment, filtration and mitigation techniques;
3. Abatement resolution activities and repairs that can be used;
4. Clean-up
5. Discuss the purpose and definition of containment;
6. When to contain an overflow;
7. Containment methods;
8. Discuss the purpose and definition of filtration;
9. When and how to use filtration;
10. Filtration methods;
11. Disinfection
12. Private property sewer overflows
13. Prolonged Overflow conditions
14. Safety concerns;
15. Follow up / Quality assurance

Discuss the purpose and definition of mitigation

Mitigation is defined as the act of lessening something or to make it less harsh or severe. Mitigations of overflows are considered high priority for the District. Mitigating and preventing overflows are the main purpose of the field crews.

Resources that can be used for containment, filtration and mitigation techniques

During an overflow event responders have the authorization to utilize all and any resources needed to get the job done. If equipment or personnel is not readily available or on hand, responders shall use every possible source available to them, such as rental of equipment or obtain from other departments.

Abatement resolution activities and repairs that can be used

The District believes that overflows are a key indicator of system performance. To ensure adequate system performance, it is necessary to conduct long-term planning and improvement measures to abate SSOs caused by capacity related issues, as well as acute system blockages.

Successful long-term abatement of SSOs involves three steps:

1. Determine the location of SSOs,
2. Identify what measures must be taken to eliminate the causes of the SSO
3. Implement a proactive program that invests in maintenance, rehabilitation and capacity enhancement as appropriate to eliminate the precursors to future SSOs.

The following strategy and framework outlines the District's approach for prevention and eventual elimination of SSOs.

Long-Term SSO Abatement Strategy

- Overflow Prioritization

Based on available data, the District is working to prioritize recurring system overflows. Overflows will be prioritized based on frequency, volume and adjacent land use to ensure that overflows located near sensitive areas or with a high risk of exposure are considered higher priority.

The intent is to enable the District to direct resources toward areas that would provide the greatest value in protecting both human and environmental health. The overflow prioritization will be utilized to guide the District's remedial activities, including but not limited to the Pump Station Backup Power Plan, Capacity Management Operation and Maintenance (CMOM), NMCs and the Pump Station Overflow Elimination Plan.

- Watershed Planning

As outlined in the proposed Consent Decree, the District is undertaking an innovative watershed-based approach for improving water quality in Northern Kentucky.

The intent of the watershed approach is to integrate programmatic requirements into a holistic, results-driven strategy for each basin within the District's service area. This integration will provide efficiencies for the District, as well as garnering greater environmental improvements.

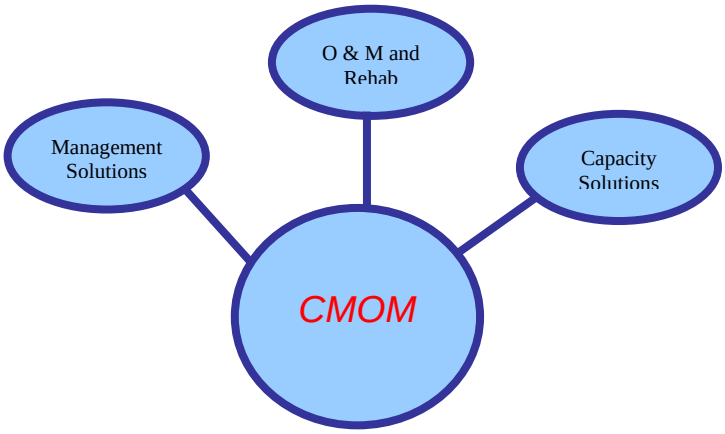
- Preventive CMOM Activities

CMOM is an essential element of the long-term abatement strategy, which is aimed at ensuring continual function of the collection and transmission systems by focusing on preventive solutions.

There are three main types of solutions:

1. capacity solutions,
2. management solutions and operation,
3. maintenance and rehab solutions.

The following overviews provide examples of CMOM solutions that will be considered in the development and implementation of the District's programs.



Capacity Solutions

Experience has shown that I/I allowance used in the original design of older sewer systems is significantly below the wet-weather flows these systems experience. Large peak flows are primarily due to the numerous defects in the collection systems caused by system deterioration and illegal connections over the years.

Possible CMOM solutions to capacity issues include capacity assurance planning, master planning and capacity enhancement.

Management Solutions

Effective management of personnel, equipment, systems, processes and other resources can result in a reduction of the number of SSOs. Collection systems management requires good recordkeeping, planning and the appropriate tools to measure desired performance and ensure regulatory compliance. These tools enable managers to develop a trained and competent workforce capable of operating the collection systems efficiently with the appropriate amount of reinvestment to minimize the occurrences of SSOs.

Recognizing the critical role of resource allocation, the industry has introduced new management strategies, such as asset management. Asset management is a comprehensive framework which, when fully implemented, can lead to optimally operated and efficient collection systems. The CMOM program recommends implementation of asset management systems to preserve and maintain the wastewater collection systems' infrastructure.

Operation, Maintenance & Rehabilitation Solutions

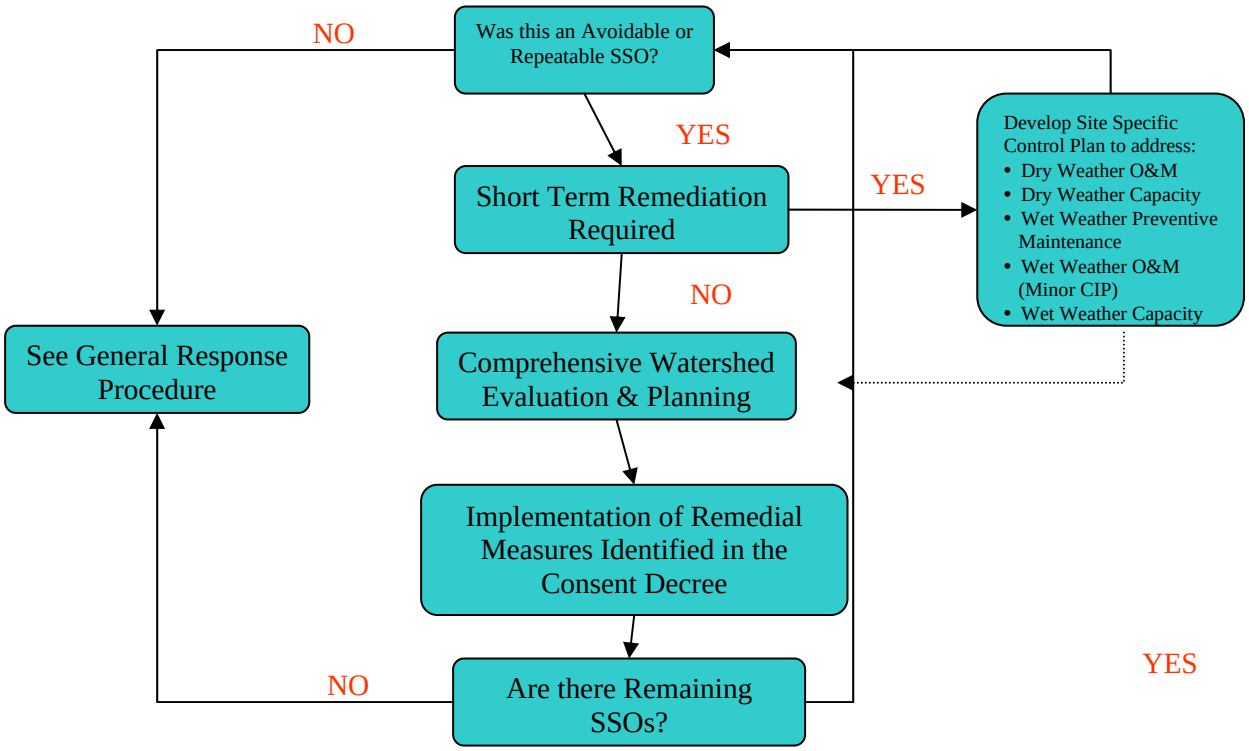
Maintenance and operation solutions are the most readily available and most extensively used by wastewater agencies to reduce SSOs. An aggressive maintenance program can both mitigate the impact of the overflow and significantly reduce the frequency of occurrences of dry weather SSOs. Operational strategies can be developed and adopted to prepare for and prevent wet weather overflows both in the collection systems and the facilities. Condition assessment is an integral element of an ongoing maintenance program.

Comprehensive rehabilitation programs can significantly reduce occurrences of both wet weather and dry weather overflows. Specific techniques can be targeted to structural or leakage problems, whether they are in the mainline, manhole or building sewer.

- Long-Term SSO Abatement Framework

Implementation of the District's Long-term Abatement Strategy will make significant strides toward eliminating a majority of the District's recurring SSOs

Long-Term SSO Abatement Framework



- Was this an Avoidable or Recurring SSO?

The District will determine if an overflow event was an unavoidable discharge or a recurring SSO. To be classified as unavoidable, the discharge must meet each of the following criteria:

The discharge must be the result of a temporary, exceptional incident that was either:

- Necessary to prevent loss of life, personal injury or severe property damage.
- Beyond the reasonable control of the operator, including:
- exceptional acts of nature,
- Third party actions that could not be reasonably prevented including vandalism,
- Blockages that could not be avoided by reasonable measures and
- Unforeseeable sudden structural, mechanical or electrical failure that could not be avoided by reasonable measures.

There must be no feasible alternative to the discharge and the overflow must not be the result of any of the following:

- Operational error;
- Improperly designed or constructed collection systems facilities;
- Inadequate collection systems facilities or components;
- Lack of appropriate preventive maintenance or
- Careless or improper oversight.

Steps to stop the overflow, address the source of the problem and mitigate potential impacts from the overflow must be taken as soon as possible after becoming aware of the release and the KPDES enforcement authority, KDOW, must be notified of the event.

- Short-Term Remediation

If the overflow was unavoidable and is a recurring problem it will first be studied for a possible short-term remediation solution until a permanent solution can be developed in accordance with the framework described below.

If appropriate, a site-specific control plan will be developed which may include, but is not limited to, measures such as:

- Telemetry and alarm systems
- O&M practices
- Encouraging continuous improvement through the reporting procedures on overflows
- Implementation of minor structural repairs
- Reducing overflows to a specific level (e.g. a limit on the average annual frequency of choke-related overflows)

The development of a site-specific control plan does not preclude the implementation of a long-term solution. Instead, it is aimed at mitigating further impacts until a long-term solution can be implemented.

- Watershed Planning

The District will develop and implement watershed plans for each of the four study basins in Northern Kentucky. These watershed plans will provide a comprehensive approach for addressing water quality impairments of streams, as well as addressing sources of the impairments, such as capacity related sewer overflows.

- Consent Decree Implementation

The Consent Decree requirements have many facets of improvement to the District's system and maintenance activities. The planned improvements include a myriad of I/I control, capacity expansion, storage facilities, treatment facilities and long-term planning measures. The Consent Decree sets forth numerous interim deadlines and an ultimate deadline of 2025. Implementation of the Consent Decree requirements will address the known recurring SSO locations.

- Are There Remaining SSOs?

Ongoing system improvements, aging infrastructure and future development will continue to change the dynamics of the District's collection systems. Plans and improvements, while made with the best available data, may not guarantee the prevention of future overflows. Therefore, the District will continue an iterative process of long-term overflow abatement for recurring locations.

Clean-up

It is important that the area affected by the overflow is returned to pre-overflow conditions, as soon as possible. Photos should be taken during and after clean-up operation. All solids and debris must be picked-up and disposed of properly. This may be accomplished by raking, sweeping, or picking-up. Once the solids and debris have been removed, the area shall be flushed into a holding area to be pumped back into the system or vacuumed by a Vactor truck. If a ponding area is used, the path upstream must be flushed. The water used to flush the area must be pumped back into our system or removed from the site.

Discuss the purpose and definition of containment

Containment is defined as the attempt to stop the spread of something. Responders will, to the best of their ability stop the spread of the contents of an overflow into the environment, thus reducing the impact on downstream areas such as private property and streams.

When to contain an overflow

Containment procedures will vary on a case-by-case basis. During intense rain events, containment might not be practical due to high volumes of discharge exceeding the ability of field crews to successfully control it. When these types of events occur, post-event assessment and cleanup will be accomplished to minimize the impact to the area.

The objective is to contain the overflowing sewage and recover, where possible, sewage which has been discharged.

Containment methods

When possible, natural ponding areas or depressions should be used to contain discharges from overflows. Using these areas will reduce the amount of work needed to contain the flow. Sandbags or earth can be used as dams, enhance ponding areas or to direct flow into a ponding area. Storm lines and catch basins can be plugged to create a ponding area. It is important to remember that any material used for damming or channeling may become contaminated and will need to be recovered and disposed of properly.

Once containment is accomplished, the contents will need to be vacuumed out or pumped back into the sanitary sewer system. This may be accomplished by using a Vactor or portable trash pumps.

Discuss the purpose and definition of filtration

Filtration is the process of separating a suspended solid from the liquid in which it is already suspended by straining it through a filtering device. Filtration will be used when containment is not practical due to high volumes of discharge exceeding the ability to successfully control the flow.

When and how to use filtration

District personnel will attempt to filter discharge from an overflow when determined feasible. Filtration will involve placing a type of strainer in the discharge flow to filter-out solids, paper, etc. Filtration may be determined feasible when volumes of flows are too heavy to contain such as during a wet weather event. Although filtration may be an option in high volume overflows, it still may not be practical in higher volume flows.

Filtration methods

Filtration methods may involve the use of silt fencing (low velocity) or netting. Netting should be placed around the overflowing structure and staked down. Bags may be made out of netting and placed over by-pass pipes. Once the overflow has stopped the netting can be thrown away.

Disinfection

Disinfection and soil removal should only be executed at the direction of the Regulatory Compliance Department. While disinfectants, such as lime or chlorine products, provide disinfection, they can also be harmful to plant and animal life. Soil disruptions in sensitive areas, such as wetlands, can disrupt the ecosystem and is sometimes better left alone.

If directed, by the Regulatory Compliance Department, heavily contaminated soil shall be removed and disposed of properly. The remaining soil shall be treated with lime to further kill any remaining bacteria. If the area treated with lime is in a high traffic or runoff to a MS4, you may be directed to place clean fill over the lime to prevent contact by the public. Soil samples will be taken at sites where lime is used to maintain a pH > 12 for at least 72 hours before the perimeter controls can be removed.

Private Property Sewer Overflows

If a sewer overflow is determined to be occurring from a private sewage conveyance system such as a lateral or private system, the owner of the infrastructure shall be notified of the release. If there is imminent danger to public health or the discharge could reach a waterway, District employees will assist with containment until the responsible party can assume control. If a basement backup has occurred either from a defect in the home owner’s lateral or in the main sewer line, District employees shall advise the occupants to avoid contact with the discharge and give them guidance on cleaning-up. District employees shall give the occupants the contact number for the District’s flood restoration contractor if the blockage was in the main line. Occupants shall be informed that this does not mean that the District will assume any cost of the clean-up, but an insurance form may be requested from them.

Prolonged Overflow Conditions

If a prolonged overflow is expected due to a collapsed or blocked sewer main, by-pass pumping operations should be set-up. Be sure to select the proper size pump and continuously monitor it for effectiveness.

Safety concerns

As always, safety of District employees and the public is the number one priority. Employees must use their best judgment as to what Personal Protective Equipment and perimeter controls are appropriate. Materials and equipment must be used and/or applied in accordance with safety instructions.

Some overflows may be too dangerous to try to contain or clean up during in climate weather or at night. Every resource available to make the site safe should be used before starting containment or clean up procedures.

Follow-up / Quality Assurance

Once the area has been cleaned and disinfected, the Regulatory Compliance Department shall be notified. The site will be monitored for any environmental impacts. This may involve taking samples, visual inspections and interviews with responding crews. They will also ensure that all procedures were followed to assure consistency between crews.

Module 7

Field Documentation

This module will explain what information will need to be documented in the field so that it can be reported both to the DOW and to Sanitation District #1.

1. Work orders and tracking.
2. Data collection techniques;
3. Discuss regulatory reporting requirements,
4. What information is required for reporting,
5. Importance of accurate and timely notification
6. Regulatory Compliance department

Work orders and tracking

After an overflow is called in, the operator at Dry Creek WWTP notifies the EPA electronically and a confirmation number is given which is called the E tracking number. The E tracking number should be placed at the top of any hard copy work orders that result from the overflow. The GBA overflow form should be filled out by the responder and assure that the report is completed as much as possible and filled out correctly. It should then be given to the Regulatory Compliance Department for review and entry into GBA.

The information from the System Release Report, associated work orders and other pertinent data is logged and tracked in the GBA software aswell. The data is linked to the particular structure to generate a historical log of overflow activity. This information is invaluable in gathering historical information that will allow the District to determine appropriate courses of action to address recurring overflow locations.

Based on the overflow event and historical data, the overflow is classified as either a one-time or recurring event and identified as a SSO, CSO, SRP or pump station bypass. The primary goal of documenting overflow events is to classify and assign the overflow a priority. If the overflow is a one-time occurrence, it will be documented as such. If an overflow is classified as recurring, it will be investigated further and appropriate solutions will be determined through the Long-Term Abatement Framework.

Data collection techniques

Any data that can be collected from the field should be documented in GBA for future reference. Pictures of the overflowing structure (before and after the clean up process), any observations that the responder made and interviews with homeowners or passer-bys are all important information in the process of overflow abatement. This information shall be linked to the overflow by putting the information into GBA.

The GBA Field Overflow Report was developed to assist field crews in accurately documenting the overflow cause, mitigation and clean up. The following pages contain instructions on how the report shall be filled out and a copy of the form.

Discuss regulatory reporting requirements

The District is required to report all non-permitted releases to the EPA. The District provides several different notifications to the DOW and EPA. Initial notification is made as soon as the overflow is found by way of E notification and/or phone notification. The intent of this initial notification is to advise KDOW that a release has begun and provide enough information for them to determine if they want to respond and/or offer advice on the release, such as collecting samples.

On a weekly basis, the Dry Creek WWTP control room faxes copies of the completed System Release Reports to KDOW's Florence Regional Office. All hard copy overflow reports are kept on file at the Districts main office. Every year the District submits a Wet Weather Report to the EPA's main office in Frankfort.

What information is required for reporting

The following information is required by the EPA to be reported for all overflows.

The information provided in the initial notification includes:

- Type of overflow
- Date and time overflow began
- Date and time overflow stopped
- Location of overflow, including county
- Agency reporting overflow
- Nature of incident
- Cause and duration of overflow
- Action taken
- Quantity (i.e estimated volume of overflow)
- Weather conditions during overflow
- Receiving stream type
- Name of receiving stream

Importance of accurate and timely notification

Notification is extremely important during response to an overflow. Not only to regulatory agencies, but to our internal crews as well. The EPA requires that notification to the local office be done as quickly as possible. The District has set up a SORP response that includes notifying key personnel of overflows. This group includes personnel from Management, Public relations, Regulatory Compliance, and field crews.

Once the DCWWTP operator has initiated the System Release report, an electronic notification is then sent to the local office of the EPA and to the system release group. Personnel from the system release group may request additional information and choose to call the responder or respond to the site to evaluate environmental impact.

It is especially important that these notifications be made as soon as possible so that the appropriate personnel can respond quickly to assist with mitigation, clean-up and public safety.

Regulatory Compliance department

The Regulatory Compliance department was developed to assure that district remains compliant with regulations. Listed below are the responsibilities of the Regulatory Compliance department pertaining to SORP.

- To assure that all documentation is made and entered into GBA correctly
- Make recommendations about clean up and containment operations
- Assure that proper notification has been made
- To ensure the impact is properly estimated, minimized and remedied
- Monitor the flow of documents that contain all the information associated with the SSO.
- To ensure that all procedures are followed consistently among the crews
- To evaluate the efficiency of the program.
- To investigate the impact of the event in a more holistic manner by assessing the watershed in more detail.
- Follow up on remediation and future prevention to prevent avoidable overflows.

Module 8

Review of Containment, Clean-up and Field Documentation

Containment

- The objective is to contain the overflowing sewage

1. Natural Depressions
2. Sandbags
3. Earthen Dams
4. Blocking Storm Drains or Catch Basins
5. Stream Barriers

- When possible, natural ponding areas or depressions should be used to contain discharges from overflows.

- Sandbags or earth can be used as dams, enhance ponding areas or to direct flow into ponding areas.

- Storm lines that run from catch basins can be plugged to create a ponding area along roadways.

- It is important to remember that any material used for damming or channeling may become contaminated and will need to be recovered and disposed of properly.

Once containment is accomplished, the contents will need to be vacuumed out or pumped back into the sanitary sewer system. This may be accomplished by using a Vactor or portable trash pumps.

During wet weather overflows, it may not be practical to contain the discharge. In this case, clean-up and disinfectant will need to be used to minimize the impact.

Filtration

- District personnel will attempt to filter discharge from an overflow when determined feasible. Filtration will involve placing a type of strainer in the discharge flow to filter-out solids, paper, etc.

Clean-up

- It is important that the area affected by the overflow is returned to pre-overflow conditions, as soon as possible.

- Photos should be taken during and after clean-up operation. All solids and debris must be picked-up and disposed of properly.

- This may be accomplished by raking, sweeping, or picking-up with a gloved hand.

- Once the solids and debris have been removed, the area shall be flushed into a holding area to be pumped back into the system or vacuumed by a Vactor truck.

- If a ponding area is used, the path upstream must be flushed. The water used to flush the area must be pumped back into our system or removed from the site.

Private Property Sewer Overflows

- If a sewer overflow is determined to be occurring from a private sewage conveyance system such as a lateral or private system, the owner of the infrastructure shall be notified of the release.

- If there is imminent danger to public health or the discharge could reach a MS4, District employees will assist with containment until the responsible party can assume control.

- If a basement backup has occurred either from a defect in the home owner's lateral or in the main sewer line, District employees shall advise the occupants to avoid contact with the discharge and give them guidance on cleaning-up.

- District employees shall give the occupants the contact number for the District's flood restoration contractor. Occupants shall be informed that this does not mean that the District will assume any cost of the clean-up, but an insurance form may be requested from them.

Disinfection

- Disinfection and soil removal should only be executed at the direction of the Environmental Impact Assessment Team.

- If directed, by the Environmental Impact Assessment Team, heavily contaminated soil shall be removed and disposed of properly.

- The remaining soil shall be treated with lime to further kill any remaining bacteria. If the area treated with lime is in a high traffic or runoff to a MS4, you may be directed to place clean fill over the lime to prevent contact by the public.

- Soil samples will be taken at sites where lime is used to maintain a pH > 12 for at least 72 hours before the perimeter controls can be removed.

Prolonged Overflow Conditions

- If a prolonged overflow is expected due to a collapsed or blocked sewer main, by-pass pumping operations should be set-up.

Follow-up / Quality Assurance

- Once the area has been cleaned and disinfected, the Environmental Impact Assessment Team shall be notified

Termination

- Once mitigation of the overflow has been completed, several steps need to be taken to safeguard the public as stated in the SORP Section 4.7.

1. Removal of Signage / Perimeter Controls

Once the area has been returned to pre-overflow conditions, signs and perimeter controls may be removed. If areas such as parks or other public areas were closed to the public, officials should be notified when these areas are reopened.

2. Documentation

Be sure that all clean-up efforts are documented in the District's GBA program. Include photographs, all actions that were taken and an estimate of how much of the overflow volume was recovered. All work orders associated to the overflow will be linked in GBA to the overflow report.

Steps to take when an overflow is reported

- **Responder**

Mainline blockage (dry weather)

1. Investigate the area to find the overflow.
2. Once the overflow is found, call Dry Creek WWTP to initiate the System Release Report.
3. If the overflowing structure is a manhole, try to remove the blockage with a probe rod from each manhole.
4. If the blockage can not be removed call for a Vactor to assist in removing the blockage.
5. Attempt to contain the overflow contents.
6. Determine the extent of the overflow.
7. Remove the blockage.
8. Call Dry Creek to document the end time.
9. Begin cleanup operations.
10. Complete GBA Field overflow sheet.
11. Write any work orders for work to be done.

Mainline blockage (wet weather)

1. Investigate the area to find the overflow.
2. Once the overflow is found, try to remove the blockage with a probe rod from each manhole. If manholes are surcharged and overflow is due to lack of capacity call Dry Creek to see if manhole is a priority SSO.
3. If the overflow is a priority SSO, no System Release Report or E notification needs to be done, but an email still needs to be sent to the System Release Group for documentation.
4. If the Overflowing structure is not a priority SSO, and overflow is due to lack of capacity call Dry Creek WWTP to initiate the System Release Report.
5. Access the overflow contents, if heavy solids are detected filtration may be used contain them.
6. Call Dry Creek to document the end time.
7. Begin cleanup operations.
8. Complete GBA Field overflow sheet if it is not a priority SSO.

Force main break

1. Investigate the area to find the overflow.
2. Call Dry Creek WWTP to report the force main break and initiate the System Release Report.
3. Call the construction Forman to report the force main break. If not available call construction crew leaders.
4. Attempt to contain the overflow contents.
5. Determine the extent of the overflow.
6. Begin cleanup operations.
7. Complete GBA Field overflow sheet.

Private system over flow

1. Investigate the area to find the overflow.
2. Once the overflow is found, call Dry Creek WWTP to initiate the System Release Report.
3. If the system is private notify the owner immediately.
4. If the overflow jeopardizes public health or the environment, measures should be taken to protect both.

Back up in basement

1. Investigate the area to see if the blockage is in the mainline or in the lateral. If it is in the mainline check to see if any manholes are overflowing. If so Mainline blockage guidelines. Give the home owner instructions to avoid contact with the contents of the overflow and provide cleaning contractor's number and an insurance form if requested.
2. If the blockage is in the lateral and contained to the interior of the home notify the home owner and have them call a plumber.
3. If the blockage is in the lateral and not contained to the interior of the home and the overflow jeopardizes public health or the environment, measures should be taken to protect both. Call Dry Creek WWTP to initiate the System Release Report.

- **Dry Creek Operator**

Mainline blockage (dry weather)

1. If the responder calls to say that there is a dry weather overflow from a manhole initiate the System Release Report.
2. With the information from the System Release Report fill out the online E notification form. Document the E Notification number.
3. Send out an email to the System Release group using the provided template with "System Release" in the subject.
4. Update the System Release group and the E notification from as needed.

Mainline blockage (wet weather)

1. If the responder calls to say that there is a wet weather overflow from a manhole check to see if the manhole is on the Priority SSO list.
2. If it is not on the list, initiate the System Release Report and fill out the online E notification form. Document the E Notification number.
3. If the manhole is on the list, no E notification or System Release Report is needed.
4. Send out an email to the System Release group using the provided template with "System Release" in the subject.
5. Update the System Release group and/or the E notification from as needed.

Force main break

1. If the responder calls to report a force main break initiate the System Release Report.
2. Notify the appropriate personnel. During normal working hours notify the field tech group, after hours notify the electrician on call. Tanker drivers should also be notified to head to the pump station.
3. Fill out the E notification form and send information to the System Release Group.
4. Update the System Release group and the E notification from as needed.

Back up in basement

1. If the responder determines that the lateral blockage is causing a private property overflow initiate a System Release Report.
2. With the information from the System Release Report fill out the online E notification form. Document the E Notification number.
3. Send out an email to the System Release group using the provided template with “System Release” in the subject.
4. Update the System Release group and the E notification from as needed.