REF: 4WM

Mr. Jack A. Wilson, Director
Division of Water
Kentucky Natural Resources and Environmental Protection Cabinet
Department for Environmental Protection
18 Reilly Road
Frankfort, Kentucky 40601

Re: Combined Sewer Overflow Permitting Strategy
   State of Kentucky

Dear Mr. Wilson:

We have completed our review of Kentucky’s revised combined sewer overflow (CSO) permitting strategy, dated December 28, 1990, and approve the strategy.

If I can be of further assistance, please do not hesitate to contact me.

Sincerely yours,

W. Ray Cunningham, Director
Water Management Division
KENTUCKY COMBINED SEWER OVERFLOW CONTROL STRATEGY

INTRODUCTION

Overflows from combined sanitary and stormwater sewers in excess of the interceptor sewer or regulatory capacity that are discharged into a receiving water without going to a publicly owned treatment works (POTW) is considered a Combined Sewer Overflow (CSO). CSOs occur prior to reaching the headworks of a treatment facility and are distinguished from bypasses which are "intentional diversions of waste streams from any portion of a treatment facility" (40 CFR 122.41(m)).¹

Most major municipal areas in the United States are served by a combination of sanitary sewers, separate storm sewers, and combined sanitary and storm sewers. The U.S. EPA has estimated that there are between 15,000 and 20,000 CSO discharge points currently in operation. The Kentucky Division of Water estimates that 190 discharge points from 19 POTWs exists within the Commonwealth of Kentucky and are located in older cities that lie along larger streams, e.g., Ohio River, Kentucky River. Sanitary sewer systems must adhere to the strict design and operational standards established to protect the integrity of the sanitary sewer system and wastewater treatment facilities. Discharges from separate sanitary sewer systems with less than secondary treatment are prohibited (401 KAR 5:045). The regulation of discharges from separate storm sewer systems is addressed in Section 402(p) of the Clean Water Act (CWA). EPA is proposing regulations implementing Section 402(p) which include requirements to develop system-wide municipal storm water management programs to reduce pollutants from municipal separate storm sewers. The following strategy is designed to control effluents from combined systems which are not regulated under the sanitary system standards or as discharges from separate storm sewers.

¹ Flows to the treatment works (POTW), including dry weather and wet weather flows, are subject to secondary treatment regulations (401 KAR 5:045), water quality standards (401 KAR 5:031), and the National Municipal Policy. Dry weather discharges from CSOs, which are also subject to this strategy, are illegal and must be expeditiously eliminated. Kentucky will use appropriate enforcement actions to eliminate such activities and assure compliance.
This CSO permitting strategy is designed to complement the control programs for sanitary sewers and separate storm sewers. This strategy establishes a uniform, statewide approach to developing and issuing KPDES permits for CSOs. In other parts of the nation, discharges have been shown to have severe adverse impacts on water quality, aquatic biota, and human health under certain conditions. Therefore, permits for CSOs are to be developed expeditiously to minimize these potential impacts by establishing technology-based and water quality-based requirements.

The objectives of this strategy are threefold:

1) To ensure that if CSO discharges occur, they are only as a result of wet weather,

2) To bring all wet weather CSO discharge points into compliance with the technology-based requirements of the CWA and applicable State water quality standards, and

3) To minimize water quality, aquatic biota, and human health impacts from wet weather overflows.

STATEMENT OF STRATEGY

CSOs are point sources subject to KPDES permit requirements. CSOs are not subject to secondary treatment regulations applicable to publicly owned treatment works (Montgomery Environmental Coalition vs. Costle, 646 F. 2d 568 (D.C. Cir. 1980)).

Technology-based permit limits are to be established for best practicable control technology currently available (BPT), best conventional pollutant control technology (BCT), and best available technology economically achievable (BAT) based on best professional judgement (BPJ) when permitting CSOs. The CWA of 1977 mandates compliance with BPT and the Water Quality Act Amendments of 1987 (WQA) mandates compliance with BCT/BAT.
APPLICABILITY OF STRATEGY

This strategy applies to all CSOs. Flows in combined sewers can be classified into two categories: wet weather flow and dry weather flow. Wet weather flow is a combination of sanitary flow, industrial flow, infiltration from groundwater, and stormwater flow, including snow melt. Dry weather flow is the flow in a combined sewer that results from domestic sewage, groundwater infiltration and industrial wastes with no contribution from stormwater runoff or stormwater induced infiltration.

This strategy does not apply to bypasses. Bypasses are "intentional diversions of waste streams from any portion of a treatment facility." The treatment facility begins at the headworks where equalization of the waste streams takes place. Bypasses are regulated under 40 CFR 122.41(m). Bypasses from any portion of the treatment facility are prohibited unless the criteria in 40 CFR 122.41(m)(4) are satisfied. These criteria are (1) bypasses are unavoidable to prevent loss of life, personal injury, or severe property damage; (2) there are no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime; and (3) the permittee submitted notices as required under 40 CFR 122.41(m)(3).

IMPLEMENTATION

Kentucky's permitting strategy is being developed for submittal to EPA by no later than January 15, 1990 and EPA should approve Kentucky's strategy no later than March 31, 1990. This strategy contains the following elements:

1) Identification
2) Priorities
3) Permit Issuance
4) Compliance Schedule
5) Minimum Technology-Based Limitations
6) Additional CSO Measures
7) Monitoring
8) Water Quality Standard Modification
9) Funding
10) Permit Application Forms
1. Identification

CSO point sources currently discharging without a permit are unlawful and must be permitted or eliminated. Kentucky Division of Water has sought to identify the communities with combined sewer systems and each particular CSO discharge point within these communities. A letter was sent to all municipal permittees asking that they review their system to determine if they have any discharges that meet the definitions of CSO and to provide appropriate data on the discharge if they had not previously provided the information. Attached is a copy of a typical letter sent to the permittees (Attachment 1). Also, letters were sent to a group of cities that have dry weather combined sewer flows treated by a regional POTW but may have a wet weather discharge before is gets to the regional trunk sewer lines. Attachment 2 is a copy of a typical letter to these facilities.

The municipal survey identified 190 discharge points of CSOs from 19 POTWs. The Division of Water met with the POTW having the majority of CSOs and learned that no dry weather overflows occur. Thus it appears that few CSOs in Kentucky have dry weather overflows. We know of no other CSO dry weather overflows. When EPA provides the states with a Final "Combined Sewer Overflow Guidance Document", Kentucky will place each CSO discharge point into one of three categories: (1) not permitted; (2) permitted in conjunction with POTW; or (3) permitted separately from POTW. The status of compliance with technology-based and water quality-based permit requirements will be provided for each CSO discharge. An ongoing commitment of evaluating and maintaining CSO location and permit discharge status records will be sought from every community.

2. Priorities

Kentucky places highest priority on any CSO's that discharge into wetlands or outstanding resource waters. None of the identified sources discharge into these type waters. The next priority is to deal with those facilities that may impact drinking water intakes and then progress from the POTW with the largest number of CSOs with the highest flows to the POTW with the least number of the smallest flows. Designated public beaches will be given appropriate attention.

A meeting will be conducted with all CSO facilities and the Kentucky Division of Water will explain the strategy and the importance the Division of Water will need to place on management practices and compliance.
Where deemed necessary and appropriate KPDES permits will be reopened to include CSOs and others will be included in their permits when reissued. The current data appears to indicate that a majority of permits will be reopened or included in their pending application for reissuance.

3. Permit Issuance

A single, system-wide permit will be issued whenever possible for all discharges, including overflows, from a combined sewer system operated by a single authority and will include the POTW discharge. The permit will identify, as specifically as possible, the location of each overflow in the system including longitude, latitude, street address, and a map identifying the overflow point.

Different parts of a single combined sewer system are in some cases owned and/or operated by more than one authority. Permits issued to such authorities will require joint preparation and implementation of the requirements of this strategy and will specifically define the responsibilities and duties of each owner and operator. The legal responsibility of one POTW for planning and coordinating a system-wide approach may be challenged but is considered the correct approach. The individual owners and/or operators are responsible for their own discharges and will be required to cooperate with the POTW. When a CSO is permitted separately from the POTW, the POTW's KPDES permit will contain a cross-reference for informational purposes.

4. Compliance Schedules

Compliance dates for water-quality and technology-based limitations are governed by the statutory deadlines in Section 301 of the CWA. Effluent limitations based upon newly developed water quality standards or new interpretations of existing water quality standards, however, may be covered by compliance schedules in the KPDES permit. This strategy may be considered a new development or new interpretation of water quality standards. Thus some permits may contain compliance schedules.
5. Minimum Technology-Based Limitations

All permits for CSO discharges require the following technology-based limitations as a minimum BCT/BAT, established on a BPJ basis: (1) proper operation and regular maintenance programs for the sewer system and combined sewer overflow points; (2) maximum use of the collection system for storage; (3) review and modification of pretreatment programs to assure CSO impacts are minimized; (4) maximization of flow to the POTW for treatment; (5) prohibition of dry weather overflows; and (6) control of solid and floatable materials in CSO discharges. Control measures, as mentioned below, may also be required on a case-by-case basis to address the particular circumstances of each combined sewer system and overflow point. All BPJ permits will consider the factors set forth at 40 CFR 125.3(d). EPA's issuance of the Final Combined Sewer Overflows Guidance Document is of importance if this is to be done in a timely manner.

6. Additional CSO Control Measures

Cost is always a consideration when establishing technology-based limits in KPDES permits (40 CFR 125.3). However, the CWA under Section 301(b)(1)(c) also requires any additional permit limits that may be necessary to meet State water quality standards. In the event additional control measures are necessary, the permittee may choose the most cost effective control measures which will insure compliance with water quality standards. For example, CSO control programs may be designed to incorporate best management practices and other low cost operational methods and only incorporate more expensive control measures if necessary to meet water quality standards.

Additional control measures that should be considered to bring all wet weather CSOs into compliance with technology-based and applicable water quality standards include improved operation and maintenance, best management practices, system-wide storm water management programs, supplemental pretreatment program modifications, sewer ordinances, local limits program modifications, identification and elimination of illegal discharges, monitoring requirements, pollutant specific limitations, compliance schedules, flow minimization and hydraulic improvements, direct treatment of overflows, sewer rehabilitation, in-line and off-line storage, construction of CSO controls within the sewer system or at the CSO discharge point, sewer separation, and new or modified wastewater treatment facilities.
7. Monitoring

Monitoring requirements for wet weather CSOs will vary based on the unique circumstances of each combined sewer system and overflow point. It is the intent to have cost effective monitoring. Cost effective monitoring requirements may be developed to serve three purposes: (1) to characterize CSO discharges, including their frequency, duration, and pollutant loadings; (2) to evaluate the water quality impacts of these discharges; and (3) to determine compliance with CSO permit requirements.

On small streams, discharge monitoring and/or modeling, wasteload allocations that address rainfall-related hydrological conditions, and often stream surveys are necessary to measure the extent to which CSO discharges are causing violations of technology-based limitations or water quality standards, and to design corrective programs. Stream surveys on large streams do not appear to be appropriate. These monitoring/modeling requirements will be included in the initial CSO permits with reopener clauses to adjust permit limits as warranted.

Compliance monitoring requirements will be included in CSO permits. These monitoring requirements will include collecting and reporting data on CSO events and insuring that no dry weather overflows occur. Monitoring may also include inspections or reports aimed at assuring that required facility improvements have been made and/or that best management practices and other operation and maintenance requirements are being effectively implemented. Permits will require development and implementation of a monitoring plan or program to assure data needs are met.

8. Water Quality Standards Modification

Section 301(b)(1)(c) of the CWA mandates compliance with water quality standards. Permits will be written to ensure CSO discharges do not cause violations of water quality standards. The applicability of water quality standards will not be waived. However, in limited cases, it may be appropriate to adjust some water quality standards to address the impact of pollutants in wet weather flows more adequately. In these cases, this strategy encourages monitoring, modeling, or wasteload allocation procedures to better quantify influences and formulate control strategies to address rainfall-related hydrological conditions.
EPA sets forth the criteria for modifying Kentucky water quality standards at 40 CFR 131.10(g). In general, Kentucky may remove a designated use which is not an existing use as defined in 40 CFR 131.3, if it can be demonstrated that attaining the designated use is not feasible because of one of the six enumerated criteria listed at 40 CFR 131.10(g) including that controls more stringent than those required by Sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact. Kentucky may not remove designated uses if they are existing uses, as defined in 40 CFR 131.3, unless a use requiring more stringent criteria is added; or if such uses will be attained by implementing effluent limits required under Section 301(b) and 306 of the Act and by implementing cost effective and reasonable best management practices for nonpoint source control. In addition, Kentucky water quality standards provide for the granting of exceptions to criteria if it can be demonstrated that maintenance of applicable water quality criteria are not attainable or scientifically valid but the use classification is still appropriate. Prior to removing any uses or granting exceptions to criteria, Kentucky must provide notice and an opportunity for public hearing under 40 CFR 131.20(b). Changes in designated uses or the establishment of subcategories of uses must be made on a site-specific basis in accordance with the procedures specified in 40 CFR 131.10(j).

9. Funding

Combined sewer overflow corrections are fundable under the state revolving fund program, although limitations apply. CSOs which cause adverse impacts on water quality and human health should be considered for funding. The funding limitations must be met by each state on an individual basis, and each state must individually determine the extent to which they wish to fund CSOs.

Funds available through the SRF must first be used to assure that National Municipal Policy Projects will achieve compliance. Kentucky has met this first use requirement by insuring that all NMP projects are either in compliance, on an enforceable schedule or have received a funding commitment.

Kentucky has never elected to use the Governor's discretionary 20% set aside for needs categories not otherwise eligible. In the future, if the decision is made by the Governor for this discretionary use, CSOs will be given every consideration in comparison with other needs.
KENTUCKY

COMBINED SEWER OVERFLOWS (CSO)

<table>
<thead>
<tr>
<th>KPDES</th>
<th>NAME</th>
<th># of CSO Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>KY0022373</td>
<td>Ashland</td>
<td>8</td>
</tr>
<tr>
<td>KY0021041</td>
<td>Butler</td>
<td>1</td>
</tr>
<tr>
<td>KY0021466</td>
<td>Campbell/Kenton S.D. #1</td>
<td>9*</td>
</tr>
<tr>
<td>KY0028321</td>
<td>Campbellsville</td>
<td>1</td>
</tr>
<tr>
<td>KY0020265</td>
<td>Carrollton</td>
<td>3</td>
</tr>
<tr>
<td>KY0035467</td>
<td>Catlettsburg</td>
<td>13</td>
</tr>
<tr>
<td>KY0020958</td>
<td>Elkhorn City</td>
<td>1</td>
</tr>
<tr>
<td>KY0022861</td>
<td>Frankfort</td>
<td>15</td>
</tr>
<tr>
<td>KY0026093</td>
<td>Harlan</td>
<td>4</td>
</tr>
<tr>
<td>KY0020711</td>
<td>Henderson</td>
<td>14</td>
</tr>
<tr>
<td>KY0026549</td>
<td>Lebanon</td>
<td>3</td>
</tr>
<tr>
<td>KY0020257</td>
<td>Maysville</td>
<td>2</td>
</tr>
<tr>
<td>KY0045713</td>
<td>McCracken County S.D. #1</td>
<td>1</td>
</tr>
<tr>
<td>KY0021440</td>
<td>Morganfield</td>
<td>2</td>
</tr>
<tr>
<td>KY0022411</td>
<td>Morris Forman - MSD</td>
<td>104</td>
</tr>
<tr>
<td>KY0020095</td>
<td>Owensboro</td>
<td>5</td>
</tr>
<tr>
<td>KY0022799</td>
<td>Paducah</td>
<td>7</td>
</tr>
<tr>
<td>KY0025291</td>
<td>Pikeville</td>
<td>2</td>
</tr>
<tr>
<td>KY0027413</td>
<td>Prestonsburg</td>
<td>3</td>
</tr>
<tr>
<td>KY0028401</td>
<td>Princeton</td>
<td>2</td>
</tr>
<tr>
<td>KY0021512</td>
<td>Vanceburg</td>
<td>3</td>
</tr>
<tr>
<td>KY0022926</td>
<td>Worthington</td>
<td>3</td>
</tr>
</tbody>
</table>

Total POTW - 22

Total CSO Points - 206

* Includes six (6) from City of Bellevue
June 14, 1989

Dear Permittee:

Combined sewer overflows (CSO) are point sources subject to permit requirements including both technology-based and water quality-based requirements of the Clean Water Act. The Federal EPA has developed a strategy to bring CSOs into compliance with the regulations emphasizing that CSO point sources discharging without a permit are unlawful and must be issued permits or eliminated. Part of this strategy is to identify and categorize the CSO points.

Combined sewers are designed to function as a sanitary sewer in dry weather and both sanitary/storm sewer in wet weather with built-in overflows discharged to a receiving water without going to a publicly owned treatment works (POTW). These are distinguished from a separate sanitary sewer which may have an unintentional discharge due to excessive infiltration/inflow; this is not a CSO.

To facilitate implementation of the permitting strategy, we are asking each POTW to submit to us information identifying each CSO point in their system. Location of each CSO should be indicated on a map of the sewer conveyance system and information on the attached chart should be provided for each CSO point. Please submit this information within 45 days of the date of this letter. For those POTWs who have recently supplied this information (within the past 2 years) through application for a Kentucky Pollutant Discharge Elimination System (KPDES) permit, please do not resubmit, but inform us when the information was submitted.

Should you have any questions, please contact Herb Ray or Jerry Hurst at (502) 564-3410.

Sincerely,

Jack A. Wilson, Director
Division of Water

JAW:HR:gr
Attachment

cc: John Marlar, U.S. EPA, Region IV
The Parties to this Consent Judgment, the Commonwealth of Kentucky, by and through its Environmental and Public Protection Cabinet (hereinafter the “Cabinet”), and the Regional Water Resource Agency of Owensboro, Daviess County, Kentucky (hereinafter “RWRA” or “Defendant”) state:

RECITALS

1. The Cabinet is charged with the statutory duty of enforcing Kentucky Revised Statutes (“KRS”) Chapter 224, the Clean Water Act (CWA) and the regulations promulgated pursuant thereto.

2. RWRA is a joint sewer agency established pursuant to KRS Chapter 76.231. RWRA holds KPDES Permit Nos. KY0020095 and KY0073377 issued by the Division of Water for discharges into the waters of the Commonwealth.

3. The Defendant owns and operates a wastewater collection system with treatment plants and permitted outfalls in Daviess County, Kentucky (hereinafter “system” or “sewage system.”) RWRA serves a population of approximately 60,000 people. The wastewater collection system consists of a separate sanitary sewer system (“SSS”) and a combined sewer system (“CSS”).
The wastewater collection system transports wastewater to the wastewater treatment plants ("WWTPs") owned and operated by RWRA.

4. The Owensboro Sewer Commission ("OSC") was the wastewater service provider within the City of Owensboro corporate boundaries prior to the establishment of RWRA. The OSC recognized the need to address Combined Sewer Overflow ("CSO") issues and began the implementation of policies, programs, and projects in a phased, systematic approach to reduce the environmental impact of CSOs to the community’s waters.

5. The Cabinet acknowledges that OSC and RWRA have accomplished the following CSO improvement efforts: 1) the design and construction of the East WWTP; (2) the upgrading and renovation of the West WWTP, resulting in a significant increase in the capacity of the West WWTP; (3) expansion of storage within the CSS; and (4) increased flow to the WWTPs. OSC and RWRA further contend that their CSO improvement efforts include (1) redirection of significant dry and wet weather flow away from the CSS; (2) elimination of fifty (50) percent of the system’s CSOs, expansion of storage within the CSS, increased flow to the WWTPs, and implementation of nine minimum control measures. RWRA contends that, to date, approximately $59 million has been spent toward these efforts. See Exhibit A.

6. The OSC, RWRA, and the Cabinet also recognized the need to address other water quality issues affecting the waters of the Commonwealth within the community. In conjunction with the Cabinet’s regionalization initiatives, RWRA contends that its efforts have included the extension to and elimination of 28 private package treatment plants, approximately 550 failing septic tank systems, and scheduled elimination of the last known remaining straight-pipe system within the community. RWRA contends that these various extension and elimination projects have significantly improved water quality and health conditions within the community by
reducing human exposure to pathogens. RWRA contends that to date, approximately $11.5 million has been spent on these efforts. See Exhibit A.

7. The phased, systematic approach initiated by the OSC and continued by RWRA, is an established program designed to conform to the requirements of the CWA and to meet the long-term objectives of the CWA and the Cabinet for the community.

8. This Consent Judgment between the Cabinet and RWRA addresses CSO Outfalls, and requires RWRA to develop, submit and implement plans for the continued improvement of the CSS. See Exhibit B.

9. At the time of this Consent Judgment, there are no known recurring sanitary sewer overflows ("SSO") within the jurisdiction of RWRA.

10. Pursuant to KPDES Permit No. KY 0020095 for the Owensboro West WWTP, RWRA is required to maintain an approved combined sewer operational plan ("CSOP") implementing CSO controls for the CSS in accordance with U.S. EPA's 1994 CSO Control Policy, 59 Fed. Reg.18688 ("CSO Control Policy") and the state CSO control strategy. The KPDES permit requires RWRA to implement the nine minimum controls ("NMC") delineated in EPA’s 1994 CSO Control Policy.

11. Section 402 (q)(1) of the CWA, 33 U.S.C. § 1342(q)(1), and the CSO Control Policy incorporated by reference into the CWA, requires the Defendant to develop a Long Term Control Plan ("LTCP") and implement measures to abate the impact of CSOs on water quality in waters of the United States. RWRA contends that it has continued efforts of the OSC and has completed numerous measures toward LTCP objectives through the implementation of policies, programs and projects, which have resulted in significant reductions in the volume of sanitary wastewater that enters the CSS, thereby reducing the mass of sanitary wastewater constituents in
the CSS. The CSO Control Policy is incorporated by reference in the Cabinet’s regulations at 401 KAR 5:002 Section 3. The Defendant qualifies for small system considerations under the CSO Control Policy.

12. In accordance with the Cabinet’s requirements, RWRA has submitted annual CSOP updates and a Sewer Overflow Response Plan (“SORP”). To date, RWRA has not submitted a written LTCP to the Cabinet.

13. The Cabinet alleges that RWRA is in violation of Section 402(q)(1) of the CWA, 33 U.S.C. 1342(q)(1), which requires RWRA to fully implement the Nine Minimum Controls by January 1, 1997, and to submit a written LTCP to the Cabinet.

14. Authorized representatives of the Cabinet have identified the following alleged violations of KRS Chapter 224 and the regulations promulgated pursuant thereto at the facility described above.

   a. KRS 224.70-110 -- Discharge of contaminants or pollutants into waters of the Commonwealth resulting in degradation of water quality.

   b. 401 KAR 5:065 -- Failure to properly operate and maintain the system and comply with permit conditions.

   c. 401 KAR 5:035, Section 2 -- Failure to apply best available waste control practices to point source discharges to waters of the Commonwealth.

15. RWRA is hereby placed under a Consent Judgment to resolve the alleged violation(s) and establish an enforceable mechanism and schedule for completing efforts to:

   a. Ensure its CSOs are in compliance with the CWA, KRS Chapter 224 and 401 KAR Chapter 5 and its KPDES permit for its West WWTP; and
b. Prevent non-CSO related unauthorized wet weather discharges, including SSOs, from the SSS as required by the CWA, KRS Chapter 224 and 401 KAR Chapter 5.

16. The Cabinet and the Defendant agree and recognize that the process to comply with KPDES permit requirements, which includes implementation of policies, programs and projects to mitigate the impact of RWRA's CSO discharges, is an ongoing and evolving effort from the assessment process to the design and construction of necessary infrastructure to meet permit conditions. This process requires efforts that may include, but are not limited to, characterizations, modeling, assessments, engineering design studies, implementation of compliance measures, and construction projects that shall adequately ensure compliance with permit conditions under applicable law. The Cabinet and the Defendant recognize that it will take many years to implement these efforts and that this Consent Judgment is the appropriate mechanism for controlling these efforts.

17. The Defendant neither admits nor denies the violations described above but agrees to the entry of this Consent Judgment to resolve these alleged violations.

18. NOW, THEREFORE, in the interest of settling and resolving all civil claims and controversies involving the alleged violations described above and in the Cabinet’s Complaint filed in Franklin Circuit Court before taking any testimony and without adjudication of any fact or law, the Parties hereby consent to the entry of this Consent Judgment. ACCORDINGLY IT IS HEREBY ORDERED AND ADJUDGED as follows:

**REMEDIAL MEASURES**

19. RWRA shall submit a map(s) of its entire sewage system no later than one hundred twenty (120) days after the entry of this Consent Judgment. The map shall delineate the
combined and separate sanitary portions of the system that are under the direct control of RWRA, and shall indicate all CSO outfalls, and any known points of recurring unauthorized discharges from RWRA’s system. The map shall clearly display said lines tributary to the West WWTP, with the exception of service laterals, with directional flows and sizes of those lines being clearly shown. Additionally, the map(s) shall indicate sewer system sub-basins, manholes and pump stations.

20. RWRA shall:

a. Within thirty (30) days of entry of this Consent Judgment, submit to the Cabinet’s Division of Enforcement (“DENF”) a copy of the current version of the Sewer Use Ordinance or similar regulation (hereinafter referred to as “SUO”), indicating the portions of that regulation that pertain to and prohibit illicit discharges to the Defendant’s sanitary sewage system.

b. If RWRA’s SUO is determined by the Cabinet to be in conflict with the CWA and 401 KAR Chapter 5 with respect to its prohibitions of illicit connections to RWRA separate sanitary sewage system, RWRA shall, within sixty (60) days of receipt of such notification from the Cabinet that the SUO does not comply with the CWA and/or applicable regulations, prepare draft revisions to its regulations to adequately address such illicit connections and submit the draft to the Cabinet for review and approval.

c. Within sixty (60) days of receiving notification from the Cabinet that its draft revised SUO adequately addresses illicit connections to its sanitary sewers, adopt the revised SUO. Within sixty (60) days of adoption of the SUO, RWRA shall
notify its customers of the revised ordinance and of the requirement that the SUO be enforced by RWRA.

d. Document and inform the Cabinet of all reportable overflow events. The documentation shall provide estimated volumes of all reported overflows. While these volumes to be reported are estimates, the method(s) of estimation shall be rationally justified and the same method(s) shall be utilized for all reportable events in the absence of different circumstances.

21. **Early Action Plans.** After the entry of this Consent Judgment, the Defendant shall prepare and submit Early Action Plans for Cabinet review and approval according to the timeframes set forth herein. The Early Action Plans shall include the following components and independent deadlines:

a. **Nine Minimum Controls (NMC) Compliance.** No later than twelve (12) months after entry of this Consent Judgment, the Defendant shall submit documentation demonstrating the status of Defendant’s compliance with the NMC requirements within the CSS as set forth in the CSO Control Policy. If the Defendant cannot document in the Early Action Plan that all NMC requirements are being implemented in accordance with the NMC guidance, the Early Action Plan shall specify the activities to be performed, including schedules, so that compliance with the NMC requirements is achieved by no later than twenty-four (24) months after entry of this Consent Judgment unless the Cabinet approves additional time due to complicating factors that require longer construction schedules. The documentation of the compliance status and the proposed activities shall be consistent with the “Guidance for Nine Minimum Controls,”
EPA 832-B-95-003, May 1995. The documentation submitted shall demonstrate compliance with the following controls:

(1) Proper operation and regular maintenance programs for the CSS and the CSOs;
(2) Maximum use of the collection system for storage;
(3) Review and modification of pretreatment requirements to assure CSO impacts are minimized;
(4) Maximization of flow to the WWTP for treatment;
(5) Prohibition of CSOs during dry weather;
(6) Control of solid and floatable materials;
(7) Pollution prevention;
(8) Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts; and
(9) Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.

Upon review of the NMC Compliance portion of the Early Action Plan, the Cabinet may, in whole or in part, (1) approve or (2) provide comments to the Defendant identifying the deficiencies. Upon receipt of Cabinet comments identifying deficiencies, RWRA shall have ninety (90) days to address the comments and, as appropriate, revise and resubmit the NMC Compliance portion of the Early Action Plan for review and approval, subject only to the Defendant’s rights under the dispute resolution provisions of this Consent Judgment.
Upon re-submittal, the Cabinet may, in whole or in part, (1) approve or (2) disapprove and provide comments to the Defendant identifying the deficiencies. Upon such re-submittal, if any part of the NMC Compliance portion of the Early Action Plan is disapproved, the Cabinet may deem RWRA to be out of compliance with this Consent Judgment for failure to timely submit such portion and may assess stipulated penalties pursuant to this Consent Judgment, subject only to the Defendant’s rights under the dispute resolution provisions of this Consent Judgment.

Upon Cabinet approval of all or any part of the NMC Compliance portion of the Early Action Plan, the NMC Compliance portion, or any approved part thereof (provided that the approved part is not dependent upon implementation of any part not yet approved), shall be deemed incorporated as an enforceable requirement of this Consent Judgment. This does not require an amendment request pursuant to paragraph 39 of this Consent Judgment.

b. **Capital Improvement Project List.** RWRA has completed numerous capital improvement projects as identified in Exhibit A attached hereto. Completed projects are included to demonstrate the proactive efforts that RWRA contends it has taken to address conformance with the CSO Control Policy. Additionally, RWRA commits to implement the Early Action Plan Capital Improvement Projects by the dates specified in Exhibit C, as listed in Exhibit C attached hereto, prior to implementation of the LTCP. Within thirty (30) days of the signing of this Consent Judgment, the Defendant shall certify in writing to the Cabinet the
completion of those projects listed in Exhibit A that have been completed as of the signing of this Consent Judgment. Additionally, for projects not finished as of the signing of this Consent Judgment, the Defendant shall, as projects are completed, certify to the Cabinet the completion of those projects as part of their annual report.

c. CMOM (Capacity, Management, Operation, and Maintenance) Programs

Self-Assessment. If the Cabinet determines that the Early Action Plan NMC documentation submitted under paragraph 21.a. does not adequately demonstrate that the Defendant is implementing effective capacity and asset management programs, the Defendant shall within nine (9) months of receiving notice from the Cabinet, submit a CMOM Programs Self-Assessment of the Defendant’s sewer collection system, which assessment shall be consistent with the U.S. EPA Region IV methodology to ensure that the Defendant has CMOM Programs in place that are effective at preventing and eliminating overflows within the sewer collection system. This Self-Assessment shall include an evaluation of, and, if appropriate, recommendations of improvements to, the CMOM Program components deemed to be deficient. Any recommended improvements shall include schedules for implementation. The Cabinet shall have forty-five (45) days to review the CMOM Programs Self-Assessment and any recommended improvements and schedules. If the Cabinet does not accept the CMOM Programs Self-Assessment or recommended improvements and schedules, modifications to the CMOM Programs Self-Assessment shall be made in accordance with the Cabinet's comments and resubmitted by the Defendant within
forty-five (45) days of receipt of the aforementioned comments, subject only to the Defendant’s rights under the dispute resolution provisions of this Consent Judgment. If the Defendant believes that partial approval by the Cabinet of any portion of the recommended improvements will interfere with the Defendant’s ability to implement any other improvements, the Defendant’s submittal shall document this problem and either provide additional support for its initial Plan or propose an alternative course of action for CMOM compliance.

Upon resubmittal, the Cabinet may, in whole or in part, (1) approve or (2) disapprove and provide comments to the Defendant identifying the deficiencies. Upon such resubmittal, if any part of the CMOM Programs Self-Assessment portion of the Early Action Plan is disapproved, the Cabinet may deem the Defendant to be out of compliance with this Consent Judgment for failure to timely submit such portion and may assess stipulated penalties pursuant to this Consent Judgment, subject only to the Defendant’s rights under the dispute resolution provisions of this Consent Judgment.

Upon Cabinet approval of all or any part CMOM Programs Self-Assessment, of the Early Action Plan, including the CMOM Programs and recommended improvements and schedules, or any approved part thereof (provided that the approved part is not dependent upon implementation, or a key consideration of planning with respect to implementation, of any part not yet approved), these shall be deemed incorporated into this Consent Judgment as an enforceable requirement of this Consent Judgment. This does not require an amendment request pursuant to paragraph 40 of this Consent Judgment.
d. **Sewer Overflow Response Protocol ("SORP").** Not later than nine (9) months after the entry of this Consent Judgment, the Defendant shall submit a SORP in compliance with 401 KAR 5:015 for review and approval by the Cabinet, to establish the timely and effective methods and means of: (1) responding to, cleaning up, and/or minimizing the impact of all overflows, including unauthorized discharges; (2) reporting the location, estimated volume, cause and potential impact of all overflows, including unauthorized discharges, to the Cabinet; and (3) notifying the potentially impacted public. The Cabinet shall have thirty (30) days to review the SORP. If the Cabinet does not accept the SORP, the Defendant shall address the Cabinet's comments identifying deficiencies and resubmit the SORP within sixty (60) days of receipt of the aforementioned comments, subject only to the Defendant's rights under the dispute resolution provisions of this Consent Judgment. If the Defendant believes that partial approval by the Cabinet of any portion of the SORP will interfere with the Defendant’s ability to implement any other portion of the SORP, the Defendant’s submittal shall document this problem and either provide additional support for its SORP or propose an alternative course of action for SORP compliance.

Upon resubmittal, the Cabinet may, in whole or in part, (1) approve or (2) disapprove and provide comments to the Defendant identifying the deficiencies. Upon such resubmittal, if any part of the SORP is disapproved, the Cabinet may deem the Defendant to be out of compliance with this Consent Judgment for failure to timely submit the SORP portion of the Early Action Plan and may
assess stipulated penalties pursuant to this Consent Judgment, subject only to the Defendant’s rights under the dispute resolution provisions of this Consent Judgment. If approved, the Defendant shall implement the SORP within thirty (30) days of receiving the Cabinet’s approval. By the anniversary date of the approval of the SORP, the Defendant shall annually review the SORP and propose changes as appropriate subject to Cabinet review and approval. A copy of any future updates to the SORP shall also be provided to the Madisonville Regional Office of the Division of Water within thirty (30) days of incorporation of the update.

Upon Cabinet approval of all or any portion of the Early Action Plan, the SORP, or any approved part thereof, and any subsequently approved changes, shall be deemed incorporated into this Consent Judgment as an enforceable requirement of this Consent Judgment. This does not require an amendment request pursuant to paragraph 39 of this Consent Judgment.

e. Sanitary Sewer Overflow Plan ("SSOP") – If, at any time during the term of this agreement, the Cabinet determines the existence of a recurring SSO(s) in RWRA’s SSS, RWRA shall prepare and submit within twelve (12) months of that determination, for Cabinet review and approval, an SSOP designed to mitigate the recurring SSO(s) or other recurring unauthorized discharge(s) in the SSS. An SSO or unauthorized discharge is considered recurring if it discharges at a frequency rate of at least two times per consecutive twelve (12) months. The Cabinet, in its sole discretion, may exclude overflows caused by highly unusual atypical weather conditions from consideration in determining if an SSO is
recurring. The SSOP shall specify the long-term SSOP project(s) calculated to minimize the frequency, volume and water quality impact(s) of the recurring SSO(s), including proposed schedules, milestones, and deadlines related to the long-term project(s). The SSOP shall include, at a minimum, the following elements:

(1) A map that shows the location of any known recurring SSO(s) or other recurring unauthorized discharge(s) to waters of the United States. The map shall include the areas and sewer lines that serve as a tributary to each recurring SSO or unauthorized discharge. Smaller maps of individual tributary areas also may be included to show the lines involved in more detail.

(2) A description of each recurring SSO or other recurring unauthorized discharge location shall include:

i. The frequency of the overflow or discharge;

ii. The estimated volume of the overflow or discharge, both annually and by overflow event;

iii. A description of the type of overflow or discharge, i.e. manhole, pump station, constructed discharge pipe, etc.;

iv. The cause of overflows or discharges at that location;

v. The receiving stream;

vi. The immediate area and downstream land use, including the potential for public health concerns;
vii. A description of any previous (within the last 5 years), current, or proposed studies to investigate the overflow or discharge; and

viii. A description of any previous (within the last 5 years), current, or proposed rehabilitation or construction work to remediate or eliminate the overflow or discharge.

(3) A prioritization of the recurring SSO(s) or other recurring unauthorized discharge location(s) identified above based upon the frequency, volume, and impact on the receiving stream and upon public health, and in coordination with RWRA’s operations and maintenance program. Based upon this prioritization, the Defendant shall develop expeditious schedules for design, initiation of construction and completion of construction to mitigate the discharge from such location(s). Such schedule(s) shall be based on sound engineering judgment.

(4) The Defendant may consider conventional, innovative or alternative designs for projects such as: sewer rehabilitation, sewer replacement, sewer separation, relief sewers, above ground or below ground storage, illicit connection removal, pollution prevention, or other appropriate alternatives. Designs shall be based on sound engineering judgment and shall be in accordance with generally accepted engineering design criteria and may include interim remedial measures to reduce pollutant loading and improve water quality in the short term while alternatives for final remedial measures are being developed, evaluated and implemented.
In the event that RWRA is required to submit a SSOP, upon final review of the SSOP, the Cabinet may, in whole or in part, (1) approve or (2) provide comments to RWRA identifying the deficiencies. Upon receipt of Cabinet comments, RWRA shall have ninety (90) days to address the Cabinet's comments and resubmit the final SSOP for review and approval, subject only to RWRA's rights under the dispute resolution provisions of this Consent Judgment. Upon re-submittal, the Cabinet may, in whole or in part, (1) approve or (2) disapprove and provide comment to RWRA identifying the deficiencies. Upon such re-submittal, if any part of the final SSOP is disapproved, the Cabinet may deem RWRA to be out of compliance with this Consent Judgment for failure to timely submit such portion and may assess stipulated penalties pursuant to this Consent Judgment, subject only to RWRA's rights under the dispute resolution provisions of this Consent Judgment. Upon Cabinet approval of all or any part of the final SSOP, the final SSOP, or any approved part thereof (provided that the approved part is not dependent upon implementation, or a key consideration of planning with respect to implementation, of any part not yet approved), RWRA shall implement the SSOP.

22. **Development of the Long Term Control Plan**

   a. By no later than twelve (12) months after the entry of this Consent Judgment, RWRA shall submit to the Cabinet for review and approval a framework document for the LTCP, hereinafter referred to as the Framework Document.
(1) The Framework Document shall outline RWRA’s approach to conformance with the CSO Control Policy.

(2) In accordance with the CSO Guidance for Long Term Control Plan Document (Chapter 1.6), the nine elements of a LTCP are listed below. Development of the LTCP shall include consideration of those nine (9) elements from the CSO Control Policy unless the Defendant requests consideration based on the small system provisions of the CSO Control Policy and the Defendant provides an explanation as to why such consideration is appropriate. After review of such request, and at the discretion of the Cabinet, the Defendant may not need to complete each of the steps outlined in (1) through (9) below, but in accordance with the CSO Control Policy they must at a minimum comply with the nine minimum controls, public participation, sensitive areas, and post construction monitoring portions of the Policy:

i. Characterization, monitoring, and modeling activities on the combined sewer system as the basis for selection and design of effective CSO controls;

ii. A public participation process that actively involves the affected public;

iii. Consideration of sensitive areas as the highest priority for controlling overflows;

iv. An evaluation of alternatives that will assist in selecting CSO controls to meet CWA requirements;
v. Cost/performance considerations to demonstrate the relationships among a comprehensive set of reasonable control alternatives;

vi. Operational plan revisions once long-term CSO controls are agreed upon;

vii. Maximization of treatment at the existing POTW treatment plant for wet weather flows;

viii. An implementation schedule for CSO controls; and

ix. A post-construction compliance monitoring program adequate to verify compliance with water quality-based CWA requirements and ascertain the effectiveness of CSO controls.

Upon review of the Framework Document, the Cabinet may, in whole or in part, (1) approve or (2) provide comments to RWRA identifying the deficiencies. Upon receipt of Cabinet comments, RWRA shall have ninety (90) days to address and, as appropriate, revise and resubmit the Framework Document for review and approval, subject only to RWRA’s rights under the dispute resolution provisions of this Consent Judgment.

Upon re-submittal, the Cabinet may (1) approve or (2) disapprove and provide comments to RWRA identifying the deficiencies. Upon such re-submittal, if the Framework Document is disapproved, the Cabinet may deem RWRA to be out of compliance with this Consent Judgment for failure to timely submit the Framework Document and may assess stipulated
penalties pursuant to this Consent Judgment, subject only to RWRA's rights under the dispute resolution provisions of this Consent Judgment.

Upon Cabinet approval of all or any part of the Framework Document, the Framework Document, or any approved part thereof (provided that the approved part is not dependent upon implementation, or a key consideration of planning with respect to implementation, of any part not yet approved), shall be deemed as an enforceable requirement of this Consent Judgment. This does not require an amendment request pursuant to paragraph 40 of this Consent Judgment.

b. **Final LTCP.** No later than twenty-four (24) months after the entry of this Consent Judgment, the Defendant shall submit a final LTCP to the Cabinet for review and approval that complies with the CSO Control Policy and is consistent with EPA's "Guidance for Long-Term Control Plan," EPA 832-B-95-002, September 1995. The final LTCP shall include schedules, deadlines, and timetables for remedial measures that achieve full compliance with the criteria listed for the demonstrative approach or the presumptive approach at the earliest practicable compliance date considering physical and financial feasibility and other environmental factors. The Defendant may consider conventional and innovative or alternative designs as part of each plan, which may include sewer rehabilitation, sewer replacement, sewer separation, relief sewers, above-ground or below-ground storage, high rate clarification, illicit connection removal, remote
wet weather treatment facilities, pollution prevention, and other appropriate alternatives. Designs shall be based on sound engineering judgment and shall be in accordance with generally accepted engineering design criteria and may include interim remedial measures to reduce pollutant loading and improve water quality in the short term while alternatives for final remedial measures are being developed, evaluated, and implemented.

(1) The final LTCP shall be designed to meet the following objectives:
   i. Ensure that if CSOs occur, they are only as a result of wet weather;
   ii. Bring all wet weather CSO discharge points into compliance with the CWA and KRS Chapter 224; and
   iii. Minimize the impacts of CSOs on water quality, aquatic biota, and human health.

(2) In accordance with the CSO Guidance for Long Term Control Plan Document (Chapter 1.6), the nine elements of an LTCP are listed below. Development of the LTCP shall include consideration of those nine (9) elements from the CSO Control Policy unless the Defendant requests consideration based on the small system provisions of the CSO Control Policy and the Defendant provides an explanation as to why such consideration is appropriate. After review of such request, and at the discretion of the Cabinet, the Defendant may not need to complete each of the steps outlined in (1) through (9) below, but in accordance with the CSO Control Policy they must at a minimum comply with the nine
minimum controls, public participation, sensitive areas, and post
collection monitoring portions of the Policy:

i. Characterization, monitoring, and modeling activities on the
combined sewer system as the basis for selection and design of
effective CSO controls;

ii. A public participation process that actively involves the affected
public;

iii. Consideration of sensitive areas as the highest priority for
controlling overflows;

iv. An evaluation of alternatives that will assist in selecting CSO
controls to meet CWA requirements;

v. Cost/performance considerations to demonstrate the relationships
among a comprehensive set of reasonable control alternatives;

vi. Operational plan revisions once long-term CSO controls are agreed
upon;

vii. Maximization of treatment at the existing POTW treatment plant
for wet weather flows;

viii. An implementation schedule for CSO controls; and

ix. A post-construction compliance monitoring program adequate to
verify compliance with water quality-based CWA requirements
and ascertain the effectiveness of CSO controls.

Upon review of the final LTCP, the Cabinet may, in whole or in part, (1)
approve or (2) provide comments to RWRA identifying the deficiencies.
Upon receipt of Cabinet comments, RWRA shall have sixty (60) days to revise and resubmit the final LTCP for review approval, subject only to RWRA’s rights under the dispute resolution provisions of this Consent Judgment.

Upon re-submittal, the Cabinet may (1) approve or (2) disapprove and provide comments to RWRA identifying the deficiencies. Upon such re-submittal, if the final LTCP is disapproved, the Cabinet may deem RWRA to be out of compliance with this Consent Judgment for failure to timely submit the final LTCP and may assess stipulated penalties pursuant to this Consent Judgment, subject only to RWRA’s rights under the dispute resolution provisions of this Consent Judgment. Upon Cabinet approval of all or any part of the final LTCP, the final LTCP, or any approved part thereof (provided that the approved part is not dependent upon implementation, or a key consideration of planning with respect to implementation, of any part not yet approved), shall be incorporated into this Consent Judgment by proposed material amendment and, upon entry by the Court, become an enforceable requirement of this Consent Judgment.

**REPORTING REQUIREMENTS**

23. The Defendant shall submit an annual report to the Cabinet that describes its progress in complying with this Consent Judgment. The annual reporting period shall be based upon the Defendant’s fiscal year (July 1 - June 30), with the report being due on October 31 of each year. The report shall include:
a. A detailed description of projects and activities conducted and completed during the past reporting period to comply with the requirements of this Consent Judgment.

b. An accounting of the current year and the cumulative reductions in volume and in number of occurrences of unauthorized discharges from the SSS, CSS and WWTP and discharges from the Defendant’s CSO locations identified in its KPDES permit;

c. The anticipated projects and activities that will be performed in the upcoming year to comply with the requirements of this Consent Judgment, in Gantt chart or similar format;

d. A summary of the CMOM program implementation, if required, will include a comparison of actual performance with any performance goals;

e. An update of the progress of the Early Action Capital Projects; and

f. Any additional information necessary to demonstrate that the Defendant is adequately implementing its Early Action Plan, SSOP if applicable, and LTCP.

The requirement for the submittal by the Defendant of an annual update to the CSOP will cease upon execution of this Consent Judgment.

**PENALTIES**

24. Defendant shall pay the Cabinet a civil penalty in the amount of fifteen thousand dollars ($15,000.00) for violations described above. The amount of the civil penalty shall be tendered by Defendant to the Cabinet within thirty (30) days after the Consent Judgment is entered by the Court.
STIPULATED PENALTIES

25. These provisions concerning stipulated penalties shall take effect upon entry of this Consent Judgment by the Court. The Defendant shall pay the Cabinet a stipulated penalty within fifteen (15) days of receipt of written notice from the Cabinet for failure to comply with any requirement of this Consent Judgment.

a. The stipulated penalties shall be assessed as follows:

(1) For failure to timely submit the Early Action Plan, or any specified portion thereof, the Cabinet may assess against the Defendant a stipulated penalty of two thousand dollars ($2,000). For each additional day that the Defendant remains out of compliance for failure to timely submit the Early Action Plan, or any specified portion thereof, the Cabinet may assess against the Defendant a stipulated penalty of one hundred dollars ($100) per day. This penalty is in addition to, and not in lieu of, any other penalty that could be assessed.

(2) For failure to timely submit a Sanitary Sewer Overflow Plan if required, the Cabinet may assess against the Defendant a stipulated penalty of two thousand dollars ($2,000). For each additional day that the Defendant remains out of compliance for failure to timely submit the SSOP, the Cabinet may assess against the Defendant a stipulated penalty of one hundred dollars ($100) per day. This penalty is in addition to, and not in lieu of, any other penalty that could be assessed.

(3) For failure to timely submit the Framework Document or the Long Term Control Plan, the Cabinet may assess against the Defendant a stipulated
penalty of two thousand dollars ($2,000). For each additional day that the Defendant remains out of compliance for failure to timely submit the LTCP, the Cabinet may assess against the Defendant a stipulated penalty of one hundred dollars ($100) per day. This penalty is in addition to, and not in lieu of, any other penalty that could be assessed.

(4) For each day that the Defendant fails to timely complete approved projects under the SSOP or LTCP, or any approved amendments thereof, the Cabinet may assess against the Defendant stipulated penalties for each project of five hundred dollars ($500) per day. This penalty is in addition to, and not in lieu of, any other penalty that could be assessed.

(5) For failure to timely submit any report as required under this Consent Judgment, the Cabinet may assess against the Defendant a stipulated penalty of one thousand dollars ($1,000). For each day that the Defendant remains out of compliance for failure to timely submit any report as required under this Consent Judgment, the Cabinet may assess against the Defendant a stipulated penalty of one hundred dollars ($100) per day. This penalty is in addition to, and not in lieu of, any other penalty that could be assessed.

b. If the Defendant believes the request for payment of a stipulated penalty is erroneous or contrary to law, it may invoke the dispute resolution provisions of this Consent Judgment. Invoking the dispute resolution provisions does not automatically excuse timely payment of the penalty or the continuing accrual of stipulated penalties, unless agreed to by the Cabinet or stayed by the Court. If the
Defendant invokes the dispute resolution provisions of this Consent Judgment with respect to a request for payment of a stipulated penalty, the Defendant shall, within thirty (30) days of invoking the dispute resolution provision, deposit the amount of the stipulated penalty into an escrow account bearing interest on commercially reasonable terms, in a federally-chartered bank. The Defendant’s deposit of the amount of the stipulated penalty into an escrow bearing account shall be deemed compliance with these requirements until final resolution of the dispute. Upon final resolution of the dispute, the Defendant shall, within fifteen (15) days thereof, serve written instructions directing that the escrow agent, within fifteen (15) days thereof, cause the monies in the escrow account to be paid to the Cabinet in accordance with the procedures set forth in Paragraph 26 below, or returned to the Defendant, depending on the outcome of the dispute resolution process. The Defendant’s failure to make timely payment of stipulated penalties shall constitute an additional violation of this Consent Judgment.

PAYMENT OF PENALTIES AND STIPULATED PENALTIES

26. Payment of all sums due to the Cabinet shall be by cashier's check, certified check, or money order, made payable to "Kentucky State Treasurer", and sent to:

   Kentucky Department for Environmental Protection
   Division of Enforcement
   300 Fair Oaks Lane
   Frankfort, KY 40601
   Attention: Director

REVIEW OF SUBMITTALS

27. The Cabinet agrees to use its best efforts to expeditiously review and comment on submittals that the Defendant is required to submit for acceptance or approval pursuant to the
terms and provision of this Consent Judgment. If the Cabinet cannot complete its review of a submittal within ninety (90) days of receipt of the submittal, the Cabinet shall so notify RWRA before the expiration of the 90-day period. If the Cabinet fails to approve, provide comments, or otherwise act on a submittal within ninety (90) days of receipt of the submittal, any subsequent milestone date set forth in the submittal or other approved plan that is dependent upon such action by the Cabinet shall be extended by the number of days beyond the 90-day review period that is used by the Cabinet to act on that submittal.

28. **SUBMITTALS AND NOTICES**

a. Unless otherwise specified or as may be changed from time to time, all plans, reports, notices, or any other written communications required to be submitted under this Consent Judgment by the Defendant to the Cabinet shall be sent to the following address:

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

For verbal notifications: Director, Division of Enforcement (502) 564-2150.

b. Unless otherwise specified, or as may be changed from time to time, all notices or any other written communications sent to RWRA by the Cabinet shall be sent to the following address:

   Executive Director  
   Regional Water Resource Agency  
   1722 Pleasant Valley Road  
   Owensboro KY 42303

For verbal communications: David Hawes, Executive Director, RWRA, (270) 687-8440.
29. Notices, transmittals, and communications shall be deemed submitted on the date they are postmarked and sent by regular U.S. Mail or deposited with an overnight mail/delivery service.

30. RWRA may request extensions of deadlines for submittal of documents for purposes of approval by the RWRA. Any such request for extension shall be made in writing to the Director of the Division of Enforcement as described in Paragraph 33 of this Consent Judgment.

31. **DISPUTE RESOLUTION**

   a. Any dispute that arises under or with respect to this Consent Judgment shall, in the first instance, be the subject of informal negotiations between the Parties. The Defendant shall invoke the informal dispute resolution procedures by notifying the Cabinet in writing of the matters(s) in dispute and of the Defendant’s intention to resolve the dispute under this Paragraph. The notice shall: (1) outline the nature and basis of the dispute; (2) include the Defendant’s proposed resolution; (3) include all appropriate information or data relating to the dispute and the proposed resolution; and (4) request negotiations pursuant to this Paragraph to informally resolve the dispute. The Parties shall then attempt to resolve the dispute informally for a period of thirty (30) days from the date of the notice with the goal of resolving the dispute in good faith, without further proceedings. The period for informal negotiations shall not exceed thirty (30) days from the date of the original notice of this dispute, unless the Parties otherwise agree in writing to extend that period.

   b. If informal negotiations are unsuccessful, the position of the Cabinet shall control unless, within thirty (30) days after the conclusion of the informal negotiation
period, the Defendant seeks judicial review of the dispute by filing with the Court and serving on the Cabinet a motion requesting judicial resolution of the dispute. The motion shall contain a written statement of the Defendant’s position on the matter in dispute, including any supporting factual data, analysis, opinion, or documentation, and any schedule within which the dispute must be resolved for orderly implementation of the Consent Judgment. The Cabinet shall respond to RWRA’s motion within thirty (30) days. Either Party may request an evidentiary hearing for good cause. The burden of proof is on the Defendant to demonstrate that its position on the matter in dispute meets the objectives of the Consent Judgment, any amendment to this Consent Judgment, the CWA and KRS Chapter 224. If the dispute is not resolved within the schedule identified for orderly implementation of the Consent Judgment in the Defendant’s motion, the Defendant may request additional time beyond compliance schedules or deadlines in this Consent Judgment that are dependent upon the duration and/or resolution of the dispute.

32. FORCE MAJEURE
   
a. Following the entry of the Consent Judgment by the Court, the Defendant shall perform the requirements of this Consent Judgment and complete all remedial measures within the time limits set forth in or established through this Consent Judgment unless the performance is prevented or delayed solely by events that constitute a force majeure.

b. A force majeure event is defined as any event arising from causes not reasonably foreseeable and beyond the control of the Defendant or its consultants, engineers,
or contractors, including intervention in this litigation by third parties, which could not be overcome by diligence and which delays or prevents performance as required by this Consent Judgment.

c. Force majeure events do not include unanticipated or increased costs of performance, changed economic or financial conditions, or failure of a contractor to perform or failure of a supplier to deliver unless such failure is itself, the result of force majeure.

d. The Defendant shall notify the Director of the Division of Enforcement by telephone within ten (10) business days and in writing within fifteen (15) business days after it becomes aware of events which it knows or should reasonably know may constitute a force majeure. The Defendant’s notice shall provide an estimate of the anticipated length of delay, including any necessary period of time for demobilization and remobilization of contractors or equipment and a description of the cause of delay, a description of measures taken or to be taken by the Defendant to minimize delay, including a timetable for implementing these measures.

e. Failure to comply with the notice provision may be grounds for the Cabinet to deny granting an extension of time to the Defendant. If any event is anticipated to occur which may cause a delay in complying with the terms of this Consent Judgment, the Defendant shall promptly notify the Director of the Division of Enforcement in writing within ten (10) business days of learning of the possibility of a force majeure event, if the event has not already occurred. The Cabinet will respond in writing to any written notice received.
f. If the Defendant demonstrates to the Cabinet that the delay has been or will be caused by a force majeure event, the Cabinet shall extend the time for performance for that element of the Consent Judgment for a period not to exceed the delay resulting from such circumstances or time lost due to such circumstances, whichever is greater.

g. If a dispute arises over the occurrence or impact of a force majeure event and cannot be resolved, the Cabinet reserves the right to seek enforcement of this Consent Judgment and the Defendant reserves the right to invoke the dispute resolution provisions of this Consent Judgment. In any such dispute, the Defendant shall have the burden of proof that a delay was caused by a force majeure event.

EXTENSIONS BY AGREEMENT

33. In the absence of force majeure conditions, upon agreement of the Parties extensions of no more than ninety (90) days of the time requirements expressly set forth in this Consent Judgment may be agreed to by the Parties without Court approval. The Parties, by agreement, may extend deadlines in schedules set forth in plans and submittals approved pursuant to this Consent Judgment without providing notification to the Court.

CERTIFICATION OF SUBMISSIONS

34. In all notices, documents or reports submitted pursuant to this Consent Judgment, the Defendant shall, by an authorized agent of the Defendant, sign and certify each such notice, document and report as follows:

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.

RIGHT OF ENTRY

35. The Cabinet and their authorized representatives and contractors shall have authority at all reasonable times, upon the presentation of proper credentials, to enter the premises of the Defendant to:

a. Monitor the work required by this Consent Judgment;
b. Verify any data or information submitted to the Cabinet;
c. Obtain samples from any portion of the SSS, CSS or WWTPs;
d. Inspect and evaluate any portions of the SSS, CSS or WWTPs;
e. Inspect and review any records required to be kept under the terms and conditions of this Consent Judgment or any KPDES permit, the CWA and KRS Chapter 224; and
f. Otherwise assess RWRA’s compliance with state and federal environmental laws and this Consent Judgment.

A Cabinet employee shall be present with a Cabinet contractor any time the Cabinet contractor inspects the sewage system. While the Cabinet is conducting inspections pursuant to this Consent Judgment, RWRA or its designated representative, where practical in the Cabinet’s discretion, shall be given a reasonable opportunity to accompany the Cabinet and its contractors, if any, while on the Defendant’s property to document the conditions observed. The rights
created by this Paragraph are in addition to, and in no way limit or otherwise affect, the authority of the Cabinet to conduct inspections, to require monitoring and to obtain information from the Defendant as authorized by law.

**RECORD RETENTION**

36. The Defendant shall retain, in electronic or hard copy format, all data, documents, plans, records and reports that relate to the Defendant’s performance under this Consent Judgment which are in the possession, custody, or control of the Defendant, its consultants or its contractors. RWRA shall retain all such materials for five (5) years from the date of origination. Drafts of final documents, plans, records, or reports, as well as routine, non-substantive correspondence, do not need to be retained. This Paragraph does not limit or affect any duty or obligation of the Defendant to maintain records or information required by any KPDES permit. At the conclusion of this retention period, the Defendant shall notify the Cabinet at least sixty (60) days prior to the destruction of any such materials, and upon request by the Cabinet, RWRA shall deliver any such materials to the Cabinet.

**MISCELLANEOUS PROVISIONS**

37. This Consent Judgment is entered in full and final settlement of the civil claims for violations of KRS Chapter 224 and the CWA as alleged in the complaint, but shall not affect rights or obligations not specifically addressed herein as to which the Parties specifically reserve their rights. This Consent Judgment addresses only those violations specifically described above. Except for those matters resolved through this Consent Judgment, nothing contained herein shall be construed to waive or to limit any remedy or cause of action by the Cabinet based on statutes or regulations under its jurisdiction and
the Defendant reserves its defenses thereto. The Cabinet expressly reserves its right at any time to issue administrative orders and to take any other action it deems necessary, including the right to order all necessary remedial measures, assess penalties for violations, or recover all response costs incurred, and the Defendant reserves its defenses thereto.

38. This Consent Judgment shall not prevent the Cabinet from issuing, reissuing, renewing, modifying, revoking, suspending, denying, terminating, or reopening any permit to the Defendant. The Defendant reserves its defenses thereto, except that the Defendant shall not use this Consent Judgment as a defense.

39. The Defendant waives its right to any hearing on the matters specifically alleged. However, failure by RWRA to comply strictly with any or all of the terms of this Consent Judgment shall be grounds for the Cabinet to seek enforcement of this Consent Judgment in this Court and to pursue any other appropriate administrative or judicial action under KRS Chapter 224, and the regulations promulgated pursuant thereto, subject to RWRA’s right to dispute resolution under Paragraph 30 of this Consent Judgment.

40. Except as set forth herein, this Consent Judgment may not be materially amended or modified except by Court order or written agreement of the Parties entered by the Court. Any material modification of this Consent Judgment shall be effective upon entry by the Court. Non-material modifications of the obligations of the Parties which do not significantly alter the terms of this Consent Judgment may be made in writing by the Parties. If the Defendant is involuntarily divested of its existing authority or ability to comply with this Consent Judgment due to a final court order or an act of the Kentucky
General Assembly, the Defendant may seek to amend this Consent Judgment consistent with this Paragraph.

41. The Cabinet does not, by its consent to the entry of this Consent Judgment, warrant or aver in any manner that the Defendant’s complete compliance with this Consent Judgment will result in compliance with the provisions of KRS Chapter 224 and the regulations promulgated pursuant thereto. Notwithstanding the Cabinet’s review and approval of any plans formulated pursuant to this Consent Judgment, the Defendant shall remain solely responsible for compliance with the terms of KRS Chapter 224 and the regulations promulgated pursuant thereto, this Consent Judgment and any permit and compliance schedule requirements.

42. The provisions of this Consent Judgment shall apply to and be binding upon the Defendant. The acts or omissions of the Defendant’s officers, directors, agents, and employees shall not excuse the Defendant’s performance of any provisions of this Consent Judgment. The Cabinet reserves the right to seek enforcement of this Consent Judgment against the successors and assigns of the Defendant and the Defendant reserves its defenses thereto. The Defendant shall give notice of this Consent Judgment to any purchaser, lessee or successor in interest prior to the transfer of ownership and/or operation of any part of its now-existing facility occurring prior to termination of this Consent Judgment, shall notify the Cabinet that such notice has been given, and shall follow all statutory and regulatory requirements for a transfer. Whether or not a transfer takes place, the Defendant shall remain fully responsible for payment of all civil penalties and for performance of all remedial measures identified in this Consent Judgment, unless the Cabinet agrees to the transfer of such obligations.
43. The Cabinet agrees to allow the performance of the above-listed remedial measures and payment of civil penalties by the Defendant to satisfy the Defendant’s obligations to the Cabinet generated by the violations described above.

44. The Cabinet and the Defendant agree that the remedial measures agreed to herein are facility-specific and designed to comply with the statutes and regulations cited herein. This Consent Judgment applies specifically and exclusively to the unique facilities referenced herein and is inapplicable to any other site or facility.

45. Compliance with this Consent Judgment is not conditional on the receipt of any federal, state, or local funds.

46. **TERMINATION**

a. This Consent Judgment is subject to termination on the date that the Defendant certifies that it has met all requirements of this Consent Judgment, including, without limitation, (a) completion of any SEPs, (b) payment of all penalties and stipulated penalties due, (c) submission and approval of the NMC Compliance Demonstration, CMOM Programs Self-Assessment, if required, Sewer Overflow Response Protocol (SORP), Sanitary Sewer Overflow Plan (SSOP), if required, and Long Term Control Plan (LTCP). The Cabinet’s determination that the Consent Judgment should be terminated shall be based on a consideration of whether all of the requirements listed above have occurred.

b. The Defendant may request that the Cabinet make a determination that this Consent Judgment be terminated. Any such request shall be in writing and shall include a certification that the requirements of this Consent Judgment have been met. The Defendant shall serve a copy of any such request on the Cabinet through
the Division of Enforcement. If the Cabinet agrees that the Defendant has met all of the requirements listed above, the Cabinet and the Defendant shall file a joint motion with the Court seeking an order terminating the Consent Judgment. If the Cabinet determines not to seek termination of the Consent Judgment because it determines that all of the requirements listed above were not met, it shall so notify RWRA in writing. The Cabinet’s notice shall summarize the basis for its decision and describe the actions necessary to achieve final compliance. If the Defendant disagrees with any such determination by the Cabinet, it shall invoke the dispute resolution procedures of this Consent Judgment before filing any motion with the Court regarding the disagreement.
ORDER

WHEREAS, the foregoing Consent Judgment is hereby entered as a Judgment of this Court this the ___ day of ______________, 200__.

JUDGE, FRANKLIN CIRCUIT COURT

THE UNDERSIGNED Parties enter into this Consent Judgment and submit it to the Court for entry.

FOR THE COMMONWEALTH OF KENTUCKY, ENVIRONMENTAL & PUBLIC PROTECTION CABINET:

Teresa J. Hill, Secretary
Brenda G. Lowe
Sharon R. Vriesenga
Office of Legal Services
Attorneys for Plaintiff

FOR REGIONAL WATER RESOURCE AGENCY OF OWENSBORO, DAVIESS COUNTY, KENTUCKY:

David Hawes
Executive Director

Have Seen:

John C. Bender
Greenebaum Doll & McDonald
Attorney for Defendant,
The Regional Water Resource Agency
COPIES TO:

Brenda Gail Lowe, Esq.
Sharon R. Vriesenga, Esq.
Office of Legal Services
Fifth Floor, Capital Plaza Tower
Frankfort, Kentucky 40601

John C. Bender, Esq.
Greenebaum Doll & McDonald
300 West Vine Street, Suite 1100
Lexington, Kentucky 40507-1665
"EXHIBIT A"
CAPITAL IMPROVEMENT PROJECTS LIST

<table>
<thead>
<tr>
<th>COMBINED SEWER OVERFLOW (CSO) PROJECTS</th>
<th>CSO Capital Expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direction of Flow Away From CSO Areas</td>
<td>$</td>
</tr>
<tr>
<td>Construction of the East Wastewater Plant</td>
<td>11,000,000.00</td>
</tr>
<tr>
<td>South Owensboro Pump Stations and Force Mains</td>
<td>6,900,000.00</td>
</tr>
<tr>
<td>East Treatment Plant Upgrade</td>
<td>$</td>
</tr>
<tr>
<td>Horse Fork Pump Station and Force Mains</td>
<td>4,068,781.00</td>
</tr>
<tr>
<td>Lower Horse Fork Interceptor Sewer</td>
<td>$</td>
</tr>
<tr>
<td>Veach Road Pump Station</td>
<td>2,222,648.00</td>
</tr>
<tr>
<td>Tennyson Drive Pump Station</td>
<td>$</td>
</tr>
<tr>
<td>Highway 60 West/Persimmon Ditch Extension</td>
<td>3,597,233.00</td>
</tr>
<tr>
<td>Maximization of Flow to the POTW</td>
<td>$</td>
</tr>
<tr>
<td>Tunnel Sewer Outfall Tideflex Valve Installations</td>
<td>220,000.00</td>
</tr>
<tr>
<td>Rehabilitation of West Treatment Plant</td>
<td>$</td>
</tr>
<tr>
<td>Locust Street Pump Station Rehabilitation</td>
<td>16,121,818.00</td>
</tr>
<tr>
<td>Dublin Lane Pump Station Rehabilitation</td>
<td>885,000.00</td>
</tr>
<tr>
<td>Elimination/Reduction of CSO Outfalls</td>
<td>$</td>
</tr>
<tr>
<td>Elimination of South Owensboro CSO Outfalls to Panther Creek</td>
<td>740,000.00</td>
</tr>
<tr>
<td>Renovate / raise CSO overflow walls</td>
<td>$</td>
</tr>
<tr>
<td>Locust/Cedar Street Outfall Project</td>
<td>2,025,000.00</td>
</tr>
<tr>
<td>Increased Storage in CSO System</td>
<td>$</td>
</tr>
<tr>
<td>Gillis separation / Devins Ditch Storage Basin</td>
<td>40,000.00</td>
</tr>
<tr>
<td>JR Miller Storm Separation Project</td>
<td>$</td>
</tr>
<tr>
<td>Sewer Relining (Cured in Place Pipe - CIPP)</td>
<td>50,000.00</td>
</tr>
<tr>
<td>Misc. Storm Separation Project</td>
<td>$</td>
</tr>
<tr>
<td>Locust Street Tunnel Rehabilitation</td>
<td>1,100,000.00</td>
</tr>
<tr>
<td>Health Department Detention Basin</td>
<td>$</td>
</tr>
<tr>
<td>Harsh Ditch / Byers Separation Project</td>
<td>300,000.00</td>
</tr>
<tr>
<td>Operation and Maintenance</td>
<td>$</td>
</tr>
<tr>
<td>Locust Street Primary Outfall Rehabilitation</td>
<td>400,000.00</td>
</tr>
<tr>
<td>Conway MH rehabilitation</td>
<td>$</td>
</tr>
<tr>
<td>Frederica Street Tunnel Rehabilitation</td>
<td>2,150,000.00</td>
</tr>
<tr>
<td>CSO Engineering/Studies</td>
<td>$</td>
</tr>
<tr>
<td>Total CSO Improvements</td>
<td>$</td>
</tr>
<tr>
<td></td>
<td>58,813,265.00</td>
</tr>
</tbody>
</table>
"EXHIBIT A" (Continued)
CAPITAL IMPROVEMENT PROJECTS LIST

OTHER COMMUNITY WATER QUALITY IMPROVEMENTS

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Capital Expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elimination of Package Treatment Plants</td>
<td></td>
</tr>
<tr>
<td>Upper Horse Fork Interceptor</td>
<td>$1,565,324.00</td>
</tr>
<tr>
<td>Millionaire Package Plant</td>
<td>$150,000.00</td>
</tr>
<tr>
<td>Sorgho Elementary/Gardenside Subdivision Plant</td>
<td>$300,000.00</td>
</tr>
<tr>
<td>U.S. Hwy. 60 East Extension</td>
<td>$2,593,367.00</td>
</tr>
<tr>
<td>Yellow Creek Basin Extension</td>
<td>$3,939,073.00</td>
</tr>
<tr>
<td>Holy Angels School Plant</td>
<td>$20,000.00</td>
</tr>
<tr>
<td>Owensboro Municipal Utilities Package Plant</td>
<td>$220,000.00</td>
</tr>
</tbody>
</table>

| Elimination of Septic Systems                            |                  |
| Thruston Community Subdivisions                          | $1,450,000.00    |
| Yellow Creek Interceptor Phases 2, 3 & 4                 | $360,000.00      |
| Reid/Jones Road Interceptor                              | $191,121.00      |
| Brownwood Manor Subdivision                              | $425,000.00      |
| Highway 144 N.E.                                         | $25,000.00       |
| Hayden Park Subdivision                                  | $90,000.00       |
| Stonybrooke Subdivision Interceptor                      | $192,000.00      |

Total Other Community Water Quality Improvements/ Elimination of Discharges and Failing Septic Systems $11,520,885.00

Total Community Water Quality Capital Improvements $70,334,150.00
"EXHIBIT B"

CSO OUTFALLS

<table>
<thead>
<tr>
<th>CSO Number/Name</th>
<th>Location</th>
<th>Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>002 Center St.</td>
<td>37deg 46' 37&quot; / 87deg 06' 08&quot;</td>
<td>Ohio River</td>
</tr>
<tr>
<td>003 Locust St. W.</td>
<td>37deg 46' 37&quot; / 87deg 06' 58&quot;</td>
<td>Ohio River</td>
</tr>
<tr>
<td>004 Locust St. E.</td>
<td>37deg 46' 37&quot; / 87deg 06' 57&quot;</td>
<td>Ohio River</td>
</tr>
<tr>
<td>005 Dublin Lane</td>
<td>37deg 46' 48&quot; / 87deg 07' 55&quot;</td>
<td>Ohio River</td>
</tr>
<tr>
<td>006 Trippett St.</td>
<td>37deg 46' 35&quot; / 87deg 06' 16&quot;</td>
<td>Ohio River</td>
</tr>
<tr>
<td>007 Daviess St.</td>
<td>37deg 46' 36&quot; / 87deg 06' 37&quot;</td>
<td>Ohio River</td>
</tr>
<tr>
<td>008 Frederica St.</td>
<td>37deg 46' 36&quot; / 87deg 06' 49&quot;</td>
<td>Ohio River</td>
</tr>
<tr>
<td>009 Sycamore St.</td>
<td>37deg 46' 37&quot; / 87deg 07' 19&quot;</td>
<td>Ohio River</td>
</tr>
</tbody>
</table>
“EXHIBIT C”
EARLY ACTION PLAN CAPITAL IMPROVEMENT PROJECTS

Center Street Pump Station - The Regional Water Resource Agency (RWRA) is proposing to rehabilitate and upgrade the Center Street Pump Station. The Pump Station capacity will be significantly increased upon completion of this portion of the project. The combined sewer system has three primary pump stations, the other two of which were rehabilitated in 2000. This project is part of a multi-phased approach to making full use of the newly increased capacity of the West WWTP (from 12.5 MGD to 35.7 MGD). The cost is estimated at $1.2 M, and should be completed by January 1, 2008.

Center Street Force Main
The RWRA is proposing to construct a new force main extending from the Center Street Pump Station to the RWRA’s West WWTP (3.3 miles). The newly constructed force main will allow for the direct conveyance of combined sewage/wastewater from the Center Street Tunnel Sewer Basin to the West WWTP (presently the system pumps into the Locust gravity sewer system). The force main will also have connections at the RWRA’s two remaining primary combined sewer pump stations, providing redundancy in the event that either the new or old force main fails, or requires maintenance. This project is part of a multi-phased approach to making full use of the newly increased capacity of the West WWTP (from 12.5 MGD to 35.7 MGD). The cost is estimated at $6.7 M, and should be completed by July 1, 2008.

Avondale Pump Station Diversion – The Avondale Pump Station provides service to various streets that are served by a separate sanitary sewer system. The flow from the pump station is pumped into the RWRA’s combined sewer system (Center St. System). The proposed project would require the upgrade to the pump station and construction of a directionally drilled force main to divert flow away from the combined system and into the RWRA’s separate sanitary sewer system. The cost is estimated at $140,000, and should be completed by July 1, 2008.

Highway 60 East Sewer Extension Project - This project involves the construction of collector sewers in four neighborhoods containing approximately 220 properties. The neighborhoods included in this project are: Glenn Court Subdivision, Maple Heights Subdivision, Westerfield Drive area and Brown Addition. The Brown Addition neighborhood, constructed in the 1930’s, is served by a private combined sewer collection system (i.e., a neighborhood straight-pipe system discharging to the Ohio River on a continuous basis) which was not in close proximity and, therefore, never connected to a wastewater treatment facility. This project is part of RWRA’s continued efforts to address environmental issues within the community. The remaining neighborhoods involved with this project have noted environmental issues such as improper straight connections and/or inadequate septic systems, etc. Once completed, these known environmental concerns will be eliminated. The cost is estimated at $950,000, and completion of the project, including connection of the associated properties, should be completed by January 1, 2009.
COMMONWEALTH OF KENTUCKY
ENVIRONMENTAL AND PUBLIC
PROTECTION CABINET

V.

REGIONAL WATER RESOURCE AGENCY
OF OWENSBORO, DAVIES COUNTY, KENTUCKY

PLAINTIFF

DEFENDANT

OPINION AND ORDER

This Court having considered the arguments made before the Court regarding the entry of this Consent Judgment, and otherwise being sufficiently advised, ORDERS that the Consent Judgment be entered. This Court finds that any concerns voiced by others at the hearing regarding public comment will be addressed in the procedures surrounding the formation of a Long Term Control Plan.

IT IS HEREBY ORDERED that the consent judgment submitted to this Court be ENTERED.

This 4th day of September, 2007.

THOMAS D. WINGATE
JUDGE, FRANKLIN CIRCUIT COURT
DIVISION NO. II
WHEREAS, it is determined and declared to be necessary and conducive for the protection of the public health, safety, and welfare of the citizens of Owensboro and Daviess County, Kentucky; to protect the facilities of the Regional Water Resource Agency (hereinafter referred to as "Agency") and the operation thereof; and

WHEREAS, this Agency seeks to provide for the use of its wastewater treatment and collection systems without damage to the physical facilities, without impairment of the normal function of collection and treatment of the wastewater discharge by users, and without the release of pollutants into the environment; and

WHEREAS, it is unlawful to dispose of unpermitted waste or otherwise use the wastewater facilities except as in compliance with Federal Standards pursuant to the Clean Water Act and Kentucky State Law and Regulations;

NOW, THEREFORE, BE IT ORDAINED BY THE OWENSBORO-DAVIESS COUNTY, KENTUCKY REGIONAL WATER RESOURCE AGENCY AS FOLLOWS:
ARTICLE I

Section 1. Purpose.

This regulation provides the Agency with uniform requirements governing the connection to, and the contribution of, wastewater to Agency facilities through the issuance of permits to both domestic and non-domestic users; authorizes monitoring and enforcement activities, and allows the Agency the latitude to administer adequate penalties to users who violate provisions herein.

Section 2. Definitions.

Unless the context specifically indicates otherwise, the meanings of the terms used in this regulation shall be:

Act: The Federal Water Pollution Control Act, also known as the Clean Water Act, as amended, 33 U.S.C. 1251, et seq.


Agency Facilities: Any structure, appurtenance, wastewater collection system line, lift station, wastewater treatment equipment, or any other part of the wastewater system owned by the Regional Water Resource Agency.

Authorized Industrial User Representative: A designated representative from an Industrial User authorized to act on the Industrial User's behalf, as per 40 CFR, part 403.


BOD or Biochemical Oxygen Demand: The measure of decomposable organic
material in domestic or industrial wastewaters as represented by the oxygen utilized over a period of five (5) days at twenty (20) degrees Celsius and as determined by the appropriate procedure in "Standard Methods."

**Building Drain:** That part of the lowest horizontal piping of a private, commercial or industrial drainage system which receives the discharge from soil, waste and other drainage pipes inside the walls of the building and conveys it to the wastewater service connection, beginning five (5) feet outside the inner face of the building wall.

**Categorical Pretreatment Standards:** National Categorical Pretreatment Standards or Pretreatment Standard. Any regulation containing pollutant discharge limits promulgated by the EPA in accordance with Section 307(b) and (c) of the Act (33 U.S.C. 1347) which applies to a specific category of industrial users.

**Categorical User:** An Industrial User, subject to categorical pretreatment standards.

**Combined Sewer:** A sewer receiving both surface runoff and wastewater.

**Combined Wastestream Formula (CWF):** Procedure for calculating alternative discharge limits at industrial facilities where a regulated wastestream is combined with other non-regulated wastestreams, prior to treatment (40 CFR 403.7).

**Dilute Wastestream:** Boiler blow down, sanitary wastewater, non-contact cooling water, and certain process wastestreams that have been excluded from regulation in Categorical Pretreatment Standards because they contain none or only trace amounts of the regulated pollutant.

**Direct Discharge:** The discharge of treated or untreated wastewater directly to the waters of the Commonwealth of Kentucky.
**Discharger:** Any person, business, industry or entity that discharges or causes a discharge to a public sewer.

**Domestic Wastewater:** The water-carried wastes produced from noncommercial and non-industrial activities and which result from normal human living processes.

**Easement:** An acquired legal right for the specific use of land owned by others.

**Effluent:** The liquid outflow of any facility designed to treat, convey or retain wastewater.

**Environmental Protection Agency or EPA:** The U.S. Environmental Protection Agency, or where appropriate, the term may also be used as a designation for the Administrator or other duly authorized official of said agency.

**Executive Director (or their designee):** The person designated by the Agency (or person so designated to act on behalf of the Director in their absence) to supervise the operations of the wastewater system, and who is charged with certain duties and responsibilities by this regulation.

**Flow Recorder:** A devise installed on a customer's wastewater discharge line in such a manner as to accurately determine the wastewater flow entering the sanitary or combined sewer system.

**Flow Weighted Averaging Formula (FWA):** A procedure used to calculate alternative limits for a categorical pretreatment standard, where regulated and non-regulated wastestreams combine after treatment, but prior to the monitoring point as defined in 40 CFR 403.

**Garbage:** Animal and vegetable waste resulting from the handling, preparation, cooking and serving of food in home kitchens, stores, markets, restaurants, motels,
hotels and other places where food is stored, prepared or served. Specifically excluded are food processing wastes from canneries, slaughterhouses, packing plants and similar industries.

*Indirect Discharge:* The discharge or the introduction of non-domestic pollutants from any source regulated under Section 307(b) or (c) of the Act, (33 U.S.C. 1317), into the POTW (including holding tank waste discharged into the system).

*Industrial User:* A user who is the owner of record, the lessee, sublessee, licensee, permittee or other person in possession of real property used as a manufacturing or processing establishment or a commercial or industrial operation which contributes wastewater to the Agency treatment facilities.

*Industrial Wastewater:* All water-carried wastes and wastewater of the community excluding domestic wastewater and uncontaminated water, and shall include all wastewater from any producing, manufacturing, processing, institutional, commercial, agricultural or other operation where the wastewater discharged includes significant quantities of wastes of nonhuman origin.

*Interference:* A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

1. Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and

2. Therefore is a cause of a violation of any requirement of the Agency's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of wastewater sludge use or disposal in compliance with the following statutory provisions and regulations or
permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of the SWDA), the Clear Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

**Interceptor:** A device designed and installed so as to separate and retain deleterious, hazardous, or undesirable matter from normal waste, which permits normal wastewater, or liquid waste to discharge into the wastewater system by gravity. Interceptor as defined herein is commonly referred to as "grease, oil and sand" interceptor.

**May:** This is permissive (see "shall").

**Mg/l:** Milligrams of a material per liter of liquid.

**Natural Outlet:** Any gravity flow outlet into a watercourse, pond, ditch, lake or other body of surface water or groundwater.

**New Source:** Any building, structure, facility or installation from which there is or may be a discharge of pollutants, the construction of which commenced after the publication of proposed Pretreatment Standards under Section 307 (c) of the Act, which will be applicable to such source if such Standards are thereafter promulgated in accordance with that section, provided that:

(a) The building, structure, facility or installation is constructed at a site at which no other source is located; or
(b) The building, structure, facility or installation totally replaces the process or production equipment that causes the discharge or pollutants at an existing source; or

(c) The production or wastewater generating processes of the building, structure, facility, or installation is substantially independent of an existing source at the same site. Factors such as the extent to which the new facility is integrated with the existing plant, and the extent to which the new facility is engaged in the same general type of activity as the existing source should be considered when a determination is made concerning the substantial independence from the existing source.

Parameter: A component or property of wastewater that places an identifiable demand on the wastewater system.

Pass through: A discharge which exits the wastewater treatment facilities into the environment in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the Agency's NPDES permit (including an increase in the magnitude or duration of a violation).

Person: Any individual, partnership, committee, association, corporation, public agency, firm, company and any other organization or group or persons, public or private.

pH: The reciprocal of the logarithm of the hydrogen ion concentration that is the weight of hydrogen ions in grams per liter of solution.

Pollutant: Any dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical, wrecked or discharged equipment, rock, sand,
cellar dirt and industrial, municipal, and agricultural waste discharged into water.

*Pretreatment Coordinator:* A representative of the Agency who works with the industrial users to coordinate and implement the Agency's industrial pretreatment program.

*Private Water System:* Water from sources other than a public water system.

*Private Wastewater Disposal System:* A septic tank, package treatment plant, or any other non-Agency facility designed to process wastewater.

*Properly Shredded Garbage:* The wastes from the preparation, cooking and dispensing of food that has been shredded to such a degree that all particles will be carried freely under the flow conditions normally prevailing in public sewers, with no particle greater than one-half inch in any dimension.

*Public Sewer:* Any sewer dedicated to public use and whose use is controlled by the Agency.

*Publicly Owned Treatment Works (POTW):* Used as a reference to any Agency Treatment Facility.

*Public Wastewater System:* See "Wastewater Facilities".

*Sanitary Sewer:* A sewer which carries domestic and/or industrial wastewater and to which stormwaters, surfacewaters and groundwaters are not intentionally admitted.

*Sewer:* A pipe or conduit for carrying wastewater.

*Shall:* Is mandatory (see "May").

*Significant Industrial User (SIU):* All Categorical Industrial Users; any non-categorical industrial discharges of 25,000 gallons per day or more of process wastewater, or contributes a process wastestream which makes up five percent (5%) or
more of the average dry weather hydraulic or organic capacity of the treatment plant, or has a reasonable potential, in the opinion of the Agency to adversely affect plant operation, receiving water, or the environment.

**Slug Discharge or Load:** Any pollutant (including Biochemical Oxygen Demand and Suspended Solids) released in a discharge at a flow rate or concentration that will cause interference or damage the operation of Agency facilities.

**Standard Methods:** The current edition of "Standard Methods for the Examination of Water and Wastewater" as published by the American Public Health Association.

**State:** Commonwealth of Kentucky.

**Storm Drain (sometimes termed, "storm sewer"):** A pipe or conduit for carrying storm and surface water drainage, but excludes any domestic or industrial wastewaters.

**Stormwater:** Water that enters inlets or drains connected to storm or combined sewers following wet weather events.

**Surcharge:** A charge for services in addition to the basic wastewater user and debt service charges, for those users whose contributions contain Biochemical Oxygen Demand (BOD), Suspended Solids (TSS), or any other parameter in concentrations that exceed limits specified herein for such pollutants. Where permitted by the Agency, payment of a surcharge will authorize the discharge of the referenced pollutants, so long as the discharge does not cause pass-through or interference.

**Suspended Solids (TSS):** The insoluble solid matter suspended in wastewater that is separable by laboratory filtration in accordance with the procedure described in "Standard Methods".

**Toxic Pollutant:** Any pollutant or combination of pollutants listed as toxic in
regulations promulgated by the administrator of EPA under provisions of the Clean Water Act 307(a) or any amendments thereto.

Unregulated Wastestream: A wastestream that is not regulated by National Categorical Pretreatment Standards.

Upset: Disruption in the wastewater system caused by interference (as defined herein).

User: An owner or occupant, whether private, governmental or otherwise, of a unit, building, premises or lot in the Agency service area who is responsible for payment of metered water charges or who contributes to the wastewater system from sources other than those of public water.

Wastewater: The water-carried wastes of the community derived from human or industrial sources, including both domestic and industrial wastewater. Rainwater, groundwater or drainage of uncontaminated water is only a constituent of wastewater in a combined sewer system.

Wastewater Discharge Permit: A permit issued by the Agency to industrial users that authorizes discharges to Agency facilities, as set forth in this regulation.

Wastewater Facilities (System): Any and all Agency facilities used for collecting, conveying, pumping, treating and disposing of wastewater.

Wastewater Service Line: The sewer that extends from a property, building, or facility to the wastewater system sewer tap. The construction and maintenance of the wastewater service line shall be the responsibility of the property owner.

Wastewater System Sewer Tap: The sewer that extends from the sewer main to a right-of-way or property line.
Wastewater Treatment Plant: Any arrangement of devices and structures used for treating wastewater.

Watercourse: A channel in which a flow of water occurs, either continuously or intermittently.

ARTICLE II

Section 1. Connection to Agency wastewater facilities required.

(a) It shall be unlawful for any person to place, deposit, or permit to be deposited, any pollutant or other objectionable waste in an improper or unsanitary manner on public or private property within the jurisdiction of the Agency, except as in compliance with the provisions of this regulation and applicable state and federal laws.

(b) It shall be unlawful to discharge to any natural outlet in any area under the jurisdiction of the Agency, any wastewater or other polluted waters except where suitable treatment has been provided in accordance with the provisions of this regulation.

(c) Except as hereinafter provided, it shall be unlawful to construct or maintain facilities intended or used for the disposal of wastewater within the Agency's service area, without review and approval of the Agency or its representative.

(d) The owner of all houses, building or properties used for human occupancy, employment, recreation or other purposes, situated within the Agency
service area and abutting on any right-of-way or easement in which there is
now located or may in the future be located a public wastewater system of
the Agency, is hereby required at owner's expense to install suitable toilet
facilities therein, and to connect such facilities directly to proper public
sewers in accordance with the provisions of this regulation, within ninety
(90) days after date of official notice to do so.

**ARTICLE III**

**Section 1. Wastewater System Connection, Permitting, and Fees.**

(a) No person shall uncover, make any connections with or opening into, use,
alter or disturb any public sanitary or combined sewer or appurtenance
thereof without first obtaining permission from the Agency.

(b) It shall be necessary for a licensed and bonded plumber representing the
property owner to notify an Agency representative, and provide at least ten
(10) days notice prior to intention to connect to the public wastewater
system. Such notice shall be in the form of an application for a wastewater
discharge permit. It shall be the duty of said representative to notify the
permittee, at the time of issuance of the permit, the location at which the
wastewater service connection is to be made.

(c) All materials used for construction of connections to the wastewater system
shall be in accordance with current Agency-approved ASTM standards.

(d) All wastewater system connections will be installed so as to meet or exceed
the most current revision of the State Plumbing Code.

(e) A separate and independent wastewater service connection shall be provided for every building. Where existing building locations and other physical features make this an unusual hardship and may prevent resolution of an undesirable wastewater problem, the Agency or its designee may approve exceptions; such exceptions to be in writing as part of the permit and recorded for future reference.

(f) Old wastewater service connections may be used for new buildings only when they are found on examination by an Agency representative to meet all requirements of this regulation and be in sound and unobstructed condition.

(g) There shall be three (3) types of wastewater discharge permits that may be issued by the Agency:

(1) Residential or commercial service (Article III, Section 1);

(2) Vehicle-transported waste hauler (Article IV, Section 2); and

(3) Industrial discharge permits (Article V)

The owner or their agent shall make application to the Agency for the appropriate wastewater discharge permit. The permit application shall be supplemented by any plans, specifications or other information considered pertinent by the Agency. Permit fees and connection charges as established by the Agency shall be paid prior to permit approval and wastewater system connection.
(h) It shall be necessary for permit applicants to obtain and file a bond with corporate surety to be approved by, and in the amount to be fixed, by the Agency or its representative, prior to acquiring permits, in order to insure that the permittee shall satisfy the requirements as set forth in Article III, Section 2(c) of this regulation. The bond shall be for a period of three years, and shall be renewed on an annual basis.

(i) The Agency shall establish a wastewater system connection fee. The connection fee shall offset the costs of administering Agency functions, which includes but is not limited to, maintaining customer records for billing purposes, recording and mapping locations for wastewater system connection, providing wastewater system information and connection location to contractors, developers, and property owners, and the inspection of connections to the wastewater system, etc. This fee shall be assessed for all new wastewater system connections, whether or not a wastewater system sewer tap exists.

(j) The Agency shall establish a fee for properties requiring the installation of a wastewater system sewer tap. The fee shall be adequate to cover the installation costs of the tap from the sewer main to the right-of-way or property line, and shall be in addition to the wastewater system connection fee outlined previously in item (i) of this section. Said installation shall be performed by the Agency or its designated representative.

(k) The Agency may establish fees and/or surcharges for areas that require new or expanded wastewater services. These fees and/or surcharges will
offset costs to provide service to those areas.

Section 2. Installation, inspection, and repair costs.

(a) The applicant must contact the Agency prior to the physical connection of the property's wastewater service line to the wastewater system sewer tap. This connection shall be made under the supervision or authorization of the Agency. All connections shall be tested according to Agency-approved guidelines.

(b) All costs and expenses associated with the installation and connection to Agency facilities shall be the responsibility of the owner or applicant. The owner shall indemnify the Agency for any loss or damage that may be directly or indirectly be resulting from the installation of, or connection to, Agency facilities.

(c) Permit applicants shall replace, backfill, or reconstruct, in accordance to Agency standards and specifications, any disturbed properties which may include, but are not limited to, openings or cuts in any sidewalk, grass plot, or other public way which becomes necessary in order to connect to Agency facilities. All costs associated with said replacement shall be the responsibility of the applicant.

(d) The owner or applicant shall insure that all excavations for repair or connection to Agency facilities shall be adequately guarded with barricades and/or any other safety devices necessary to protect the public.

(e) In the event it should become necessary to make a cut in a public street in
order to repair a wastewater system sewer tap, the Agency or its representative at the specific request of the plumber shall, after a reasonable notice, perform the necessary work and charge the plumber based upon a time and material cost. Street surface repair costs will also be the responsibility of the plumber requesting the wastewater service connection repair.

Section 3. Inflow sources prohibited.

(a) Connection of roof, foundation, inlet, or any other drains (whether connected directly or indirectly) or any other intentional source of stormwater, surface water runoff, or groundwater inflow to Agency sanitary sewers is prohibited.

(b) Wastewater service lines serving structures which have been demolished or otherwise destroyed shall be disconnected at or near the right-of-way or easement line and sealed as approved by a representative of the Agency to prevent water, dirt, etc., from entering the public wastewater system.

Section 4. Easement Restrictions.

The Agency shall prohibit the placement of any permanent structures on Agency easements. Any non-permanent structures (i.e., fences, storage buildings, etc.) or vegetation (i.e., trees, shrubs, flower beds, etc.) placed on Agency easements are placed on said easement at the risk of the property owner. Any damage to such structures or vegetation due to sewer failure, sewer repair work, or other sewer-related problems are
not the responsibility of the Agency. Replacement costs are also the responsibility of the property owner.

ARTICLE IV

Section 1. Private Wastewater Disposal.

(a) Where public wastewater service is not available, the Agency may allow connection to a private wastewater disposal system complying with the requirements of the Agency or the Daviess County Health Department and with the provisions of this regulation.

(b) At such time as public wastewater service becomes available to a property served by a private wastewater disposal system, a direct connection shall be made to the public wastewater system within ninety (90) days after notification by the Agency and in compliance with this regulation. The private wastewater disposal facility shall be abandoned and filled with suitable material, or removed, in accordance with requirements of the Daviess County Health Department, the Regional Water Resource Agency, or any future agency of jurisdiction.

(c) The owner shall operate and maintain the private wastewater disposal facility in a sanitary manner at all times, at no expense to the Agency.

(d) No statement contained in this regulation shall be construed to interfere with any additional requirements that may be imposed by the Daviess County Health Department, the Kentucky Department for Natural Resources and Environmental Protection, or any other state or federal
agency having authority over such matters.

ARTICLE V – VII  Adopted as Regional Water Resource Agency Pretreatment Regulation

ARTICLE VII  Adopted as Regional Water Resource Enforcement Response Plan and Guide

Adopted November 2009
Revised May 14, 2013
The Owensboro-Daviess County

Regional Water Resource Agency

COMPLIANCE DOCUMENT
for
NINE MINIMUM CONTROLS

August 29, 2008
TABLE OF CONTENTS

INTRODUCTION ............................................................................................................. 1

NINE MINIMUM CONTROLS....................................................................................... 2

1. Proper Operation and Maintenance ("O&M") .................................................................. 2

2. Maximum Use of the Collection System for Storage ......................................................... 3

3. Review and Modification of Pre-treatment Requirements .................................................. 3

4. Maximization of Flow to the POTW for Treatment .......................................................... 6

5. Elimination of CSOs During Dry Weather ....................................................................... 6

6. Control of Solid and Floatable Materials in CSOs ............................................................ 7

7. Pollution Prevention Programs to Reduce Contaminants in CSOs ................................... 8

8. Public Notification ........................................................................................................... 8

9. Monitoring to Characterize CSO Impacts and Efficacy of CSO Controls ....................... 8

APPENDIX A

APPENDIX B

APPENDIX C
INTRODUCTION

The Owensboro-Daviess County Regional Water Resource Agency ("RWRA") is the regional provider of comprehensive wastewater services for Daviess County, Kentucky, with the exception of the 201 Facilities Planning area boundary of Whitesville, Kentucky. The Regional Water Resource Agency is responsible for the combined sewer system that resides within its service area. RWRA is required by the United States Environmental Protection Agency ("EPA") to implement Nine Minimum Controls ("NMC") associated with the combined sewer system. This document will outline RWRA’s programs, policies and projects that have and will be implemented as part of RWRA’s conformance with these requirements.

RWRA received a letter from EPA on May 27, 2004 requesting information pursuant to Section 308 of the Clean Water Act regarding RWRA’s initiatives associated with conformance of the 1994 Combined Sewer Overflow (CSO) Control Policy. On July 16, 2004, RWRA submitted a response to the EPA request. [See Appendix A] On August 31, 2004, EPA conducted a compliance inspection associated with RWRA’s conformance of CSO Control Policy objectives. [See Appendix B] Following EPA’s request for information, RWRA’s Section 308 Response of July 16, 2004 and EPA’s compliance inspection, RWRA received a written compliance report addressing RWRA’s conformance with the Nine Minimum Controls for the community. The results of the report are set forth in the following table:

<table>
<thead>
<tr>
<th>2004 EPA NINE MINIMUM CONTROL COMPLIANCE REPORT FINDINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Measure</td>
</tr>
<tr>
<td>1. Proper Operation and Maintenance</td>
</tr>
<tr>
<td>2. Maximum Use of Collection System for Storage</td>
</tr>
<tr>
<td>3. Review and Modification of Pre-treatment Requirements</td>
</tr>
<tr>
<td>4. Maximization of Flow to the POTW for Treatment</td>
</tr>
<tr>
<td>5. Elimination of CSOs during Dry Weather</td>
</tr>
<tr>
<td>6. Control of Solid and Floatable Materials in CSOs</td>
</tr>
<tr>
<td>7. Pollution Prevention Programs to Reduce Contaminants in CSOs</td>
</tr>
<tr>
<td>8. Public Notification</td>
</tr>
<tr>
<td>9. Monitoring to Characterize CSO Impacts and the Efficacy of CSO Controls</td>
</tr>
</tbody>
</table>
This document outlines RWRA’s status associated with the Nine Minimum Controls of the CSO Policy. EPA’s previous findings and recommendations will be delineated identifying RWRA’s compliance or deficiencies for each specific control. This document contains descriptions of RWRA’s subsequent efforts to achieve compliance with each control measure that EPA deemed deficient in 2004.

**NINE MINIMUM CONTROLS**

1. **Proper Operation and Maintenance ("O&M")**

   **Findings and Recommendations**

   “Proper operation and regular maintenance of the combined sewer system and CSO outfalls, should consist of a program that clearly establishes operation, maintenance, and inspection procedures to ensure that the combined sewer system and treatment facilities will function in a way to maximize treatment of combined sewage and still comply with NPDES permit limitations. Implementation of this minimum control will reduce the magnitude, frequency, and duration of CSOs by enabling existing facilities to perform as effectively as possible.

   RWRA does not have a written or specific O&M plan for the wastewater collection system. However, RWRA does perform wastewater collection system O&M activities. RWRA needs to document their O&M efforts for the wastewater collection system by developing a written O&M plan. For the purposes of the CSO Control Policy, a proper O&M program generally should include:

   a. The organizations and people responsible for various aspects of the O&M program;
   b. The resources (i.e., people and dollars) allocated to O&M activities;
   c. Planning and budgeting procedures for O&M of the combined sewer system and treatment facilities;
   d. A list of the facilities (e.g., tide gates, overflow weirs, pump stations) critical to the performance of the combined sewer systems;
   e. Written procedures and schedules for routine, periodic maintenance of major items of equipment and CSO diversion facilities, as well as written procedures to ensure that regular maintenance is provided;
   f. A process for periodic inspections of the facilities listed previously;
   g. Written procedures, including procurement procedures, if applicable, for responding to emergency situations;
   h. Policies and procedures for training O&M personnel; and
   i. A process for periodic review and revision of the O&M program.”
According to EPA’s findings, RWRA did not have a written specific O&M Plan for the wastewater collection system at the time of the compliance inspection. RWRA performed the duties associated with the proper operation and maintenance of its system and has recently completed a written O&M Plan outlining its program. All of the above-listed items have been addressed in RWRA’s O&M document, which is submitted under separate cover as an attachment to this document [See Appendix C], for review and approval by the Kentucky Environmental and Protection Cabinet.

2. **Maximum Use of the Collection System for Storage**

   **Findings and Recommendations:**

   “Maximum use of the collection system for storage means making relatively simple modifications to the combined sewer system to enable the storage of wet weather flows in the system until the downstream sewer lines and treatment facilities can handle the flow. **Based on the above information, RWRA is implementing this minimum control.**”


3. **Review and Modification of Pre-treatment Requirements**

   **Findings and Recommendations:**

   The objective of this minimum control is to minimize the impacts of discharges into the combined sewer system from non-domestic sources during wet weather events. Some of the control measures that should be implemented include:

   a. **Inventory of non-domestic discharges to the combined sewer system which includes volume of discharges, pollutants, and concentrations in the discharge.**

   b. **Assess the impact of non-domestic discharges on CSOs.**

   c. **Evaluate feasible modifications to the pretreatment program if the assessment indicates that non-domestic sources might contribute significantly to CSOs.**
RWRA should document any actions taken to demonstrate their efforts to meet this minimum control. Based on the above information, RWRA is not fully implementing this minimum control.


RWRA has implemented additional programs to address control measures outlined in EPA’s findings.

a) RWRA has completed an inventory of all non-domestic facilities that discharge to the combined system. Each Significant Industrial User ("SIU") is required to be permitted by RWRA and the permits contain each of the following parameters: the volume of discharges, characteristics of potential pollutants and concentrations in their discharges. The inventory of the remaining non-domestic facilities categorizes each into groups such as food service facilities, service stations, stores, etc. The inventory for these facilities also includes information for pre-treatment such as the size of an oil water/grease interceptor, grease trap, etc.

b) The information collected on the inventory allows RWRA to determine the impact of the non-domestic discharges on the CSOs within the RWRA system. RWRA has completed numerous efforts to reduce the impact of potential SIU discharges. Of the 17 SIUs that originally discharged to the RWRA combined system, RWRA has redirected nine out of the CSS. The results of these efforts significantly reduce the potential of negative environmental impact associated with these facilities. A complete description of RWRA’s efforts toward SIU removal is included in RWRA’s Framework Document that will also be submitted simultaneously to both the Cabinet and EPA.

c) RWRA’s assessment of discharges from non-domestic sources have resulted in the improvements outlined in (b) above for SIUs and for the remaining non-domestic discharges indicate that current RWRA efforts are effective. However, RWRA plans to expand the methodology for managing facilities that have potential grease/oil discharges in order to coordinate inspection and additional cleaning efforts to minimize system impacts. Further, RWRA has submitted recommendations to the Cabinet for minor modifications in pre-treatment discharge limits that are currently being reviewed.
The following information will be simultaneously submitted, under separate cover, as part of RWRA’s Framework Document:

It is RWRA’s opinion that industrial discharges entering a CSS that could potentially overflow at a CSO could pose a significant threat to the long-term state of the environment and the health and safety of humans. A vital component to minimize such potentially hazardous discharges is to administer a strict pre-treatment program to properly protect the system and ultimately the environment from such discharges. RWRA initiated and enforces a stringent pre-treatment program that is based on established low discharge limits regarding potentially hazardous/toxic material from Significant Industrial Users (“SIU”). Along with the cooperation from representatives of The Cabinet’s Enforcement Branch, RWRA has developed an ongoing inspection program of the SIUs’ facilities for appropriate site management for control of pollutant discharges including run-off. Additionally, programs are being initiated by RWRA to inventory, assess, inspect and manage fats, oils and grease (“FOG”) from restaurants, other food service industries, car washes, car maintenance and fueling facilities, etc. The Cabinet has acknowledged RWRA’s past performance in its pre-treatment program measures and it is RWRA’s intent to remain proactive in this program.

As part of RWRA’s program outlined in Component I, RWRA evaluates each existing and potential SIU discharge location to determine the most advantageous point at which to introduce the effluent in a manner to reduce potential environmental hazards. The goal of this evaluation process is to minimize flows from SIUs that could potentially overflow through a CSO. Currently, RWRA provides service to 23 SIUs. Six of the SIUs are piped into a network that does not have connection to the CSS. The proximity of nine of the SIUs would have required discharge to the CSS; however, previous construction efforts of RWRA facilities have redirected flow from these SIUs to the treatment plants without entering the CSS. The flow from the nine (9) SIUs that have been redirected from the CSS comprised the majority of the flow that entered the CSS from SIUs. These efforts have eliminated the possibility of contamination of overflows from the CSS associated with these specific SIUs involved. Three of the remaining eight SIUs that discharge to the CSS are food processors and have relatively low potential for a
negative environmental impact. RWRA continues to evaluate the five remaining SIUs to minimize the potential environmental impact from those discharges.

4. **Maximization of Flow to the POTW for Treatment**

*Findings and Recommendations:*

Maximizing flow to the wastewater treatment plant entails simple modifications to the combined sewer system to enable as much wet weather flow as possible to reach the treatment plant. The objective is to reduce the magnitude, frequency and duration of CSOs during wet weather.

Based on the above discussion, RWRA has studied its combined sewer system to understand its limitations and has implemented projects to maximize flow to the wastewater treatment plant. RWRA is currently in the design phase for another project that will increase transmission capacity up to the maximum capacity of the West wastewater treatment plant, hence maximizing flow to the West wastewater treatment plant. Based on the above information, RWRA is adequately implementing this minimum control.

[EPA Compliance Inspection Report, August 31, 2004, p. 8-9]

5. **Elimination of CSOs During Dry Weather**

*Findings and Recommendations:*

Elimination of dry weather overflows includes measures taken to ensure that the combined sewer system does not overflow during dry weather conditions. The information submitted by RWRA indicates that there is a very small number of dry weather CSOs. This could be an indication that current O&M efforts and improvements to the system prevent dry weather CSOs. However, RWRA should develop and implement, as part of the O&M program, an inspection program of combined sewer system critical components (dams, weirs, CSO outfalls) to identify potential dry weather overflow occurrences that may not be identified through current efforts. Based on the above information, RWRA is implementing this minimum control.
6. Control of Solid and Floatable Materials in CSOs

Findings and Recommendations:

This control is intended to reduce, if not eliminate, visible solid and floatable materials from the CSO overflows using relatively simple measures. Simple devices including baffles, screens and racks can be used to remove coarse solids and floatables from combined sewage, and devices such as booms and skimmer vessels can help remove floatables from the surface of the receiving water body. Solid and floatable materials include street litter that enters the combined sewer system, commercial, industrial and household (personal hygiene items flushed down toilets) materials.

As discussed above, RWRA does have some prevention programs in place. However, no end-of-pipe (CSO outfall or diversion structures) devices have been studies or constructed to control solid and floatable materials. RWRA should study and consider the construction of end-of-pipe solid and floatable material controls to reduce, if not eliminate, the solid and floatable materials entering the streams. Based on the above information, RWRA is not fully implementing this minimum control.

RWRA has continued the prevention programs that are outlined in the Section 308 Response to reduce potential solid and floatable material from entering the CSS. RWRA is in the process of designing end-of-pipe solid and floatable control measures for the Locust Street Tunnel Outfall. Under consideration is modification of the outfall structure including: raised elevation of the overflow weir, installation of an additional baffle wall to contain floatable material and reconfiguration of the river check valve. If this design concept proves successful, RWRA plans to incorporate similar measures at other tunnel sewer outfall structures. These solid and floatable material removal measures will be further described in RWRA’s LTCP submittal.
7. Pollution Prevention Programs to Reduce Contaminants in CSOs

**Findings and Recommendations:**

The intention of pollution prevention activities is to keep contaminants from entering the combined sewer system and the receiving waters via CSOs. RWRA has implemented several pollution prevention programs to reduce contaminants in CSOs as discussed above. RWRA should consider the development of a public education program that encourages the proper disposal of sanitary and personal hygiene items. This is one of the public’s greater concerns and could close recreational areas near the river. Based on the above information, RWRA is implementing this minimum control.


8. Public Notification

**Findings and Recommendations:**

The purpose of this control is to inform the public of the location of CSO outfalls, the actual occurrences of CSOs, the possible health and environmental effects of CSOs, and the recreational or commercial activities (e.g., swimming and fishing) curtailed as a result of CSOs.

As mentioned above, RWRA has implemented public notification programs. Additional programs that RWRA could contemplate for implementation include notices in newspapers, brochures or bill inserts, and discussions about CSOs and its impacts during lectures and tours conducted by RWRA. Based on the above information, RWRA is adequately implementing this minimum control.


9. Monitoring to Characterize CSO Impacts and Efficacy of CSO Controls

**Findings and Recommendations:**

This control is an initial characterization of the combined sewer system to collect and document information on overflow occurrences and known water quality problems and incidents, such as river front closures and fishing advisories, that reflect use
impairments caused by CSOs. This control involves visual inspections and other simple methods to determine the occurrence and apparent impacts of CSOs.

RWRA is implementing some activities related to this minimum control. However, RWRA should establish a program to record the number of CSO overflows at as many outfalls as feasible. This should include date and time of each overflow, and should measure total daily rainfall. At a minimum, RWRA should develop information on the frequency of overflows at individual CSO points in the system. This could also be achieved by using a calibrated model of the combined sewer system. Some measures that could be used include visual inspection of CSOs during a wet weather event, visual inspection with inspection aids (chalk marks, wood blocks, etc.), or automatic measurement.

This minimum control should provide RWRA useful information on the general performance of the combined sewer system and the effect of control measures. RWRA should document the improvements achieved due to the implementation of CSO control measures. Based on the above information, RWRA is deficiently implementing this minimum control.


RWRA has developed a methodology to demonstrate the cumulative effectiveness of the programs, policies and projects that have been initiated and will be implemented as part of the long-term approach to mitigate CSOs within the RWRA system. This will be accomplished through post-construction monitoring and subsequent data acquisition that will be recorded during wet weather events that affect the CSS. A comprehensive record of system performance will be developed and reviewed to establish a benchmark with which to measure RWRA’s success. Pertinent system-wide information will be collected during wet weather events and used to create an annual database that will demonstrate the total mass loadings captured for treatment annually.

RWRA installed metering devices at the major outfalls that allow for the accurate collection of data specific to each outfall. This data will be collected, assimilated and converted into a spreadsheet(s) and/or a graphical format. The LTCP submittals will include a summary of this information.
The graphs [See Fig. 12] illustrate the methodology that will be submitted as part of RWRA’s post-construction monitoring. The graphical illustration [See Fig. 12a] depicts the various components of wastewater/stormwater that is conveyed through the combined system during a wet weather event. This flow schematic shows the impacts associated with a wet weather event and breaks down the constituents that are associated with the event. Each event generates water with a human-based wastewater constituent, a stormwater constituent, and a combined sewage constituent each of which are reflected in the diagram.

The overflow weir line shown on the flow schematic illustrates the point at which the system no longer contains the combined sewage. Based on this illustration, all combined sewage above the overflow weir line is discharged to the Ohio River. All constituents that are below this overflow line are 100% contained in the system and conveyed to RWRA facilities for treatment.

Wet weather impacts, illustrated in the flow schematic are categorized during the time frame that the event occurs. The time component(s) of a wet weather event is divided into T_a, T_b and T_c. The T_a component is depicted as the beginning of the wet weather event affecting the CSS and ends when the overflow is initiated. The T_b component represents the duration of the overflow event. The T_c component represents the duration of time from the conclusion of the overflow until the system is no longer hydraulically impacted by the wet weather event.

In the graphical illustration(s) shown in Fig. 12, the human-based wastewater flow for each treatment facility is depicted separately. As human-based wastewater is removed and diverted from the combined system and transported directly to a treatment plant, the fully treated portion (East Plant and a small portion of the West Plant) of the flow becomes more significant in the overall program. This will be accomplished through additional separation and redirection projects associated with removal of human-based wastewater from the CSS. In simple terms, human-based wastewater diverted from the CSS is thereby eliminated from the possibility of being part of an overflow and currently receives full secondary treatment. As stormwater is removed from the CSS, the volume of discharge and duration of T_b can be reduced. As storage in the combined system is increased and/or stormwater is directed away from the system, the T_a and T_c.
components are increased. The duration of a Wet Weather Event is the sum of $T_a$, $T_b$ and $T_c$ as shown below:

\[
\text{Duration of Wet Weather Event} = \sum T_a + T_b + T_c
\]

The mass of pollutants to be captured for treatment during wet weather events is illustrated on the mass diagram [See Fig. 12b]. To better understand the evolution of the program, a mass diagram [See Fig. 12c] is provided to show the system prior to the initiation of LTCP improvements.

RWRA’s approach involves the collection and assimilation of a significant amount of data to substantiate compliance with Section II.4.a.iii of the CSO Policy. This approach will include certain assumptions:

- The first assumption is that CSS/CSO flows during a wet weather event are a uniform homogeneous mixture. For data collection and illustration purposes, the calculations assume a consistent concentration of human-based wastewater constituents introduced to the RWRA system throughout an event. This assumption should be a conservative approach as heavier solids tend to remain in the lower portion of the water column.

- The second assumption is that the generation of human-based wastewater (mass) is consistent over a 24-hour time period and throughout the year. Although flows vary throughout the diurnal cycle, it can be averaged over any period because of the random nature of wet weather events.

- The third assumption is that nationally accepted pollutant loading standards (e.g., BOD$_5$, TSS, bacteria, etc.) for human-based wastewater, combined sewage and stormwater will be used for RWRA’s post-construction compliance calculations. Specifically, RWRA will be utilizing values from Table 1.5 – Comparison of Typical Pollutants in CSOs, page 14 of Management of Combined Sewer Overflows. Based on Table 1.5, RWRA will establish an average pollutant concentration loading for various parameters from the ranges provided in the Table. Applying this methodology to a parameter such as fecal coliform, human-based wastewater (untreated domestic wastewater) concentration is $10^7$ - $10^9$ (ct/100mL), the average being $10^6$; CSO concentration is $10^5$ – $10^7$, the average being $10^6$; urban stormwater runoff concentration is $10^3$ – $10^7$, the average being $10^5$, etc.
The fourth assumption acknowledges the variation of wet weather events in calculating system efficiency. RWRA will collect annual wet weather data and assimilate this information over time to develop five-year wet weather volumetric averages. This five-year volumetric data will be used as a benchmark for comparison with each current year’s data to account for anomalies in annual wet weather patterns and therefore, develop a fair, long-term, comprehensive evaluation of the system’s effectiveness.
Figure 12 A - Flow Schematic

CSS Flows to WWTP for full treatment

Wet Weather Event

CSO discharge to Ohio River

Overflow Duration

Overflow Weir

Stormwater 100% Treated

Redirected HBW Flow from CSS to WWTP's

Human Based Wastewater (HBW)

Time (minutes)

Figures 12 B & C - Mass Diagrams (Conformance with Presumption Approach)

Figure 12 B - Post - LTCP Improvements

West Plant

Total System Flow

East Plant

Mass Capture > 85%

Mass Overflow < 15%

Figure 12 C - Pre - LTCP Improvements (Prior to East Plant Construction)

West Plant

Total System Flow

Mass Capture < 20%

Mass Overflow > 80%

1. Mass Replacements Post LTCP
2. Generated Values for Illustration
The Pre-CSS Planned Improvements illustration shown in Fig. 12c depicts the effects of wet weather events on the mass of pollutants conveyed through the CSS prior to CSS planned improvements. As shown, an overflow would occur with virtually every wet weather event with minimal mass being captured for treatment.

The Post-LTCP Improvements illustration shown in Fig. 12b depicts the effects of a wet weather event with the noted system improvements. The illustration is designed to reflect the effects of the improvements that will be implemented as a result of the Long-Term Control Plan, and that with these improvements, the system will achieve the eventual capture and treatment of 85% of the mass of pollutants generated throughout the system during wet weather events.

Each of RWRA’s outfall locations are along the Ohio River and all combined sewage that is discharged from the RWRA system enters these waters. It is RWRA’s understanding that the pollutant of concern for CSO discharges to the Ohio River is bacteria. The surrogate contaminant outlined in the mass-loading approach in the CSO Policy is BOD. However, since the constituent of concern is thought to be bacteria, such as fecal coliform, RWRA proposes to use fecal coliform loading as the basis for its mass capture calculations. RWRA can use the established methodology outlined in the Policy as part of its mathematical demonstration of compliance for this parameter. RWRA proposes that this conformance demonstration approach is effective, appropriate and all that is necessary to determine an 85% mass reduction for this small community system.
July 14, 2004

Douglas F. Mundrick, P.E., Chief, Water Programs Enforcement Branch
United States Environmental Protection Agency – Region 4
Atlanta Federal Center
61 Forsyth Street
Atlanta, Georgia 30303-8960
ATTN: John Harkins

Re: Information Request - Section 308 of Clean Water Act (CWA)
CSO Compliance Rates Project
NPDES Permit No. KY0020095, Owensboro, KY

Dear Mr. Harkins:

Following is RWRA’s response to your letter dated 05/27/04 (Received 6/3/04 with 21 day extension granted verbally by John Harkin on 6/16/04). The requests for information from EPA are shown in blue.

RWRA Formation
The Regional Water Resource Agency (RWRA) was established in 1995 as a joint city/county wastewater agency. The primary reason for the agency creation was the community’s need to extend sewer service to areas outside the City of Owensboro that were experiencing deficient package plants and septic systems.

RWRA Recent History
The listing below provides an overview of the system at the inception or RWRA compared to the condition of the system today. Further details are provided in subsequent paragraphs.

- Package Plants – since 1995, 27 area package plants have been decommissioned of a possible 38 within our 201 service area boundary, most of which had aged beyond their useful service life and several of which experienced discharge permit violations, and two of which were in an agreed order with the Kentucky Division of Water (KDOM).
- Septic Systems – The construction of several interceptor sewers and a series of pump stations has allowed RWRA to extend sewer service into several neighborhoods with failing or problematic septic systems. Collection lines have been extended to approximately 450 properties with septic tanks, with several other neighborhoods in RWRA’s “5 Year Capital Improvement Program”.
- Pump Stations – 14 sanitary sewage pump stations discharged into the combined sewer collection system in 1995. Since that time 12 have been diverted away from the combined sewer system, eliminating approximately one million gallons of SS from the CSS. The engineering design has been completed on one of the two remaining pump stations that will be diverted out of the combined sewer system; said design is under review presently by KDOM.
- West WWTP (Max Rhoads Plant) – Renovated entire plant and expanded capacity from 12 mgd dry weather to 15 mgd and 12.5 mgd wet weather to 34.5 mgd. None of CSS flow is transported to the East Plant.
- CSS Pump Stations – Upgraded two CSS pump stations to expand capacity that can be pumped to the West plant during wet weather events. Pumping capacity from the CSS to the West Plant increased from 13 mgd to 19 mgd after this project was complete.
- East Plant – Upgraded plant and modified processes in order to better handle increased flow from new growth areas and the diversions from the eliminated package plants and septic neighborhoods. The East Plant also then accepted the flow from 10 of the 12 SS pump stations that were diverted out of the CSS.
- CSO’s – The original CSOP recognized 17 overflows, of which 8 have been eliminated.

Since 1995, sewer service has been extended to an additional 3700 new customers, most of which are transfers from eliminated package plants and septic systems. None of this additional flow has been routed thru the combined sewer system. The capital costs incurred by RWRA to extend the sewer service and complete the improvements listed above were approximately $40 million.

**Planned Wet Weather Pumping Capacity**

As mentioned above the wet weather pumping capacity of the combined sewer system was upgraded from 13 mgd to 19 mgd. RWRA is currently in the design / easement acquisition phase of a project that would further increase the wet weather pumping capacity of the three combined sewage pump stations. Please see the section on “Maximizing flow to the POTW for Treatment” for detailed discussion.

**Planned System Separation**

Efforts are underway by the City of Owensboro to expand the City’s storm system capacities on the south side of Owensboro. These flood control initiatives will allow for some immediate and additional long term separation projects in the southern portion of the combined sewer system that can eventually be directed to Harsh, Scherm and Goez ditches. Presently, the ditch capacity deficiencies do not allow for this separation.

**Mapping and BMP’s**

In order to respond to your request in a timely manner, some of the information has been rounded or approximated. In an effort to enhance the accuracy of RWRA’s system information, the Owensboro-Daviess County community is presently developing a GIS system. The mapping of the sewer system is approximately 35% complete, and information regarding system size is very approximate.

Also, please note that some of the best management practices (BMP’s) undertaken by the Agency address multiple minimum controls (i.e. system cleaning is a BMP for proper O&M, maximizing collection system storage and removal of solids and floatables, etc.). Information regarding RWRA’s BMP practices in this report are consistent with the CSO annual reports.

**Engineering Services**

RWRA retained services of Strand Associates in 1995 to aid RWRA in responding to new combined sewer overflow (CSO) requirements. The initial services consisted of the development of the Combined Sewer Overflow Plan (CSOP) in response to the National CSO Policy and KDOW discharge permit requirement. This plan was submitted to KDOW in 1996. Their approval and ORSANCO concurrence are attached as **EXHIBIT 1**. RWRA has since actively pursued implementation of the CSOP. This has involved engineering services to design projects such as cured in place tunnel lining, repair of collapsing
CSO, grouting tunnels, construction of wet weather storage facilities, and rehabilitation of tunnels to original capacity as well as modeling the system, and updates to the CSOP. These projects were undertaken with the goal in mind to be supportive of future long term control initiatives. Regular updates of the CSOP along with communications from RWRA have kept KDOW apprised of RWRAs progress in meeting these initiatives.

Submit the following information:

1. Provide the following information:
   a. The number of permitted CSOs. 9
   b. A listing of all permitted CSO locations including latitude/longitude and name of receiving stream.
      
      | Number | Location          | Coordinates                  | River      |
      |--------|-------------------|------------------------------|------------|
      | 001    | West WWTP         | 37deg 46' 37" / 87deg 06' 08" | Ohio River |
      | 002    | Center Street     | 37deg 46' 37" / 87deg 06' 58" | Ohio River |
      | 003    | Locust West       | 37deg 46' 37" / 87deg 06' 57" | Ohio River |
      | 004    | Locust East       | 37deg 46' 48" / 87deg 07' 55" | Ohio River |
      | 005    | Dublin Lane       | 37deg 46' 55" / 87deg 06' 16" | Ohio River |
      | 006    | Tripplet Street   | 37deg 46' 55" / 87deg 06' 16" | Ohio River |
      | 007    | Daviess Street    | 37deg 46' 36" / 87deg 06' 37" | Ohio River |
      | 008    | Frederica Street  | 37deg 46' 36" / 87deg 06' 49" | Ohio River |
      | 009    | Sycamore Street   | 37deg 46' 37" / 87deg 07' 19" | Ohio River |
   * In the CSOP, but inadvertently omitted from current KPDES.
   c. Annual average discharge volume from the CSOs.
   RWRA in the near future will be calibrating and validating the CSS model. Once the effort is completed RWRA will be able to determine the annual average overflow volume. The calibration will follow the completion of the Center Street Pump Station and Force Main improvements. However, through the usage of statistical data, the estimate the annual overflow volume is approximately 1.2 billion gallons.
   d. Annual average number of CSO discharge events.
   Based on evaluation of rain data and visual confirmation of wet weather overflow events, we estimate 52 events annually.
   e. Size of the combined sewer system (CSS) (linear feet or square miles),
   Approximately 800,000 linear feet of pipe
   f. Size of the separate sanitary sewer system (SSS) (linear feet or square miles),
   Approximately 1,200,000 linear feet of pipe, additionally RWRA maintains approximately 600,000 linear feet of sewer taps (from the mains to the Right-of-Way or easement line)
   g. Number of pump stations in the CSS and SSS. 3 CSS and 45 SSS
   h. Number of pump stations with backup power capacity to fully operate the pump station.
   Two (2) pump stations have stationary back up generators. One (1) pump station (Locust Street Pump Sta.) has a secondary power feed from a separate substation. RWRA has a 100KW diesel portable generator that can fully operate all but three (3) of the remaining pump stations, but also can partially operate these 3. Pump stations that are new or renovated since 97, have a secondary power transfer switch for quick connection to the portable generator. RWRA also has 2 master electricians on staff that can make the connection on those pump stations that do not have transfer switches in less than one hour.
Other than during State of Emergency situations (i.e. tornado of 2000), local electrical utilities and/or RWRA have been able to provide power to its pump stations.

i. Treatment plant(s) average design flow.
   15 MGD serving the combined sewer service area (West WWTP)

j. Treatment plant(s) peak design flow.
   34.5 MGD (West WWTP)

k. Primary treatment peak design flow.
   34.5 MGD (West WWTP)

l. Population served.

RWRA serves a total estimated population of 60,000, including approximately 24,000 in the combined sewer service area.

2. Provide a brief discussion as to how the utility is complying with each of the nine minimum controls:

RWRA has addressed and complied with each of the nine minimum controls since 1996 and RWRA reports annually to the permitting agency with regards to status of each. Below is a summary of what has been accomplished to-date for each control measure.

   a. Proper operation and regular maintenance programs for the sewer system and the CSOs.

   In the early 1990’s, efforts were made to upgrade the level of maintenance by the then City of Owensboro Sewer Department. Two jet rodders were utilized by RWRA in cleaning efforts, and limited televising of the sewer system was done by others on a contractual basis. “Cured in place pipe” (CIPP) technology was used on a few occasions. Since then, RWRA has upgraded its cleaning fleet to include three (3) high-performance vactor trucks. In 1995 a camera equipped truck was purchased and staffed and used to begin a routine of T.V. inspection of the RWRA system. In 2003 the sewer inspection equipment was upgraded and a second inspection truck with camera and crew were added. RWRA is now expanding the video collection (recently changed to DVD format) of the existing system as well as inspecting new lines that will become a part of the system.

   The City Sewer Commission employed 52 people in the Sewer and Wastewater Department in 1994. Currently, RWRA employs 74 people. During this ten year period, automation of treatment plant operations has reduced the number of required man-hours at the plants. Since 1998, approximately 5,000 man-hours per year have been dedicated to T.V. or other inspection of the sewer lines and pump station O&M.

   In the late 1980’s the City of Owensboro began evaluating the need to establish a Geographic Information System (GIS). In 1998, a consortium was established that included the City, County, water & electrical utility and RWRA. RWRA is presently utilizing a base map to add RWRA sewer system data into the mapping and relational data base that will keep the information current once fully implemented. RWRA is presently 35% complete with these mapping efforts. In 2003, RWRA acquired “GBA” Maintenance Management Software, design to help in complaint response and resolution, and record keeping of the pump stations, sewer lines and fleet. This software will integrate this information into a revised record keeping system, including the GIS and closed circuit camera video logs.

   In 1997 field surveying and mapping efforts were initiated to better outline the combined sewer system boundaries and to identify watersheds, sub-watersheds and sewage routing. This was performed in conjunction with the cleaning efforts and used to establish cleaning sectors and the routes for cleaning.
In 2000 RWRA formally expanded its obligations by accepting the responsibility of maintaining the structural integrity of the sewer taps (from the main to the Right-of-Way line or easement line). Sewer taps are replaced if failed or protruding, thereby reducing infiltration. Since 1998, RWRA has averaged $97,000 per year spent on rebuilding sewer taps.

In 1997, each CSS outfall was inspected. Subsequent projects included the $335,000 rehabilitation of the Locust Street Outfall that had partially collapsed.

When the Regional Water Resource Agency was formed in 1995, RWRA was given the responsibility to maintain the portion of the combined sewer system that transports sewage. However, the City retained the administration of the separate storm system. In the combined sewer portion of Owensboro, the separate storm system includes the surface channels, inlets, pipes to the catch basins, catch basins and pipes from the catch basins to the combined sewer at which point it becomes RWRA’s responsibility. In July of 1997, RWRA began a cleaning program of the combined sewer system on a two year cycle that is partly financed by the City of Owensboro. As stormwater passes thru the catch basin structure which has a trapped bottom and a submerged discharge, before entering the combined sewer system, floatables and heavy solids are most easily removed from the system at these structures (by the vactor trucks). Recent cleanings are showing reduced amounts removed (by weight) as initial cleanings removed more compacted soil-type materials and now are removing higher percentage of floatables and debris. The total amount of material removed and transported to the local landfill from 1997 thru 2003 was 4140 tons. Additionally, storm lines are flushed to bring materials to the catch basins and the sewer mains are flushed to keep lines clear of solids and maintain good flow characteristics.

Annually, RWRA dedicates a portion of the budget (between $300,000 and $500,000 for the lining of sewer mains. Generally, RWRA uses CIPP technology for sewers that require lining. This no-dig solution reduces I/I, removes protruding taps, separates abandoned taps, allows for watertight connections to be made, reduces disruptions to sewage flow and keeps disruption to the public at a minimum. Since 1998, RWRA has spent approximately $3,570,000 lining sewer lines. In 1999, an effort was made to chemically grout leaking joints to reduce infiltration in the deep tunnel system. RWRA spent $110,000 towards this effort, with limited success.

In 1998 RWRA began an effort of coating of manholes, wet wells and treatment plant structures that had experienced significant I&I or corrosion, or was likely to experience significant corrosion (i.e. manholes that are at discharge points of force mains). To date $394,000 has been spent towards this effort.

In 1997, the City of Owensboro appropriated money towards improving the Owensboro separate storm water system. Since that time, RWRA has performed contractual services for the City in the amount of approximately $400,000 annually to perform cleaning of the combined and separate storm systems, and repair / replacement of the piped storm system. The program was a five (5) year commitment and by mid 2002, 917 storm structures were rebuilt or repaired, 15,800 feet of storm pipe were replaced or rehabbed by RWRA. In 2003, the City established an occupational tax increase to commit $1.2M per year for storm system maintenance and capital improvement.

The City of Owensboro Sewer Department’s total audited operating expenses for fiscal year 93-94 was $776,761. Present spending by RWRA for these expenses is approximately $1.8 Million per year. The substantial majority of the Agency’s increased monies spent for sewer maintenance have gone towards efforts in the combined sewer system, even though this portion constitutes 40% of the system’s sewer lines. This is because RWRA has established more aggressive operation and maintenance efforts in the
CSS. RWRA believes that these efforts demonstrate that RWRA has been proactive in its maintenance efforts of the combined sewer infrastructure since 1997.

b. **Maximum use of the collection system for storage.**

Initial evaluation of the RWRA system in 1997 indicated that a substantial amount of river water was entering the system due to the inability of the flap gates at the tunnel sewer outfalls to adequately seal out the river. The valves are at least partially submerged at all times due to the Army Corps of Engineers raising the normal pool level of the Ohio River above the previous pool levels that existed when the combined sewer system was built. Since the flap gates were not capable of maintaining a good seal as the river elevation rose to a point above the baffle wall elevations, river water flowed back into the combined sewer system. The valves were replaced with Tideflex `duckbill’ valves at a cost of $262,000.

Pumping practices at the combined sewer pump stations were evaluated and modified. It was determined that the pump stations could operate at a lower well level which reduced the water height in the sewers, prior to entering the pump stations. This expanded the cross sectional area available for storage of combined sewage. This also increased the dry weather velocities of the large pipelines and minimized the settling of solids during dry weather that would eventually be flushed out during wet weather events.

The baffle walls at the outfalls have been repaired and raised. The stop logs which were prone to failure during wet weather events were removed and replaced with solid concrete walls. The expanded storage capacity of the tunnel system upstream of the baffle walls and below baffle wall overflow elevation is estimated at 3.8 million gallons.

In 1995, 14 pump stations existed that transported approximately 1 mgd sanitary flow from separate systems into the combined system. As of this date, flow from 12 of these pump stations have been diverted out of the combined system, and the design of one of the remaining pump station diversions is under review by the Kentucky DOW. The combination of the installed tideflex valves and the sanitary flow diversions have resulted in a reduction of 25% of the dry weather flow to the West plant. Additionally, the CIPP lining efforts mentioned above have further served to reduce the amount of unnecessary infiltration into the system, which reduced available CSS capacity.

RWRA reviews private and public development proposals that are in the close proximity to the CSO boundaries to determine if it is possible to redirect storm water flows out of the combined system. Several projects (most near the Ohio River) have been able to separate or partly separate the stormwater from areas that were combined – some are still in design phase. Two projects involving industrial cooling water system discharges were re-routed to be taken out of the combined sewer system.

In 2003, RWRA constructed a 7.5 acre foot surface detention basin to help reduce localized flooding and basement backup in the east CSO system. This project was done because of a capacity study showing the need for storage near this location and a proposed development (Green River Area Health Department) that was occurring at this targeted location. The Developer acquired the land needed and RWRA constructed the basin, at a cost of $250,000. To dampen peak flows in the combined sewer system during rain events and allow more flow to be treated following these events.

c. **Review and modification of pretreatment requirements to assure CSO impacts are minimized.**
The Owensboro Pretreatment Program has been in existence since 1979. The original ordinance and discharge limits were technology based; having been established based on protecting the treatment process (from EPA's "Inhibitory Levels for Activated Sludge") protecting the quality of the biosolids and preventing pass-through to the WWTP effluent (see EXHIBIT 2C). RWRA's industrial users (SIUs) have been permitted since the early 1980's. RWRA has taken a strict approach by applying these inhibitory limits as the permit limits for industrial dischargers. Permitted industrial users are required to sample their discharges on a quarterly basis and report the results to RWRA. RWRA also conducts random samples on a quarterly basis, to verify compliance. The test analyses of the samples include conventional pollutants, metals, volatiles, TTO's and TCLPs (specific to the industries and their SIC status). Any new source of transported waste that is delivered to RWRA must be tested and approved before acceptance. Since the initiation of the Pretreatment Program, several of the larger dischargers have reduced both the volume and strength of their waste, through process changes, additional pretreatment, recycling waste streams, employee training, etc.

In recent years RWRA has implemented a program to reduce oil and grease discharges from facilities by requiring the installation of adequate separation chambers, additional inspection and pursuing enforcement action when necessary. RWRA has established surcharges for BOD and SS above 265 mg/l, which has served to motivate industries (particularly food processing, tobacco processing) to reduce their waste strength.

Results of the Pretreatment Program have improved both the quality of the Plant effluent and the sludge generated at both facilities. Annual toxic scans indicate levels of pollutants well below regulatory limits, and the sludge has been deemed safe for land application, if the PFRP process were initiated.

d. Maximization of flow to the POTW for treatment.

RWRA has completely renovated the West WWTP, at a cost of approximately $15 million. This project was completed in 2001, expanding the wet weather capacity of the plant from 12.5 mgd to 34.5 mgd at a cost of approximately $15 million. The system flow that contains combined sewage is routed to the West WWTP.

RWRA has three (3) pump stations at the Ohio River, which transports combined sewage flow to the West WWTP. RWRA has rehabilitated two of the pump stations (Locust St. and Dublin Ln. Pump Stations). These are the only two CSS pump stations that pump directly to the West WWTP. The remaining pump station, Center St., pumps to a gravity system that feeds to the Locust St. Pump Station. These pump station improvements (Locust & Dublin) expanded the pumping capacity of the CSS from 13 to 19 mgd. The pumping capabilities of the system are now limited by the capacity of the only existing force main to the West WWTP.

Improvements to the CSS resulted in reductions of dry weather flows into the CSS, thus allowing for increased CSS flows to be pumped to the West WWTP during wet weather events. These improvements include, but are not limited to the following:

- Installation of the tide-flex valves on the river outfalls of the four largest CSO's
- Redirection of flow from 12 SSS pump stations away from the CSS
- Use of CIPP to reduce Infiltration/Inflow
- Working with industry to reduce waste streams, including cooling water systems
- Review of development near the CSS boundary, to separate flows when possible
These measures have resulted in dry weather flow reduction of 25% from the CSS.

The Center Street P.S. presently pumps to a gravity system that transports the flow to the Locust St. P.S. This current condition limits the potential of upgrading the Center St. P.S. due to capacity of the gravity system feeding to the Locust St. P.S., the Locust St. P.S. itself and the existing force main continuing to the West WWTP. Through a unique public/private partnership opportunity, RWRA is in the process of further enhancing its ability to maximize flow to the West WWTP. Owensboro Grain Company Inc. (OG) has facilities next to the Center St. PS and a separate processing plant next to the West WWTP. OG desires to construct a force main containing their liquid vegetable oil product from their Center St. facilities to their processing plant next to the West WWTP. RWRA is working in conjunction with OG to construct a new CSS force main, parallel and adjacent to OG’s vegetable oil line, to transport CSS from the Center St. PS to the West plant (17,600 ft in length). This project would allow RWRA to expand the wet weather pumping capacity to the West WWTP from the present 19 mgd to the 34.5 mgd, maximum capacity of the plant. This project would also improve the containment of the first flush of the CSS and create an overall reduction of discharges to the Ohio River. To accomplish this, a major upgrade to the Center St Pump Station will also be required. Currently, RWRA is in the design/easement acquisition phase of the project. The design allows for the newly constructed force main to be shared with Dublin Lane P.S., leaving the Locust St. P.S. to remain on the existing force main. The design also includes provisions which would allow for the Locust Street Pump Station to be diverted into the proposed line and the Dublin Lane and Center Street Pump Stations to be diverted back into the existing force main during an emergency situation. This project is estimated to cost $5.5 million.

e. Prohibition of CSOs during dry weather.

Because of RWRA’s ongoing efforts to improve the system, RWRA does not experience recurring dry weather overflows. Should a dry weather overflows occur due to circumstances beyond the Agency’s control, RWRA will report such occurrences to the regulatory authority.

f. Control of solids and floatable material in CSOs.

RWRA has spent considerable resources to mitigate the discharge of solids and floatables from the CSS during wet weather events. Efforts and related costs are listed below.

- In 1997 field surveying and mapping efforts were initiated to better outline the combined sewer system boundaries and to identify watersheds, sub-watersheds and sewage routing. This was used in cleaning efforts to establish cleaning sectors and the routes for cleaning.
- In 1997 RWRA’s cleaning fleet was expanded to three high-performance vector trucks
- In 1997 RWRA began a cleaning program of the CSS on a two year cycle. Per the discussion in NMC #1, the sewer lines are flushed and material is vacuumed from the catch basin structures (because floatable materials and settleable solids are captured at this location). The total amount of solids removed and landfilled from 1997 thru 2003 was 4140 tons. The combined sewer mains are also flushed in an upstream to downstream routing to keep the lines clear and keep solids moving through the collection system to the treatment plant. Annual expenditures for the cleaning effort are approximately $100,000 to $125,000 per year.
- In 1999, two drying pads were installed at RWRA’s Operations facility located at 2101 Grimes Avenue. This installation reduced travel time to transport the debris and solids removed in the cleaning process. Prior to this installation, all material removed from the sewers was
transported to drying beds at the West WWTP, which is not centrally located. Construction of these drying pads cost approximately $50,000.

- Pumping practices in the combined sewer pump stations were evaluated and modified. Establishing and maintaining lower well levels in dry weather resulted in higher velocities in the incoming sewers and minimized the settling of solids in the sewers during dry weather that could be discharged during the first flush of a rain event.
- The City of Owensboro has had an ongoing street sweeping program. The targeted sweeping schedule includes downtown streets twice per week, arterial streets, twice per month and collector streets three times per year. Expenditures are generally $150,000 to $165,000 per year.
- RWRA surveyed the downtown area for trash disposal availability and discussed this issue with the City of Owensboro Sanitation Department. After review, the number of trash cans and locations in the downtown area were deemed adequate.

g. Pollution prevention.

RWRA continually educates the community regarding pollution prevention practices. These activities are reported annually to the KDOW and are summarized below.

- Tours are conducted for various schools and community groups
- Lectures are occasionally conducted at area schools (approximately 5 per year combined)
- Wastewater User Regulations established in 1995
- Public Improvement Specifications updated in 2003, including sections prohibiting expansion of the CSS, restricting building connections, prohibiting storm/groundwater introduction into the sewers, requiring sheet flow of roof drains to allow for absorption and prohibiting basement gravity connections
- Enforcement of illegal point-source discharges
- Application of BOD, TSS surcharges
- Work with industries to improve their individual pretreatment program and possible financial benefit to the industry
- Work with Kentucky Division of Solid Waste as it pertains to possible discharges from solid waste handling activities
- Elimination of 27 package plants and approximately 450 septic systems
- Guest on “Focus on Owensboro” cable TV show in May 2003 and May 2004, and spoke on CSO issues
- Presentation on CSO’s at Kentucky Rural Water Association Conference August 2002
- Held public forum with City Commission on water pollution in 2002
- Held public forum with City Commission regarding expansion and CSO Projects in 2004

h. Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts.

In addition to the pollution prevention initiatives, RWRA has posted signs at each of the existing CSO locations. RWRA also has two flags that are displayed during wet weather events in the boating/swimming season, which notify the public that combined sewage may be in the River waters at the time the flags are present. These flags are displayed at the two public river access locations in the downtown area.

i. Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.
In 1998, RWRA installed flow monitors in the three major CSO’s – Dublin Ln., Locust St. and Center St. Area velocity flow meters were installed within the combined sewers upstream of the CSS pump stations on these CSO’s. Flow meters located in these stations monitored flow volumes to the West WWTP. The goal was to use the difference to estimate CSO volumes. Unfortunately, several things happened to reduce the efficacy of this program. First, extremely high velocities in the combined sewer system so damaged the flow meter probes that results were inconsistent. Secondly, during this time period, RWRA embarked on a program to upgrade the pump stations, the latest of which is the Center St. Pump Station, which is in the design phase. The other two (Locust and Dublin) are in the construction stage at this time. These upgrades will replace pumps, electrical controls, pump controllers and metering to increase station capacities to make it possible to maximize the use of the 34.5 mgd wet weather capacity at the West WWTP. The pump station flow meters have been out of commission for these continuing upgrades. RWRA’s future plans include SCADA connection from these pump stations to transmit pumping rate data and well levels upstream of the baffle walls at the three pump stations and river elevation to the West WWTP for continuous monitoring following completion of Center St. Pump Station improvements.

RWRA retained the services of Strand Associates to initiate a CSS modeling program during this same period to evaluate the CSS capacity. The modeling program was undertaken as part of the CSOP and in anticipation of the forthcoming requirement to do a long term control plan. Flow data from within the CSS was used to calibrate the model. The model has been used to identify land areas needed for upstream temporary storage of runoff to reduce CSO volumes and area flooding. When a building was proposed at one of these sites, RWRA was able to combine CSS needs with that of the development and construct a 7.5 acre foot detention basin, more effectively dissipating peak flows to the CSS. The City of Owensboro also performed a capacity study of its separate storm system. RWRA and the City together were able to combine the data and identify projects and goals for the storm system that will eventually provide relief to the CSS.

RWRA also has a program of monitoring water quality levels on the Ohio River. This program now monitors two wet weather events and one dry weather event each year. This data should allow RWRA to evaluate whether or not there is an appreciable impact to the Ohio River from wet weather discharges on the river.

3. For the last two years, provide a listing of all dry weather overflows from permitted CSO locations. For the last (two years, provide a listing of all overflows in the CSS which occurred from non-permitted locations. Provide the following for each overflow:
   a. Date;
   b. Location;
   c. Volume;
   d. Ultimate destination of overflow, such as surface waterbody (by name), storm drain leading to surface waterbody (by name), dry land, building, etc.;
   e. Cause, such as grease, roots, other blockages, wet weather (infiltration and inflow), loss of power at pump station; pump failure, etc.;
   f. Corrective actions taken to stop the overflow.

Please see attached EXHIBITS 3A, 3B, 3C.
4. Has the utility developed and submitted a Long Term Control Plan (LTCP) for the CSS? If so, when? Has the LTCP been approved? If so, when? Is the LTCP being implemented? If a LTCP has been developed, please submit a copy.

The development of a LTCP has not been a requirement of RWRA’s permitting authority to date. However, the permitting authority has advised RWRA that this will be a requirement of the next permit renewal, which is due in 2005.

Although a LTCP has not been developed at this point, RWRA has directed many activities towards minimizing impacts of CSO’s since 1997 and toward eventual separation of significant quantities stormwater from the CSS including:

- Inspected piping systems and disconnected or installed valves where CSO’s were connected to storm systems that ultimately discharged to Panther Creek. This effort resulted in the discovery and elimination of eight (8) CSO’s.
- Started program of reviewing public/private development proposals on the border of the CSO boundaries to determine if separation of stormwater is a possibility. Several projects (most near the Ohio River) have been able to separate or partly separate CSS areas, with additional projects still under design.
- Redirected the flow from 12 of 14 pump stations that prior to 1995 pumped approximately 1 mgd sanitary flow from separate systems into the combined system. One of the two remaining pump stations is presently under design review by the KY DOW.
- The City of Owensboro, which has storm water responsibility, is implementing a capital improvement plan for flood control in the separate storm systems. These flood control initiatives will allow for some immediate and eventually 480+ acres that could be separated from the CSS. These project areas are located in the southern portions of the CSS, and flows could be diverted to Harsh, Scherm and Goetz ditches, which presently do not have the capacity to allow for this separation. Future City of Owensboro planned projects include improving the capacity of these ditches, which would allow for this separation to occur. Each of these projects are under the control of the City of Owensboro, and outside the jurisdiction of the RWRA.
- As discussed in the earlier section “maximization of flow to the WWTP for treatment”, RWRA is currently in the design phase of a major undertaking to expand the wet weather pumping capability to the West WWTP from a current 19 mgd to 34.5 mgd. This improvement will also allow for an improved capture of the first flush from the CSS.

5. Does the LTCP include fixed-date project implementation schedules to bring the CSO discharges into compliance with water quality standards and the CSO Control Policy? If so, provide a copy of the schedules. Does the LTCP include a financing plan to design and construct the necessary projects as soon as practicable? If so, provide a copy of the financing plan and corresponding budgets for the past five (5) years.

This has not been a requirement of RWRA’s permitting authority to date. The permitting authority has advised RWRA that this will be a requirement of the next NPDES permit, which is due for renewal in 2005.

6. A listing of all sanitary sewer overflows (SSO) for the past five years. A SSO is an overflow, spill, release, or diversion "wastewater from a sanitary sewer system. SSOs do not include discharges from combined sewer systems. SSOs include:
a. Overflows or releases of wastewater that reach waters of the United States;
b. Overflows or releases of wastewater that do not reach waters of the United States; and
c. Wastewater backups into buildings that are caused by blockages or flow conditions in a
sanitary sewer other than a building lateral. Wastewater backups into buildings caused by
a blockage or other malfunction of a building lateral that is privately owned is not an
SSO.

It is important to note that RWRA’s separate sanitary sewer system is not impacted adversely by wet
weather flow. The majority of RWRA’s SSOs result from traditional situations that occur during dry
weather and that can be corrected by typical maintenance and operational procedures. In such instances,
RWRA has responded and made the necessary corrections. Please see attached EXHIBITS 6-1
through 6-5.

7. For each SSO provide the following, if available:

a. Date(s) of SSO;
b. Time (and Date if other than a. above) when notification of the SSO event occurred;
c. Time (and Date if other than a. above) when utility (or contractor) crew responded to the
SSO;
d. Time (and Date if other than a. above) when SSO ceased;
e. Time (and Date if other than a. above) when corrective action was completed;
f. Location of SSO, including source (pump station, manhole, etc.);
g. Ultimate destination of overflow, such as surface waterbody (by name), storm drain
leading to surface waterbody (by name), dry land, building, etc.;
h. Volume of SSO;
i. Cause of SSO such as grease, roots, other blockages, wet weather (infiltration and
inflow), loss of power at pump station; pump failure, etc.;
j. Corrective actions taken to stop the SSO;
k. Corrective actions taken to prevent this or similar SSOs in the future.

Please see attached EXHIBITS 6-1 through 6-5.

8. Provide a copy of contingency plan(s) for responding to SSOs.

Please see attached EXHIBIT 8A.

9. Does the utility have a formal procedure for documenting SSO? Who is responsible for this? Is
training provided?

Yes, as required by our regulatory authority and provided in EXHIBIT 8A.

10. Does the utility have a formal procedure for estimating SSO volume? Who is responsible for
this? Is training provided?

Yes, as required by our regulatory authority and provided in EXHIBIT 8A.
11. Does the utility have a formal procedure to determine the ultimate cause of an SSO (also called "Root Cause Analysis")? Who is responsible for performing this analysis? Is training provided?

Yes, through RWRA’s preventative maintenance program, and response to sanitary sewer overflows, the infrastructure is continuously evaluated. Because of these efforts RWRA does not have recurring SSOs during wet weather, suggesting that the maintenance efforts are adequate. A traditional “root cause analysis” has not been a need of RWRA. With regards to training, RWRA’s staff is continuously trained on traditional sanitary sewer maintenance procedures.

The Utility shall preserve until further notice all records (either written or electronic) which exist at the time of receipt of this letter that relate to any of the matters set forth in this letter. The term “records" shall be interpreted in the broadest sense to include information of every sort. The response to this information request shall include assurance that these record protection provisions were put in place, as required. No such records shall be disposed of until written authorization is received from the Director, Water Management Division, U.S. EPA, Region 4.

RWRA has taken measures to assure that these record protection provisions were put in place. Meetings were held with Administrative and Engineering Staff, and the Agency Board was advised by the staff of this requirement.

If you or a contractor working for you believe that any of the requested information is confidential business information, you may assert a confidentiality claim on such information, except for effluent data. Further details, including how to make a business confidentiality claim are found in Enclosure

RWRA reserves the right to assert a confidentiality claim on certain information in the future as deemed necessary by RWRA.

If any additional information is needed, please feel free to contact Dean Behnke at 270-687-8452 or myself at 270-687-8440.

Sincerely,

[Signature]

David Hawes P.E.
Agency Director

Cc: Bruce Scott, Environmental Engineering Branch Manager, KDOW
Honorable Waymond Morris, Mayor of Owensboro
Honorable Reid Haire, Judge Executive Daviess County
George Stuart, RWRA Board Chairman
Charles Kamuf, RWRA Board Legal Counsel
Charles Anderson, Strand Associates
Dean Behnke, RWRA Engineering Director
Jim Richeson, RWRA Director of Operations
David Hawes  
Director  
Regional Water Resource Agency  
P. O. Box 10003  
Owensboro, Kentucky 42302-9003

Re: Combined Sewer Operational Plan (CSOP)  
Owensboro, KY0020095  
Daviess County

Dear Mr. Hawes:

Review has been completed of the above referenced plan submitted on the behalf of RWRA by Strand Associates, Inc. As a result of this review, the plan is approved with the following comments:

♦ With regard to operation and maintenance procedures, the Division supports the move from a "reactive" to "preventive" mode of operation.
♦ The RWRA is to be commended for scheduling as soon as summer of 1997 the installation of check valves ("duck bills") at key outfalls along the Ohio River to prevent backflow impacts to the combined sewer system (CSS). As indicated in the plan, this should allow for better overall data collection and more representative dry weather measurements. The Division will be interested to see if data generated after the expected causes of adverse impacts are removed does in fact show conditions are improved. Also, once the improvements are in place, computer modeling should be attempted again to provide a more accurate picture of the CSS as well as allow for better long term planning.
♦ The Division agrees with the implementation of source control for solids and floatables accompanied with continual review of the effectiveness of the applied best management practices.
♦ The RWRA is to be commended for quick action to eliminate the dry weather discharges revealed during the study. Dry weather discharges from combined sewers are prohibited and elimination and prevention should be a top priority.
♦ The Division is supportive of the transfer of separate sanitary wastewater flow from the west collection system to the east collection system in order to provide relief to the combined sewer system, e.g. the Center Street Service Area.
The Panther Creek Basin is a unique situation. The proposal in the plan for installation of backflow prevention devices to prevent sanitary flow from combining with storm water is an effective immediate solution to the combined sewer problem. However, it is hoped the remaining flooding problem will continue to be addressed by additional storm water remediation and controls.

Finally, the Division supports the comments from ORSANCO (see enclosure).

The RWRA is to be commended for its plan development. It appears the Agency has taken a proactive approach relative to combined sewers as indicated by action already taken as well as short term proposals, particularly for calendar year 1997.

Should you have any questions, please contact Herb Ray, (502) 564-2225, extension 431.

Sincerely,

Bob G. Rogers, P.E.
Supervisor
Municipal & Commercial Section
KPDES Branch
Division of Water

BGR:HR:

Enclosure

cc: Theresa Connor, Strand Associates, Inc.
Madisonville Regional Office
ORSANCO
January 28, 1997

Herb Ray  
Kentucky Division of Water  
14 Reilly Road  
Frankfort, KY 40601

Dear Mr. Ray:

Thank you for the opportunity to review the CSO Operational Plan submitted by the City of Owensboro (KY0020095). Again, I apologize for the delay in sending my comments to you. I hope this did not cause too many inconveniences.

I thought the Operational Plan was very informative. The control programs being implemented by the Owensboro Regional Water Resource Agency were described thoroughly and succinctly. It appears that the RWRA has identified the major problems and is taken (or has already completed) the steps necessary to alleviate them. I am very much looking forward to the results of this year’s instream sampling efforts to see what effects the improvements have on the water quality of the Ohio River. At this time, ORSANCO would like to recommend that the Operational Plan be approved. Should you have any questions, please call at any time.

Sincerely,

John McManus

Enclosure

cc: David Hawes, Owensboro RWRA  
Theresa Connor, Strand Engineers
<table>
<thead>
<tr>
<th>Parameters</th>
<th>Maximum Conc. Mg/L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>1.0</td>
</tr>
<tr>
<td>Ammonia</td>
<td>200.0</td>
</tr>
<tr>
<td>Antimony</td>
<td>1.0</td>
</tr>
<tr>
<td>Arsenic</td>
<td>0.1</td>
</tr>
<tr>
<td>Barium</td>
<td>1.0</td>
</tr>
<tr>
<td>Boron</td>
<td>1.0</td>
</tr>
<tr>
<td>Cadmium</td>
<td>0.02</td>
</tr>
<tr>
<td>Chromium (Hexavalent)</td>
<td>1.0</td>
</tr>
<tr>
<td>Chromium (Trivalent)</td>
<td>2.0</td>
</tr>
<tr>
<td>Copper</td>
<td>1.0</td>
</tr>
<tr>
<td>Cyanide</td>
<td>0.1</td>
</tr>
<tr>
<td>Fluoride</td>
<td>10.0</td>
</tr>
<tr>
<td>Iron (Dissolved)</td>
<td>5.0</td>
</tr>
<tr>
<td>Lead</td>
<td>0.1</td>
</tr>
<tr>
<td>Manganese</td>
<td>1.0</td>
</tr>
<tr>
<td>Mercury</td>
<td>0.1</td>
</tr>
<tr>
<td>Nickel</td>
<td>1.0</td>
</tr>
<tr>
<td>Phenols</td>
<td>1.0</td>
</tr>
<tr>
<td>Selenium</td>
<td>0.05</td>
</tr>
<tr>
<td>Silver</td>
<td>0.3</td>
</tr>
<tr>
<td>Zinc</td>
<td>1.0</td>
</tr>
<tr>
<td>Oil &amp; Grease</td>
<td>100.0</td>
</tr>
<tr>
<td>Total Dissolved Solids</td>
<td>900.0</td>
</tr>
<tr>
<td>Temperature - Degree C</td>
<td>40.0</td>
</tr>
<tr>
<td>pH - Maximum (pH units)</td>
<td>9.0</td>
</tr>
<tr>
<td>pH - Minimum (pH units)</td>
<td>6.0</td>
</tr>
<tr>
<td>Biochemical Oxygen Demand (BOD) - 5 day</td>
<td>265.0</td>
</tr>
<tr>
<td>Suspended Solids</td>
<td>265.0</td>
</tr>
<tr>
<td>TTO (*)</td>
<td>2.13</td>
</tr>
</tbody>
</table>
### Dry Weather Overflows at Permitted CSO's

<table>
<thead>
<tr>
<th>#</th>
<th>Date</th>
<th>Time Notified</th>
<th>Time Responded</th>
<th>Time Ceased</th>
<th>Location of CSO</th>
<th>Ultimate Destination</th>
<th>Volume</th>
<th>Cause</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7/18/2003</td>
<td>6:30AM</td>
<td>5:00PM</td>
<td>Center Street CSO</td>
<td>Ohio River</td>
<td>776,000gal</td>
<td>broken pump shaft</td>
<td>rebuilt pump - ultimately planned renovation of lift station</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>10/28/2003</td>
<td>3 hrs from notification</td>
<td>Center Street CSO</td>
<td>Ohio River</td>
<td>324,000gal</td>
<td>pump seal water line failure</td>
<td>pump repaired - ultimately planned renovation of lift station</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Certain computer recorded information from this period was lost due to a file server failure. If further information becomes available, RWRA will forward this on to you.
## Combined Sewer Overflows at Non-Permitted Locations

<table>
<thead>
<tr>
<th>#</th>
<th>Date</th>
<th>Time Notified</th>
<th>Time Responded</th>
<th>Time Ceased</th>
<th>Location of CSO</th>
<th>Ultimate Destination</th>
<th>Volume</th>
<th>Cause</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/23/2002</td>
<td>10:45 PM</td>
<td>11:15 AM</td>
<td>na</td>
<td>1026 Cottage Drive</td>
<td>Basement</td>
<td>*</td>
<td>Rain</td>
<td>&amp;</td>
</tr>
<tr>
<td>2</td>
<td>1/30/2002</td>
<td>11:55 AM</td>
<td>12:10 PM</td>
<td>12:45 PM</td>
<td>2421 Allen Street</td>
<td>Basement</td>
<td>*</td>
<td>Rain</td>
<td>&amp;</td>
</tr>
<tr>
<td>3</td>
<td>2/18/2002</td>
<td>1:06 PM</td>
<td>1:20 PM</td>
<td>na</td>
<td>918 McGill Street</td>
<td>House</td>
<td>*</td>
<td>Cleaning Crews Working - Jet Rod Backup</td>
<td>Reduced pressure of jet rodder and recorded for subsequent cleanings, Notices given out before cleanings</td>
</tr>
<tr>
<td>4</td>
<td>4/7/2002</td>
<td>8:20 PM</td>
<td>8:30 AM</td>
<td>na</td>
<td>Aspenwood Court</td>
<td>Basement</td>
<td>*</td>
<td>Blockage in Main</td>
<td>Cleaned Sewer Main</td>
</tr>
<tr>
<td>5</td>
<td>4/19/2002</td>
<td>3:40 PM</td>
<td>na</td>
<td>1620 Monarch</td>
<td>8:16 E 15th Street</td>
<td>Basement</td>
<td>*</td>
<td>Rain</td>
<td>&amp;</td>
</tr>
<tr>
<td>6</td>
<td>4/26/2002</td>
<td>10:30 AM</td>
<td>11:15 AM</td>
<td>na</td>
<td>1707 Lewis Lane</td>
<td>House</td>
<td>*</td>
<td>Rain</td>
<td>&amp;</td>
</tr>
<tr>
<td>7</td>
<td>4/25/2002</td>
<td>12:00 AM</td>
<td>12:15 AM</td>
<td>na</td>
<td>3530 Jefferson Street</td>
<td>Basement</td>
<td>*</td>
<td>Rain</td>
<td>&amp;</td>
</tr>
<tr>
<td>8</td>
<td>4/27/2002</td>
<td>9:23 AM</td>
<td>9:30 AM</td>
<td>na</td>
<td>324 Ford Avenue</td>
<td>Basement</td>
<td>*</td>
<td>Rain</td>
<td>&amp;</td>
</tr>
<tr>
<td>9</td>
<td>5/25/2002</td>
<td>2:15 PM</td>
<td>2:30 PM</td>
<td>na</td>
<td>24th Street &amp; JR Miller Boulevard</td>
<td>Basement</td>
<td>*</td>
<td>System is Full - Rain</td>
<td>&amp;</td>
</tr>
<tr>
<td>10</td>
<td>5/3/2002</td>
<td>9:00 AM</td>
<td>9:15 AM</td>
<td>na</td>
<td>2300 Frederica Street</td>
<td>Building</td>
<td>*</td>
<td>Tap needs repaired</td>
<td>Repaired sewer tap</td>
</tr>
<tr>
<td>11</td>
<td>5/4/2002</td>
<td>6:00 AM</td>
<td>6:15 AM</td>
<td>na</td>
<td>424 Breckenridge Street</td>
<td>Alley to CSS</td>
<td>^</td>
<td>Blockage in Main</td>
<td>Cleaned Sewer Main</td>
</tr>
<tr>
<td>12</td>
<td>7/12/2002</td>
<td>11:00 AM</td>
<td>11:15 AM</td>
<td>na</td>
<td>1700 Lee Court</td>
<td>House</td>
<td>*</td>
<td>Cleaning Crews Working - Jet Rod Backup</td>
<td>Reduced pressure of jet rodder and recorded for subsequent cleanings, Notices given out before cleanings</td>
</tr>
<tr>
<td>13</td>
<td>8/5/2002</td>
<td>6:52 AM</td>
<td>7:30 AM</td>
<td>na</td>
<td>2201 Fairway Drive</td>
<td>Basement</td>
<td>*</td>
<td>unknown</td>
<td>&amp;</td>
</tr>
<tr>
<td>14</td>
<td>8/12/2002</td>
<td>3:30 PM</td>
<td>4:00 PM</td>
<td>na</td>
<td>600 Locust Street</td>
<td>Basement</td>
<td>*</td>
<td>Rain</td>
<td>&amp;</td>
</tr>
<tr>
<td>15</td>
<td>8/15/2002</td>
<td>12:55 AM</td>
<td>2:50 PM</td>
<td>na</td>
<td>1025 Holly Avenue</td>
<td>Yard to CSS</td>
<td>^</td>
<td>unknown</td>
<td>&amp;</td>
</tr>
<tr>
<td>16</td>
<td>9/27/2002</td>
<td>12:20 PM</td>
<td>12:35 PM</td>
<td>na</td>
<td>409 Griffith Avenue</td>
<td>House</td>
<td>*</td>
<td>Tap Broken Down</td>
<td>Replaced sewer tap</td>
</tr>
<tr>
<td>17</td>
<td>10/21/2002</td>
<td>11:20 AM</td>
<td>11:35 AM</td>
<td>na</td>
<td>922 Tripplet Street</td>
<td>Building</td>
<td>*</td>
<td>Blockage in Main</td>
<td>Cleaned Sewer Main</td>
</tr>
<tr>
<td>18</td>
<td>11/12/2002</td>
<td>12:20 PM</td>
<td>12:35 PM</td>
<td>na</td>
<td>821 E 20th Street</td>
<td>Basement</td>
<td>*</td>
<td>unknown</td>
<td>&amp;</td>
</tr>
<tr>
<td>19</td>
<td>11/26/2002</td>
<td>3:20 PM</td>
<td>3:50 PM</td>
<td>na</td>
<td>1415 E 4th Street</td>
<td>Parking Lot</td>
<td>^</td>
<td>Blockage in Main</td>
<td>Cleaned Sewer Main</td>
</tr>
</tbody>
</table>

* - Volume was not obtained from homeowner due to restricted access and our understanding is this is not a reporting requirement

^ - Our understanding is this is not a reporting requirement

& - Standard practice is to verify main is clear, clear if necessary, clean affected area if appropriate, review usage of backflow preventer and elimination of roof drain and basement gravity connections with property owner if backup occurred, annual cleaning and maintenance program implemented to reduce blockages
<table>
<thead>
<tr>
<th>#</th>
<th>Date</th>
<th>Time Notified</th>
<th>Time Responded</th>
<th>Time Ceased</th>
<th>Location of CSO</th>
<th>Ultimate Destination</th>
<th>Volume</th>
<th>Cause</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2/4/2003</td>
<td>12:00 PM</td>
<td>12:15 PM</td>
<td>na</td>
<td>2526 W Cloverdale</td>
<td>House</td>
<td>*</td>
<td>Cleaning Crews Working - Jet Rod Backup</td>
<td>Reduced pressure of jet rodder and recorded for subsequent cleanings</td>
</tr>
<tr>
<td>2</td>
<td>2/4/2003</td>
<td>12:00 PM</td>
<td>12:15 PM</td>
<td>na</td>
<td>2600 W Cloverdale</td>
<td>House</td>
<td>*</td>
<td>Cleaning Crews Working - Jet Rod Backup</td>
<td>Reduced pressure of jet rodder and recorded for subsequent cleanings</td>
</tr>
<tr>
<td>3</td>
<td>3/20/2003</td>
<td>9:40 AM</td>
<td>10:00 AM</td>
<td>na</td>
<td>2011 Lydia Drive</td>
<td>Street</td>
<td>*</td>
<td>Blockage in Main</td>
<td>Cleared Blockage and Cleaned Main</td>
</tr>
<tr>
<td>4</td>
<td>3/13/2003</td>
<td>1:33 PM</td>
<td>2:00 PM</td>
<td>na</td>
<td>424 Breckenridge Street</td>
<td>Alley to CSS</td>
<td>*</td>
<td>Blockage in Main</td>
<td>Cleared Blockage and Cleaned Main</td>
</tr>
<tr>
<td>5</td>
<td>3/20/2003</td>
<td>2:35 PM</td>
<td>3:00 PM</td>
<td>na</td>
<td>2949 McAlister Place</td>
<td>House</td>
<td>*</td>
<td>Blockage in Main</td>
<td>Cleared Blockage and Cleaned Main</td>
</tr>
<tr>
<td>6</td>
<td>4/7/2003</td>
<td>1:49 PM</td>
<td>2:15 PM</td>
<td>na</td>
<td>2138 Churchill Court</td>
<td>Street to CSS</td>
<td>*</td>
<td>Blockage in Main</td>
<td>Cleared Blockage and Cleaned Main</td>
</tr>
<tr>
<td>7</td>
<td>4/24/2003</td>
<td>10:30 AM</td>
<td>10:45 AM</td>
<td>na</td>
<td>2528 S Griffith Avenue</td>
<td>House</td>
<td>*</td>
<td>Cleaning Crews Working - Jet Rod Backup</td>
<td>Reduced pressure of jet rodder and recorded for subsequent cleanings</td>
</tr>
<tr>
<td>8</td>
<td>5/15/2003</td>
<td>1:00 PM</td>
<td>1:15 PM</td>
<td>na</td>
<td>913 Booth Avenue</td>
<td>House</td>
<td>*</td>
<td>Rain Event</td>
<td>&amp;</td>
</tr>
<tr>
<td>9</td>
<td>5/7/2003</td>
<td>2:00 AM</td>
<td>3:00 AM</td>
<td>na</td>
<td>333 E 21st Street</td>
<td>Basement</td>
<td>*</td>
<td>Rain Event</td>
<td>&amp;</td>
</tr>
<tr>
<td>10</td>
<td>5/11/2003</td>
<td>3:00 AM</td>
<td>3:45 AM</td>
<td>na</td>
<td>307 W 24th Street</td>
<td>Basement</td>
<td>*</td>
<td>Rain Event</td>
<td>&amp;</td>
</tr>
<tr>
<td>11</td>
<td>6/2/2003</td>
<td>1:25 PM</td>
<td>2:00 PM</td>
<td>na</td>
<td>1300 Allen Street</td>
<td>Basement</td>
<td>*</td>
<td>Blockage in Main</td>
<td>Cleared Blockage and Cleaned Main</td>
</tr>
<tr>
<td>12</td>
<td>7/17/2003</td>
<td>4:30 PM</td>
<td>4:45 PM</td>
<td>na</td>
<td>Churchill Ct &amp; Churchill Dr</td>
<td>Street to CSO</td>
<td>*</td>
<td>Root infiltration in Main</td>
<td>Cleared Main</td>
</tr>
<tr>
<td>13</td>
<td>10/28/2003</td>
<td>10:02 AM</td>
<td>10:30 AM</td>
<td>na</td>
<td>3301 Allen Street</td>
<td>Street</td>
<td>*</td>
<td>Blockage in Main</td>
<td>Cleared Blockage and Cleaned Main</td>
</tr>
<tr>
<td>14</td>
<td>11/23/2003</td>
<td>8:27 AM</td>
<td>9:00 AM</td>
<td>na</td>
<td>3208 Allen Street</td>
<td>Street</td>
<td>*</td>
<td>Blockage in Main</td>
<td>Cleared Blockage and Cleaned Main</td>
</tr>
<tr>
<td>15</td>
<td>11/26/2003</td>
<td>8:30 AM</td>
<td>9:00 AM</td>
<td>na</td>
<td>501 Walnut Street</td>
<td>Basement</td>
<td>*</td>
<td>Blockage in Main</td>
<td>Cleared Blockage and Cleaned Main</td>
</tr>
<tr>
<td>16</td>
<td>12/1/2003</td>
<td>2:30 PM</td>
<td>3:00 PM</td>
<td>na</td>
<td>800 E 19th Street</td>
<td>Street to CSS</td>
<td>*</td>
<td>Blockage in Main</td>
<td>Cleared Blockage and Cleaned Main</td>
</tr>
<tr>
<td>17</td>
<td>12/16/2003</td>
<td>8:30 AM</td>
<td>10:00 AM</td>
<td>na</td>
<td>732 Cottage Drive</td>
<td>Basement</td>
<td>*</td>
<td>Tap was disconnected during lining</td>
<td>Repaired sewer tap</td>
</tr>
<tr>
<td>18</td>
<td>12/17/2003</td>
<td>4:45 PM</td>
<td>5:00 PM</td>
<td>na</td>
<td>124 W 18th Street</td>
<td>House</td>
<td>*</td>
<td>Cleaning Crews Working - Jet Rod Backup</td>
<td>Reduced pressure of jet rodder and recorded for subsequent cleanings</td>
</tr>
</tbody>
</table>

* - Volume was not obtained from homeowner due to restricted access and our understanding is this is not a reporting requirement

^ - Our understanding is this is not a reporting requirement

& - Standard practice is to verify main is clear, clear if necessary, clean affected area if appropriate, review usage of backflow preventer and elimination of roof drain and basement gravity connections with property owner if backup occurred, annual cleaning and maintenance program implemented to reduce blockages
<table>
<thead>
<tr>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/18/99</td>
</tr>
<tr>
<td>1/22/99</td>
</tr>
<tr>
<td>2/8/99</td>
</tr>
<tr>
<td>3/1/99</td>
</tr>
<tr>
<td>3/2/99</td>
</tr>
<tr>
<td>3/3/99</td>
</tr>
<tr>
<td>3/27/99</td>
</tr>
<tr>
<td>4/9/99</td>
</tr>
<tr>
<td>4/19/99</td>
</tr>
<tr>
<td>5/19/99</td>
</tr>
<tr>
<td>5/22/99</td>
</tr>
<tr>
<td>6/7/99</td>
</tr>
<tr>
<td>6/9/99</td>
</tr>
<tr>
<td>6/11/99</td>
</tr>
<tr>
<td>6/16/99</td>
</tr>
<tr>
<td>6/23/99</td>
</tr>
<tr>
<td>8/20/99</td>
</tr>
<tr>
<td>8/27/99</td>
</tr>
<tr>
<td>11/8/99</td>
</tr>
<tr>
<td>11/8/99</td>
</tr>
<tr>
<td>12/8/99</td>
</tr>
<tr>
<td>12/24/99</td>
</tr>
</tbody>
</table>

**Separate Sanitary Sewer Overflows**

**1999**

<table>
<thead>
<tr>
<th>Date</th>
<th>Time Notified</th>
<th>Time Responded</th>
<th>Time Closed</th>
<th>Location of SSO</th>
<th>Ultimate Destination</th>
<th>Volume</th>
<th>Cause</th>
<th>Corrective Action</th>
<th>Corrective Actions to Prevent</th>
</tr>
</thead>
<tbody>
<tr>
<td>c</td>
<td>1/18/99</td>
<td>6:30 PM</td>
<td>6:45 PM</td>
<td>4237 Spring Bank Drive</td>
<td>House</td>
<td>Blockage in Main</td>
<td>Cleaned MH and Sewer Main</td>
<td>Cleaned MH and Sewer Main</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>1/22/99</td>
<td>7:45 AM</td>
<td>7:50 AM</td>
<td>4237 Spring Bank Drive</td>
<td>Basement</td>
<td>Blockage in Main</td>
<td>Cleaned MH and Sewer Main</td>
<td>Cleaned MH and Sewer Main</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>2/8/99</td>
<td>8:40 AM</td>
<td>9:00 AM</td>
<td>4606 Frederica Street</td>
<td>Building</td>
<td>Paper blockage</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned Sewer Main</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>3/1/99</td>
<td>9:15 AM</td>
<td>9:30 AM</td>
<td>3488 Old Mill Lane</td>
<td>House</td>
<td>Blockage</td>
<td>Found 1&quot; water line bore through tape inside ROW</td>
<td>had water line removed and repaired tap</td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>3/2/99</td>
<td>9:10 AM</td>
<td>9:25 AM</td>
<td>Veach Road at Bypass</td>
<td>Ground to Panther Creek</td>
<td>144,000 gal</td>
<td>Force Main Broken</td>
<td>Repaired Force Main from Mall Lift Station</td>
<td>Repaired Force Main from Mall Lift Station</td>
</tr>
<tr>
<td>a/b</td>
<td>3/3/99</td>
<td>12:35 PM</td>
<td>12:50 PM</td>
<td>4630 Strickland Drive</td>
<td>Street</td>
<td>Pump Station Down</td>
<td>Repaired pump station</td>
<td>Preventative maintenance program for lift stations</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>3/27/99</td>
<td>8:50 AM</td>
<td>9:05 AM</td>
<td>2216 Berkshire Drive</td>
<td>Backyard</td>
<td>Blockage</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned Sewer Main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>4/9/99</td>
<td>6:00 PM</td>
<td>6:15 PM</td>
<td>1612 Tamarack Road</td>
<td>Backyard</td>
<td>Blockage</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned Sewer Main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>4/19/99</td>
<td>10:45 AM</td>
<td>11:15 AM</td>
<td>Veach Road at Horse Fork</td>
<td>Creek</td>
<td>Blockage / casting hit by farmer</td>
<td>Cleaned Sewer Main and Manhole, replaced casting</td>
<td>Cleaned Sewer Main and Manhole, replaced casting</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>5/19/99</td>
<td>1:15 PM</td>
<td>1:18 PM</td>
<td>4600 Burstone Court</td>
<td>Ditch</td>
<td>Blockage</td>
<td>Cleaned Sewer Main</td>
<td>existing private now public system reviewed for problems</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>5/22/99</td>
<td>4:30 PM</td>
<td>4:35 PM</td>
<td>Waterwheel Way</td>
<td>Street</td>
<td>Grease</td>
<td>Cleaned Sewer Main</td>
<td>existing private now public system reviewed for problems</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>6/7/99</td>
<td>10:30 AM</td>
<td>10:45 AM</td>
<td>3532 Queers Way</td>
<td>Street</td>
<td>Blockage (Roots)</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned Sewer Main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>6/9/99</td>
<td>1:05 PM</td>
<td>1:05 PM</td>
<td>Millers Fall Circle</td>
<td>Ditch</td>
<td>Blockage</td>
<td>Finished cleanup from previous overflow</td>
<td>existing private now public system reviewed for problems</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>6/11/99</td>
<td>3:55 PM</td>
<td>4:15 PM</td>
<td>1771 River Road</td>
<td>Parking lot from Industry</td>
<td>blockage</td>
<td>Additional Discharge Discharge</td>
<td>Asked Industry to Control Discharge</td>
<td>improved pumping capacity of lift station</td>
</tr>
<tr>
<td>a/b</td>
<td>6/16/99</td>
<td>3:00 PM</td>
<td>3:15 PM</td>
<td>4024 Old Harford Road</td>
<td>Ground</td>
<td>%</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned Sewer Main</td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>6/23/99</td>
<td>11:15 AM</td>
<td>11:30 AM</td>
<td>West WWTP - 1201 Ewing Rd</td>
<td>Ground</td>
<td>Blockage</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned Sewer Main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>8/20/99</td>
<td>11:15 AM</td>
<td>11:30 AM</td>
<td>4750 Highway 54</td>
<td>Ground</td>
<td>%</td>
<td>Force Main Broken</td>
<td>Repaired force main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>8/27/99</td>
<td>10:30 AM</td>
<td>10:35 AM</td>
<td>3717 Winchester</td>
<td>Street</td>
<td>%</td>
<td>Force Main Broken</td>
<td>Repaired Force Main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>11/8/99</td>
<td>8:05 AM</td>
<td>8:15 AM</td>
<td>2244 Twenty Grand Ave</td>
<td>Backyard</td>
<td>Blockage</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned Sewer Main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>11/8/99</td>
<td>9:45 AM</td>
<td>10:00 AM</td>
<td>2231 Count Turf</td>
<td>Backyard</td>
<td>Blockage</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned Sewer Main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>12/8/99</td>
<td>8:08 AM</td>
<td>9:25 AM</td>
<td>2500 Midground Drive</td>
<td>Backyard</td>
<td>Blockage</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned Sewer Main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>12/24/99</td>
<td>8:50 AM</td>
<td>9:25 AM</td>
<td>321 Welke Drive</td>
<td>Street</td>
<td>Blockage</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned Sewer Main</td>
<td></td>
</tr>
</tbody>
</table>

* 'a' represents SSO's that reached waters of the United States, 'b' represents discharges that did not reach waters of the United States, 'c' represents discharges into buildings, 'a/b' represents discharges that to the best of our knowledge did not reach the waters of the United States, or were deemed insignificant quantities or negligible impact

% - Volume was not obtained from homeowner due to restricted access

- Volume was not estimated and to best of our knowledge did not reach the waters of the United States, or were deemed of insignificant quantities or negligible impacts
## Separate Sanitary Sewer Overflows

### 2000

<table>
<thead>
<tr>
<th>%</th>
<th>Date</th>
<th>Time Notified</th>
<th>Time Respondd</th>
<th>Time Ceased</th>
<th>Location of SSO</th>
<th>Ultimate Destination</th>
<th>Volume</th>
<th>Cause</th>
<th>Corrective Action</th>
<th>Corrective Actions to Prevent</th>
</tr>
</thead>
<tbody>
<tr>
<td>a/b</td>
<td>1/300</td>
<td>7:30 AM</td>
<td>9:00 AM</td>
<td>Gemini Drive - near Apollo</td>
<td>Street</td>
<td>%</td>
<td>Rain</td>
<td>clean up</td>
<td>catastrophic event - na</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>1/300</td>
<td>8:27 AM</td>
<td>9:00 AM</td>
<td>3405 Daviess Street</td>
<td>Street</td>
<td>%</td>
<td>Rain</td>
<td>clean up</td>
<td>catastrophic event - na</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>1/300</td>
<td>9:30 AM</td>
<td>3:00 PM</td>
<td>4606 Frederica Street</td>
<td>Building</td>
<td>%</td>
<td>Paper</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>1/240</td>
<td>2:00 PM</td>
<td>3:00 PM</td>
<td>38 Stone Creek Park</td>
<td>Basement</td>
<td>*</td>
<td>Blockage</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>1/240</td>
<td>9:30 AM</td>
<td>10:00 AM</td>
<td>2312 Venetian Way</td>
<td>Backyard</td>
<td>%</td>
<td>Blockage in main</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>1/250</td>
<td>2:50 PM</td>
<td>3:15 PM</td>
<td>4600 Burstone</td>
<td>Ditch</td>
<td>%</td>
<td>Sewer Main Broken</td>
<td>Repaired Sewer Main</td>
<td>Repaired sewer main</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>2/150</td>
<td>12:45 AM</td>
<td>1:00 PM</td>
<td>2501 Aldersgate Drive</td>
<td>Basement</td>
<td>*</td>
<td>Blockage</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>2/150</td>
<td>12:45 AM</td>
<td>1:00 PM</td>
<td>2331 Wintergreen Loop</td>
<td>House</td>
<td>*</td>
<td>Blockage - Roots</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>2/160</td>
<td>1:00 PM</td>
<td>1:00 PM</td>
<td>2323 Wintergreen Loop</td>
<td>House</td>
<td>*</td>
<td>Blockage - Roots</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>2/210</td>
<td>5:30 PM</td>
<td>6:30 PM</td>
<td>2227 Fairview Drive</td>
<td>Ground</td>
<td>%</td>
<td>Blockage</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>2/260</td>
<td>10:20 AM</td>
<td>2:30 AM</td>
<td>2318 Twenty Grand Ave</td>
<td>Backyard</td>
<td>%</td>
<td>Blockage</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>2/260</td>
<td>10:14 AM</td>
<td>10:30 AM</td>
<td>2211 Dickey Drive</td>
<td>House</td>
<td>*</td>
<td>Cleaning Sewer Main</td>
<td>na</td>
<td>na</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>2/290</td>
<td>2:15 PM</td>
<td>3:00 PM</td>
<td>1410 Hickory Lane</td>
<td>Ditch</td>
<td>*</td>
<td>Blockage</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>3/30</td>
<td>1:13 PM</td>
<td>1:30 PM</td>
<td>1537 Kelly Lane</td>
<td>House</td>
<td>*</td>
<td>Tap Broken Down</td>
<td>Replaced Sewer Tap</td>
<td>Replaced Sewer Tap</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>3/80</td>
<td>12:30 AM</td>
<td>1:00 PM</td>
<td>2405 Reigh Count</td>
<td>Ground</td>
<td>%</td>
<td></td>
<td>Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>3/110</td>
<td>4:59 PM</td>
<td>6:25 PM</td>
<td>1906 Mt Vernon Drive</td>
<td>House</td>
<td>*</td>
<td></td>
<td>Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>3/110</td>
<td>9:10 AM</td>
<td>10:30 AM</td>
<td>936 Parkway Drive</td>
<td>Basement</td>
<td>*</td>
<td>Blockage</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>3/160</td>
<td>4:51 PM</td>
<td>7:18 PM</td>
<td>1402 Hunling Creek Drive</td>
<td>Ground</td>
<td>%</td>
<td>Blockage</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>3/220</td>
<td>3:36 PM</td>
<td>4:00 PM</td>
<td>4606 Frederica Street</td>
<td>Building</td>
<td>*</td>
<td></td>
<td>Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>3/230</td>
<td>3:30 PM</td>
<td>4:00 PM</td>
<td>2301 Carter Road</td>
<td>Ground</td>
<td>%</td>
<td>Blockage</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>4/50</td>
<td>1:00 PM</td>
<td>7:00 AM</td>
<td>Riverport pump station</td>
<td>Parking Lot</td>
<td>%</td>
<td>pump failure</td>
<td>Repaired pumps</td>
<td>Repaired pumps and flushed force main</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>4/250</td>
<td>1:37 PM</td>
<td>1:00 PM</td>
<td>3:45 PM</td>
<td>3854 Carpenter Drive</td>
<td>House</td>
<td>*</td>
<td>Blockage</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
</tr>
<tr>
<td>a/b</td>
<td>5/50</td>
<td>5:30 PM</td>
<td>5:35 PM</td>
<td>3545 Hawthorne Drive</td>
<td>Basement</td>
<td>*</td>
<td>Alarm Float too high</td>
<td>Lower Float at Lift</td>
<td>Maintain lower float setting</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>5/90</td>
<td>10:00 AM</td>
<td>10:30 AM</td>
<td>725 Canterbury Road</td>
<td>Street</td>
<td>%</td>
<td>FM coupler loosened</td>
<td>Repaired Coupler</td>
<td>na</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>5/260</td>
<td>8:15 AM</td>
<td>8:30 AM</td>
<td>2227 Fairview Drive</td>
<td>Ground</td>
<td>%</td>
<td>Blockage</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>6/70</td>
<td>5:00 PM</td>
<td>5:30 PM</td>
<td>1618 &amp; 1624 Mohawk Dr</td>
<td>House</td>
<td>*</td>
<td>Cleaning Sewer Main</td>
<td>na</td>
<td>na</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>6/140</td>
<td>9:30 AM</td>
<td>10:00 AM</td>
<td>2505 Ashwood Court</td>
<td>Basement</td>
<td>*</td>
<td>Cleaning Sewer Main</td>
<td>na</td>
<td>na</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>8/30</td>
<td>1:15 PM</td>
<td>7:20 PM</td>
<td>4231 Old Hartford Road</td>
<td>Basement</td>
<td>*</td>
<td>Cleaning Sewer Main</td>
<td>na</td>
<td>na</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>8/30</td>
<td>1:00 PM</td>
<td>2:30 PM</td>
<td>2171 Berkshire Drive</td>
<td>Ground</td>
<td>%</td>
<td>Rain</td>
<td>na</td>
<td>na</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>7/310</td>
<td>1:30 PM</td>
<td>3:00 PM</td>
<td>3400 Affirmed Court</td>
<td>Ground</td>
<td>%</td>
<td>Blockage</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>8/180</td>
<td>8:14 AM</td>
<td>8:30 AM</td>
<td>936 Parkway Drive</td>
<td>House</td>
<td>*</td>
<td></td>
<td>Repaired sewer tap</td>
<td>Repaired sewer tap</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>9/70</td>
<td>11:30 AM</td>
<td>8:30 PM</td>
<td>4015 Gemini Drive</td>
<td>Street</td>
<td>%</td>
<td>Blockage in main</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>10/240</td>
<td>6:00 PM</td>
<td>6:30 PM</td>
<td>10:30 AM</td>
<td>Loft Cove</td>
<td>Street</td>
<td>%</td>
<td>Tap Broken Down</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
</tr>
<tr>
<td>a/b</td>
<td>10/310</td>
<td>11:30 AM</td>
<td>11:45 AM</td>
<td>1701 E Yellowstone Drive</td>
<td>Ground</td>
<td>%</td>
<td>Blockage in main</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>12/230</td>
<td>3:53 PM</td>
<td>4:00 PM</td>
<td>2520 Middleground Drive</td>
<td>House</td>
<td>*</td>
<td>Blockage in main</td>
<td>Cleaned sewer main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
</tbody>
</table>

**Additional Notes:**
- 'a' represents SSO's that reached waters of the United States, 'b' represents discharges that did not reach waters of the United States, 'c' represents discharges into buildings, 'ab/b' represents discharges that to the best of our knowledge did not reach the waters of the United States, or were deemed insignificant quantities or negligible impact
- Volume was not obtained from homeowner due to restricted access
- Volume was not estimated and to best of our knowledge did not reach the waters of the United States, or were deemed of insignificant quantities or negligible impacts
<table>
<thead>
<tr>
<th>% type</th>
<th>Date</th>
<th>Time Notified</th>
<th>Time Respond</th>
<th>Time Cleared</th>
<th>Location of SSO</th>
<th>Ultimate Destination</th>
<th>Volume</th>
<th>Cause</th>
<th>Corrective Action</th>
<th>Corrective Actions to Prevent</th>
</tr>
</thead>
<tbody>
<tr>
<td>a/b</td>
<td>1/20/01</td>
<td>2:20 PM</td>
<td>5:00 PM</td>
<td></td>
<td>Brushwood Apartments</td>
<td>Parking Lot</td>
<td>% Blockage in main</td>
<td>Cleaned sewer main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>1/15/01</td>
<td>7:20 PM</td>
<td>8:00 PM</td>
<td></td>
<td>4540 Countryide Drive</td>
<td>Basement</td>
<td>% Blockage in main</td>
<td>Cleaned sewer main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>1/21/01</td>
<td>5:29 PM</td>
<td>5:50 PM</td>
<td></td>
<td>9385 Parkway Drive S</td>
<td>Basement</td>
<td>% root blockage in main</td>
<td>Cleaned main, cut roots</td>
<td>replaced taps 924, 935</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>1/21/01</td>
<td>5:00 PM</td>
<td>6:30 PM</td>
<td></td>
<td>3841 Garden Terrace</td>
<td>House</td>
<td>% Blockage in main</td>
<td>Cleaned sewer main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>12/27/00</td>
<td>9:05 AM</td>
<td>9:20 AM</td>
<td></td>
<td>3307 Bobwhite Ave</td>
<td>House</td>
<td>Obstruction in Tap</td>
<td>cleaned/ video</td>
<td>Repaired tap</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>3/19/01</td>
<td>3:36 PM</td>
<td>4:00 PM</td>
<td></td>
<td>1525 Kelly Lane</td>
<td>Basement</td>
<td>%</td>
<td>Replaced sewer tap</td>
<td>Replaced sewer tap</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>3/18/01</td>
<td>10:15 AM</td>
<td>10:30 AM</td>
<td></td>
<td>918 Deer Haven Dr.</td>
<td>Street</td>
<td>% Blockage in main</td>
<td>Cleaned sewer main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>3/22/01</td>
<td>12:15 PM</td>
<td>12:45 PM</td>
<td></td>
<td>Pleasant Valley Rd</td>
<td>Ground</td>
<td>% Lift Sta. being repaired</td>
<td>Repaired Lift Station</td>
<td>Preventative Maintenance on lifts - replaced pumps 04</td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>3/22/01</td>
<td>1:00 PM</td>
<td>2:00 PM</td>
<td></td>
<td>Ragu Lift Station</td>
<td>Ditch to Yellow Crk</td>
<td>60,000 gal Lift station motor overload</td>
<td>reset motor controls</td>
<td>Preventative Maintenance on lifts - replaced pumps 04</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>3/26/01</td>
<td>10:20 AM</td>
<td>10:40 AM</td>
<td></td>
<td>Warehouse Road</td>
<td>Parking Lot</td>
<td>% Lift Station Being Repaired</td>
<td>Repaired Lift Station, performed clean up</td>
<td>Preventative Maintenance on lifts</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>3/27/01</td>
<td>6:20 AM</td>
<td>6:45 AM</td>
<td></td>
<td>PonderPlk Ray CountDr</td>
<td>Street</td>
<td>% Blockage in main</td>
<td>Cleaned sewer main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>4/1/01</td>
<td>9:45 PM</td>
<td>9:55 PM</td>
<td></td>
<td>3659 Bordeaux Loop</td>
<td>Ground</td>
<td>% Force Main Broken</td>
<td>Repaired force main</td>
<td>Repaired force main</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>3/22/01</td>
<td>7:00 AM</td>
<td>7:15 AM</td>
<td></td>
<td>Harbor Road</td>
<td>Parking Lot</td>
<td>% Pump starter down</td>
<td>Repaired Starter on pumps</td>
<td>Repaired starter on pumps</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>4/30/01</td>
<td>3:47 PM</td>
<td>4:15 PM</td>
<td></td>
<td>Hickory Lk &amp; Laurel Dr</td>
<td>Ground</td>
<td>% Tap blocked nearmain</td>
<td>repaired sewer tap</td>
<td>Repaired sewer tap</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>6/24/01</td>
<td>9:00 AM</td>
<td>9:05 AM</td>
<td></td>
<td>Sandstone Court</td>
<td>Street</td>
<td>% Blockage in main</td>
<td>Cleaned sewer main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>7/10/01</td>
<td>12:10 PM</td>
<td>12:25 PM</td>
<td></td>
<td>1325 Gilbert Lane</td>
<td>Basement</td>
<td>% Cleaning sewer main</td>
<td>na</td>
<td>na</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>7/18/01</td>
<td>3:15 PM</td>
<td>3:30 PM</td>
<td></td>
<td>3610 Bittie Road</td>
<td>Street</td>
<td>% Air relief valve leaking</td>
<td>Turned off valve</td>
<td>Repaired air relief valve</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>8/27/01</td>
<td>9:50 AM</td>
<td></td>
<td></td>
<td>Hwy 60 (Jail)</td>
<td>Ground</td>
<td>% pump air locked - SCADA not working</td>
<td>back flushed pumps</td>
<td>Repaired lift station</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>8/8/01</td>
<td>8:30 AM</td>
<td>8:45 AM</td>
<td></td>
<td>4109 Fox Run Lane</td>
<td>Basement</td>
<td>% Off-set joint in tap</td>
<td>T/d lateral</td>
<td>Repaired sewer tap</td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>9/5/01</td>
<td></td>
<td></td>
<td></td>
<td>Detention Center Lift</td>
<td>Ground to Ohio River</td>
<td>5000gal Blockage in main</td>
<td>cleared blockage</td>
<td>working with center-improve prisoner habits, instaled grinder pumps</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>9/12/01</td>
<td>4:15 PM</td>
<td>4:30 PM</td>
<td></td>
<td>3495 Millers Fall Circle</td>
<td>Ground</td>
<td>% Force Main is Leaking</td>
<td>Repaired force main</td>
<td>Repaired force main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>10/2/01</td>
<td>7:04 PM</td>
<td>7:10 PM</td>
<td></td>
<td>2247 Count Turf Drive</td>
<td>Yard</td>
<td>% Blockage in main</td>
<td>Cleaned sewer main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>10/18/01</td>
<td>11:20 PM</td>
<td>11:35 AM</td>
<td></td>
<td>2727 Kentronics Drive</td>
<td>Ditch</td>
<td>% Tap broken down</td>
<td>repaired sewer tap</td>
<td>Repaired sewer tap</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>10/29/01</td>
<td>8:15 AM</td>
<td>8:30 AM</td>
<td></td>
<td>2311 Agile Court</td>
<td>Street</td>
<td>% Blockage In main</td>
<td>Cleaned sewer main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>10/30/01</td>
<td>12:45 PM</td>
<td>1:00 PM</td>
<td></td>
<td>1741 Windng Way</td>
<td>Basement</td>
<td>% Main partially blocked</td>
<td>Cleaned sewer main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>12/16/01</td>
<td>3:58 PM</td>
<td>4:30 PM</td>
<td></td>
<td>3915 Steele Drive</td>
<td>Basement</td>
<td>% Pump station pump fail</td>
<td>Repaired pumps at lift sta.</td>
<td>Replaced pump</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>12/7/01</td>
<td>2:45 PM</td>
<td>3:30 PM</td>
<td></td>
<td>4204 Old Hartford Rd</td>
<td>Street</td>
<td>% Grease blockage main</td>
<td>Cleaned sewer main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>12/17/01</td>
<td>1:33 PM</td>
<td>1:45 PM</td>
<td></td>
<td>3919 Buckland Square</td>
<td>House</td>
<td>% Rain - System is full</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>12/24/01</td>
<td>10:00 AM</td>
<td>10:30 AM</td>
<td></td>
<td>2237 Citation Avenue</td>
<td>House</td>
<td>% Blockage in main</td>
<td>Cleaned sewer main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
</tbody>
</table>

^ - 'a' represents SSO's that reached waters of the United States,
'b' represents discharges that did not reach waters of the United States,
'c' represents discharges into buildings,
'a/b' represents discharges that to the best of our knowledge did not not reach the waters of the United States, or were deemed insignificant quantities or negligible impact

* - Volume was not obtained from homeowner due to restricted access

% - Volume was not estimated and to best of our knowledge did not reach the waters of the United States, or were deemed of insignificant quantities or negligible impacts
### Separate Sanitary Sewer Overflows

**EXHIBIT 6-4**

<table>
<thead>
<tr>
<th>% type</th>
<th>Date</th>
<th>Time Notified</th>
<th>Time Responded</th>
<th>Time Ceased</th>
<th>Location of SSO</th>
<th>Ultimate Destination</th>
<th>Volume</th>
<th>Cause</th>
<th>Corrective Action</th>
<th>Corrective Actions to Prevent</th>
</tr>
</thead>
<tbody>
<tr>
<td>c</td>
<td>3/20/2002</td>
<td>9:05 AM</td>
<td>9:15 AM</td>
<td>2309 Chateaugay Loop</td>
<td>House</td>
<td>*</td>
<td>Lift station down</td>
<td>repaired lift</td>
<td>repaired lift - renovation of lift scheduled 2004</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>5/1/2002</td>
<td>3:30 PM</td>
<td>4:00 PM</td>
<td>5:00 PM</td>
<td>1708 Shawnee Drive</td>
<td>Yard</td>
<td>%</td>
<td>Blockage in Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>5/4/2002</td>
<td>7:16 PM</td>
<td>7:30 PM</td>
<td>1937 Fawn Drive</td>
<td>House</td>
<td>*</td>
<td>Blockage in Main</td>
<td>Cleaned sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>5/14/2002</td>
<td>9:30 AM</td>
<td>9:45 AM</td>
<td>1338 Woodbridge Trail</td>
<td>Ground</td>
<td>%</td>
<td>Blockage in Main</td>
<td>Cleaned sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>6/16/2002</td>
<td>5:25 PM</td>
<td>5:30 PM</td>
<td>4549 Countryside Dr.</td>
<td>Basement</td>
<td>*</td>
<td>pump failure</td>
<td>Installed replacement pump</td>
<td>upgraded pump station replaced transformer backflow preventer installed</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>6/16/2002</td>
<td>10:30 AM</td>
<td>11:45 AM</td>
<td>3862 Springtree Drive</td>
<td>Ditch</td>
<td>%</td>
<td>Blockage in Main</td>
<td>Iv'd, Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>7/1/2002</td>
<td>10:10 PM</td>
<td>10:30 PM</td>
<td>4630 Strickland Drive</td>
<td>Street</td>
<td>%</td>
<td>Blockage in Main</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>7/17/2002</td>
<td>9:10 AM</td>
<td>9:25 AM</td>
<td>3432 Surry Drive E</td>
<td>Street</td>
<td>%</td>
<td>Blockage in Main</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>7/22/2002</td>
<td>7:30 AM</td>
<td>7:45 AM</td>
<td>2307 Wintergreen Loop</td>
<td>Ground</td>
<td>%</td>
<td>Blockage in Main</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>8/13/2002</td>
<td>2:00 PM</td>
<td>2:00 PM</td>
<td>Highland Elementary Sch</td>
<td>Ground</td>
<td>%</td>
<td>Blockage in Main</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>10/10/2002</td>
<td>11:45 AM</td>
<td>12:00 PM</td>
<td>3212 Majestic Prince Dr.</td>
<td>House</td>
<td>*</td>
<td>Cleaning Sewer Main</td>
<td>na</td>
<td>na</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>10/23/2002</td>
<td>9:45 AM</td>
<td>10:00 AM</td>
<td>4549 Countryside Dr.</td>
<td>House</td>
<td>*</td>
<td>Lift station grease blockage</td>
<td>Cleared Blockage</td>
<td>upgraded pump station replaced transformer backflow preventer installed</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>12/3/2002</td>
<td>8:00 AM</td>
<td>8:15 AM</td>
<td>763 Parkway Drive</td>
<td>Yard</td>
<td>%</td>
<td>Buried Manhole</td>
<td>Cleaned</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>a/b</td>
<td>11/19/2002</td>
<td>8:00 AM</td>
<td>8:15 AM</td>
<td>3703 Legacy Run</td>
<td>Ground</td>
<td>%</td>
<td>Blockage in Main</td>
<td>Cleaned Sewer Main</td>
<td>Cleaned sewer main</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>11/4/2002</td>
<td>7:15 AM</td>
<td>7:30 AM</td>
<td>3207 Meadowland Dr.</td>
<td>House</td>
<td>*</td>
<td>Tap Broken Down</td>
<td>cleaned lateral</td>
<td>Replaced sewer tap</td>
<td></td>
</tr>
</tbody>
</table>

^ - 'a' represents SSO's that reached waters of the United States,

'b' represents discharges that did not reach waters of the United States,

'c' represents discharges into buildings,

'a/b' represents discharges that to the best of our knowledge did not reach the waters of the United States, or were deemed insignificant quantities or negligible impact

* - Volume was not obtained from homeowner due to restricted access

% - Volume was not estimated and to best of our knowledge did not reach the waters of the United States, or were deemed of insignificant quantities or negligible impacts

Certain computer recorded information from this period was lost due to a file server failure. If further information becomes available, RWRA will forward this information on to you.
<table>
<thead>
<tr>
<th>Date</th>
<th>Time Notified</th>
<th>Time Responded</th>
<th>Time Ceased</th>
<th>Location of SSO</th>
<th>Ultimate Destination</th>
<th>Volume</th>
<th>Cause</th>
<th>Corrective Action</th>
<th>Corrective Actions to Prevent</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/15/2003</td>
<td>2:00 PM</td>
<td>2:15 PM</td>
<td></td>
<td>2223 Citation Ave</td>
<td>Street</td>
<td>%</td>
<td>Blockage in Main</td>
<td>Cleared Blockage and Main</td>
<td>Cleaned sewer main</td>
</tr>
<tr>
<td>2/21/2003</td>
<td>10:00 AM</td>
<td>9:00 AM</td>
<td></td>
<td>behind Toys R Us</td>
<td>basin to Panther Crk</td>
<td>136000</td>
<td>pump station failure</td>
<td>repaired pump station</td>
<td>Preventative maintenance on lifts</td>
</tr>
<tr>
<td>2/27/2003</td>
<td>7:20 AM</td>
<td>7:35 AM</td>
<td>9:15 AM</td>
<td>Countryside lift 4549</td>
<td>ditch to Burnett Frk house</td>
<td>9000 gal</td>
<td>Power failure at pump station</td>
<td>power restored</td>
<td>up graded pump station replaced transformer backflow preventer installed</td>
</tr>
<tr>
<td>3/25/2003</td>
<td>10:05 AM</td>
<td></td>
<td></td>
<td>Town &amp; Country Lift Sta</td>
<td>Ground</td>
<td>4000gal</td>
<td>force main failure outside valve pit</td>
<td>pumped out with varctor til fixed</td>
<td>new warranted pipeline fixed by Contractor</td>
</tr>
<tr>
<td>4/7/2003</td>
<td>3:15 PM</td>
<td>3:20 PM</td>
<td></td>
<td>4025 Carpenter Ave</td>
<td>Street</td>
<td>%</td>
<td>Blockage in Main</td>
<td>Cleared Blockage and Main</td>
<td>Cleaned sewer main</td>
</tr>
<tr>
<td>5/15/2003</td>
<td>8:23 AM</td>
<td>8:45 AM</td>
<td></td>
<td>3400 Harbor Road</td>
<td>Ground</td>
<td>%</td>
<td>Air relief valve leak</td>
<td>stopped leak</td>
<td>repaired air relief valve</td>
</tr>
<tr>
<td>5/18/2003</td>
<td>4:15 PM</td>
<td>4:35 PM</td>
<td></td>
<td>3433 Royal Drive</td>
<td>Street</td>
<td>%</td>
<td>Blockage in Main</td>
<td>Cleared blockage and main</td>
<td>Cleaned sewer main</td>
</tr>
<tr>
<td>7/14/2003</td>
<td>11:00 PM</td>
<td></td>
<td></td>
<td>Summit Lift Sta. #1</td>
<td>ditch-Van BurenCreek</td>
<td>1300 gal</td>
<td>constr. Debris in pumps</td>
<td>cleared blockage from both pumps</td>
<td>Preventative maintenance on lifts</td>
</tr>
<tr>
<td>7/29/2003</td>
<td>9:15 AM</td>
<td>9:30 AM</td>
<td></td>
<td>1402 Hunting Creek Dr</td>
<td>Ditch</td>
<td>%</td>
<td>main crossing below ditch failed</td>
<td>Repaired sewer main</td>
<td>Repaired sewer main</td>
</tr>
<tr>
<td>8/1/2003</td>
<td>2:30 PM</td>
<td>2:45 PM</td>
<td></td>
<td>4205 Springbank Drive</td>
<td>Basement</td>
<td>*</td>
<td>Rain Event</td>
<td>checked main, ok</td>
<td>na</td>
</tr>
<tr>
<td>9/2/2003</td>
<td>9:40 AM</td>
<td>9:55 AM</td>
<td></td>
<td>418 Reid Road</td>
<td>House</td>
<td>*</td>
<td>Lift Station well was high</td>
<td>well level floats adjusted to pump at lower levels</td>
<td>well level floats adjusted to pump at lower levels</td>
</tr>
<tr>
<td>9/4/2003</td>
<td>4:40 AM</td>
<td>5:55 AM</td>
<td></td>
<td>2160 Griffith Ave</td>
<td>ground</td>
<td>%</td>
<td>force main leak</td>
<td>repaired force main</td>
<td>look back-up force main out of service</td>
</tr>
<tr>
<td>10/11/2003</td>
<td>11:34 PM</td>
<td>11:40 PM</td>
<td></td>
<td>703 Colorado Drive</td>
<td>House</td>
<td>*</td>
<td>Pump stopped up Scada down</td>
<td>Pulled and cleaned pumps Scada battery replacement</td>
<td>Cleaned sewer main</td>
</tr>
<tr>
<td>11/15/2003</td>
<td>4:30 PM</td>
<td>5:00 PM</td>
<td></td>
<td>Eastwood Mobile Homes</td>
<td>Ground</td>
<td>%</td>
<td>Blockage in Main</td>
<td>Nodded main cleared blockage</td>
<td>Cleaned sewer main</td>
</tr>
<tr>
<td>12/24/2003</td>
<td>5:33 PM</td>
<td>6:30 PM</td>
<td></td>
<td>1830 Tamarack Road</td>
<td>House</td>
<td>*</td>
<td>Blockage in Main</td>
<td>Cleared sewer main</td>
<td></td>
</tr>
</tbody>
</table>

^ 'a' represents SSO's that reached waters of the United States, 'b' represents discharges that did not reach waters of the United States, 'c' represents discharges into buildings, 'a/b' represents discharges that to the best of our knowledge did not not reach the waters of the United States, or were deemed insignificant quantities or negligible impact

* Volume was not obtained from homeowner due to restricted access

% Volume was not estimated and to best of our knowledge did not reach the waters of the United States, or were deemed of insignificant quantities or negligible impacts
Regional Water Resource Agency

SEWER OVERFLOW RESPONSE PLAN

GENERAL

The Sewer Overflow Response Plan (SORP) is designed to ensure that every report of a confirmed sewage overflow in the Regional Water Resource Agency (RWRA) is immediately dispatched to the appropriate crews so that the effects of the overflow can be minimized with respect to impacts to public health and adverse effects on beneficial uses and water quality of surface waters and customer service. The SORP further includes provisions to ensure safety pursuant to the directions provided by the Kentucky Division of Water (KDOW) and that notification and reporting is made to the appropriate local, state and federal authorities. Reporting of Sanitary Sewer Overflows (SSOs) has been standard practice of the Agency since its inception on Feb. 1, 1995.

OBJECTIVES

The primary objectives of the SORP are to protect public health and the environment, satisfy regulatory agencies and waste discharge permit conditions which address procedures for managing sewer overflows, and minimize risk of enforcement actions against RWRA.

Additional objectives of the SORP are as follows:

- Provide appropriate customer service;
- Protect wastewater treatment plant and collection system personnel;
- Protect the collection system, wastewater treatment facilities, and all appurtenances; and
- Protect private and public property beyond the collection and treatment facilities.

OVERFLOW RESPONSE PROCEDURE

The Overflow Response Procedure presents a strategy for RWRA to mobilize labor, materials, tools and equipment to correct or repair any condition which may cause or contribute to an unpermitted discharge. The plan considers a wide range of potential system failures that could create an overflow to surface waters, land or buildings.

Under most circumstances, RWRA will handle all response actions with its own maintenance forces. They have the skills and experience to respond rapidly and in the most appropriate manner. An important issue with respect to an emergency response is to ensure that the temporary actions necessary to divert flows and repair the problem do not produce a problem elsewhere in the system. For example, repair of a force main could require the temporary shutdown of the pump station and diversion of the flow at an upstream location. If the closure is not handled properly, sewage system back-ups may create other overflows.
Receipt of Information Regarding a Sewer Overflow (SO)

An overflow may be detected by system employees or by others. The System Maintenance Division is primarily responsible for receiving phone calls from the public of possible sewer overflows from the wastewater collection system, and for forwarding work orders to the System Maintenance Crews.

Generally, telephone calls from the public reporting possible sewer overflows are received by telephone operators at the System Maintenance Division. The emergency phone calls are received during normal work hours by a clerk/dispatcher. After hours the emergency line is forwarded to the System Maintenance Supervisor on call by cellular phone.

1) The telephone clerk/dispatcher/supervisor should obtain all relevant information available regarding the overflow including:
   a. Time and date call was received;
   b. Specific location;
   c. Description of problem;
   d. Time possible overflow was noticed by the caller;
   e. Caller’s name and phone number;
   f. Observations of the caller (e.g., odor, duration, back or front of property); and
   g. Other relevant information that will enable the responding investigator and crews, if required, to quickly locate, assess and stop the overflow.

The telephone operator then records the overflow information and creates a work request for assignment to a System Maintenance Crew.

2. Pump station failures are monitored and received by telephone operators at the System Maintenance Division. The emergency phone calls are received during normal work hours by a clerk/dispatcher. After hours the emergency line is forwarded to the System Maintenance Supervisor on call by cellular phone.

3. Sewer overflows detected by any RWRA personnel in the course of their normal duties shall be reported immediately to Clerk/dispatcher to be forwarded to the appropriate department.

4. A Field Operations Supervisor will investigate the work request and take appropriate action by determining if a SO is in the RWRA system or a private concern. If verified the SO is in the RWRA system the Supervisor will immediately dispatch a crew to the site. The Field Operations Supervisor should in all cases report their findings, including possible damage to private and public property, upon making their investigation on the work request form and notify the Field Operations Manager if a SO is verified.

Coordination with Hazardous Material Response

- Upon arrival at the scene of a sewer overflow, should a suspicious substance (e.g., oil sheen, foamy residue) be found on the ground surface, or should a suspicious odor (e.g., gasoline) not
common to the sewer system be detected, the sewer investigator or response crew should immediately contact the supervisor for guidance before taking further action.

- Should the supervisor determine the need to alert the hazardous material response team, the sewer investigator or crew shall await the arrival of the (hazardous material response team or fire department) to take over the scene. Remember that any vehicle engine, portable pump or open flame (e.g., cigarette lighter) can provide the ignition for an explosion or fire should flammable fluids or vapors be present. Keep a safe distance and observe caution until assistance arrives.

- Upon arrival of the (hazardous material response team or fire department), the sewer investigator or crew will take direction from the person with the lead authority of that team. Only when that authority determines it is safe and appropriate for the sewer investigator and crew to proceed can they then proceed under the SORP with the containment, clean-up activities and correction.

Cleanup

Sewer overflow sites are to be thoroughly cleaned after an overflow. No readily identified residue (e.g., sewage solids, papers, rags, plastics, rubber products) is to remain.

- Where practical, the area is to be thoroughly flushed and cleaned of any sewage or wash-down water. Solids and debris are to be flushed, swept, raked, picked-up, and transported for proper disposal.

- Where appropriate, the overflow site is to be disinfected and deodorized. Cleanup requiring disinfection will be completed at the guidance of the Kentucky Division of Water.

Overflow Report

An Overflow Report shall be completed, per the requirements of the KDOM, by the RWRA Director of Operations, who shall promptly notify the KDOM in a format acceptable to KDOM. Reports shall be made for all overflows from our system, from which we are responsible, that reach waters of the United States. Information regarding the sewer overflow should include the following:

1) Determination of the start time of the sewer overflow by one of the following methods:
   a) Date and time information received and/or reported to have begun and later substantiated by a sewer investigator or response crew;
   b) Visual observation; or
   c) Pump station and lift station flow charts and other recorded data.

2) Determination of the stop time of the sewer overflow by one of the following methods:
   a) When the blockage is cleared or flow is controlled or contained; or
b) The arrival time of the sewer investigator or response crew, if the overflow stopped between the time it was reported and the time of arrival

c) Visual observations

3) An estimation of the rate of sewer overflow in gallons per minute (GPM) shall be completed by one of the following criteria:
   a. Visual observations of the overflow; or
   b. Measurement of actual overflow volume completed by best methods available

4) RWRA Personnel shall not enter private property for purposes of estimating damage to structures, floor and wall coverings, and personal property.

5) Additional information as is requested by KDOW personnel. Information submitted to KDOW should be consistent in content and format.

Customer Satisfaction

The supervisor confirming the overflow should follow-up in person or by telephone with the citizen(s) reporting the overflow. The cause of the overflow and its resolution will be disclosed.

Training

RWRA Field Operation employees are trained on responding to overflows within the first six months of employment with the Agency.
COMPLIANCE INSPECTION REPORT

Regional Water Resource Agency
Owensboro, Kentucky
KPDES Permit No. KY0020095

Facility Address:
1722 Pleasant Valley Road
Owensboro, Kentucky 42303

Inspection Dates:
August 31, 2004

Inspectors:
Carmen Rocha, Environmental Engineer, EPA Region 4
César Zapata, Environmental Engineer, EPA Region 4
Representatives from the Kentucky Division of Water

Inspection Report Prepared by:
Carmen Rocha
César Zapata

August 26, 2005
# TABLE OF CONTENTS

I. OVERVIEW .................................................................................................................. 1

II. OBJECTIVES .............................................................................................................. 2

III. INVESTIGATION METHODS .................................................................................. 2

IV. REGULATORY SUMMARY ......................................................................................... 2

V. INSPECTION SUMMARY .......................................................................................... 3
   A. Implementation of the Nine Minimum Controls ...................................................... 3
      1. Proper Operation and Maintenance ................................................................. 3
      2. Maximum Use of the Collection System for Storage ....................................... 6
      3. Review and Modification of Pretreatment Requirements ............................... 7
      4. Maximization of Flow to the POTW for Treatment ......................................... 8
      5. Elimination of CSOs During Dry Weather ...................................................... 9
      6. Control of Solid and Floatable Materials in CSOs ......................................... 9
      7. Pollution Prevention Programs to Reduce Contaminants in CSOs .................. 10
      8. Public Notification ......................................................................................... 11
      9. Monitoring to Characterize CSO Impacts and the Efficacy of CSO Controls .... 11
   B. Long Term Control Plan ..................................................................................... 13
   C. Unauthorized Discharges .................................................................................... 14

VI. ATTACHMENTS ........................................................................................................ 15
I. **OVERVIEW**


**EPA conducted a compliance inspection of RWRA collection system on August 31, 2004.** The purpose of the inspection was to evaluate compliance with the CSO Control Policy published on April 19, 1994, at 59 Fed. Reg. 18688, The Wet Weather Water Quality Act of 2000 amending the CWA, and the CWA, that regulates, among other things, the discharge of pollutants to surface waters. Requirements of the CWA include a prohibition on the discharge of pollutants to waters of the United States, except in compliance with requirements established in the Code of Federal Regulations (CFR) and in an appropriate permit.

The RWRA was established in 1995 as a joint city/county wastewater agency to expand its sewer service area outside the City of Owensboro. The RWRA is responsible for the operation of two (2) wastewater treatment plants, approximately 378 miles of sewer lines, 48 pump stations, and other facilities.

The wastewater collection system consists of a combined sewer system and a separate sanitary sewer system. There are eight (8) permitted CSO outfalls in the combined sewer system. The combined sewer system is approximately 40 percent of the wastewater collection system. RWRA estimates that CSOs overflow 52 times per year with an estimated annual overflow volume of 1.2 billion gallons. All outfalls and overflows end up in the Ohio River.

EPA Region 4 authorized the Kentucky Department for Environmental Protection (KDEP) to implement the National Pollutant Discharge Elimination System (NPDES) program in the Commonwealth of Kentucky. RWRA is covered by Kentucky Pollutant Discharge Elimination System (KPDES) permit # KY0020095, which became effective on April 1, 2001, and expired on March 31, 2005. According to RWRA, a KPDES renewal was sent to KDEP in October 2004.
II. OBJECTIVES

The specific objective of the inspection was to determine compliance with the CWA requirements, focusing on the 1994 CSO Control Policy and NPDES permit requirements as part of EPA’s Statistically Valid Noncompliance Rates Project.

III. INVESTIGATION METHODS

The investigation of RWRA included:

- A review of federal databases and state KPDES permit.
- Opening and closing conferences held on August 31, 2004.
- Interview with RWRA personnel.
- Visual inspection of CSO outfalls 003 (Locust East) and 007 (Daviess Street).
- Review of documents obtained and information gathered during the inspection.

IV. REGULATORY SUMMARY

RWRA is covered by KPDES permit # KY0020095, which allows discharges from the West wastewater treatment plant and eight (8) CSO outfalls into the Ohio River. The permit specifies the following requirements for sewer system overflows:

- Maintain an approved Combined Sewer Operational Plan (CSOP) that ensures that CSOs occur only as a result of wet weather, bring all wet weather CSOs into compliance with technology based or water quality based requirements of the CWA and minimize the impacts of CSOs;
- Compliance with the Nine Minimum Controls (NMC) - the NMCs are listed in the permit as requirements;
- Coordination of the flood protection program implementation with the CSO abatement program;
- Evaluate alternatives to allow for effective prioritization of implementation of CSO controls and develop a comprehensive water management plan;
- Establishment of an implementation schedule of CSO controls and update the schedule annually; and
- Prepare an annual report detailing the implementation of the CSOP.

RWRA is subject to the CSO Control Policy published on April 19, 1994, at 59 Fed. Reg. 18688, and The Wet Weather Water Quality Act of 2000 amending the CWA.
V. INSPECTION SUMMARY

EPA conducted a compliance inspection of RWRA’s wastewater collection system on August 31, 2004, to evaluate compliance with the CWA requirements, focusing on the 1994 CSO Control Policy and KPDES permit # KY0020095 requirements. EPA’s compliance evaluation included:

A. Implementation of the Nine Minimum Controls

1. Proper Operation and Maintenance

In general, RWRA does not have a written or specific operation and maintenance (O&M) plan for the wastewater collection system. However, RWRA does perform wastewater collection system O&M activities. In 2003, RWRA purchased the GBA Maintenance Management Software to help in complaint response and resolution, record keeping of work performed on pump stations, sewer lines and vehicle fleet. According to RWRA, they have developed O&M plans for pump stations and the wastewater treatment plants.

For O&M purposes, RWRA owns two (2) jet rodders, three (3) high-performance vactor trucks and two (2) sewer line inspection trucks with closed circuit television (CCTV) capabilities.

Inspections

RWRA does not have a routine inspection program for CSO structures, but they maintain that CSO outfalls are inspected once a year. Pump Stations are inspected daily and the inspections are documented through work orders in the GBA Maintenance Management Software.

According to RWRA, about 100,000 linear feet of sewer lines are inspected with CCTV annually with the expectation that all major lines in the wastewater collection system will be inspected. The video from each CCTV inspection is saved on DVD format and any data gathered is entered into the geographic information system (GIS).

Cleaning and Maintenance

According to RWRA, sewer lines are cleaned on a set schedule to keep sewer lines clear of solids and maintain good flow characteristics. Cleaning is done by
sectors and it takes approximately two (2) years to clean all the sectors (See Attachment A). This activity is recorded in the GBA Maintenance Management Software. RWRA also cleans stormwater catch basins on a two (2) year cycle. The stormwater catch basins have a trapped bottom and submerged discharge to collect and prevent solids and floatable materials from entering the combined sewer system. These catch basins are cleaned with vactor trucks and the material transported to the landfill. Additionally, stormwater lines are flushed to bring materials to the catch basins and be cleaned with the vactor trucks.

Wastewater collection system deficiencies are documented through computer models (SWIM) for the combined sewer system, the GBA Maintenance Management Software, and CCTV inspections.

RWRA receives about 18 to 19 citizen complaints per year regarding basement backups and flooding issues. These complaints are recorded in the GBA Maintenance Management Software and investigated. According to RWRA, there is staff on call 24 hours a day to attend to emergencies.

RWRA maintains that they have a grease program under their pretreatment program. The pretreatment program gets notifications of new businesses and the staff go and visit the location to inspect if they have grease traps in place. RWRA knows about new businesses in the area through new business licences. The wastewater collection system inspection logs are used by RWRA to determine if there are root problems. RWRA uses a root cutter to address root blockages.

RWRA maintains that they dedicate between $300,000 to $500,000 each year for lining sewer mains. RWRA uses the cured-in-place pipe (CIPP) technology for lining sewer lines. RWRA maintains they have spent approximately $3,570,000 lining sewer lines since 1998. Manholes, wet wells and other structures that had experienced significant infiltration and inflow (I/I) have been coated with epoxy to reduce the I/I.

Operation of the Collection System

Two (2) pump stations have stationary back up power capacity to fully operate the pump stations. One (1) pump station has a secondary power feed and RWRA has 100 Kilowatt diesel portable generator that can fully operate all pump stations except three (3). According to RWRA, new or renovated pump stations since 1997 have a secondary power transfer switch for quick connection to the portable generator.
COMPLIANCE INSPECTION REPORT

Compliance Inspection of Owensboro Regional Water Resource Agency, August 31, 2004

Three (3) CSO pump stations have flow meters. All pump stations are equipped with running time totalizers. According to RWRA, all pump stations are equipped with autodialers to inform operators of malfunctions or problems at the pump stations. Additionally, supervisory control and data acquisition (SCADA) system is utilized for the three (3) largest pump stations. SCADA systems transmit information about the functioning of pump stations to one or more central locations in near real time. This allows crews to respond if a malfunction occurs at the pump station.

RWRA conducts staff training in-house. Tests are administered every three (3) years to assess staff knowledge and proficiency, and it is also used to grant promotions. Staff is also encouraged to take the California State University-Sacramento Office of Water Programs training courses. According to RWRA, staff is cross-trained in several types of jobs.

Findings and Recommendations

Proper operation and regular maintenance of the combined sewer system and CSO outfalls, should consist of a program that clearly establishes operation, maintenance, and inspection procedures to ensure that the combined sewer system and treatment facilities will function in a way to maximize treatment of combined sewage and still comply with NPDES permit limitations. Implementation of this minimum control will reduce the magnitude, frequency, and duration of CSOs by enabling existing facilities to perform as effectively as possible.

RWRA does not have a written, or specific O&M plan for the wastewater collection system. However, RWRA does perform wastewater collection system O&M activities. RWRA needs to document their O&M efforts for the wastewater collection system by developing a written O&M plan. For the purposes of the CSO Control Policy, a proper O&M program generally should include:

a. The organizations and people responsible for various aspects of the O&M program;

b. The resources (i.e., people and dollars) allocated to O&M activities;

c. Planning and budgeting procedures for O&M of the combined sewer system and treatment facilities;

d. A list of the facilities (e.g., tide gates, overflow weirs, pump stations) critical to the performance of the combined sewer system;

e. Written procedures and schedules for routine, periodic maintenance of major items of equipment and CSO diversion facilities, as well as written procedures...
2. Maximum Use of the Collection System for Storage

In 1997, RWRA evaluated the wastewater collection system and determined that water from the Ohio River was entering the combined sewer system due to ineffective flap gates. The flap gates were replaced with Tideflex “duckbill” valves. By eliminating the water entering the combined sewer system from the Ohio River, RWRA increased the capacity of the combined sewer system for transmission and storage of wastewater.

According to RWRA, the pump stations operation was evaluated and modified to operate at a lower wet well level which reduced the cross sectional area available for storage of combined sewer. This modification also reduced the settling of solids during dry weather.

RWRA maintains that baffle walls at the CSO outfalls have been repaired and raised. This modification has reduced combined sewer overflows and increased the storage capacity in the combined sewer system. RWRA estimates that the expanded storage capacity is 3.8 million gallons.

According to RWRA, 12 of the 14 pump stations that transport separate sanitary sewer flow into the combined sewer system have been diverted out of the combined sewer system and routed to the East wastewater treatment plant. RWRA maintains that diverting this flow away from the combined sewer system and keeping water from the Ohio River out of the combined sewer system have resulted in a 25 percent reduction of the dry weather flow to the West wastewater treatment plant.

In 2003, RWRA constructed a 7.5 acre-foot surface detention basin. This detention basin helped reduced localized flooding and basement backups in the east part of the combined sewer system. This basin also reduces the peak flow in the combined sewer system during rain events and allows more combined sewer flow to be treated at the wastewater treatment plant. According to RWRA, modeling has been conducted and some areas have been identified where wet
weather detention basins could be located to minimize street flooding and hold combined sewer flow.

Findings and Recommendations

Maximum use of the collection system for storage means making relatively simple modifications to the combined sewer system to enable the storage of wet weather flows in the system until the downstream sewer lines and treatment facilities can handle the flow. Based on the above information, RWRA is implementing this minimum control.

3. Review and Modification of Pretreatment Requirements

RWRA pretreatment program has been in place since 1979. Significant industrial users have been permitted since the early 1980's. According to RWRA all industrial users who discharge to the combined sewer system have been identified and there are no high volume dischargers to the combined sewer system. However, there is no indication that RWRA has identified all nondomestic dischargers (not only industrial dischargers) and assessed whether nondomestic sources are contributing to CSO impacts.

Findings and Recommendations

The objective of this minimum control is to minimize the impacts of discharges into the combined sewer system from nondomestic sources during wet weather events. Some of the control measures that should be implemented include:

a. Inventory of nondomestic discharges to the combined sewer system which includes volume of discharges, pollutants, and concentrations in the discharge.

b. Assess the impact of nondomestic discharges on CSOs.

c. Evaluate feasible modifications to the pretreatment program if the assessment indicates that nondomestic sources might contribute significantly to CSOs.

RWRA should document any actions taken to demonstrate their efforts to meet this minimum control. Based on the above information, RWRA is not fully implementing this minimum control.
4. Maximization of Flow to the POTW for Treatment

Combined sewer flow is routed to the West wastewater treatment plant. In 2001 RWRA expanded the wet weather capacity of the West wastewater treatment plant from 12.5 MGD to 34.5 MGD. RWRA rehabilitated two (2) of the three (3) pump stations that transport combined sewer to the wastewater treatment plant. The rehabilitation increased the pumping capacity from 13 MGD to 19 MGD. Currently, the pumping capacity in the combined sewer system is limited by the capacity of the force main to the wastewater treatment plant.

The efforts described above in NMC No. 2, maximum use of the collection system for storage, also contribute to the maximization of flow to the POTW for treatment. According to RWRA, the efforts described in NMC No. 2 have resulted in a dry weather flow reduction of 25 percent from the combined sewer system. This reduction of flow allows the combined sewer system to transport more flow during wet weather events.

One (1) pump station in the combined sewer system, the Center Street pump station, pumps to a gravity sewer system that transport flows to the Locust Street pump station. This configuration restricts the capacity of wastewater transmission resulting in CSO events at this location. However, RWRA is currently designing and acquiring easement rights for upgrading the Center Street pump station and constructing a force main to the West wastewater treatment plant from this pump station. This project would increase the wet weather pumping capacity to the West wastewater treatment plant from 19 MGD to 34.5 MGD, the maximum capacity of the plant. According to RWRA, this project should reduce the volume of CSOs and will improve the containment of the first flush of the combined sewer system.

Additionally, RWRA inspected the combined sewer system which resulted in the identification and elimination of eight (8) CSOs. RWRA has completed several small separation projects (separation of separate sewer system and storm water system). RWRA maintains that they always look for opportunities to separate the storm and sewer systems when possible. These efforts have also helped in the maximization of flow to the wastewater treatment plant.

Findings and Recommendations

Maximizing flow to the wastewater treatment plant entails simple modifications to the combined sewer system to enable as much wet weather flow as possible to
reach the treatment plant. The objective is to reduce the magnitude, frequency, and duration of CSOs during wet weather.

Based on the above discussion, RWRA has studied its combined sewer system to understand its limitations and has implemented projects to maximize flow to the wastewater treatment plant. RWRA is currently in the design phase for another project that will increase transmission capacity up to the maximum capacity of the West wastewater treatment plant, hence maximizing flow to the West wastewater treatment plant. Based on the above information, RWRA is adequately implementing this minimum control.

5. Elimination of CSOs During Dry Weather

RWRA has experienced two (2) dry weather CSOs with a total volume of 1,102,000 gallons in the last five years. According to RWRA, there are no recurring dry weather CSOs. RWRA becomes aware of dry weather CSOs through phone calls from the public and telemetry at the pump stations. At this time, RWRA does not conduct regular inspections of CSOs and CSO outfalls.

Findings and Recommendations

Elimination of dry weather overflows includes measures taken to ensure that the combined sewer system does not overflow during dry weather conditions. The information submitted by RWRA indicates that there is a very small number of dry weather CSOs. This could be an indication that current O&M efforts and improvements to the system prevent dry weather CSOs. However, RWRA should develop and implement, as part of the O&M program, an inspection program of combined sewer system critical components (dams, weirs, CSO outfalls) to identify potential dry weather overflow occurrences that may not be identified through current efforts. Based on the above information, RWRA is implementing this minimum control.

6. Control of Solid and Floatable Materials in CSOs

RWRA efforts to control solid and floatable materials in CSOs include flushing and cleaning the combined sewer lines, catch basin cleaning, pump station operational changes to increase velocities of flow to reduce settlement of solids, and a street sweeping program by the City of Owensboro. While these practices do reduce the probability of solid and floatable materials from entering or settling in the sewer lines and do offer some control, these practices are also considered
pollution prevention practices and they will be discussed in the next section. Submerged catch basins are used to prevent solid and floatable materials (mainly street litter) from entering the combined sewer system.

Findings and Recommendations

This control is intended to reduce, if not eliminate, visible solid and floatable materials from the CSO overflows using relatively simple measures. Simple devices including baffles, screens, and racks can be used to remove coarse solids and floatables from combined sewage, and devices such as booms and skimmer vessels can help remove floatables from the surface of the receiving water body. Solid and floatable materials include street litter that enters the combined sewer system, commercial, industrial and household (personal hygiene items flushed down toilets) materials.

As discussed above, RWRA does have some prevention programs in place. However, no end-of-pipe (CSO outfall or diversion structures) devices have been studied or constructed to control solid and floatable materials. RWRA should study and consider the construction of end-of-pipe solid and floatable material controls to reduce, if not eliminate, the solid and floatable materials entering the streams. Based on the above information, RWRA is not fully implementing this minimum control.

7. Pollution Prevention Programs to Reduce Contaminants in CSOs

RWRA has implemented several pollution prevention programs to reduce contaminants in CSOs. The following activities summarize RWRA’s efforts:

- Sewer line flushing and cleaning to reduce solid and floatable materials;
- Operational changes at pump stations that increased flow velocity and reduces settling of solids in the sewer lines;
- Street sweeping program implemented by the City of Owensboro;
- Assessed trash can availability and location in the downtown area;
- Public Improvement Specifications were updated in 2003 to prohibit the expansion of the combined sewer system, restrict building connections, and prohibition of storm/groundwater introduction into the sewer system among others;
- Enforcement of illegal point-source discharges; and
- BOD and TSS surcharges.
Findings and Recommendations

The intention of pollution prevention activities is to keep contaminants from entering the combined sewer system and the receiving waters via CSOs. RWRA has implemented several pollution prevention programs to reduce contaminants in CSOs as discussed above. RWRA should consider the development of a public education program that encourage the proper disposal of sanitary and personal hygiene items. This is one of the public's greater concerns and could close recreational areas near the river. Based on the above information, RWRA is implementing this minimum control.

8. Public Notification

RWRA has posted signs at each of the existing CSO locations. Additionally, RWRA uses flags at two (2) public river access locations in the downtown area to notify the public during wet weather events in the boating/swimming season that combined sewage may be present in the river.

Findings and Recommendations

The purpose of this control is to inform the public of the location of CSO outfalls, the actual occurrences of CSOs, the possible health and environmental effects of CSOs, and the recreational or commercial activities (e.g., swimming and fishing) curtailed as a result of CSOs.

As mentioned above, RWRA has implemented public notification programs. Additional programs that RWRA could contemplate for implementation include notices in newspapers, brochures or bill inserts, and discussions about CSOs and its impacts during lectures and tours conducted by RWRA. Based on the above information, RWRA is adequately implementing this minimum control.

9. Monitoring to Characterize CSO Impacts and the Efficacy of CSO Controls

RWRA installed flow monitors at the three (3) major CSO's in 1998. However, flow meters were damaged due to high flow velocities. RWRA future plans include SCADA connections from the three major combined sewer system pump stations to transmit pumping rate data, well levels upstream of the baffle walls, and river elevation. This will allow RWRA to monitor these three (3) CSO outfalls for overflows.
A combined sewer system modeling program was developed by RWRA. This model has been used to identify locations for temporary storage of runoff to reduce CSO volumes and area flooding.

RWRA is completing a geographic information system (GIS) with sewer map layers. After this project is completed, layout maps of the combined sewer system, characteristics of the system, location of CSO outfalls could be easily produced.

RWRA monitors water quality on the Ohio River for two (2) wet weather events and one (1) dry weather event each year. Samples are collected at six (6) locations that include points upstream and downstream of CSO locations (See Attachment B). According to RWRA, the samples are analyzed for the following water quality parameters: BOD, total suspended solids, fecal coliform and E. coli. According to RWRA, this water quality monitoring is done to evaluate CSO impacts on the Ohio River. At this time, RWRA is not conducting CSO event inspections or recording overflow occurrences at CSOs.

Findings and Recommendations

This control is an initial characterization of the combined sewer system to collect and document information on overflow occurrences and known water quality problems and incidents, such as river front closures and fishing advisories, that reflect use impairments caused by CSOs. This control involves visual inspections and other simple methods to determine the occurrence and apparent impacts of CSOs.

RWRA is implementing some activities related to this minimum control. However, RWRA should establish a program to record the number of CSO overflows at as many outfalls as feasible. This should include date and time of each overflow, and should measure total daily rainfall. At a minimum, RWRA should develop information on the frequency of overflows at individual CSO points in the system. This could also be achieved by using a calibrated model of the combined sewer system. Some measures that could be used include visual inspection of CSOs during a wet weather event, visual inspection with inspection aids (chalk marks, wood blocks, etc), or automatic measurement.

This minimum control should provide RWRA useful information on the general performance of the combined sewer system and the effect of control measures. RWRA should document the improvements achieved due to the implementation
of CSO control measures. Based on the above information, RWRA is deficiently implementing this minimum control.

B. Long Term Control Plan

RWRA has not developed a CSO long term control plan (LTCP). However, RWRA has completed several CSO control activities that could be incorporated in a future LTCP. Some of these activities include:

- The beginning of its collection system characterization efforts (see the discussion in section V.A.9 above);
- Conducted limited water quality monitoring to assess CSO impacts;
- Carried out some combined sewer system flow monitoring;
- Currently calibrating and validating the computerized hydraulic collection system model for the combined sewer system;
- Constructed a stormwater retention basin;
- Routed separated sanitary sewer flow away from the combined sewer system; and
- Completed minor stormwater and combined sewer system separations.

Findings and Recommendations

KPDES permit # KY0020095 requires RWRA to maintain an approved Combined Sewer Operational Plan (CSOP) that ensure that CSOs occur only as a result of wet weather, bring all wet weather CSOs into compliance with technology based or water quality based requirements of the CWA and minimize the impacts of CSOs. Additionally, the permit requires RWRA to evaluate alternatives to allow for effective prioritization and implementation of CSO controls, develop a comprehensive water management plan, establish an implementation schedule for CSO controls, and update the schedule annually.

Some of the activities mentioned above are the beginning stages of the assessment phase for characterization of the combined sewer system, and some are CSO control projects that could be part of a future LTCP. RWRA has not developed a LTCP and does not have a comprehensive plan for system characterization, development and evaluation of CSO control alternatives, including estimated costs and schedules, and selection and implementation of CSO controls.

RWRA should start the development of a LTCP that includes fixed-date project implementation schedules and a financing plan to design and construct the projects as soon as practicable. Additionally, RWRA should document all the CSO control
projects that have been completed and their impact on CSOs. RWRA should then use this information to develop the LTCP. The LTCP must have an adequate system characterization, development and evaluation of alternatives, and selection and implementation of the CSO controls. The overall objective is to ensure that if CSOs occur, they are only as a result of wet weather; bring all wet weather CSO discharge points into compliance with the technology based and water quality-based requirements of the CWA; and minimize the impacts of CSOs on water quality, aquatic biota, and human health. The LTCP must comply with the 1994 CSO Control Policy.

C. Unauthorized Discharges

RWRA submitted information for unauthorized discharges that occurred from January 1999 through December 2003 in responding to EPA’s Section 308 information request. RWRA reported 156 unauthorized discharges from January 1999 through December 2003. These unauthorized discharges include discharges from the separate sewer system, from non-permitted locations in the combined sewer system, and basement backups. Additionally, these unauthorized discharges include discharges that reached and that did not reached waters of the United States.

From January 1999 through December 2003 RWRA reported eight (8) unauthorized discharges that reached waters of the United States for a total of 511,300 gallons of sewage. Unauthorized discharges occurred at different locations in RWRA’s sanitary sewer system and at several pump stations.

The following table summarizes the causes of the unauthorized discharges.

<table>
<thead>
<tr>
<th>Cause</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blockages</td>
<td>41%</td>
</tr>
<tr>
<td>Rain</td>
<td>12%</td>
</tr>
<tr>
<td>Pump Station Malfunctions</td>
<td>11%</td>
</tr>
<tr>
<td>Grease</td>
<td>4%</td>
</tr>
<tr>
<td>Roots</td>
<td>3%</td>
</tr>
<tr>
<td>Broken Lines</td>
<td>3%</td>
</tr>
<tr>
<td>Other</td>
<td>26%</td>
</tr>
</tbody>
</table>
Of all unauthorized discharges, 46 percent were backups into basement, houses or buildings, five (5) percent reached waters of the United States and 49 percent discharged to the streets, ground, parking lots and other locations.

Findings and Recommendations

Discharges of pollutants into navigable waters of the United States without a NPDES permit are violations of the Clean Water Act. The CWA, Section 301(a), 33 U.S.C. § 1311(a), prohibits the discharge of pollutants by any person into navigable waters of the United States except in compliance with that Section, and, where applicable, an NPDES permit issued pursuant to Section 402 of the CWA, 33 U.S.C. § 1342. Unauthorized discharges that do not reach waters of the United States are violations of the operation and maintenance provisions in KPDES permit KY0020095 and 401KAR 5:065 Section 1(5).

The information submitted on unauthorized discharges did not show a recurring location of unauthorized discharges. Most of the unauthorized discharges are related to blockages in the sewer lines. As recommended in part V.A.1. above, RWRA should develop a written operation and maintenance plan for the wastewater collection system. A written operation and maintenance plan with documentation, and performance goals and tracking, will help RWRA assess the unauthorized discharges data and adjust operation and maintenance activities to help diminish the quantity of unauthorized discharges.

VI. ATTACHMENTS

A. CSO Sector Index  
B. RWRA Water Quality Sampling Points  
C. Combined Sewer Overflow Warning  
D. Attendance Sheet - August 31, 2004 Inspection
The Owensboro-Daviess County

Regional Water Resource Agency

OPERATION AND MAINTENANCE PLAN
for the
WASTEWATER COLLECTION SYSTEM AND FACILITIES

August 29, 2008
# TABLE OF CONTENTS

INTRODUCTION .................................................................................. 1  

OBJECTIVE ...................................................................................... 1  

RWRA BACKGROUND INFORMATION ........................................... 2  

RWRA FACILITIES ........................................................................ 2  
  Treatment Facilities ................................................................. 2  
  Combined Sewer System ....................................................... 3  
  HBW Separate Systems .......................................................... 3  
  Stormwater Systems ............................................................... 4  
  Pump Stations ......................................................................... 4  
  CSO Outfall Structures ............................................................ 4  

TECHNOLOGY ................................................................................. 5  
  Supervisory Control And Data Acquisition – (SCADA) .............. 5  
  GBA Master Series - (GBA) ..................................................... 5  
  Geographic Information Systems - (GIS) ............................. 6  
  LINKO Software .................................................................... 6  
  Gasboy ................................................................................. 6  
  Strantrol .............................................................................. 7  
  Controllers ........................................................................... 7  
  Variable Frequency Drives – (VFD) ........................................ 7  
  Flow Metering ...................................................................... 7  
  Closed-Circuit Televising (CCTV) Equipment ....................... 8  
  Electronic rain gauges ............................................................ 8  
  Surveillance .......................................................................... 8  

AGENCY DIVISION DESCRIPTIONS ........................................... 8  
  Agency Administration ............................................................ 8  
  Engineering .......................................................................... 9  
  Operations Administration ..................................................... 9  
    Field Operations .................................................................. 9  
    Plant Operations ................................................................ 9  
  Process Control .................................................................... 9  
  Process Maintenance Division .............................................. 9  
  Technical Support .................................................................. 10  

PLANNING AND BUDGETING PROCEDURES FOR CSS AND TREATMENT .... 10  

BUDGETING RESOURCES ............................................................. 11  

RESPONSIBILITY OF O&M PROGRAM ADMINISTRATION .......... 11
OPERATION AND MAINTENANCE PLAN for the
WASTEWATER COLLECTION SYSTEM AND FACILITIES

INTRODUCTION

The Owensboro-Daviess County Regional Water Resource Agency (RWRA) is
the regional provider of comprehensive wastewater services for the Owensboro-Daviess
County, Kentucky community. It is RWRA’s goal to properly operate and maintain the
combined and sanitary sewer systems, along with the wastewater treatment facilities
which are publicly owned and operated by RWRA within their jurisdiction.

The proper operation and maintenance (O&M) of these systems and facilities are
key components of RWRA’s Combined Sewer Overflow program and one of the required
Nine Minimum Controls (NMC) under the National CSO Policy. The objective of this
Plan is to “reduce the magnitude, frequency, duration and impact of CSOs" through the
proper O&M of existing facilities and the implementation of effective programs and
policies. Further, this plan addresses O&M associated with operation of facilities to
reduce the potential for dry weather overflows and Kentucky Pollution Discharge
Elimination System (KPDES) permit exceedences at the wastewater treatment facilities.

RWRA is required to:

- implement an Operation and Maintenance Plan for the combined sewer system
  (CSS);
- update the plan to incorporate any changes to the system;
- maintain the system according to the plan;
- keep records to document the implementation of the plan; and
- properly train personnel to implement the plan.

This document outlines RWRA’s operations and maintenance program and shall
serve as the O&M plan for the combined and sanitary sewer systems, along with the
wastewater treatment facilities.

OBJECTIVE

The objective of this document is to establish the operation and maintenance
procedures that are associated with facilities and equipment which are part of RWRA’s
system. This document will:

- enumerate the facilities that are maintained as part of the system;
- outline technology utilized by RWRA in its O&M program;
- specify RWRA personnel responsible for implementation of the O&M program;
- outline RWRA’s procedures for budgeting O&M resources;
- document RWRA’s O&M procedures;
- outline procedures for emergency situations; and
- discuss RWRA’s O&M training procedures.

RWRA’s motto summarizes the Agency’s mission statement: “Progress Through Growth - Protecting Your Environment”.

**RWRA BACKGROUND INFORMATION**

The Regional Water Resource Agency was established in 1995 and is responsible for the proper operation and maintenance of the facilities of the former Owensboro Sewer Commission (OSC). RWRA performs the necessary O&M procedures to protect the environment from potential overflows associated with both dry and wet weather conditions within the sewer systems. RWRA maintains the complete public wastewater treatment and conveyance systems for Owensboro and Daviess County, with the exception of Whitesville, Kentucky.

RWRA is in the process of developing a Long-Term Control Plan (LTCP) which is a document that outlines RWRA’s plan to improve conditions within the system to minimize the impacts of combined sewer overflows (CSOs). This Plan will include capital improvements necessary to accomplish the goals of the Environmental Protection Agency (EPA) and Kentucky Environmental and Public Protection Cabinet. As the programs, policies, procedures and capital improvements are completed, RWRA will approach compliance with applicable government regulations. It is the responsibility of RWRA personnel to properly implement the Long-Term Control Plan, as well as operate and maintain the system, to mitigate any negative environmental impact that might be created by improper or inappropriate operations.

**RWRA FACILITIES**

**Treatment Facilities**

The Regional Water Resource Agency operates two wastewater treatment facilities. Both of these facilities contain carousel oxidation ditches designed for secondary treatment. The wastewater sludge generated by both facilities is dewatered and disposed of at Daviess County’s local landfill. The current method of disinfection at both facilities involves the injection of sodium hypochlorite (bleach) and sodium bisulfite (neutralizing agent).

Originally, the West (Max Rhoads) wastewater treatment facility provided services for the entire public wastewater system serving the community. This facility had a treatment capacity of 12 million gallons per day (MGD) and very little additional capacity for wet weather events. As part of the community’s long-term approach associated with the combined sewer system (CSS), the decision was made to begin
separating concentrated human-based wastewater (HBW) from the CSS. This process involved the construction of a second wastewater facility that was placed on the east side of Owensboro. The separated HBW flow was conveyed directly to the East Treatment Plant for treatment and the West Treatment Plant provided service to the combined system. The West Treatment Plant has been upgraded to a 15 MGD facility with a wet weather treatment capacity of 35.7 MGD. This upgrade, along with future conveyance upgrades, is designed to maximize wet weather treatment of combined sewage.

The East Treatment Plant has a design capacity of 6.8 MGD and provides service to areas of RWRA’s system that convey separated human-based wastewater. Future separation projects are intended to convey additional separated HBW to the East Treatment Plant in order to minimize the effects of potential future CSO events by the reduction of the mass of pollutants conveyed through the CSS.

**Combined Sewer System**

The original sewer system that served Owensboro began with a pipe network that extended from the Ohio River southward as the community expanded. In the late 1920’s, three (3) tunnels that formed the backbone of the combined system were installed to transport flow toward the river. Each of the tunnels is cast-in-place concrete with the east tunnel being 84” in diameter, the central tunnel 96” and the west tunnel 72”. When the combined system was modified in 1958 to achieve wastewater treatment, three pump stations were installed at the tunnel sewer outfalls to convey wastewater to the West (Max Rhoads) Wastewater Treatment Facility. All additions and growth to the combined system were conveyed through the system until planned CSS improvements were initiated.

Many CSS improvements associated with separation and conveyance of HBW directly to treatment plants have been initiated and completed, thus allowing RWRA to reduce the amount of HBW conveyed through the CSS. Further RWRA, in conjunction with the City of Owensboro, has initiated and completed projects associated with the removal of stormwater to the combined system which has reduced the volume of combined sewage generated during a rain event. The cumulative results of these initiatives have reduced the frequency, volume, duration and impact of CSO events.

**HBW Separate Systems**

RWRA is defining the separate sewers that are designed or have been reconstructed to convey only human-based wastewater (domestic or sanitary sewage) as the HBW separate systems. As the community’s improvements have been completed, a number of facilities that initially conveyed HBW through the CSS have been reconstructed or rebuilt in a manner to avoid conveyance through the combined system and transport HBW directly to treatment facilities.

This manual will address the O&M of the facilities associated with the described separated systems. RWRA has eliminated sanitary sewer overflows (SSOs) that existed prior to system improvements that have been initiated and completed by RWRA.
**Stormwater Systems**

The responsibility for the operation and maintenance of the stormwater systems within the City of Owensboro belongs to the City and stormwater responsibilities outside the corporate boundary resides with Daviess County Fiscal Court. RWRA provides contractual services to either governmental agency upon request. Currently, the City of Owensboro contracts RWRA to perform most underground maintenance, cleaning and inspection of stormwater facilities such as catch basins, inlets, pipe systems, etc. The City of Owensboro collects a tax that has designated stormwater improvement funding included. As stated, most maintenance of stormwater facilities is performed by RWRA with the remaining funding used for capital improvements which are typically performed through outside contracts to private contractors.

**Pump Stations**

RWRA operates and maintains more than 50 pump stations within the collection system, as well as a significant number of pumps which are maintained at the treatment facilities. There are three main CSS pump stations located at the end of the tunnel sewers that convey combined sewage directly to the Max Rhoads Treatment Plant. The remaining collection system pump stations either transport flow into the combined system or convey directly/indirectly to treatment facilities.

**CSO Outfall Structures**

As noted in the combined sewer system description, the primary CSO outfalls are located at the end of the tunnel sewers along the Ohio River. The community had a total of 16 designed CSO outfalls at various locations with eight discharging to the Ohio River and eight discharging into the southern portion of Owensboro to the Panther Creek basin. Completed CSS improvements have eliminated the eight discharge locations to the south/Panther Creek basin. The remaining CSO locations are listed in the table below and shown on the map.

<table>
<thead>
<tr>
<th>CSO Number/Name</th>
<th>Location</th>
<th>Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>002 Center Street</td>
<td>37deg 46' 37&quot; / 87deg 06' 08&quot;</td>
<td>Ohio River</td>
</tr>
<tr>
<td>003 Locust West</td>
<td>37deg 46' 37&quot; / 87deg 06' 58&quot;</td>
<td>Ohio River</td>
</tr>
<tr>
<td>004 Locust East</td>
<td>37deg 46' 37&quot; / 87deg 06' 57&quot;</td>
<td>Ohio River</td>
</tr>
<tr>
<td>005 Dublin Lane</td>
<td>37deg 46' 48&quot; / 87deg 07' 55&quot;</td>
<td>Ohio River</td>
</tr>
<tr>
<td>006 Triplet Street</td>
<td>37deg 46' 35&quot; / 87deg 06' 16&quot;</td>
<td>Ohio River</td>
</tr>
<tr>
<td>007 Daviess Street</td>
<td>37deg 46' 36&quot; / 87deg 06' 37&quot;</td>
<td>Ohio River</td>
</tr>
<tr>
<td>008 Frederica St.</td>
<td>37deg 46' 36&quot; / 87deg 06' 49&quot;</td>
<td>Ohio River</td>
</tr>
<tr>
<td>009 Sycamore St.</td>
<td>37deg 46' 37&quot; / 87deg 07' 19&quot;</td>
<td>Ohio River</td>
</tr>
</tbody>
</table>
TECHNOLOGY

RWRA strives to incorporate the most recent technology available for various operating components of its system and equipment. Utilizing these technologies creates efficiencies in system operation and maintenance. The following technologies have been incorporated into various aspects of O&M.

Supervisory Control And Data Acquisition – (SCADA)

SCADA technology is used in the RWRA system to control various aspects of treatment plant operations both electronically and by operations personnel remote control. RWRA's treatment plant facilities are interconnected by SCADA through fiber optic cable. This connection allows both facilities to be operated from one location. The CSS system pump stations are also monitored and controlled by SCADA at the treatment plants by operations personnel. RWRA's current practice is to fully operate the East Treatment Plant remotely through the SCADA system from the Max Rhoads Treatment Plant during second and third shifts.

GBA Master Series - (GBA)

RWRA uses GBA Master Series software to record information received from the public and RWRA personnel related to operation and maintenance issues within the system. This software allows the documentation and retention of information for site
specific data. This data is used in RWRA’s prioritization of daily, monthly and annual
development of work orders for job assignments. GBA also creates work orders
associated with preventative maintenance of various facilities or equipment. GBA
software enables RWRA personnel to maintain historical data in order to develop reports
for system needs and required reporting to the Cabinet. GBA has proven to be a valuable
tool in streamlining and coordinating personnel efforts.

**Geographic Information Systems - (GIS)**

GIS technology is used to accurately log and map each system structure into a
geographical database. RWRA is in the process of completing the necessary data entry to
fully utilize the GIS capabilities. The GIS system allows a technician to retrieve
pertinent information regarding the pipe network such as diameter, composition, length
of pipe, photographs, flow direction, history of repairs through cross-referencing of GBA,
and other types of valuable data regarding specific sections of pipe. The same type of
information can be recorded for treatment plants, manholes, structures, pump stations,
drainage facilities, and other facilities that RWRA is responsible for. The information
generated from the GIS Arc Map system enables users to rapidly distinguish
topographical information for areas surrounding existing and potential improvements to
the system.

**LINKO Software**

RWRA uses three types of LINKO software to track information related to the
proper O&M of the system for potential pollutants that may be discharged from
commercial and/or industrial facilities. The LINKO Compliance Tracking Software
(CTS) is used by RWRA’s industrial pre-treatment personnel to track information for
significant industrial users (SIUs) related to the testing of discharges from their facilities.
The LINKO FOG Software is used to track information by pre-treatment personnel
related to fats, oils and greases typically discharged by commercial and/or industrial
customers. Gasboy data is imported into the hauled waste module for LINKO software
allowing RWRA to track information regarding wastewater transported to the RWRA
system for disposal. Each of these LINKO software modules are important for the proper
O&M of the system related to potential negative environmental discharges.

**Gasboy**

While RWRA accepts transported wastewater from area waste haulers, a system
has been devised to control the amount and content of the flow accepted by RWRA.
RWRA has installed transported wastewater flow monitoring systems at two facilities.
RWRA technical support personnel modified a Gasboy (gas dispensing system) unit to
operate in a manner to quantify discharge volumes of transported wastewater to the stated
facilities. This system is used to identify and track information specific to a wastewater
 hauler and coordinate the collection of manifests associated with the contents that are
discharged. RWRA uses this information for billing purposes as well.
Strantrol

RWRA treatment facilities have Strantrol equipment installed at chemical feed locations to properly monitor and control the application of chemicals. This control mechanism is vital to the efficient injection of chemicals in the treatment process to properly disinfect the plants’ effluent, as well as introduce the proper amounts of chemical used to neutralize the disinfectant. This equipment is monitored and controlled through RWRA’s SCADA and Surveillance systems.

Controllers

The Technical Support Division of RWRA has installed controllers at seven (7) of its largest pump stations. SCADA communicates with the controllers at the various pump stations through wireless remote access. These controllers allow plant operations personnel to monitor and control the pump stations from the treatment facilities. The controllers provide the ability to establish parameters for the pump stations to function under various flow conditions (e.g., high flow, wet weather, etc.). The parameters associated with control of the pump stations allow maximum storage within the system during wet weather events.

Variable Frequency Drives – (VFD)

There are over 40 VFDs that have been installed within the RWRA system at pump station locations. These VFDs control the speed at which flow is conveyed throughout the system and eventually to the treatment plants. They enable RWRA to efficiently operate and maintain the system and provide improved consistent control of flow conditions. The efficiencies associated with the VFDs include electrical consumption savings, chemical use reduction at treatment plants and use of pumps at maximum operating efficiency.

Flow Metering

RWRA has installed various types of magnetic flow-metering devices at pump stations in order to record flow conditions and to transmit information through SCADA to the treatment facilities. RWRA also has mobile area-velocity flow-metering devices used by system personnel to monitor flow conditions in the collection system at various locations on an as-needed basis. These devices are useful to RWRA in assimilating information pertaining to the flow characterization.

RWRA utilizes other flow measuring devices to determine the elevation of the water level within the pump stations. This information is transferred to the controllers so that flow optimization can be achieved at the pump stations. These devices include bubbler units, submersible transducers and ultrasonic measuring equipment.
Closed-Circuit Televising (CCTV) Equipment

RWRA has two trucks installed with sewer closed-circuit televisualing equipment. This equipment allows RWRA to televise and record information related to the condition of the sewer system. This information is kept in DVD format and logged by RWRA personnel by location. All information collected is imported into GIS through the GBA Master Series software. Information obtained through the televising of sewer lines is used to prioritize system repairs. Further, CCTV is utilized in televising new sewer installations for deficiencies prior to acceptance into RWRA’s system.

Electronic rain gauges

There are a total of six (6) electronic rain gauges installed throughout the RWRA system area. This rain gauge system is necessary to properly input data that is used to determine the effects of wet weather events through system modeling. Further, this information is assimilated to develop data associated with the combined sewer system. The information collected by the rain gauges is available through RWRA’s information system network. This data will be used as part of the assessment of RWRA’s system efficiency associated with the combined system and the Long-Term Control Plan for the community.

Surveillance

RWRA has installed surveillance equipment at each of its operations treatment facilities and the system maintenance division in order to maximize O&M potential. This allows operations personnel to visibly inspect equipment such as the mixers at oxidation ditches, the clarifiers, chemical storage areas, chemical feed equipment and dewatering press building. The surveillance equipment also allows operations personnel to monitor RWRA’s facilities for security purposes.

AGENCY DIVISION DESCRIPTIONS

The Regional Water Resource Agency currently is managed through the separation of duties that are assigned to the divisions described in this section. Each division has separate budget requirements that are approved by the Agency Board of Directors annually. There are currently 75 personnel positions allocated to the divisions outlined below.

Agency Administration

Duties include: overall management, organization, planning, safety, and administration of RWRA, including policy development, budget preparation, disbursement administration, preliminary engineering, finance and finance administration, loan oversight, contract
administration, payroll and personnel administration, safety programs, EPA compliance administration, and development of long-range Agency planning. Administration also works closely with the RWRA Board and assists Board counsel in the development of policies, acquisition of easements, and the resolution of legal issues.

**Engineering**

Duties include: overall management of RWRA’s engineering responsibilities, which include sewer system design, surveying, permitting, project oversight, project inspection and construction oversight, GIS collection, compilation, and management, B.U.D. locates, project coordination, plan review, construction specifications, stormwater project coordination and scheduling, CSO program administration, long-range planning of sewer rehabilitation, and project surveying and development.

**Operations Administration**

Duties include: overall management of RWRA’s wastewater collection, distribution facilities, and treatment plants. This division coordinates operations between field, plant, maintenance and laboratory personnel.

**Field Operations** Duties include: the maintenance of wastewater conveyance facilities, sewer installation, customer service and contractual stormwater work as needed. Responsible for the television inspection of sewers and coordination with Agency personnel to record information for sewer repair and prioritization, and to enhance the GBA and GIS Database.

**Plant Operations** Duties include: overall management and operation of the respective treatment facilities, including lab data review for process control, waste bio-solids processing, delivery of waste for bio-solids disposal, operations personnel scheduling, Plant compliance monitoring, calculation of necessary chemical application, and data collation for Division of Water submittals. The Process Control, Maintenance and Technical Support listed below are all managed by Plant Operations.

**Process Control** Duties include: overall laboratory testing and data collection for proper daily process control for the operations of RWRA’s East and Max Rhoads Treatment Plants and permit testing for regulatory agencies. Manages the Industrial Pre-treatment Program for all Significant Industrial Users within the RWRA system. Monitors commercial establishments for grease trap compliance, and other possible discharge violations, such as oils and toxics.

**Process Maintenance Division** Duties include: management of maintenance responsibilities including Treatment Plant, lift stations, buildings and related facilities.
**Technical Support** Duties include: management and operations of the respective hardware and software of wastewater applications including SCADA, VFDs, Surveillance, Gasboy and Strantrol.

The divisions listed above all play an integral part in the proper operation and maintenance of the RWRA system. The resources allocated to the various aspects of the combined system O&M program are governed by the RWRA Board through the budget process. RWRA Staff determine and propose the necessary allocated needs for each division that is responsible for the aspects of the O&M program. The Board annually adopts the RWRA Budget which contains the resources for each division that contributes to the overall operation and maintenance of the system. This Budget is developed in coordination with personnel responsible for CSO efforts. The development, coordination and oversight of the Budget are the responsibility of RWRA’s Finance Director.

**PLANNING AND BUDGETING PROCEDURES FOR CSS AND TREATMENT**

Planning efforts associated with the O&M of the CSS is the responsibility of RWRA’s Engineering Director in coordination with the Director of Operations. The Engineering Director reviews CSO guidance to assure that the programs associated with the guidance are implemented. The Engineering Director provides recommendations to the RWRA Board of Directors regarding expenditures necessary to meet the objectives of the CSO Guidance and requests funding necessary to achieve these objectives. Once approved, the Engineering Director proceeds with the implementation of the capital construction that is proposed in the Framework Document and approved Long-Term Control Plan.

The planning and budgeting associated with the treatment plants are initiated and recommended by the Director of Operations to the Executive Director and the Director of Engineering. It is intended that input from the Directors will coordinate the activities associated with the treatment plants, along with designed upgrades/modifications to ensure that the maximum amount of capacity at the treatment plants is used for treatment. Recommendations that are to be included in the LTCP for the community will be part of the coordinated efforts associated with this endeavor.

As the annual budget process begins, the Finance Director assimilates the projected expenditures associated with the O&M of the CSO program, as submitted by the Engineering Director in conjunction with the Director of Operations. The completed Budget is reviewed by RWRA’s Directors’ Committee prior to submittal to the RWRA Board. Future programs, policies and projects associated with the CSS will be submitted to the Kentucky Division of Water, along with any other appropriate governing body, for review and approval. Once the objectives are established and the necessary projected budgetary allowances are determined, the final version of the Budget is reviewed, altered if necessary, and adopted by the RWRA Board.
BUDGETING RESOURCES

As part of RWRA’s annual budget process described above, the Directors of the various departments of RWRA review and recommend departmental needs. These recommendations include the allocation of resources for personnel, equipment and maintenance needs. It is RWRA’s goal to maintain the necessary level of trained personnel and effective equipment to address the operational needs of the system.

To accomplish the goals established by RWRA through its Board of Directors, RWRA annually allocates budgetary funds for various critical aspects of the O&M of the RWRA system, as well as the day to day needs of the Agency. RWRA’s budget includes two specific fund categories designed to distribute the monies proportionately between operations and replacement capital needs. The operational budget includes the personnel and other resources needed to sufficiently operate and maintain the treatment facilities, along with the collection system, pump stations and equipment within the system. The replacement budget is designed to replace system capital as it reaches its useful life expectancy. The current annual operational and replacement budgets are approximately $10 million and $3 million, respectively.

RESPONSIBILITY OF O&M PROGRAM ADMINISTRATION

The administration of the program, policies and procedures associated with the combined system and CSO policy objectives rest with the Executive Director of the Regional Water Resource Agency.

The development of the LTCP is coordinated through the engineering department supervised by the Director of Engineering. The Director of Engineering is responsible for the development of programs, policies and procedures, as well as the designed capital improvements associated with the water quality aspects of the CSS.

The individual responsible for administration of the O&M program is the Director of Operations. RWRA's Plant Operations and Field Divisions are managed by this Director. Most of the O&M responsibilities associated with the maintenance of the CSS, pump stations and treatment facilities reside within those divisions. The Process Control Division responsible for RWRA's pre-treatment program is managed by the Director of Operations. Further, the Director of Operations is responsible for notification to the proper agencies should an overflow event occur.

RWRA has individuals that are managed by the Director of Operations whom are responsible for specific duties in the O&M program including treatment plant operations, supervised by the Plant Operations and Maintenance Manager; pre-treatment coordination by the Process Control Manager; pump station maintenance by the Process Maintenance Crew Leader, SCADA Management and Maintenance by the Technical Support Manager, etc. Each of these duties is an integral part of RWRA’s O&M program.
CRITICAL FACILITIES

RWRA’s objectives are to operate and maintain its facilities in a manner to optimize the treatment of wastewater, to reduce potential overflows from the system, and to operate equipment in a manner that would allow RWRA to achieve these goals. In order to accomplish this, there are critical facilities that are vital to the proper operation of the system. RWRA personnel are trained on the proper O&M of these critical facilities and will be trained on future facilities as they are constructed as part of the Long-Term Control Plan.

Treatment Plants

The Max Rhoads Treatment Plant and the East Treatment Plant are necessary to provide wastewater treatment services to the community. The plants have been designed, upgraded and are operated in a manner to maximize both dry weather and wet weather treatment. The systematic implementation of projects to redirect HBW flow from the combined system directly to the East Treatment Plant or the Max Rhoads Treatment Plant is an integral part of the Long-Term Control Plan.

Tunnel Sewers

The Owensboro-Daviess County community is served by three (3) tunnel sewers, constructed in approximately 1930, extending from the Ohio River southward into the RWRA system. These tunnel sewers convey virtually all of RWRA’s combined sewage and serve as the critical gravity conveyance structures within the system. These tunnel sewers vary in size up to eight feet in diameter and are located at a depth varying from approximately 30 feet to 60 feet.

As RWRA began its efforts to reduce inflow/infiltration into the RWRA system, there was a recognized need to remove inflow from the Ohio River through the tunnel system outfalls. RWRA installed large Tide-Flex® valves at the tunnel sewer outfalls to reduce such infiltration. The installation of these valves has significantly reduced the amount of river water that is treated at the facilities.

In order to store combined sewage within the tunnel system and to reduce overflows, RWRA has raised the overflow weirs to accomplish this goal. The weirs are also the location of RWRA’s flow measuring devices which will become an integral part of the determination of overflow volumes.

Tunnel Sewer Pump Stations and Force Mains

In order to maximize flow to the treatment plants, each of the tunnel pump stations (Locust Street, Dublin Lane and Center Street) have been or are in the process of
being upgraded to convey additional flow. With completed upgrades, these pump stations will allow maximization of flow to the Max Rhoads Treatment Plant. The O&M of these pump stations are critical to the operation of the CSS. Further, RWRA has installed a second large force main that extends from the eastern tunnel system at the Center Street pump station across Owensboro westward to the Max Rhoads Treatment Plant. This force main has connections at the Dublin Lane and Locust Street pump stations that allow flow from either station to be conveyed through it. With this improvement, redundancy in the CSS is available for the critical pump stations.

**Detention Basins**

The Devins Ditch detention basin captures a large amount of stormwater that would enter the west tunnel system and holds the water until wet weather events subside. Once a wet weather event ends, the water is slowly released into the system and conveyed to the Max Rhoads Plant for treatment. The Breckenridge/Daviess County Health Department detention basin stores for treatment both stormwater runoff and combined sewage backup from the east tunnel system. The proper O&M of both of these facilities is necessary to reduce the impacts of stormwater entering the CSS.

**PROPER O&M OF CSS FACILITIES AND EQUIPMENT**

RWRA personnel will continue to be trained on the proper O&M associated with CSS facilities as well as equipment necessary to clean, inspect and maintain the facilities.

**Treatment Plants**

Both of RWRA’s treatment facilities have been rehabilitated in recent years and have SCADA and other equipment that enable treatment plant personnel to monitor all aspects of the treatment process. Alarm systems are in place which notifies appropriate personnel should problems exist at the facilities. The SCADA system is designed such that each treatment plant facility can be fully operated from the other treatment plant. Pump controls and electronic valve actuators are an integral part of the control capabilities. The treatment plants are operated on a 24 hour per day, 365 day per year basis.

RWRA promotes state wastewater operator training through payroll incentives built into the job classification program for treatment plant personnel. Operations personnel are encouraged to attend state training classes and are provided the necessary resources such as transportation and paid time off associated with attending such training. This personnel classification system has been put in place to maximize the training of plant operations personnel so that a complete understanding of O&M is achieved. Treatment plant personnel are trained to record operations problems in the GBA database. Recorded O&M issues are prioritized for maintenance.
Pump Stations

The three CSS pump stations are monitored continuously by SCADA and are checked daily (Monday – Friday) for any maintenance issues. The associated CSO outfall facilities and flow monitoring equipment at each of these stations is inspected during these site visits. The personnel performing the inspections are required to complete a checklist for each station. Any deficiency associated with the maintenance or operation of the facility prompts a work order for repair. This work order is placed in RWRA’s GBA database system for prioritization and record retention. In addition to the routine inspections, preventative maintenance procedures are performed in anticipation of and following significant wet weather events at the three CSS pump stations.

Additionally, RWRA personnel operate and maintain more than 50 collection system pump stations within the RWRA system. RWRA has designated personnel that visit/inspect the remaining pump stations on a weekly basis. Four (4) of RWRA’s non-CSS main pump stations are also connected to the treatment plants’ SCADA system which allows RWRA personnel to monitor and remotely operate the stations 24 hours per day. Most of the remaining stations have systems in place that notify (via alarm system) the treatment facilities personnel by telephone when adverse conditions are present at the station. These personnel notify individuals within the maintenance division to immediately respond to situations that occur as needed.

System Cleaning

The RWRA has developed a dedicated program to continually clean the pipe network conveying wastewater through the CSS. The program involves the systematic cleaning of the system with two jet rodders and personnel specific to this effort. The system is mapped and divided into numbered sectors [See following Sector Map] that are cleaned on a periodic basis, with the entire system having been cleaned within an approximate two-year timeframe. The separated HBW sewer system is also in the process of being cleaned on a systematic basis.
Sewer-cleaning equipment such as jet rodders generally require extensive maintenance which may result in large amounts of downtime. The RWRA recognized the need to purchase high-quality, well-maintained equipment to reduce potential downtime and to keep personnel on task. Because of this recognition, RWRA made the decision to evaluate equipment from various jet rodder suppliers and purchase high-end equipment with five-year buy-back options, thus enhancing the quality of available equipment. Further, RWRA requires weekly routine inspection, maintenance and extensive cleaning of the jet rodder equipment by agency personnel. This measure significantly reduces downtime, keeps employees on task and provides an element of pride to the personnel operating the equipment.

**Maintenance of Pipe Network**

RWRA has two (2) system maintenance crews that maintain the sewer pipe network within the RWRA system. These individuals are cross-trained in the operation of various equipment used to maintain the system. The crews receive work orders generated by the GBA network and perform duties accordingly. Information related to the maintenance of the system is entered into the GBA database system after repairs are made for future reference. These personnel are available on a 24 hour on-call basis if after-hours repair is necessary. Personnel are trained by the Field Operations Management personnel regarding the proper operation and maintenance of the CSS.

RWRA establishes a maintenance service contract annually with a list of contractors available for sewer line maintenance. The contracts are established on an hourly basis for crews that can make scheduled or emergency repairs to facilities within the system. Some of the repairs necessary require equipment and/or manpower beyond
the normal scope of RWRA crews. RWRA performs most scheduled repairs with RWRA personnel; however, RWRA utilizes the service contract as needed.

RWRA currently maintains approximately $125,000 worth of inventory (e.g., pipe, fittings, manhole castings, etc.) to repair the pipe network. This inventory is necessary for day-to-day operations as well as situations associated with emergency repair. The existence of such inventory is crucial to a successful O&M program.

**Drying Beds**

RWRA has constructed two drying bed facilities to dewater solids that are collected as part of the system cleaning process. One of the facilities is located at the Max Rhoads Treatment Plant on the west end of Owensboro and is primarily used for the dewatering of solids from pump stations and catch basins. The other facility is located at our Operations Division and is primarily used to empty RWRA’s jet rodding equipment of solids collected through system cleaning efforts, along with solids from transported waste haulers. The solids collected at these facilities are transported to the Daviess County Landfill for disposal.

**System Inspection**

Along with RWRA’s two jet rodders used for system cleaning, RWRA has an additional two jet rodders assigned with its two camera inspection crews dedicated to monitoring the conditions of all sewers within the RWRA system. RWRA inspection personnel televise approximately 235,000 feet or 45 miles of sewer lines and appurtenances annually. This information obtained from the inspection of the sewer system is recorded in DVD format and retained by RWRA. These recordings are reviewed by the management staff of RWRA in order to establish the prioritization of potential repairs that may be necessary to maintain the integrity of the pipe network. RWRA inspection personnel also have small push cameras that are utilized to inspect small piping such as laterals. RWRA annually utilizes information obtained through inspections to establish the budget allocations that will be recommended to the RWRA Board of Directors to address system needs.

**Cured-In-Place Pipe (CIPP)**

Most of RWRA’s system inspection efforts to date have involved the older sewers within the combined system. RWRA has dedicated significant resources to line sewers (CIPP) that have been found to be in poor structural condition or having a high level of groundwater infiltration. RWRA’s pipelining program is an integral part of its efforts to reduce infiltration and protect the structural integrity of the pipe system; thus reducing potential conditions that would create overflows. The reduction of infiltration also provides volume for additional conveyance within the system and reduces the duration of overflow events.
Additional Inspection Efforts

RWRA currently employs summer interns to inspect various structures, document and record the condition, characteristics and influence on the system. These efforts, along with various flow metering, will aid in the overall characterization and additional modeling of the system.

EXTERNAL SYSTEM MAINTENANCE

Street Sweeping

The City of Owensboro contracts to have the streets cleaned on a systematic basis. This cleaning effort reduces the total solid and floatable materials that enter the combined system. The result of this program reduces the potential for solid and floatable materials to have a negative environmental impact associated with discharged material. This program has proven to be an effective tool in the removal of such material.

Leaf Collection

The City of Owensboro contracts to have leaf and limb collection each year. The collection of leaves and limbs reduces potential for blockages at inlets and therefore, reduces the ponding of urban runoff. This effort improves traffic safety in areas where potential blockages could occur. The removal of leaves and limbs also reduce the collection of material at downstream locations and reduces solids transported through the system.

Litter Containers

The City of Owensboro has placed a large number of litter containers in key locations throughout the downtown areas of the City. These containers have been strategically placed in the business district and areas where most of Owensboro’s entertainment events and festivals occur.

Recycling

The City of Owensboro has a recycling center and is considering the development of a curbside recycling program. RWRA supports the efforts associated with recycling of goods in order to reduce potential contamination to the system.
O&M TRAINING

RWRA has developed an extensive O&M training program for various divisions within the RWRA system. Personnel are trained on the specific aspects of O&M associated with their division and job title. Department Directors develop the nature and scope of training necessary for their respective division. Each manager is responsible for the proper training and where appropriate, certification of personnel within their division. Once trained, it is intended that each division communicate in a manner to ensure that activities are coordinated.

SEWER OVERFLOW RESPONSE PLAN (SORP) TRAINING

RWRA’s O&M personnel affected by requirements in the adopted Sewer Overflow Response Plan (SORP) are trained in the proper reporting and response procedures associated with RWRA’s system. Department Directors develop the nature and scope of training necessary for their respective division. These personnel are trained annually and documentation of training is recorded in RWRA’s database. The SORP is reviewed annually by RWRA Directors and modified as needed.

SAFETY TRAINING

RWRA employs a full-time Safety Manager to implement a safety program which includes the inspection of facilities regarding safety hazards, understanding the potential for unsafe conditions, understanding field and plant operations and the proper training of personnel associated with each of these aspects of safety. Safety training is conducted throughout the year, with mandatory annual training including confined space, trenching and shoring, lockout/tagout, hazardous material, Arc Flash, respirator, First-Aid and CPR, etc.

DISASTER AND EMERGENCY PROCEDURES

The Regional Water Resource Agency has developed and adopted an “Emergency Response and Action Program”. This document contains information specific to each of RWRA’s facilities and necessary emergency action associated with various events (fire, explosions, severe weather, natural disasters, bomb threats, chemical spills, medical emergencies, etc.). This written program contains information regarding specific emergency safety areas, evacuation routes, “shelter-in-place” procedures, communications, emergency scene coordination and post-emergency actions. RWRA’s program includes site-specific information regarding such emergency events.
The Regional Water Resource Agency, the City of Owensboro, and Daviess County Fiscal Court, along with other agencies and communities, have entered into Mutual Aid Agreements that allow entities to provide services during emergency events (i.e., tornados, floods, earthquakes, facility failure, etc.).

RWRA personnel have received National Incident Management System (NIMS) training as recommended by the U. S. Department of Homeland Security. Further, RWRA has supervisory personnel that are trained through the local disaster and emergency services agency to respond to local emergency situations. RWRA has representatives that are part of the command center operations during such events. RWRA has personnel on an “on call” basis, 24 hours a day.

In most emergency situations, the greatest potential for an overflow is associated with loss of electrical power to a facility that either provides conveyance or treatment. RWRA has taken measures to minimize the potential for overflows and/or reduced wastewater treatment at RWRA’s main facilities through the installation of dual power sources and emergency generators. Generally, the equipment necessary to provide emergency services would include portable backup generators. RWRA has the availability to secure portable generators from various sources in order to continue services as needed. RWRA has a mobile generator that provides electrical power in the event of a site specific failure.

Currently, RWRA uses a Trunked Radio Communication System in conjunction with the City of Owensboro and has its own back-up repeater for emergency operations in the event that the Trunk System fails. This system allows for an alternative to traditional communication during an emergency situation.

EMERGENCY PROCUREMENT

In emergency situations, RWRA will procure the necessary items to provide protection to the public and the environment. RWRA is required to follow the Kentucky Model Procurement Code; however, the Code has provisions that allow agencies to procure necessary items during times of emergency. In such cases, RWRA completes a Procurement Determination document that outlines the emergency situation, the item(s) to be procured, the method to select the vendor, the reason competition is not feasible, etc.

RWRA also has an Interlocal Agreement with governmental agencies both within and outside the Owensboro-Daviess County community. This Agreement allows the participating agencies to share equipment and personnel in times of emergency.
July 13, 2009

CERTIFIED MAIL No.7307 0710 0004 2990 0235
Return Receipt Requested

Mr. David W. Hawes
Executive Director
Regional Water Resource Agency
Owensboro, KY 42303

Re: Case No.: DOW 060149
Activity No.: ERF20070001
Facility ID: KPDES KY0073377
AI No.: 937
AI Name: Owensboro East WWTP
County: Daviess

Dear Mr. Hawes:

The Division of Enforcement received your Nine Minimum Controls Compliance Report on December 8, 2008, and the document has undergone review by Division of Water staff. Some deficiencies were noted during the review. Attached are the review comments; please respond to all deficiencies noted by August 15, 2009. If you have any questions, please feel free to contact me at 502-562-2150, extension 290.

Sincerely,

Jeffrey A. Cummins, Acting Director
Division of Enforcement

JAC/jgw
KY DIVISION OF WATER REVIEW COMMENTS
OWENSBORO RWRA NINE MINIMUM
CONTROLS COMPLIANCE REPORT

1. Proper Operation and Regular Maintenance Programs for CSS and CSO

- Please add regulators, storm sewer catch basins, overflow weirs, gates, and interceptors to the collector system legend and map, or describe why such information cannot be incorporated into the sewer system map. Include sewer pipe sizes on the legend and correct the pipe sizes on the map. Please add legend symbols for the WWTPs and show them on the map.
- Please add any gates, regulators, interceptors, overflow weirs and catch basins to the regular inspection, cleaning, and maintenance and repair schedules. Add the current status and description of any CSOs, outfalls or collector items not already described. Furnish a list of inspections, operation and maintenance procedures and inspection results of items above to DOW.
- Please furnish O&M organizational chart to DOW.
- The locations of the CSO outfalls on page 4 of the Operation and Maintenance Manual in Appendix C do not match the lat/longs in the KPDES permit for outfalls 007 and 009. Please correct one or both of these document to correspond.
- Please submit an example of work order forms.
- Please provide updated spending and budget amounts through 2008.

2. Maximization of Storage in the Collection System

- EPA’s Compliance Inspection Report in 2004 found that Owensboro RWRA was properly implementing this control, so RWRA did not provide any additional information in the 2008 NMC report. Insofar as this inspection was conducted five (5) years ago, DOW deems the findings of that inspection to be of limited value in mid-2009. A state consent judgment and a federal administrative order have been entered since that 2004 inspection, and a great deal of sewer system development has occurred during that period. Consequently, DOW directs Owensboro RWRA to resubmit this section of the NMC compliance document in accordance with the 1994 Combined Sewer Overflow Control Policy and the state consent judgment.
- What is RWRA doing for disconnection of roof drains and sump pumps?
• What is the estimated effectiveness of improvements in water quality from these activities?
• RWRA is using most of the control measures listed in the EPA Guidance for Nine Minimum Controls and have this minimum control well-managed. Other control measures that could be used include adjusting regulator settings and utilizing upstream parking areas for temporary storage of storm water.
• Are there plans to develop written documents for an operation plan during wet weather?

3. Review and Modification of Pretreatment requirements

• We request that you take water quality measurements at the receiving waters and the CSOs, if possible and furnish the results to DOW.
• Since RWRA has a pretreatment program and industrial discharges to the combined sewer system, please furnish a list of significant industrial users (SIU’s), including volume of discharges, characteristics of potential pollutants and concentrations of pollutants in your discharges. Please furnish an assessment of the impact of nondomestic discharges on CSOs and receiving waters and compare the results to that allowed for the WWTPs.
• What is the frequency of inspections of the Significant Industrial Users facilities? Please provide some details on this program.
• When is the evaluation of “each existing and potential SIU discharge location to determine the most advantageous point at which to introduce the effluent...” conducted? When a new pretreatment application is received? During the above inspections?

4. Maximization of flow to the POTW for treatment

• EPA’s Compliance Inspection Report in 2004 found that Owensboro RWRA was properly implementing this control, so RWRA did not provide any additional information in the 2008 NMC report. (Greg: same comment as in #2)
• What is the estimated effectiveness of improvements in water quality from these activities?
• RWRA has made significant modifications to maximize storage and provide consistent flow to the WWTP.
• Please provide DOW with an analysis of existing records to compare flows processed by the WWTP during dry periods and during wet weather events. In this endeavor, please attempt to determine correlations between flows and performance. Identify areas in the collection system where excess inflow and infiltration robs the system of capacity, as well as any areas where excess capacity exists.
• In addition, please determine the ability of your system to operate acceptably given incremental increases in wet weather flows, and estimate
the effect on your WWTP permit compliance. In so doing, please attempt to determine the best operating point to maximize flows to the WWTP while still meeting effluent limits. Furnish results to DOW.

5. Elimination of CSOs during dry weather, including provisions for backup power where appropriate

- EPA’s Compliance Inspection Report in 2004 found that Owensboro RWRA was properly implementing this control, so RWRA did not provide any additional information in the 2008 NMC report. (same comment as in #2)
- Did RWRA develop and implement an inspection program of CSS critical components to identify potential dry weather overflows as recommend by EPA in the 2004 EPA Compliance Inspection Report?
- The first two comments in NMC #1, above, apply to this control.
- Please provide DOW with any monitoring results available at CSO points during both dry and wet periods. Inspect accessible locations in the outfall line for dry weather overflows (DWOs) and inspect regulators for (DWOs) and furnish documented results. Repair regulators if necessary.
- Provide any other documentation of inspections, operation and maintenance procedures and any other data which verify the absence of DWOs.
- Backup generators appear to be adequate.

6. Control of Solid and Floatable Materials in CSOs

- What is the status of the end-of-pipe solids and floatables controls for the Locust Street Tunnel Outfall?
- What water quality impacts have occurred from solids and floatables?
- Have there been any public complaints about solids and floatables in receiving waters?
- Although RWRA does have some prevention programs in place, it doesn’t appear to be adequate. Please add end of pipe controls for each outfall to implement this minimum control.

7. Pollution Prevention programs to reduce contaminants in CSOs

- EPA’s Compliance Inspection Report in 2004 found that Owensboro RWRA was properly implementing this control, so RWRA did not provide any additional information in the 2008 NMC report. (same comment as in #2)
- Did RWRA develop and implement a public education program of encouraging proper disposal of sanitary and personal hygiene items as recommend by EPA in the 2004 EPA Compliance Inspection Report?
- Please provide inspection results or other data which document the effectiveness of your street cleaning program.
• Has the City of Owensboro or RWRA provided annual household hazardous waste collection? Has it offered education regarding fertilizer and pesticide application?

8. Public Notification

• EPA's Compliance Inspection Report in 2004 found that Owensboro RWRA was properly implementing this control, so RWRA did not provide any additional information in the 2008 NMC report. (same comment as in #2)
• What additional public notification programs suggested by EPA in the 2004 Compliance Inspection Report has RWRA implemented?
• In addition to the signs posted at the CSOs, please add some other form of notification or education for those people who aren't aware of the CSO signs.

9. Monitor to effectively characterize CSO impact and the effectiveness of CSO controls

• The first two comments in NMC #1, above, apply to this control.
• Please submit flow data including average level, average velocity and average flow rate for the CSOs, monthly, for the last year or longer period. Also include the amount of rainfall for these periods. We request that you take water quality measurements at the receiving waters and the CSOs, monthly, for one year or longer, if possible, and furnish the results to DOW.
• Please identify the designated uses of waters receiving overflows. Additionally, provide an indication of receiving water impacts as a result of CSOs (e.g., floatables), including water quality sampling results at the WWTP, at the receiving waters and the overflows for biological oxygen demand, total suspended solids, e. coli and fecal coliform.
• Please document any improvements in frequency, duration and volume of overflows; in water quality at the WWTP, at the receiving waters and at overflow points; in contaminant discharge levels and in floatables and in other indicators as a result of implementation of these nine minimum controls and furnish the results to DOW.
October 7, 2009

Mr. Jeffrey A. Cummins
Acting Director
Department for Environmental Protection
Division of Enforcement
300 Fair Oaks Lane
Frankfort, KY 40601

Re: Case No.: DOW 060149
Activity No.: ERF20070001
Facility ID: KPDES KYR104400
AI No.: 937
AI Name: Owensboro East WWTP
County: Daviess

Dear Mr. Cummins:

Enclosed please find The Regional Water Resource Agency’s Responses to the Division of Water’s comments on the Nine Minimum Controls Compliance Report for review and approval.

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.

If you have any questions concerning this matter, please contact me.

Sincerely,

[Signature]

David W. Hawes, P.E.
Executive Director

DWH/ekp
Enclosure
1. Proper Operation and Regular Maintenance Programs for CSS and CSO

**KDEP COMMENT** (bold type): Please add regulators, storm sewer catch basins, overflow weirs, gates, and interceptors to the collector system legend and map, or describe why such information cannot be incorporated into the sewer system map. Include sewer pipe sizes on the legend and correct the pipe sizes on the map. Please add legend symbols for the WWTPs and show them on the map.

**RWRA RESPONSE** (regular type): RWRA has provided a map of its entire system which includes the interceptors, collection system, manholes and pump stations. This map was provided to KDEP in digital format December 2007. Attached is a hard copy of the current map, along with a spreadsheet [Exhibit 1] which identifies the location of all eight outfall points and the corresponding nearby overflow weirs. RWRA’s outlet control structures are overflow weirs at each of the outfalls. RWRA does not have any other type of flow control structures (i.e. regulators, gates, etc.). The overflow weirs from the RWRA system, and storm sewer facilities (i.e., storm sewer catch basins) were the only items requested above that were not specifically identified on the maps previously submitted.

RWRA is not responsible for the maintenance of the separate storm water system. The City of Owensboro, which maintains the separate storm water facilities including storm sewer catch basins, is currently in the process of developing a mapped database of their system. Once completed, it is RWRA’s intent to integrate the two databases into RWRA’s GIS information, and this will then be made available to KDEP.

- Please add any gates, regulators, interceptors, overflow weirs and catch basins to the regular inspection, cleaning, and maintenance and repair schedules. Add the current status and description of any CSOs, outfalls or collector items not already described. Furnish a list of inspections, operation and maintenance procedures and inspection results of items above to DOW.

RWRA has an extensive program to inspect, clean, maintain and repair all facilities described above. Attached is the Agency’s Operation & Maintenance Manual which was submitted as required as part of the Nine Minimum Control response in September 2008. The three major CSS pump stations are inspected daily (M-F) for several parameters. See attached sample inspection log. [Exhibit 2]. These pump stations are also monitored continuously through SCADA with
three independent redundant monitoring systems. Additionally there are also periodic visual inspections of the overflow weirs to verify the performance of this electronic measurement equipment. The remaining outfalls are inspected routinely by RWRA engineering personnel in response to wet weather events. This inspection is performed in combination with inspection of the block and string apparatus, attached to the overflow weir, for monitoring to determine the presence/absence of an overflow occurrence.

As stated above, the City of Owensboro is responsible for the maintenance of the separate storm water system. By agreement with the City of Owensboro, RWRA performs the inspection and cleaning of the combined system and storm water facilities (i.e., storm water catch basins) that flow into the combined system. Since 1997, RWRA has maintained a cleaning cycle of two years for these facilities. The efforts are jointly funded between the City and RWRA.

RWRA monitors, through SCADA, minute by minute flow conditions at the four tunnel system outfalls. Included in that information is well level elevations, river elevations, pump station pump rates, duration of wet weather events and duration of overflow events. Additionally, six rain gauges throughout the community continuously monitor rainfall, three of which are within the combined system.

Please furnish O&M organizational chart to DOW

RWRA has attached the organizational chart for both the Administrative and Operation and Maintenance Divisions, including the job descriptions for positions enumerated under O&M. [Exhibit 3] RWRA promotes advancement and certifications such as Kentucky Wastewater Operators License for plant personnel, RWRA Collection System Maintenance Certifications for field personnel and other various licenses/certifications. Following is RWRA’s current status of personnel with such licenses/certifications:

Kentucky Wastewater Operator Certification

<table>
<thead>
<tr>
<th>Class</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV</td>
<td>5</td>
</tr>
<tr>
<td>III</td>
<td>2</td>
</tr>
<tr>
<td>II</td>
<td>2</td>
</tr>
<tr>
<td>I</td>
<td>4</td>
</tr>
</tbody>
</table>

RWRA Collection System Maintenance Certification

<table>
<thead>
<tr>
<th>Class</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV</td>
<td>4</td>
</tr>
<tr>
<td>III</td>
<td>13</td>
</tr>
<tr>
<td>II</td>
<td>1</td>
</tr>
<tr>
<td>I</td>
<td>3</td>
</tr>
</tbody>
</table>

Kentucky Certified Laboratory Analyst, Class I and Pre-Treatment Certification - 1

Licensed Plumbers - 2
Licensed Master Electricians – 2
Licensed Land Surveyor – 1
Licensed Professional Engineers – 3

The locations of the CSO outfalls on page 4 of the Operation and Maintenance Manual in Appendix C do not match the lat/longs in the KPDES permit for outfalls 007 and 009. Please correct one or both of these document to correspond.

Four of RWRA’s outfalls are under water at normal Ohio River pool elevation. Further investigation was performed (i.e., measurements by divers) that updated this information. RWRA submitted the original information based on best available data at that time. Current updated latitudinal and longitudinal information for each of the outfall locations is included in Exhibit 1.

- Please submit an example of work order forms.

See attached example of work order form. [Exhibit 4]

- Please provide updated spending and budget amounts through 2008.

Attached is an expenditures summary – [Exhibit 5], which reflects expenditures for Operations and Maintenance for fiscal years 2005 through 2009 and approved budgeted allocations for 2010.

2. Maximization of Storage in the Collection System

- EPA’s Compliance Inspection Report in 2004 found that Owensboro RWRA was properly implementing this control, so RWRA did not provide any additional information in the 2008 NMC report. Insofar as this inspection was conducted five (5) years ago, DOW deems the findings of that inspection to be of limited value in mid-2009. A state consent judgment and a federal administrative order have been entered since that 2004 inspection, and a great deal of sewer system development has occurred during that period. Consequently, DOW directs Owensboro RWRA to resubmit this section of the NMC compliance document in accordance with the 1994 Combined Sewer Overflow Control Policy and the state consent judgment.

2004 Response

Initial evaluation of the RWRA system in 1997 indicated that a substantial amount of river water was entering the system due to the inability of the flap gates at the tunnel sewer outfalls to adequately seal out the river. The valves are at least partially submerged at all times due to the Army Corps of Engineers raising the normal pool level of the Ohio
River above the previous pool levels that existed when the combined sewer system was built. Since the flap gates were not capable of maintaining a good seal as the river elevation rose to a point above the baffle wall elevations, river water flowed back into the combined sewer system. The valves were replaced with Tideflex ‘duckbill’ valves at a cost of $262,000.

Pumping practices at the combined sewer pump stations were evaluated and modified. It was determined that the pump stations could operate at a lower well level which reduced the water height in the sewers, prior to entering the pump stations. This expanded the cross sectional area available for storage of combined sewage. This also increased the dry weather velocities of the large pipelines and minimized the settling of solids during dry weather that would eventually be flushed out during wet weather events.

The baffle walls at the outfalls have been repaired and raised. The stop logs which were prone to failure during wet weather events were removed and replaced with solid concrete walls. The expanded storage capacity of the tunnel system upstream of the baffle walls and below baffle wall overflow elevation is estimated at 3.8 million gallons.

In 1995, 14 pump stations existed that transported approximately 1 mgd sanitary flow from separate systems into the combined system. As of this date, flow from 12 of these pump stations have been diverted out of the combined system, and the design of one of the remaining pump station diversions is under review by the Kentucky DOW. The combination of the installed tideflex valves and the sanitary flow diversions have resulted in a reduction of 25% of the dry weather flow to the West plant. Additionally, the CIPP lining efforts mentioned above have further served to reduce the amount of unnecessary infiltration into the system, which reduced available CSS capacity.

RWRA reviews private and public development proposals that are in the close proximity to the CSO boundaries to determine if it is possible to redirect storm water flows out of the combined system. Several projects (most near the Ohio River) have been able to separate or partly separate the stormwater from areas that were combined – some are still in design phase. Two projects involving industrial cooling water system discharges were re-routed to be taken out of the combined sewer system.

In 2003, RWRA constructed a 7.5 acre foot surface detention basin to help reduce localized flooding and basement backup in the east CSO system. This project was done because of a capacity study showing the need for storage near this location and a proposed development (Green River Area Health Department) that was occurring at this targeted location. The Developer acquired the land needed and RWRA constructed the basin, at a cost of $250,000. To dampen peak flows in the combined sewer system during rain events and allow more flow to be treated following these events.
Update to 2004 Response

The 2004 response remains relevant and accurate with respect to RWRA's efforts to meet this NMC element. This section provides an update on further compliance efforts. In 2008, RWRA completed Phase I of a stormwater detention basin project (Parkview Drive area) including the installation of 1,000 feet of 30-inch diameter pipe, along with a specially-designed outlet control structure that equalizes flow within that subwatershed. This basin is located in the West (Dublin) Tunnel System. The Phase I portion of the basin holds a quarter of a million gallons. It is intended for the Phase II portion of the project to increase the storage capacity of the basin to approximately five million gallons as additional land acquisition occurs. The result of this project is to maximize storage in CSS by retarding inflows.

The Devins Ditch stormwater/combined sewage detention basin project has been developed and is nearing the construction phase. KIA funding for this project has been approved and Kentucky Division of Water plan approval is pending. The project will eliminate runoff from approximately 380 acres of the Devins watershed that currently is brought into the combined sewer system. This project will provide for the capture and storage of approximately 75 acre feet of storage for Devins watershed stormwater. This portion of the basin will be developed as an active wetland. A pump station constructed as part of this project will divert the wetland effluent to Persimmon Ditch, which discharges directly into the Ohio River. Additionally, this project includes the construction of a secondary containment basin (combined sewage) of 24 acre feet. This basin will better equalize flow within the sewershed and will increase the combined sewage that will receive treatment.

RWRA continues its efforts to maximize storage by reducing infiltration into the system through the annual relining of numerous pipes within the combined system. Through 2008, RWRA has lined more than 68,000 feet of sewers at a cost exceeding $7,000,000. See attached Pipelining Summary. [Exhibit 6] This effort reduces the infiltration of groundwater while providing additional storage within the pipe network.

For more specific information regarding the implemented projects since 2004 related to the maximization of storage in the CSS, please refer to RWRA's annual CSOP submittals.

Projects completed since 2004 which contributed to maximizing collection system storage and/or maximizing flow to and through the Max Rhoads WWTP include:

- Avondale Force Main diversion out of CSS
- Center Street Pump Station upgrade
- Center Street Force Main construction
Max Rhoads WWTP chlorine contact chamber hydraulic improvements
Cured-in-Place Pipelings (CIPP) of 24,300 feet in the CSS
Golfview Pump Station removal and diversion of flow
Daviess Street pump station and CSS separation project
Fourth and Geary Streets storm separation
Veterans Bouleavard and Daviess Streets storm separation
18th Street and Leitchfield Road storm separation
Riverwall CSS upgrade
Harsh Ditch storm upgrades
Goetz Ditch storm upgrades

For more specific details regarding these projects, please refer to the annual CSOP submittals.

- What is RWRA doing for disconnection of roof drains and sump pumps?

RWRA has completed an effort to identify and map roof drains from homes, businesses, industries, etc. House by house evaluations have been performed in an effort to determine properties that appeared to have external clean water connections to the combined sewer system. This information has been compiled in a GIS format. This program establishes a baseline to assess where implementation of a private source removal program would achieve the most benefit.

As part of RWRA’s sewer relining program, a number of connections have been identified and eliminated since the relining program began in 1995. Since mid-2006, RWRA has kept a tabular summary of tap information associated with the relining. This summary indicates that pipelining projects between mid-2006 and January 2009 encountered 832 taps, of which 363 (or 43%) that were determined to be suitable for disconnection which included abandoned lines or stormwater connections and, therefore, were sealed off. Additionally, RWRA uses each opportunity made available through neighborhood sewer upgrade projects or other opportunities (i.e., investigating wet basement issues) to disconnect roof drains and sump pumps. RWRA has worked with numerous property owners to remove these inflow sources and direct roof downsputs flow to a minimum of ten (10') feet of green space. Further, all new construction is required by RWRA’s Wastewater User Regulation (approved by KDEP on May 21, 2008) to direct inflow sources to green space when available.

- What is the estimated effectiveness of improvements in water quality from these activities?

RWRA has not specifically quantified the water quality improvement of the Ohio River from the removal of roof drains and sump pumps completed to date. However, reduction in inflow from these sources has the effect of reducing stormwater volume into the system and, therefore, has reduced the total annual
volume of CSO discharges. Although the CSO volume has been reduced by these efforts, RWRA asserts that projects which reduce the introduction of dry weather flow to the CSS has a far greater environmental impact on the water quality of CSOs through the reduction of mass of pollutants discharged.

- **RWRA is using most of the control measures listed in the EPA Guidance for Nine Minimum Controls and have this minimum control well-managed.** Other control measures that could be used include adjusting regulator settings and utilizing upstream parking areas for temporary storage of storm water.

These additional control measures do have a positive effect on downstream introduction of storm water. RWRA, along with the City of Owensboro, has input on the review of new construction consistent with the community’s approved Public Improvement Specifications such as parking lots, detention basins, other facilities, etc. A number of detention basins, including parking lot basins, have been constructed as a result of this review. RWRA will continue to explore other avenues as suggested to implement additional storage within the system. However, RWRA believes it has complied with this NMC element through all the actions as described in this section.

- **Are there plans to develop written documents for an operation plan during wet weather?**

RWRA has developed a written policy that is followed by RWRA personnel during wet weather. The procedures outlined in the policy include careful monitoring of SCADA information for critical facilities including each of the pump stations that convey flow from the CSS and the Max Rhoads Treatment Plant. Operational procedures are designed to maximize the amount of flow pumped, conveyed and treated during each rain event, thus minimizing CSO volume. See attached Wet Weather Operations Policy. [Exhibit 7]

3. **Review and Modification of Pretreatment requirements**

- **We request that you take water quality measurements at the receiving waters and the CSOs, if possible and furnish the results to DOW.**

Please see RWRA’s response to Nine Minimum Control #9 for this discussion.

- **Since RWRA has a pretreatment program and industrial discharges to the combined sewer system, please furnish a list of significant industrial users (SIU’s), including volume of discharges, characteristics of potential pollutants and concentrations of pollutants in your discharges. Please furnish an assessment of the impact of nondomestic discharges on CSOs and receiving waters and compare the results to that allowed for the WWTPs.**
Attached is a list [Exhibit 8] of all SIUs that discharge into the RWRA system, along with the inspection frequency and last inspection dates. This list includes a breakdown of the discharge locations of each of the SIUs and indicates that very little flow from potentially hazardous dischargers is introduced to the CSS. This spreadsheet should allow KDEP the opportunity to see the effectiveness of the separation projects and the resulting improvements through redirection of SIU flow out of the CSS. A review of the KY 303(d) list and other available data such as ORSANCO’s water monitoring data does not appear to indicate any water quality issues associated with local industrial dischargers.

- What is the frequency of inspections of the Significant Industrial Users facilities? Please provide some details on this program.

See attached list of SIU’s connected to the RWRA system. [Exhibit 8] This list contains a complete summary of SIUs within the RWRA system and specifically, the combined sewer system. This summary includes information relating to frequency of inspections and volumes of discharges.

- When is the evaluation of “each existing and potential SIU discharge location to determine the most advantageous point at which to introduce the effluent...” conducted? When a new pretreatment application is received? During the above inspections?

RWRA has been in the process of evaluating the issues related to SIUs, including discharge locations for a number of years. This information, along with additional SIU information, is gathered through an application process. See the attached Industrial Waste Permit Application form. [Exhibit 9] This evaluation process has led to the redirection of much of the flow from the existing SIUs away from the CSS. RWRA’s most recent improvement involved the direct connection of Owensboro Grain’s package treatment plant’s flow to the Center Street Pump Station wet well chamber versus the introduction of the flow to the CSS pipe network. This improvement reduces the mass loadings conveyed in the pipe network and essentially eliminates the potential for Owensboro Grain’s flow to impact a CSO discharge. Each new SIU that desires to discharge to the RWRA system is evaluated immediately regarding this issue. RWRA personnel also review existing SIU discharge information when renewal of pre-treatment discharge applications are submitted.

4. Maximization of flow to the POTW for treatment

- EPA’s Compliance Inspection Report in 2004 found that Owensboro RWRA was properly implementing this control, so RWRA did not provide any additional information in the 2008 NMC report. Insofar as this inspection was conducted five (5) years ago, DOW deems the findings of that inspection to be of limited value in mid-2009. A state consent judgment and a federal administrative order have been entered since that 2004 inspection, and a great
deal of sewer system development has occurred during that period. Consequently, DOW directs Owensboro RWRA to resubmit this section of the NMC compliance document in accordance with the 1994 Combined Sewer Overflow Control Policy and the state consent judgment.

2004 Response

RWRA has completely renovated the West WWTP, at a cost of approximately $15 million. This project was completed in 2001, expanding the wet weather capacity of the plant from 12.5 mgd to 34.5 mgd at a cost of approximately $15 million. All system flow that contains combined sewage is routed to the West WWTP.

RWRA has three (3) pump stations at the Ohio River, which transports combined sewage flow to the West WWTP. RWRA has rehabilitated two of the pump stations (Locust St. and Dublin Ln. Pump Stations). These are the only two CSS pump stations that pump directly to the West WWTP. The remaining pump station, Center St., pumps to a gravity system that feeds to the Locust St. Pump Station. These pump station improvements (Locust & Dublin) expanded the pumping capacity of the CSS from 13 to 19 mgd. The pumping capabilities of the system are now limited by the capacity of the only existing force main to the West WWTP.

Improvements to the CSS resulted in reductions of dry weather flows into the CSS, thus allowing for increased CSS flows to be pumped to the West WWTP during wet weather events. These improvements include, but are not limited to the following:

- Installation of the tide-flex valves on the river outfalls of the four largest CSO's
- Redirection of flow from 12 SSS pump stations away from the CSS
- Use of CIPP to reduce Infiltration/Inflow
- Working with industry to reduce waste streams, including cooling water systems
- Review of development near the CSS boundary, to separate flows when possible

These measures have resulted in dry weather flow reduction of 25% from the CSS.

The Center Street P.S. presently pumps to a gravity system that transports the flow to the Locust St. P.S. This current condition limits the potential of upgrading the Center St. P.S due to capacity of the gravity system feeding to the Locust St. P.S., the Locust St. P.S. itself and the existing force main continuing to the West WWTP. Through a unique public/private partnership opportunity, RWRA is in the process of further enhancing its ability to maximize flow to the West WWTP. Owensboro Grain Company Inc. (OG) has facilities next to the Center St. PS and a separate processing plant next to the West WWTP. OG desires to construct a parallel and adjacent force main containing their liquid vegetable oil product from their Center St. facilities to their processing plant next to the West WWTP. RWRA is working in conjunction with OG to construct a new CSS force main to transport CSS from the Center St. PS to the West plant (17,600 ft in length). This project would allow RWRA to expand the wet weather pumping capacity.
to the West WWTP from the present 19 mgd to the 34.5 mgd, maximum capacity of the plant. This project would also improve the containment of the first flush of the CSS and create an overall reduction of discharges to the Ohio River. To accomplish this, a major upgrade to the Center St Pump Station will also be required. Currently, RWRA is in the design / easement acquisition phase of the project. The design allows for the newly constructed force main to be shared with Dublin Lane P.S., leaving the Locust St. P.S. to remain on the existing force main. The design also includes provisions which would allow for the Locust Street Pump Station to be diverted into the proposed line and the Dublin Lane and Center Street Pump Stations to be diverted back into the existing force main during an emergency situation. This project is estimated to cost $5.5 million.

**Update to 2004 Response**

RWRA has made extensive improvements in the area of maximization of flow to the Max Rhoads Treatment Plant. The largest single project since the $15 million upgrade of the Max Rhoads WWTP in 2001 associated with this measure has been the construction/reconstruction of the Center Street Pump Station and the construction of the 17,500 foot Center Street Force Main to the Max Rhoads Plant. This force main also connects to the upgraded Locust Street and Dublin Lane Pump Stations allowing for redundancy in case of failure in the existing Locust Street Force Main. These projects, which have been reviewed and approved by KDEP, enable RWRA to maximize the flow transported to and through the plant and thereby utilize the full design wet weather capacity of 35.7 MGD. The current wet weather capacity of the Max Rhoads plant is approximately 26.5 MGD. Projects presently under design for the plant will upgrade its conveyance capacity to 35.7 MGD. This plant design parameter was reviewed and approved by KDEP in 1997. A more detailed explanation on each of these projects have been submitted in the annual CSOPs since 2004. This information can be resubmitted upon request.

- What is the estimated effectiveness of improvements in water quality from these activities?

Please also see response to NMC #9

The projects which RWRA has completed to date allow the Max Rhoads Treatment Plant to provide full secondary treatment and disinfection of approximately 26.5 MGD during wet weather conditions. Prior to those improvements, maximum wet weather capacity conveyed for treatment was 12.5 MGD. The completed projects enabled RWRA to more than double the wet weather capacity that is being conveyed and treated from the CSS, significantly decreasing CSO volumes. These projects also reduce the frequency of CSO occurrences. These projects in conjunction with dry weather separation projects have significantly reduced the total mass of pollutants discharged from the system during wet weather events. RWRA has proposed a mass of pollutants
calculator which utilizes several parameters, including the flow treated from the CSS, in order to determine the overall effectiveness of past and proposed future projects and controls.

- **RWRA has made significant modifications to maximize storage and provide consistent flow to the WWTP.**

- **Please provide DOW with an analysis of existing records to compare flows endeavor, please attempt to determine correlations between flows and performance. Identify areas in the collection system where excess inflow and infiltration robs the system of capacity, as well as any areas where excess capacity exists.**

Since the completion of the Center Street Pump Station and Force Main projects in October 2007 which allowed for additional conveyance capacity to the Max Rhoads WWTP, RWRA has routinely received peak wet weather flows up to 26.5 MGD. During this period, the plant has consistently complied with permitted effluent limits. This information is available in the monthly DMR's which have been submitted to KDEP. Therefore, wet weather flows to the treatment plant have not affected compliance with permit effluent levels.

RWRA has implemented several measures to identify/quantify flows processed from the CSS and the flow that is discharged from CSOs. This program includes the installation of SCADA equipment and flow monitoring devices at the tunnel system CSS overflows. This equipment has been used to develop the information and records that have been submitted to both DOW and EPA. This same information is used on a real-time basis by RWRA Operations personnel to control and optimize flow for treatment and, thereby minimizing CSO volumes.

RWRA performs routine TV inspection throughout the pipe network with two camera trucks. Any areas of excessive inflow and infiltration into the RWRA system are identified, recorded and scheduled for repair. See attached camera inspection log example. [Exhibit 10]

RWRA utilizes this information as part of its ongoing program to line sewers based on prioritization software and assimilation of similar pipe groupings, with Cured-In-Place Pipe (CIPP) technology. This program has been effective in identifying and correcting locations that have significant infiltration and/or structural integrity issues. To date, RWRA has employed this program to line approximately 70,000 feet of combined sewers demonstrating structural/infiltration issues. RWRA averages approximately $500,000 expenditure annually for CIPP lining.

- **In addition, please determine the ability of your system to operate acceptably given incremental increases in wet weather flows, and estimate the effect on your WWTP permit compliance. In so doing, please attempt to determine the**
best operating point to maximize flows to the WWTP while still meeting effluent limits. Furnish results to DOW.

RWRA is in the process of designing upgrades to the Max Rhoads WWTP to ultimately achieve maximum treatment capacity while meeting effluent permit limits. HDR Engineering Inc. is in the process of evaluating alternatives for expanding maximization of flow through the plant with upgrades being considered for various facilities within the plant.

Currently, RWRA can convey through the plant an average of approximately 26.5 MGD as needed during wet weather events. This volume of treatment has been determined by Operations personnel to be the maximum that can be effectively treated (secondary and disinfection) presently under the existing configuration of the treatment plant. This wet weather capacity will be modified as a results of the improvements that are budgeted for initiation of construction in this fiscal year. It is RWRA’s intent to implement these projects using the incremental increase in flow as described above. After additional planned improvements are implemented, RWRA will continue to incrementally increase the flow through the plant to achieve the maximum possible treatment available as such improvements are completed.

5. Elimination of CSOs during dry weather, including provisions for backup power where appropriate

- EPA’s Compliance Inspection Report in 2004 found that Owensboro RWRA was properly implementing this control, so RWRA did not provide any additional information in the 2008 NMC report. (same comment as in #2) Insofar as this inspection was conducted five (5) years ago, DOW deems the findings of that inspection to be of limited value in mid-2009. A state consent judgment and a federal administrative order have been entered since that 2004 inspection, and a great deal of sewer system development has occurred during that period. Consequently, DOW directs Owensboro RWRA to resubmit this section of the NMC compliance document in accordance with the 1994 Combined Sewer Overflow Control Policy and the state consent judgment.

2004 Response

Because of RWRA’s ongoing efforts to improve the system, RWRA does not experience recurring dry weather overflows. Should a dry weather overflows occur due to circumstances beyond the Agency’s control, RWRA will report such occurrences to the regulatory authority.

Update to 2004 Response

RWRA has continued its ongoing efforts to assure that recurring dry weather overflows do not occur. Included in these ongoing efforts were the major upgrade to the Center Street pump station and the construction of the Center
Street force main. This project significantly expanded the conveyance capacity of the CSS for treatment, provided redundancy and reduced the potential for overflow occurrences.

Since the beginning of 2005, RWRA has documented a total of 10 dry weather overflows from the CSS. Of those occurrences two of them were equipment failures at Center St. pump station prior to it’s above mentioned improvements, two were flow blockages, one was a force main failure and three were construction related events all of which occurred prior to Sept 2007. The remaining two events occurred after Sept 2007 and were both related to natural disasters (October 18, 2007 tornado and Hurricane Ike wind storm of September 14, 2008). These described occurrences of DWO’s resulted from unavoidable and unanticipated events such as mechanical, natural disasters or structural failures within the system. Each incident was reviewed and it was determined that there are no practical measures that could have been implemented to avoid similar occurrences in the future.

RWRA has permanent generator power available at both WWTPs and at two of the major pump stations that automatically transfer to backup power in the event of a power outage. These generators are load tested with power transfer weekly. RWRA also has a 100-KW portable generator that is readily available to be dispatched in the event of power failure. During outages of more than one station, this generator is moved from one station to another based on flow volume prioritization until power is restored. RWRA has evaluated the electrical demand of the pump stations within the CSS and SSS to determine if there is a need for an additional portable generator(s). Based on this evaluation, RWRA has determined it would be prudent to have an additional generator available for backup power. RWRA has budgeted for and is in the process of procuring this additional portable generator for the system.

Additionally, RWRA has installed or plans to install transfer switches at each of its pump stations within both the CSS and SSS. The transfer switches allow for RWRA personnel to safely and quickly connect the backup power sources to the pump stations. Installation of these transfer switches is prioritized based on potential environmental impact and highest perceived need. To date, 15 have been installed and several more are planned to be installed within this current budget year. Presently, it is RWRA’s plan to have all pump stations equipped with these transfer switches within five (5) years. Additionally, all new pump stations added to the system are required to have transfer switches installed.

- Did RWRA develop and implement an inspection program of CSS critical components to identify potential dry weather overflows as recommended by EPA in the 2004 EPA Compliance Inspection Report?

RWRA regularly inspects the critical components of the four largest outfall locations that constitute over 95% of the potential CSO flow. These outfalls are
located at the three tunnel sewer pump stations located at the Ohio River. In 2008, RWRA added a Plant Operations Worker position specifically to inspect these pump stations daily (M-F) as well as inspect RWRA's remaining pump stations approximately three times per week. SCADA has been installed at each of the CSS pump stations to continuously monitor several parameters that affect the critical components (i.e., well level elevations upstream of the overflow weirs, pump rates, pump status, etc.)

- The first two comments in NMC #1, above, apply to this control.

- Please provide DOW with any monitoring results available at CSO points during both dry and wet periods. Inspect accessible locations in the outfall line for dry weather overflows (DWOs) and inspect regulators for (DWOs) and furnish documented results. Repair regulators if necessary.

RWRA has installed flow monitoring equipment at the overflow weirs at the three largest tunnel sewer outfall locations. This equipment allows for continuous SCADA monitoring which would indicate any dry weather overflow as it occurs. This equipment allows RWRA to determine the duration and estimated overflow volumes when they occur. RWRA’s CSO equipment is assigned high priority from the work order system when problems occur to ensure flow data is restored in a timely manner. RWRA’s inventory includes electronic parts, as well as backup PCs, to help ensure that SCADA data is restored as soon as possible from these locations.

- Provide any other documentation of inspections, operation and maintenance procedures and any other data which verify the absence of DWOs.

As described above in response to NMC #1, regular inspections and continuous SCADA monitoring by plant operations personnel are both utilized to confirm overflow activity at the four tunnel sewer outfalls. The three major CSS pump stations are inspected daily (M-F) for several parameters. These pump stations are also monitored continuously through SCADA with three independent redundant monitoring systems. Additionally there are also periodic visual inspections of the overflow weirs to verify the performance of this electronic measurement equipment. The remaining outfalls are inspected regularly by RWRA engineering personnel in response to wet weather events. This inspection is performed in combination with inspection of the block and string apparatus for monitoring overflow occurrences. This inspection effort additionally confirms that no dry weather events have/have not occurred since previous inspection.

RWRA notifies the Madisonville office of the Kentucky Division of Water when any dry weather overflow occurs within 24 hours and again within five days with the details of the overflows and related cleanup if applicable. RWRA has
provided both the KDEP and EPA with spreadsheets outlining any dry weather overflows that have occurred in the stipulated time frames of past requests.

- Backup generators appear to be adequate.

6. Control of Solid and Floatable Materials in CSOs

- What is the status of the end-of-pipe solids and floatables controls for the Locust Street Tunnel Outfall?

RWRA is in the process of designing improvements and upgrade to the Dublin Lane Outfall and adjacent chamber. Recently discovered structural integrity concerns of the outfall pipe has caused this project to be pushed ahead of the previously proposed Locust Street pump station improvements. It is RWRA’s intent to incorporate a solids and floatable control bar screen as part of the Dublin Lane pump station outfall chamber upgrade. The performance of this system will be evaluated for potential use at the other tunnel diversion structures.

At this point, RWRA has not determined end-of-pipe solids and floatable controls are justified at all outfalls. Rather, RWRA believes that the current process of periodic inlet, catch basin and system cleaning is doing an effective job to significantly reduce introduction of solids and floatables to RWRA’s CSOs.

- What water quality impacts have occurred from solids and floatables?

RWRA is not aware of any measured impacts associated with solids and floatables from the RWRA system. RWRA believes that our community’s efforts to control solids and floatables (i.e., street cleaning, trash cans, pipeline cleaning, catch basin cleaning, inlet cleaning etc.) has significantly reduced the amount of solids and floatables that would potentially be discharged from RWRA system.

- Have there been any public complaints about solids and floatables in receiving waters?

RWRA is not aware of any complaints.

- Although RWRA does have some prevention programs in place, it doesn’t appear to be adequate. Please add end of pipe controls for each outfall to implement this minimum control.

RWRA disagrees with KDOW’s statement that the current program “doesn’t appear to be adequate”. As discussed above, RWRA is evaluating end of the pipe controls for its tunnel system overflows. Solids and floatables controls are being designed into improvements to the Dublin Lane outfall chamber. The
effectiveness of this improvement will be used to determine the benefit of future installations at the remaining outfalls.

7. Pollution Prevention programs to reduce contaminants in CSOs

- EPA’s Compliance Inspection Report in 2004 found that Owensboro RWRA was properly implementing this control, so RWRA did not provide any additional information in the 2008 NMC report. (same comment as in #2) Insofar as this inspection was conducted five (5) years ago, DOW deems the findings of that inspection to be of limited value in mid-2009. A state consent judgment and a federal administrative order have been entered since that 2004 inspection, and a great deal of sewer system development has occurred during that period. Consequently, DOW directs Owensboro RWRA to resubmit this section of the NMC compliance document in accordance with the 1994 Combined Sewer Overflow Control Policy and the state consent judgment.

2004 Response

RWRA continually educates the community regarding pollution prevention practices. These activities are reported annually to the KDOW and are summarized below.

- Tours are conducted for various schools and community groups
- Lectures are occasionally conducted at area schools (approximately 5 per year combined)
- Wastewater User Regulations established in 1995
- Public Improvement Specifications updated in 2003, including sections prohibiting expansion of the CSS, restricting building connections, prohibiting storm/groundwater introduction into the sewers, requiring sheet flow of roof drains to allow for absorption and prohibiting basement gravity connections
- Strict enforcement of illegal point-source discharges
- Strict application of BOD, TSS surcharges
- Work with industries to improve their individual pretreatment program and possible financial benefit to the industry
- Work with Kentucky Division of Solid Waste as it pertains to possible discharges from solid waste handling activities
- Elimination of 27 package plants and approximately 450 septic systems
- Guest on “Focus on Owensboro” cable TV show in May 2003 and May 2004, and spoke on CSO issues
- Presentation on CSOs at Kentucky Rural Water Association Conference August 2002
- Held public forum with City Commission on water pollution in 2002
- Held public forum with City Commission regarding expansion and CSO Projects in 2004

Update to 2004 Response

RWRA continues the same intensity to enforce the Wastewater System User Regulations to ensure that pollutants and/or contaminants are reduced
continually; thus, reducing the potential for these elements in CSO discharges. Additionally, RWRA has not allowed for the expansion of the combined sewer service area or the introduction of new stormwater inflow sources into the CSS.

RWRA has enhanced its system cleaning program. In the CSS, RWRA has maintained a two-year cycle of cleaning collection facilities. In 2005, RWRA initiated a systematic cleaning of the pipe system with jet rodder equipment in the SSS. During 2008, the first complete cycle of SSS cleaning was completed. As of January 1, 2009, approximately 6,900 tons of debris was removed and disposed of from the combined sewer system cleaning efforts and approximately 390 tons of debris removed from the SSS. Both the CSS and SSS cleaning programs have proven successful and RWRA intends to continue these efforts.

RWRA is in the process of expanding its Fats, Oils and Grease (FOG) program. To date, RWRA has inventoried grease, oil and sand interceptors from facilities such as restaurants, gas stations, car washes, etc. RWRA requires each potential FOG discharger to install the necessary grease interceptor equipment. Should a discharger seek a variance to the installation of the standard grease interceptor, RWRA reviews the completed grease interceptor variance form. [Exhibit 11]

RWRA provides an option for the disposal of grease at its treatment facilities as a service to the community. Additionally, grease is also accepted from facilities in adjacent neighboring counties. Because this service is not available in many communities, the need for this service is growing. RWRA is presently reviewing options to improve handling/treatment of these type wastes. Part of this review is investigating the use of private companies to manage and/or recycle this wastestream.

Since 2004, efforts have been expanded to improve the annual fall leaf and tree debris pickup program. Since 2006, annual postcard notices are mailed to all residents explaining planned dates for leaf pickup and proper procedure for storing leaves and limbs for pickup. Residents are urged to keep all leaves behind the curb and away from inlets. Between mid-October and mid-February City sanitation personnel conduct three cycles of picking up yard waste from all City residents. These combined efforts have significantly resulted in approximately 1,800 tons of yard waste materials being transported to the landfill for proper composting/disposal. This program results in more capacity available in the combined system and catch basin structures resulting in less foreign material reaching the Ohio River.

Other community-wide pollution prevention measures that RWRA has continued to implement since 2004 include the elimination of 2 additional package plants making for a total of 29 package treatment plants since 1995 and the extension of sewer service to approximately 500 additional properties that are served by septic systems, bringing the total to an estimated 950.
- Did RWRA develop and implement a public education program of encouraging proper disposal of sanitary and personal hygiene items as recommended by EPA in the 2004 EPA Compliance Inspection Report?

RWRA has updated its website to include information on this issue including links to EPA websites that provide public education materials on this topic.

- Please provide inspection results or other data which document the effectiveness of your street cleaning program.

The Owensboro community has maintained an effective street sweeping program that has remained at the same high level of service since the 2004 response. City records indicate that in 2008 that a total of 630 tons of debris was collected and properly disposed of as a result of this program. This program has been enhanced through the discontinued use of sand mixed with salt for snow removal which has reduced total tonnage of debris collected. Further, the community has placed numerous public trash containers in the downtown area to provide additional locations for trash disposal.

This program, along with RWRA’s continued sector cleaning of the CSS has resulted in an effective pollution prevention effort for the community.

- Has the City of Owensboro or RWRA provided annual household hazardous waste collection? Has it offered education regarding fertilizer and pesticide application?

RWRA’s website instructs residents on how to properly dispose of potential pollutants such as paint, motor oil and other common household contaminants. RWRA plans to investigate EPA websites and/or other available information to assist in developing public education information on proper fertilizer and pesticide application and/or disposal.

8. Public Notification

- EPA’s Compliance Inspection Report in 2004 found that Owensboro RWRA was properly implementing this control, so RWRA did not provide any additional information in the 2008 NMC report. (same comment as in #2) Insofar as this inspection was conducted five (5) years ago, DOW deems the findings of that inspection to be of limited value in mid-2009. A state consent judgment and a federal administrative order have been entered since that 2004 inspection, and a great deal of sewer system development has occurred during that period. Consequently, DOW directs Owensboro RWRA to resubmit this section of the NMC compliance document in accordance with the 1994 Combined Sewer Overflow Control Policy and the state consent judgment.
2004 Response

In addition to the pollution prevention initiatives, RWRA has posted signs at each of the existing CSO locations. RWRA also has two flags that are displayed during wet weather events in the boating/swimming season, which notify the public that combined sewage may be in the River waters at the time the flags are present. These flags are displayed at the two public river access locations in the downtown area.

Update to 2004 Response

See response to following comment.

- What additional public notification programs suggested by EPA in the 2004 Compliance Inspection Report has RWRA implemented?

RWRA helped establish and actively participates in a Stormwater Quality Advisory Committee (SWQAC) that was created in 2006. This group, which meets quarterly, was given the task of overseeing MS4 activities. SWQAC has also accepted the task of serving as a citizen review committee for CSO initiatives including overseeing of the development and evaluation of alternatives for CSO controls.

RWRA holds monthly board meetings which are open to the public and the media is typically present. This venue is used frequently to notify the public about issues relating to CSO Compliance. CSO Compliance and related activities are an ongoing monthly agenda item (since November 2007) on which the public is welcome to speak. RWRA has improved and plans to continue to improve its website to provide additional information to the public. RWRA continues to speak to citizens groups such as civic clubs, education forums for students, etc. regarding the topic of CSOs.

RWRA is in the process of developing brochures which are intended to better inform the public about proper disposal of different wastes, as well as restrictions on what is acceptable to be flushed down the sewer. These brochures will be made available to visitors of RWRA facilities, distributed at public meetings and informational sessions, and made available for viewing on RWRA’s website.

- In addition to the signs posted at the CSOs, please add some other form of notification or education for those people who aren’t aware of the CSO signs.

RWRA is considering posting on its website the notification of the last rain event along with recommendations to stay out of the water until 48 hours following the rain event. RWRA is in the process of updating its website to include a map of the community’s CSO outfalls. RWRA will continue to study other forms of public notification and education for this matter.
9. Monitor to effectively characterize CSO impact and the effectiveness of CSO controls

- The first two comments in NMC #1, above, apply to this control.

See response to following comment.

- Please submit flow data including average level, average velocity and average flow rate for the CSOs, monthly, for the last year or longer period. Also include the amount of rainfall for these periods. We request that you take water quality measurements at the receiving waters and the CSOs, monthly, for one year or longer, if possible, and furnish the results to DOW.

RWRA has measured, compiled and submitted extensive amounts of CSO flow data to both KDEP and EPA. Most recently this information was provided with updates that summarized calendar year 2008, followed by another report that summarized July 2008 through February 2009. RWRA is presently in the process of summarizing these activities for fiscal year 2009 (July 2008 - June 2009). This report will be submitted by October 31, 2009. Within this report, RWRA will answer to the requested information above to the best of our ability. It should be noted that average velocity information is not collected as part of the CSO monitoring program.

RWRA currently obtains water quality measurements through testing the Ohio River at six locations three times annually, two during wet weather events and one during dry weather. Additionally, there is extensive data available developed by ORSANCO related to the water quality of the Ohio River in the Owensboro area. This information is submitted every year with RWRA’s CSOP annual update. RWRA is presently working with Strand Associates to set up a meaningful protocol for CSO testing. RWRA will further review this request for monitoring data and will develop a proposed monitoring program to be included in the implementation of the LTCP.

- Please identify the designated uses of waters receiving overflows. Additionally, provide an indication of receiving water impacts as a result of CSOs (e.g., floatables), including water quality sampling results at the WWTP, at the receiving waters and the overflows for biological oxygen demand, total suspended solids, e. coli and fecal coliform.

All of RWRA’s CSOs discharge directly to the Ohio River. Per 401 KAR 10:026, the designated uses of the Ohio River in Daviess County include:

- Warm water aquatic habitat
- Primary contact recreation
- Secondary contact recreation
- Domestic water supply
The Ohio River is used for commercial barge traffic, fishing and some light recreational use. The Ohio River is generally not conducive for water recreation such as swimming because of characteristics such as current, debris and commercial traffic, etc.

The ORSANCO bacteria data related to Ohio River water quality conditions in the vicinity of Owensboro has been summarized, delineated between wet and dry weather and graphically displayed by RWRA’s consultant. This information has been presented to and provided to EPA and KDEP. The data indicates that the Ohio River in the vicinity of Owensboro generally is in compliance with the geometric mean standard for bacteria. While the River experiences periods of elevated bacteria concentrations, it is difficult to attribute these conditions solely to the RWRA CSOs based on the available data.

The Kentucky DEP 303(d) list states that the impaired uses for the Ohio River from milepoint 719 to milepoint 785 include:

- Primary contact recreation (Non-support)
- Fish consumption (Partial Support)

Pollutants of concern include:

- Dioxin
- PCBs
- Fecal coliform

Suspected sources of these pollutants include:

- On-site treatment systems (septic systems and similar decentralized systems)
- Unspecified urban stormwater
- Agriculture
- Combined Sewer Overflows
- Source Unknown

Please document any improvements in frequency, duration and volume of overflows; in water quality at the WWTP, at the receiving waters and at overflow points; in contaminant discharge levels and in floatables and in other indicators as a result of implementation of these nine minimum controls and furnish the results to DOW.

The projects which RWRA has completed significantly reduces the mass of pollutants discharged from RWRA’s CSOs. The frequency, duration and volume of overflows have been shown to have been incrementally decreased with improvements to the RWRA system. However, RWRA contends that its
focus on mass removal are a more effective method to address environmental concerns in the receiving stream than a typical effort to reduce overflow volumes. RWRA's approach associated with the removal of mass of pollutants for past and future efforts will be documented and submitted as part of RWRA's Long-Term Control Plan.
<table>
<thead>
<tr>
<th>Event Date</th>
<th>Total Rain Duration</th>
<th>Event Max. Rain</th>
<th>Max. Rain</th>
<th>Max. Rain</th>
<th>Max. Rain</th>
<th>Rain Event #</th>
<th>Overflow</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/4/07</td>
<td>0.84</td>
<td>15:33</td>
<td>0.37</td>
<td>0.47</td>
<td>0.60</td>
<td>0.62</td>
<td>1</td>
</tr>
<tr>
<td>7/9/07</td>
<td>1.73</td>
<td>2:13</td>
<td>0.68</td>
<td>1.13</td>
<td>1.45</td>
<td>1.71</td>
<td>2</td>
</tr>
<tr>
<td>7/10/07</td>
<td>1.36</td>
<td>2:09</td>
<td>0.45</td>
<td>0.66</td>
<td>0.68</td>
<td>0.98</td>
<td>3</td>
</tr>
<tr>
<td>7/11/07</td>
<td>0.91</td>
<td>2:20</td>
<td>0.35</td>
<td>0.56</td>
<td>0.63</td>
<td>0.90</td>
<td>4</td>
</tr>
<tr>
<td>7/13/07</td>
<td>0.08</td>
<td>3:47</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>5</td>
</tr>
<tr>
<td>7/15/07</td>
<td>0.81</td>
<td>5:57</td>
<td>0.39</td>
<td>0.63</td>
<td>0.81</td>
<td>0.81</td>
<td>6</td>
</tr>
<tr>
<td>7/17/07</td>
<td>0.03</td>
<td>1:13</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>7</td>
</tr>
<tr>
<td>7/19/07</td>
<td>3.06</td>
<td>8:30</td>
<td>0.62</td>
<td>1.13</td>
<td>1.46</td>
<td>2.14</td>
<td>8</td>
</tr>
<tr>
<td>7/27/07</td>
<td>0.34</td>
<td>6:27</td>
<td>0.08</td>
<td>0.10</td>
<td>0.15</td>
<td>0.27</td>
<td>9</td>
</tr>
<tr>
<td>8/16/07</td>
<td>0.01</td>
<td>0:01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>10</td>
</tr>
<tr>
<td>8/19/07</td>
<td>0.11</td>
<td>1:11</td>
<td>0.11</td>
<td>0.11</td>
<td>0.11</td>
<td>0.11</td>
<td>11</td>
</tr>
<tr>
<td>8/21/07</td>
<td>0.82</td>
<td>5:18</td>
<td>0.17</td>
<td>0.32</td>
<td>0.35</td>
<td>0.47</td>
<td>12</td>
</tr>
<tr>
<td>8/24/07</td>
<td>0.02</td>
<td>0:02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>13</td>
</tr>
<tr>
<td>8/29/07</td>
<td>0.03</td>
<td>0:55</td>
<td>0.01</td>
<td>0.02</td>
<td>0.03</td>
<td>0.03</td>
<td>14</td>
</tr>
<tr>
<td>8/29/07</td>
<td>0.14</td>
<td>1:34</td>
<td>0.06</td>
<td>0.07</td>
<td>0.12</td>
<td>0.14</td>
<td>15</td>
</tr>
<tr>
<td>8/30/07</td>
<td>0.03</td>
<td>4:18</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>16</td>
</tr>
<tr>
<td>9/6/07</td>
<td>0.76</td>
<td>6:27</td>
<td>0.10</td>
<td>0.15</td>
<td>0.20</td>
<td>0.44</td>
<td>17</td>
</tr>
<tr>
<td>9/7/07</td>
<td>0.15</td>
<td>4:07</td>
<td>0.10</td>
<td>0.13</td>
<td>0.14</td>
<td>0.14</td>
<td>18</td>
</tr>
<tr>
<td>9/8/07</td>
<td>1.17</td>
<td>20:32</td>
<td>0.45</td>
<td>0.59</td>
<td>0.56</td>
<td>0.56</td>
<td>19</td>
</tr>
<tr>
<td>9/25/07</td>
<td>0.08</td>
<td>0:05</td>
<td>0.09</td>
<td>0.09</td>
<td>0.09</td>
<td>0.09</td>
<td>20</td>
</tr>
<tr>
<td>9/28/07</td>
<td>0.26</td>
<td>8:04</td>
<td>0.09</td>
<td>0.10</td>
<td>0.11</td>
<td>0.16</td>
<td>21</td>
</tr>
<tr>
<td>10/16/07</td>
<td>0.01</td>
<td>0:01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>22</td>
</tr>
<tr>
<td>10/19/07</td>
<td>0.13</td>
<td>1:48</td>
<td>0.11</td>
<td>0.11</td>
<td>0.11</td>
<td>0.13</td>
<td>23</td>
</tr>
<tr>
<td>10/17/07</td>
<td>0.51</td>
<td>6:33</td>
<td>0.15</td>
<td>0.19</td>
<td>0.24</td>
<td>0.30</td>
<td>24</td>
</tr>
<tr>
<td>10/18/07</td>
<td>1.71</td>
<td>6:02</td>
<td>0.53</td>
<td>0.97</td>
<td>1.13</td>
<td>1.23</td>
<td>25</td>
</tr>
<tr>
<td>10/22/07</td>
<td>3.41</td>
<td>31:29</td>
<td>0.15</td>
<td>0.21</td>
<td>0.35</td>
<td>0.52</td>
<td>26</td>
</tr>
<tr>
<td>10/24/07</td>
<td>0.09</td>
<td>6:26</td>
<td>0.01</td>
<td>0.02</td>
<td>0.03</td>
<td>0.05</td>
<td>27</td>
</tr>
<tr>
<td>10/24/07</td>
<td>0.02</td>
<td>5:33</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>28</td>
</tr>
<tr>
<td>10/25/07</td>
<td>0.01</td>
<td>0:01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>29</td>
</tr>
<tr>
<td>10/26/07</td>
<td>0.24</td>
<td>8:16</td>
<td>0.03</td>
<td>0.04</td>
<td>0.06</td>
<td>0.11</td>
<td>30</td>
</tr>
<tr>
<td>11/5/07</td>
<td>0.13</td>
<td>4:52</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.07</td>
<td>31</td>
</tr>
<tr>
<td>11/11/07</td>
<td>0.02</td>
<td>2:04</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>32</td>
</tr>
<tr>
<td>11/13/07</td>
<td>0.44</td>
<td>4:46</td>
<td>0.09</td>
<td>0.16</td>
<td>0.23</td>
<td>0.24</td>
<td>33</td>
</tr>
<tr>
<td>12/5/07</td>
<td>0.01</td>
<td>0:01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>34</td>
</tr>
<tr>
<td>12/6/07</td>
<td>0.01</td>
<td>0:01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>35</td>
</tr>
<tr>
<td>12/7/07</td>
<td>0.63</td>
<td>31:36</td>
<td>0.05</td>
<td>0.06</td>
<td>0.09</td>
<td>0.17</td>
<td>36</td>
</tr>
<tr>
<td>12/9/07</td>
<td>1.72</td>
<td>31:36</td>
<td>0.17</td>
<td>0.27</td>
<td>0.36</td>
<td>0.51</td>
<td>37</td>
</tr>
<tr>
<td>12/10/07</td>
<td>0.06</td>
<td>4:42</td>
<td>0.02</td>
<td>0.04</td>
<td>0.04</td>
<td>0.05</td>
<td>38</td>
</tr>
<tr>
<td>12/12/07</td>
<td>0.39</td>
<td>4:22</td>
<td>0.08</td>
<td>0.14</td>
<td>0.20</td>
<td>0.26</td>
<td>39</td>
</tr>
<tr>
<td>12/12/07</td>
<td>0.57</td>
<td>8:18</td>
<td>0.06</td>
<td>0.11</td>
<td>0.17</td>
<td>0.22</td>
<td>40</td>
</tr>
<tr>
<td>12/14/07</td>
<td>0.01</td>
<td>0:01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>41</td>
</tr>
<tr>
<td>12/15/07</td>
<td>2.1</td>
<td>22:43</td>
<td>0.10</td>
<td>0.17</td>
<td>0.32</td>
<td>0.62</td>
<td>42</td>
</tr>
<tr>
<td>12/20/07</td>
<td>0.93</td>
<td>8:19</td>
<td>0.05</td>
<td>0.12</td>
<td>0.23</td>
<td>0.36</td>
<td>43</td>
</tr>
<tr>
<td>12/21/07</td>
<td>0.01</td>
<td>0:01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>44</td>
</tr>
<tr>
<td>12/22/07</td>
<td>0.82</td>
<td>12:09</td>
<td>0.09</td>
<td>0.17</td>
<td>0.33</td>
<td>0.45</td>
<td>45</td>
</tr>
<tr>
<td>12/26/07</td>
<td>0.32</td>
<td>7:45</td>
<td>0.04</td>
<td>0.06</td>
<td>0.11</td>
<td>0.20</td>
<td>46</td>
</tr>
<tr>
<td>12/28/07</td>
<td>0.33</td>
<td>5:45</td>
<td>0.04</td>
<td>0.08</td>
<td>0.13</td>
<td>0.16</td>
<td>47</td>
</tr>
<tr>
<td>12/31/07</td>
<td>0.23</td>
<td>2:19</td>
<td>0.06</td>
<td>0.09</td>
<td>0.12</td>
<td>0.15</td>
<td>48</td>
</tr>
<tr>
<td>7.74</td>
<td>139:06</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rain Event</td>
<td>Total Rain Event</td>
<td>Max. Rain</td>
<td>Max. Rain</td>
<td>Max. Rain</td>
<td>Rain Event</td>
<td>Estimated Overflow</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>------------------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>------------</td>
<td>-------------------</td>
<td></td>
</tr>
<tr>
<td>Beginning Date</td>
<td>Duration (hr:min)</td>
<td>15 min.</td>
<td>30 min.</td>
<td>1 hour</td>
<td>2 hour</td>
<td>#</td>
<td></td>
</tr>
<tr>
<td>1/1/08</td>
<td>0.09</td>
<td>7.02</td>
<td>0.03</td>
<td>0.03</td>
<td>0.05</td>
<td>0.08</td>
<td>49</td>
</tr>
<tr>
<td>1/5/08</td>
<td>0.11</td>
<td>7.05</td>
<td>0.03</td>
<td>0.04</td>
<td>0.04</td>
<td>0.05</td>
<td>50</td>
</tr>
<tr>
<td>1/8/08</td>
<td>0.02</td>
<td>21</td>
<td>0.01</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>51</td>
</tr>
<tr>
<td>1/8/08</td>
<td>0.54</td>
<td>4.16</td>
<td>0.12</td>
<td>0.16</td>
<td>0.26</td>
<td>0.29</td>
<td>52</td>
</tr>
<tr>
<td>1/10/08</td>
<td>0.39</td>
<td>8.03</td>
<td>0.05</td>
<td>0.11</td>
<td>0.14</td>
<td>0.20</td>
<td>53</td>
</tr>
<tr>
<td>1/13/08</td>
<td>0.09</td>
<td>6.05</td>
<td>0.01</td>
<td>0.02</td>
<td>0.03</td>
<td>0.04</td>
<td>54</td>
</tr>
<tr>
<td>1/17/08</td>
<td>0.19</td>
<td>2.10</td>
<td>0.03</td>
<td>0.06</td>
<td>0.10</td>
<td>0.17</td>
<td>55</td>
</tr>
<tr>
<td>1/17/08</td>
<td>0.01</td>
<td>0.1</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>56</td>
</tr>
<tr>
<td>1/20/08</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>57</td>
</tr>
<tr>
<td>1/22/08</td>
<td>0.03</td>
<td>2.04</td>
<td>0.01</td>
<td>0.01</td>
<td>0.02</td>
<td>0.02</td>
<td>58</td>
</tr>
<tr>
<td>1/24/08</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>59</td>
</tr>
<tr>
<td>1/29/08</td>
<td>0.04</td>
<td>2.20</td>
<td>0.02</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>60</td>
</tr>
<tr>
<td>1/29/08</td>
<td>1.28</td>
<td>8.23</td>
<td>0.38</td>
<td>0.42</td>
<td>0.63</td>
<td>1.02</td>
<td>61</td>
</tr>
<tr>
<td>1/31/08</td>
<td>0.29</td>
<td>5.52</td>
<td>0.04</td>
<td>0.06</td>
<td>0.11</td>
<td>0.17</td>
<td>62</td>
</tr>
<tr>
<td><strong>3.12</strong></td>
<td><strong>57:45</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/1/08</td>
<td>0.15</td>
<td>5.07</td>
<td>0.05</td>
<td>0.06</td>
<td>0.08</td>
<td>0.10</td>
<td>63</td>
</tr>
<tr>
<td>2/4/08</td>
<td>0.02</td>
<td>1.07</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.02</td>
<td>64</td>
</tr>
<tr>
<td>2/5/08</td>
<td>2.24</td>
<td>34:13</td>
<td>0.51</td>
<td>0.60</td>
<td>0.80</td>
<td>0.95</td>
<td>65</td>
</tr>
<tr>
<td>2/12/08</td>
<td>0.53</td>
<td>9.38</td>
<td>0.03</td>
<td>0.05</td>
<td>0.09</td>
<td>0.18</td>
<td>66</td>
</tr>
<tr>
<td>2/14/08</td>
<td>0.6</td>
<td>6.50</td>
<td>0.03</td>
<td>0.05</td>
<td>0.10</td>
<td>0.19</td>
<td>67</td>
</tr>
<tr>
<td>2/16/08</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>68</td>
</tr>
<tr>
<td>2/17/08</td>
<td>0.85</td>
<td>12.40</td>
<td>0.33</td>
<td>0.37</td>
<td>0.44</td>
<td>0.53</td>
<td>69</td>
</tr>
<tr>
<td>2/21/08</td>
<td>0.76</td>
<td>24:39</td>
<td>0.06</td>
<td>0.11</td>
<td>0.19</td>
<td>0.28</td>
<td>70</td>
</tr>
<tr>
<td>2/23/08</td>
<td>0.04</td>
<td>2.15</td>
<td>0.01</td>
<td>0.02</td>
<td>0.03</td>
<td>0.03</td>
<td>71</td>
</tr>
<tr>
<td>2/24/08</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>72</td>
</tr>
<tr>
<td>2/25/08</td>
<td>0.12</td>
<td>13:37</td>
<td>0.03</td>
<td>0.03</td>
<td>0.04</td>
<td>0.05</td>
<td>73</td>
</tr>
<tr>
<td>2/26/08</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>74</td>
</tr>
<tr>
<td>2/29/08</td>
<td>0.03</td>
<td>6.36</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>75</td>
</tr>
<tr>
<td><strong>5.37</strong></td>
<td><strong>110:17</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/2/08</td>
<td>0.08</td>
<td>0.05</td>
<td>0.08</td>
<td>0.08</td>
<td>0.08</td>
<td>0.08</td>
<td>76</td>
</tr>
<tr>
<td>3/3/08</td>
<td>1.83</td>
<td>10.24</td>
<td>0.10</td>
<td>0.17</td>
<td>0.32</td>
<td>0.61</td>
<td>77</td>
</tr>
<tr>
<td>3/7/08</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.10</td>
<td>78</td>
</tr>
<tr>
<td>3/8/08</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>79</td>
</tr>
<tr>
<td>3/10/08</td>
<td>0.06</td>
<td>1.08</td>
<td>0.02</td>
<td>0.03</td>
<td>0.05</td>
<td>0.06</td>
<td>80</td>
</tr>
<tr>
<td>3/14/08</td>
<td>0.48</td>
<td>8.31</td>
<td>0.03</td>
<td>0.08</td>
<td>0.13</td>
<td>0.19</td>
<td>81</td>
</tr>
<tr>
<td>3/15/08</td>
<td>0.14</td>
<td>5.41</td>
<td>0.03</td>
<td>0.08</td>
<td>0.10</td>
<td>0.12</td>
<td>82</td>
</tr>
<tr>
<td>3/18/08</td>
<td>5.11</td>
<td>36:24</td>
<td>0.20</td>
<td>0.30</td>
<td>0.50</td>
<td>0.90</td>
<td>83</td>
</tr>
<tr>
<td>3/25/08</td>
<td>0.08</td>
<td>0.09</td>
<td>0.02</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>84</td>
</tr>
<tr>
<td>3/27/08</td>
<td>0.19</td>
<td>2.46</td>
<td>0.14</td>
<td>0.14</td>
<td>0.19</td>
<td>0.19</td>
<td>85</td>
</tr>
<tr>
<td>3/28/08</td>
<td>0.37</td>
<td>3.53</td>
<td>0.17</td>
<td>0.17</td>
<td>0.17</td>
<td>0.17</td>
<td>86</td>
</tr>
<tr>
<td>3/30/08</td>
<td>0.05</td>
<td>6.38</td>
<td>0.02</td>
<td>0.02</td>
<td>0.03</td>
<td>0.03</td>
<td>87</td>
</tr>
<tr>
<td>3/31/08</td>
<td>0.72</td>
<td>2.57</td>
<td>0.15</td>
<td>0.23</td>
<td>0.30</td>
<td>0.56</td>
<td>88</td>
</tr>
<tr>
<td><strong>9.12</strong></td>
<td><strong>79:28</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/1/08</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>89</td>
</tr>
<tr>
<td>4/3/08</td>
<td>3.47</td>
<td>23:33</td>
<td>0.36</td>
<td>0.44</td>
<td>0.83</td>
<td>1.30</td>
<td>90</td>
</tr>
<tr>
<td>4/4/08</td>
<td>0.06</td>
<td>3.59</td>
<td>0.01</td>
<td>0.02</td>
<td>0.02</td>
<td>0.03</td>
<td>91</td>
</tr>
<tr>
<td>4/8/08</td>
<td>0.02</td>
<td>0.05</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>92</td>
</tr>
<tr>
<td>4/10/08</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>93</td>
</tr>
<tr>
<td>4/10/08</td>
<td>0.44</td>
<td>2.23</td>
<td>0.15</td>
<td>0.22</td>
<td>0.31</td>
<td>0.38</td>
<td>94</td>
</tr>
<tr>
<td>4/11/08</td>
<td>0.63</td>
<td>5.51</td>
<td>0.45</td>
<td>0.57</td>
<td>0.61</td>
<td>0.92</td>
<td>95</td>
</tr>
<tr>
<td>4/12/08</td>
<td>0.03</td>
<td>1.32</td>
<td>0.01</td>
<td>0.02</td>
<td>0.02</td>
<td>0.03</td>
<td>96</td>
</tr>
<tr>
<td>4/13/08</td>
<td>0.12</td>
<td>6.25</td>
<td>0.03</td>
<td>0.03</td>
<td>0.04</td>
<td>0.07</td>
<td>97</td>
</tr>
<tr>
<td>4/13/08</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>98</td>
</tr>
<tr>
<td>4/14/08</td>
<td>0.02</td>
<td>2.14</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>99</td>
</tr>
<tr>
<td>4/18/08</td>
<td>0.07</td>
<td>0.01</td>
<td>0.07</td>
<td>0.07</td>
<td>0.07</td>
<td>0.07</td>
<td>100</td>
</tr>
<tr>
<td>4/18/08</td>
<td>0.29</td>
<td>3.39</td>
<td>0.09</td>
<td>0.11</td>
<td>0.19</td>
<td>0.22</td>
<td>101</td>
</tr>
<tr>
<td>4/19/08</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>102</td>
</tr>
<tr>
<td>4/24/08</td>
<td>0.12</td>
<td>0.39</td>
<td>0.07</td>
<td>0.08</td>
<td>0.12</td>
<td>0.12</td>
<td>103</td>
</tr>
<tr>
<td>Rain Event Beginning Date</td>
<td>Total Rain (inches)</td>
<td>Total Rain Event Duration (hr:min)</td>
<td>Max. Rain 15 min.</td>
<td>Max. Rain 30 min.</td>
<td>Max. Rain 1 hour</td>
<td>Max. Rain 2 hour</td>
<td>Rain Event #</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---------------------</td>
<td>-----------------------------------</td>
<td>-------------------</td>
<td>-------------------</td>
<td>-----------------</td>
<td>-----------------</td>
<td>--------------</td>
</tr>
<tr>
<td>4/26/08</td>
<td>0.32</td>
<td>2:08</td>
<td>0.17</td>
<td>0.21</td>
<td>0.26</td>
<td>0.31</td>
<td>104</td>
</tr>
<tr>
<td>4/27/08</td>
<td>0.1</td>
<td>3:20</td>
<td>0.02</td>
<td>0.04</td>
<td>0.07</td>
<td>0.08</td>
<td>105</td>
</tr>
<tr>
<td><strong>5.73</strong></td>
<td><strong>55:53</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5/2/08</td>
<td>3.01</td>
<td>13:57</td>
<td>0.45</td>
<td>0.54</td>
<td>0.82</td>
<td>0.28</td>
<td>106</td>
</tr>
<tr>
<td>5/7/08</td>
<td>0.05</td>
<td>2:30</td>
<td>0.02</td>
<td>0.03</td>
<td>0.04</td>
<td>0.04</td>
<td>107</td>
</tr>
<tr>
<td>5/7/08</td>
<td>0.53</td>
<td>4:08</td>
<td>0.15</td>
<td>0.21</td>
<td>0.36</td>
<td>0.41</td>
<td>108</td>
</tr>
<tr>
<td>5/8/08</td>
<td>0.19</td>
<td>1:19</td>
<td>0.06</td>
<td>0.09</td>
<td>0.16</td>
<td>0.19</td>
<td>109</td>
</tr>
<tr>
<td>5/8/08</td>
<td>0.01</td>
<td>.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>110</td>
</tr>
<tr>
<td>5/10/08</td>
<td>0.1</td>
<td>2:15</td>
<td>0.02</td>
<td>0.03</td>
<td>0.05</td>
<td>0.09</td>
<td>111</td>
</tr>
<tr>
<td>5/10/08</td>
<td>1.21</td>
<td>22:18</td>
<td>0.10</td>
<td>0.13</td>
<td>0.19</td>
<td>0.31</td>
<td>112</td>
</tr>
<tr>
<td>5/14/08</td>
<td>0.25</td>
<td>2:34</td>
<td>0.15</td>
<td>0.20</td>
<td>0.22</td>
<td>0.24</td>
<td>113</td>
</tr>
<tr>
<td>5/15/08</td>
<td>0.96</td>
<td>11:18</td>
<td>0.19</td>
<td>0.31</td>
<td>0.36</td>
<td>0.38</td>
<td>114</td>
</tr>
<tr>
<td>5/19/08</td>
<td>0.05</td>
<td>.34</td>
<td>0.04</td>
<td>0.04</td>
<td>0.05</td>
<td>0.05</td>
<td>115</td>
</tr>
<tr>
<td>5/26/08</td>
<td>0.52</td>
<td>3:21</td>
<td>0.14</td>
<td>0.21</td>
<td>0.35</td>
<td>0.41</td>
<td>116</td>
</tr>
<tr>
<td>5/27/08</td>
<td>1.51</td>
<td>10:00</td>
<td>0.10</td>
<td>0.24</td>
<td>0.34</td>
<td>0.62</td>
<td>117</td>
</tr>
<tr>
<td>5/31/08</td>
<td>0.23</td>
<td>.17</td>
<td>0.22</td>
<td>0.23</td>
<td>0.23</td>
<td>0.23</td>
<td>118</td>
</tr>
<tr>
<td>5/31/08</td>
<td>0.03</td>
<td>.38</td>
<td>0.01</td>
<td>0.02</td>
<td>0.03</td>
<td>0.03</td>
<td>119</td>
</tr>
<tr>
<td><strong>8.65</strong></td>
<td><strong>74:19</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6/10/08</td>
<td>0.08</td>
<td>.13</td>
<td>0.08</td>
<td>0.08</td>
<td>0.08</td>
<td>0.08</td>
<td>120</td>
</tr>
<tr>
<td>6/13/08</td>
<td>1.3</td>
<td>13:05</td>
<td>0.49</td>
<td>0.55</td>
<td>0.57</td>
<td>0.58</td>
<td>121</td>
</tr>
<tr>
<td>6/22/08</td>
<td>0.06</td>
<td>.39</td>
<td>0.03</td>
<td>0.04</td>
<td>0.06</td>
<td>0.05</td>
<td>122</td>
</tr>
<tr>
<td>6/25/08</td>
<td>0.29</td>
<td>7:19</td>
<td>0.08</td>
<td>0.10</td>
<td>0.15</td>
<td>0.16</td>
<td>123</td>
</tr>
<tr>
<td>6/27/08</td>
<td>0.01</td>
<td>.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>124</td>
</tr>
<tr>
<td>6/27/08</td>
<td>0.14</td>
<td>.14</td>
<td>0.14</td>
<td>0.14</td>
<td>0.14</td>
<td>0.14</td>
<td>125</td>
</tr>
<tr>
<td>6/28/08</td>
<td>0.01</td>
<td>.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>126</td>
</tr>
<tr>
<td><strong>1.89</strong></td>
<td><strong>21:32</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Southern St. E.Coli</td>
<td>Southern St. Fec. C.</td>
<td>OMU Intake E.Coli</td>
<td>OMU Intake Fec. C.</td>
<td>Fred. Ramp E.Coli</td>
<td>Fred. Ramp Fec. C.</td>
<td>Executive Inn E.Coli</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------------</td>
<td>----------------------</td>
<td>-------------------</td>
<td>--------------------</td>
<td>-------------------</td>
<td>--------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>05/30/07</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>30</td>
<td>40</td>
<td>10</td>
<td>50</td>
<td>&lt;10</td>
</tr>
<tr>
<td>07/20/07</td>
<td>149</td>
<td>&lt;5</td>
<td>143</td>
<td>170</td>
<td>403</td>
<td>300</td>
<td>977</td>
</tr>
<tr>
<td>08/21/07</td>
<td>60</td>
<td>90</td>
<td>&lt;10</td>
<td>35</td>
<td>7600</td>
<td>&lt;5*</td>
<td>5480</td>
</tr>
<tr>
<td>07/17/08</td>
<td>20</td>
<td>30</td>
<td>10</td>
<td>15</td>
<td>30</td>
<td>55</td>
<td>20</td>
</tr>
<tr>
<td>09/22/08</td>
<td>3</td>
<td>45</td>
<td>3</td>
<td>5</td>
<td>41</td>
<td>85</td>
<td>101</td>
</tr>
<tr>
<td>10/09/08</td>
<td>63</td>
<td>110</td>
<td>8</td>
<td>&lt;5</td>
<td>10</td>
<td>20</td>
<td>87</td>
</tr>
</tbody>
</table>

* Suspect sampling results
“EXHIBIT C”
EARLY ACTION PLAN CAPITAL IMPROVEMENT PROJECTS

**Center Street Pump Station** - The Regional Water Resource Agency (RWRA) is proposing to rehabilitate and upgrade the Center Street Pump Station. The Pump Station capacity will be significantly increased upon completion of this portion of the project. The combined sewer system has three primary pump stations, the other two of which were rehabilitated in 2000. This project is part of a multi-phased approach to making full use of the newly increased capacity of the West WWTP (from 12.5 MGD to 35.7 MGD). The cost is estimated at $1.2 M, and should be completed by January 1, 2008.

**Center Street Force Main**
The RWRA is proposing to construct a new force main extending from the Center Street Pump Station to the RWRA’s West WWTP (3.3 miles). The newly constructed force main will allow for the direct conveyance of combined sewage/wastewater from the Center Street Tunnel Sewer Basin to the West WWTP (presently the system pumps into the Locust gravity sewer system). The force main will also have connections at the RWRA’s two remaining primary combined sewer pump stations, providing redundancy in the event that either the new or old force main fails, or requires maintenance. This project is part of a multi-phased approach to making full use of the newly increased capacity of the West WWTP (from 12.5 MGD to 35.7 MGD). The cost is estimated at $6.7 M, and should be completed by July 1, 2008.

**Avondale Pump Station Diversion** – The Avondale Pump Station provides service to various streets that are served by a separate sanitary sewer system. The flow from the pump station is pumped into the RWRA’s combined sewer system (Center St. System). The proposed project would require the upgrade to the pump station and construction of a directionally drilled force main to divert flow away from the combined system and into the RWRA’s separate sanitary sewer system. The cost is estimated at $140,000, and should be completed by July 1, 2008.

**Highway 60 East Sewer Extension Project** - This project involves the construction of collector sewers in four neighborhoods containing approximately 220 properties. The neighborhoods included in this project are: Glenn Court Subdivision, Maple Heights Subdivision, Westerfield Drive area and Brown Addition. The Brown Addition neighborhood, constructed in the 1930’s, is served by a private combined sewer collection system (i.e., a neighborhood straight-pipe system discharging to the Ohio River on a continuous basis) which was not in close proximity and, therefore, never connected to a wastewater treatment facility. This project is part of RWRA’s continued efforts to address environmental issues within the community. The remaining neighborhoods involved with this project have noted environmental issues such as improper straight connections and/or inadequate septic systems, etc. Once completed, these known environmental concerns will be eliminated. The cost is estimated at $950,000, and completion of the project, including connection of the associated properties, should be completed by January 1, 2009.
THE REGIONAL WATER RESOURCE AGENCY

Sewer Overflow Response Plan (SORP)

Prepared By:

Staff of
The Regional Water Resource Agency
1722 Pleasant Valley Road
Owensboro, KY 42303
Phone: (270) 687-8440
Fax: (270) 687-8444
TABLE OF CONTENTS

I. AUTHORITY .................................................................................................................. 1

II. GENERAL .................................................................................................................... 1

A. OBJECTIVES ............................................................................................................. 1

III. OVERFLOW RESPONSE PROCEDURE ................................................................ 1

A. RECEIPT OF INFORMATION REGARDING A SEWER OVERFLOW (SO) ............. 2
B. DISPATCH OF OPERATIONS PERSONNEL TO A POTENTIAL OVERFLOW SITE .... 2
C. OVERFLOW CORRECTION, CONTAINMENT AND CLEANUP ......................... 4
D. OVERFLOW REPORT ................................................................................................. 6
E. CUSTOMER NOTIFICATION ..................................................................................... 7

IV. PUBLIC ADVISORY PROCEDURE ...................................................................... 7

PUBLIC NOTIFICATION ......................................................................................... 8

V. REGULATORY AGENCY NOTIFICATION PLAN ........................................... 8

A. IMMEDIATE NOTIFICATION ............................................................................... 8
B. SECONDARY NOTIFICATION ............................................................................. 8

VI. MAINTENANCE OF SORP ................................................................................ 8

VII. TRAINING .......................................................................................................... 9

APPENDIX A

APPENDIX B
I. AUTHORITY

This Sewer Overflow Response Plan (SROP) is prepared and adopted by the Regional Water Resource Agency (RWRA) to facilitate proper incident reporting procedures relating to sewer overflows (any overflows from any portion of the RWRA sewer system including appurtenances) that result in the discharge of sewage from the RWRA system prior to the treatment plant.

II. GENERAL

The Sewer Overflow Response Plan (SROP) is designed to ensure that every report of a confirmed sewer overflow, from non-permitted CSO discharge locations or other non-permitted locations within the system, that occurs in the RWRA system generates an immediate response by RWRA personnel. Consistent with RWRA’s customer service response efforts, once a notification is received of an overflow, RWRA will dispatch the appropriate personnel to the overflow site in order to minimize the effects that the overflow may produce. It is RWRA’s intent to protect public health through their prompt response and maintain the beneficial uses of the surface waters within the community. The SROP further includes provisions to ensure public safety pursuant to the notification process requirements of the Kentucky Division of Water (KDOW). Reporting of Sanitary Sewer Overflows (SSOs) has been standard practice of the Agency since its inception on Feb. 1, 1995. Overflows from permitted CSOs are recorded and submitted on RWRA’s CSO Annual Report to the Kentucky Division of Water.

A. Objectives

The primary objectives of the SROP are to protect public health and the environment, outline procedures to mitigate overflows and satisfy regulatory agencies regarding discharges. Included in the Agency’s objectives is the protection of private and public property including RWRA’s facilities in order to minimize the frequency and/or duration of overflow events.

III. OVERFLOW RESPONSE PROCEDURE

The Overflow Response Procedure presents a strategy for RWRA to mobilize resources to correct or repair any condition which may cause or contribute to a sewer overflow. The plan considers a wide range of potential system failures that could create an adverse environmental impact due to an overflow.

Under most circumstances, RWRA will address all response actions with its own maintenance resources which have the skills and experience to respond rapidly and in
the most appropriate manner. An important issue in an emergency response is to ensure that the temporary actions necessary to divert flows and repair the problem do not produce a problem elsewhere in the system.

A. Receipt of Information Regarding a Sewer Overflow (SO)

An overflow may be detected by RWRA personnel or reported by others. The Operations Division is responsible for receiving reports or alarm calls of possible sewer overflows (from pump stations) and dispatching the appropriate RWRA personnel to investigate.

Generally, telephone calls from the public reporting possible sewer overflows and from pump station alarms are received by Operations personnel during normal work hours. After normal working hours, the emergency line is forwarded to the Plant Operator at the Max Rhoads Wastewater Treatment Plant (WWTP) which is staffed 24 hours per day, 365 days per year.

1. The Operations employee receiving the notification should obtain all relevant information available regarding the potential overflow (see Appendix A) including:

   a. Time and date call was received;
   b. Specific location;
   c. Description of problem;
   d. Time possible overflow was noticed by the caller;
   e. Caller’s name, address and phone number;
   f. Observations of the caller (e.g., odor, duration, back or front of property); and
   g. Other relevant information that will enable the responding investigator and crews, if required, to quickly locate, assess and stop the overflow.

The Operations personnel receiving the notification of a potential overflow records the information in the Lucity, Inc., database system which electronically submits a work request automatically to the appropriate Division Manager or his designee, and then they call the appropriate RWRA personnel to investigate the potential overflow.

2. The RWRA personnel performing the investigation, determines whether or not an overflow is occurring or has occurred. Until verified, the report of a possible spill/overflow will not be reported as a “sewer overflow”. Once verified, RWRA will, within 24 hours of the overflow event, provide information to the KDOW.

B. Dispatch of Operations Personnel to a Potential Overflow Site
Failure of a portion of the wastewater collection system that could potentially cause an overflow in the RWRA system will create an immediate response of RWRA personnel to investigate and, if verified, isolate and correct the problem. RWRA personnel are available 24 hours a day, 365 days a year, to receive reports of potential overflows and dispatch “on-call” personnel to the site.

1. Dispatching RWRA Personnel

- When RWRA Operations personnel receives notification of a potential sewer overflow as described herein, the dispatched RWRA personnel investigates the potential overflow site and determines if, in fact, an overflow has occurred. If it is determined that an overflow has occurred or is occurring, the RWRA personnel determines the necessary action, along with resources necessary to mitigate the overflow event. At this time, the Director of Operations (or his or her designee) is notified that an overflow event has occurred.

2. Operations Personnel Instructions

- Operations personnel are to dispatch the appropriate RWRA personnel by cell phone to investigate and verify the potential overflow.

- The Operations personnel will confirm that the entire message associated with the potential overflow event is received and understood by the RWRA personnel that is dispatched to the site. The dispatched personnel shall immediately proceed to the site of the potential overflow.

- RWRA dispatched personnel investigating the potential overflow will promptly report information back to the appropriate Division Manager regarding the status and findings of the investigation.

3. Additional Resources

If it is determined by the Division Manager that additional resources are necessary to address a verified overflow, the Manager will dispatch or procure the necessary resources to mitigate the overflow.

4. Documentation of Overflow

The RWRA personnel dispatched to the verified overflow location shall provide any documentation of the overflow event (e.g., written work order, digital photos and/or videos, etc.) to RWRA Operations staff in order to enter the information into the Lucity, Inc. database system.

5. Procedural Verification
• It is the responsibility of the appropriate RWRA personnel to ensure that the provisions of this Overflow Response Plan are met.

• If a verified overflow event occurs, the RWRA Director of Operations (or his or her designee) shall notify KDOW within the specified time frame outlined in this SORP.

6. Coordination with Hazardous Material Response

• Upon arrival at the scene of a verified sewer overflow, should a suspicious substance (e.g., oil sheen, foamy residue) be found on the ground surface, or should a suspicious odor (e.g., gasoline) not common to the sewer system be detected, the sewer investigator or response crew should immediately contact the RWRA Director of Operations (or his or her designee) for guidance before taking further action.

• Should the Director of Operations (or his or her designee) determine the need to alert the hazardous material response team, RWRA personnel shall await the arrival of the hazardous material response team or fire department to take over the scene.

• Upon arrival of the hazardous material response team or fire department, RWRA personnel will take direction from the person with the lead authority of that team in conjunction/concurrence with RWRA Management. Only when it has been determined that it is safe and appropriate for RWRA personnel to proceed with activities associated with the correction, containment and cleanup of an overflow, will RWRA personnel be allowed to continue with the procedures outlined in SORP.

C. Overflow Correction, Containment and Cleanup

This section describes the specific actions performed by RWRA personnel during a verified overflow event.

The objectives of these actions are:

• To protect public health, environment and property from sewer overflows and restore the surrounding area back to normal as soon as possible;

• To establish perimeters and control zones with appropriate traffic cones and barricades, vehicles or use of natural topography (e.g., hills, berms, etc.);

• To contain the sewer overflow to the maximum extent possible, including the prevention of a discharge into surface waters;
• To promptly notify the appropriate regulatory agency with pertinent information regarding an emergency or accidental (non CSO) overflow; and

• To minimize any potential liabilities associated with the overflow.

Under most circumstances, RWRA will address all response actions with its own resources which have the skills and experience to respond rapidly and in the most appropriate manner. If necessary, RWRA will use contractors/services from the private sector to mitigate an overflow or to provide assistance in the repair of facilities that create the potential for an overflow.

1. Responsibilities of RWRA Personnel upon Arrival at an Overflow Site

RWRA personnel who arrive at the site of a verified sewer overflow shall take measures to protect the health and safety of the public through the mitigation of the impact of the overflow event to the maximum extent possible. If it is determined that the event is not caused or the responsibility of RWRA, but there is imminent danger to public health or to the quality of waters of the U.S., RWRA shall notify the appropriate party and/or KDOW and, if necessary, take prudent emergency action.

Upon arrival at the overflow site, RWRA personnel shall perform the following:

• Determine the cause of the overflow (e.g., sewer line blockage, pump station mechanical or electrical failure, force main rupture, etc.);

• Identify and, if necessary, request assistance or additional resources to correct the overflow or to assist in the determination of its cause;

• Take immediate steps to stop the overflow (e.g., correct pipeline blockage, manually operate pump stations, repair pipe, etc.). Extraordinary steps may be considered when overflows from private property threaten public health and safety; and

• Request additional personnel, materials, supplies or equipment that would expedite the repair of facilities and/or minimize the impacts of the overflow.

2. Containment

RWRA personnel shall initiate measures to mitigate the overflow event which would minimize the impact to public health or the environment. The following measures will be initiated by RWRA personnel:

• Determine the immediate destination of the overflow, (e.g., storm drain, street inlet, body of water, etc.);
• Identify and request the necessary materials and equipment to contain or isolate the overflow, if not readily available; and

• Take immediate steps to contain the overflow, (e.g., maximize the capacity of the collection system, block inlets, divert flows to other facilities, etc.).

3. Additional Measures Under Potentially Prolonged Overflow Conditions

In the event of a situation that creates the need for redirection of flow around or away from an area because of a sewer line collapse, etc., RWRA shall:

• Take appropriate measures to determine the proper size and number of portable pumps required to effectively divert the flow;

• Implement the necessary monitoring of the pumping operation to adequately maintain its proper operation; and

• Follow regulatory agency requirements in conjunction with emergency repairs.

4. Cleanup

When contained, RWRA personnel use the necessary equipment to remove and/or cleanup and the liquid and/or solid material associated with an overflow. RWRA personnel will also:

• Secure the overflow area to prevent contact by members of the public;

• Where practical, flush and clean the area; and

• Take appropriate measures to reduce run off from the site to waters of the U.S.

D. Overflow Report

An Overflow Report shall be completed, per the requirements of the KDOM, by the RWRA Director of Operations (or his or her designee) by recording all pertinent information (within various tabbed sections) in the Lucity, Inc. database system as shown in Appendix B. RWRA’s Director of Operations (or his or her designee) shall promptly notify the KDOM in a format acceptable to KDOM. An example of the Overflow Report completed per the requirements of the Madisonville, Kentucky Office of KDOM is provided in Appendix B. Reports shall be made for all overflows from our system, from which we are responsible, that reach waters of the U.S. Information
regarding the sewer overflow should include the following:

1) Determination of the start time of the sewer overflow by one of the following methods:
   a) Date and time information received and/or reported to have begun and later substantiated by a sewer investigator or response crew;
   b) Visual observation; or
   c) Remote pump station monitoring.

2) Determination of the stop time of the sewer overflow by one of the following methods:
   a) When the blockage is cleared or flow is controlled or contained;
   b) The arrival time of the sewer investigator or response crew, if the overflow stopped between the time it was reported and the time of arrival; or
   c) Visual observations.

3) An estimation of the rate of sewer overflow in gallons per minute (GPM) shall be completed by one of the following criteria:
   a) Visual observations of the overflow; or
   b) Measurement of actual overflow volume completed by best methods available.

4) RWRA Personnel shall not enter private property for purposes of estimating damage to structures, floor and wall coverings, and personal property.

5) Additional information as is requested by KDOW personnel. Information submitted to KDOW should be consistent in content and format.

E. Customer Notification

It is RWRA’s intent to provide prompt responses to reports of potential overflows from the RWRA system. As part of RWRA’s response, a determination is made to establish if an overflow exists and determine the responsible party. If RWRA is responsible for a verified overflow event, RWRA will take the necessary measures to mitigate the overflow. If appropriate, RWRA will notify the customers that are affected by the overflow.

IV. PUBLIC ADVISORY PROCEDURE

This section describes the actions that RWRA will take in cooperation with KDOW to limit public access areas potentially impacted by overflows to surface water bodies from the system.
Public Notification

Should it become necessary, or as directed by KDOW, RWRA will provide additional public notification (i.e. temporary signage, radio, newspaper), regarding potential public health issues created by overflows from the system.

V. REGULATORY AGENCY NOTIFICATION PLAN

RWRA shall establish internal procedures regarding the notification of the appropriate regulatory agency of overflow events that would negatively impact the environment and/or public health. A description of RWRA’s internal procedures to collect information regarding an overflow event is outlined above in Section III(A) of this document.

RWRA has an internal notification procedure as well as a procedure to contact the appropriate agency (KDOW, etc.) should the overflow event require such a notification. RWRA shall follow reporting procedures to KDOW consistent with 401 KAR 5:015. RWRA’s Director of Operations (or his or her designee) is responsible for notification of an overflow event to KDOW, etc.

A. Immediate Notification

Depending upon the extent and nature of an overflow event, RWRA would immediately provide oral/written notification to the appropriate agency (KDOW, etc.). Events that would affect a bathing area, fish kills, or locations such as a drinking water intake would initiate this type of immediate response.

B. Secondary Notification

RWRA may determine under certain circumstances that additional secondary notification to other agencies, companies, facilities, individuals, etc. may be necessary to reduce potential negative impact of an overflow event.

VI. MAINTENANCE OF SORP

The SORP will be reviewed by the appropriate RWRA Staff on an annual basis. RWRA SORP review staff shall consist of the Directors of the Agency, along with the appropriate managers of the divisions affected by SORP requirements. Possible amendments may include:

- Change in procedures;
• Change in RWRA personnel/procedures regarding SORP activities; and

• Changes due to regulatory requirements.

VII. TRAINING

The Director of Operations (or his or her designee) will conduct annual training with the affected RWRA personnel who are responsible for the Operation and Maintenance of the CSS and implementation of the SORP.

APPENDIX A
APPENDIX B
## RWRA Sewer Overflow Response Plan (SORP) Report

**GBA ID:** Lift Station  
**Received:** 7/17/2008 9:46 AM

<table>
<thead>
<tr>
<th>Address</th>
<th>Cross Street</th>
<th>Location</th>
<th>Zip Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 CENTER ST</td>
<td>W 2ND ST</td>
<td>Center Street Lift Station</td>
<td>42303</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Overflow Start</th>
<th>Overflow End</th>
<th>Overflow Source</th>
<th>Second Source</th>
<th>Third Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/17/2008</td>
<td>7/17/2008</td>
<td>Outfall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:46 AM</td>
<td>11:46 AM</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Investigation**

**Investigation Start:** 7/17/2008 10:15 AM  
**Primary Cause:** Power Failure  
**Secondary Cause:** Unknown

<table>
<thead>
<tr>
<th>Overflowing Structure</th>
<th>Estimated Gallons</th>
<th>Description Of Incident</th>
<th>Description Of Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>5454 100 CENTER ST</td>
<td>240,000</td>
<td>Storm</td>
<td>Power was out to lift station due to downed utility poles.</td>
</tr>
</tbody>
</table>

**Prevention**

**Preventive Action Taken:** None  
**Future Prevention:** None  
**Cleanup Comments:** None since flow discharged into the Ohio River.

**Affected Assets**

<table>
<thead>
<tr>
<th>Major Waterway</th>
<th>Watershed</th>
<th>Lake/Pond</th>
<th>Underground</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑️</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Minor Waterway</th>
<th>Storm Drain</th>
<th>Culvert</th>
<th>Other Surf. Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐️</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Soil Cleanup</th>
<th>Soil Saturation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Initial Waterway Affected:** Ohio River

**Overflow Cause:** Storm