SD1
Managing Northern Kentucky's
Wastewater and Storm Water

May 13, 2014

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

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

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

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

To Whom It May Concern:

Pursuant to the above-referenced Consent Decree, Sanitation District No. 1 (SD1) is required to submit an annual report on the implementation of the Pump Station Overflow Elimination Plan, which received regulatory approval on May 14, 2008.

> **38. Pump Station Plan.** The District shall provide an annual report within twelve months of approval of the Pump Station Plan on implementation of these watershed projects. Thereafter and until such projects are complete, the District shall provide an annual report on its implementation progress within sixty days after each anniversary date of the initial report.

A certification as required by the Consent Decree is also enclosed (Consent Decree paragraph 38).

To the best of my knowledge and belief, the enclosed report is true, accurate, and complete and further demonstrates SD1's commitment to the mission of protecting and enhancing the water resources and enhancing the quality of life in Northern Kentucky.

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

Best regards,

David E. Rager
Executive Director

DER/wck
Enclosures

Sanitation District No. 1
May 13, 2014

Pump Station Overflow Elimination 2014 Annual Report

CERTIFICATION

Pump Station Overflow Elimination Plan 2014 Annual Report
Consent Decree Case No. 2:05-cv-00199-WOB

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

David E. Rager
Executive Director

Date 5/14/14

COMMONWEALTH OF KENTUCKY

)ss.

COUNTY OF Kenton

The foregoing instrument was acknowledged before me this 13 day of May, 2014 by David E. Rager, Executive Director of Sanitation District. No. 1.

Angela M. Cook
NOTARY PUBLIC

Angela M. Cook
Notary Public
Kentucky, State at Large
Comm. Exp. 07-30-16
Notary ID 471543

Kenton County, Kentucky

My commission expires: 7-30-16

PUMP STATION OVERFLOW ELIMINATION

2014 ANNUAL REPORT

May 13, 2014

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

TABLE OF CONTENTS

LIST OF ACRONYMS AND ABBREVIATIONS

PSOEP	Pump Station Overflow Elimination Plan
SD1	Sanitation District No. 1
WRWRF	Western Regional Water Reclamation Facility

SECTION 1: PUMP STATION OVERFLOW ELIMINATION PLAN

1.1 Introduction

One of the requirements of Sanitation District No.1's (SD1) Consent Decree is to develop a Pump Station Overflow Elimination Plan (PSOEP) that identifies watershed projects to eliminate sanitary sewer overflows at specified pump stations, throughout the service area. The pump stations that were required to be included in this plan, and their respective deadlines for elimination, are identified in Exhibit E of the Consent Decree. The PSOEP was submitted in 2007 and received regulatory approval on May 14, 2008. Upon approval of the PSOEP, the Consent Decree requires SD1 to provide an annual report on its implementation of the watershed projects included in the original plan. This document serves as the sixth annual update on the implementation of the PSOEP.

1.2 Project Status Updates

Each of the 14 pump stations identified in the PSOEP has a unique set of circumstances that requires a customized solution to address and eliminate its sanitary sewer overflows. The progress of each pump station is at a different point along the path to overflow elimination. A detailed listing of the projects and activities conducted to comply with the requirements of the PSOEP, including schedules and project updates for the current reporting period can be found in Appendix A. To date, 12 of the 14 pump station overflow elimination projects have been completed.

1.3 Project Extensions

Lakeview Pump Station Overflow Elimination Extension

The original deadline for construction of the remedial measures at Lakeview Pump Station in Exhibit E of the Consent Decree was December 31, 2013. SD1 provided a revised schedule for final improvements at Lakeview Pump Station with the March 31, 2011 resubmission of the Watershed Plans for Northern Kentucky, which extends the deadline to December 31, 2023. Formal approval of the deadline extension was given by the Kentucky Department for Environmental Protection and the United States Environmental Protection Agency in a letter dated May 13, 2013, which can be found in Appendix B.

APPENDIX A:

Pump Station Overflow Elimination Plan Project Status Updates

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Pump Station Overflow Elimination Plan: Project Status Updates **As of May 2014**

Pump Station	Required Overflow Elimination Date	Actual Completion Date	Solution Summary	Current Status
Alex-Licking	December 31, 2010	2008	Overflow elimination through replacement of the station with a new pump station sized to convey peak wet weather flows.	Complete
Allen Fork	December 31, 2015	2014	The Western Regional Water Reclamation Facility (WRWRF) and the associated conveyance system were completed in 2013. The Gunpowder Pump Station has been eliminated by a new gravity sewer to the Western Regional conveyance system. The flows from the Burlington and Allen Fork Pump Stations have been removed from the Taylorsport Pump Station service area and redirected to this new gravity sewer. The new discharge route for the Burlington Pump Station lowers its discharge head and increases the pump station's capacity, and reduces rerouted flows to Allen Fork PS. New sewers that convey flow from Burlington Pump Station and Allen Fork Pump Station through reduced head or allow for increased capacity through pump modifications.	Complete: In addition to actions discussed in Section 7.6.1 of the Watershed Plan, the Western Regional Water Reclamation Facility (WRWRF) and the associated conveyance system were completed in 2013. Installation of 6,665 feet of 24-inch force main (replacement of existing 24-inch force main and upsize of 12-inch force main) was completed in 2013. Burlington PS pump modification occurred to restore original pumping capacity. Growth is occurring much slower than originally forecasted. Additional improvements, if needed include replacement of the pump impellers at the Allen Fork Pump Station with larger impellers to increase pump station capacity, installation of new sewer to re-route gravity sewers from southern Burlington, which currently flow to the Allen Fork Pump Station, to the Burlington Pump Station, replacement of the pump impellers and volutes at the Burlington Pump Station to increase the pump station capacity, upsizing the discharge piping at the Burlington Pump Station to prevent high velocities in the existing piping.
Crestview	December 31, 2015		A final solution will be selected according to the following schedule: 1) Calibrate hydraulic model and develop future condition models by June 12, 2008 (complete); 2) Select alternative solution for design by March 1, 2013 (complete); 3) Prepare final design for alternative solution selected by June 1, 2014 (ongoing); 4) Begin construction on selected alternative solution by January 1, 2015; 5) Complete construction by December 31, 2015.	The evaluation of the inspection data to determine the best rehabilitation method is finished. CIPP lining, point repairs and other public infrastructure rehabilitation work to eliminate I/I was completed in 2012. Post-monitoring determined the effectiveness of these measures in eliminating I/I and the overflow at the pump station were limited. Private source I/I has been identified, and removal is ongoing. The upsizing of the pump station and force main is in final design, and construction is anticipated to begin in January of 2015.
Harrison Harbor	December 31, 2010	*See PS Overflow Elimination Annual Report May 11, 2009	Remove this station from the Exhibit E list, as monitoring and documentation show no overflow activity.	Complete
Highland Acres	December 31, 2010	2010	Overflow elimination through pump station removal. Peak wet weather flows are being conveyed to the Kentucky Aire Pump Station through a new gravity sewer. Once the Western Regional system improvements are completed in 2013, flow from the Kentucky Aire Pump Station will be conveyed via a new gravity sewer sized to convey peak wet weather flows under ultimate build-out conditions.	Complete
Kentucky Aire	December 31, 2015	2014	Overflow elimination through pump station removal. Flows will be conveyed to the new Western Regional WRF by a new gravity sewer sized to convey peak wet weather flows under ultimate build-out conditions.	Complete
Lakeview	December 31, 2023		The proposed solution includes: 1) Increase in the pump station capacity and reliability to 22.5 MGD through the planned pumps replacement project; 2) Redirect a portion of the Lakeview tributary area to the new Western Regional System and reduce the annual predicted overflow at Lakeview in a typical year by 98% to 1 MG; 3) Conduct SSES investigations and targeted, cost-effective, I/I removal in the area remaining tributary to Lakeview to reduce extraneous wet weather flows; 4) Gray infrastructure improvements: local storage and upsized conveyance.	The status of each component is as follows: 1) The pump replacement project was completed in 2013; 2) The Western Regional improvements were completed on schedule. The 2014 Kentucky Aire PS elimination provides additional capacity to Lakeview by rerouting flows to Western Regional Water Reclamation Facility; 3) The priority I/I source identification & removal program is ongoing; 4) Gray infrastructure planning to begin in 2020, per revised schedule provided in Watershed Plan.
Riley Road No.1	December 31, 2010	2009	Overflow elimination through pump station removal. The new Riley Road Pump Station eliminates both the existing Riley Road No. 1 and Riley Road No. 2 stations.	Complete
Ripple Creek	December 31, 2010	2010	Overflow elimination through pump station removal. A new gravity sewer is conveying peak dry and wet weather flows to the existing Wolpert Pump Station. Storage has been constructed at the Wolpert Pump Station to store excess wet weather flow to ensure capacity is not exceeded during wet weather. Additionally, targeted I/I removal and rehabilitation of the existing sewers upstream of the Ripple Creek Pump Station were conducted.	Complete
South Hampton	March 31, 2015	2012	Overflow elimination through pump station removal. Flows are conveyed to the new WRWRF by the new Frogtown gravity sewer sized to convey peak wet weather flows under ultimate build-out conditions.	Complete
South Park	December 31, 2010	2010	SSES and flow monitoring work concluded that there are no dry or wet weather capacity-related issues at this station. To date, only two overflows have occurred at the South Park Pump Station and both were due to power outages. To eliminate any potential future overflows due to power outages, a backup power solution was installed at this pump station.	Complete
Sunset	December 31, 2010	2010	Overflow elimination through new force main which increased the pump station's capacity in order to eliminate the overflow in a typical year. A new diesel driven pump was also installed for backup during power outages.	Complete
Taylorsport	December 31, 2010	2004	Overflow elimination through pump station upgrades to convey wet weather flows.	Complete
Union	March 31, 2015	2012	Overflow elimination through pump station removal. Flows are conveyed to the new WRWRF by the new Union gravity sewer sized to convey peak wet weather flows under ultimate build-out conditions.	Complete

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APPENDIX B:

May 13, 2013 Letter Regarding SD1 Watershed Plans

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STEVEN L. BESHEAR
GOVERNOR

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF ENFORCEMENT
300 FAIR OAKS LANE
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

LEONARD K. PETERS
SECRETARY

May 13, 2013

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mark W. Wurschmidt, P.E., BCEE
Deputy Executive Director of Engineering
Sanitation District #1of Northern Kentucky
1045 Eaton Drive
Ft. Wright, Kentucky 41017

Re: Sanitation District No. 1 Watershed Plans
Civil Action No. 2:05-CV-199-WOB

Dear Mr. Wurschmidt:

The Kentucky Department for Environmental Protection (KDEP) and the United States Environmental Protection Agency (EPA) have reviewed your emailed submittal of October 26, 2012, which addressed the Action Items for SD1 identified at our meeting at SD1's offices on July 27, 2012, and in follow-up emails and phone calls. KDEP and EPA have the following comments on your responses to the Action Items.

In addition, EPA and KDEP have provided responses below to the Action Items identified at the July 27, 2012, meeting for EPA and KDEP to address.

Action Items for SD1:

Action Item No. 1: Prepare minutes of meeting and list of action items.
Minutes of the meeting were reviewed by EPA and KDEP with comments provided August 31, 2012. No further comment.

Action Item No. 2: Draft a new Exhibit E to reflect schedule.
The revised Exhibit E in Attachment 1 which includes the Ash Street pump station project with a deadline, as requested by EPA and KDEP at the July meeting, is acceptable.

For the revised Exhibit D in Attachment 1, removing project C-039-00 [Western Regional – Richwood Sewer and Force Main] is acceptable. However, there are some discrepancies between the "Summary of Initial Watershed Projects" table provided in the Annual Reports and Exhibit E. Please explain the discrepancies below before we determine whether the revised Exhibit D is acceptable.

1. C-006-00 [Eastern Regional – Design and Construction of Eastern Regional Outfall Sewer]. This project does not appear on the summary table in the Annual Report.
2. C-077-00 [Eastern Regional – Contract 5—Sunset Force Main and Gravity Sewer, Alex Licking Force Main]. This project does not appear on the summary table in the Annual Report.
3. C-080-00 [Eastern Regional – Contract 8—Alex Licking and Sunset Pump Stations]. This project has a different CIP Title in the summary table in the Annual Report.
4. C-414-93 [Sunset Pump Station and Forcemain Improvements]. This project is in the summary table in the Annual Report but is not in Exhibit E

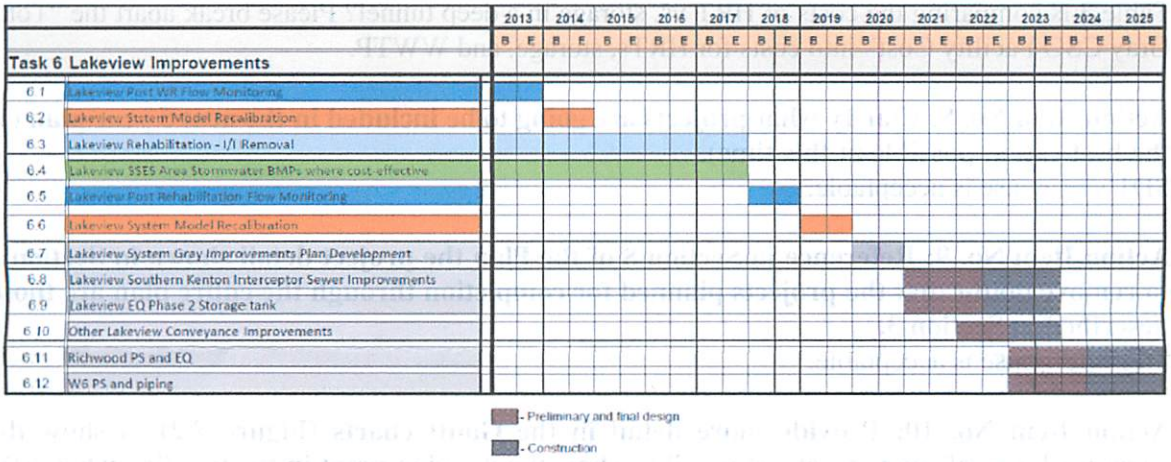
Action Item No. 3: For the Combined Sewer System, provide information concerning total annual system volume, the portion of this volume that is storm water, the volume passing through secondary treatment, the volume passing through the High Rate Treatment Facilities and the remaining annual overflow volume at the end of the Consent Decree period. Also, clarify the source of this information (i.e. Modeled and/or flow monitored).
SD1's response is acceptable. Similar tables showing the model predicted volumes for the Typical Year and at the end of the 5-Year Improvement Program should also be included in the Watershed Plan.

Action Item No. 4: Provide more specific information concerning the revised deadline date for elimination of the remaining 1 million gallons of annual overflow from the Lakeview Pump Station. Include the start and end dates for the gray project that will eliminate this overflow. For the Lakeview Pump Station, in addition to the specific information concerning the revised deadline date for elimination of the remaining 1 million gallons of annual overflow from the Lakeview Pump Station, include information about the rationale for the timing of project inception and duration of the project that will eliminate this overflow.
SD1's Action Item 4 response describes the ultimate elimination of SSOs at the Lakeview PS and includes the table on page 3 of SD1's responses (below) that indicates that final project completion for elimination of the Lakeview PS constructed overflow outfall is requested to be December 31, 2025, which coincides with the final compliance date of the Consent Decree to eliminate non-Exhibit E SSOs. However, the March 31, 2011 Watershed Plans indicate on Figure 8-2, page 8-7 that the Richwood PS and WS6 PS and associated projects are "facility planning[1]" projects not associated with the SSOs currently plaguing the system and therefore will not be considered as necessary projects needed to meet any regulatory deadlines to eliminate the SSO at the Lakeview PS. EPA and KDEP agree that a deadline of December 31, 2023 is reasonable for final elimination of the SSO located at the Lakeview PS.

Each Watershed Plan Update should re-evaluate whether the ultimate elimination of the SSO at the Lakeview PS can be eliminated sooner than December 31, 2023.

[1] *Watershed Plan* (3/31/2011), page 8-3 "Facility Planning Projects: Project and costs associated with the 2030 planning horizon that are not associated with current SSOs. These projects provide the trunk sewers and pump stations necessary to meet the demand of service area growth and not create new SSOs."

Lakeview System Improvements Schedule



Action Item No. 5: Provide more detailed descriptions and the projected schedule for the list of GI projects. Clarify that GI is proposed for SSO areas as a way to reduce volume of SSO and provide additional water quality benefit.
SD1's response is acceptable.

Action Item No. 6: Provide components of the formula and calculations regarding the 85% removal.
SD1's response states that the sanitary component of wet weather flow was calculated by taking the average dry weather flow and dividing by 3 because modeling showed that wet weather conditions occurred 1/3 of the typical year. Please justify why this method was used instead of having the model determine the amount of sanitary flow that occurred during wet weather conditions.
It is understood that the assumed antecedent moisture condition is "saturated," (AMC III) however more details regarding the criteria distinguishing a "wet weather event" are requested. Please define what SD1 is using as a "wet weather condition" including details relating rainfall and runoff, the duration of periods with no measurable precipitation prior to the "wet weather condition" and/or pump station flow levels that may dictate the onset of a "wet weather event".
Does the modeling show that there are any times where there is flow that bypasses secondary treatment at Dry Creek WWTP when it is not a wet weather condition?
Similar tables showing the model predicted volumes for the Typical Year and at the end of the 5-Year Improvement Program should also be included in the Watershed Plan.

Action Item No. 7: For the Dry Creek Treatment Plant, provide information concerning the current and future blending operations after all upgrades have been completed. Address off-site feasible alternatives to blending, including storage and controlled pumping rate to obtain 100% secondary treatment.
There is confusion about what Table 3 on page 7 in SD1's responses to the Action Items is representing. Are the 100, 130, and 160 MGD secondary treatment scenarios in Table 3 the same as the ones in Appendix 7-A of the Watershed Plans in the No Feasible Alternatives analysis (which do not include combined flow proposed to be treated at HRTs)? Does Table 3 include separate sanitary flow? Or are these capacities just for combined flow from Bromley pump

station? Is $344 million for total CSO facility costs in Table 3.33 of the Watershed Plans included in each scenario in Table 3? If so, why are HRTs being included in the costs when Table 3 is comparing the costs of HRT vs. storage in a deep tunnel? Please break apart the "Total Gray CSO Facility Cost" into costs for HRTs, storage, and WWTP.

Action Item No. 8: Clarify what projects are going to be included in the next 5 year plan (to the best extent possible at this time).
SD1's response is acceptable.

Action Item No. 9: Reference in Section 8 of the Plan the project detail shown in Section 3 to remove doubt that the projects planned for completion through the entire plan are those described in Section 3.
SD1's response is acceptable.

Action Item No. 10: Provide more detail in the Gantt charts (Figure 8.2) to show the various phases of the projects. If possible, show the decision point in the timeline when SD1 will need to move forward with gray infrastructure projects to meet the Consent Decree deadline dates.
SD1's response is acceptable.

Action Item No. 11: Prepare a discussion of Kentucky HB 26 and other state laws that impact rate-setting.
SD1's response is acceptable.

Action Item No. 12: Provide red-lined revisions to the Plan and, upon agreement, incorporate into a clean revised Plan.
A red-line or marked-up revised Watershed Plan has not been provided for review.

Action Item No. 13: For the Lakeview Pump Station, in addition to the specific information concerning the revised deadline date for elimination of the remaining 1 million gallons of annual overflow from the Lakeview Pump Station, include information about the rationale for the timing of project inception and duration of the project that will eliminate this overflow.
See EPA/KDEP comments under Action Items Nos. 2 and 4 above.

Action Item No. 14: For the Green Infrastructure projects, in addition to providing more detailed descriptions and the projected schedule for the list of projects, EPA requests additional information on the process and timing that to be utilized of when these projects will be further evaluated for inclusion into the plan, i.e. evaluated and included or evaluated and excluded.
SD1's response is acceptable.

Action Item No. 15: For the entirety of the submittal, edit the documents to remove the concept of "conceptual". The documents submitted should be the plans and activities SD1 proposes that will meet the specifics of the consent decree, their NPDES permit requirements and the Clean Water Act.
See EPA/KDEP comment under Action Item No. 12 above. Replacing the word "conceptual" with "preliminary" does not necessarily remove the concept of "conceptual". Please review the

language in section 8.8 on pages 8-40 to 8-41 of the Watershed Plans. EPA and KDEP cannot approve Watershed Plans with a statement such as on the bottom of page 8-40 that says that "SD1 cannot commit to full implementation of this Integrated Plan by 2025..." Also please review the bolded paragraph on page 4-16 of the Watershed Plans. EPA and KDEP cannot approve Watershed Plans with statements such as "If this occurs, SD1 will have no choice but to modify the [Five Year Improvement] program to reflect changed regional priorities and the ratepayers' ability to pay," which suggests that SD1 may make unilateral decisions to not complete the approved projects within the schedule approved in the Watershed Plans. The Five Year Improvement Program is not conceptual or preliminary. It is a final plan and if the parties agree to modify it, those modifications must be made in accordance with the Consent Decree.

Action Item No. 16: For review of feasible alternatives, SD1 should provide their alternatives analysis for options within the sewershed(s). As discussed, prior siting efforts for the Eastern & Western Regional systems should be included to demonstrate prior feasible alternatives chosen to illustrate the feasible options available to SD1.
SD1's response is acceptable.

Action Items for EPA/KDEP:

Action Item No. 1: Confirm that SD1 has identified all of the action items that will address the agencies' concerns so that the technical Plan can be approved.
EPA responded by email on August 31, 2012, with clarifying comments on the Action Items identified by SD1 in the minutes of the July 27, 2012, meeting.

Action Item No. 2: Clarify position on Dry Creek treatment plant blending.
EPA and KDEP have reviewed the No Feasible Alternatives analysis in Appendix 7-A of the Watershed Plans. Many of the criteria for approval of a CSO-related bypass have been addressed; however, EPA and KDEP have the following comments:

- The Watershed Plan includes consideration of most of the alternatives to a bypass suggested by the CSO Policy except for non-biological secondary treatment. Please include alternatives for High Rate Treatment units at Dry Creek WWTP in Appendix 7-A. In addition, since biological High Rate Treatment has become a feasible technology, it should also be included as a cost-effective secondary treatment alternative to a bypass.

- The Watershed Plan does not provide justification for the cut-off point at which the flow will be diverted from the secondary portion of the Dry Creek WWTP. It is reasonable to accept 160 MGD as the maximum capacity to consider for primary or secondary treatment, given the capacity limitations of getting wastewater to the WWTP and of the outfall pipe. However, the following information is missing:

    - On page 3 of the NFA in Appendix 7-A, a "previous collection system alternative evaluation showed that peak flows from the separate system at Dry Creek WWTP would reach a maximum of 100MGD under future build-out conditions and capacity increases in the collection system to alleviate current bottlenecks and wet weather overflows" is referenced but not included. Please provide this evaluation.

    - Please provide justification for choosing 130 MGD to evaluate for secondary treatment vs. a higher or lower peak flow rate.

- There is no supporting information for the flow volumes listed in Table 4-3 of Appendix 7-A, "Incremental Increase in Typical Year Secondary Treatment (MG per Year)". Please provide a graph and/or summary of flows showing how often flows are predicted to be higher than each flowrate evaluated, including the duration, total volume, and highest flowrate for each high flow event.

- The criteria in the bypass regulation at 40 CFR 122.41(m)(4)i(B) of scheduling maintenance during normal periods of equipment downtime as a feasible alternative to a bypass is not readily addressed in the Watershed Plan. Please address this criteria.

Action Item No. 3: Complete review of Financial Capability Assessment.
The Financial Capabilities Analysis (FCA) has been completed and, based on numbers provided by SD1, our FCA corroborated SD1's results for High Burden.

As agreed upon during the July 27, 2012 meeting and in subsequent discussions, SD1 will provide a red-line/marked-up revision of the Watershed Plans within 90 days of receipt of this letter. Also, please provide the additional information requested in EPA and KDEP's responses above within 60 days of receipt of this letter. If you have any questions, please contact Jill Bertelson at (502) 564-3410, extension 4912, or you may contact Dennis Sayre of EPA Region 4 at (404) 562-9756.

Sincerely,

Jeffrey Cummins, Director
Division of Enforcement
KY Department for Environmental Protection

for

Denisse Diaz, Chief
Clean Water Enforcement Branch
Water Protection Division
EPA, Region 4

JAC/jmb

cc: Denisse D. Diaz, Chief, CWEB, U.S. EPA Region 4