SD1
Managing Northern Kentucky's
Wastewater and Storm Water

July 2, 2012

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) was required to document its compliance with the Nine Minimum Controls (NMC), including proposed projects to be performed to ensure that compliance with the NMC is achieved by no later than twenty-four months after entry of the Consent Decree. SD1's NMC Compliance Report was submitted on March 12, 2008 to the EPA and Cabinet and received regulatory approval on July 6, 2008.

SD1 is required to submit an annual report on its implementation of the NMCs within sixty days after each anniversary date of the original submission. The enclosed report serves as the fourth annual report to demonstrate SD1's continued implementation of the NMCs. Please note that the report is being submitted earlier than the September annual deadline.

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

I am confident in the integrity of the enclosed document, and I am certain that its content not only satisfies regulatory requirements, but also helps further the mission and vision of SD1 by establishing aggressive, proactive, achievable measures to protect water resources and enhance 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/jlh
Enclosures

Sanitation District No. 1
July 2, 2012

Nine Minimum Controls
2012 Annual Compliance Report

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SD1
Managing Northern Kentucky's Wastewater and Storm Water

CERTIFICATION

Nine Minimum Controls 2012 Annual Compliance 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

7-2-12
Date

COMMONWEALTH OF KENTUCKY

)ss.

COUNTY OF Kenton

The foregoing instrument was acknowledged before me this 2 day of July, 2012 by David E. Rager, Executive Director of Sanitation District. No. 1.

Kathleen A Jenisch
NOTARY PUBLIC 450442

Kenton County, Kentucky

My commission expires: 9-15-15

1045 Eaton Drive • Ft. Wright, KY 41017 • phone 859-578-7450 • fax 859-331-2436 • www.sd1.org

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NINE MINIMUM CONTROLS
2012 ANNUAL COMPLIANCE REPORT

July 2, 2012

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

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LIST OF ACRONYMS AND ABBREVIATIONS

CSO	Combined Sewer Overflow
CSS	Combined Sewer System
NMC	Nine Minimum Controls
O&M	Operations and Maintenance
SD1	Sanitation District No. 1

SECTION 1. INTRODUCTION

1.1 Overview

On April 18, 2007, Sanitation District No. 1 (SD1) entered into a Consent Decree with the U.S. Environmental Protection Agency and the Kentucky Energy and Environment Cabinet to address sanitary sewer overflows and combined sewer overflows (CSOs) in an effort to improve water quality throughout SD1's service area. As part of this agreement, SD1 was required to document its compliance with the Nine Minimum Controls (NMC) for CSOs as set forth in the CSO Control Policy, including proposed projects to be performed to ensure that compliance with the NMC is achieved by no later than twenty-four months after entry of the Consent Decree.

SD1's NMC Compliance Report was submitted on March 12, 2008 to the EPA and Cabinet and received regulatory approval on July 6, 2008.

1.2 Report Objective

Pursuant to the Consent Decree, SD1 is required to submit an annual report on its implementation of the NMCs within sixty days after each anniversary date of the original submission. The enclosed report serves as the fourth annual report to demonstrate SD1's continued implementation of the NMCs.

SECTION 2. NINE MINIMUM CONTROLS

The following sections present detailed descriptions of SD1's continued compliance efforts. These compliance efforts are in direct response to the Consent Decree requirements, to the guidance provided in the CSO Control Policy and the EPA's Guidance for Nine Minimum Controls.

2.1 NMC #1: Proper Operation and Regular Maintenance Programs for the Sewer System and CSO Outfalls

The purpose of this control is to establish operation, maintenance, and inspection procedures to ensure that the CSS and treatment facility will perform as effectively as possible to maximize treatment of combined sewage and reduce the magnitude, frequency, and duration of CSOs.

SD1 has continued to effectively utilize its computerized maintenance management system, Lucity, to schedule and track its operation and maintenance (O&M) activities. Appendix A provides an overview of the major activities performed in both the separate sewer system and CSS through implementation of regularly scheduled O&M activities, as well as SD1's formal Continuous Sewer Assessment Program. The data represents

approximate amounts of work completed by both internal and external crews and has been updated from previous years based on SD1's continued improvements in Lucity recordkeeping.

Catch Basin Inspection and Maintenance

SD1-Owned Catch Basins
SD1 performed 3,965 inspections of its own catch basins during 2011 and cleaning or repair work orders were written as-needed. SD1 continues to review its collected inspection data to determine the best strategy for assigning appropriate regularly scheduled cleaning frequencies to ensure that all catch basins are maintained to an appropriate level. In the interim, SD1 will continue to inspect all catch basins at least once each year and clean, if needed. In addition, crews will continue to clean a targeted group of catch basins at the specific preventive maintenance schedules that have proven to be effective for them.

Private-Owned Catch Basins
During 2011, SD1 conducted 113 inspections of privately owned catch basins, and installed two new catch basins upstream of where several are connected to the CSS. This approach continues to be effective for SD1 in keeping solids and floatables from private basins out of the CSS rather than taking enforcement action. However, SD1 will pursue enforcement action, if needed, on privately owned catch basins.

KTC – Owned Catch Basins
SD1 and Kentucky Transportation Cabinet (KTC) are continuing to work together to develop a program in which SD1 would be reimbursed to clean and maintain the catch basins owned by Kentucky Transportation Cabinet. Negotiations for an agreement between SD1 and Kentucky Transportation Cabinet began in 2010. A final agreement was not reached in 2011 because of continued KTC budget constraints. SD1 inspected 47 KTC-owned catch basin in 2011 and continues to document their cleaning needs.

Diversion and CSO Outfall Inspection and Maintenance
SD1 also inspects each diversion and the associated CSO once per week as well as after every rainfall event. Cleaning is also performed on an as-needed basis at the CSO locations that have solids & floatables controls installed at the diversion manhole or the outfall (see NMC #6 below for further details on SD1's solids & floatables program). When needed, inspections and cleaning frequencies are modified in response to dry weather overflows that have occurred. The information gathered from inspections is used to identify the location of dry weather overflows and measures to eliminate them from reoccurring (described further in Section 2.5). Inspection records for 2011 indicate that very little debris was found during inspections, and inspectors were able to clean diversions, if needed, with simple cleaning measures. There were only 8 work orders generated for Customer Service crews to perform more intensive cleaning.

2.2 NMC #2: Maximum Use of Collection System for Storage

The purpose of this control is to maximize the use of the collection system by making relatively simple modifications to the CSS to enable the existing sewers to store wet weather flows until capacity is available in the downstream collection and treatment systems in order to reduce CSO volume.

In-Line Storage Analysis

SD1 conducted an investigation of the Eight Street and Patton Street pump stations after the targeted interceptor cleaning project identified significant amounts of debris in the combined sewer segments upstream of each pump station. From this investigation, SD1 determined that both pump stations had originally been designed by the Army Corp of Engineers and that the pump operating wetwell levels were designed to utilize the influent combined sewer as part of the wetwell volume. This design allows flow to backup into the upstream combined sewers during normal pump operation, which lowers the velocities in the sewer and causes debris and sediment to settle in the sewer. Because of this existing design, SD1 must conduct more frequent preventive maintenance inspection and cleaning to remove the settled debris, and the collection system experiences reduced conveyance and inline storage capacity.

The existing design also causes the flow in the influent sewers and associated wetwell to be detained for long periods of time, which makes the pump stations more susceptible to corrosion due to hydrogen sulfide attack. The concrete walls and ceilings of the wetwells in both pump stations are severely corroded and must be rehabilitated in order to extend the life of the pump stations.

Based on this investigation, SD1 completed a study of the feasibility of lowering the pump operating wetwell levels in both pump stations in order to prevent the use of the influent sewers for wetwell volume. Lowering the operating levels will reduce the amount of debris settlement and allow for increased conveyance capacity, reduce detention time, and provide the ability to store flows in the upstream combined sewers during wet weather to reduce CSO volumes.

Because the existing wetwells are shallow and have limited volumes unless the upstream combined sewers are used, SD1 evaluated options for either lowering the wetwell bottom elevation and installing new suction-lift pumps or providing a new dry weather pump station adjacent to the existing pump station. This new dry weather pump station would be installed deep enough to prevent using the influent sewer as part of the wetwell volume under dry weather flows. Under wet weather flows, the influent sewer would then be used as inline storage and the existing pump station would be utilized to pump wet weather flows in conjunction with the new dry weather pump station. SD1 completed the alternatives and cost-benefit analysis to determine the best approach to address the wetwell operating levels, the corrosion in the existing wetwells, and reduction in CSO volume. The resulting projects will be incorporated into future budget cycles and watershed plan scenarios.

2.3 NMC #3: Review and Modification of Pretreatment Requirements

The purpose of this control is to minimize the impacts of discharges into the CSS from non-domestic sources during wet weather events, and to minimize CSO occurrences by modifying inspection, reporting and oversight procedures within the approved pretreatment program.

Standard Permits

SD1 permitted one new Significant Industrial User (SIU) during 2011: Richter Precision in Florence (Categorical Industrial User), which is not located within the CSS. With this addition, SD1 had a total of 51 permitted Significant Industrial Users in its collection system as of December 31, 2011. Four previously permitted Significant Industrial Users were removed from the pre-treatment program during 2011. Three businesses in the separate system closed and the Northern Kentucky Water District, located in CSS, stopped discharging its process waste to the sewer. Louis Trauth Dairy, Imperial Sugar, McGinnis, Newport Aquarium and PKI were the only 5 permitted Significant Industrial Users located in the CSS during 2011.

Compliance Monitoring

SD1 did not issue any short term specialty discharges in 2011.

Enforcement

SD1 issued the following enforcement actions during 2011:

- 45 Notice of Violations, including these in the CSS:
    - Imperial Sugar was issued a verbal warning for Zinc violations and no administrative fines were issued.
    - Louis Trauth Dairy was issued 4 violations and $4,750 in administrative fines for pH violations detected and failure to report pH violations.
- $15,750 in administrative fines issued for 18 Notice of Violations.
- $1,384 in cost-recovery fines collected for SD1's cleanup of a building backup caused by a Significant Industrial User in the separate system.

Pretreatment Modifications

Louis Trauth Dairy was placed on a compliance schedule in March 2011 for its pH violations. However, prior to making modifications to its system it ceased production at its Newport location and is using the facility for warehousing and distribution only. SD1 will continue to monitor the location during 2012 and evaluate whether or not it should remain in the pretreatment program.

2.4 NMC #4: Maximization of Flow to POTW for Treatment

The purpose of this control is to maximize flow to the treatment plant by making simple modifications to the CSS and treatment plant to enable as much wet weather flow as possible to reach the treatment plant, thereby minimizing the magnitude, frequency, and duration of CSOs that flow untreated into receiving waters.

SD1 was able to secure low interest loan monies from the state revolving loan fund through the Kentucky Infrastructure Authority in the amount of $16 million in order to perform additional capacity improvements at the Dry Creek Waste Water Treatment Plant. These improvements are intended to provide the following benefits:

- Increase in plant screening and grit removal capacity from 75 million gallons per day to 160 million gallons per day. This improvement will remove the current screenings capacity limitation identified in the NMC report dated March 12, 2008 and is consistent with the Watershed Plans long-term strategy to increase the wet weather capacity of the Dry Creek Waste Water Treatment Plant to 160 million gallons per day.
- Equalized flow splits between plant final clarifiers to allow for more consistent operation and accommodate future increases in flow.
- Odor control for solids storage and dewatering.
- Reduce typical year CSO volume by 34 million gallons.

SD1 split the work necessary to accomplish these goals into two projects, which have the following status:

- Project C-401-45 Secondary Clarifier Rehabilitation: This project began in January 2010. All work related to improving the operation, capacity and efficiency of the secondary clarifiers and appurtenances was complete as of June 2012.

- Project C-401-44-1 Headworks, Hydraulics & Odor Control Improvements: This project began in September 2011 and is still under construction. The current construction schedule anticipates this project will reach punch-out phase in September 2013. Once complete, flow from the Lakeview Pump Station will be diverted to a newly constructed headworks and will receive preliminary treatment separate from the existing headworks that will continue to receive flow from the Bromley and Taylorsport Pump Stations.

2.5 NMC #5: Elimination of CSOs during Dry Weather

The purpose of this control is to ensure overflows do not occur in the CSS during dry weather conditions by implementing measures that focus on proper and efficient collection system operation.

Investigations to Identify Potential Dry Weather Overflow Locations

In conjunction with the routine CSO diversion inspections described under NMC 1, inspectors visually look for debris and blockages that may trigger a dry weather overflow or would affect the ability of the diversion to maximize the flow entering the interceptor during rainfall. Diversions that are found to have dry weather overflows or have the potential to overflow during dry weather are evaluated in further detail to determine a recommended course of action which, for one time occurrences, may include more frequent monitoring of that diversion and tracking. Diversions where multiple dry

weather overflows have occurred are further evaluated for additional actions, which may include:

- Catch basin modifications to reduce solids that may cause dry weather overflow risk at the downstream diversion.
- Permanent modifications to the diversion, such as removing a weir plate, removing the bar rack over the diversion or upsizing the diversion pipe.
- Targeted cleaning upstream or at diversions to address solids deposits.
- More frequent inspections for those with a configuration considered susceptible to dry weather overflow or for previously modified locations to confirm that the issue has been sufficiently addressed.
- Permanent monitoring for early warning at locations where other measures have failed to address the issue.

Targeted Inspection Effort

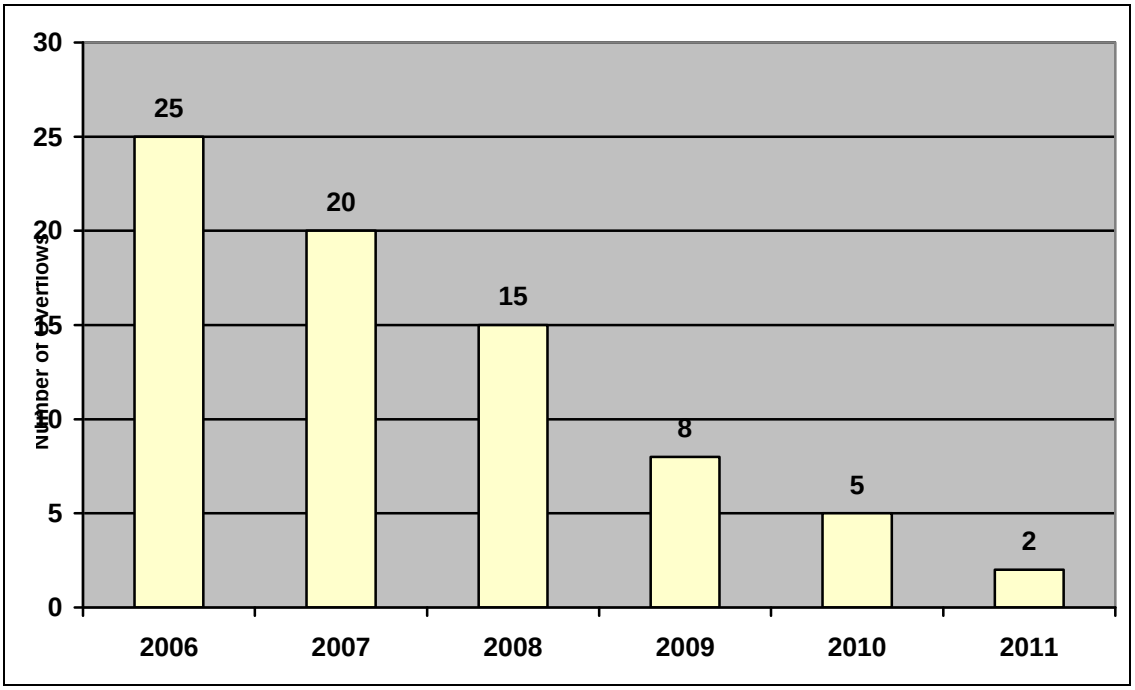
In early 2011, SD1 began a targeted effort to investigate 2,500 feet upstream of each CSO diversion to ensure that any pipes with maintenance or structural deficiencies would be fixed so that dry weather overflows would not occur as a result of pipe defects or accumulated debris. As crews began performing the investigations they were also required to inspect a portion of the sidelines. In doing this, SD1 found that the sidelines were a greater contributor of debris than the mainline pipe upstream of the CSO diversion. Therefore, SD1 revised its planned effort and instead targeted the inspection of all pipes and structures within a 1,000 feet radius of a CSO diversion, excluding the downstream outfall pipes that were just inspected in 2010. This revised method has proven to be more effective in maintaining and eliminating debris and structural defects that may have caused a dry weather overflow.

In 2011, SD1 completed the 1,000 feet radius targeted inspection for 30 of the 132 CSO diversions and has already completed an additional 52 as of June 2012. The total feet of pipe inspected and cleaned and the amount of debris and grit removed as part of this effort is included in the O&M data presented in Appendix A.

Eliminiation of Dry Weather CSOs

SD1 has continued to make significant progress in eliminating dry weather CSOs, as summarized in Figure 2.1.

Figure 2.1 Elimination of Dry Weather CSOs (2006 through 2011)



Corrective Actions

Both dry weather overflow events that occurred in 2011 were related to the same operational issue. On July 14, 2011, the Patton Street Pump Station experienced an equipment malfunction and mechanical failure that caused the pump station to flood. This event caused dry weather overflows to occur at the Patton Street Pump Station Diversion (Structure ID# 0960032) and the CSO Diversion (Structure ID# 0930105). The total estimated discharge volume from both of these structures is 1,790,000 gallons. Contractors set up bypass pumping to stop the dry weather overflow and allow for repairs to be made to the station.

River Water Intrusion Mitigation

SD1's planned improvements to protect against river water intrusion consist of the installation of duckbill-type check valves at the outfall pipes of 42 CSO diversion locations to provide passive check valve service. In addition, manholes in low lying areas near the outfalls will be sealed at the frame and lid along with ensuring watertight lids are properly functioning to protect against river water intrusion. The rubber duckbill style check valves will either be installed on the end of the existing outfall pipes or in chambers constructed upstream of the existing outfall, depending on accessibility to the existing end of pipes. In some locations, the headwalls may be replaced or modified to accommodate the check valves. This project continues to move forward.

2.6 NMC #6: Control of Solid and Floatable Materials in CSOs

The purpose of this control is to reduce the amount of solid and floatable material discharged to water bodies through wet weather CSOs through the implementation of simple measures such as: baffles, screens, catch basin modifications, and nets.

Storm Drain Marking Program

SD1 has continued to implement its volunteer storm drain marking program geared towards Girl Scouts, Boy Scouts, school groups and concerned citizens. SD1 provides all materials and storm drain markers for groups interested in completing a project. To promote the program, brochures are distributed at city buildings, mailed to scout leaders and displayed at SD1's front counter. SD1 employees also assist in marking catch basins while on the job. In 2011, approximately 115 drains were marked in the Northern Kentucky area.

Catch Basin Modification

In 2008, SD1 began retrofitting catch basins with bells and grated inlets as a method of reducing the amount of solid and floatable materials entering the CSS. Catch basin rehabilitation and replacement work, including these modifications, are scheduled based on established priority areas upstream of past and recurring dry weather overflows. Crews focus on completing the projects in the highest priority area before moving onto projects in the next priority area. The following methodology is used to determine which modification is appropriate:

- Catch basins that are in need of structural repair have a bell installed at the time of repair.
- Catch basins that are in need of total rehabilitation are replaced with both grated inlets and bells.
- Catch basins that have no rehabilitation or repair needs but are able to be retrofitted have a bell installed.
- All SD1-owned catch basins in priority areas upstream of recurring dry weather overflows are retrofitted or replaced to have a bell installed. SD1 also evaluates the need to install a trapped catch basin at the location where multiple private-owned catch basins tie into the CSS to trap debris at one location owned by SD1.

From January 1, 2011 to December 31, 2011, SD1's construction performed 211 catch basin repairs with bells installed and 90 catch basin replacements with grated inlets and bells installed, for a total of 301 catch basins in the CSS retrofitted to trap solids & floatables. As indicated in Section 2.1, SD1 also installed 2 new catch basins during this period to trap solids and floatables from private basins.

In 2010, SD1 began a targeted disconnection and retrofit of catch basins that discharge directly into CSO diversion manholes (in addition to making catch basin modifications according to the above-described methodology). There are 13 CSO diversion manholes where these types of catch basin arrangements exist and SD1 is implementing projects to disconnect the catch basins from the diversion manhole, retrofit them to trap solids and floatables, and move the flow downstream into the CSO

discharge pipe. These improvements effectively remove storm water from the CSS, which reduces CSO volumes and traps the solid and floatable materials before the flow is discharged to a waterway. Of the 13 projects, 6 were completed in 2010, 5 were completed in 2011, 1 is currently being evaluated to determine if additional improvements are feasible, and 1 location will be completed with the Church St CSO reduction project described in SD1's Watershed Plans.

In-line and End-of-Pipe Controls

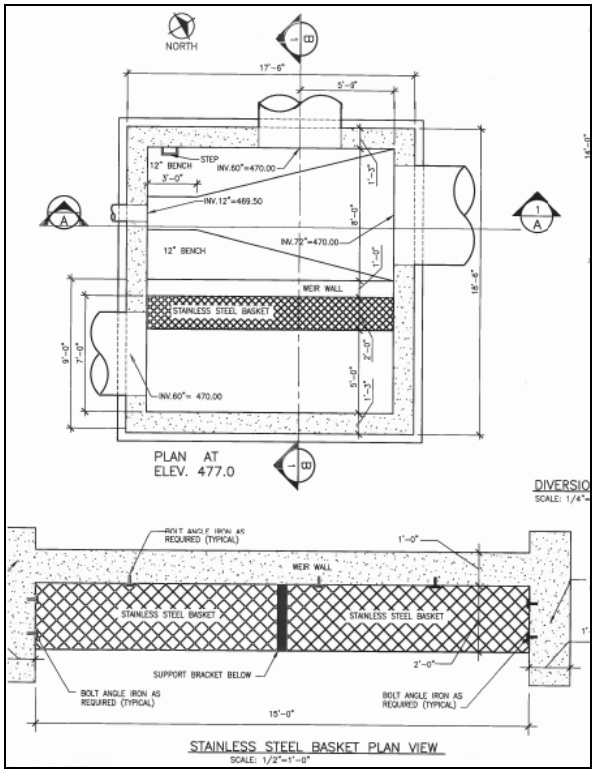
SD1's solids and floatables controls program is summarized in Table 2.2. The program includes 23 controls, including nets at 9 CSOs, a bar rack at one CSO, and weirs or baffles at 1 CSOs. The engineered solids and floatables control baffle chambers at Greenup Street, Main Street, McKinney Street and Garrard Street also include sumps to capture grit and other heavy solids. A project is currently under construction and nearing completion for the Adela CSO Diversion to replace the diversion manhole with a baffle and weir wall structure along with replacing the dry weather diversion pipe to provide inline storage and additional solids & floatable control. The Church Street project is also in-progress and the draft design of the floatables control structure is shown in Figure 2.2.

Table 2.2 Current Solids and Floatables Control Program

CSO/Diversion	Name	Type of Control	Status
0030031	Carmel Manor	Black Net	Installed
0200069	617 Mary Ingles	Green Net	Installed
0330100	Tower Hill	Green Net	Installed
0340050	Lester Ln.	Black Net	Installed
0340051	Manor Lane	Green Net	Installed
0360079	Anchor Inn	Black Net	Installed
0570011	McKinney Street	Engineered S&F Control Baffle Chamber w/Bar Rack Above Baffle	Installed
0570030	Main Street	Engineered S&F Control Baffle Chamber w/Bar Rack Above Baffle	Installed
0650041	Geiger Avenue	Type "B" Bar Rack	Installed
0650098	Wildcat Run	Black Net	Installed
0770006	Saratoga Street	Weir	Installed
0910005	Oakland Avenue	Weir	Installed
0910084	Meiken/Eastern	Black Net	Installed
0930026	17th Street	Baffle	Installed
0930050	19th St.	Baffle	Installed
0930066	19th St.	Weir and baffle	Installed
0650084	Taylor Bottoms	Baffle	Installed

1420043	10th Street	Baffle	Installed
1440121	Greenup Street	Engineered S&F Control Nutrient Separating Baffle Box (solids sump, screen and baffle)	Installed
1440156	Garrard Street	Engineered S&F Control Baffle Chamber (solids sump, screen and baffle)	Installed
1490172	Swain Court	Black Net	Installed
1710003	Adela Street	Weir and baffle	In-progress
1850158	Church Street	Weir and screen	In-progress

Figure 2.2 Draft Church Street Floatables Control Structure



2.7 NMC #7: Pollution Prevention

The purpose of this control is to minimize various forms of pollution from entering into the CSS and compromising the water quality of the receiving water body and/or SD1's conveyance and treatment infrastructure. As the Northern Kentucky regional storm water agency, many components of SD1's approach to pollution prevention is implemented as required by EPA National Pollutant Discharge Elimination System Phase II MS4 regulations and reported in SD1's storm water annual reports. In that

regard, SD1 uses a wide-ranging approach to pollution prevention from public education and programmatic initiatives to physical efforts such as street sweeping and catch basin cleaning.

SD1 collected approximately 525 cubic yards of debris from catch basin cleaning activities in 2011. In addition, street sweeping operations occur on a regular basis by 21 communities throughout SD1's service area, and range in frequency from annually to weekly, depending on the city/county.

The following sections describe some of the other major activities that demonstrate SD1's continued commitment to this minimum control.

2.7.1 Public Education Programs

Public Service Park

Dedicated to those who enhance Northern Kentucky's quality of life through public service, Public Service Park is an example of SD1's leadership in water pollution prevention practices, also known as best management practices. The park is an aggressive approach to empower and educate the public on the vital importance of protecting the waterways for future generations. Featuring storm water best management practices, a wide range of green infrastructure, and cutting edge public educational programming, Public Service Park is targeted at all audiences ranging from the development community, to students, to the general public who can follow a self-guided tour.

SD1 conducted 16 adult Public Service Park tours, with 342 participants in 2011. These tours included members from Warren County Soil and Water Conservation District, Marshall University, Cincinnati State University and the Kenton County Extension for Family and Consumer Sciences. In addition, approximately 2,150 students across SD1's service area participated in 34 field trips tours.

Classroom Presentations

SD1 is committed to empowering students to protect the environment and has reached many students this year through interactive school presentations. SD1 uses an interactive model called the Enviroscape to teach the negative impact of polluted storm water runoff on local waterways. During 2011, 73 Enviroscape lessons were taught in 27 schools, which reached over 1,700 students.

Public Presentations

During 2011, SD1 participated in 25 storm water education events that reached approximately 2,400 students and adults. One such event was the 2011 Campus Community Partnership for Sustainability at Northern Kentucky University. This three day educational program was held November 18 – 20, 2011 and provided students, faculty and staff from universities across Kentucky an opportunity to share and discuss information on the latests trends, processes, and technologies that make campuses more sustainable and lessen their environmental impacts. Attendees had an

opporutunity to listen to key note speakers Lisa Crawford and Bill McKibben, and information sessions were offered for various conservation and sustainability topics relating to water, energy, recycling, and food/agriculture. The program also offered attendees an opportunity to participate in a community partner panel discussion and take a tour of local facilities demonstrating sustainability efforts. In addition to a financial sponsorship, SD1 participated as a panel member and provided a tour of Public Service Park.

2.7.2 Land Disturbance/Sediment and Erosion Control

SD1's Storm Water Rules and Regulations established a land disturbance permit process, which is applicable for any land disturbance activity greater than or equal to one acre that occurs within the storm water service area. All construction activities within the storm water service area that disturb greater than or equal to one acre of land now receive a permit from SD1 prior to the commencement of the activity. SD1's plan review process includes examination of sediment and erosion controls to ensure that adequate controls are put in place. Appropriate best management practices must be cited and installed properly for plans to be approved.

During 2011, SD1 issued 35 Land Disturbance Permits, 18 Grading Permits and 5 Clearing Permits. SD1 also conducted approximately 3,000 inspections of 165 construction sites.

2.7.3 Household Hazardous Waste Management

SD1 continues its partnership with the Northern Kentucky Household Hazardous Waste Action Coalition. This unique coalition is comprised of local governments and organizations and is sponsored by area businesses. SD1 serves as the chair of the coalition, which meets about once a quarter.

As a way to inform the public about the proper disposal methods of household hazardous waste, SD1 worked with the Household Hazardous Waste Action Coalition to form and, more importantly, promote the website www.nkyhhw.org. The website provides viewers with disposal and recycling methods for household items, especially those considered hazardous waste. By informing people of how to properly dispose of the waste, SD1 can work towards eliminating the illicit discharges associated with illegal and improper dumping.

Household Hazardous Waste Collection Event

A household hazardous waste collection event for the residents of Boone, Campbell and Kenton counties was held November 5, 2011. This event was promoted through various media outlets including: websites, flyers distributed in SD1's main office, mailed to governmental officials, emailed to environmental partners, a newspaper ad placed in the community papers, and local TV new stations. There were a total of 1,487 citizen participants at the collection. Participants dropped off items such as appliances, oil,

antifreeze, lead acid batteries, paint, fluorescent bulbs, propane tanks, etc. A sample flyer from the event is provided in Figure 2.3.

Figure 2.3 Household Waste Collection Event Flyer

River Sweep Event

SD1 provided sponsorship to the Ohio River Sweep which took place in June, 2011. Approximately 20,000 citizens participated to clean nearly 3,000 miles of shoreline on the Ohio River.

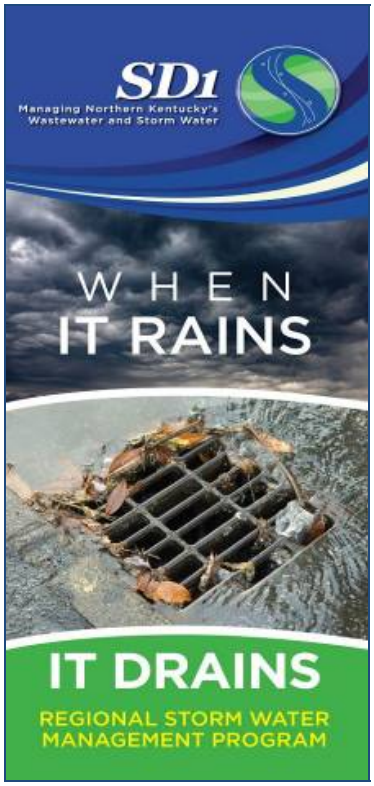
Printed Publications

SD1 developed a bill insert, “Be Responsible” in 2011 that focused on the proper use and disposal of pesticides and fertilizers. The bill insert (Figure 2.4) was sent to approximately 110,000 storm water customers to educate residents on the water quality impacts of fertilizers and pesticides. This education effort also focused on the effects of nutrients, a pollutant of concern in Northern Kentucky.

Figure 2.4 Bill Insert

SD1 also updated its "When It Rains, It Drains" brochure (Figure 2.5) in early 2011. Updates focused on the effects of storm water pollution, regulations addressing storm water runoff and storm water services provided by SD1. The brochures were sent to all Storm Water Co-Permittees to be placed in the city/county buildings for distribution. The brochure is also available in SD1's lobby and on its website.

Figure 2.5 When It Rains, It Drains Brochure



2.8 NMC #8: Public Notification

The purpose of this control is to reduce exposure to potential health risks caused by CSOs by informing the public of the location of CSOs, the actual occurrences of CSOs, the possible health and environmental effects of CSOs, and the recreational or commercial activities curtailed as a result of CSOs.

SD1 maintains warning signage posted near CSO outfalls and public education signs located near public access to water to warn about unsafe conditions during and after rainfall events. In addition, SD1 has continued to issue email wet weather advisories to alert those who requested to be on the distribution list that weather conditions could potentially cause a CSO. There are approximately 120 individuals on the distribution list, which includes members of the general public, Northern Kentucky community leaders, local Water Districts, and SD1's Watershed Community Council members. Individuals can sign up to receive this e-mail notification by filling out a request form on SD1's website or by e-mailing a request to info@sd1.org. SD1's website also includes other overflow related information.

Recreational Management Tool

Several years ago SD1 began discussions with the Cincinnati Metropolitan Sewer District and the Ohio River Valley Water Sanitation Commission (ORSANCO) about the development of a recreational management tool. This tool would be used to inform the public about water quality and facilitate informed decisions regarding recreational use of the Ohio River. In 2011, efforts began to develop an application for smart phones and websites that provides predicted bacteria counts (*E.coli*) on sections of the Ohio River, based on monitoring that was conducted by the three agencies. Giving the public access to this information in real-time (such as those times when CSOs would be occurring) will allow them to make a more informed decision on whether or not they choose to recreate on the Ohio River. The development of this tool is currently underway and progress will be reported in future reports.

2.9 NMC #9: Monitoring to Characterize CSO Impacts

The purpose of this control is to determine the occurrence and apparent impacts of CSOs through visual inspections and other simple methods, to gain an understanding on overflow occurrences and water quality problems that reflect use impairments caused by CSOs. Changes in such occurrences can provide a preliminary indication of the effectiveness of the NMC.

Field Inspections and Flow Monitoring

During 2008, SD1 completed the development of a highly calibrated system-wide hydraulic model to be used as an accurate planning tool for capital improvements and to provide information about the current performance of SD1's system. To ensure that the hydraulic models continue to maintain and provide the most accurate information about

the systems' performance, SD1's wet weather investigation group's SSO and CSO investigation crews continue to perform routine inspections during and after rain events.

As described previously, SD1's CSO investigation crew regularly inspects each CSO outfall and its associated diversions once per week as well as after every rainfall event. The CSO locations with solids & floatables controls are also cleaned as-needed. These inspections and cleanings not only provide opportunities to ensure proper operation and maintenance of the diversions as described in Section 2.1 but are also supportive of characterization efforts. Information gathered from diversion inspections is collected and stored in Lucity, which is then used to characterize the activity of CSOs during wet weather and identify the location of dry weather overflows and measures to eliminate them from reoccurring.

These efforts are part of SD1's on-going process of verifying the model results against actual field conditions through monitoring and observation. Over time, these field verifications will continue to improve the model as appropriate to better reflect any discrepancies found with observed conditions.

In addition, SD1's flow monitoring crews are involved in a number of monitoring efforts to collect data in specific areas of the collection system to confirm model predictions, to identify and confirm areas that are suspected to have high inflow and infiltration (I/I), and to collect pre and post construction monitoring data in improvement projects areas. The map provided in Appendix B highlights the monitoring locations crews are currently monitoring.

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APPENDIX A:

O&M and Repair Work (2008 through 2011)

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O&M and Repair Work (2008 through 2011)

Activity	2008	2009	2010	2011	Total
Combined System Structures					
Catch Basins Cleaned	1,211	888	787	1,392	4,278
Catch Basin Cleaning (Yards of Debris Removed)	N/A	427	469	525	1,421
Catch Basin Inspections	2,057	3,328	4,070	4,125	13,580
New Catch Basin Installation	0	5	2	2	9
Catch Basins Replaced	159	224	140	90	613
Catch Basins Repaired	128	65	78	211	482
Grit Pit Cleaning (Yards of Debris Removed)	358	439	355	365	1,517
Manholes					
Manhole Inspections	5,985	4,688	1,254	1,841	13,768
Manholes Repaired	485	332	320	289	1,426
Manholes Replaced	55	59	96	30	240
New Manholes Installed	26	53	39	50	168
Sewer Cleaning					
Sewer Lines Cleaned – Feet (Length of Pipe)	706,441	530,303	451,877	375,303	2,063,924
Sewer Inspection					
Sewer Line Initial Inspection - Feet	1,126,198	855,962	463,299	504,488.20	2,949,947
Sewer Line Follow-up Inspection – Feet	288,605	555,856	631,781	473,995.80	1,950,238
Sewer Lines Inspected - Total Feet	1,414,803	1,411,818	1,095,080	978,484	4,900,185
Sewer Line Rehab/Replacement Stats					
Sewer Lines Rehabilitated (CIPP) - Feet	953	2,251	29,528	84,717	117,449
Sewer Lines Repaired - Feet	2,609	2,864	2,608	4,633	12,714
Sewer Lines Replaced - Feet	15,833	14,794	24,549	6,759	61,935
Misc. Sewer Line Repairs - Count	45	40	8	9	102

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APPENDIX B:

Flow Monitoring Locations

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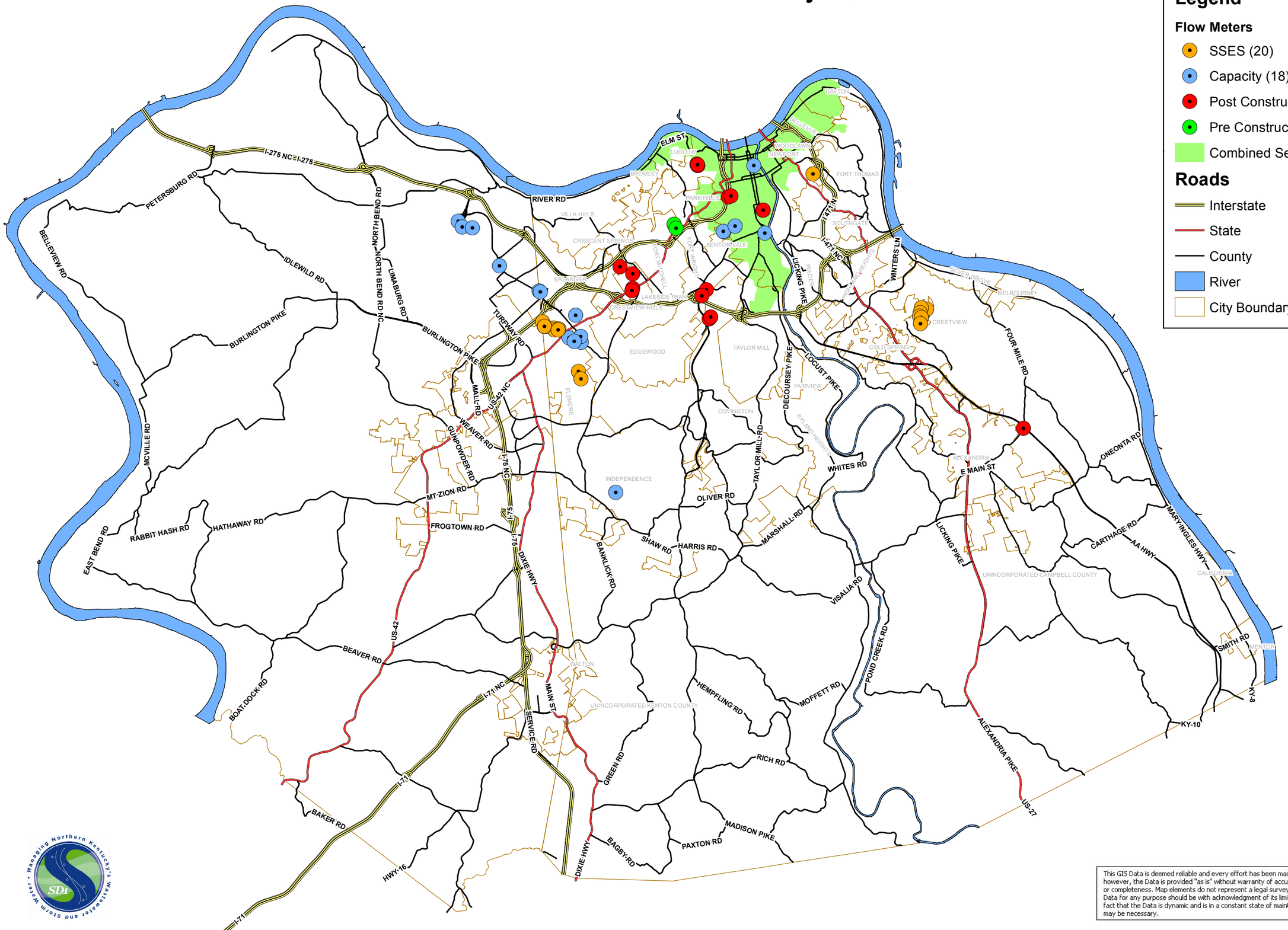
Flow Meter Classification as of July 1, 2012



Legend

Flow Meters

- SSES (20)
- Capacity (18)
- Post Construction (16)
- Pre Construction (2)
- Combined Sewer System

Roads

- Interstate
- State
- County
- River
- City Boundary

N
W E
S

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