Kansas City’s Overflow Control Program

SEMI-ANNUAL REPORT

Reporting Period: January 1, 2015 through June 30, 2015

September 21, 2015

To:

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Environmental Enforcement Section, Environment and Natural Resources Division
U.S. Department of Justice
Post Office Box 7611
Washington, D.C. 20044-7611
Reference Case No. 90-5-1-1-0643811

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Please find enclosed the fifth semi-annual report related to the City of Kansas City, Missouri’s Overflow Control Program. This report covers the period from January 1, 2015 to June 30, 2015. Pursuant to the Consent Decree, this report has a required submittal date no later than September 30, 2015.

Additionally, and as required by the Consent Decree, any report, plan, or other submission that the City is required to submit, including reports, plans or other submissions as required by its current National Pollution Discharge Elimination System (NPDES) Permits, shall be signed and certified by an official or authorized agent of the City.

By signing below, I certify under penalty of law that the document and all attachments have been prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted, and that 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.

Thank you for your participation and cooperation in this important program. If you have any questions, please contact me at (816) 513-0203 or Terry.Leeds@kcmo.org.

Sincerely,

Terry Leeds
Director, Kansas City Water Services

cc:    Troy Schulte, City Manager, City of Kansas City, Missouri
       Matthew J. Gigliotti, Assistant City Attorney, City of Kansas City, Missouri
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I. **SEMI-ANNUAL REPORT PURPOSE AND SCOPE**

On September 27, 2010, *The United States District Court for the Western District of Missouri* entered a consent decree in the case *U.S. vs. The City of Kansas City, Missouri*. The Consent Decree was amended by the parties and approved by the court on January 9, 2015 (Civil Action No. 4:10-cv-0497-GAF).

In accordance with the Consent Decree’s Section IX.A, this Semi-Annual Report provides an update on the City of Kansas City, Missouri (City’s) efforts to implement control measures defined in Section VII and Appendix A of the Consent Decree. The report reflects the status of program implementation that occurred between January 1, 2015 and June 30, 2015.

II. **KANSAS CITY’S OVERFLOW CONTROL PROGRAM**

Kansas City’s Overflow Control Program (OCP) involves a planned list of improvements that are structured to eliminate sanitary sewer overflows during a five-year 24-hour rainfall event and capture for treatment, approximately 88 percent of total wet weather flow in the combined sewer system.

The occurrence of combined sewer overflows is not uncommon in combined sewer systems, and is authorized pursuant to the terms of two of the City’s National Pollutant Discharge Elimination System (NPDES) permits for the Westside Wastewater Treatment Plant and the Blue River Wastewater Treatment Plant. The NPDES permits are issued by the Missouri Department of Natural Resources (MDNR) to the City of Kansas City, Missouri for each treatment facility. KC Water Services (Water Services) has the responsibility to operate and maintain the City’s sewage collection and treatment facilities to meet the terms of the NPDES permits.

Individual elements of OCP became part of an enforceable document with the entry of a Consent Decree in United States District Court. The Consent Decree is a culmination of nearly a decade of negotiation between the City, U.S. Environmental Protection Agency (USEPA) and MDNR related to reducing overflows. The Consent Decree includes requirements for capital construction, management, operations and maintenance of the City’s sewer systems. The City and its regulatory partners have agreed to meet those requirements over a 25-year period from 2010 through 2035.

Consent Decree components include:

- Design and construction of capital projects to reduce overflows using Combined Sewer Overflow (CSO) Control Measures and Separate Sewer Overflow (SSO) Control Measures;
- Implementation of a Nine Minimum Controls (NMCs) Plan to reduce and address combined sewer overflows through a series of operational efforts;
- Implementation of a Capacity, Management, Operation and Maintenance (CMOM) Plan to reduce separate sewer overflows through operation and maintenance of the separated sewer system;
- Implementation of a Post Construction Monitoring Plan to monitor long-term performance and assess overflow reduction;
- Implementation of Supplemental Environmental Projects (SEP) to improve water quality in the City’s receiving streams; and
• Implementation of disinfection technologies at all of Kansas City’s six wastewater treatment plants.

III. KANSAS CITY’S SEWER SYSTEM OVERVIEW

More than 150 years ago, Kansas City began building the basic sewer infrastructure that would allow the city to grow and prosper. Some of that infrastructure is still in use today. Kansas City’s sanitary sewer system is comprised of both combined and separate sewer systems that together encompass approximately 350 square miles. The combined sewer system consists of 58 square miles and is primarily located in the oldest areas of the City. During moderate to heavy rainfall events, the system reaches capacity, overflows, and then discharges a mixture of wastewater and stormwater runoff directly to receiving streams and rivers. By implementing control measures in accordance with Kansas City’s Consent Decree, the occurrence of overflows will be reduced over time.

Kansas City’s separate sanitary sewer systems consist of 292 square miles and are designed to collect and convey only wastewater. However, rainwater can enter the system through leaky sewer pipe joints, broken sewer pipes, manholes, and prohibited connections and leaky service laterals on private property causing the system to overload during rainfall events. When this system exceeds its capacity, it too overflows a mixture of wastewater and rainwater to local streams and rivers. Kansas City does have one constructed sanitary sewer overflow (SSO) which is being eliminated as part of the Overflow Control Program.

IV. REPORTING PERIOD MILESTONES

The following milestones, as set forth in Appendices A and D of the Consent Decree were met during the reporting period from January 1, 2015 through June 30, 2015. In addition to these milestones, Water Services submitted the 2014 Annual Report to USEPA and MDNR on March 31, 2015.

Work has continued on several other projects that began in previous reporting periods, including the continuation of inflow/infiltration reduction activities in areas north and south of the Missouri River. To-date, all Consent Decree schedule milestone dates have been met.

1. Appendix A – Performance Measures

**Northeast Industrial District Basin**
- Green Infrastructure Project
  - Consent Decree Required Start Date – 2015
  - Actual Start Date – 2015

**Turkey Creek/Central Industrial District Basin**
- In-Line Storage: OK Creek Gates
  - Consent Decree Required Start Date – 2015
  - Actual Start Date – 2015
- Green Infrastructure Project
  - Consent Decree Required Start Date – 2015
Middle Blue River Basin
- Relief Sewer: Diversion Structure 068 to Blue River
  - Consent Decree Required Start Date – 2017
  - Actual Start Date – 2015

2. Appendix D – Post Construction Monitoring Program
As part of the Post Construction Monitoring Plan, flow metering equipment was installed in the outfalls listed below. The Consent Decree required an implementation date of 2015. The milestone was achieved with an actual implementation date of March 2015.
  - Outfall BR033
  - Outfall BR056
  - Outfall BR063
  - Outfall BR064

V. IMPLEMENTATION OF SEWER SYSTEM REMEDIAL MEASURES AND POST-CONSTRUCTION MONITORING
a. Post-Construction Monitoring Program
   i. WATER QUALITY TESTING
      Since April 2011, Water Services has conducted large river water quality monitoring of the Kansas River at one location and the Missouri River at two locations. Additional sampling and field measurements were conducted by Water Services at 20 locations on Missouri River tributaries, including Brush Creek, Town Fork Creek, Blue River, Penn Valley Lake, Mill Creek, and Indian Creek. All analyses were conducted by the Water Services laboratory. All sampling and analyses were conducted according to the methods prescribed in the Water Quality Monitoring Program (LimnoTech, December 28, 2010) and the associated Quality Assurance Project Plan (LimnoTech, 2005, revised 2010). Detailed location, sampling and measurement information for year 2014 was included in the City’s annual report submitted to USEPA on March 31, 2015.
   
   ii. FLOW MONITORING PROGRAM
      1. Short-Term Flow Monitoring
         Middle Blue River Pilot Project: Additional flow monitoring data was collected in the spring of 2015 to further evaluate the performance of the completed green infrastructure improvements. This additional monitoring included one flow meter. In the next reporting period, spring 2015 flow monitoring activities will be completed.

         Round Grove Basin: Additional flow monitoring was conducted in the Round Grover Basin in the spring of 2015 to compare pre-construction and post-construction flow rates to assess the I/I reduction achieved with completion of the Round Grove I/I Reduction project in August 2013. This additional monitoring included four flow meters.
Various I/I Projects: Pre-construction flow and rainfall monitoring begun in April 1, 2015 and will be completed in the next reporting period. Flow monitoring occurred at 28 locations in three I/I project areas located in the Line Creek/Rock Creek Watersheds and the Blue River South basin to provide information for the identification and quantification of I/I sources. Multiple rain gauges were also installed in the project areas to supplement coverage provided by the City’s existing ALERT gauging system.

Middle Blue River Neighborhood Sewer Rehabilitation Project: Pre-construction flow and rainfall monitoring began April 1, 2015 and will be completed in the next reporting period. Four flow meters were installed within the project area. The data being collected will be used to quantify reduction in flows due to sewer pipe rehabilitation.

Outfalls 057 and 068: Flow and rainfall monitoring began April 1, 2015 at Outfalls 057 and 068 in the Middle Blue River Basin and will be completed in the next reporting period. This data will be used for recalculation of computer models in support of future design efforts.

2. Long-Term Flow Monitoring

During the reporting period, long-term flow monitoring was conducted in accordance with Appendix D. As of June 30, 2015, flow monitoring was conducted at 8 locations serving 4 outfalls. In early 2015, Water Services proposed revisions of the Outfall Monitoring Plan to USEPA. While final approval of the revised plan is still pending, Water Services has proceeded with implementation of the revised plan. Table 1 summarizes the long-term monitoring sites in 2015.

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Project Area</th>
<th>Manhole Number</th>
<th>Monitored Line</th>
<th>Year Implemented</th>
<th>Number of Sensors</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR033 (1)</td>
<td>Gooseneck</td>
<td>S024-096</td>
<td>Inflow &amp; Overflow Line from Diversion Structure</td>
<td>2015</td>
<td>2</td>
</tr>
<tr>
<td>BR033 (2)</td>
<td>Gooseneck</td>
<td>S024-242</td>
<td>Overflow from Diversion Structure</td>
<td>2015</td>
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<td>BR033 (3)</td>
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<td>S024-091</td>
<td>Inflow to Diversion Structure</td>
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<td>1</td>
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<td>BR056</td>
<td>Middle Blue River</td>
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<td>BR063 (1)</td>
<td>Middle Blue River</td>
<td>S122-422</td>
<td>Inflow to Diversion Structure</td>
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<tr>
<td>BR063 (2)</td>
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<td>S122-706</td>
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<td>BR063 (3)</td>
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<td>Inflow to Diversion Structure</td>
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</tr>
</tbody>
</table>
b. Green Infrastructure

i. ADDITIONAL GREEN INFRASTRUCTURE PILOT PROJECT
This project consists of the design of an additional green infrastructure pilot project located in a highly urbanized area overlapping a portion of the Lower Blue River and Northeast Industrial District Basins. The project will examine the procedures needed for the City to construct green infrastructure involving public/private partnerships. Four locations were identified by Water Services with the potential to utilize green infrastructure as a control strategy. Conceptual designs for each location were completed in April 2015. During the reporting period a Request for Qualifications and Proposals (RFQ/P) was issued and a design professional was selected to complete design of the project.

ii. CONSENT DECREE GREEN INFRASTRUCTURE PROJECTS
Water Services completed conceptual proposals for two additional green infrastructure pilot projects prescribed by the Consent Decree located in the Northeast Industrial District and the Turkey Creek/Central Industrial District. Proposals were submitted to USEPA on December 31, 2014. Water Services received verbal acceptance from USEPA in May 2015. More information about these two projects is provided on pages 9 and 11 of this report.

VI. COMBINED SEWER OVERFLOW CONTROL MEASURES
This section covers progress on implementing control measures in the combined sewer system as outlined in Appendix A of the Consent Decree.

Kansas City’s combined sewer system (CSS) makes up approximately 58 square miles. The CSS is generally bounded on the west by the Missouri/Kansas state line, 85th Street on the south, the Blue River on the east, and the Missouri River on the north. The area served by the CSS is subdivided into six principal basins: Brush Creek, Lower Blue River, Middle Blue River, Northeast Industrial District, Town Fork Creek, and Turkey Creek/Central Industrial District.

During the reporting period, field investigation activities continued for neighborhood sewer rehabilitation projects. This work consists of sewer system characterization and manhole inspections, sewer cleaning, and CCTV inspection of the combined sewers.

a. Brush Creek Basin

i. NEIGHBORHOOD SEWER REHABILITATION
Neighborhood sewer rehabilitation work in the Brush Creek Basin has been split into two projects due to the size of the basin, further defined as Area 1 and Area 2. These projects are intended to improve the reliability and performance of the combined sewer collection system and reduce basement backups. These projects involve field investigations to identify and quantify sewer system defects and the preparation of construction contract documents to rehabilitate sewer pipes 12-inch and smaller within the collection system.
In June 2015, a Notice to Proceed was issued to the design professionals selected to provide design services and prepare construction contract documents for both projects.

b. Middle Blue River Basin

i. DISTRIBUTED STORAGE (TARGET GREEN MARLBOROUGH PROJECT)

For easier recognition purposes with the public, the Distributed Storage Project for Outfall 059 and Distributed Storage Project for Outfall 069 were grouped together into one project name: Target Green Marlborough Project. Public outreach for these projects has been combined and outreach is coordinated with other city departments. In the reporting period, Water Services provided project updates to the Marlborough Community Coalition, an overarching neighborhood group in the project area, at several of their regularly scheduled monthly meetings.

In April 2015, more than 50 area residents attended an open house to view updated project information about the Target Green Marlborough Project and other Water Services projects occurring in the area. Meeting attendees also talked to city department and utility representatives about a variety of private property assistance programs being offered to residents in the area to promote private property investment. The city departments that participated include:

- City Manager’s Office
- City Planning and Development
- Health Department
- Land Bank
- Neighborhood and Housing Services
- Parks and Recreation
- Public Improvements Advisory Committee
- Public Works – Capital Projects
- Public Works – Solid Waste
- Water Services

The purpose of this coordinated public education and outreach effort is to encourage residents to participate in programs that improve the neighborhood while protecting water quality, and reducing water/energy consumption. Some of the programs included:

- Lead paint abatement program
- Minor home repair program
- Paint program
- Historic preservation tax credits
- Brownfields assessment program
- Income-eligible weatherization assistance,
- Home rebate program for energy efficiencies upgrades
- Programmable thermostat program
- Land bank program
- Energy Sense Water Heater and Space Heating Rebate program

**Distributed Storage Outfall 059**
This project involves the design of green infrastructure distributed storage improvements at three main project sites to reduce combined sewer overflows at Outfall 059 and alleviate flooding problems within the project area. The project also involves modifications to the existing diversion structure to further reduce overflows and sewer separation to collect and convey stormwater runoff, directing it to the project sites. During the reporting period, the design professional continued preparation of construction contract documents. The project has been divided into three separate construction bid packages to expedite the start of construction in an effort to meet the required completion date. During the reporting period, Water Services initiated property acquisition of easements and parcels needed for project implementation.

As of June 30, 2015, design professional services were approximately 90 percent complete. A request for construction bids is expected to be advertised for two of the three construction bid packages in the next reporting period. The third construction bid package will also advertise later this year if the City’s property acquisition efforts involving condemnation are successful. This project has a required Consent Decree completion date of December 31, 2017.

**Distributed Storage Outfall 069**
This project involves the design and construction of green infrastructure distributed storage improvements at four main project sites to reduce combined sewer overflows at Outfall 069. The project also involves a limited amount of sewer separation and modifications to the existing diversion structure to further reduce overflows. During the reporting period, the design professional continued preparation of construction contract documents. The project has been separated into three construction bid packages to expedite the start of construction in an effort to meet the required completion date.

As of June 30, 2015, the design phase of the project was approximately 95 percent complete. A request for construction bids for the first construction bid package of the project was advertised in June 2015. Requests for construction bids for the remaining two bid packages are expected to be advertised in the next reporting period. This project has a Consent Decree completion date of December 31, 2017.

**ii. NEIGHBORHOOD SEWER REHABILITATION**
The neighborhood sewer rehabilitation project will improve the reliability and performance of the combined sewer collection system and help reduce basement backups. The projects within the Middle Blue River Basin include rehabilitation of sewer pipes 12-inch and smaller. This project was divided into two construction bid packages, Area 1 and Area 2, to help coordinate construction activities within
the neighborhoods for the Distributed Storage Outfall 059 and Distributed Storage Outfall 069 Projects.

Area 1 encompassed the areas impacted by the Distributed Storage Outfall 059 and Distributed Storage Outfall 069 Project described previously. Design and construction were expedited so that all of the sewer rehabilitation work was completed prior to construction of the Target Green Marlborough projects. During the reporting period, construction continued in Area 1 and as of June 30, 2015, was 97 percent complete.

Area 2 included the remaining sewer rehabilitation work in the Middle Blue River Basin. Design for Area 2 was completed in January 2015. Construction contract documents were advertised and a contractor was selected for the work. The City issued the contractor a Notice to Proceed in June 2015. This neighborhood sewer rehabilitation project in the Middle Blue River Basin has a Consent Decree completion date of December 31, 2017.

iii. SEWER CONSOLIDATION OUTFALL 063
This sewer consolidation project will eliminate overflows at Outfall 063 for the typical year event and will reduce the number of overflows at Outfall 064 to no more than two in a typical year. The project involves consolidation piping, disconnection of storm inlets from the combined sewer system and reconnection to a new separate storm sewer, and elimination of 15 of 18 diversion structures located in the project area.

Public outreach efforts also continued in tandem with design efforts. A public meeting was held in February 2015 where meeting attendees received a project overview and information about sewer field investigations.

Engineering design efforts continued through the reporting period and as of June 30, 2015, services were approximately 50 percent complete. This project is expected to begin construction in March 2016 and has a Consent Decree completion date of December 31, 2017.

iv. SEWER SEPARATION: OUTFALL 067
This project involves the separation of approximately 270 acres of the combined sewer system and elimination of typical year overflows at Outfall 067. A public meeting was held in February 2015 where meeting attendees received a project overview and information about sewer field investigations.

Design professional services continued throughout the reporting period and as of June 30, 2015 were approximately 20 percent complete. This project is expected to begin construction in the spring of 2017 and has a Consent Decree completion date of December 31, 2019.
v. SEWER SEPARATION: DIVERSION STRUCTURE 099
This project involves the separation of 50 acres of combined sewers tributary to Diversion Structure 099. The project includes disconnection of stormwater inlets and reconnecting them to an existing storm sewer, construction of a new sanitary sewer, and the potential use of green infrastructure. As a result of this project Diversion Structure 099 will be eliminated.

During the reporting period, a RFQ/P for design professional services was advertised, and a design professional was selected in May 2015. The Notice to Proceed for the design professional is expected in the next reporting period. This project is expected to begin construction in March 2016 and has a Consent Decree completion date of December 31, 2017.

vi. RELIEF SEWER: DIVERSION STRUCTURE 068 TO BLUE RIVER
The purpose of this project is to reduce combined sewer overflows at Outfall 058 to no more than 0.32 million gallons annually for typical year flow conditions. New sanitary sewers will be designed and constructed to relieve Diversion Structure 068. Initial design efforts will evaluate the replacement of the existing combined sewer system with a new, larger combined sewer from Diversion Structure 068 to the Blue River Interceptor Sewer. It is estimated that approximately 9,400 linear feet of new sanitary sewers will be required to complete the project.

During the reporting period, an RFQ/P for design professional services was advertised in April 2015. A design professional is expected to be selected and issued a Notice to Proceed in the next reporting period. This project is scheduled to begin construction in February 2017 and has a Consent Decree completion date of December 31, 2018.

c. Northeast Industrial District Basin
i. SEWER SEPARATION: DIVERSION STRUCTURE 006
This project involves the separation of approximately 260 acres of the combined sewer system, construction of a new sanitary sewer pipe, and elimination of the Diversion Structure 006 in the Northeast Industrial District Basin.

During the reporting period, a preliminary design alternatives analysis report and preliminary design drawings were completed for the sanitary sewer lines. As of June 30 2015, design professional services were approximately 40 percent complete. This project is scheduled to begin construction in July 2016 and has a Consent Decree completion date of December 31, 2017.

ii. GREEN INFRASTRUCTURE PILOT PROJECT
This project involves the evaluation, design and construction of green infrastructure improvements to reduce combined sewer overflows in the Northeast Industrial District Basin. A concept proposal was submitted to USEPA on December 31, 2014 which included strategies for public/private partnerships to implement green infrastructure. Much of the reporting period was dedicated to review of the proposal by USEPA. Verbal acceptance of the proposal was given by
the USEPA in May 2015. Preliminary design of proposed green solutions is currently underway. This project has a Consent Decree completion date of December 31, 2020.

iii. GOOSENECK CREEK ARCH SEWER GATES AND PUMP STATION IMPROVEMENTS
The project includes design and construction of an adjustable gate or dam to provide in-line storage of combined sewer flows. The new control features will utilize an existing 18 foot by 21 foot arch sewer to provide an estimated 4 to 8 million gallons of storage. A system of real-time controls (RTC) will be used to operate the gate or dam and control flows within the existing arch. The project will also include a new 4 MGD pump station to convey the stored flows to the Blue River Interceptor Sewer (BRIS) via a new force main.

During the reporting period, RFQ/P documents were developed and finalized for this project. A consultant was selected to provide design professional services in May 2015 and a Notice to Proceed will be issued in the next reporting period. This project has a Consent Decree completion date of December 31, 2018.

d. Town Fork Creek Basin
i. NEIGHBORHOOD SEWER REHABILITATION
A Neighborhood Sewer Rehabilitation Project is underway in the Town Fork Creek Basin to improve the reliability and performance of the sewer collection system and help reduce basement backups. The project includes inspection of manholes, CCTV inspection of sewers less than 12 inches in diameter, design of rehabilitation improvements, and preparation of construction contract documents.

As of June 30, 2015, design professional services were approximately 40 percent complete. This project is expected to begin construction in September 2016 and has a Consent Decree completion date of December 31, 2018.

e. Turkey Creek/Central Industrial District Basins
i. TURKEY CREEK PUMP STATION REHABILITATION
This project involves upgrades at the existing Turkey Creek Pump Station. Upgrades include removal and replacement of existing pumps, replacement of pump controls and pump discharge valves, installation of new electrical service transformers, and replacement of electrical disconnects for pumps. The project also includes modifications to a variety of electrical, instrumentation, and control equipment, and structural and architectural modifications to the station facility.

Construction activities continued during the reporting period. As of June 30, 2015, construction was approximately 60 percent complete. This project has a Consent Decree completion date of December 31, 2016.

ii. CID IN-LINE GATES AT SANTA FE PUMP STATION (STORM DRAINAGE IMPROVEMENTS)
This project involves the modification of existing sluice gates at the Santa Fe Pump Station to facilitate the storage of wet weather flows in the upstream combined
sewer system. This project is expected to reduce the number of combined sewer overflows to the Missouri River from Outfall 003.

The project includes assessment and modeling of combined sewer system improvements to determine the maximum potential storage without adverse impacts. It also includes the preparation of construction contract documents for modification of the existing in-line gates, including the addition of real-time SCADA control capabilities.

As of June 30, 2015, design professional services for this project were approximately 45 percent complete. This project has a Consent Decree completion date of December 31, 2017.

iii. GREEN INFRASTRUCTURE PILOT PROJECT

This project involves the evaluation, design and construction of green infrastructure improvements to reduce combined sewer overflows in the Central Industrial District area of the Turkey Creek Basin. A proposal was submitted to the USEPA on December 31, 2014 which included strategies for public/private partnerships to implement green infrastructure. Much of the reporting period was dedicated to review of the proposal by USEPA. Verbal acceptance of the proposal was given by the USEPA in May 2015. Preliminary design of proposed green solutions is currently underway. This project has a Consent Decree completion date of December 31, 2020.

iv. IN-LINE STORAGE: OK CREEK GATES

This project involves the design and construction of a new gate structure within an existing double box culvert to provide in-line storage of up to 20 million gallons of combined sewer flow utilizing water level sensors to control the gate operations.

During the reporting period, RFQ/P documents were developed and finalized for this project. A consultant was selected for design professional services in May 2015 and a Notice to Proceed is expected to be issued in the next reporting period. This project has a Consent Decree completion date of December 31, 2018.

VII. SEPARATE SEWER OVERFLOW CONTROL MEASURES

This section covers progress of control measures in the separate sanitary sewer system area outlined in Appendix A of the Consent Decree.

Kansas City’s Separate Sanitary Sewer (SSS) system encompasses nine watersheds covering 292 square miles of the city. Four SSS watersheds are north of the Missouri River and include Northern, Northwestern, Line Creek/Rock Creek, and Birmingham/Shoal Creek. Five SSS watersheds are south of the Missouri River and include Blue River North, Round Grove, Blue River Central, Blue River South and Little Blue River.
During the reporting period, field investigation activities continued for seven inflow/infiltration reduction projects. The work consists of sewer system characterization, manhole inspections, sewer cleaning, and CCTV inspection of sanitary sewers to collect data for assessment of sewer system condition and design of rehabilitation improvements.

a. Public Inflow/Infiltration Reduction

Much of the early projects and program strategy in the separate sanitary sewer watersheds north and south of the Missouri River involve reducing the amount of inflow and infiltration (I/I) and improving the reliability and performance of the separate sanitary sewer systems. All I/I reduction projects discussed herein include the same types of work regardless of the project area. The design professional services work for each project involves pre-construction flow monitoring, analysis of CCTV and manhole inspection data, smoke testing, development of rehabilitation recommendations, preparation of construction contract documents, and post-construction flow monitoring.

b. Private Inflow/Infiltration Reduction Program

During the reporting period, Water Services continued to develop a private I/I reduction program which will be implemented in conjunction with public sewer I/I reduction projects in select areas of each basin. The focus of the program is to disconnect private I/I sources only when cost-effective to do so.

On January 29, 2015, members of a Mayoral-appointed Community Advisory Group assisted Water Services representatives in a presentation to the City Council. The presentation described the private I/I issue and outlined the group’s recommendations in a formal resolution. The Community Advisory Group formally requested the City Council to act upon their recommendations for the development of a Private Inflow and Infiltration Program. The City Council approved the request at the March 5, 2015 City Council meeting.

On May 28, 2015, a public comment meeting was held for area plumbers and developers to discuss the proposed ordinance changes to be enacted to implement the private I/I program. On June 25, 2015, the proposed ordinance changes were approved by the City Council.

Private I/I Reduction Program protocols and implementation documents, including draft Requests for Qualifications (RFQs) for plumbers and design professionals were under development through the end of June 2015. The RFQs are expected to be advertised in the next reporting period.

c. North of the Missouri River Separate Sewer System

i. LINE CREEK/ROCK CREEK I/I REDUCTION PROJECTS

Two I/I reduction projects are underway in the Line Creek/Rock Creek Basin, further defined as Area 1 and Area 2. The targeted amount of I/I reduction in the Line Creek/Rock Creek Basin is 35 percent.
As of June 30, 2015, design professional services were approximately 19 percent complete for Area 1. A public meeting was held in May 2015 to provide attendees with a project overview and information about sewer field investigations. Construction on this project is scheduled to be completed in February 2018. The Consent Decree completion date for this project is December 31, 2023.

The Notice to Proceed for Area 2 was given to the design professional in April 2015. A public meeting was held in June 2015 where meeting attendees received a project overview and information about sewer field investigations. As of June 30, 2015, design professional services were approximately 3 percent complete. Construction on this project is scheduled to be completed in March 2018. The Consent Decree completion date for this project is December 31, 2023.

d. South of the Missouri River Separate Sewer System
i. BLUE RIVER CENTRAL I/I REDUCTION PROJECTS
Two I/I reduction projects are currently underway in the Blue River Central Basin, further defined as Area 1 and Area 2. The targeted amount of I/I reduction in the Blue River Central Basin is 30 percent.

The Notice to Proceed for Area 1 was given to the design professional in February 2015. A public meeting was held in April 2015 where meeting attendees received a project overview and information about sewer field investigations. As of June 30, 2015, design professional services were approximately 10 percent complete. This project is scheduled to be completed in December 2017. The Consent Decree completion date for this project is December 31, 2018.

The Notice to Proceed for Area 2 was given to the design professional in February 2015. A public meeting was held in May 2015 where meeting attendees received a project overview and information about sewer field investigations. As of June 30, 2015, design professional services were approximately 6 percent complete. This project is scheduled to be completed in November 2017. The Consent Decree completion date for this project is December 31, 2018.

ii. BLUE RIVER NORTH I/I REDUCTION PROJECT
One I/I reduction project is currently underway in the Blue River North Watershed. The targeted amount of I/I reduction in the Blue River North basin is 30 percent.

The Notice to Proceed was given to the design professional in February 2015. A public meeting was held in April 2015 where meeting attendees received a project overview and information about sewer field investigations. As of June 30, 2015, design professional services were approximately 15 percent complete. This project is scheduled to be completed in December 2017. The Consent Decree completion date for this project is December 31, 2018.
iii. **BLUE RIVER SOUTH I/I REDUCTION PROJECTS**

Five I/I reduction projects are currently underway in the Blue River South Watershed. The targeted amount of I/I reduction in the Blue River South Watershed is 45 percent. The Consent Decree completion date for all projects is December 31, 2021.

**Area 1 and Area 2 Project:** As of June 30, 2015 design professional services were 100 percent complete for these two project areas. Construction bid documents were completed during the reporting period and a construction contractor was selected in June 2015. A Notice to Proceed for construction is expected to occur in the next reporting period. This project is scheduled be completed in June 2017.

**Area 3 Project:** A Notice to Proceed was given to the design professional in January 2015. A public meeting was held in May 2015 to kick-off the project. Meeting attendees received a project overview and information about sewer field investigations. As of June 30, 2015, design professional services were approximately 15 percent complete. This project is scheduled to be completed in September 2017.

**Area 4 Project:** A Notice to Proceed was given to the design professional in February 2015. A public meeting was held in May 2015 to kick-off the project. Meeting attendees received a project overview and information about sewer field investigations. As of June 30, 2015, design professional services were approximately 5 percent complete. This project is scheduled to be completed in July 2019.

**Area 5 Project:** A Notice to Proceed was given to the design professional in April 2015. A public meeting was held in June 2015 to kick-off the project. Meeting attendees received a project overview and information about sewer field investigations. As of June 30, 2015, design professional services were approximately 2 percent complete. This project is scheduled to be completed in March 2018.

iv. **87TH STREET PUMP STATION REHABILITATION**

The project includes rehabilitation of the existing 87th Street Pump Station, including the replacement of duty pumping units, to improve the station’s reliability.

Design professional services were completed in January 2015. Construction contract documents were developed and a request for construction bids was issued in March 2015. A construction contractor was chosen in May 2015. The Notice to Proceed for construction is expected in the next reporting period. Construction is scheduled to be completed by December 2016. The Consent Decree completion date for this project is December 31, 2017.
VIII. SCHEDULED ACTIVITIES FOR THE NEXT REPORTING PERIOD

The activities listed below are expected to occur during the next reporting period for July 1, 2015 to December 31, 2015. However, this list should not be construed as an explanation of all activities that will be occurring in the last half of 2015.

- Complete and submit to USEPA the Westside WWTP No Feasible Alternative that recommends high rate treatment as the correct alternative to implement additional wet-weather treatment capacity.

- Requests for Qualifications/Proposals for the following OCP projects will be developed and advertised for selection of design professionals:
  - Neighborhood Sewer Rehabilitation in the Northeast Industrial District Basin
  - NEID Green Infrastructure Project
  - CID Green Infrastructure Project
  - Private I/I Reduction Program

- Requests for construction bids will be advertised for selection of construction contractors for the following projects:
  - Distributed Storage at Outfall 059 (Three construction bid packages)
  - Distributed Storage at Outfall 069 (Two construction bid packages)

- Water Services will issue a Notice to Proceed to design professionals or construction contractors for the following OCP projects that are currently being advertised or are undergoing contract negotiations:
  - Sewer Separation: Outfall 099 – Middle Blue River Basin (design)
  - Relief Sewer: Diversion Structure 068 to the Blue River – Middle Blue River Basin (design)
  - Gooseneck Creek Arch Sewer Gates and Pump Station Improvements – Northeast Industrial District Basin (design)
  - In-Line Storage: OK Creek Gates – Turkey Creek/Central Industrial District Basin (design)
  - 87th Street Pump Station Rehabilitation Project – Blue River South Basin (construction)
  - Blue River South I/I Reduction Area 1 and Area 2 Project (construction)

- Work will continue on the following existing construction projects:
  - Middle Blue River Neighborhood Sewer Rehabilitation (Area 1 and Area 2)
  - Turkey Creek Pump Station Modifications

- Work will continue on the following existing design professional contracts:
  - Blue River Central I/I Reduction Area 1 Project
  - Blue River Central I/I Reduction Area 2 Project
  - Blue River North I/I Reduction Project
  - Blue River South I/I Reduction Area 3 Project
  - Blue River South I/I Reduction Area 4 Project
  - Blue River South I/I Reduction Area 5 Project
  - Brush Creek Neighborhood Sewer Rehab Project Area 1
- Brush Creek Neighborhood Sewer Rehab Project Area 2
- In-Line Gates at Santa Fe Pump Station – Turkey Creek/Central Industrial District Basin
- Line Creek/Rock Creek I/I Reduction Area 1 Project
- Line Creek/Rock Creek I/I Reduction Area 2 Project
- Sewer Separation: Diversion Structure 006
- Sewer Consolidation Outfall 063 – Middle Blue River Basin
- Sewer Separation at Outfall 066/067 – Middle Blue River Basin
- Town Fork Creek Neighborhood Sewer Rehabilitation Project

- Long-term flow monitoring will continue as required.