CITY OF SPOKANE
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WATER RECLAMATION FACILITY
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September 30, 2016

Jim Bellatty, Section Manager
Water Quality Program
Washington State Department of Ecology
4601 North Monroe, Suite 202
Spokane, WA 99205

Re: City of Spokane Combined Sewer Overflow (CSO) Annual Report - 2015

Dear Mr. Bellatty:

Enclosed for review and approval is the City of Spokane's 2015 CSO Annual Report as required in Section S.13B of the City's 2011 NPDES Permit. The 2015 annual CSO overflow volume to the river of approximately 54 million gallons and is slightly below average. This report will be posted within a few weeks on the City's Wastewater Management website: https://my.spokanecity.org/publicworks/wastewater/cso/

Annual progress on the City's CSO Reduction Plan, required in S.13D, is reported in Table 3-3 on page 3-5 of the enclosed Annual Report. Appendix A presents the CSO Maintenance and Inspection Plan update for review and approval, per Section S.13E.

If you have any questions or need additional information about this report, please contact Christopher W. Kuperstein, at 625-7903.

Sincerely,

Chuck Conklin
Director – Solid Waste Disposal & Wastewater Treatement

Enclosure (1): 2015 CSO Annual Report (3 Copies)

cc: (W/O Enclosure):
Scott Simmons, Director of Public Works – City of Spokane
Mike Taylor, Program Manager – RPWRF NLT
Dan Kegley, Director – Water & Wastewater Collection
Mike Coster, Plant Manager – RPWRF
Bill Peacock, Principal Engineer – Wastewater Management
Gary Kaesemeyer, Operations Superintendent– Wastewater Management
Bruce Brurud, Instrumentation & Data Supervisor – Wastewater Management
Christopher Kuperstein, Application Analyst – Wastewater Management
Janet Davey – Wastewater Management Files

COMBINED SEWER OVERFLOW ANNUAL REPORT - 2015

Protecting the Spokane River

SPOKANE
Water Quality Improvement Program

CITY OF SPOKANE

TABLE OF CONTENTS

Section 1: Introduction

Section 2: Operation & Maintenance Activities

TABLE OF CONTENTS

Section 1: Introduction

The City of Spokane's 2015 Annual CSO Report is submitted to meet two sets of regulations: The National Pollutant Discharge Elimination System (NPDES) permit program, as authorized by the Clean Water Act (CWA) under Title 33 United States Code, Section 1251, and the Washington State Department of Ecology (WSDOE) Water Pollution Control Law under Chapter 90.48 Revised Code of Washington. WSDOE administers the NPDES Permit program under a delegation from the Environmental Protection Agency (EPA).

This annual report is also submitted to share information with the public on activities that improve the City of Spokane's wastewater collection system and operations with the goal of minimizing pollution of the Spokane river. The report is organized in the following order:

- Section 1: Introduction
- Section 2: Operation and Maintenance Activities
- Section 3: Capital Activities
- Section 5: Monitoring Program and Monitoring Results
- Appendices: Detailed Results

Additional information about the Combined Sewer Overflow program and Integrated Plan may be found at: https://my.spokanecity.org/publicworks/wastewater/cso/ and https://my.spokanecity.org/publicworks/wastewater/integrated-plan/

1.1 CITY OF SPOKANE COMBINED SEWER SYSTEM

The City of Spokane's wastewater collection system includes sanitary sewers and combined sewers, as shown in figure 1-1. In areas of the City served by combined sewers, runoff from the street enters the system through catch basins and is combined with sewage and is conveyed to the Riverside Park Water Reclamation Facility. In the downtown area, rainwater from some roof drains also enters the combined system. At the end of 2015, there were approximately 488 miles of sanitary sewers and 389 miles of combined sewers.

In areas of the City that are fully or partially separated, runoff from City streets enters either separated storm sewers that convey stormwater to the Spokane river or Latah (Hangman) creek, or directly to ground through drywells or bioinfiltration swales. Stormwater that is collected and discharged in a manner *other* than evaporation or a combined sewer system is regulated under a separate set of regulations, including the 2014-2019 Eastern Washington Phase II Municipal Stormwater Permit and the Underground Injection Control(UIC) regulations. At the end of 2015, the City has 372 miles of separated storm sewers and 4,069 UIC drywells.

During storm events, the volume of stormwater flowing into the collection system can exceed the capacity of the combined sewer system and treatment plant. When this occurs, the collection system overflows at outfalls to the Spokane river or Latah (Hangman) creek. There are currently 24 combined sewer overflow regulators that overflow to 20 combined sewer Overflow outfalls.

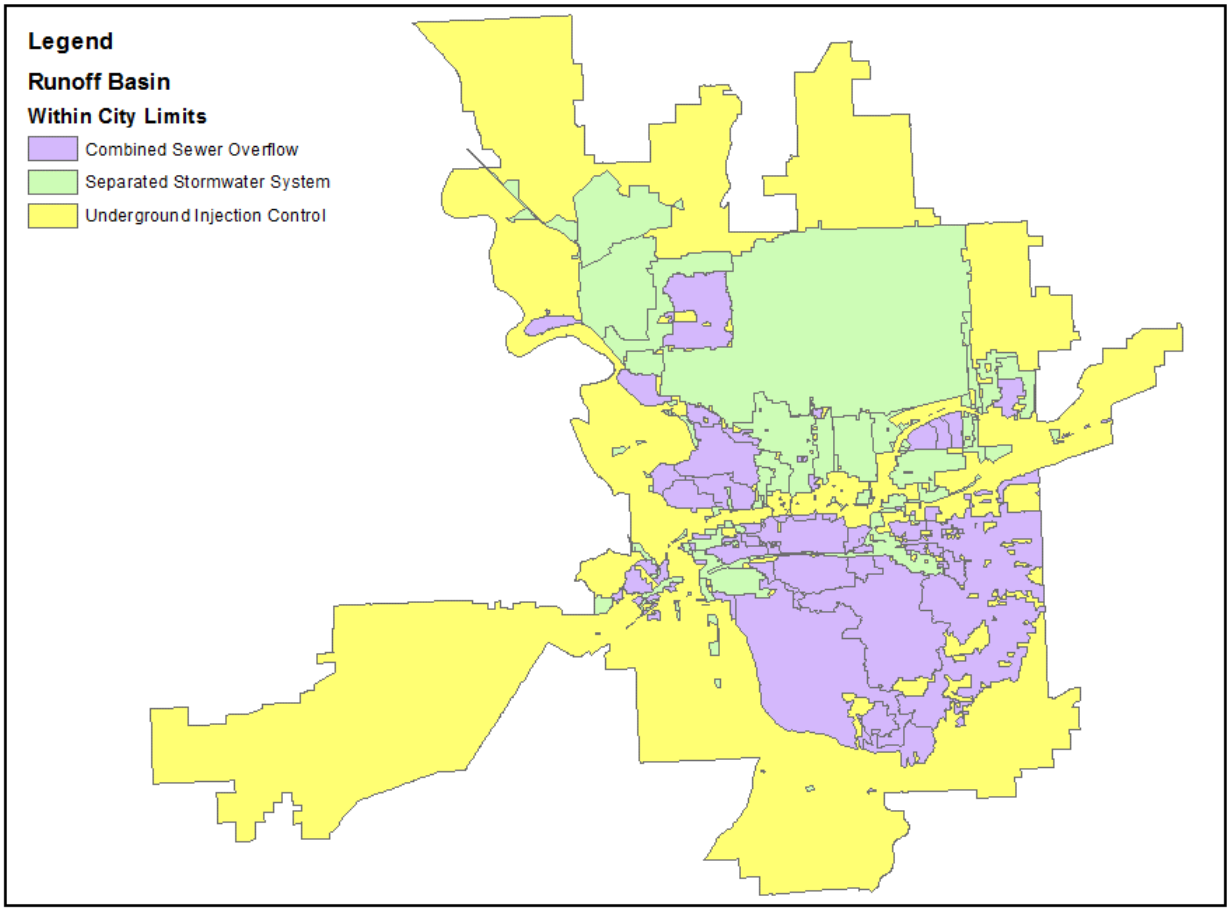


FIGURE 1-1 MAP OF CSO / STORM / UIC AREAS.

1.2 SPOKANE'S SEWER SYSTEM HISTORY

The first sewer line in Spokane was built under Howard Street from First Avenue to the Spokane river in June 1888. In the 1890s, the area from the base of the South hill to the River between Cedar and Division Streets was sewered. Growth of the system paralleled the City's growth through the years as several hundred miles of sewer lines of various sizes were added, all emptying into the Spokane river or Latah (Hangman) creek.

In 1946, a bond issue was passed to construct intercepting lines to convey sewage to a planned sewage treatment plant. The interceptor system was installed between 1948 to 1958. The system was initially designed to carry 2.3 times the average dry weather flow based on a future population of 258,000 people. This main interceptor capacity was approximately 110 million gallons per day(mgd) and the Hollywood interceptor for the northwest section of the City was 15mgd for a total conveyance of 125mgd.

In May 1958, the first phase of a new sewage treatment plant was placed into operation. It was expanded in 1961-1962. The capacity of the sewage treatment plant was 50mgd. During wet weather, flows in excess of 50mgd would flow directly to the Spokane river via 44 CSO outfalls in the system, and also through a bypass diversion at the plant.

The City of Spokane has been diligently working on a series of plans since 1972 to reduce overflows to the river. The results and planned goals for reducing the frequency, volume, and number of overflow structures are summarized in Figure 1-2.

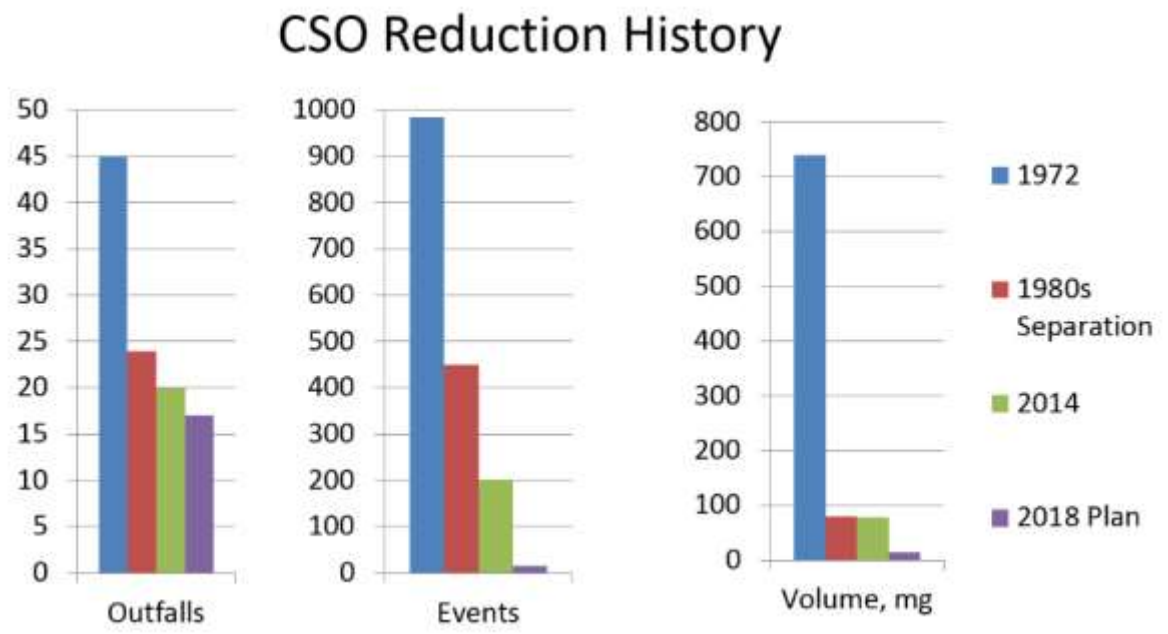


FIGURE 1-2 CSO REDUCTION HISTORY PROGRESS

1.2.1 – 1972 Action Plan

The 1972 Action Plan was published in May 1972, five months *before* the Clean Water Act was passed by Congress on October 18, 1972. This plan laid out the environmental need to upgrade the sewage treatment plant capacity and include secondary biological treatment as part of the process. It also laid out a plan for screening and disinfection of wet weather overflows in five regional treatment areas, combined with the construction of separated storm sewer systems in some areas. During an average year, it was estimated that just under 1,000 overflow events occurred from 44 overflow points totaling 447 million gallons of combined sewage, along with approximately 280 million gallons bypassed at the sewage treatment plant.

1.2.2 – 1977 Sewer Overflow Abatement Plan

The 1977 Sewer Overflow Abatement plan further laid out several alternatives for reducing Combined Sewer Overflows to the Spokane River. Growth in the southeast corner of the City combined with river inflow during periods of high river levels were contributing to dry weather overflows from three discharge points. This report selected an alternate for separation of the north side of the City. This alternate also allowed for the City's future sanitary sewer service to Spokane Valley. During an average year, it was estimated that over 929 overflow events occurred from 33 overflow points totaling 565 million gallons of combined sewage, and an estimated 560 million gallons of bypasses at the sewage treatment plant.

1.2.3 – 1979 Sewer Overflow Abatement Plan Update

The 1979 Sewer Overflow Abatement plan update amends the 1977 plan to further clarify areas to separate with storm sewers and explore which areas outside the City can be added to the sewer system. The advanced wastewater treatment plant was constructed and was achieving greater than the 85 percent phosphorus removal required by the NPDES permit. A computational analysis for calculations of flow in tandem with flow monitoring at key points along the interceptor system further refined the allocation of flow capacity for each CSO basin. Suggested overflow settings were detailed for each basin after the proposed separation of the north side of the City to storm sewers.

1.2.4 – 1994 Combined Sewer Overflow Reduction Plan

The 1994 Combined Sewer Overflow Reduction plan put in place a program for reducing Combined Sewer Overflows to the Spokane River with a 20-year schedule. As a result of the storm sewer separation of 64 percent of the City's sewer service area, the CSO volume to the Spokane river had been reduced by 491 million gallons per year, or 86 percent, for a cost of roughly $50 million.

The 1994 plan called for an integrated approach to CSO pollutant reduction to achieve a reduction goal of one overflow event per outfall per year. This included the following: street surface cleaning, catch basin cleaning, infiltration and inflow control, water use reduction, storage facilities, optimization of existing control structures, and additional storm separation. A computational Storm Water Management Model (SWMM) was created and calibrated to existing dry and wet weather conditions. An iterative phased approach of constructing a few different facilities, monitoring the results, and constructing the next phase from those results was proposed. During an average year, it was estimated that over 467 overflow events occurred from 24 overflow points totaling 79 million gallons of combined sewage.

1.2.5 – 2005 Combined Sewer Overflow Reduction Plan Amendment

The 2005 Combined Sewer Overflow Reduction Plan amendment was recalibrated using historical rain data and improved modeling capability and increased flows from recent growth in parts of the City. The plan also began looking system-wide for adjustments in interceptor controls and storage volume, as well as creating six CSO reduction alternatives and their probable costs. The plan called for a 5-year moving average for frequency compliance, a 2-year design storm, with snowmelt, and a beta factor to accommodate spatial distances from rain gauges. Several facilities from the 2005 plan were constructed and monitored for performance before constructing more facilities.

1.2.6 – 2008 Sierra Club Settlement Agreement

The City of Spokane and the Sierra Club entered into a Settlement Agreement in 2008 regarding dry weather overflows. The elements of the Agreement are completed. Pursuant to the Agreement, eleven CSO regulators prone to dry weather overflows were to be modified. The final regulator was addressed by a project completed in late 2011. Also, improving CSO-related training and maintenance procedures and enhancing public information and notification were undertaken. Information has been added to the City's website and major river access points for the public and warning flags are deployed at major river access points if a dry weather overflow occurs. The CSO O&M plan has been updated, additional precautions during maintenance have been established, and training is ongoing.

1.2.7 – 2014 Combined Sewer Overflow Reduction Plan Amendment

The City filed a CSO Reduction Plan Amendment in March 2014 while maintaining the December 31, 2017 compliance schedule as mandated by the NPDES permit. The CSO Reduction Plan Amendment reflects a change in circumstances which include more accurate long term meteorological records and data to effectively size the CSO control facilities; the valuable experience the City has gained with it completed weir modifications and CSO control facilities; the 20-year moving average for annual CSO reporting; and EPA and Ecology's recommendations to incorporate an integrated approach to managing municipal stormwater, municipal wastewater, and CSOs. Baseline conditions were updated and are reflected in Table 4-2 of this report.

The City analyzed all CSO basins and incomplete separation areas and classified each according to a risk profile that included options for more storage, possibility of growth, and other factors. The risk profile was then used in conjunction with continuous simulation modeling to select a facility size based on a selected number of overflows per year from each basin. This was validated by a continuous sumulation model and from flow monitoring data. Where the model and the flow monitoring disagreed, further analysis was used to select a facility size.

Another input to the facility sizing was a re-optimization of the flow control to the interceptor from each basin. The re-optimization had several goals. The first goal was to limit peak flows in the A.L. White Interceptor to 120mgd versus it's theoretical full-pipe capacity of about 130mgd. The second goal was to convey more flow from basins where it is infeasible or more expensive to construct a CSO facility and to convey less flow and construct more storage for basins that had more feasibility and were less expensive to construct. The City's approach for sizing CSO facilities changed from volume generated by a 2- year, 24 hour SCS Type II storm event with snowmelt to a 1.2 year SCS Type II storm event. The other change in sizing CSO facilities was to change the five-year rolling average standard to a 20-year rolling average standard as stated in the current NPDES permit. The result was that the control volumes for CSO storage were reduced from a total of 28.6mg of storage in the system in the 2005 CSO Plan Amendment to between 11.3mg and 13.0mg of storage in the system in the 2014 CSO Plan Amendment.

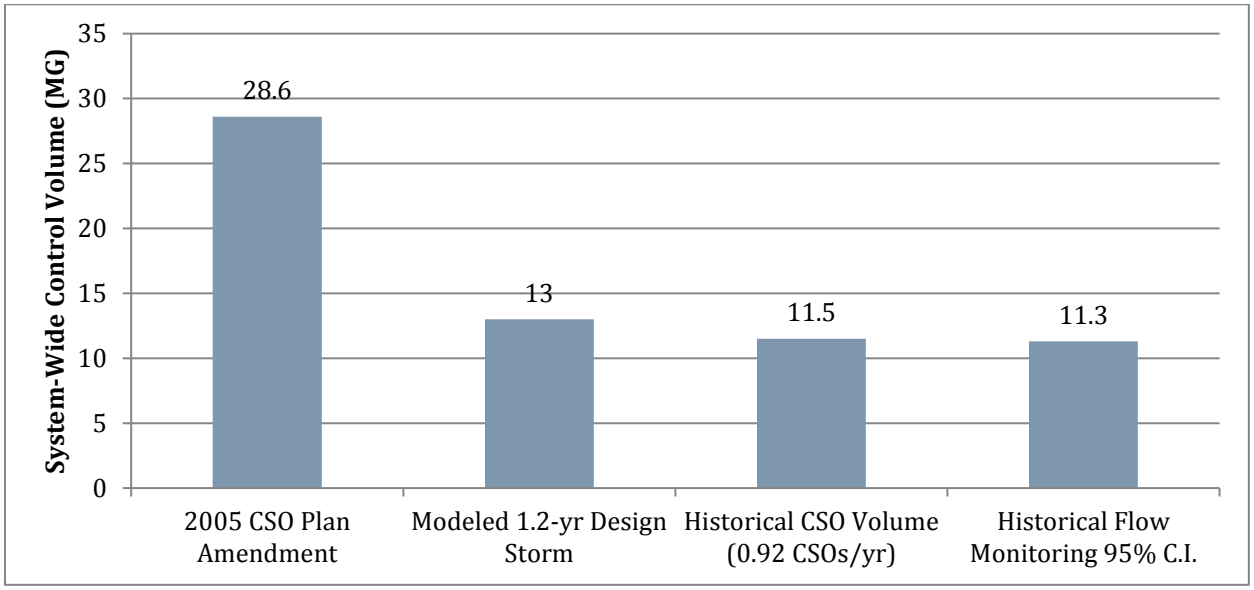


CHART 1-3: COMPARISON OF CSO FACILITY SIZING IN 2005 VS. THREE METHODS USED IN

THE 2014 CSO PLAN AMENDMENT.

1.3 CITY OF SPOKANE NPDES PERMIT

The City of Spokane's Combined Sewer System (CSS) is operated under two sets of regulations: The National Pollutant Discharge Elimination System (NPDES) permit program, as authorized by the Clean Water Act (CWA) under Title 33 United States Code, Section 1251, and the Washington State Department of Ecology (WSDOE) Water Pollution Control Law under Chapter 90.48 Revised Code of Washington. WSDOE administers the NPDES Permit program under a delegation from the Environmental Protection Agency (EPA). Because of the two sets of regulations, there are various reporting requirements that must be fulfilled by both laws. As a result, this report is organized in such a fashion to fulfill both reporting requirements with respect to the CSS and CSOs. The current NPDES permit WA-002447-3 expires on June 30, 2016 and can be found on the City's website: https://static.spokanecity.org/documents/publicworks/wastewater/treatmentplant/reclamation-facility-permit.pdf

1.4 ORGANIZATION OF THIS REPORT

TABLE 1-1: 2015 CSO ANNUAL REPORTING REQUIREMENTS

Source	Requirement	Report Location
NPDES S13.A	Locations of Combined Sewer Outfalls	Table 4-1
NPDES S13.B	Demonstrate compliance with performance standards of WAC 173-245 on a 20-year moving average period.	Table 4-9
NPDES S13.C	Implement and document nine minimum controls for CSOs.	Section 2.1
NPDES S13.D	Submit a progress report of the progress made implementing the CSO Reduction Plan.	Section 3.3
NPDES S13.E	Submit annually a plan for maintaining the operation, monitoring and function of CSOs.	Appendix A
NPDES S13.G.3	Continue the CSO discharge monitoring plan.	Section 4.2, Section 4.3
NPDES S13.G.4	Continue use and maintenance of public notification system of CSO impacts during wet and dry weather conditions.	Section 2.1.8
NPDES S13.H	Maintain records of all CSO-related bypasses at the treatment plant.	Table 4-8, Table 4-10
WAC 173-245-090(1)(a)	Detail the past year's frequency and volume of combined sewage discharged.	Table 4-8, Table 4-10
WAC 173-245-090(1)(b)	Explain the previous years' CSO reduction accomplishments.	Section 3.1
WAC 173-245-090(1)(c)	List the projects planned for the next year.	Section 3.2

Section 2: Operations and Maintenance Activities

This section describes the operation and maintenance (O&M) activities the Spokane Wastewater department undertakes to reduce the number of volume of sanitary sewer overflows(SSOs), dry weather overflows (DWOs) and combined sewer overflows (CSOs).

2.1 NINE MINIMUM CONTROLS ACTIVITIES

Section S13.C of the City's NPDES Permit Requires compliance with US EPA CSO control policy (59 FR 18688) that states: "permittees with CSOs should submit appropriate documentation demonstrating implementation of the nine minimum controls…" The NPDES Permit requires annual reporting on the City's onging efforts to comply with these controls. The following describes the work performed in 2015 on each of these nine minimum controls.

2.1.1 Control 1: Proper Operation and Regular Maintenance Programs for the Sewer System and the CSOs

> *"Implement proper operation and maintenance programs for the sewer system and all CSO outfalls to reduce the magnitude, frequency, and duration of CSOs. The program must consider regular sewer inspections; sewer, catch basin, and regulator cleaning; equipment and sewer collection system repair or replacement, where necessary; and disconnection of illegal connections."*

Every year the City's Wastewater Management (WWM) department performs operation and maintenance (O&M) activities to reduce the frequency and volume of preventable overflows. In 2015, the following activities were performed to ensure proper operation of the collection system:

TABLE 2-1: SUMMARY OF 2015 O&M ACTIVITIES

Activity	Quantity
Miles of sewer lines cleaned.	802 miles cleaned
Miles of sewer lines cctv inspected.	194 miles inspected
Number of catch basins inspected.	15,716 inspections
Number of catch basins cleaned.	1,723 cleanings
Number of catch basins modified to add floatable controls.	15 modified
CSO weir and facility inspections.	1,019 inspections
CSO weir and facility cleanings.	5 cleanings
Number of lift station inspections.	478 inspections
Number of lift station cleanings.	279 cleanings

The City's WWM department routinely inspects lines using Closed Circuit Television (CCTV) equipment. To assist in identifying trouble areas in the collection system, the department uses the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP) defect coding system.

The WWM department has an aggressive inspection program for the collection system. Inspections often identify trouble spots in the collection system before it becomes a backup. When a sewer is inspected and identified as having a maintenance-related problem, the sewer is placed on a routine cleaning schedule to prevent future maintenance-related backups. The routine maintenance frequencies vary from as short as monthly to as long as annually. Routine maintenance activities include:

- Hydro for flushing light to medium debris.
- Hydro-sawing for root control and grease.
- Rodding or balling for clearing active blockages.
- Chemical root treatment to mitigate growth of roots.

The WWM department performs routine electrical and mechanical system preventative maintenance on all lift stations to ensure proper operation of the parts of the collection system that require pumping uphill to gravity mains. Most of these lift stations have backup generators to prevent CSO and SSO events during the event of a power failure. By the end of 2015, the City completed the installation of backup generators on all but two lift stations. The remaining lift stations have adequate storage capacity for a response by WWM crews with a portable generator.

In 2006, the City's WWM Department developed and implemented its first municipal CSO Operations and Maintenance Plan (O&M Plan), with annual revisions beginning in 2010. The goal of the plan is to protect water quality and reduce the discharge of pollutants via CSOs into receiving waters. The O&M Plan includes names and contact information of designated responsible staff with specific procedures clearly detailed; a list of the critical elements in the CSS: facilities (control tanks, CSO regulator structures, weirs, and so forth) included under this Plan; frequency of routine inspections; wet and dry weather procedures; emergency notification procedures; and record keeping procedures. Repairs and necessary modifications are made to broken or malfunctioning CSS components. A copy of the City's O&M Plan is submitted under Appendix A.

2.1.2 Control 2: Maximize Use of the Collection System for Storage

> *"Implement procedures that will maximize use of the collection system for wastewater storage that can be accommodated by the storage capacity of the collection system in order to reduce the magnitude, frequency, and duration of CSOs."*

Current CSO regulator settings correspond to full-pipe conditions in the main influent interceptor (I02) entering the Riverside Park Water Reclamation Facility (RPWRF). As part of the O&M Plan, WWM has a regular preventive inspection program to ensure that trapped sedimentation or debris is cleaned out of catch basins and CSS pipes that could otherwise restrict proper flow. Visual and remote inspections by a Wastewater Specialist or a CSO Instrument Technician are completed for each uncontrolled CSO regulator structure every week. In some cases, up-sized in-line storage is used to help reduce overflows. The City's program includes infiltration & inflow (I/I) reduction projects such as grouting, short-line and full-length cured-in-place pipe (CIPP) lining. In 2015, the City grouted five manholes and installed 26 CIPP short-liners.

2.1.3 Control 3: Review and Modification of Pretreatement Requirements to Assure CSO Impacts are Minimized

> *"Review and modify, as appropriate, its existing pretreatment program to minimize CSO impacts from the discharges from nondomestic users."*

The City routinely surveys existing and new businesses connected to its collection system. As a result, non-domestic customers with the potential to adversely impact the treatment system are identified and managed. At the end of of 2015, there are 14 listed Significant Industrial Users, and 12 listed Non-Significant Categorical Industrial Users.

Part of the Pretreatment Program is the Fats, Oils, and Grease (FOG) Program, which implements the City's Municipal Code requirement to remove FOG from wastewater through the use of grease traps or other methods. FOG has a detrimental effect on the City's sewers and is a significant cause of obstructions. Each time a sewer line is observed by CCTV to be obstructed or partially obstructed with grease, an investigation is conducted upstream to identify potential sources and enforce municipal code.

2.1.4 Control 4: Maximization of Flow to the POTW for Treatment

> *"Operate the POTW treatment plant at maximum treatable flow during all wet weather flow conditions to reduce the magnitude, frequency, and duration of CSOs. The Permittee must deliver all flows to the treatment plant within the constraints of the treatment capacity of the POTW."*

RPWRF has sufficient capacity to provide full treatment for wet weather flow during all but the most extreme storm events. Up to 100 million gallons per day (mgd) is fully treated on a real-time basis within the duration of most storms. When flows exceed 100mgd, up to 4 million gallons (mg) of excess flow volume is diverted to on-site storage and receives full treatment after the storm. On very rare occasions when more than 4mg is diverted, the excess volume above 4mg receives primary treatment and disinfection prior to discharge. As part of the CSO Plan Amendment submitted in early 2014, the main I02 interceptor flows will be limited to 120mgd through the use of upstream CSO storage. In addition, treatment plant upgrades call for a fifth clarifier and full primary and secondary treatment for up to 125mgd of wet weather flows. This will help ensure that all flows at RPWRF will receive full primary and secondary treatment.

2.1.5 Control 5: Prohibition of CSOs During Dry Weather

> *"Dry weather overflows from CSO outfalls are prohibited. The Permittee must report each dry weather overflow to the permitting authority as soon as it becomes aware of the overflow. When it detects a dry weather overflow, the Permittee must begin corrective action immediately and inspect the dry weather overflow each subsequent day until it has eliminated the flow."*

The City's CSO dry weather program, as outlined in the O&M plan, is both proactive and reactive. The plan includes visual and remote inspections with specific procedures outlined; early warning and overflow alarm monitoring and coordinated response protocols; combined sewer system (CSS) mapping; crew training to avoid overflows from CSS maintenance; and a public notification hotline (344-FISH) which is stenciled on a variety of public education materials and on the CSO notification/information signs on the shore at each CSO outfall. The WWM department conducts regular cross-training of other City departments such as Water & Hydroelectric Services, Streets, Parks and the Fire Department to prevent dry weather overflows from hydrant flushing, water line flushing, and the draining of Park department pools. In 2015, there was one dry weather overflow of an estimated 5 gallons of City water reported due to a contractor error in the construction and testing of the CSO 06 facility on October 1.

2.1.6 Control 6: Control Solids and Floatable Materials in CSOs

"Implement measures to control solid and floatable material in CSOs."

The control of solid and floatable materials is an inherent part of the City's O&M plan. Many existing and all new catch basins in CSS areas have 90 degree down-turned elbows that retain floatables within the catch basins. Heavier solid materials settle to the bottom of the catch basins. This serves as a pretreatment system and captured trash and sediment are pumped out on a routine basis by maintenance crews. In 2015, 15 catch basins were modified to accept elbows.

As each CSO control structure is modified to add storage in compliance with the CSO Long Term Control Plan, floatable controls are included in the CSO storage facilities and overflow points to largely eliminate any floatable material discharge.

2.1.7 Control 7: Pollution Prevention

"Implement a pollution prevention program focused on reducing the impact of CSOs on receiving waters."

The City conducts a regular street sweeping schedule that aids in keeping trash and debris out of the CSS. At the end of 2015, about 6,147 lane miles of City streets were swept as part of this program. In addition, catch basins are pumped regularly as a preventive maintenance measure. Leaves are swept and removed from City streets in the fall. In 2015, 1,779 cubic yards of leaves were removed from City streets. Since 2010, the City has been placing markers near curb drain inlets and basins to inform and remind the public about where wastewater goes. The curb markers installed in CSS areas read: "*Dump No Waste – Drains to River*" and include a hotline phone number to report dumping. In 2015, 1,819 curb markers were installed by WWM crews.

Any illicit discharge complaints are investigated by one the WWM sewer inspectors. The WWM inspectors also ensure construction projects follow BMPs and manage stormwater on site to ensure dirt and other debris does not enter the storm or sewer collection systems. In 2015 there were 30 investigations into illicit discharge complaints and 79 inspected construction sites.

2.1.8 Control 8: Public Notification to Ensure that the Public Receives Adequate Notification of CSO Occurrences and CSO Impacts

"Implement a public notification process to inform the citizens of when and where CSOs occur. The process must include (a) mechanism to alert persons of the occurrence of CSOs and (b) a system to determine the nature and duration of conditions that are potentially harmful for users of receiving waters due to CSOs."

Real-time CSO status updates can be viewed by the public on the department's website, https://my.spokanecity.org/publicworks/wastewater/cso/. The website includes the CSO number, location with map, and the date/time of any overflow event within the past 48 hours. It also informs the public and

recreational visitors that Spokane River water activities should be avoided in these areas during and after heavy rainfall or snowmelt. In 2015, there were approximately 2,800 views of this page on the department's website.

Information kiosks regarding CSOs are located at three popular river access points. If a dry weather overflow occurs, warning signs with orange flags are opened at these three locations to warn the public. When there is a dry weather overflow event, the City also notifies the Spokane Regional Health District in accordance with the O&M Plan.

2.1.9 Control 9: Monitoring to Effectively Characterize CSO Impacts and the Efficacy of CSO Controls

> *"Monitor CSO outfalls to characterize CSO impacts and the efficacy of CSO controls. This must include the collection of data that it will use to document the existing baseline conditions, evaluate the efficacy of the technology-based controls, and determine the baseline conditions upon which it will base the long-term control plan. This data must include:*
>
> *a) Characteristics of the combined sewer system including the population served by the combined portion of the system and locations of all CSO outfalls in the CSS.*
> *b) Total number of CSO events and the frequency and duration of CSOs for a representative number of events.*
> *c) Locations and designated uses of receiving water bodies.*
> *d) Water quality data for receiving water bodies.*
> *e) Water quality impacts directly related to CSO (for example, beach closing, floatables, wash-up episodes, fish kills)."*

The City's CSS serves approximately 100,000 citizens. The Spokane River and Latah Creek are the only two water bodies that receive CSO discharges, with 18 outfalls and two outfalls, respectively. All outfalls are mapped in GIS, marked with signs, and equipped with flow monitoring and telemetry. The City operates the flow monitoring/telemetry for timely alarms, public notification, compliance data, and operation and performance of CSO facilities. In 2015, the City achieved greater than 99.94% uptime with its CSO monitoring system. The CSO flow monitoring team continues to work hard to mitigate impacts of the ongoing CSO construction projects to maintain the integrity and quality of the telemetry data during construction.

Through the mid-2000s, the City sampled the receiving water bodies during and after large wet weather overflows to determine how quickly fecal coliform levels returned to background. The CSO river sampling program is now focused on dry weather events. Following any dry weather overflow during the high river use season, the City conducts river sampling to determine when fecal coliform levels downstream of the affected outfall have returned to background. The Spokane Regional Health District is informed by the City of any dry weather overflows and is responsible for any public health alerts.

2.2 OTHER MAINTENANCE ACTIVITIES

2.2.1 Sewer Cleaning Activities

The City of Spokane undertakes an extensive cleaning maintenance program. These activities include flushing, balling, rodding, hydroing and other activities. When CCTV video or customer complaints indicate that there is a problem or a potential future problem with a sewer line, it is placed on a scheduled maintenance list in the maintenance management system to ensure timely cleaning occurs. If the problem becomes worse, the scheduled maintenance time is shortened, and the line is flagged for replacement or lining.

TABLE 2-2: SUMMARY OF 2015 SCHEDULED SEWER CLEANING

Schedule	Number of Lines	Total Distance
Bi-monthly	12	0.57 miles
Monthly	120	5.93 miles
Every 2 Months	15	0.81 miles
Every 3 Months	138	6.69 miles
Every 4 Months	5	0.30 miles
Every 6 Months	290	12.39 miles
Every 9 Months	3	0.17 miles
Annually	12	0.61 miles
Total	**595**	**27.48 miles**

2.2.2 Repair, Rehabilitation, and Replacement Activities

The City maintains two construction crews that replace, rehabilitate and repair sewer and stormwater lines. These crews respond to emergency situations, but also replace or repair lines and Catch basins identified by citizens, crews, and CCTV reports. The City also contracts out large line cured-in-place pipe(CIPP) rehabilitation most years for identified lines that have excess infiltration or are found to be structurally deficient. For 2015, two large lines were bid for rehabilitation in preparation for the Martin Luther King Jr. Way extension for a total of 2,026 feet of pipe.

TABLE 2-3: SUMMARY OF 2015 SEWER REPAIR AND REPLACEMENTS

Activity	Number
Repair Storm / Sanitary Line	40
Replace Line	42
New Line	5
Catch Basin Repairs	23
Catch Basin Replacement	30
Drywell Replacement	2
Manhole Repairs / Modifications	35
Swale Repairs / Modifications	3
Total # Work Orders	**180**

FIGURE 2-4: CURED IN PLACE PROJECT FOR STRUCTURAL REHABILITATION OF 60" LINE TO PREPARE FOR NEW MLK JR. WAY

2.2.3 Sanitary Sewer Overflow Response and Prevention

A small number of Sanitary Sewer Overflows(SSOs) do occur every year and are promptly reported to Ecology, along with the proposed remediation for solving the overflow in the future. Due to the average age of pipes in the City's collection system, the City has an aggressive CCTV inspection program to prevent SSOs through routine and unscheduled maintenance activities. The most common cause of SSOs are tree roots plugging a City sewer main. Other activities can cause SSOs as well. The most common is City large line water main breaks that can overwhelm parts of the collection system. Other causes are construction activities and vandalism. In 2015, there were a total of 11 SSOs. 4 SSOs were caused by a single broken water main, 4 SSOs as a result of tree roots, 1 SSO caused by vandalism, 1 SSO caused by construction-related activity, and 1 other uncategorized SSO.

TABLE 2-5: SUMMARY OF SANITARY SEWER OVERFLOWS BY CAUSE, 2011 - 2015

Cause	2011	2012	2013	2014	2015
Weather-Related	20	24		9	
Tree Roots	3	2	2	3	4
Water Main Break	5				4
Crushed Line	11				
Construction Activity				1	1
Vandalism					1
Grease		1			
Other			1		1
Total # SSOs	**39**	**27**	**3**	**13**	**11**

2.2.4 Inflow and Infiltration Activities

The City has worked tirelessly in removing Inflow and Infiltration (I/I) from the sewer collection system. Several methods are used to reduce I/I in the system including CIPP lining, stormwater separation or redirection, plugging of abandoned sewer lines, and other methods.

One of the main causes of I/I within the collection system is high river flows that increase the groundwater level around some of the older pipes along the river. The City has lined large sections of the main interceptor downtown and largely eliminated approximately 10mgd of I/I. Another successful I/I elimination project was the lining of many pipes and upgrading the Springfield lift station in the area south and east of Gonzaga University. As a commitment to the minimizing the size of the tertiary treatment installation at the treatment plant, another 10mgd needs to be removed during extended times of high river. Two lines in the Trent / Erie area and north of Trent along the river have been identified as contributing 4-8mgd of flow during flood stage in 2011 and are on the CIPP projects list.

2.3 ANNUAL REVIEW OF OPERATIONS & MAINTENANCE MANUAL

The CSO Operations and Maintenance Manual (O&M) was reviewed and revised on September 18, 2015. The O&M plan is attached with Appendix A of this report. As new CSO facilities come online, facility inspection checklists are created. CSO crews are also trained in CSO inspections on an annual basis. Training includes a review of normal and abnormal conditions within facilities, and what preventative maintenance is required in each area of a CSO facility, along with checking safety and gas detection system. Procedures and checklists for Dry Weather Overflows(DWO) are reviewed. Design standards for CSO Facilities are reviewed based on maintenance feedback to minimize maintenance frequency and effort.

FIGURE 2-6: POST CONSTRUCTION INSPECTION OF CSO FACILITY

Section 3: Capital Activities

3.1 – 2015 CSO SYSTEM IMPROVEMENTS

Below is a list of CSO projects completed in the 2015 year. 2015 through 2017 are busy years as the majority of CSO control projects are planned to be in construction during this period of time.

TABLE 3-1: CSO CONTROL PROJECTS COMPLETED IN 2015

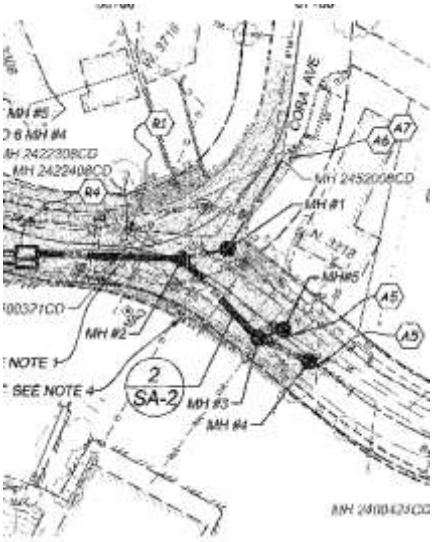
City Project #: 2010044 **CSO Basin #:** 06 **Location:** Northwest Blvd. & Providence Ave. **Description:** Construction of a 900,000 gallon CSO Facility #6 **Estimated Cost:** $10.0m **Estimated Completion:** 2015 – Q4* *Final hydroslide setting after I03 / I04 facilities completed in 2017.	
City Project #: 2010075 **CSO Basin #:** 07 **Location:** Cora Ave. & Columbia Cir. **Description:** Construction of a 10,000 gallon CSO Regulator Vault #7 and rerouting of interceptor inlet for CSO Facility #6. **Estimated Cost:** $2.0m **Estimated Completion:** 2015 – Q4* *Final hydroslide setting after I03 / I04 facilities completed in 2017.	

TABLE 3-1: CSO CONTROL PROJECTS COMPLETED IN 2015

City Project #: 2011085 **CSO Basin #:** 33-2 **Location:** 902 E Sprague Ave. **Description:** Construction of a 254,000 gallon CSO Control facility #33-2. **Estimated Cost:** $5.0m **Estimated Completion:** 2015 – Q3	
City Project #: 2011144 **CSO Basin #:** 34-2 **Location:** Underhill Park. **Description:** Construction of a 1,430,000 gallon CSO Control facility #34-2 and associated sewer trunk lines. **Estimated Cost:** $9.1m **Estimated Completion:** 2015 – Q3	

3.2 2016 CSO SYSTEM IMPROVEMENTS

Below is a list of CSO projects scheduled for completion in the 2016 year.

TABLE 3-2: CSO CONTROL PROJECTS SCHEDULED FOR 2016

City Project #: 2013042 **CSO Basin #:** 20 & 24 **Location:** 43 Ave. & S Hatch Rd. **Description:** Construction of a 206,000 gallon CSO Control facility #20 and other associated construction with CSO Basin 24. Elimination of CSO 20 outfall to Latah Creek (pending a future project). **Estimated Cost:** $6.4m **Estimated Completion:** 2016 – Q1* Elimination of CSO 20 outfall coupled with future project.	
City Project #: 2013211 & 2015099 **CSO Basin #:** 12 **Location:** N Pettet Dr. **Description:** Construction of 690,000 gallon CSO Control facility #12 and relocating outfall down Pettet Dr. to CSO 10 / Cochran Storm outfall.. **Estimated Cost:** $8.7m **Estimated Completion:** 2017 – Q1	
City Project #: 2013213 **CSO Basin #:** 33-1 **Location:** Liberty Park **Description:** Construction of 2,040,000 gallon CSO Control facility #33-1. **Estimated Cost:** $12.0m **Estimated Completion:** 2017 – Q3	

TABLE 3-2: CSO CONTROL PROJECTS SCHEDULED FOR 2016

City Project #: 2013214 **CSO Basin #:** I-03 **Location:** T.J. Meenach and Northwest Blvd. **Description:** Construction of 1,240,000 gallon interceptor protection control facility #I-03. **Estimated Cost:** $9.85m **Estimated Completion:** 2017 – Q**4**	
City Project #: 2013215 **CSO Basin #:** I-04 **Location:** Monroe St. & Bridge Ave. **Description:** Construction of 977,000 gallon interceptor protection control facility #I-04. **Estimated Cost:** $11.2m **Estimated Completion:** 2017 – Q**2**	

3.3 CSO PROJECT SCHEDULE

Below is an adjusted CSO project schedule. The schedule was first published in the 2014 CSO plan amendment and reflects the revised project schedule as it stands at the end of 2015.

TABLE 3-3: CSO CONTROL PROJECT SCHEDULE

		2015				2016				2017				2018			
	Tank Name	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**
CSO Projects																	
6	Shadle Bluff	D	C	C	C												
7	Downriver	D	C	C	C												
12	Doomsday Hill	D	D	D	D	D	C	C	C	C	C	C					
14	Summit								D	C	C	C	C				
15	Summit								D	C	C	C	C				
20	Hatch	D	C	C	C	C											
23	Maple Regulators							P	D	D	C	C	C				
24	Jefferson	D	D	D	D	D	D	D	D	C	C	C	C				
25	Main Ave	D	D	D	D	D	D	D	D	C	C	C					
26	Spokane Falls	D	D	D	D	D	D	D	D	D	D	D	C	C	C	C	C
41	Minnehaha					P	D	D	D	C	C	C					
33-1	Liberty Park	D	D	D	D	D	D	D	C	C	C	C	C				
33-2	E. U-District	C	C	C													
34-1	Lee	D	D	D	D	D	C	C	C	C	N	C	C				
34-2	Underhill	C	C	C													
34-3	20th & Ray - Complete																
I-03	TJ Meenach NW Blvd	D	D	D	D	D	D	D	C	C	C	C	C				
I-04	Bosch's Lot	D	D	D	D	D	C	C	C	C	C	C	C				
I-07	Napa	D	D	D	D	D	C	C	C	C	C	C	C				

Legend: P Planning phase; D Design phase; C Construction phase

Section 4: Monitoring Programs and Monitoring Results

This section provides an overview of the City of Spokane's precipitation and flow monitoring programs, and presents results for 2015, including a summary of precipitation, CSO overflow details, a history of overflow frequencies, volume, and duration, and also a summary of the CSO outfalls that meet the CSO control standard.

4.1 CSO SYSTEM BASELINE CONDITIONS

As of 2000, there were 24 permitted outfalls associated with the City of Spokane's combined sewer collection system. As of the end of 2015, there are 20 outfalls remaining. These are identified in the City's NPDES Permit No. WA-002447-3 and are listed as follows:

TABLE 4-1: 2015 CSO OUTFALLS FROM THE NPDES PERMIT

Outfall Number	Overflow Structure & Regulator Location Description	Outfall Location Reference
Discharges to Spokane River (North Bank)		
002	A.L. White @ Hartley (Extended)	0.5 miles downstream of WWTP
006	Kiernan @ NW Blvd	0.25 miles upstream of WWTP
007	Columbia Cir @ Downriver Park Dr	0.4 miles upstream of WWTP
010	Cochran @ Buckeye	At T.J. Meenach Bridge
012	Nora @ Pettet Dr	0.55 miles upstream of T.J. Meenach Bridge
014	Sherwood @ Summit	2.0 miles upstream of T.J. Meenach Bridge
015	Ohio @ Nettleton	2.5 miles upstream of T.J. Meenach Bridge
Discharges to Spokane River (South Bank)		
016	'A' @ Linton – Geiger	1.45 miles downstream of Monroe St Dam
Discharges to Latah Creek		
019	Seventh @ Inland Empire Way	At High Bridge (East Side)
020	High Drive between 33rd and 37th	2.65 miles upstream of Avista Bridge
Discharges to Spokane River (South Bank)		
022	Main @ Oak	0.7 miles downstream of Monroe St Dam
Discharges to Spokane River (North Bank)		
023	Cedar @ Ide	0.3 miles downstream of Monroe St Dam
Discharges to Spokane River (South Bank)		
024	Cedar @ Riverside (2)	0.3 miles downstream of Monroe St Dam
025	Cedar @ Main	0.3 miles downstream of Monroe St Dam
026	Lincoln @ Spokane Falls Blvd	At Monroe St Bridge
033	Fifth @ Arthur Third @ Perry Third @ Arthur First @ Arthur	0.15 miles upstream of J. Keefe Bridge
034	Crestline @ Riverside	At Trent Bridge
038	Magnolia @ S Riverton	0.15 miles upstream of Mission
~~039~~	~~Altamont @ S Riverton~~	~~0.75 miles downstream of Greene~~ (Eliminated December 2012)
~~040~~	~~Regal @ S Riverton~~	~~0.25 miles downstream of Greene~~ (Eliminated December 2012)
Discharges to Spokane River (North Bank)		
041	Rebecca @ Upriver Dr	0.5 miles upstream of Greene
Discharges to Spokane River (South Bank)		
042	Surro Dr	1.1 miles upstream of Greene

In the March 2014 CSO Plan Amendment, baseline conditions were updated using a 20-year precipitation dataset and flow monitoring data. Table 4-2 includes the original baseline conditions, and the updated baseline conditions generated from flow monitoring during the ten-year period of 2003 through 2012.

TABLE 4-2: BASELINE AVERAGE ANNUAL CSO VOLUMES AND FREQUENCIES ORIGINAL 1979-1988 AND REVISED 2003 – 2012

CSO No.	CSO Location	1979 – 1988 Average Annual Overflow Volume (MG)	2003-2012 Average Annual Overflow Volume (MG)	1979-1988 Average Annual Overflow Frequency	2003-2012 Average Annual Overflow Frequency
2	NW Blvd. @ Hartley	1.72[2]	0[2]	40[2]	0[2]
3b	NW Blvd. @ Assembly	0.00[2]	N/A[2]	1[2]	N/A[2]
3c	NW Blvd. @ Assembly	1.94[2]	N/A[2]	51[2]	N/A[2]
6	Kiernan @ NW Blvd.	14.12	4.81	34	27
7	Columbia Circle	0.81	0.32	13	11
10	Cochran @ Buckeye	0.27	0.15	7	10
12	Nora @ Pettet	9.65	3.50	35	28
14	Sherwood @ Summit	0.86	0.11	17	14
15	Nettleton @ Ohio	4.47	0.20	34	9
16a	"A" St. @ Linton	0.01[3]	N/A[3]	0[3]	N/A[3]
16b	"A" St. @ Linton	0.50[3]	0.21[3]	12[3]	6[3]
18	1st St. @ "A" St.	0.00[3]	N/A[3]	1[3]	N/A[3]
19	Under FW Bridge	0.00	0.00	0	<1
20	High Dr. near 33rd	0.55	0.03	3	<1
22	Main @ Oak St.	0.00	0.03	0	1
23	Cedar @ Ide	1.69	1.07	18	16
24a	Cedar @ Riverside	2.12	8.00	3	20
24b	Cedar @ Riverside	0.00	0.10	0	10
25	Cedar @ Main	0.35	0.42	19	22
26	Lincoln @ Spokane Falls	19.73	16.41	15	24
33a	5th @ Arthur	0.00	0.04	0	8
33b	3rd @ Perry	2.30	6.72	5	7
33c	3rd @ Arthur	0.12	0.04	11	6
33d	1st @ Arthur	2.03	0.42	42	23
34	Riverside @ Napa/Crestline	11.78	13.82	13	19
38	Magnolia @ S. Riverton	0.28[4]	0.08[4]	10[4]	10[4]
39	Altamont @ S. Riverton	1.06[4]	0.06[4]	34[4]	4[4]
40	Regal @ S. Riverton	1.45[4]	0.06[4]	32[4]	7[4]
41	Rebecca @ Upriver Dr.	0.52	0.39	11	12
42	Surro @ S. Riverton	0.31	0.02	7	2
Total		78.64	**56.99**	467	**296**

[1] With snowmelt.

[2] CSO 2 & 3c flows are consolidated and regulated at CSO 2&3c Control Facility to overflow no more than once per year on average via Outfall 2. CSO 3b regulator is physically eliminated and outfall is now separated storm only.

[3] CSO 16a, 16b & 18 flows are consolidated and regulated at CSO 16/18 Control Facility to overflow no more than once per year on average via Outfall 16b. Outfalls 16a and 18 are physically disconnected.

[4] CSO 38, 39 and 40 flows are consolidated and regulated at the CSO 38/39 Control facility to overflow no more than once per year on average via Outfall 38. Outfalls 39 and 40 are physically disconnected.

4.1 PRECIPITATION MONITORING PROGRAM

The City of Spokane collects precipitation data from 11 rain gauges around the City. Five of those gauges have been in place since 1996, and provide a 20-year basis for precipitation modeling and validation of sewer models. The data has been collected in a 1-minute resolution since mid-2000. Because of the quality of the rain data, the City has a high degree of confidence in the modeling results and sizing of the CSO facilities.

2015 was one of the drier years on record for the region at 14.08 inches at the Spokane Airport. However, 2015 did have three extreme events. Taken together, these three events contributed *77.6*% of the total volume of Combined Sewer Overflows for an otherwise exceptionally dry year.

- On January 17-18, approximately one inch of rain fell on between 2 to 5 inches of rain-impregnated snow on the ground, causing approximately19.5 million gallons of sewage to overflow to the Spokane River and Latah Creek.
- On March 15, approximately 1.19 to 1.49 inches of rain fell on Spokane in a 24-hour period, setting an all-time one-day record for the month of March. This event caused approximately 11.5 million gallons of sewage to overflow to the Spokane River.
- A 3-day storm from December 7 to December 9 caused up to 1.92 inches of precipitation to fall on Spokane. The 3-day even cause approximately 11.0 million gallons to overflow to the Spokane River.

TABLE 4-3: 2015 PRECIPITATION BY GAUGE BY MONTH (INCHES)

Rain Gage	January	February	March	April	May	June	July	August	September	October	November	December
1004	0.79	1.28	2.82	0.58	1.03	0.05	0.24	0.22	0.5	1.43	18.17E	3.62
343	2.03	1.35	2.68	1.25	1.39	0.23	0.42	0.24	0.45	1.25	0.86	2.88
344	1.72	0.96	2.57	0.87	1.05	0.11	0.56	0.19	0.48	1.06	0.65	1.96E
Shadle	1.55	1.03	2.25	0.69	1.19	0.55	0.29	0X	0.02X	1.23	0.71	2.69
Hartson	1.54	0.93	2.33	0.97	1.07	0.20	0.35	0.2	0.56	1.08	0.66	3.43
City Hall	1.64	0.96	2.28	0.76	0.82	0.13	0.13	0X	0.3	0.91	0.49	3.44
Joe Albi	2.11	1.37	2.32	0.87	0.84	0.23	0.31	0.23	0.3	1.19	0.76	3.61
Rockwood Vista	2.11	1.17	2.49	1.11	0.98	0.13	0.45	0.16	0.47	0.94	0.63	0X
Station 8	1.67	0.96	2.36	0.80	1.17	0.3	0.94	0.17	0.39	1.24	0.49	3.01
West Drive	2.12	1.26	2.75	0.82	1.15	0.1	0.50	0.18	0.43	1.08	0.72	3.96
Nora & Pettet	1.33	1.19	2.46	0.97	1.13	0.34	0.34	0.15	0.35	1.16	0.73	2.86
GEG	1.91	1.04	2.43	0.53	0.85	0.07	0.19	0.18	0.52	1.14	0.77	4.45
NWS - Spokane	1.90	1.27	2.43	0.82	0.74	0.06	0.11	0.27	0.48	1.35	1.01	4.39
Felts Field	1.87	1.10	2.50	0.95	1.23	0.33	0.47	0.21	0.47	1.30	0.72	3.52
Month Average	**1.74**	**1.13**	**2.48**	**0.86**	**1.05**	**0.20**	**0.38**	**0.20***	**0.43***	**1.17**	**0.71***	**3.49***

X – Rain gauge out of service for part or whole month.

E – Rain gauge value for part of the month in error; underreporting or overreporting.

* - Rain gauge service interruptions and errors not included in monthly average.

4.3 FLOW MONITORING PROGRAM AND SUMMARY OF RESULTS

During 2015, Spokane's flow monitoring employees operated and maintained 30 CSO flow monitoring sites, 4 stormwater and CSO sampling sites, and 49 other flow monitoring sites for a total of 83 sites throughout the collection system.

A team of monitoring staff regularly review the flow monitoring results, evaluate the quality of the incoming data and the performance of each flow monitor site. The team performs maintenance when a flow monitor indicates erroneous data or is not reporting data on a timely schedule. Early warning alarms are monitored 24 hours per day by the Operations group at the Riverside Park Water Reclamation facility and referred to the flow monitoring team and sewer maintenance crews for maintenance. Overflow alarms are monitored 24 hours per day and confirmed alarms are posted to the City's public notification web site.

On a monthly basis, an analyst and the flow monitoring team review the monthly report data. False positives are eliminated from the data, and data that is in error is estimated from alternative or redundant monitoring points. Any problematic rain gauges and flow monitoring sites with an increase in missing or erroneous data are reviewed by the team to suggest improvements to the flow monitoring site to increase the quality of the data.

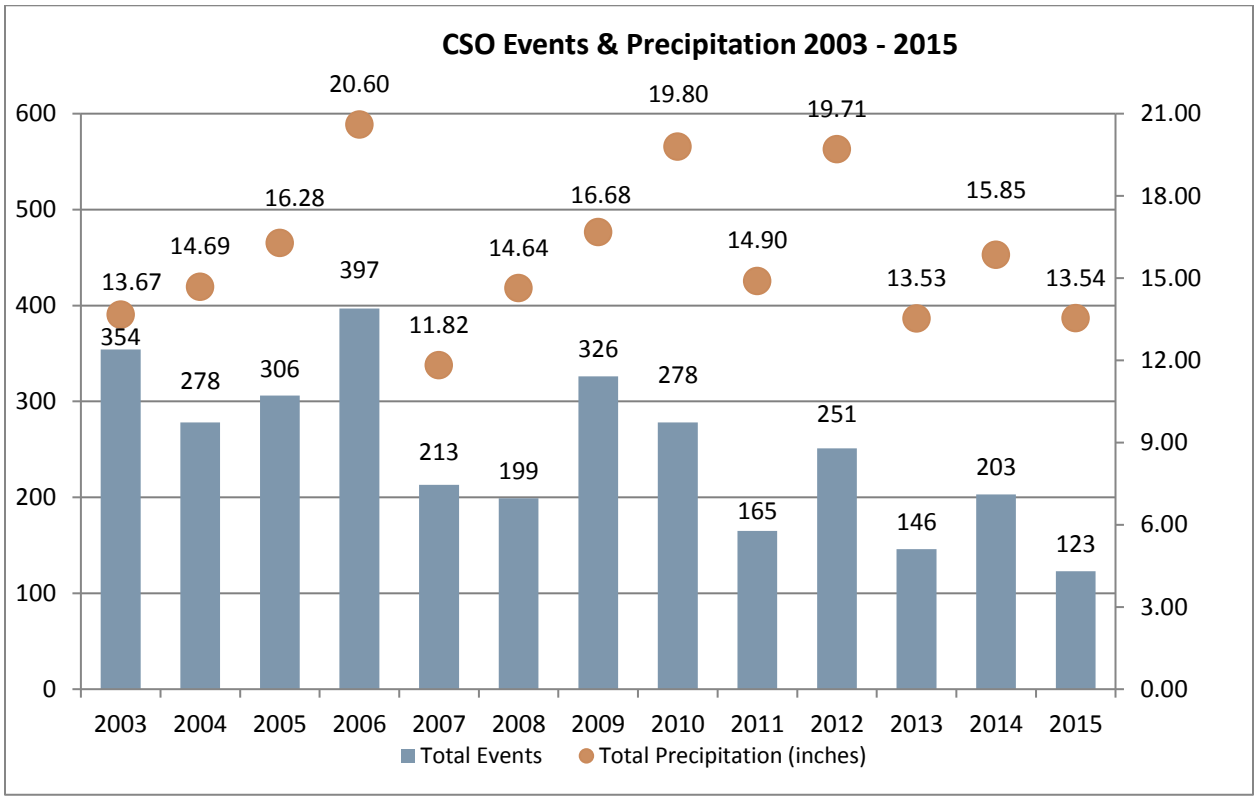


FIGURE 4-4: 2003 – 2015 CSO EVENTS & PRECIPITATION

As the City of Spokane's rainfall varies from year to year, the amount of rain and the variability in the intensity of rainstorms introduce a high degree of variability in the number of CSO overflow events. As the City of Spokane continues to install contol facilities, the number of overflow events has generally been reduced. In recent years, there have been three unusually wet years; 2006, 2010, and 2012. In 2015, rainfall was below the annual average and the the annual number of overflow events seems to have been below average.

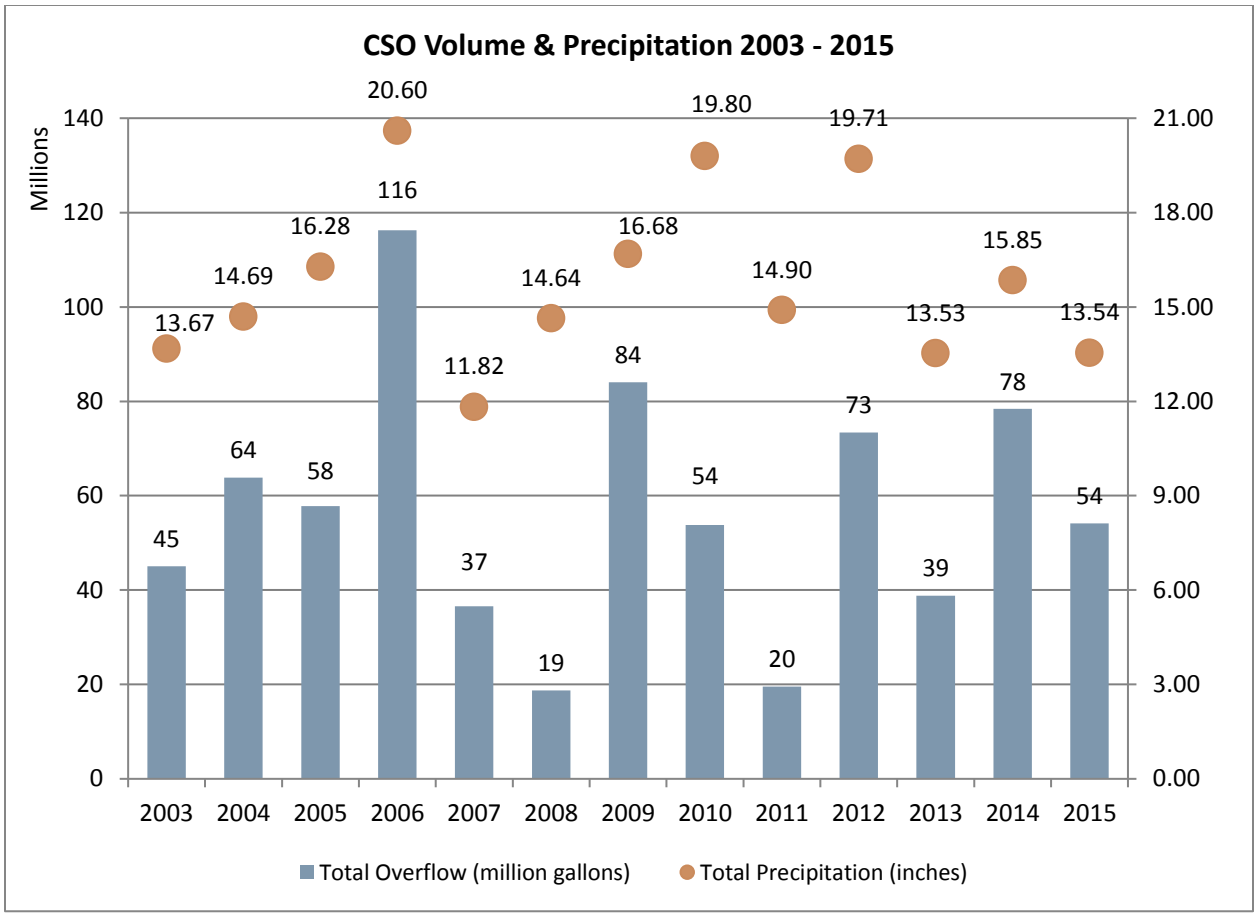


FIGURE 4-5: 2003 – 2015 CSO VOLUME & PRECIPITATION

As the City of Spokane's rainfall varies from year to year, the amount of rain and the variability in the intensity of rainstorms introduce a high degree of variability in the volume of CSO overflows. In 2015, rainfall was below the annual average, and the volume of overflows was slightly below average. 2015 had three significant events that contributed to excess overflows. The volume of overflows is expected to decline as future system improvements are constructed.

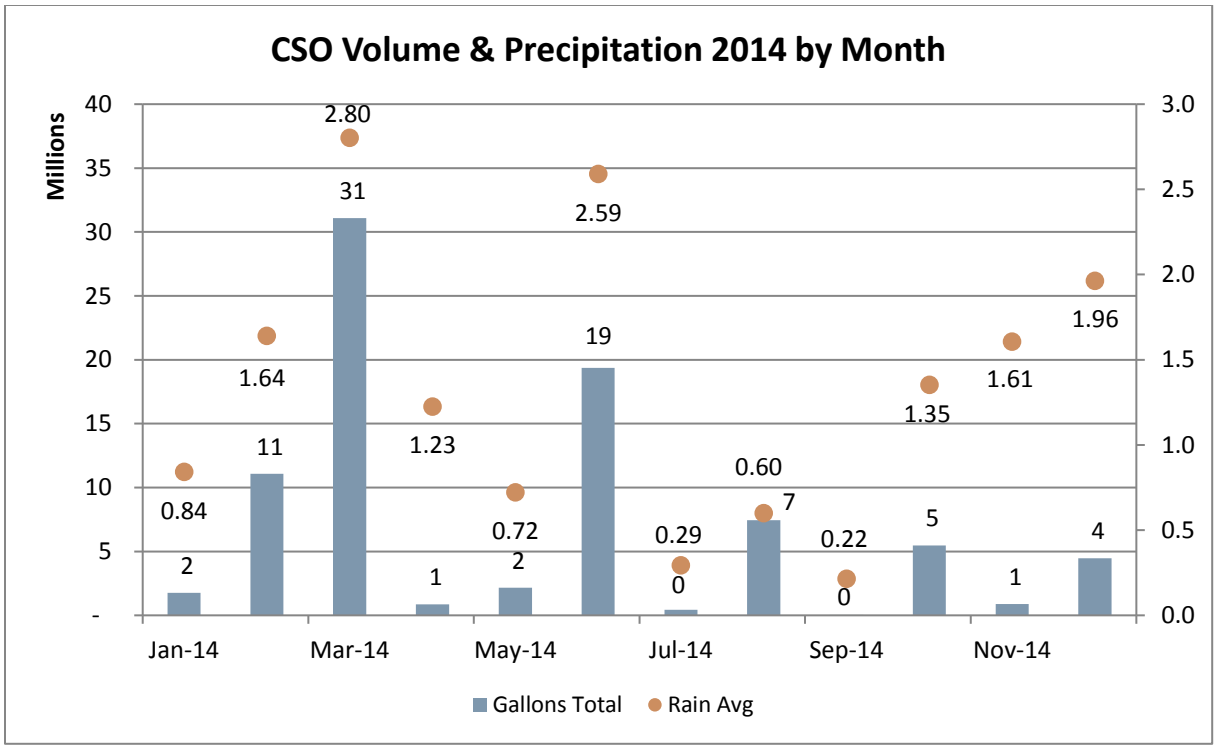


FIGURE 4-6: MONTHLY CSO VOLUMES & PRECIPITATION FOR 2015

In accordance with the requirements of the City of Spokane's NPDES Permit concerning combined sewer overflow discharges, summarized below are the frequencies, volumes and durations of CSO events recorded from January 1 through December 31, 2015. It is estimated that a **total of 54 million gallons** of combined sewage discharged to local receiving waters over these twelve months. All but one of these discharges were associated with snowmelt and/or rain events and distributed across 13 of the 22 permitted CSO outfalls. Discharges at the remaining seven (7) priority CSO regulator sites accounted for 62 percent of the total overflow volume measured.

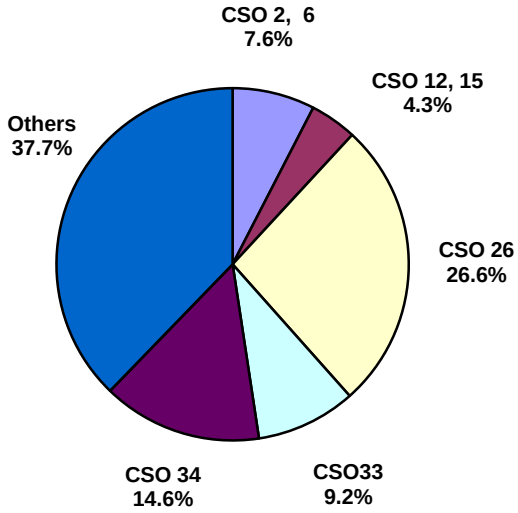


FIGURE 4-7: PERCENTAGE OF FLOW THROUGH SEVEN REMAINING PRIORITY SITES

TABLE 4-8: SUMMARY OF MONITORED CSO FREQUENCIES & VOLUMES FOR 2015

CSO OUTFALL	UPSTREAM REGULATOR ID[2]	MONITORED CSO VOLUME (gallons)	MONITORED CSO FREQUENCY (Occurrences)	MONITORED CSO DURATION (minutes)
02	**02**	0	0	0
06	**06**	4,097,040	17	3,150
07	07	384,133	6	410
10	10	0	0	0
12	**12**	2,327,823	11	1,315
14	14	71,894	5	320
15	**15**	0	0	0
16	16	0	0	0
19	19	0	0	0
20	20	37,011	1	45
22	22B	122,377	1	35
23	23	199,558	6	665
24	24A	18,423,735	11	2,510
	24B	84,219	6	1,140
	Total[3]:	18,507,954	12	
25	25	543,654	10	1,115
26	**26**	14,369,989	16	2,995
33	33A	48,681	9	440
	33B	4,669,256	5	420
	33C	36,321	8	285
	33D	211,285	12	2,810
	Total[3]:	4,965,543	15	
34	**34**	7,924,866	12	1,905
38	38	0	0	0
~~39~~	~~**39**~~	Outfall Eliminated December 2012		
~~40~~	~~**40**~~	Outfall Eliminated December 2012		
41	41	560,352	11	1,405
42	42	0	0	0
RPWRF[4]	RPWRF[4]	0	0	0
TOTAL:		**54,112,194**	**123**	**20,965**

1. *Tabulated information compiled from flow monitoring data collected between January 2015 and December 2015.*
2. *Nine (9) priority flow monitoring sites identified in **BOLDFACE** type. CSO 3C was formerly a priority site, but is now associated with CSO Outfall 2.*
3. *Frequency reflects any simultaneous overflows from multiple regulators to a common outfall.*
4. *NPDES Permit Section 13.H requires reporting date, duration, and volume of CSO-Related bypasses at RPWRF. In 2015, there were no CSO-related bypasses at RPWRF.*

TABLE 4-9: CSO OVERFLOWS CURRENTLY MEETING ANNUAL OVERFLOW FREQUENCY PERFORMANCE STANDARD

Outfall NPDES Number	Reported Number of Overflows per Year																Average Annual Overflow Frequency			Currently Meets Annual Overflow Frequency Performance Standard	Comments
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2003 - 2012 Benchmark	Monitored	With Facility		
002	0	3	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.27	0.00	**Yes**	Operational since 2003
~~003~~	0	8	16	0													0	N/A	N/A	**N/A**	Outfall eliminated in 2003
006	3	17	27	24	32	23	35	23	21	27	30	21	30	22	28	17	27	25.13	--	No	Weir modified in 2008; Facility Constructed Dec 2015; final regulator setting not in place
007	NM	8	10	14	11	15	18	9	6	13	11	5	7	3	6	6	11	9.47	--	No	Weir modified in 2008; Facility Constructed Dec 2015; final regulator setting not in place
010	0	8	11	10	7	13	17	8	6	12	13	8	1	0	0	0	10	7.60	0.25	**Yes**	Operational since 2011
012	10	23	29	34	31	26	39	25	22	32	33	15	23	15	19	11	28	25.13	--	No	Weir modified in 2009
014	NM	NM	11	20	11	21	36	17	16	18	1	0	3	0	2	5	14	11.50	--	No	Weir modified in 2009; Measurements began in 2002
015	1	5	9	11	10	14	17	5	9	12	2	3	2	0	2	0	9	6.73	--	No	Weir modified in 2009
016	NM	0	6	11	9	14	16	5	0	0	0	0	0	0	0	0	6	4.07	0.00	**Yes**	Operational since 2007
~~018~~	NM																N/A	N/A	N/A	**N/A**	Outfall eliminated before 2000
019	NM	0	0	0	1	0	1	2	0	1	0	0	0	0	0	0	<1	0.33	0.00	**Yes**	Operational since 2010
020	NM	NM	NM	NM	1	0	0	0	0	1	0	0	2	0	2	1	<1	0.58	--	**Yes**	Measurements began in 2004
022	0	1	5	2	3	1	1	1	2	0	0	0	0	0	1	1	1	1.20	--	No	Influenced by CSO 25
023	3	16	20	20	17	18	28	18	16	17	16	0	12	1	7	6	16	14.13	--	No	
024	5	15	33	33	19	27	31	16	15	20	28	22	29	18	24	12	24	22.80	--	No	
025	NM	0	5	44	19	18	31	15	17	20	20	16	22	15	20	10	22	18.13	--	No	Weir modified in 2008
026	4	16	20	24	20	20	33	16	20	27	30	21	33	21	28	16	24	23.00	--	No	Weir modified before 2000
033	7	34	38	38	22	36	33	21	14	24	25	19	29	18	25	15	25	26.07	--	No	
034	2	15	18	18	19	14	27	11	16	24	17	17	24	21	22	12	19	18.33	--	No	
038	1	9	10	14	12	6	8	7	4	14	16	3	17	0	0	0	10	8.00	0.00	**Yes**	Operational since 2012
~~039~~	1	3	2	5	5	9	4	3	2	4	8	1	2				4	N/A	N/A	**N/A**	Weir modified in 2010; Outfall eliminated Dec 2012
~~040~~	5	17	19	21	17	9	6	4	4	6	6	1	0				7	N/A	N/A	**N/A**	Weir modified in 2010; Outfall eliminated Dec 2012
041	NM	0	9	10	12	12	13	7	7	13	22	13	15	12	17	11	12	11.53	--	No	
042	0	1	0	0	0	10	3	0	2	0	0	0	0	0	0	0	2	1.07	0.00	**Yes**	Operational since 2009

TABLE 4-10 - 2015 CSO DETAILS BY OUTFALL AND DATE

Outfall No.	Receiving Water	Start Date	Volume (Gallons)	Duration (Hours)	Precipitation (Inches)	Storm Duration (Hours)
02	Spokane River	*There were no Combined Sewer Overflows from CSO outfall 02 during 2015*				
06	Spokane River	01/06/2015	28,827	1.83	0.52	76.72
		01/17/2015	1,301,020	16.17	0.80	16.45
		02/05/2015	295,024	6.83	0.76	93.8
		03/15/2015	828,766	11.50	1.49	39.67
		03/28/2015	77,099	1.33	0.75	136.27
		04/01/2015	16,490	0.42	0.13	19.77
		04/06/2015	1,382	0.33	0.34	16.68
		04/14/2015	17,237	0.67	0.29	20.08
		05/13/2015	74,311	1.67	0.32	34.4
		05/16/2015	42,941	1.00	0.30	17.48
		05/25/2015	367,457	1.50	0.34	34.02
		05/28/2015	220,501	1.08	0.10	1.33
		06/01/2015	381,059	3.25	0.20	5.35
		07/11/2015	13,173	1.00	0.38	17.22
		09/05/2015	80,615	1.17	0.43	55.67
		10/01/2015	About 5	0.17	Dry Weather Overflow; Tank Construction	
		12/07/2015	351,133	2.58	1.98	112.22
		Total	*4,097,040*	*52.50*	*9.13*	*697.13*
		Average	*241,002*	*3.09*	*0.57*	*43.57*
07	Spokane River	01/18/2015	74,504	1.83	0.80	16.45
		03/15/2015	35,126	2.75	1.49	39.67
		05/25/2015	58,299	0.58	0.34	34.02
		06/01/2015	13,599	0.33	0.20	5.35
		10/31/2015	22,270	0.67	0.92	88.33
		12/07/2015	180,335	0.67	1.98	112.22
		Total	*384,133*	*6.83*	*5.73*	*296.04*
		Average	*64,022*	*1.14*	*0.96*	*49.34*
10	Spokane River	*There were no Combined Sewer Overflows from CSO outfall 02 during 2015*				

TABLE 4-10 - 2015 CSO DETAILS BY OUTFALL AND DATE

Outfall No.	Receiving Water	Start Date	Volume (Gallons)	Duration (Hours)	Precipitation (Inches)	Storm Duration (Hours)
12	Spokane River	01/17/2015	750,901	6.33	0.80	16.45
		02/05/2015	73,001	2.00	0.76	93.8
		03/28/2015	34,878	0.50	0.75	136.27
		04/01/2015	2,782	0.17	0.13	19.77
		05/25/2015	238,341	1.33	0.34	34.02
		05/28/2015	8,617	0.33	0.10	1.33
		06/01/2015	102,687	0.58	0.20	5.35
		09/05/2015	48,827	0.75	0.43	55.67
		10/31/2015	287,237	1.50	0.92	88.33
		12/07/2015	760,169	7.67	1.98	112.22
		12/12/2015	20,383	0.75	0.22	23.1
		Total	*2,327,823*	*21.92*	*6.63*	*586.31*
		Average	*211,620*	*1.99*	*0.60*	*53.30*
14	Spokane River	01/18/2015	28,216	1.33	0.80	16.45
		03/15/2015	2,614	0.67	1.49	39.67
		05/25/2015	8,129	0.83	0.34	34.02
		10/31/2015	4,817	0.42	0.92	88.33
		12/07/2015	28,118	2.08	1.98	112.22
		Total	*71,894*	*5.33*	*5.53*	*290.69*
		Average	*14,379*	*1.07*	*1.11*	*58.14*
15	Spokane River	*There were no Combined Sewer Overflows from CSO outfall 15 during 2015*				
16B	Spokane River	*There were no Combined Sewer Overflows from CSO outfall 16B during 2015*				
19	Latah Creek	*There were no Combined Sewer Overflows from CSO outfall 19 during 2015*				
20	Latah Creek	01/18/2015	37,011	0.75	0.80	16.45
		Total	*37,011*	*0.75*	*0.80*	*16.45*
		Average	*37,011*	*0.75*	*0.80*	*16.45*
22B	Spokane River	01/18/2015	122,377	0.58	0.80	16.45
		Total	*122,377*	*0.58*	*0.80*	*16.45*
		Average	*122,377*	*0.58*	*0.80*	*16.45*

TABLE 4-10 - 2015 CSO DETAILS BY OUTFALL AND DATE

Outfall No.	Receiving Water	Start Date	Volume (Gallons)	Duration (Hours)	Precipitation (Inches)	Storm Duration (Hours)
23	Spokane River	01/18/2015	43,469	2.08	0.80	16.45
		02/05/2015	168	0.25	0.76	93.8
		03/15/2015	129,310	4.17	1.49	39.67
		05/25/2015	3,603	0.92	0.34	34.02
		10/31/2015	7,985	1.17	0.92	88.33
		12/07/2015	15,023	2.50	1.98	112.22
		Total	*199,558*	*11.08*	*6.29*	*384.49*
		Average	*33,260*	*1.85*	*1.05*	*64.08*
24A	Spokane River	01/17/2015	7,648,289	10.50	0.80	16.45
		02/05/2015	488,461	2.58	0.76	93.8
		02/09/2015	38,273	0.42	0.15	52.22
		03/15/2015	4,234,103	9.83	1.49	39.67
		03/28/2015	58,365	0.58	0.75	136.27
		05/16/2015	118,401	1.00	0.30	17.48
		05/25/2015	33,246	0.42	0.34	34.02
		09/05/2015	400,937	1.50	0.43	55.67
		10/31/2015	1,246,065	2.42	0.92	88.33
		12/07/2015	3,966,038	10.83	1.98	112.22
		12/12/2015	191,557	1.75	0.22	23.1
		Total	*18,423,735*	*41.83*	*8.14*	*669.23*
		Average	*1,674,885*	*3.80*	*0.74*	*60.84*
24B	Spokane River	01/18/2015	78,493	6.17	0.80	16.45
		03/15/2015	385	2.92	1.49	39.67
		03/28/2015	407	3.25	0.75	136.27
		04/01/2015	207	4.17	0.13	19.77
		05/25/2015	1,917	1.83	0.34	34.02
		10/31/2015	2,810	0.67	0.92	88.33
		Total	*84,219*	*19.00*	*4.43*	*334.51*
		Average	*14,037*	*3.17*	*0.74*	*55.75*
24 (Total)	Spokane River	*Total*	*18,507,954*	*49.92*	*8.27*	*689.00*
		Average	*1,542,330*	*4.16*	*0.69*	*57.42*

TABLE 4-10 - 2015 CSO DETAILS BY OUTFALL AND DATE

Outfall No.	Receiving Water	Start Date	Volume (Gallons)	Duration (Hours)	Precipitation (Inches)	Storm Duration (Hours)
25	Spokane River	01/17/2015	102,481	3.92	0.80	16.45
		02/05/2015	18,385	1.08	0.76	93.8
		03/15/2015	139,230	4.83	1.49	39.67
		03/28/2015	16,801	0.50	0.75	136.27
		04/01/2015	8,506	0.67	0.13	19.77
		04/14/2015	1,078	0.17	0.29	20.08
		05/25/2015	25,314	0.50	0.34	34.02
		09/05/2015	23,344	0.92	0.43	55.67
		10/31/2015	65,235	1.25	0.92	88.33
		12/07/2015	143,280	4.75	1.98	112.22
		Total	*543,654*	*18.58*	*7.89*	*616.28*
		Average	*54,365*	*1.86*	*0.79*	*61.63*
26	Spokane River	01/17/2015	3,301,459	8.58	0.80	16.45
		02/05/2015	715,713	4.67	0.76	93.8
		02/09/2015	64,688	0.58	0.15	52.22
		03/15/2015	3,618,123	10.92	1.49	39.67
		03/24/2015	411,629	3.00	0.75	136.27
		04/01/2015	58,800	0.67	0.13	19.77
		04/14/2015	88,004	1.00	0.29	20.08
		05/13/2015	77,100	1.50	0.32	34.30
		05/16/2015	44,993	0.75	0.30	17.48
		05/25/2015	222,694	0.92	0.34	34.02
		05/28/2015	17,811	0.25	0.10	1.33
		07/11/2015	77,284	0.50	0.38	17.22
		09/05/2015	502,852	1.42	0.43	55.67
		10/31/2015	1,258,372	1.92	0.92	88.33
		12/07/2015	3,697,287	11.42	1.98	112.22
		12/12/2015	213,180	1.83	0.22	23.10
		Total	*14,369,989*	*49.92*	*9.36*	*761.93*
		Average	*898,124*	*3.12*	*0.59*	*47.62*

TABLE 4-10 - 2015 CSO DETAILS BY OUTFALL AND DATE

Outfall No.	Receiving Water	Start Date	Volume (Gallons)	Duration (Hours)	Precipitation (Inches)	Storm Duration (Hours)
33A	Spokane River	01/18/2015	22,420	2.08	0.80	16.45
		02/09/2015	193	0.08	0.15	52.22
		03/15/2015	6,329	1.33	1.49	39.67
		03/28/2015	548	0.17	0.75	136.27
		04/09/2015	2,295	0.25	0.05	3.85
		05/28/2015	3,763	0.42	0.10	1.33
		09/05/2015	165	0.08	0.43	55.67
		10/31/2015	4,791	0.83	0.92	88.33
		12/07/2015	8,177	2.08	1.98	112.22
		Total	*48,681*	*7.33*	*6.67*	*506.01*
		Average	*5,409*	*0.81*	*0.74*	*56.22*
33B	Spokane River	01/18/2015	2,172,584	2.17	0.80	16.45
		03/15/2015	498,594	1.33	1.49	39.67
		05/16/2015	369,509	0.42	0.30	17.48
		10/31/2015	694,524	0.83	0.92	88.33
		12/07/2015	934,045	2.25	1.98	112.22
		Total	*4,669,256*	*7.00*	*5.49*	*274.15*
		Average	*933,851*	*1.40*	*1.10*	*54.83*
33C	Spokane River	01/18/2015	9,624	0.75	0.80	16.45
		03/15/2015	1,952	0.33	1.49	39.67
		04/09/2015	1,469	0.25	0.05	3.85
		05/28/2015	3,581	0.17	0.10	1.33
		07/11/2015	1,587	0.17	0.38	17.22
		09/05/2015	309	0.25	0.43	55.67
		10/31/2015	11,478	0.92	0.92	88.33
		12/07/2015	6,321	1.92	1.98	112.22
		Total	*36,321*	*4.75*	*6.15*	*334.74*
		Average	*4,540*	*0.59*	*0.77*	*41.84*

TABLE 4-10 - 2015 CSO DETAILS BY OUTFALL AND DATE

Outfall No.	Receiving Water	Start Date	Volume (Gallons)	Duration (Hours)	Precipitation (Inches)	Storm Duration (Hours)
33D	Spokane River	01/05/2015	7,600	18.92	0.52	76.72
		01/17/2015	116,500	3.92	0.80	16.45
		02/05/2015	25,900	8.83	0.76	93.8
		02/09/2015	9,700	1.75	0.15	52.22
		03/15/2015	12,334	2.75	1.49	39.67
		03/24/2015	100	0.17	0.75	136.27
		05/13/2015	387	3.08	0.32	34.30
		05/16/2015	733	5.25	0.30	17.48
		05/25/2015	508	0.25	0.34	34.02
		05/28/2015	8,357	0.50	0.10	1.33
		07/11/2015	2,324	0.25	0.38	17.22
		10/31/2015	26,842	1.17	0.92	88.33
		Total	*211,285*	*46.83*	*6.83*	*607.81*
		Average	*17,607*	*3.90*	*0.57*	*50.65*
33 (Total)	Spokane River	*Total*	*4,965,543*	*50.75*	*9.61*	*860.15*
		Average	*331,036*	*3.38*	*0.64*	*57.34*
34	Spokane River	01/18/2015	3,564,887	8.33	0.80	16.45
		02/05/2015	266,747	2.58	0.76	93.8
		02/09/2015	7,043	0.50	0.15	52.22
		03/15/2015	1,929,716	7.92	1.49	39.67
		03/28/2015	6,524	0.33	0.75	136.27
		04/14/2015	125,093	1.33	0.29	20.08
		05/16/2015	411,896	2.00	0.30	17.48
		05/26/2015	252,405	0.75	0.34	34.02
		05/28/2015	78,365	0.50	0.10	1.33
		09/05/2015	21,769	0.67	0.43	55.67
		10/31/2015	415,641	1.67	0.92	88.33
		12/07/2016	844,780	5.17	1.98	112.22
		Total	*7,924,866*	*31.75*	*8.31*	*667.54*
		Average	*660,406*	*2.65*	*0.69*	*55.63*
38	Spokane River	*There were no Combined Sewer Overflows from CSO outfall 38 during 2015*				

TABLE 4-10 - 2015 CSO DETAILS BY OUTFALL AND DATE

Outfall No.	Receiving Water	Start Date	Volume (Gallons)	Duration (Hours)	Precipitation (Inches)	Storm Duration (Hours)
41	Spokane River	01/17/2015	180,354	6.67	0.80	16.45
		02/05/2015	8,444	1.58	0.76	93.8
		02/09/2015	1,689	0.42	0.15	52.22
		03/15/2015	42,474	4.25	1.49	39.67
		03/28/2015	323	0.25	0.75	136.27
		04/14/2015	352	0.25	0.29	20.08
		05/16/2015	111,633	1.58	0.30	17.48
		05/25/2015	10,980	0.58	0.34	34.02
		07/11/2015	23,768	1.33	0.38	17.22
		10/31/2015	60,425	1.58	0.92	88.33
		12/07/2015	119,910	4.92	1.98	112.22
		Total	560,352	23.42	8.16	627.76
		Average	50,941	2.13	0.74	57.07
42	Spokane River	*There were no Combined Sewer Overflows from CSO outfall 42 during 2015*				
RPWRF	Spokane River	*There were no Combined Sewer - Related Bypasses at RPWRF during 2015*				

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APPENDIX A: CSO O&M MANUAL

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City of Spokane

OPERATIONS & MAINTENANCE PLAN
For
CSO Regulators and OUTFALLS

Table of Contents

GOAL:

The goal of this operations and maintenance plan is to properly manage the entire CSO regulator structures at all times and prevent/ minimize any combined sewer overflows during dry weather (DWO's).
This update accounts for weirs modified in 2008 (#6, #7, #25) 2009 (#12, #14, #15) 2010 (#19, and Control Facilities (tanks) 2/3, 16/18, 42, 10 & 38/39/40 as we upgrade from dams & leaping weirs to hydroslides. See comprehensive 6 year sewer program for future tank construction schedules.
Dam and leaping weir overflow occurs within the same manhole as the active sewer line. This style has potential to plug and overflow immediately to the river.
The modified weirs and tanks have storage areas before the overflow weir. This allows for some response time prior to the actual overflow.

AWARENESS AND PREVENTION:

- Wastewater Maintenance Atlas has the CSO regulator basin areas identified by shading and labeling, as to the immediate impact on the regulator through various maintenance procedures.
- Wastewater Crew member training to include these designated areas of immediate impact shall take place annually.
- All contract documents for our cured in place pipe program and any work upstream of regulator that could affect regulator shall include reference to the regulator and/or control device sites and strict notification to the contractor that mechanical measures must be taken to prevent any type of dry weather over flow from any and all work performed by the contractor.
- Maintenance and Construction procedures have been reviewed to include the feasibility of installing pneumatic plugs / sand bags during the course of routine work to prevent any type of dry weather overflow in designated areas.
- Training of Water Department Staff and other city staff that have the potential to cause a DWO.

FREQUENCY OF INSPECTION:

Routine Inspections:

Visual inspection or remote means by a Wastewater Specialist or CSO Instrument Technician for each CSO structure shall take place once a week, year around; unless maintenance history dictates a more frequent schedule is required. The City's CSO's are geographically split into those located north or south of the Spokane River (see weir check lists). Inspections shall include a visual check for any blockages, plugs, sticks, rocks or debris and be used to assess the overall operating condition. CSO monitoring alarm thresholds have been reviewed and, where feasible, lowered. Remote regular verification of CSO monitoring equipment and telemetry status from RPWRF has been implemented. Weekly visual inspections are accomplished along with continued monitoring. The exception to this schedule shall be on any regulator and/or control device that has been plugged; it is checked daily for five working days, and then checked once a week for a month, before returning to the regular schedule.

- Check all outfall pipes and down stream banks once monthly for signs of overflow.
- Check all sign condition once monthly, if damaged fix as soon as possible.
- As determined by remote monitoring, any CSO structure that overflows following the prior week check will have that outfall pipe checked. Down stream banks will be checked for sewage debris, and cleaned up.

Routine Tank Inspection

See the O & M manual and/or SOP for appropriate tank inspection checklist.

Visual inspection of each tank shall take place annually per each tank O&M procedures.

An intermediate event is when water gets in the flush tanks and/ or the tank. An extreme event is when the tank fills then overflows to the river.
If monitoring indicates the tanks have filled in an intermediate or extreme event, a follow-up visual inspection of tank components will take place within 7 days of the event.

Stage II Snow Event Procedures

Routine weekly visual inspections will be suspended during stage II snow events for access and safety reasons.

- Remote monitoring of CSO's will continue during the stage II event.

High River Procedures

For safety reasons, outfalls and downstream river bank inspections will be suspended when the river flows are above 25,000 cfs.

Dry Weather Procedures:

DWO procedures will be done year around. When notification of a possible dry weather overflow occurs Wastewater maintenance will:

- Inspect affected regulator and/or control device and return to normal operation

DWO MAINTENANCE PROCEDURES:

If the regulator and/or control device is overflowing, the crew will immediately try to dislodge any debris causing the blockage with the service truck pole. If this is unsuccessful, the crew will radio Wastewater Maintenance to get the closest available hydro cleaner to assist in clearing the blockage. The crew will continue to work with the pole to dislodge any debris until the hydro crew arrives. If the blockage is still not 100% clear from the regulator and/or control device, the crew shall immediately notify the appropriate District Supervisor in order to enter the confined space; per the Wastewater Management confined space entry program and remove all foreign objects with hooks and shovels or by using a combination sewer cleaner with vacuum capabilities.

(Note: If the debris cannot be removed expediently, it may be necessary to plug the sewer line and by-pass pump all the flow to another sanitary facility in the interim to remove all debris.) This practice shall be continued until the structure is flowing cleanly and there is no doubt that the regulator and/or control device is 100% free of any obstruction.

- Document the DWO on the complaint form.
- Try to identify the debris blocking weir
- Where possible state the size or amount of blockage

CAUTION SIGNS AND FLAGS:

During high river use, between April 15th and November 1, river entry point signage will also be displayed.

Flags and signage will not be displayed between November 2 and April 14th

- Flip open signage and install flags for 24 hrs at Plese Flats, TJ Menach and Water Ave river access points.
- Remove any sewage debris in the vicinity of the outfall within three days of any dry weather overflow,
- Check signage at outfall

INTERNAL NOTIFICATION PROTOCOL:

Notification of any plugged regulator and or control device shall be directed immediately, 24 hours a day, to Wastewater Maintenance (625-7900) and passed on to the appropriate supervisor;

After hours supervisor will contact RPWRF operator to give a point of contact. When resolved, supervisor will contact RPWRF operator on weir status.

- Northside-Dan Duffey Radio #326,
- Southside-Mal Lund Radio #330,
- Stormwater-Raylene Gennett Radio #350,
- Construction Mike Lowdon #331.

SUPERVISOR PROCEDURES:
In any Dry Weather Overflow (DWO) event, the Wastewater Maintenance and Collection Superintendent, Gary Kaesemeyer, or responsible person shall notify external personnel as defined in the following section and notify the Director of Wastewater Management, Dale Arnold and the Director of Public Works Rick Romero.

- Minimum information needed by supervisors for initial (24-hour) DWO notification is:
- Location and Regulator Number
- Time of notification to Wastewater Maintenance and/or time DWO was discovered
- Notify RPWRF Operator of overflow, as to activate public notification on the city website.

Additional information needed by supervisors for follow-up report due to DOE within 5 business days includes:

- Start and end times of DWO
- Duration of DWO (cumulative recorded overflow time)
- Estimated gallons of DWO calculated from a review of information provided by programmer analyst
- Pipe and weir sizes involved
- Description of Wastewater Management response, including timeline (alarm, validation, maintenance crew arrival, return to normal operation)
- Cause of DWO, if it can be determined
- Any special circumstances, such as vandalism, firefighting, water main break, damaged monitors or telemetry, etc.
- How we might prevent in the future, as applicable

24 HOUR PHONE NOTIFICATION TO ECOLOGY:

Wastewater Maintenance and Collection Superintendent, Gary Kaesemeyer or responsible person shall verbally notify the Dept. of Ecology within 24 hours of the city becoming aware of a possible DWO event. **Such notification shall be to Ecology's 24-hour phone number 329-3400.** If during business hours, attempt to also notify the NPDES permit manager and enforcement coordinator at Ecology via that same phone number or by e-mail.

24 HOUR PHONE NOTIFICATION TO SPOKANE REGIONAL COUNTY HEALTH:

Wastewater Collection Supervisor, Gary Kaesemeyer or responsible person shall verbally notify **Spokane Regional County Health (SRCH) 8am to 5:00 pm call 324-1560. After hours call 624- 4146.** During business hours attempt to notify Mike LaScuola at the 324-1574 within 24 hours of the city becoming aware of a possible DWO event.

POST EVENT INSPECTION:

Any regulator and/or control device that has been plugged;

- Check daily for five working days,
- Then check once a week for a month,
- If no signs of issues with regulator during the post inspections then return to the regular schedule.

5 DAY WRITTEN REPORT TO ECOLOGY:

Wastewater Maintenance and Collection Superintendent, Gary Kaesemeyer or responsible person shall submit a written report documenting the DWO event. The written report shall be sent to the NPDES permit manager at Department of Ecology within five (5) business days per the notification plan.

RECORD KEEPING:

All monthly inspection reports shall be kept on file at Wastewater Maintenance. Regarding dry weather overflow events, a log of all radio communications during the event will be kept on file. All 5 day written reports for DWO events submitted to Ecology and shall be placed on file.
When development of the Maintenance Management System is complete, the monthly CSO regulator inspection information shall be recorded electronically. The data shall reference the manhole identification number (I.D.) and CSO regulator number.

SUBMISSION DATES:

Previous year's weir, sign and outfall inspection reports shall be submitted by March 1st each year. (Reference NPDES Permit S.13.F)

Annual review of the CSO O&M Plan shall be submitted on October 1st of each year. (Reference NPDES Permit S.13.E)