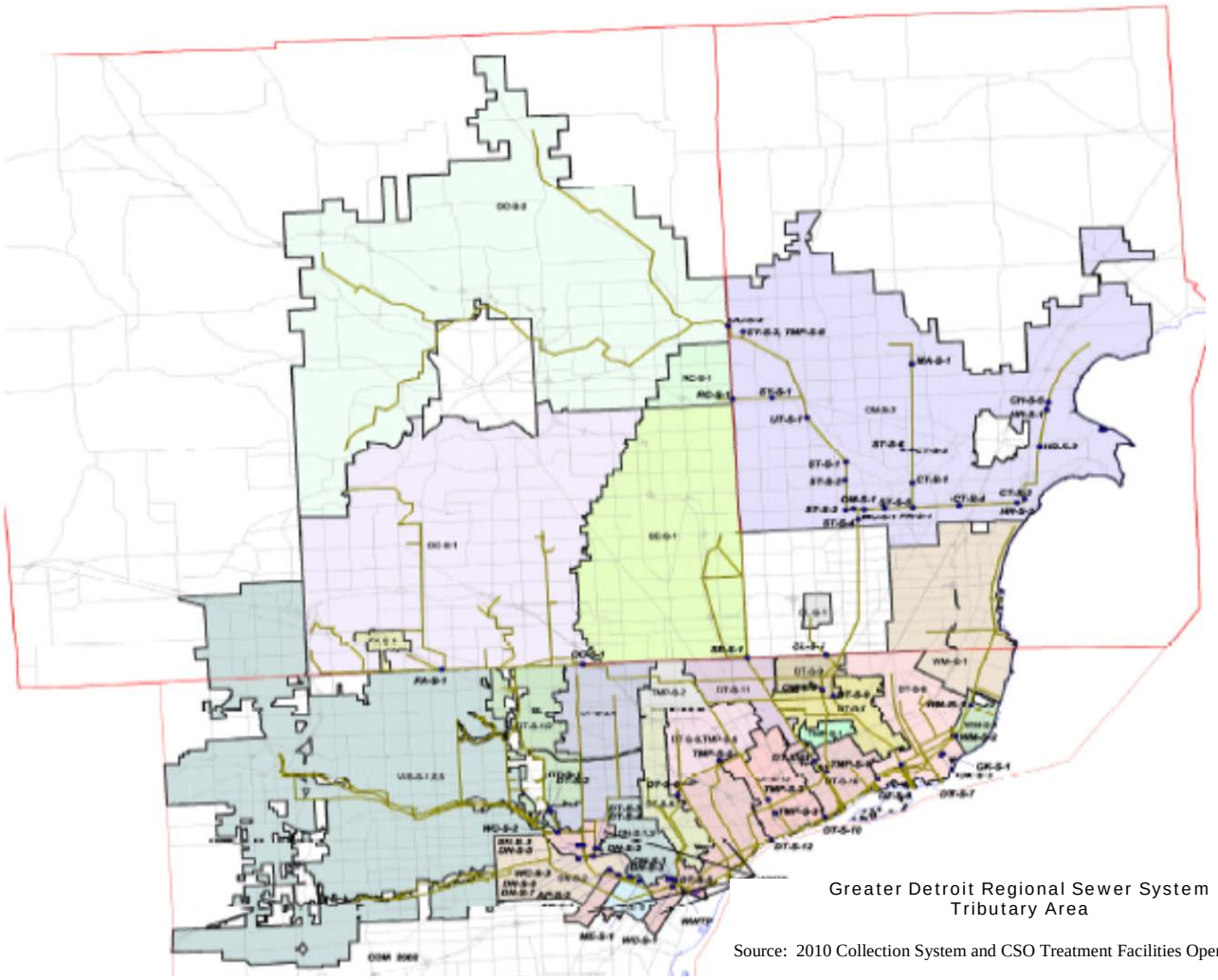
2015 Consolidated Annual Report



Greater Detroit Regional Sewer System
Tributary Area

Source: 2010 Collection System and CSO Treatment Facilities Operational Plan

Revised Collection System and CSO Treatment Facilities Operational Plan
Collection System Rehabilitation Project List and Description for 2016
Discharge Events and Rainfall Summary for Fiscal Year 2014-15

Submitted: October 1, 2015

Detroit Water and Sewerage Department

Sue F. McCormick, Director

Prepared for Michigan Department of Environmental Quality
Pursuant to requirements under NPDES Permit No. MI0022802

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1.0 INTRODUCTION

1.1 Report Format and Purpose

This document is a consolidation of three separate deliverables prepared by the Detroit Water and Sewerage Department (DWSD) and submitted to the Michigan Department of Environmental Quality (MDEQ)[1] each due annually or before October 1st pursuant to requirements set forth in the National Pollutant Discharge Elimination System Permit No. MI0022802 (Permit) of current issuance. For simplicity, the document is referred to as the 2015 Consolidated Annual Report (Annual Report).

1.1.1 Revisions to Operational Plan

Similar to such consolidated annual reports submitted the past three years, the main body of this year's Annual Report includes revisions to the Collection System and CSO Treatment Facilities Operational Plan (Operational Plan) which reflect changes made to it during the last year pursuant to Part I A.15.e of the Permit—see pages 42-43.

DWSD's original (Wastewater) Collection System Operational Plan was submitted in October 1993 to the Michigan Department of Natural Resources, Surface Water Quality Division in fulfillment of the Permit requirements effective then. From 1994 through 2005, annual updates (revisions) were prepared and submitted by DWSD to incorporate new facilities, reflect changes in operating protocol, and other revisions. In 2006, DWSD undertook a complete re-write of the Operational Plan to create a single document covering the collection system and CSO control facilities.

Although not a stand-alone document, this 2015 revision to Operational Plan is not intended to exclude nor negate relevant aspects of the collection system otherwise addressed in the complete Plan re-write submitted in 2006 and subsequent annual revisions through 2011. Similar to 2012, 2013 and 2014 non stand-alone plan revisions, this year's revision provides updated narrative and figures to reflect current practices and conditions described in select sections carried over from *previous* annual plan revisions and otherwise described in a few *new*

[1] See attached MDEQ stamped transmittal letter for date of actual submission

sections (or subsections) and appendices. As placeholders, a brief indication of this is included in each such section that are so excluded, or superseded by a new section. Please refer to the 2011 Plan revision (and subsequent revisions) to review sections excluded or prior editions of sections retained in this revision for historical relevance.

As with prior revisions, this revision addresses the facilities and the operational practices which relate to the collection and conveyance of wastewater to the treatment plant. To certain extents, these have been coordinated with practices identified in the separate Wastewater Treatment Plant Wet Weather Operational Plan next due for submission to the MDEQ on or before January 1, 2016 in accordance with Part I.A.11 of the Permit.

As addressed in the original 1993 Wastewater Operational Plan and subsequent annual revisions, a primary focus has and continues to be on the three interceptors[2] and appurtenant sewer infrastructure--including the DWWTP and nine CSO control facilities owned and operated by DWSD.

Future revisions to this Operational Plan will articulate any changes that impact requirements set forth under Part I.A.15.e, Part I.A.11 and other applicable provisions of the Permit and those of subsequent permit issuances or modifications effective before October 2016.

1.1.2 Collection System Rehabilitation Planned for 2016

Included under Appendix 1 is a list and brief description of collection system rehabilitation projects planned for calendar year 2016 pursuant to per Part I A.15.d(6)(b) of the Permit. These capital renewal projects and remedial work identified in the coming year (and beyond in some cases) is considered essential to sustain and improve overall system performance from various aspects, including but not limited to: ensuring adequate treatment or partial treatment of intermittent discharges from CSO control facilities and the WWTP; best managing in-system

[2] Including: a) the **Northwest and Oakwood Interceptors** that largely serve the Rouge River, Southfield, Hubbell, Baby Creek and Oakwood Districts in Detroit plus some suburban flows, b) the **Detroit River Interceptor** that largely serves the Conner Creek, Fox Creek, East Jefferson, and Central Districts plus some other suburban flows, and c) the **North Interceptor–East Arm** (NIEA) mostly conveys flow discharged from Northeast Pump Station tributary from the Oakland-Macomb Interceptor District, some other suburban flow and minor tributary Detroit flow diverted to one or more of the three flow regulating facilities installed along the NIEA.

storage during certain antecedent wet weather conditions; and promoting preferential transport and conveyance of wet weather flows to the WWTP and regional CSO facilities.

1.1.3 Discharge Events and Rainfall -Fiscal Year 2014-15

Included under Appendix 2 is a summary of rainfall frequency and duration of all discharge events reported the previous fiscal year as required under Part I.A.15.d(6)(a).

A couple noteworthy observations are:

1. 82% of total reported discharges to receiving waters[3] were treated or partially-treated at the time of intermittent discharge during the 25 wet weather events reported , and

2. The reported untreated discharge volume that resulted August 11-13, 2014 from the near record 300-year rainstorm[4] over Detroit and the greater collection system represented 68% of total untreated discharge volume[5] last fiscal year.

3. Two wet weather events, the August 11-13 event and the November 23-26 event (loss of PS1 due to flooded wet well), accounted for more than 90% of the total untreated discharge volume over the entire fiscal year.

Refer to Appendix 2 for more information.

1.1.4 RTB and SDF Performance--Fiscal Year 2014-15

Finally, included under Appendix 3 is the performance data for DWSD's retention treatment basins (RTBs) and screening & disinfection facilities (SDFs) for fiscal 2014-2015. The table illustrates the total volume of wet weather flow that was treated, disinfected and discharged (9,772 MG) from these CSO control facilities and the total volume of wet weather flow that was otherwise captured, retained at these facilities and returned to the interceptors for treatment at

[3] 18 billion gallons

[4] 5.4 inches of cumulative rainfall was reported

[5] 2.6 billion gallons of nearly 3.9 billion gallons

the DWWTP (2667 MG) following secession of wet weather events. Note: there may be slight rounding errors which may cause a very minor variance in the data provided versus the above–referenced annual summary of CSO Discharge Data (Appendix 2).

1.2 Management Goals

This section describes the management philosophy on which DWSD's Operational Plan has been developed. DWSD's overriding goal is to provide reliable and cost effective service to its customers, while meeting all regulatory requirements to adequately protect the public health and ensure no adverse impact to the environment. This goal requires that personnel at all levels of the organization work closely as a team to ensure that all necessary facilities and equipment are properly operated and maintained in good working order.

1.2.1 Operation

Although not yet officially approved by the MDEQ, beginning early in fiscal year 2012-2013, DWSD proposed modifications to certain of the previously established four primary goals included in prior revisions to this section for the operation of the collection system (system) and CSO treatment facilities to migrate toward adaptive management. Those proposed revisions, including further edits unique in this Plan revision, are italicized, below:

1. Ensure that the system transports dry weather flows (as defined in the Permit) without overflow, or bypass, upstream of the *Detroit Wastewater Treatment Plant (DWWTP);*

2. *Operate the system to regulate and transport non-dry weather flows (wet weather flows) <u>both</u> to the DWWTP and to regional and DWSD CSO control facilities for treatment when flows approach and exceed hydraulic discharge capacity of DRO (via Outfall 049) ;*

3. Manage wet weather flows (as defined in the Permit) to minimize the frequency and duration of *untreated discharges during wet weather events; and*

4. Respond to emergencies promptly with priority given to resolving problems which are, or may become, a threat to public health or the discharge of pollutants *to listed receiving waters*.

In addition to these primary goals, DWSD has developed a set of "Guiding Principles" based on input from regulatory officials, suburban customers, and DWSD staff. These Guiding Principles further expand the primary goals to provide additional direction on policy issues affecting system operation:

1. Operate the system in the best interest of the service area and environment at an affordable cost.

2. Operate the system to prevent or minimize basement flooding in the event of unforeseen emergency conditions or storm events that exceed the system's capacity.

3. Operate the system to provide adequate transport and treatment capacity for sewered areas.

4. Operate the system in a coordinated manner.

5. Coordinate Operational Plans with MDEQ.

6. Provide information to all operators including satellite facilities in the system.

7. Manage hydraulics of the total system to minimize problems within the system.

8. Minimize pollutant loading and controlled overflows to the receiving waters.

9. Maximize system capacity for storm events including the use of rapid dewatering and decanting (*when hydraulic conditions allow; for example, see Appendix 3 for DWSD CSO control facility performance last fiscal year*).

10. Dewatering should not cause or increase overflows; .

11. Decanting should be managed to not adversely affect water quality.

12. Ensure that local Sanitary Sewer Overflow (SSO) projects, CSO basins, and relief sewers do not adversely affect the regional system.

13. Utilize system performance information to show value (cost).

14. Reduce infiltration and inflow to the extent such work is cost effective throughout the service area.

15. Share system infrastructure to maximize storage and/or treatment capabilities for non-uniform storms.

16. System is defined as all wastewater transportation, storage, and treatment facilities in the service area.

1.2.2 Maintenance

DWSD has established two primary goals for the maintenance program relating to its collection system and CSO treatment facilities:

1. Conduct maintenance on a pre-planned schedule to the maximum extent possible to prevent problems before they occur.

2. Respond to problems and emergencies as quickly as possible with the goal of avoiding or minimizing interruptions in service to customers.

1.2.3 Miscellaneous

In addition to the primary goals for operation and maintenance of the collection system and CSO treatment facilities, DWSD has also established three other objectives which are essential components to the Operational Plan:

1. Ensure the safety of all personnel engaged in operation and maintenance activities, including providing the proper training and support.

2. A commitment to be responsive to customers by reacting quickly to complaints, and by providing timely and accurate information about the system.

3. A commitment to keep adequate records to document operation and maintenance activities and provide the basis for informed management decisions.

To meet these goals, DWSD is committed to providing adequate staffing, equipment and training to support the proper operation and maintenance of the collection system and the CSO treatment facilities.

1.3 Wastewater Collection System Organization

The Permit requires that an individual be designated as the manager and contact person regarding the wastewater collection system. DWSD has designated the Director for Wastewater Operations[6] as the supervisor of the wastewater collection system in fulfillment of this requirement.

During a July 7, 2015 meeting attended by Wastewater Operations, Systems Control, and Field Services, it was agreed to by all that the Permit requirement under Part I Section 15.b.) Qualified Operations and Maintenance Manager for CSO Discharges was the Systems Operations Control Manager, currently identified as Biren Saparia. This individual also serves as the official contact for DWSD with the MDEQ with respect to combined sewer overflows.

Separate from the above-mentioned Permit requirement, Part II Section C.15 stipulates that DWSD identify WWTP Facility Contacts and Duly Authorized Representatives. These

[6] The unanticipated resignation of the sitting Director of WWO (and Asset Maintenance) Divisions in the Fall of 2013 resulted in the appointment of two Interim Directors of WWO acting at a different periods while the selection of a permanent candidate is selected, which Human Resources posted (advertized) July 28, 2014

individuals are currently identified as David McNeeley (Interim Director, Wastewater Operations), Wendy Barrott (General Manager), and Majid Khan (Wastewater Operations Manager). There are, however, several organizational entities with responsibility for various activities relating to the collection system. The Director (Sue McCormick) and Deputy Director (Darryl Latimer) oversee the entire wastewater system[7], and work with the Director for Wastewater Operations and the other organizational units involved in the operation and maintenance of the wastewater collection system to coordinate work and ensure that the system functions properly.

1.4 Regulatory Requirements

No revisions were made to this section from last year. See 2013 Revised Plan for reference.

2.0 SYSTEM DESCRIPTION

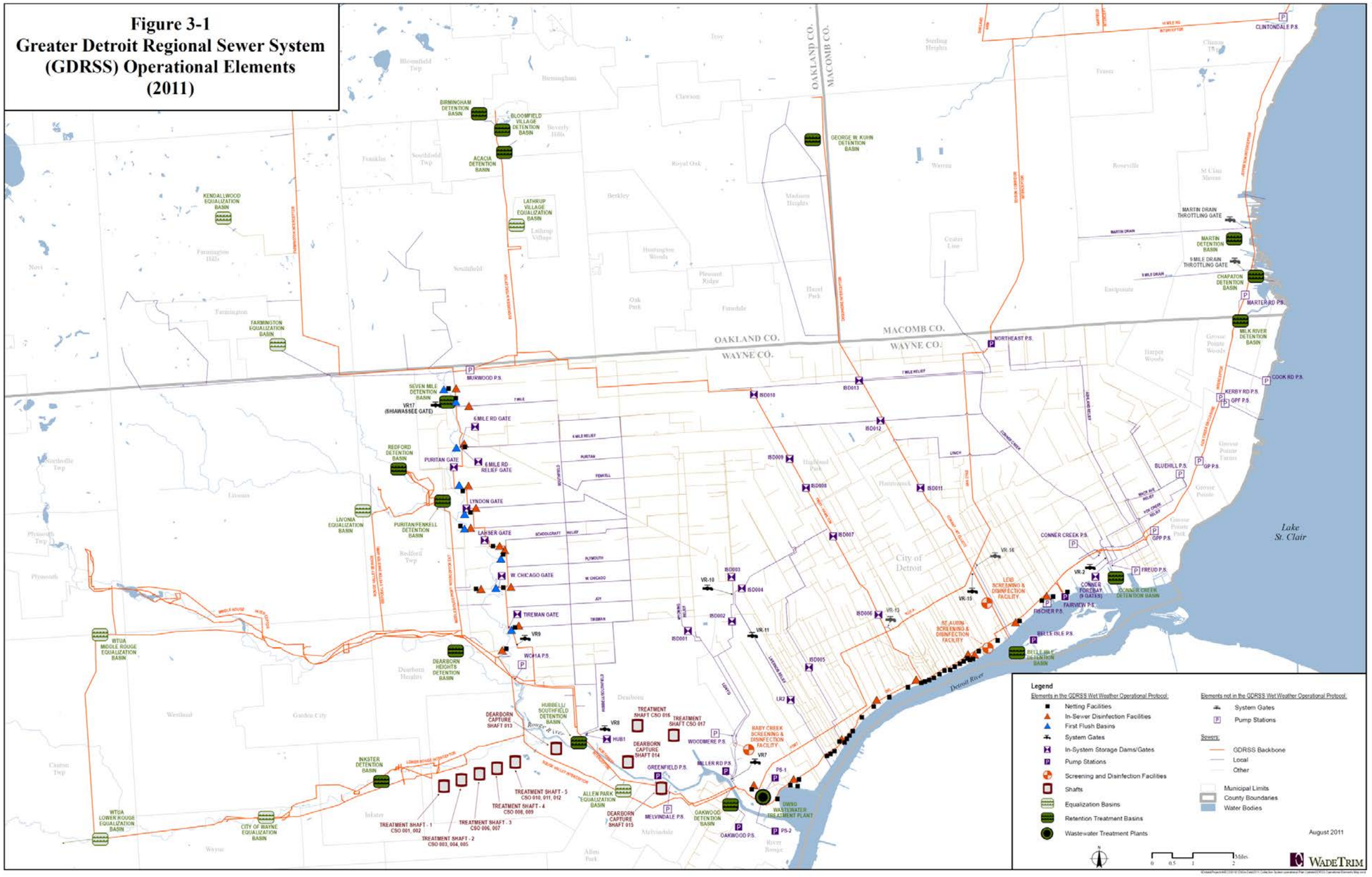
No revisions were made to this section from last year. See 2013 Revised Plan for reference.

3.0 GDRSS OPERATIONAL PLAN COMPONENTS

No revisions were made to this section from last year. Figure 3-1, below, is included for reference. See 2013 Revised Plan for further reference.

[7] Continued organizational restructure and staffing changes and new placement are anticipated consistent with the Optimization Project and emerging Great Lakes Water Authority lease agreement

Figure 3-1
Greater Detroit Regional Sewer System (GDRSS) Operational Elements (2011)



Note: Some elements and proposed CSO controls shown are subject to revision per present Permit requirements under Part I.A.15.d and other applicable provisions

4.0 CSO CONTROL PROGRAM AND FACILITIES

With the exclusion of Section 4.1.4, below, no revisions were made to this section from last year. For Sections 4.1.1, 4.1.2 and 4.1.3, see 2013 Revised Plan.

4.1.4 Upper Rouge Outfalls

The Permit requires DWSD to control CSO discharges from 17 outfalls to the Upper Rouge River[8] on the west side of the City. Prior to 2010, the compliance schedule called for construction of a CSO retention tunnel with a storage volume of at least 201 million gallons which would reduce the frequency of discharge to less than one event per year, on average. The tunnel was also designed to control some combined sewer overflows in Redford Township and Dearborn Heights as well as those in the City of Detroit.

The Upper Rouge Tunnel (URT) project, approved by MDEQ, consisted of eight construction contracts with work beginning on the South Tunnel segment in October 2008. The facility was to have been completed and placed into service by July 31, 2015, at which point a 15-year performance evaluation of the facility would commence.

DWSD received bids for the South Tunnel contract (PC-764) in the summer of 2008, and entered into a $325 million contract in September 2008 with the low bidder (Kenny/Obayashi Joint Venture). However, subsequent to the contract award, DWSD undertook a detailed evaluation of its financial capability to incur debt for the project based on updated cost estimates for the remaining construction work. As part of this analysis, the overall economic condition of the City and the impact associated with proposed sewer rate increases for debt retirement was taken into consideration.

Detroit's analysis of economic conditions concluded that the cost of the proposed new tunnel facility far exceeded the City's financial capability. After multiple meetings with representatives from MDEQ, DWSD requested a permit modification on June 26, 2009. The submittal included a financial capability analysis consistent with U.S. EPA guidance which

[8] Technically, the nearly 8-mile stretch of the *main* branch of the Rouge River which principally runs in a southerly direction through much of the extreme northwestern Detroit City limits between Eight Mile Road and Warren Avenue, also referred to *Upper Rouge River*

documented the economic hardship expected to be encountered by Detroit customers due to the tunnel project. MDEQ approved DWSD's request and authorized the City to terminate the URT project, provided that DWSD undertake an evaluation of alternative CSO controls which would be within the City's financial capability.

On April 30, 2010, DWSD submitted the *Supplemental Report on Alternative CSO Controls for Upper Rouge River Outfalls*[9] recommending that the CSO controls for the Upper Rouge Outfalls be nine facilities consisting of first flush storage tanks with disposable nets for screening and in-pipe disinfection systems. The first facility will be constructed as a pilot project to demonstrate the performance and reliability of this technology. A permit modification incorporating the proposed revised CSO alternatives for the Upper Rouge Outfalls was then issued by MDEQ on June 28, 2011.

Recommended controls for Upper Rouge Outfalls (CSO mitigation) described in aforementioned reports (and required in aforementioned Permit modification) also include implementation of a Green Infrastructure program which is expected to reduce wet weather (stormwater and snowmelt runoff) flow inputs to the combined sewer system by an estimated 10% to 20% upon scheduled (multi-phased) completion by 2020[10].

In July 2010, DWSD authorized the CS-1499 As-needed Engineering Consultant (Consultant)[11] to proceed with Task 2 to perform the preliminary design (basis of design) of the then Permit-mandated Pembroke "Pilot" CSO Control Facility.

In October 2010, the Consultant was directed to suspend design on the Pembroke facility because of discrepancies observed with the frequency, duration and volume of untreated discharges from the Pembroke Outfall (Outfall 079) and from some other upper Rouge outfalls disclosed in DWSD's Annual CSO Discharge Report[12] issued then (excerpt below) in

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[9] A companion to the *Evaluation of CSO Control Alternatives Report*, submitted on December 15, 2009

[10] The Permit includes more specific requirements in volume reduction and related CSO mitigation activities and projects within the Upper Rouge Tributary (URT) area, *and beyond* within the City. In April 2014, DWSD awarded the CS-1522 Green Infrastructure contract to Tetratech et al to implement the first phase of the program in the area. In August 2014, the *(The link provided was broken and has been removed.)* and *(The link provided was broken and has been removed.)* were issued. Go to *(The link provided was broken and has been removed.)* for recent reports, media posted

[11] METCO Services Inc., prime consultant; ASI, Hazen & Sawyer, Tetra-Tech,et.al.subconsultants

[12] the Permit mandated summary of CSO discharges for fiscal year 2009-2010,spanning 7/1/09-6/30/10

comparison with estimated discharge data otherwise presented in the aforementioned 2010 *Supplemental Report on Alternative CSO Controls for Upper Rouge River Outfalls* and its 2009 companion report. that recommended the Pembroke Pilot project.

Annual Summary of CSO Discharge Data
Fiscal Year 2009-2010

Permit No.	DWSD Outfall No.	Outfall Location	Volume, MG												
			Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Total
059	B054	W.Warren Siphon[4]	0	0.76	0	0	0	0.86	0	0	0	0	0	1.81	3.43
060	B056,057,058	Tireman-Trinity[5]	0	0	0	0	0	0	0	0	0	0	0	0	0.00
061	B060,061,062	West Chicago (East Shore)[5]	0	2.22	0	0	0	0	0	0	0	0	0	0	2.22
062	B063	W. Chicago Siphon	0	0	0	0	0	0.64	0	0	0	0.02	0.03	0	0.69
063	B064	Plymouth	0	0.29	0.04	0.28	0	0.54	0	0	0	0.01	0.02	0	1.18
064	B065	Glendale	0	0	0	0	0	0	0	0	0	0	0	7.88	7.88
065	B067,068	Lahser/Dolson[5]	0	0	0	0	0	0	0	0	0	0	0	0	0.00
066	B070	Schoolcraft (West Shore)	0	0.11	0.08	0.13	0	0.83	0	0	0	0	0	0	1.15
067	B069	West Parkway	0	0.08	0.04	0	0	0.17	0	0	0	0	0	0.25	0.54
068	B071	Brammel	0	6.97	0.07	0	0	0	0	0	0	0	0	0.32	7.36
069	B072	Lyndon[5]	0	0	0	0	0	0	0	0	0	0	0	0	0.00
072	B077	Puritan (east shore)[5]	0	0	0	0	0	0	0	0	0	0	0	38.72	38.72
073	B079	Riverdale (Florence Ridge)	0	0	0	0	0	0	0	0	0	0	0	0	0.00
074	B080&B081	McNichols[5]	0	0	0	0	0	0	0	0	0	0	0	0	0.00
075	B082	Glenhurst (west shore)	0	0.19	0.03	0	0	0.09	0	0	0	0	0	0	0.31
077	B085	Seven Mile (east shore)	0	28.89	0	0	0	0	0	0	0	0	0	0	28.89
079	B087	Pembroke	0	0	0	0	0	0	0	0	0	0	0	0	0.00

Table 4-6. Excerpt of 2009-2010 CSO Discharge Report

Because of this, the MDEQ and DWSD considered it prudent to postpone further design of Pembroke Pilot to allow a nearly 9-month supplemental wet weather investigation for the upper Rouge outfalls to address these discrepancies. On Nov 24, 2010, the CS-1499 Consultant was tasked (under Task 7) to conduct this study that included 29 temporary ISCO level -flow monitors [13] installed at 9 of these outfalls[14].

In May 2011, the CS-1499 Consultant issued the In-System Storage Gates Rehabilitation Preliminary Design Report (PDR) that essentially recommended in-kind replacements of the electrically-actuated dual-leaf, fabricated steel gates and associated structural, mechanical, electrical, instrumentation & control upgrades at these outfall sites for the estimated total

[13] Twenty-five level sensor type (ultrasonic downlooker) model 2100 sensors four area-velocity type (ultrasonic-Doppler type model 2150 sensors)

[14] Specifically, Outfall 060 (Tireman), Outfall 061 (West Chicago East Shore), Outfall 064 (Glendale Relief), Outfall 065 (Lahser/Dolson), Outfall 069 (Lyndon), , Outfall 072 Puritan), Outfall 074 (McNichols), Outfall 077 (Seven Mile, East Shore), and Outfall 079 (Pembroke)

cost of $3M; an optional recommendation included similar gate replacements, but with electro-hydraulic (SCUBA[15]) actuators instead for the estimated cost of $8M.

Later that month, the Consultant issued its deliverable for the Supplemental Wet Weather Investigation for 17 Upper Rouge Outfalls, which included a table (below) summarizing weir overflow occurrences based on level measurements observed for 8 of the 17 outfalls investigated[16] in response to the 9 wet weather events that occurred during the initial 4 months of the study.

Rainfall Event			Weir Overflow Occurrence							
No.	Date	Precipitation (inch)	Pembroke B87	Seven Mile B85	McNichols B80	Puritan B77	Lyndon B72	Lasher B67	W.Chicago B60	Trinity B56
1	2/28/2011	0.56	No		Yes	No	No	Yes (Not Significant)	No	Yes
2	3/4/2011 3/5/2011 3/6/2011	0.14 0.9 0.01	No	Yes (Not Significant)	Yes	Yes	Yes	Yes	Yes	Yes
3	3/9/2011	0.59	No	No	Yes	No	Yes (Not Significant)	Yes (Not Significant)	Yes (Not Significant)	Yes
4	3/20/2011 3/21/2011 3/22/2011 3/23/2011	0.66 0.19 0.39 0.25	No	Yes (Not Significant)	Yes (Not Significant)	Yes (Not Significant)	Yes	Yes	Yes (Not Significant)	Yes
5	4/6/2011	0.74	No	No	Yes	No	No	Yes (Not Significant)	No	Yes (Not Significant)
6	4/20/2011 4/21/2011 4/22/2011 4/23/2011	0.5 0 0.14 0.88	No	No	Yes	Yes	Yes	Yes	Yes (Not Significant)	Yes
7	4/27/2011 4/28/2011	0.37 0.93	Yes (Not Significant)	No	Yes	Yes	Yes	Yes	Yes	Yes
8	5/12/2011 5/13/2011 5/14/2011 5/15/2011	0.25 1.11 0.09 0.87	Yes (Not Significant)	Yes (Not Significant)	Yes	Yes	Yes	Yes	Yes (Not Significant)	Yes
9	5/23/2011 5/24/2011 5/25/2011 5/26/2011	0.36 0 3.48 0.37	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 4-7. Summary of Weir Overflow Occurrence Based on Level Measurements

On July 1, 2011, DWSD submitted the In-System Gates PDR to the MDEQ for comments to aid in the preparation of the follow-on basis of design report, which was anticipated in August 2011. On July 14, 2011, the Consultant was tasked (under Task 13) to perform

[15] Rodney Hunt's "Self-Contained Bi-Directional Underwater Actuator"
[16] Specifically, Outfalls 060, 061, 065, 069, 072, 074, 077 and 079

follow on design and construction assistance services consistent with approved PDR recommendations.

Later in the summer of 2011, the findings from the supplemental wet weather investigation (flow monitoring) led to the consideration of proposed alternative approaches to renovate the Task 1 gates, while preserving the primary purpose to maximize in-system. For this reason the basis of design of the gates was forestalled to allow the aforementioned GDRSS model[17] to be calibrated (and updated) using measured flow and sewer level data obtained during the amended investigation since the hydraulic model simulations performed which supported the original in-system gate designs[18] assumed either static river elevation or free discharge, those assumptions largely resulted in overestimated CSO discharge rates at each outfall versus historical CSO discharge reports of record (fiscal years 2008-2011).

In other words, the predicted flow values under those conditions did not apparently reflect the influence of the transient river levels on CSO discharges and frequencies. Continuing thru the fall of 2011 and in a measure to improve the accuracy and reliability of the historical model predictions, the CS-1499 Consultant updated the GDRSS Submodel utilizing actual measured river level values as time series input to reflect the hydrologic effect on the system (at these outfall sewer in-system gate or backwater gates configurations, as built), replacing the former "free discharge" assumption utilized at outfalls.

DWSD proceeded with design of the Puritan East First Flush Facility consistent with then modified Permit requirements. Upon Permit reapplication in May 2012 DWSD's financial hardship evaluation favored the above-mentioned supplemental hydraulic study and deferred controls for the 17 upper Rouge outfalls subject to completion of hydraulic monitoring and calibrated model report due April 1, 2015 (discussed below).to be utilized with associated engineering cost benefit analysis to amend to the supplemental report of alternative CSO control for Upper Rouge outfalls due January 1, 2017.

On May 29, 2013, DWSD further tasked the CS-1499 Consultant (under "Task 27") to develop an approvable Work Plan (Plan) to improve upon the methodologies employed for both monitoring and accurately determining combined sewer overflow (CSO) discharges[19]

[17] Specifically, the 2003 GDRSS "West Side Submodel" developed in SWMM level 3

[18] Source: aforementioned 1995 Basis of Design Report for the CS-1158,Task1 In-System Storage Gates

[19] That is, the estimated volume, frequency and duration of CSO discharges to designated receiving waters of the State that result from wet weather events imposed upon the collection system every year.

from the 17 upper Rouge outfalls listed in the Permit, effective: May 1, 2013 . This includes supportive hydraulic/hydrologic analysis to utilize in a calibrated and verified model to accurately detail the volume and frequencies of untreated discharges from these outfalls. Specifically, this includes analysis during a representative and typical 10-year period of rainfall record to determine the peak hour flow at the 10-year 1-hour storm event for these 17 outfalls and to otherwise sustain long-term regulatory compliance set forth under Part I §A.14.d.1) a) and b), and related requirements of the Permit.

On July 1, 2013, DWSD submitted the CS-1499 Task 27 Consultant's recommended *Overflow Discharge Work Plan for Monitoring 17 Upper Rouge Outfalls* (cover right) to the MDEQ for review and approval. On November 4, 2013, the MDEQ approved the Work Plan (with minor modifications requested by MDEQ). A stipulation included in the approval was that the monitoring period be extended to 12 consecutive months.

In January 2014, the CS-1499 Consultant started the installation of sewer metering equipment described in the Plan. In February 2014, DWSD and the Consultant met to first update the MDEQ on progress of the Task 27 monitoring program,
to address MDEQ findings and to reconcile inadequacies in characterizing, developing and otherwise calibrating the updated model[20].

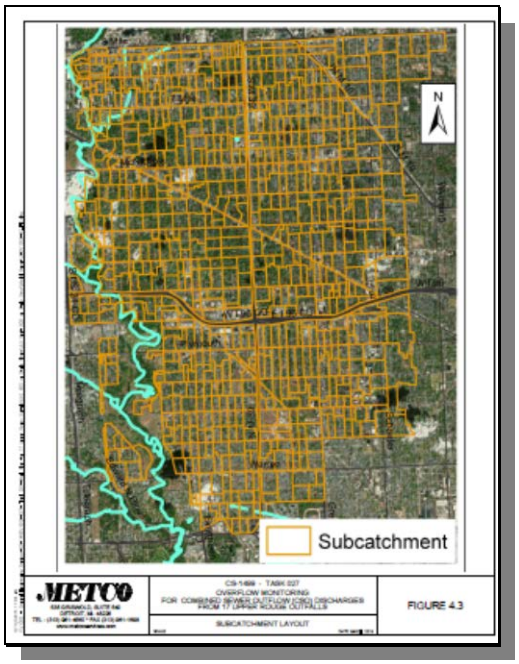
In May 2014, the entire sewer metering equipment, supplemental river level sensors, and three rain gages had been installed and data was further logged and evaluated. The Consultant commenced model development for the URT area. As addressed in the Task 27 authorization, such analysis and calibrated model development is to be eventually integrated

[20] During a August 2014 progress meeting with MDEQ staff, it was agreed that certain of the monitoring data would be used to support and certain CSO discharge estimates reported for 6 of the 17 outfalls that had undergone recent construction (that is, the aforementioned 5 outfalls that formerly were equipped with in-system storage gates then being retrofitted with conventional backwater gates and raised dry weather diversions at all but two outfalls, Tireman and West Chicago East, Outfall 060 and 061.

Assistance was also provided for post event discharge estimates from Puritan outfall (Outfall 072), which was equipped with automated in-system storage gates being refurbished (completed June 2015) to reinstate operations in lieu of retrofitting such gates with backwater gates and potentially raised dry weather diversion dams until a decision is made n future regarding the need for or the proper sizing of a first flush capture + residual flow bypass + in sewer disinfection facility at the outfall or other appropriate CSO control deferred as stipulated in the NPDES Permit. In December 2014, DWSD reissued the 2013-14 CSO discharge data with revised data for these outfalls.

with the more comprehensive GDRSS hydraulic model to promote improved planning for outstanding CSO controls for remaining 17 outfalls. The updated hydraulic analysis and model development is intended to support enhanced CSO facilities operations and promote improved maintenance and best practices to sustain Permit compliance.

In February 2015, the CS-1499 Consultant and involved DWSD staff met with MDEQ. The previous "west-side" model, a component of the integrated GDRSS model (developed in SWMM version 3), was used as the baseline for this model developed in Info-SWMM, compatible with the standard SWMM engine. In all, 799 sub-catchment areas were delineated across this nearly 38 square mile tributary area (see Figure 4-3, right).



Hydrologic attributes, such as, the growing vs non-growing seasons absorbability and seasonal groundwater variation were incorporated into model. Certain diurnal flow measurement and level data obtained from calibration meters were utilized, which the MDEQ suggested as being vital to calibrate antecedent and wet weather dynamic flow conditions upstream of outfalls in an approved manner, using such actual measured data and other known physical phenomena.

Rainfall data collected through September 2014 during this study and the former 2011- 2012 wet weather investigation, addressed above, was evaluated to select which events best matched the 10 yr 1 hr storm.

Additionally, a summary of combined sewer overflow duration and volumes for events encountered employing algorithms derived was prepared and utilized to advance some aspects of model development. In certain cases, this data and analysis supported estimated overflow durations and volume calculations used for post event report in lieu of methodologies employed by DWSD due to then ongoing construction of modifications being made to five Rouge outfalls formerly equipped with in-system storage gates (addressed above. In other words, this data was selectively used in conjunction with monitoring equipment and reporting methodology.

On March 31, 2015, DWSD submitted the final report on flow monitoring and model development for the 17 upper Rouge outfalls. It is continuing to be reviewed by DWSD and by MDEQ.

Although not noted in this report, DWSD's wet weather event discharge reports are based upon the monitoring equipment in the field, while several other communities in southeast Michigan and North America rely on model predictions for wet weather event discharge reporting

Additionally, in 2014-2015 DWSD installed infrared capable cameras at Outfalls B5, B7, B10, B20, B63 and B64; and as many as 6 additional outfall cameras are planned to be installed at other outfalls the coming year.

5.0 OPERATIONAL PERIODS AND OBJECTIVES

There are four operational periods of the collection system: Pre-Storm, Wet Weather, and Dewatering periods, as shown in Figure 5-1.

In addition, there are established collection system prioritized operational objectives to optimize the collection system operation. These objectives were developed for each operational period as further describe below.

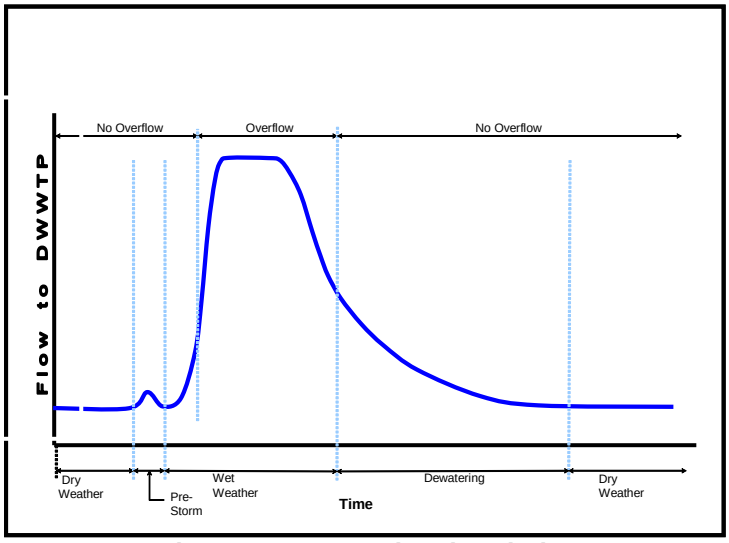


Figure 5-1 Operational Periods

5.1 Dry Weather

During dry weather periods, the collection system transport capacity is available to deliver all the flow to the DWWTP for secondary treatment. There is no overflow from the system and the

controllable storage is not utilized in this period. It is operated normally and no strategies are needed.

5.2 Pre-Storm

This period precedes the wet weather period. It is considered a preparation step to have the collection system storage available for the next period. There is no overflow from the system associated with this period. A simplified operational strategy is needed to maximize the storage. The objectives are:

1. Avoid basement flooding
2. No overflow
3. Meet DWWTP requirements
4. Maximize available system storage
5. Maximize operational efficiency

5.3 Wet Weather

The wet weather period starts during the storm event. The collection system storage is fully utilized and overflows may or may not occur from the system, depending on the rainstorm's intensity and duration across service area. In general, most of the flow volume during this period is regulated and transported to the DWWTP and to regional and DWSD CSO Control Facilities for treatment and discharge to listed receiving waters. The extent (volume), duration and frequency of such discharges can be influenced by antecedent hydraulic conditions within the collection system and how wet weather flows are managed in response to each particular rainstorm (and/or snowmelt event) and associated hydraulic and process conditions at the DWWTP (see Section 6.5) precedent to and the time of discharge, if any (for example for smaller storms that may not result in wet weather discharges from any DWSD outfall, treated or otherwise).

Revised operational strategies were needed to manage the flow and level in the collection system. The prioritized objectives for this period are:

1. Avoid basement flooding
2. Meet DWWTP requirements

3. Minimize untreated overflows
4. Regulate flow to the DWWTP and otherwise to CSO Control Facilities
5. Optimize treated overflow
6. Best utilize storage and treatment capacities at CSO facilities

5.4 Dewatering

This period starts when the overflows from the collection system end. Emptying the in-system storage and the control facilities is necessary to have the system ready for back to back storm conditions. Operational strategies are needed to manage the process without overflow occurrence and ensure a proper coordination with the Suburbs. The prioritized objectives of this period are:

1. Avoid basement flooding
2. No overflow
3. Meet DWWTP requirements
4. Empty storage facilities

6.0 OPERATIONAL PLAN DEVELOPMENT

The Operational Plan was initially developed in the 2002 to 2004 time frame and based on the GDRSS operational elements identified at that time. DWSD's CSO control facilities have evolved over the past few years, in part because of changes in economic conditions. DWSD has now revised the recommended future CSO controls in the context of the City's financial capability, and these modifications were recently incorporated into the Permit as part of the approved final CSO Control Program.

As alluded to in prior years' revisions, anticipated and ongoing changes to the Operational Plan have been made and will continue in the spirit of valued-added service amidst continued socioeconomic and demographic uncertainty for a retail customer base and tributary communities for the coming years in manners not necessarily inconsistent with the requirements and terms set forth in the Permit pertaining this Plan—in particular, those pursuant to Part I A.15.e and that coordinated with the separate Wastewater Treatment Plant Wet Weather Operational Plan pursuant to Part I.A.11 of the Permit.

Such changes to the Operational Plan will continue to reflect and yield quantifiable operational performance objectives and control measures consistent with those established in the long-term CSO Control Plan under an adaptive management purview of several prior years of demonstrated performance of the greater regional sewer system, cognizant of the physical and hydraulic limits it is designed for in the realm of wet weather flow collection, transport and treatment.

As well, the Operational Plan will be continuously adapted (refined) to mitigate the potential of untreated CSO discharges utilizing the existing sewer system infrastructure in the interim as additional new (future) CSO control facilities are reprogrammed (or amended, as provided in the Permit), designed, implemented and placed in service; and while existing wet weather flow control and treatment facilities are rehabilitated– notwithstanding performing routine scheduled (preventive) maintenance and repair of said infrastructure, at large, to otherwise sustain beneficial (reliable) service and sustain substantial Permit compliance.

In view of the foregoing and within the context of this 2015 Revised Operational Plan, several of the subsections included in last year's Plan revision under Section 6 remain unchanged, yet valid from many regional (wholesale, first tier customers) and Detroit (retail customers) perspectives; accordingly these were omitted for brevity. With the exclusion of Subsections 6.2, 6.5 (which were revised) and Table 6.1 (which was annotated), no other revisions were made to this Section from last year (other than the introductory paragraphs above, and below). These remaining subsections (or tables or figures) have been retained in this Section to support the changed Operational Plan being utilized by DWSD in coordination with tributary communities to practical extents with routine scheduled best practice workgroups meetings, often facilitated by experienced professional consultants and engaged DWSD staff. For Sections 6.1, 6.3, and 6.4, see 2013 Revised Plan.

In effect, this changed Operational Plan, chiefly from a wet weather operations standpoint, has been utilized continuously by DWSD since the summer of 2012 with remarkable results. This has been coordinated in close collaboration with tributary (suburban) communities—especially on post event dewatering protocols and on enhancing real-time facilities operations communications for pre-storm periods and during wet weather events, going forward.

As expressed in 2014 correspondence from DWSD to the MDEQ pertaining to the Interim Staffing Plan for Wastewater Operations, "*DWSD continues to reduce untreated discharges from the combined sewer system during wet weather events. The annual summary of CSO discharge data for the past three fiscal years has been provided as part of the Consolidated Annual Report submitted every Oct 1^{s} . The following (updated) table summarizes the data contained in the last three annual reports (and this year's)".*

Table 6-1 Annual Summary of CSO Treatment and Discharge Data – MG

	Fiscal Year 2011- 2012	Fiscal Year 2012- 2013	Fiscal Year 2013- 2014	Fiscal Year 2014- 2015
WWTP Primary Effluent - DRO	7,911	4,665	3,980	3654
WWTP Primary Effluent - RRO	10,962	8,253	4,752	4645
Combined RTBs & SDF	5,122	7,164	12,665	9772
Total Treated CSO	23,995	20,082	21,397	18071
Total Untreated CSO	3,260	499	533	3864
Total CSO Volume	27,235	20,581	21,930	21935
Percent CSO Untreated	11.97%	2.42%	2.43%	17.62%
Percent CSO Treated	**88.03%**	**97.58%**	**97.57%**	**82.38%**

Notes: Two Wet Weather Events significantly shaped the performance of FY 2014-2015. The August 11-14 300-year storm and the PS1 wet well flood during the November 23-25. Excluding the untreated discharge from those two events (3492 MG), the percent of CSO treated during this fiscal year would have been 97.98%

6.1 Storm Period

No revisions were made to this section from last year. See 2013 Revised Plan for reference.

6.2 Wet Weather Period

6.2.1 Storm Size / Evaluation Parameters

The operational strategies are somewhat dependent on the size of the storm event. In general, storm events can be grouped into small and large events. A small (frequent) storm event is defined as an event that generates wet weather volumes equal or less than the in-

system storage available in the collection system and does not produce overflow. A large (infrequent) storm event is defined as an event that generates wet weather volumes that exceed the available in-system storage in the collection system and produces overflow.

Several parameters have been considered in the evaluation of wet weather operational strategies, including eliminating or minimizing uncontrolled, untreated overflows in the system, maximizing flows to the wastewater plant and CSO control facilities, meeting permit effluent limits, maintaining hydraulic gradelines at suburban connection points, and minimizing basement flooding.

Achieving a reduction in untreated overflows is one of the priority goals since it has a direct impact on the quality of the receiving water. Increasing treated discharges at the CSO facilities is considered a good benefit if it is at the expense of reducing the uncontrolled, untreated overflow. It is preferable to have flows treated at the DWWTP rather than at the CSO facilities if the conveyance capacity of the system can accommodate this without triggering uncontrolled, untreated CSO overflows. Increasing flows to the DWWTP and maintaining its full capacity is a benefit. The performance of a strategy is best judged by examining how it performs for a wide range of storm events rather than just looking at a specific storm. This gives more weight to smaller storms which have more frequent occurrence than larger storms. Reducing the DWSD system HGL at suburban connection points, such as the Wayne County Connection, is a benefit because it provides higher suburban wet weather flows to enter the City of Detroit system.

There are other parameters that played a role in selecting the preferred operational strategy. Quantifying some parameters is difficult and cannot be modeled, including factors such as cost of operation, maintenance, complexity of the collection system, and complexity of the coordination between the operational elements in the City of Detroit and Suburbs. The revised operational protocol described in Section 6.5 promotes simplicity to effectively derive these same benefits toward untreated CSO mitigation for both smaller events (with the potential of unnecessary excitation of certain CSO facilities to rather firstly use available in-system storage) and otherwise *use* the CSO facilities for capture and potential treated discharges for larger events, depending on the intensity and duration of particular rainstorms (and snowmelt occurrence, when applicable).

6.2.2 Collection System Operational Elements

The wet weather future strategy of each operational element in addition to other pertinent information is presented in Table 6-1, on following sheets. The data is tabulated in the following columns:

- Facility Type: Operational elements are grouped based on types such as CSO Retention Basins, Equalization Basin, etc.
- First Tier Customer: Elements that have the same type are also grouped based on the First Tier customers to which they belong.
- Facility Name
- Expected On-Line Date: Expected date that the future operational element will be fully utilized in the collection system. (additional DWSD facilities not updated for 2013 since many are deferred for several years pursuant to provisions in Permit regarding recognized financial circumstances)
- Interceptor Discharge: It describes how the Facility is dewatered to the interceptor. The dewatering process may occur by gravity, pumping, or both (i.e., top portion of Hubbell-Southfield Basin is dewatered by gravity and lower portion by pumping).
- Related Operational Elements: Other operational elements located upstream of the current element that have an impact due to the interconnection and/or dependences between them. These related elements should be considered when developing the improved operational strategies. For example, the related operational elements for Puritan-Fenkell Basin are the Seven Mile Basin and Shiawassee Gate (VR-17).
- Storage Volume: Indicates the portion of the total volume that is provided by the influent system storage and/or by the facility storage tank.
- Wet Weather Operational Strategy - Future: It describes the operational protocols for the existing and future operational elements (i.e., the operational protocol of Hubbell-Southfield basin for the wet weather period is to regulate the flow via VR-8 to a maximum of 86 cfs to NWI and to inflate HUB1 dam to maintain 0.8 sewer depth, excess flow is directed to the basin). **See Section 6.5 for updates**
- Wet Weather Operational Strategy – Improvements: The content of this column is described in the next section.

Table 6-2 GDRSS Operational Elements/Wet Weather Operational Strategies (page 1 of 6)

Facility Type	First Tier Customer	Facility Name	Expected On-line Date	Interceptor Discharge	Related Operational Elements	Storage Volume (MG)		Wet Weather Operational Strategy	
				Gravity/ Pumping		Influent System	Tank	Future	Improvements
Detention Basins	Detroit	**Belle Isle**	Jan. 2006	Pumping	None	0.00	0.30	• 0.3 MGD to DRI based on DRI level	**Small Storm** • 0.3 MGD to DRI based on DRI level **Large Storm** • Throttle the pumping station to divert flow to basin/ reduce flow to DRI
		Conner Creek	Jan. 2005	Pumping	• ~~Influent Storage Gates~~ Conner Sewer Gates • VR-2 -Freud & Conner Pump Stations	30.60	31.50	• Flow regulated via VR-2 to a maximum of 80 cfs based on DRI level • Operate influent gates to maintain an upstream 0.8 sewer depth, excess flows to basin	**Small Storm** • Modulate influent gates to maintain an upstream 0.8 sewer depth, excess flows to basin • Flow regulated via VR-2 to a maximum of 80 cfs to NWI **Large Storm** • Operate influent gates to maintain an upstream 0.8 sewer depth, excess flows to basin • Close VR-2 to reduce flow to DRI
		Hubbell/ Southfield	On-line	Gravity (12 MG) Pumping (10 MG)	• In-System Dam (HUB1) • VR-8	0.00	22.00	• Flow regulated via VR-8 to a maximum of 86 cfs to NWI • Inflate HUB1 dam to maintain 0.8 sewer depth, excess flow to basin	**Small Storm** • Inflate HUB1 Dam to utilize ISS • Regulate VR-8 to a maximum flow of 86 cfs **Large Storm** • Inflate HUB1 dam to maintain 0.8 sewer depth, excess flow to basin • Modulate VR-8 based on WWTP level to maximize flow to basin/ reduce flow to NWI
		Oakwood	Jan. 2009	Pumping	• Oakwood P.S.	0.00	0.00	• Flow is pumped up to 24 cfs into NWI • Flows in excess go to basin	**Small Storm** • Maximize flow up to 24 cfs to NWI **Large Storm** • Throttle the pumping station to divert flow to basin/ reduce flow to NWI
		Puritan/ Fenkell	On-line	Pumping	• Shiawassee gate (VR-17) • Seven-Mile basin	6.40	4.10	• VR-17 is set at a fixed opening size (18") • Flow is distributed between the two basins depending on the hydraulic conditions at VR-17 • Flow is pumped to the NWI up to 13.3 cfs and 25.7 cfs for Seven-Mile and Puritan/Fenkell, respectively, depending on NWI level	**Small Storm** • Modulate VR-17 to fill both basins and maximize flow to NWI **Large Storm** • Modulate VR-17 gate to distribute the flow between the two basins • Stop flow to the interceptor
		Seven-Mile	On-line	Pumping	• Shiawassee gate (VR-17) • Puritan/Fenkell basin	1.90	3.10		
	Oakland County	**Acacia**	On-line	Pumping	None	0.40	4.00	• Flow regulated up to 3 cfs to Evergreen Interceptor, excess flow to basin • Up to 12 cfs pumped to Evergreen Interceptor from basin based on Interceptor level	**Small Storm** • Maximize flow up to 3 cfs to Evergreen Interceptor **Large Storm** • Throttle the pumping station to reduce flow to Evergreen Interceptor
		Birmingham	On-line	Pumping	None	4.10	5.50	• Flow is pumped into Evergreen Interceptor up to a maximum of 5 cfs, excess flow to basin • Up to 16 cfs pumped to Evergreen Interceptor from basin based on Interceptor level	**Small Storm** • Maximize flow up to 5 cfs to Evergreen Interceptor **Large Storm** • Throttle the pumping station to reduce flow to Evergreen Interceptor

SEE SECTION 6.5 FOR CERTAIN UPDATES/REVISIONS

Table 6-2 GDRSS Operational Elements/Wet Weather Operational Strategies (page 2 of 6)

Facility Type	First Tier Customer	Facility Name	Expected On-line Date	Interceptor Discharge	Related Operational Elements	Storage Volume (MG)		Wet Weather Operational Strategy	
				Gravity/ Pumping		Influent System	Tank	Future	Improvements
Detention Basins	Oakland County	**Bloomfield Village**	On-line	Pumping	None	0.20	10.00	• Flow regulated up to 5 cfs to Evergreen Interceptor, excess flow to basin • Up to 16 cfs pumped to Evergreen Interceptor from basin based on Interceptor level	**Small Storm** • Maximize flow up to 5 cfs to Evergreen Interceptor **Large Storm** • Throttle the pumping station to reduce flow to Evergreen Interceptor
		GWK	On-line	Pumping	None	0.00	62.00	• Flow is pumped up to a maximum of 185 cfs into Dequindre Interceptor • Excess flow stored in the upstream system then overflows a weir to the basin	• Not possible with current infrastructure
			Jan. 2006			0.0	62 30.7 92.7		
	Wayne County (N.E.)	**Chapaton**	On-line	Gravity	• 9-Mile Drain System Gate	8.00	28.00	• Inflow is regulated to Jefferson Interceptor. During wet weather, influent gate is opened to fill basin	**Small Storm** • Maximize flow to Jefferson Interceptor **Large Storm** • Close regulator to divert flow to basin/ reduce flow to Jefferson Interceptor
		Martin	On-line	Gravity	• Martin Drain System Gate	3.00	8.60	• Inflow is regulated to Jefferson Interceptor. During wet weather, influent gate is opened to fill basin	**Small Storm** • Maximize flow to Jefferson Interceptor **Large Storm** • Operate regulator to divert flow to basin/ reduce flow to Jefferson Interceptor
		Milk River	On-line	Gravity/Pumping	None	5.00	19.00	• Flow is pumped into Grosse Pointe Interceptor up to a maximum of 22.3 cfs • Flows in excess of 22.3 cfs pumped to the basin • Basin flows dewatered by gravity and pumping @ 14.7 cfs	**Small Storm** • Maximize flow up to 22.3 cfs to Grosse Pointe Interceptor **Large Storm** • Throttle the pumping station to divert flow to basin/ reduce flow to Grosse Pointe Interceptor
	Wayne County (NHV/RV)	**Dearborn Heights**	On-line	Gravity	None	0.58	2.70	• Inflow is regulated to Middle Rouge Interceptor, excess flow fills basin • Basin dewatered @ 10.2 cfs	**Small Storm** • Maximize flow to Middle Rouge Interceptor **Large Storm** • Operate regulators to divert flow to basin/ reduce flow to Middle Rouge Interceptor
		Inkster	On-line	Gravity	None	1.00	3.10	• Inflow is regulated to Middle Rouge Interceptor. During wet weather, influent gate opens to fill basin • Basin dewatered @ 8.5 cfs	**Small Storm** • Maximize flow to Middle Rouge Interceptor **Large Storm** • Operate regulators to divert flow to basin/ reduce flow to Middle Rouge Interceptor
		Redford	On-line	Gravity	None	0.00	1.90	• Inflow is regulated to Lola Interceptor System, excess flow fills basin • Basin dewatered @ 3.9 cfs	**Small Storm** • Maximize flow to Lola Interceptor System **Large Storm** • Operate regulators to divert flow to basin/ reduce flow to Lola Interceptor System

Table 6-2 GDRSS Operational Elements/Wet Weather Operational Strategies (page 3 of 6)

Facility Type	First Tier Customer	Facility Name	Expected On-line Date	Interceptor Discharge	Related Operational Elements	Storage Volume (MG)		Wet Weather Operational Strategy	
				Gravity/ Pumping		Influent System	Tank	Future	Improvements
Equalization Basins	Farmington	Farmington	On-line		None	5.00	3.20	• Maintain up to 6 cfs to NWI	None
	Oakland County	Farmington Hills (Kendallwood)	On-line	Gravity	None	0.00	2.26	• Maintain up to 4 cfs to local Interceptor • Basin dewatered @ 1.6 cfs	None
		Lathrup	On-line		None	0.00	3.50	• Maintain up to 3.5 cfs to Evergreen Interceptor	None
	Wayne County (NHV/RV)	City of Wayne	On-line		None	0.00	2.30	• Maintain flow to Lower Rouge Interceptor • Basin dewatered @ 3.6 cfs	None
		Livonia	On-line		None	0.00	2.20	• Maintain up to 3 cfs to Livonia Arm Interceptor • Basin dewatered @ 9.3 cfs	None
		WTUA Lower Rouge EQ	On-line		• WTUA Middle Rouge basin	0.00	5.50	• Maintain up to 6.9 cfs to Lower Rouge Interceptor • Basin dewatered @ 3.8 cfs	None
		WTUA Middle Rouge EQ	On-line		• WTUA Lower Rouge basin	0.00	7.80	• Maintain up to 18 cfs to Middle Rouge Interceptor • Basin dewatered @ 10.2 cfs	None
Screening and Disinfection	Detroit	Baby Creek	Aug. 2005	Gravity	• VR-7, VR-10 • ISD002, ISD003, ISD004, ISD005, ISD009, ISD010 -Woodmere Pump Station	0.00	30.40	• Inflate ISD002, ISD003, ISD004, ISD005, ISD009, and ISD010 dams to maintain upstream 0.8 sewer depth • Open VR-10 to allow flow to enter Livernois Relief • Flow is maintained into Oakwood Interceptor up to a maximum of 140 cfs, excess flows go to facility • Close VR-7 • Facility dewatered @ 140 cfs	**Small Storm** • Inflate ISD002, ISD003, ISD004, ISD005, ISD009 and ISD010 dams to utilize ISS • Open VR-10 to allow flow to enter Livernois Relief • Maintain up to 140 cfs to Oakwood Interceptor **Large Storm** • Inflate ISD002, ISD003, ISD004, ISD005, ISD009 and ISD010 dams to maintain upstream 0.8 sewer depth • Open VR-10 to allow flow to enter Livernois Relief • Flow is maintained into Oakwood Interceptor up to a maximum of 140 cfs • Close VR-7
		Leib	Jan. 2004	Gravity/Pumping	• VR-15 • ISD012, ISD013, ISD014	0.00	9.94	• VR-15 fully open • Inflate ISD012, ISD013 and ISD014 to utilize ISS • Open VR-15 to maximize flow into the N.I.E.A. • Flow is maintained into DRI up to a maximum of 150 cfs • Facility dewatered @ 164 cfs	**Small Storm** • Inflate ISD012, ISD013 and ISD014 to utilize ISS • Open VR-15 to divert flow to N.I.E.A. **Large Storm** • Inflate ISD012, ISD013 and ISD014 to maintain an upstream 0.8 sewer depth • Modulate VR-15 based on WWTP level to divert flow to Leib S/D Facility and reduce flow to N.I.E.A. • Flow is maintained to DRI up to a maximum of 150 cfs
		St. Aubin	Jan. 2004	Pumping	None -Chene,Dubois and St. Aubin Regulator Gates	0.00	2.43	• Basin flows dewatered to a 0.8 water level at the DRI • Basin dewatered @ 7.3 cfs	**Small and Large Storms** • Basin flows dewatered to a 0.6 water level at the DRI

Table 6-2 GDRSS Operational Elements/Wet Weather Operational Strategies (page 4 of 6)

5 of 6 In-system Gates retrofitted with Passive In-system Storage; Puritan In-system Gates being Renovated

See Section 6.5 for updates/revisions on certain system gates

Facility Type	First Tier Customer	Facility Name	Expected On-line Date	Interceptor Discharge: Gravity/ Pumping	Related Operational Elements	Storage Volume (MG): Influent System	Storage Volume (MG): Tank	Wet Weather Operational Strategy: Future	Wet Weather Operational Strategy: Improvements
First Flush Tanks	Detroit	**Upper Rouge Outfalls**	Varies 2015-2035	Pumping	• VR-9 • Task 1 Gates	0.00	31.86	• VR-9 fully open • Utilize Task 1 in-system storage gates to maintain an upstream 0.8 sewer depth • Dewater First Flush Tanks @ various rates	**Small Storm** • Use Task 1 Gates to utilize ISS • Open VR-9 to expedite flows to WWTP **Large Storm** • Operate Task 1 Gates to maintain an upstream 0.8 sewer depth • Modulate VR-9 based on WWTP level to divert flow to First Flush Tanks and reduce flow to NWI
Vertical Shafts	Dearborn	**Dearborn** (vertical shafts have been used; alternative controls are being evaluated)	Varies	Pumping	• Greenfield P.S.	0.00	49.00	• Pumping at Greenfield P.S up to 50 cfs	**Small Storm** • Pumping at Greenfield P.S. up to 50 cfs **Large Storm** • Throttle Greenfield P.S. to divert flow to Tunnel and reduce flow to NWI
System Gates	Detroit	**VR-2**						See Conner Basin	
		VR-7						See Baby Creek Facility	
		VR-8						See Hubbell/Southfield Facility	
		VR-9						See Upper Rouge Tunnel	
		VR-10						• Open to allow flow to enter Livernois Relief	
		VR-13						• Fully Open	
		VR-15						• See leib Screening/Disinfection Facility	
		VR-16						• Fully Open	
		VR-17						See Seven Mile and Puritan/Fenkell Facilities	
In-System Storage Fac.	Detroit	**Wyoming Relief (ISD002)**	Dec. 2004	Gravity	All Related	6.14	N/A	**Small and Large Storms** • Inflate and modulate to maintain an upstream 0.8 sewer depth	
		Wetherby (ISD003)		Gravity		3.15			
		Upper Livernois Relief (ISD004)		Gravity		2.44			
		Joy (ISD005)		Gravity		3.58			
		Clark Summit (ISD006)		Gravity	None	3.98			
		First Hamilton (ISD007)		Gravity	All Related	9.02			
		First Hamilton (ISD008)		Gravity		4.43			
		First Hamilton (ISD009)		Gravity		3.96			
		First Hamilton (ISD010)		Gravity		4.28			
		First Hamilton (ISD011)		Gravity		1.42			
		Conant Mt. Elliot (ISD012)		Gravity	All Related	9.03			
		Six Mile Rd. (ISD013)		Gravity		2.34			
		Seven Mile Rd. (ISD014)		Gravity		3.57			
		HUB1		Gravity	• VR-8	17.6		See Hubbell/Southfield Basin	
		VR-11			• VR-10	1.3		**Small and Large Storms** • Inflate LR-2 dam and modulate VR-11 to utilize ISS • Open VR-10	
		LR-2				3.4			

Table 6-2 GDRSS Operational Elements/Wet Weather Operational Strategies (page 5 of 6)

In-System Storage Facilities	Detroit	Conner Influent Gates	On-line	Gravity	• Conner Basin, VR-2	40.4	N/A	See Conner Basin	
		6 Mile & 6 Mile Relief		Gravity	• VR-9	6.9			
		Puritan		Gravity		0.3			
In-System Storage Facilities	Detroit	Lyndon		Gravity		1.7		**Small and Large Storms** • Inflate and modulate to maintain an upstream 0.8 sewer depth	
		Lahser		Gravity		1.4			
		W. Chicago		Gravity	• VR-9	5.2			
		Tireman		Gravity		5.7			
Pump Stations	Belle Isle		On-line					• Maintain Conveyance	• Maintain Conveyance
	Bluehill								
	Clintondale								
	Conner								
	Cook Rd.								
	Fairview							• Maintain flow to a DRI 0.9 water level	• **Small and Large Storms** • Throttle pumping based on WWTP level to reduce flow to the DRI
	Fischer						N/A	• Maintain Conveyance	• Maintain Conveyance
	Freud								
	Grosse Pointe		On-line	Pumping					
	Greenfield								
	Grosse Pointe Farms								
	Grosse Pointe Park								
	Kerby Rd.								
	Marter								
	Melvindale								
	Miller Rd.								
	Murwood								

See Section 6.5 for updates/revisions on Conner, Fairview & Freud Pump Stations

Table 6-2 GDRSS Operational Elements/Wet Weather Operational Strategies (page 6 of 6)

Facility Type	First Tier Customer	Facility Name	Expected On-line Date	Interceptor Discharge	Related Operational Elements	Storage Volume (MG)		Wet Weather Operational Strategy	
				Gravity/ Pumping		Influent System	Tank	Future	Improvements
	Northeast							See Section 6.5 for updates/revisions on Oakwood & DWWTP	
	Oakwood							• Maintain Conveyance	• Maintain Conveyance
	WC#1A								
	Woodmere								
	WWTP							• Maximize primary and secondary treatment capacity	• Maximize primary and secondary treatment capacity

6.2.3 Operational Strategies Development (with minor Revision for 2015)

The operational protocols for each operational element in the collection system were reviewed for possible improvements. These protocols were then modified and/or new operational protocols were developed to better accomplish operational objectives. For example, some of the untreated overflows from the outfalls at the DRI occur because there is not enough capacity in the interceptor to accommodate the volume generated during wet weather. Therefore, the improved operational protocols of the elements that are connected to the DRI should include diverting flows to local CSO facilities to free additional DRI capacity and reduce the untreated overflow (i.e., modulate or shut down Fairview P.S. to increase flow to Conner Creek basin and otherwise reduce flow downstream though DRI).

With the exception of specific protocols discussed in Section 6.5, the improved operational protocols were (initially) developed for small and large storms. In general, for small storms, the flow should not be directed to the local CSO facilities when there is enough capacity in the local interceptor. This procedure reduces the frequent use of the CSO facilities which reduces cost and maintenance, and increases the flow to the DWWTP for treatment. The last column in Table 6-1 “Improvements” describes the improved wet weather operational protocol for each operational element in the collection system for both small and large storms. The table also includes any element that cannot improve its operational protocol due to the way it is structured or its inability to support it.

An operational strategy consists of a single, or group of operational elements that can be operated in a coordinated manner using the improved operational protocols to achieve the operational objective. Selecting these elements depends on the layout of the collection system and how the untreated outfalls are located relative to the operational elements. Therefore, understanding the interconnection and dependencies of the collection system components is necessary to identify the key elements that can best achieve the objectives.

Three major interceptors transport flow from the collection system to the DWWTP including the DRI, NIEA, and O-NWI. The DRI transports flow from the east side of the collection system. Most of the untreated overflow regulators are connected to this interceptor. Therefore, operational elements located upstream of these regulators become key elements

to control the interceptor capacity (i.e., Fairview P.S., Conner Basin) and reduce untreated overflow.

The NIEA transports primarily suburban, largely sanitary flow. Identifying the operational elements that can reduce the flow to this interceptor will increase the flow delivered from the suburbs which may reduce untreated suburban overflows --i.e., by appropriate modulation or opening/closing of VR-15 gates (see Section 6.5 for revised protocol impacting such flows and Lieb CSO Facility operations). In addition, more flow from major sewers (i.e., First – Hamilton) that are connected to DRI can enter the NIEA through drop-connections. This action will reduce the DRI loads and increase its available capacity which reduces the untreated overflows.

The O-NWI transports flow from the west side of the collection system. The portion of the O-NWI upstream of the Triple Siphons is referred to as the NWI and the portion downstream of the Triple Siphons is referred to as the Oakland Interceptor (OI). Several Suburban flows are delivered to this interceptor. Therefore, freeing the NWI capacity will help the Suburban flows to enter the interceptor and decrease the untreated overflow. The key element that can achieve this is VR-9. VR-9 is located upstream of the Suburban connections and can control the amount of downstream flow by throttling.

In addition to the key elements mentioned above, implementation of the improved operational protocols for all the operational elements in the system result in diverting more flow to CSO facilities during wet weather.

In addition to a Baseline (Future) Strategy, four wet weather operational strategies including Strategy 1, Strategy 2, Strategy 1+2, and Strategy 3 were developed. A fifth strategy called MDEQ Strategy was also evaluated. This strategy was recommended by MDEQ (several years ago) as a modification to Strategy 2. These strategies were input into the GDRSS model for performance evaluation.

The collection system Baseline Strategy refers to the current and future operational protocols of the existing and future operational elements. The operational protocol of an operational element describes the way the element is operated during the operational

periods (i.e., dry weather, pre-storm, wet weather, dewatering). For example, if the operational element is a CSO detention basin, the operational protocol describes when and how the flow is directed to the basin and what criteria are used for dewatering (i.e., basin is dewatered when the level at the local interceptor is equal or below 0.8 depth).

The operational protocols for the existing elements were collected from the Basis of Design reports, Operation and Maintenance (O&M) manuals, and Facilities Evaluation reports. For the future operational elements, the operational protocols were collected from the Basis of Design reports and contract documents/drawings available. Performance of these strategies was used as a baseline to evaluate the performance of other strategies (improvements).

Strategy 1

- Modulate VR-9 based on the water level at DWWTP to reduce flow to NWI and increase flow to the new CSO control facilities in the Upper Rouge area. See Section 6.5 for revised protocol for VR-9 in absence of controls for 17 upper Rouge outfalls identified in *Supplemental Report on Alternative CSO Control for Upper Rouge Outfalls*, dated April 30, 2010, to be amended on or before January 1, 2017 pursuant to current Permit requirements.

Strategy 2

- Modulate VR-15 based on the level at DWWTP to divert flow to Leib Screening and Disinfection facility to reduce flow to NIEA; see Section 6.5 further revised protocol impacting these elements
- Throttle pumping at Fairview Pump Station based on the water level at the DWWTP to reduce flow to DRI; see Section 6.5 further revised protocol for this pump station

MDEQ Strategy

- Modulate one gate only for VR-15 based on the level at DWWTP to divert flow to Leib Screening and Disinfection facility to reduce flow to NIEA

Strategy 1+2

- Implementation of operational strategies described for Strategy 1 and Strategy 2

Strategy 3

- Implementation of all improved operational protocols of the operational elements in the collection system as described in Table 6-1. See updates/revisions in Section 6.5

Operational elements are operated based on the way the system responds to wet weather events. This response is represented as a flow/level hydrograph that is generated at any location in the collection system. Therefore, the operational protocol includes information about the flow/level at a specified location at which the operational elements start/stop to operate. Based on the location at which the element should receive the response data, two approaches were defined as:

- Current System Response

  Current system response means the operational element operates based on the information received from the local interceptor level. The local interceptor is where the operational element is connected to. The information includes changes of the water level with time. For example, if the operational element is a Pump Station, the pumps should be turned off when the level at the local interceptor is above 0.8 sewer depth.

- Anticipated System Response

  Anticipated system response means the operational element is operated based on the predicted water level at the DWWTP. For example, if the operational element is a system gate, the gate should be throttled down an hour earlier (to account for travel time) if the water elevation at the DWWTP is expected to rise above 80 feet an hour later than the current time.

The two approaches were implemented to show how they impacted the level and flow at the DWWTP. The 1.25-inch, 24-hour storm event was used and two operational elements including Fairview P. S. and VR-15 were implemented in the GDRSS model. These operational elements were operated based on the Future and Improved strategies using the Current and Anticipated approaches.

As shown on Figure 6-1, below, the level at the DWWTP increased relative to the Future (baseline) for the Anticipated approach but decreased when using the Current approach. The flow at the DWWTP increased using the Anticipated approach but it decreased for the Current approach.

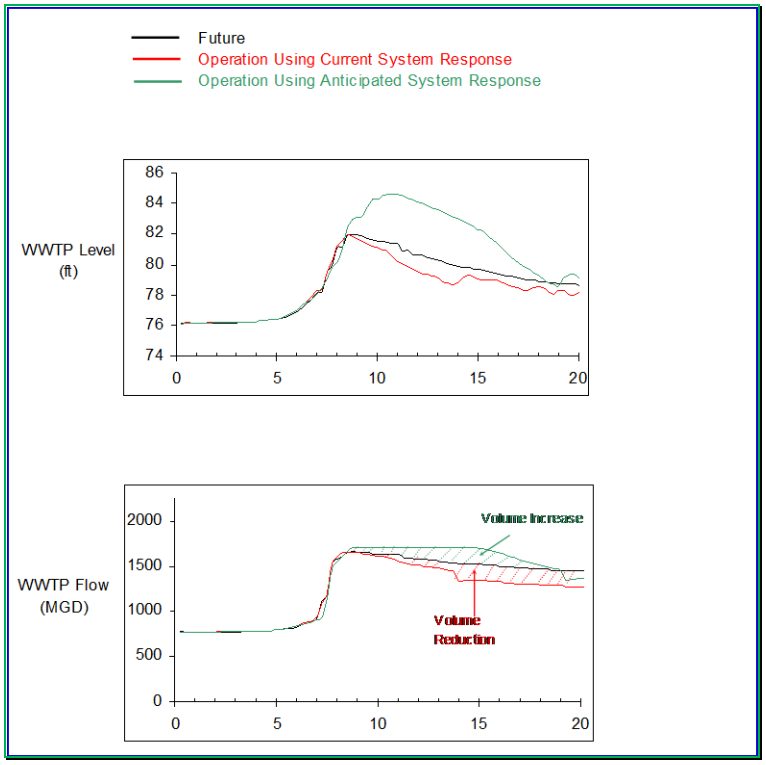


Figure 6-1. Operational Strategy Using Current / Anticipated System Response 1.25-inch, 24-hour Storm Event

This means that the Anticipated approach allows more capture volume to be treated at the DWWTP rather than at the satellite facilities. In addition, the increased volume at DWWTP means an increase of the transport capacity of the interceptors which results in a reduction of untreated overflows.

The two approaches were used for all the improved strategies implemented in the GDRSS model. The strategy performance of each approach was evaluated to select the appropriate approach as described in the following sections.

During wet weather simulation, as all of the dewatering strategies had not been developed yet, the CSO facilities were set in the GDRSS model to dewater based on the dewatering protocols specified in their Basis of Design reports. For example, Detroit CSO facilities are

dewatered when the local interceptor water level is equal or below the 0.8 of depth. For Suburbs, the facilities are dewatered based on the local interceptor level and/or contract limits. These dewatering protocols were used for Current and Anticipated responses.

It was emphasized that the DWWTP is an integral part of the collection system operational plan. The DWWTP consists of two Pump Stations known as PS-1 and PS-2 to convey the raw wastewater to primary treatment. There are two types of treatment including primary and secondary. The current maximum firm capacities of primary and secondary treatment are 1,700 (raw wastewater) and 930 MGD (inclusive of recycle), respectively. The time required to reach these capacities depends on the physical capability (and availability) of the DWWTP pumps and the water level in the wet wells. During wet weather events, the flow to the DWWTP increases at a rate that might differ from the rate of increase of the primary/secondary treatment capacities. The differences in these rates could impact the treated and untreated flows. Thus, the DWWTP operational strategy is to increase the DWWTP capacity as rapidly as possible in response to wet weather events. This strategy was developed by the DWWTP staff as follows:

- Rate of Increase of Primary Capacity

  The current operational protocol states that the rate of increase of Primary Capacity be the same as that of Secondary Capacity up to 930 MGD and then it can be increased as rapidly as needed. MDEQ has modified the operational protocol to allow the primary rate to increase more quickly as necessary independent of the secondary. The maximum rate of increased pumping capacity based on equipment limitations is nearly the same, 930 MGD. However, this rate can be reached over +/- 4 hours to account for numerous adjustments and other process limitations. See Section 6.5 for revised protocols specific to primary flow management

- Rate of Increase of Secondary Capacity

  The operational strategy for the secondary treatment is to increase the capacity to 930 MGD with a rate of increase of 30 MGD every 20 minutes.

6.3 Dewatering Period

No revisions were made to this section from last year. See 2013 Revised Plan for reference

6.4 Operational Plan.

No revisions were made to Section 6.4 from last year or 2014. See 2013 Revised Plan for reference. See Section 6.5 for proposed revisions to Plan, with minor modifications since first introduced as a "Supplemental Operational Plan" in the 2013 Update and responsibly employed for demonstration purposes to maximum practicable extents.

6.5 Proposed Revisions to Wet Weather Operational Plan with Minor Modifications for 2015 Highlighted

Part I.15.e of the Permit stipulates, in part, that "any changes to the Operational Plan that affect the rate, volume, or characteristics of the discharge, or the system storage and transportation for conveyance of wet weather flows, shall be submitted to the Department (MDEQ) and approved prior to implementation."

The Permit also stipulates, in part, that upon the completion of Segment 2 of the RR02 (Outfall 084)[21] project and the placement of the facilities into operation to achieve final effluent limits specified in Part I.A.5 (i.e., on or before April 1, 2019), that DWSD will have completed core elements of its CSO control program and will have achieved a very high level of CSO control. Further, to mitigate the potential of adverse water quality effects of partially treated and untreated discharges from Outfall 050 (RRO) and remaining uncontrolled outfalls remote from the WWTP, the Permit further provides for an adaptive management approach to help further reduce volume and frequency of such discharges.

Subject to review and approval by the MDEQ, the Wet Weather Operational Plan will be further utilized during wet weather events (storm periods) during ongoing construction associated with Rouge River Outfall (Outfall 050), if not extended for the duration of the RRO disinfection project until such facilities are placed into operation for intended disinfection of residual wet weather flows at times of discharge.

[21] although this language exists in the Permit modified June 22, 2015 it is believed this an error ; rather it should reflect the change to design and implement he technically approved RRO Disinfection project in lieu of former RRO2 project

To practicable extents, the management of CSO control facilities though such coordinated efforts will optimize the wet weather flow transport and available in-system storage capacities of the system and otherwise maximize the retention of flow conveyed to RTB's s (and conveyed to, treated at and discharged from SDFs to peak flow rate capacities) until the WWTP signals it can accept any residual wet weather flow that would be better or otherwise treated and discharged via Outfall 049, if not Outfall 050, should hydraulic conditions warrant.

Yet, as promoted in other segments of this Operational Plan, preferential treatment of tributary wet weather flow should firstly be accomplished at the DWWTP with partial-treatment conveyed through the DRO conduit and discharge from Outfall 049 up to its established (rated) hydraulic capacities depending on seasonal variation of river levels. Thus, the intent of this wet weather protocol is to maximize the use of the existing CSO control facilities in Detroit, and thereby minimize untreated CSO discharges from the presently remaining 55 uncontrolled outfall in Detroit.

The specific protocols described in this Collection System and CSO Treatment Facilities Wet Weather Operational Plan are largely focused on CSO facilities and operational elements remote from the WWTP, but carefully coordinated with such associated operational protocols at the WWTP (itself, the foremost important "operational element") pursuant to the Wastewater Treatment Plant Wet Weather Operational Plan next due for submission to the MDEQ on or before January 1, 2014. An updated (preliminary) version of the 2013 WWTP Operational Plan submitted to the MDEQ under separate cover earlier this calendar year is appended to this Section (see Exhibit A).

Specific Protocols

During wet weather, the CSO Operations Group will coordinate with WWTP Operations, SCC and other Department units, as needed, and monitor WWTP Pump Station 1 (PS1), Pump Station 2 (PS2) and primary flows via the collection system's Ovation supervisory control and data acquisition (SCADA) network centered at SCC with from remote terminal stations located at the WWTP, the Conner Creek RTB, and elsewhere.

When primary flows reach 650 mgd and continue to rise[22], the CSO SPS (Sewage Plant Supervisor) or CSO AHSPO (Assistant Head Sewage Plant Operator) will call in necessary RTB/SDF operations personnel[23]. Other than maintaining flows at the WWTP as referenced above (and below) and as otherwise deemed necessary by WWTP and CSO Operations to mitigate potential increased hydraulic risk on the system, each RTB SDF and other listed operational element will have a different protocol, as follows[24]:

6.5.1 WWTP, Outfalls 049, 050:

1. Maximize flow discharge through DRO (Outfall 049) to approximately 1150 mgd (1783 cfs) before using RRO. The capacity of the DRO is dependent on the Detroit River levels and prevailing winds.
2. Should planned (permitted) construction (such as installation of process or flowmetering equipment, and/or maintenance/repairs of the RRO conduit be required for extended periods (more than 4 weeks or otherwise notified in advance) , limit flow through RRO (Outfall 050) using of only one conduit to nominally rated at 350 mgd (543 cfs).

6.5.2 Oakwood Sanitary Pump Station and CSO Retention Treatment Baisn (RTB) [25], Outfall 109:

1. When total influent WWTP flow reaches and exceeds 930 mgd *and* when the elevation in the east and west sanitary wet wells reaches El 75.0 feet, stop three of the four sanitary pumps (two pumps per wet well)
2. Increased wet flows in wet well will activate storm pumps for capture (capacity 8 million gallons) and potential treated discharge to O'Brien Drain, if capacity is exceeded

   Objective This protocol will stop flow to the Northwest Interceptor (NWI) and allow the one sanitary pump to recirculate to wet well. This should help keep wet well grit in suspension. More flow is handled (retained, treated) at the Oakwood RTB for

[22] The significant operating parameter is the rise in wet well levels over time, together with current weather mapping, and number of pumps in service—all of which provides the best indicator

[23] Some personnel may already be on site.

[24] For clarity, operational protocols at some pumping stations (largely remotely operated by SCC) are included

[25] since this facility duals as pump station to transport sanitary (dry weather only) flow to the Northwest Interceptor via a 36-inch diameter sewer onward thru Oakwood Interceptor to WWTP *and* otherwise pump (lift) excess tributary combined wet weather flow into the retention treatment basin, it is not necessarily initially activated when total influent WWTP flows reach and exceed 800 mgd *or* when the wet level at PS-1 reaches and exceeds 80-feet

potential discharge from Outfall 109, up to the peak flow rate capacity of nominally 1070 mgd (1660 cfs).

6.5.3 Baby Creek Screening-Disinfection Facility (SDF), Outfall 107:

1. Close the Miller Road gates (S6-1 and S6-2)
2. Modulate the S5-1 sewer gate down to 50% position which flows to the WWTP, located next to Bar Screen No. 1
3. When flow backs into facility, only run flushing pumps long enough to eliminate screenings

   Objective This protocol will direct more flow to the Baby Creek SDF for treated discharge from Outfall 107, up to the peak flow rate capacity of nominally 3290 mgd (5100 cfs).

6.5.4 Hubbell-Southfield RTB , Outfall 101

1. Close both VR-8 gates located remotely, upstream of RTB . Call System Control Center (SCC) to inform staff that both VR-8 gates have been closed[26]. Remote operation is not available, only monitoring. Requires manual override of local PLC operation of gates
2. Deflate the inflatable dams installed in the east and west double box sewer, just ahead of influent channel to the RTB via blowers when the flow levels immediately upstream of the dams reach three to five feet in depth (i.e., El 96.75 feet± to El 98.75 feet±). These dams can also be deflated in auto mode when the sewer level reaches El 102 feet. The fully inflated crest (top) of both dams recently replaced under Contract PC-788 is at El. 100 ft± .

   Objective This protocol will route nearly 55.5 mgd (86 cfs)[27] of First Tier suburban flow otherwise diverted (regulated) to the Northwest Interceptor into the Hubbell Southfield RTB together with other flow primarily tributary from the Hubbell and Southfield Sewer Districts in Detroit. More flow will be handled (retained, treated) at the Hubbell-Southfield RTB for potential discharge from Outfall 101, up to the peak flow rate capacity of nominally 2065 mgd (3200 cfs).

[26] Presently VR-8 is under rehabilitation under Contract RFB 46533 (Weiss) the contract scope includes upgraded remote control and monitoring capability of the station on OVATION system from both Hubbell-Southfield RTB and from SCC; the work was declared substantially complete in late September 2015

[27] Present contract capacity limit

6.5.5 Puritan-Fenkell Sanitary Pump Station[28] and RTB[29], Outfall 102:

1. Stop all dewatering pumps (three) until both basins fill to a depth of 10-feet and store volume retained (nearly 2.2 million gallon)
2. Regulate dewatering pumps, as needed.

   Objective: Depending on the amount of rain, this will stop or lessen discharges, if any, from Glendale Outfall 067 (B65, at Burt Road and Capital); During smaller wet weather events with lower flows influent to this facility (in exceedance of dry weather pump station capacity to NWI), discharge is prevented due to typically increased river level, often higher than the effluent channel weir. In either case, any discharges that do occur from Outfall 103 will receive treatment per Permit requirements up to the peak flow rate capacity of nominally 545 mgd (845 cfs).

6.5.6 7-Mile RTB, Outfall 103; including Valve Remote No. 17 (VR-17):

1. When maximum storage level is reached at Puritan Fenkell RTB , close Shiawassee gate (VR-17) to send flow to 7-Mile RTB
2. Stop all dewatering pumps (3) until both basins fill to capacity (nearly 2 million gallon)

   Objective: Using Puritan Fenkell and 7-Mile RTBs in tandem relieves pressure off (preserves transport capacity of) the Northwest Interceptor. The 7-Mile RTB very rarely discharges; if it does, such discharges receive treatment per Permit requirements up to the peak flow rate capacity of nominally 423 mgd (656 cfs).

6.5.7 Fairview Pumping Station:

Reduce or stop pumping when either total influent WWTP flows reach and exceed 800 mgd *or* when the wet level at PS-1[30] reaches and exceeds El 82 feet..

Note: This practice would only be employed when hydraulic conditions in the Detroit River Interceptor upstream and downstream of the Fairview Pumping Station as monitored by SCC allow--that is, when conditions would not adversely increase the

[28] this facility duals as sanitary (dry weather) pump station to transport such tributary flow through two 24–inch diameter sewer and siphons under the river to the Northwest Interceptor *and* during wet weather events until treated discharge from the basin occurs

[29] This facility includes a sanitary pump station with integral wet well upstream of the headwork (2 submersible mixed flow pumps are installed in the well). The sanitary station has a nominal maximum flow rate of 25 cfs and is maintained in continuous operation, discharging to the NWI via dual 24" force main connections. Due to risks of sewer backups, this alternative protocol will not deviate from the standard operating dry weather protocol 24- 7-365, a Permit requirement. The minimum sanitary flow rate equals the average dry weather flow delivered to the facility tributary from the Rouge District west of the river; the flow rate is changed using an operator adjustable set point made at the facility, as needed.

[30] and PS-2, Oakwood Interceptor wet well level

hydraulic risk to the impacted collection system; e.g., increased potential of localized basement/street flooding and sewer backups.

6.5.8 Connor Sanitary and wet Weather Pump Station; including VR-3:

1. After Fairview pumps are stopped, stop all sanitary pumps.
2. When flow in the station's main wet well reaches El 75.0 feet, start storm pumps for discharge to the Connor tailrace and triple-barrel conduit influent to the Conner Creek RTB.
3. Also after Fairview pumps are stopped, close both gates at nearby VR-3 to divert flow in Conner Gravity Sewer to the Conner Creek RTB[31]. Open these gates after wet weather event.

6.5.9 Freud Pump Station:

1. After Fairview pumps are stopped, stop all sanitary pumps.
2. When flow in the station's main wet well reaches El 72.0 feet, start storm pumps for discharge to the Freud tailrace and triple-barrel conduit influent to the Conner Creek RTB.

6.5.10 Conner Creek RTB, Outfall 104:

1. When level in the forebay upstream of the forebay gates reaches El 96.0 ft, open all nine Forebay Gates..
2. When level in the basin reaches El 99.5 ft, open all sixteen Relief Gates.

Objective This protocol (treating/discharging more flow from Conner Creek RTB, Outfall 104) preserves transport capacity of the Jefferson Interceptor downstream of Fairview PS which reduces the potential of untreated discharges downstream of Fairview PS (there are no uncontrolled outfalls upstream of the PS). The basin is sized and has the capability to transport and treat discharges from Outfall 109 up to nominal peak flow rate of 8,600 mgd (13,300 cfs) via rapid (5-minute) mix NaOCl disinfection. However, treatment performance has only been demonstrated up to nearly 3225 mgd (5000 cfs) since the facility was placed into operation, employing the conventional protocol.

[31] this requires at least at least one of the nine Forebay gates to be simultaneously to not back up flow in Conner Gravity Sewer (see description for Conner Creek RTB, below)

6.5.11 Leib SDF, Outfall 105; including VR-15[32]:

1. Until VR-15 (Gratiot and Mt. Elliott) is rehabilitated (estimated by summer 2016) to provide reliable remote operation of the two gates from SCC, one gate has been closed and one gates has been opened from control panel within the chamber to route more wet weather flow to the Leib facility for treatment and discharge (via Outfall 105) and less to North Interceptor East Arm (NIEA).
2. Modulate the gates to the toward treatment sewer to the 50% open position (normally open) to enable screenings (with backwash water) to be routed to Detroit River Interceptor (DRI) onward to WWTP.

   Objective This protocol directs more flow to the Leib SDF for treated discharge from Outfall 105 up to the peak flow rate of nominally 1000 mgd (1550 cfs).

6.5.12 St. Aubin SDF, Outfall 106

1. When flow in the DRI reaches and exceeds the 8/10 level (via nearby level sensor monitored from the St, Aubin and on OVATION system), close the Chene, Dubois and St, Aubin dry weather regulator gates to DRI to otherwise direct all tributary flow in these trunk sewers to the St. Aubin facility for treatment and discharge with no flow diverted (regulated) to DRI

   Objective This protocol directs more flow to the St. Aubin SDF for discharge from Outfall 105, up to the peak flow rate capacity of161 mgd (250 cfs)

6.5.13 Belle Isle Sanitary Pump Station and RTB[33], Outfall 108:

No change in protocol is envisaged for this facility. *Note: MDEQ has agreed in principal to operate (and maintain) the seven remote package pump stations, five of which are sanitary stations tributary to this Belle Isle facility that requires pumpage to the DRI during dry weather and during wet weather per provisions of the Part 41 Permit. Recent discussion staff had with MDEQ suggests they may alter discharge piping leading from these stations separate from basin for direct pumpage to DRI by other means.*

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[32] Once VR-16 (Gratiot and Meldrum) is also rehabilitated (estimated by summer 2016) to provide reliable remote operation the single gate there from SCC it will be modulated to nearly the 50% to route more wet weather flow to Leib facility and less to NIEA

[33] This facility includes the former (modified) sanitary pump station built integrally around it. A split low/high level wet well upstream of the headwork's area includes two (2) sanitary pumps rated @ 2-3 mgd (3-5 cfs) each that transports (pumps) tributary sanitary and low storm flow received to the DRI via a 12-inch force main. The sanitary pumps are maintained in continuous operation based on demand and per Part 41 Permit requirements.

Basis of Wet Weather Operational Plan

Since the start of fiscal year 2012-2013, DWSD managed flow transport in the collection system before, during and after several wet weather events with no adverse hydraulic impacts and discharged significantly more treated flow through (from) the above RTBs and SDF's, and substantially less partially treated flow from RRO than preceding fiscal year record. In the 2012-2013 and the 2013-2014 prior reporting periods, over 97% of tributary wet weather flow to the collection system was treated or partially treated and discharged through Permitted outfalls; the balance of tributary flow was otherwise discharged through certain of the listed untreated outfalls.

Detroit Wastewater Treatment Plant
Wet Weather Operational Plan

January 1, 2015 Update

I. Introduction

As required under Part I.A.11 of NPDES Permit No. MI0022802 (Permit), the Detroit Water and Sewerage Department (DWSD) prepared this Wastewater Treatment Plant Wet Weather Operational Plan (Plan) to provide a general protocol for operating the Detroit Wastewater Treatment Plant (DWWTP) during wet weather periods. The Plan maximizes wet weather flow treatment at the DWWTP and CSO control facilities, while complying with conditions of the Permit. It was coordinated with the separate *Collection System and CSO Treatment Facilities Operational Plan* required under Part I.A.15.e of the Permit to minimize untreated combined sewage discharges into receiving waters. This DWWTP Operational Plan is updated annually and submitted to the MDEQ on or before January 1.

II. Protocol

This protocol employs an adaptive management approach intended to maximize the capture and treatment of wet weather flows at the DWWTP and CSO control facilities to minimize or eliminate uncontrolled combined sewage discharges. The Plan deals with wet weather events by dividing them into three distinct periods, described below:

1. Pre-Storm Period
2. Storm Period
3. Post-Storm Period

These periods are consistent with the *Collection System and CSO Treatment Facilities Operational Plan.*

A. Pre-Storm Period

This period is defined in this Plan as the period 2 to 8 hours prior to an anticipated wet weather event. During this period, the influent pump stations, PS-1 and PS-2, will be operated to maintain wet well elevations in the lower end of the normal operating range. The general goal during this period is to maximize available storage capacity within the collection system prior to the storm.

Normal wet well elevations during dry weather periods range between Elevation (El) 74 feet to El 80 feet. Wet well elevations prior to a storm will be targeted for the lower end of this range.

It should be noted that the pumping rate during the drawdown of the wet wells must remain below the *available* Secondary Treatment capacity of a maximum 930 mgd (inclusive of recycle).

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B. Storm Period

For the purposes of this Plan, the storm period is considered to be the period when total influent flows to the WWTP increase above total dry weather flows. The general goals during this period are to:

1) increase the flow rates to the primary and secondary treatment processes as quickly as practical,

2) treat as much wet weather flow as practical, up to the primary and secondary capacity flow limits, and

3) discharge firstly through Detroit River Outfall (DRO, Outfall 049), and thence through Rouge River Outfall (RRO, Outfall 050) up to hydraulic transport capacities to maximum practical extents.

The maximum wet weather flow through primary treatment is 1,700 mgd, not including plant recycles, at wet well elevations of El 85 feet and above. The maximum wet weather flow through secondary treatment is 930 MGD.

The maximum rate of increased flow to the secondary treatment is 90 MGD per hour, based on process limitations. The rate of increase for the primary system is independent of the secondary rate of increase, so primary treatment flows may exceed 930 MGD before secondary treatment flows reach 930 MGD.

During this period, additional raw influent pumps will be operated until wet well levels are below El 80 feet. As wet well levels continue to decline, pumps will be taken out of service, as necessary, to maintain El 74 feet to El 80 feet wet well elevations. If wet well levels start to increase during this period, raw influent pumps will be placed back in service, as practical, up to the maximum primary treatment capacity.

Influent wet weather flow at DWWTP after receiving primary treatment in excess of the maximum secondary effluent (SE) capacity (930 mgd) are otherwise routed through the DRO up to its hydraulic capacity. This allows partial treatment of primary effluent (PE) flow with concomitant SE flow. Excess PE flow is thence otherwise discharged through RRO up to its hydraulic capacity. From a system-wide perspective, the overarching goal of the Wet Weather Operational Plan is to maximize treated discharges from WWTP *and* CSO Control facilities to minimize or eliminate the occurrence and duration of untreated discharges from uncontrolled outfalls.

The *Storm Period* protocol extends to select DWSD-owned and operated CSO control facilities, pumping stations, and remote flow control devices/regulators **when either total influent DWWTP flows reach and exceed 800 mgd** *or* **when the wet level at PS-1 reaches and exceeds El 80 feet**. Under these plant conditions, storm period protocols for CSO control facilities (and associated remote flow pumping/control facilities) are outlined as follows:

1. Oakwood Sanitary Pump Station and CSO Retention Treatment Basin (RTB), **Outfall 109**

   a. Stop three of the four sanitary pumps.
   b. Increased influent flows in wet well (resulting from "a", above) will activate appropriate storm pumps for maximum capture and potential discharge through O'Brien Drain, should such sustained or intermittent flows exceed basin's storage capacity.

2. Baby Creek Screening-Disinfection Facility (SDF), **Outfall 107**

   a. Close the Miller Road dry weather regulator gates (S-6-1 and S-6-2).
   b. Close S-5-1 gate upstream of "toward treatment sewer" located next to Bar Screen No. 1.
   c. When flow backs into the facility, run only flushing pumps long enough to eliminate screenings.

3. Hubbell-Southfield (H-S) RTB, **Outfall 101**; including Valve Remote No. 8 (VR-8)

   a. Close both VR-8 gates (beneath Michigan Avenue) to divert all tributary flow in double box sewer downstream to H-S RTB. Call System Control Center (SCC) to inform staff that both VR-8 gates have been closed. Remote operation is not available, only monitoring. Requires manual override of local PLC operation of gates.
   b. Deflate the inflatable dams installed in the east and west double box sewer (located just ahead of influent channel to the H-S RTB) when the flow levels in this sewer immediately upstream of the dams reach three to five feet in depth (i.e., El 96.75 feet± to El 98.75 feet±).

4. Puritan-Fenkell Sanitary Pump Station and RTB, **Outfall 102**

   a. Stop all dewatering pumps (three) until both basins fill to a depth of ten feet and store the volume retained.
   b. Regulate the dewatering pumps as needed.

5. Seven Mile RTB, **Outfall 103**; including VR-17 also known as "Shiawassee Regulator Gate"

   a. When the maximum storage level is reached at Puritan-Fenkell RTB, close single VR-17 gate (beneath Shiawassee Ave, just south of Seven Mile Road) to direct all tributary flow north to Seven Mile RTB for capture and potential treated discharge.
   b. Stop all dewatering pumps (three) until both basins fill to capacity.

6. Fairview Pumping Station

   Reduce or stop pumping when total influent DWWTP flows reach and exceed 800 mgd. If Fairview PS wet well levels are able to receive flow, sanitary flow from Conner Pumping station will continue

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until full capacity in Fairview wet well is reached (this maximizes in-system storage tributary to Fairview PS).

7. Connor Sanitary and Wet Weather Pump Station; including some protocols for VR-2, also known as "Forebay Regulator Gates"

   a. After Fairview pumps are stopped, reduce or stop all Connor PS sanitary pumps depending on available capacity at Fairview PS.
   b. Sequentially close each of the three VR-2 (Forebay) dry weather diversion gates (1 at a time) when Connor PS wet well reaches El 72.0 feet to divert flow in Conner Gravity Sewer to the Conner Creek RTB (see other conditions that apply for these gates under 9, below).
   c. When flow in the station's main wet well reaches El 75.0 feet, start storm pumps for discharge to Conner Creek RTB.

8. Freud Pumping Station

   a. After Fairview pumps are stopped, reduce or stop all Freud sanitary pumps.
   b. When flow in the station's wet well reaches El 72.0 feet, start storm pumps for discharge to Connor Creek RTB.

9. Conner Creek RTB, **Outfall 104**; including some protocols for VR-2

   a. When level in the basin reaches El 96.0 ft, open each of the nine of the Conner Sewer Gates (3 at a time) and simultaneously close each of the three VR-2 (Forebay) gates, 1 at a time (see other conditions that apply for these gates under 7, above).
   b. When level in the basin reaches El 99.0 ft, begin opening of the Relief Gates.

10. Leib SDF, **Outfall 107**; includes present operation of VR-15

    a. Maintain one of the two VR-15 gates (also known as "Gratiot-Mt. Elliott NIEA Regulator Gates") fully closed and the other fully open;.
    b. Modulate the "Toward Treatment Sewer Gate" at Leib SDF to the 25% open position to enable screenings (with backwash water) to be routed to Detroit River Interceptor (DRI) to DWWTP.

11. St. Aubin SDF, **Outfall 106**

    When flow in the DRI reaches and exceeds the 8/10 level in immediate vicinity of the St. Aubin SDF, close the Chene, Dubois and St, Aubin dry weather regulator gates to DRI to direct all tributary flow in these trunk sewers to the St. Aubin SDF for treatment and discharge

12. Belle Isle Sanitary Pump Station and RTB, **Outfall 108**

    No change in protocol for this facility.

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C. Post Storm Period

For the purposes of this Plan, the dewatering period is considered to have started when total influent flow at the DWWTP is maintained below 800 mgd. The period ends when influent flow has returned to dry weather conditions.. The goal during this period is to treat the flows and loads that are delivered to the DWWTP through primary and secondary treatment, up to capacity of 930 mgd, as quickly as possible so that CSO storage capacity is available for the next wet weather event.

During this period, CSO control facilities throughout the collection system that captured wet weather flows *not discharged* are dewatered. All facilities which held (retained) such flows (captured volumes) are not dewatered until DWWTP influent flows fall below 800 mgd. In general, the dewatering protocols among basins are similar and those among screening and disinfection facilities are similar.

To reiterate, the goal is to dewater all facilities as rapidly as is practical to restore maximum available storage capacity ready for subsequent wet weather events.

End of Plan

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7.0 PRECIPITATION AND FLOW METERING

No revisions were made to this section from last year. For reference, see 2013 Revised Plan

8.0 INFORMATION GATHERING AND CONTROLS

No revisions were made to this section from last year. For reference, see 2013 Revised Plan

9.0 MAINTENANCE

No revisions were made to this section from last year. For reference, see 2013 Revised Plan

APPENDIX 1

DWSD COLLECTION SYSTEM REHABILITATION

The following is the list and brief description of rehabilitation construction planned for calendar year 2016, unless noted otherwise, and certain reported preventative and corrective maintenance performed in 2014-2015

Construction Project	Year	General Scope
Conner Creek, Puritan-Fenkell and Seven Mile RTB s	2015-2016	Remedial work to address deficiencies in select structures and process and facilities equipment, controls and instrumentation
St. Aubin Screening and Disinfection Facility	2015-2016	Remedial work to address deficiencies in select structures and process and facilities equipment, controls and instrumentation
Fairview Pump Station Rehabilitation	2016	Pump motor and drive rehabilitative work; provisions for portable back-up generator emergency power feeds
Connor Pump Station Rehabilitation	2016	Partial upgrade of vacuum priming systems and select upgrade/replacement of pumping equipment and building mechanical, electrical & control systems
VR-15, VR-16, VR-13, VR-2	2015-2016	Remedial work identified to address deficiencies of the existing flow regulating structures

Remote Flow Control Facilities, Flow Monitoring Equipment & Sewer Infrastructure* *other than noted above

Preventive Maintenance Performed 2014-2015

- Visual inspection and preventive maintenance is performed on all outfalls.
- Instrumentation and electronics quarterly to make sure proper functioning.
- Sewer level is verified physically and river level is verified with a target test quarterly.
- All back water gates at the CSO outfall sites are inspected monthly for proper operation.
- All flap gates at the CSO outfall sites are inspected monthly for proper operation.
- The leaf gates at CSO outfall sites inspected monthly for proper operation; generators at leaf gates sites inspected monthly.
- Valve Regulator SCUBA units are inspected monthly for proper functioning.
- All inflatable dams are inspected monthly for proper operation.
- All outfall dams are inspected semi-annually for structural integrity

Corrective Maintenance Performed 2014-2015

- B-30 & B-36- backwater gates were fixed.
- B-14 & B-15 flashboards were installed due to high river levels.
- B-50- two siphons taking split flows from North West Interceptor to the Oakwood interceptor are inspected and cleaned.
- VR-2 -SCUBA unit is replaced and some site improvements were made.
- VR-8- is being rehabilitated under a CIP contract.
- VR-9- replaced the contactor for this gate. Replaced the hydro-ranger in the downstream level transmitter.
- VR-10 -upstream level display unit was replaced.
- Conner creek backwater gates- the thrust nuts for all the 9 gates were replaced
- Puritan Outfall- replaced all four actuators.
- Existing leaf gates are being replaced by flap gates at B-56 and B-60
- Flap gates are being installed at B-67, B-72 &B-80.

Preventive Maintenance Planned 2015-2016

- Quarterly visual inspection and preventive maintenance on all outfalls
- Quarterly instrumentation and electronics inspection to check proper functioning
- Quarterly physical verification of sewer level and river level verification with target test
- Monthly inspection of all back water gates at the CSO outfall sites for proper functioning
- Monthly inspection of all flap gates at the CSO outfall sites for proper functioning
- Monthly inspection of the leaf gates at the CSO outfall sites for proper functioning
- Monthly inspection of generators at the leaf gates sites
- Monthly inspection of Valve Regulator SCUBA units for proper functioning
- Monthly inspection of all inflatable dams for proper functioning
- Semi-annual inspection of all outfall dams for structural integrity

APPENDIX 2

SUMMARY OF CSO DISCHARGE EVENTS VOLUME AND FREQUENCY
AND PRECIPITATION DATA
Fiscal Year 2014-15
(July 1, 2014 thru June 30, 2015)

1. Annual Summary of CSO Discharge Data
2. Precipitation Data for Detroit Rain Gages
3. Tally of Monthly CSO Overflows and Precipitation

Attached Hereunder

Annual Summary of CSO Discharge Data

Fiscal Year 2014-2015

			Volume, MG												
Permit No.	**DWSD Outfall No.**	**Outfall Location**	**Jul-14**	**Aug-14**	**Sep-14**	**Oct-14**	**Nov-14**	**Dec-14**	**Jan-15**	**Feb-15**	**Mar-15**	**Apr-15**	**May-15**	**Jun-15**	**Total**
080	B001	Fox Cr backwater gate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
005	B003	McClellan	0.00	86.30	1.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	**87.80**
006	B004	Fischer PS	0.00	1.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**1.55**
007	B005	Irquois	0.19	50.10	7.15	0.00	0.59	0.00	0.00	0.00	0.00	0.03	0.69	4.36	**63.11**
008	B006	Helen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
009	B007	Meldrum (Mt.Elliott)	1.54	389.35	21.66	0.00	0.00	0.31	0.00	0.00	0.00	12.35	17.71	3.11	**446.03**
011	B009	Adair	0.00	19.00	1.36	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**20.66**
012	B010	Joseph Campau	0.00	377.28	22.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56	0.00	**401.16**
017	B014	Orleans (west)	0.00	0.00	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.65**
016	B015	Orleans (east)	0.00	0.00	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.52	**1.65**
018	B016	Riopelle	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.27**
019	B017	Rivard	0.00	21.80	2.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	**24.35**
020	B018	Hastings	0.00	5.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**5.13**
021	B019	Randolph	0.00	13.43	2.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**16.41**
022	B020	Bates	6.96	100.46	61.00	0.00	10.16	0.00	0.00	0.00	0.00	0.98	0.00	0.01	**179.57**
023	B021	Woodward	0.00	1.22	30.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	**31.90**
024	B022	Griswold	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
025	B023	1st-Hamilton	0.00	77.03	6.14	0.00	14.99	0.00	0.00	0.00	0.00	0.00	1.27	0.00	**99.43**
026	B024	3rd	0.00	37.53	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**37.54**
027	B025	Cabacier	0.00	29.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**29.46**
028	B026	11th	0.00	9.30	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**9.31**
029	B027	12th (Rosa Parks)	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.38**
030	B028	Vermont	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
031	B029	18th	0.00	15.26	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**15.79**
032	B030	21st	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.08**
033	B031	24th	0.00	12.98	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78	**14.51**
034	B032	W.Grand	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.08**
035	B033	Swain	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
036	B034	Scotten	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
037	B035	McKinstry	0.00	1.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**1.76**
038	B036	Summit-Clark	0.00	689.17	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	**689.58**
039	B037	Ferdinand	0.00	0.00	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**2.48**
040	B038	Morrell	0.00	14.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**14.04**
041	B039	Junction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
042	B040	Campbell	0.00	6.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**6.28**
043	B041	Dragoon (Livernois Relief)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	**0.01**
044	B042A&B	Schroeder	0.00	1.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.88	0.00	**4.30**
046	B044	Cary	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	**0.22**
047	B045	Dearborn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
051	B046	Carbon	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
056	B049	Fort St. (West Shore)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
054	B050	Fort (NWI)(included in 057*)	0.00	195.63	20.59	0.00	822.00	0.00	0.00	0.00	0.00	0.00	16.31	0.00	**1054.53**
059	B054	W.Warren Siphon	0.00	1.04	0.00	0.00	0.68	0.00	0.00	0.00	0.00	0.00	0.06	0.21	**1.99**
060	B056,057,058	Tireman-Trinity	0.00	9.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**9.61**
048	B059A&B	Pulaski (north&south)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
061	B060,061,062	West Chicago (East Shore)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.95	**47.95**
062	B063	W. Chicago Siphon	0.17	0.12	1.15	0.37	0.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**2.54**
063	B064	Plymouth	0.00	0.20	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	**0.26**
064	B065	Glendale	0.00	193.54	1.71	0.00	0.00	0.00	0.00	0.00	0.00	2.44	0.00	0.00	**197.69**
065	B067,068	Lahser/Dolson	0.00	201.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.09	**239.39**
067	B069	West Parkway	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	**0.12**
066	B070	Schoolcraft (West Shore)	0.00	3.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**3.93**
068	B071	Brammel	0.00	2.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	**2.72**
069	B072	Lyndon	0.00	4.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**4.42**
072	B077	Puritan (east shore)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.75	**5.75**
073	B079	Riverdale (Florence Ridge)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
074	B080&B081	McNichols	0.00	22.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.18	**36.51**
075	B082	Glenhurst (west shore)	0.00	0.11	0.00	0.00	0.02	0.00	0.00	0.00	0.00	3.25	0.00	0.09	**3.47**
077	B085	Seven Mile (east shore)	0.00	5.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**5.69**
079	B087	Pembroke	0.00	42.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**42.00**
		Untreated Total	**8.86**	**2643.17**	**186.30**	**0.37**	**849.47**	**0.31**	**0.00**	**0.00**	**0.00**	**19.17**	**40.67**	**115.74**	**3864.06**

Permit No.	DWSD Outfall No.	Outfall Location	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Total
049	049A	WWTP Primary Effluent	147.00	681.74	653.86	73.10	57.60	154.90	123.10	0.00	424.80	359.70	527.10	451.06	**3653.96**
050	050A	WWTP Rouge River Outfall	260.15	1698.47	849.56	75.50	28.30	65.70	45.00	0.00	0.00	184.80	437.70	999.84	**4645.02**
		Partially Treated Total	**407.15**	**2380.21**	**1503.42**	**148.60**	**85.90**	**220.60**	**168.10**	**0.00**	**424.80**	**544.50**	**964.80**	**1450.90**	**8298.98**
101	101A	Hubbell-Southfield Basin	26.68	765.20	274.83	7.80	152.40	14.30	0.00	0.00	0.00	72.80	609.00	235.15	**2158.16**
102	102A	Puritan-Fenkell basin	0.00	0.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.69**
103	103A	7 Mile basin (treated)	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.49**
104	104A	Conner Creek CSO Basin	266.35	1081.18	917.70	80.80	683.50	167.00	37.70	0.00	321.30	474.90	797.10	1262.90	**6090.43**
105	105A	Leib	0.00	144.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**144.30**
106	106A	St.Aubin	4.40	17.40	6.90	0.00	4.50	0.00	4.30	0.00	0.00	0.00	13.40	14.60	**65.50**
107	107A	Baby Creek S & D Facility	21.80	450.10	91.10	0.00	86.90	24.60	0.00	0.00	16.10	66.80	248.80	61.40	**1067.60**
108	108A	Belle Isle RTB	0.00	2.10	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.40	**4.10**
082	109	Oakwood CSO Basin	5.10	62.20	8.90	0.00	1.40	0.00	0.00	0.00	0.00	14.40	80.80	68.30	**241.10**
		Treated CSO Total	**324.33**	**2523.66**	**1300.83**	**88.60**	**928.70**	**205.90**	**42.00**	**0.00**	**337.40**	**628.90**	**1749.30**	**1642.75**	**9772.37**
		Total Volume	**740.34**	**7547.04**	**2990.55**	**237.57**	**1864.07**	**426.81**	**210.10**	**0.00**	**762.20**	**1192.57**	**2754.77**	**3209.39**	**21935.41**
		Total number of events	**3**	**4**	**3**	**1**	**0**	**1**	**1**	**0**	**1**	**3**	**2**	**5**	**24**
		Total duration of events,	**49.25**	**158.50**	**179.33**	**17.75**	**49.75**	**34.77**	**35.00**	**0.00**	**147.83**	**106.00**	**112.65**	**194.18**	**1085.02**

Discharge information for months shaded dark green are estimates as these outfall sewers and/or associated flow control-storage gates and level monitoring equipment were under construction/renovation (Contract PC-788) during these months. Substantial completion (for beneficial use) was achieved on April 30, 2015 and work was finally completed in June 2015

Precipitation Data for Detroit Rain Gages
Fiscal Year 2014-2015

Precipitation (Inches)	14-Jul	14-Aug	14-Sep	14-Oct	14-Nov	14-Dec	15-Jan	15-Feb	15-Mar	15-Apr	15-May	15-Jun	Total
PG002	1.52	5.38	2.5	1.51	1.42	0.47	0.57	0.35	0.81	1.87	4.17	4.82	25.39
PG003	1.29	5.11	2.31	1.64	1.49	0.46	0.52	0.14	0.42	1.95	3.33	2.99	21.65
PG004	1.7	4.78	2.64	1.69	1.52	0.43	0.72	0.13	0.98	2.13	4.6	5.31	26.63
PG005	0.87	2.64	1.74	1.06	0.9	0.45	0.64	0	0.62	2.02	3.18	6.35	20.47
PG006	1.34	2.77	2.18	1.56	1.28	0.48	0.66	0.06	0.72	1.95	3.05	5.09	21.14
PG007	1.43	3.81	2.11	1.9	1.8	0.47	0.78	0.36	0.61	2.21	4.49	2.05	22.02
PG008	1.42	6.18	2.52	1.5	1.28	0.5	0.56	0.02	0.71	2.21	3.36	3.15	23.41
PG009	1.15	5.66	2.18	1.66	1.49	0.46	0.54	0	0.43	1	0.31	2.04	16.92
PG010	1.51	3.55	2.47	1.71	1.4	0.47	0.63	0.05	0.63	2.01	1.17	4.22	19.82
PG011	1.62	4.1	2.61	1.39	1.33	0.43	0.66	0.24	0.68	1.81	4.02	2.72	21.61
PG012	1.41	5.69	2.56	1.74	1.51	0.47	0.78	0.61	0.61	1.34	2.9	2.4	22.02
PG013	1.3	4.44	2.08	1.67	1.43	0.49	0.55	0.16	0.37	0.82	1.33	2.49	17.13
PG014	1.28	5.59	2.09	1.53	1.48	0.42	0.7	0.01	0.75	2	3.7	7.33	26.88
PG015	1.77	4.27	2.63	1.62	1.67	0.5	0.92	0.7	0.75	1.98	3.94	3.2	23.95
PG017	1.38	4.63	2.1	0.94	0.61	0.33	0.2	0.11	0.25	0.12	1.7	2.71	15.08
PG018	1.55	5.75	2.28	1.48	1.58	0.49	0.74	0.29	0.8	1.95	3.43	5.12	25.46
PG019	0.99	6.01	2.14	1.67	1.24	0.43	0.5	0.03	0.27	1.87	3.56	4.25	22.96
PG020	1.78	4.73	2.4	1.65	1.32	0.41	0.6	0.26	0.72	1.77	3.65	3.87	23.16
PG021	1.7	5.94	1.77	1.42	1.38	0.46	0.51	0.02	0.7	2.22	3.42	4.73	24.27
PG022	1.08	4.59	1.68	1.67	1.42	0.43	0.51	0	0.45	1.78	4.11	5.31	23.03
PG024	1.31	6.64	2.33	1.72	1.42	0.45	0.56	0.25	0.61	2.07	3.25	3.5	24.11
PG025	1.17	4.05	2.48	1.49	1.31	0.47	0.8	0.73	0.8	1.8	4.07	3.44	22.61
PG026	1.23	4.34	2.44	1.19	1.11	0.38	0.51	0.18	0.7	0.32	3.95	4.38	20.73
PG028	1.53	5.04	2.23	1.68	1.39	0.43	0.78	0.52	0.76	1.64	4.05	3.49	23.54
PG029	1.74	2.2	2.24	1.72	1.58	0.34	0.8	0.4	0.56	1.32	2.97	2.48	18.35
PG030	1.69	4.79	2.63	1.68	1.41	0.44	0.72	0.23	0.69	1.9	3.84	2.2	22.22
PG031	1.59	5.19	2.05	1.39	1.36	0.52	0.63	0.17	0.58	1.93	4.34	6.81	26.56
PG032	1.53	4.63	2.18	1.63	0.91	0.46	0.49	0	0.51	0.01	1.49	1.55	15.39
PG033	1.39	4.24	2.29	1.46	1.46	0.47	0.85	0.29	0.7	1.81	2.01	0.24	17.21
PG034	1.41	5.75	2.39	1.62	1.34	0.45	0.59	0.06	0.63	1.84	1.69	2.66	20.43

June-15

TALLY OF MONTHLY CSO OVERFLOWS AND PRECIPITATION

Data Source: PC-713 Instrumentation and Control System

	See linked DEQ "RTB Event" Reports >	DEQ 17222	DEQ 17233	DEQ 17320	DEQ 17276	DEQ 17294		
	Start Date	06/10/15	06/13/15	06/14/15	06/23/15	06/27/15		
	End Date	06/10/15	06/13/15	06/17/15	06/24/15	06/30/15		JUNE TOTALS
DWSD Event #s	see linked Post Event Reports >	1,291	1,292	1,293	1,294	1,295		5
	TREATED OUTFALL:	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)
101	101A Hubbell-Southfield CSO Basin	11.9		170.49	24.16	28.6		235.15
102	102A Puritan-Fenkell CSO Basin							0.00
103	103A Seven Mile CSO Basin							0.00
104	104A Conner Creek CSO Basin			562.8	113.1	587		1262.90
105	105A Leib Outfall							0.00
106	106A St Aubin Outfall	1		2.9	2.4	8.3		14.60
107	107A Baby Creek S & D Facility	6.3		45.4	5.9	3.8		61.40
108	108A Belle Isle RTB					0.4		0.40
082	109 Oakwood Pump Station			37.2	31.1			68.30
	SUBTOTAL	**19.20**	**0.00**	**818.79**	**176.66**	**628.10**	**0.00**	**1642.75**
		DEQ 17246	< see DEQ report (discharges are properly accounted for in DWSD post event reports)					
	PARTIALLY TREATED OUTFALL:	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)
049	049A WWTP Primary Effluent DRO-1	63.23	23.52	205.8	42.76	115.75		451.06
050	050A WWTP Rouge River Outfall	33.46		485.42	139.01	341.95		999.84
	SUBTOTAL	**96.69**	**23.52**	**691.22**	**181.77**	**457.7**	**0**	**1450.90**
	See linked DEQ "CSO Event" Reports >	DEQ 17223	DEQ 17234	DEQ 17322	DEQ 17278	DEQ 17296		
	COMBINED SEWER OUTFALLS							
080	B001 Fox Creek							0.00
005	B003A Jefferson & McClellan			0.06	0.15			0.21
005	B003B Jefferson & McClellan							0.00
006	B004 Fischer Pump Station							0.00
007	B005 E Jefferson & Iroquois		0.01	1.56	0.57	2.22		4.36
008	B006 E Jefferson & Helen							0.00
009	B007 Mt Elliott & Coast Guard			1.18	0.5	1.43		3.11
011	B009 Adair & Wight							0.00
012	B010 Jos Campau & Wight							0.00
017	B014 Orleans & Franklin							0.00
016	B015 Orleans & Franklin			0.09	0.43			0.52
018	B016 Riopelle & Franklin							0.00
019	B017 Rivard & Franklin			0.04	0.4			0.44
020	B018 Franklin & Sweitzer Pl							0.00
021	B019 Randolph & Jefferson							0.00
022	B020 Atwater & Bates			0.01				0.01
023	B021 Woodward & Hart Plaza			0.01				0.01
024	B022 Woodward & Hart Plaza							0.00
025	B023 1st & Civic Center Dr							0.00
026	B024 W Jefferson & Third							0.00
027	B025 W Jefferson & Cabacier							0.00
028	B026 W Jefferson & 11th							0.00
029	B027 W Jefferson & Rosa Parks							0.00
030	B028 W Jefferson & 14th							0.00
031	B029 W Jefferson & 18th							0.00
032	B030 W Jefferson & 21st							0.00
033	B031 W Jefferson & 24th	0.54		0.22	0.02			0.78
034	B032 W Jefferson & W Grand							0.00
035	B033 W Jefferson & Swain							0.00
036	B034 W Jefferson & Scotten							0.00
037	B035 W Jefferson & McKinstry							0.00
038	B036 W Jefferson & Summit			0.01				0.01
039	B037 W Jefferson & Ferdinand							0.00
040	B038 W Jefferson & Morrell							0.00
041	B039 W Jefferson Junction							0.00
042	B040 W Jefferson & Campbell							0.00
043	B041 Detroit River & Dragoon			0.01				0.01
044	B042 W Jefferson & Schroeder							0.00
046	B044 W Jefferson & Cary							0.00
047	B045 W Jefferson & Dearborn							0.00
051	B046 Carbon & Rouge River							0.00
056	B049 S Fort & Oakwood							0.00
054	B050 Fort & Oakwood							0.00

059	B054 W Warren & Rouge River	0.08		0.04	0.09			0.21
060	B056 Tireman & Trinity							0.00
048	B059A Jefferson & Pulaski							0.00
048	B059B Jefferson & Pulaski							0.00
061	B060 Spinoza & W Chicago			47.85		0.1		47.95
062	B063 Rouge Park Dr							0.00
063	B064 Plymouth & Rouge Park							0.00
064	B065 Burt & Capital							0.00
065	B067 Lahser & Dolson			15.82	13.47	8.8		38.09
067	B069 Schoolcraft & Outer Drive	0.01						0.01
066	B070 Schoolcraft & Outer Drive							0.00
068	B071 Ray & Brammel							0.00
069	B072 Lyndon & Brammel							0.00
072	B077 Puritan & Rouge River			4.96	0.47	0.32		5.75
073	B079 Ridge & Florence							0.00
074	B080 McNichols & Beaverland	3.2		7.49		3.49		14.18
074	B081 McNichols & Beaverland							0.00
075	B082 Glenhurst & Margareta	0.08		0.01				0.09
077	B085 W 7 Mile & Berg							0.00
079	B087 Pembroke & Berg							0.00
	Subtotal Uncontrolled CSO Outfalls	3.91	0.01	79.36	16.1	16.36	0	115.74
	Event total volume (all reporting outfalls)	**119.80**	**23.53**	**1589.37**	**374.53**	**1102.16**	**0.00**	**3209.39**

	PRECIPITATION in Inches	0.21	0.13	1.43	0.51	1.93	< see above links to DWSD reports
	Metro Airport						
	PG 002						4.82
	PG 003						2.99
	PG 004						5.31
	PG 005						6.35
	PG 006						5.09
	PG 007						2.05
	PG 008						3.15
	PG 009						2.04
	PG 010						4.22
	PG 011						2.72
	PG 012						2.4
	PG 013						2.49
	PG 014						7.33
	PG 015						3.2
	PG 017						2.71
	PG 018						5.12
	PG 019						4.25
	PG 020						3.87
	PG 021						4.73
	PG 022						5.31
	PG 024						3.5
	PG 025						3.44
	PG 026						4.38
	PG 028						3.49
	PG 029						2.48
	PG 030						2.2
	PG 031						6.81
	PG 032						1.55
	PG 033						0.24
	PG 034						2.66

May-15

TALLY OF MONTHLY CSO OVERFLOWS AND PRECIPITATION

Data Source: PC-713 Instrumentation and Control System

	See linked DEQ "RTB Event" Reports >	DEQ 17144	DEQ 17172	DEQ 17186				
	Start Date	05/06/15	05/12/15	05/30/15				
	End Date	05/06/15	05/12/15	06/03/15				MAY TOTALS
DWSD Event #s	see linked Post Event Reports >	1,288	1,289	1,290 R				2
	TREATED OUTFALL:	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)
101	101A Hubbell-Southfield CSO Basin			609				609.00
102	102A Puritan-Fenkell CSO Basin							0.00
103	103A Seven Mile CSO Basin							0.00
104	104A Conner Creek CSO Basin	185.8	8.1	603.2				797.10
105	105A Leib Outfall							0.00
106	106A St Aubin Outfall			13.4				13.40

107	107A Baby Creek S & D Facility			248.8				248.80
108	108A Belle Isle RTB			0.2				0.20
082	109 Oakwood Pump Station			80.8				80.80
	SUBTOTAL	**185.80**	**8.10**	**1555.40**	**0.00**	**0.00**	**0.00**	**1749.30**

	PARTIALLY TREATED OUTFALL:	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)
049	049A WWTP Primary Effluent DRO-1	9.4		517.7				527.10
050	050A WWTP Rouge River Outfall			437.7	< DEQ 17184			437.70
	SUBTOTAL	**9.4**	**0**	**955.4**	**0**	**0**	**0**	**964.80**
	See linked DEQ "CSO Event" Reports >	DEQ 17145	DEQ 17254	DEQ 17187				
	COMBINED SEWER OUTFALLS							
080	B001 Fox Creek							0.00
005	B003A Jefferson & McClellan							0.00
005	B003B Jefferson & McClellan							0.00
006	B004 Fischer Pump Station							0.00
007	B005 E Jefferson & Iroquois			0.69				0.69
008	B006 E Jefferson & Helen							0.00
009	B007 Mt Elliott & Coast Guard			17.71				17.71
011	B009 Adair & Wight							0.00
012	B010 Jos Campau & Wight			1.56				1.56
017	B014 Orleans & Franklin							0.00
016	B015 Orleans & Franklin							0.00
018	B016 Riopelle & Franklin							0.00
019	B017 Rivard & Franklin							0.00
020	B018 Franklin & Sweitzer Pl							0.00
021	B019 Randolph & Jefferson							0.00
022	B020 Atwater & Bates							0.00
023	B021 Woodward & Hart Plaza							0.00
024	B022 Woodward & Hart Plaza							0.00
025	B023 1st & Civic Center Dr			1.27				1.27
026	B024 W Jefferson & Third							0.00
027	B025 W Jefferson & Cabacier							0.00
028	B026 W Jefferson & 11th							0.00
029	B027 W Jefferson & Rosa Parks							0.00
030	B028 W Jefferson & 14th							0.00
031	B029 W Jefferson & 18th							0.00
032	B030 W Jefferson & 21st							0.00
033	B031 W Jefferson & 24th							0.00
034	B032 W Jefferson & W Grand							0.00
035	B033 W Jefferson & Swain							0.00
036	B034 W Jefferson & Scotten							0.00
037	B035 W Jefferson & McKinstry							0.00
038	B036 W Jefferson & Summit							0.00
039	B037 W Jefferson & Ferdinand							0.00
040	B038 W Jefferson & Morrell							0.00
041	B039 W Jefferson Junction							0.00
042	B040 W Jefferson & Campbell							0.00
043	B041 Detroit River & Dragoon							0.00
044	B042 W Jefferson & Schroeder	2.88						2.88
046	B044 W Jefferson & Cary		0.086					0.09
047	B045 W Jefferson & Dearborn							0.00
051	B046 Carbon & Rouge River							0.00
056	B049 S Fort & Oakwood							0.00
054	B050 Fort & Oakwood			16.31	< DEQ 17218			16.31
059	B054 W Warren & Rouge River	0.064						0.06
060	B056 Tireman & Trinity							0.00
048	B059A Jefferson & Pulaski							0.00
048	B059B Jefferson & Pulaski							0.00
061	B060 Spinoza & W Chicago							0.00
062	B063 Rouge Park Dr							0.00
063	B064 Plymouth & Rouge Park							0.00
064	B065 Burt & Capital							0.00
065	B067 Lahser & Dolson							0.00
067	B069 Schoolcraft & Outer Drive							0.00
066	B070 Schoolcraft & Outer Drive							0.00
068	B071 Ray & Brammel			0.1				0.10
069	B072 Lyndon & Brammel							0.00
072	B077 Puritan & Rouge River							0.00

073	B079 Ridge & Florence							0.00
074	B080 McNichols & Beaverland							0.00
074	B081 McNichols & Beaverland							0.00
075	B082 Glenhurst & Margareta							0.00
077	B085 W 7 Mile & Berg							0.00
079	B087 Pembroke & Berg							0.00
	Subtotal Uncontrolled CSO Outfalls	2.944	0.086	37.64	0	0	0	40.67
	Event total volume (all reporting outfalls)	**198.14**	**8.19**	**2548.44**	**0.00**	**0.00**	**0.00**	**2754.77**

	PRECIPITATION in Inches	0.39	no amount	2.08	< see above linked DWSD reports
	Metro Airport				
	PG 002				4.17
	PG 003				3.33
	PG 004				4.60
	PG 005				3.18
	PG 006				3.05
	PG 007				4.49
	PG 008				3.36
	PG 009				0.31
	PG 010				1.17
	PG 011				4.02
	PG 012				2.90
	PG 013				1.33
	PG 014				3.70
	PG 015				3.94
	PG 017				1.70
	PG 018				3.43
	PG 019				3.56
	PG 020				3.65
	PG 021				3.42
	PG 022				4.11
	PG 024				3.25
	PG 025				4.07
	PG 026				3.95
	PG 028				4.05
	PG 029				2.97
	PG 030				3.84
	PG 031				4.34
	PG 032				1.49
	PG 033				2.01
	PG 034				1.69

April-15

	See linked DEQ "RTB Event" Reports >	DEQ 17120	DEQ 17131	DEQ 17139				
	Start Date	04/09/15	04/19/15	04/30/15				
	End Date	04/12/15	04/21/15	04/30/15				APRIL TOTALS
DWSD Event #s	see linked Post Event Reports >	1,285	1,286	1,287				3
	TREATED OUTFALL:	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)
101	101A Hubbell-Southfield CSO Basin	72.8						72.80
102	102A Puritan-Fenkell CSO Basin							0.00
103	103A Seven Mile CSO Basin							0.00
104	104A Conner Creek CSO Basin	474.9						474.90
105	105A Leib Outfall							0.00
106	106A St Aubin Outfall							0.00
107	107A Baby Creek S & D Facility	66.8						66.80
108	108A Belle Isle RTB							0.00
082	109 Oakwood Pump Station	14.4						14.40
	SUBTOTAL	**628.90**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**628.90**
		DEQ 17121	DEQ 17132					
	PARTIALLY TREATED OUTFALL:	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)
049	049A WWTP Primary Effluent DRO-1	268.9	86.7	4.1				359.70
050	050A WWTP Rouge River Outfall	143.5	41.3					184.80
	SUBTOTAL	**412.4**	**128**	**4.1**	**0**	**0**	**0**	**544.50**
	See linked DEQ "CSO Event" Reports >	DEQ 17122	DEQ 17133	No DEQ Report				
	COMBINED SEWER OUTFALLS							
080	B001 Fox Creek							0.00
005	B003A Jefferson & McClellan							0.00

005	B003B Jefferson & McClellan							0.00
006	B004 Fischer Pump Station							0.00
007	B005 E Jefferson & Iroquois		0.03					0.03
008	B006 E Jefferson & Helen							0.00
009	B007 Mt Elliott & Coast Guard	12.09	0.26					12.35
011	B009 Adair & Wight							0.00
012	B010 Jos Campau & Wight							0.00
017	B014 Orleans & Franklin							0.00
016	B015 Orleans & Franklin	0.07						0.07
018	B016 Riopelle & Franklin							0.00
019	B017 Rivard & Franklin							0.00
020	B018 Franklin & Sweitzer Pl							0.00
021	B019 Randolph & Jefferson							0.00
022	B020 Atwater & Bates		0.98					0.98
023	B021 Woodward & Hart Plaza							0.00
024	B022 Woodward & Hart Plaza							0.00
025	B023 1st & Civic Center Dr							0.00
026	B024 W Jefferson & Third							0.00
027	B025 W Jefferson & Cabacier							0.00
028	B026 W Jefferson & 11th							0.00
029	B027 W Jefferson & Rosa Parks							0.00
030	B028 W Jefferson & 14th							0.00
031	B029 W Jefferson & 18th							0.00
032	B030 W Jefferson & 21st							0.00
033	B031 W Jefferson & 24th							0.00
034	B032 W Jefferson & W Grand							0.00
035	B033 W Jefferson & Swain							0.00
036	B034 W Jefferson & Scotten							0.00
037	B035 W Jefferson & McKinstry							0.00
038	B036 W Jefferson & Summit							0.00
039	B037 W Jefferson & Ferdinand							0.00
040	B038 W Jefferson & Morrell							0.00
041	B039 W Jefferson Junction							0.00
042	B040 W Jefferson & Campbell							0.00
043	B041 Detroit River & Dragoon							0.00
044	B042 W Jefferson & Schroeder							0.00
046	B044 W Jefferson & Cary							0.00
047	B045 W Jefferson & Dearborn							0.00
051	B046 Carbon & Rouge River							0.00
056	B049 S Fort & Oakwood							0.00
054	B050 Fort & Oakwood							0.00
059	B054 W Warren & Rouge River							0.00
060	B056 Tireman & Trinity							0.00
048	B059A Jefferson & Pulaski							0.00
048	B059B Jefferson & Pulaski							0.00
061	B060 Spinoza & W Chicago							0.00
062	B063 Rouge Park Dr							0.00
063	B064 Plymouth & Rouge Park	0.02	0.03					0.05
064	B065 Burt & Capital	2.44						2.44
065	B067 Lahser & Dolson							0.00
067	B069 Schoolcraft & Outer Drive							0.00
066	B070 Schoolcraft & Outer Drive							0.00
068	B071 Ray & Brammel							0.00
069	B072 Lyndon & Brammel							0.00
072	B077 Puritan & Rouge River							0.00
073	B079 Ridge & Florence							0.00
074	B080 McNichols & Beaverland							0.00
074	B081 McNichols & Beaverland							0.00
075	B082 Glenhurst & Margareta	3.25						3.25
077	B085 W 7 Mile & Berg							0.00
079	B087 Pembroke & Berg							0.00
	Subtotal Uncontrolled CSO Outfalls	17.87	1.3	0	0	0	0	19.17
	Event total volume (all reporting outfalls)	**1059.17**	**129.30**	**4.10**	**0.00**	**0.00**	**0.00**	**1192.57**
	PRECIPITATION in Inches	0.77	0.73	0.63	< see above linked DWSD reports			
	Metro Airport							
	PG 002							1.87
	PG 003							1.95

	PG 004	2.13
	PG 005	2.02
	PG 006	1.95
	PG 007	2.21
	PG 008	2.21
	PG 009	1.00
	PG 010	2.01
	PG 011	1.81
	PG 012	1.34
	PG 013	0.82
	PG 014	2.00
	PG 015	1.98
	PG 017	0.12
	PG 018	1.95
	PG 019	1.87
	PG 020	1.77
	PG 021	2.22
	PG 022	1.78
	PG 024	2.07
	PG 025	1.80
	PG 026	0.32
	PG 028	1.64
	PG 029	1.32
	PG 030	1.90
	PG 031	1.93
	PG 032	0.01
	PG 033	1.81
	PG 034	1.84

March-15

TALLY OF MONTHLY CSO OVERFLOWS AND PRECIPITATION

Data Source: PC-713 Instrumentation and Control System

See linked DEQ "RTB Event" Reports > DEQ 17079

	Start Date	03/09/15						
	End Date	03/16/15						MARCH TOTALS
DWSD Event #s	see linked Post Event Reports >	1,284						1
	TREATED OUTFALL:	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)
101	101A Hubbell-Southfield CSO Basin							0.00
102	102A Puritan-Fenkell CSO Basin							0.00
103	103A Seven Mile CSO Basin							0.00
104	104A Conner Creek CSO Basin	321.3						321.30
105	105A Leib Outfall							0.00
106	106A St Aubin Outfall							0.00
107	107A Baby Creek S & D Facility	16.1						16.10
108	108A Belle Isle RTB							0.00
082	109 Oakwood Pump Station							0.00
	SUBTOTAL	**337.40**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**337.40**

	PARTIALLY TREATED OUTFALL:	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)
049	049A WWTP Primary Effluent DRO-1	424.8						424.80
050	050A WWTP Rouge River Outfall							0.00
	SUBTOTAL	**424.8**	**0**	**0**	**0**	**0**	**0**	**424.80**

See linked DEQ "CSO Event" Reports > No DEQ Report

	COMBINED SEWER OUTFALLS	
080	B001 Fox Creek	0.00
005	B003A Jefferson & McClellan	0.00
005	B003B Jefferson & McClellan	0.00
006	B004 Fischer Pump Station	0.00
007	B005 E Jefferson & Iroquois	0.00
008	B006 E Jefferson & Helen	0.00
009	B007 Mt Elliott & Coast Guard	0.00
011	B009 Adair & Wight	0.00
012	B010 Jos Campau & Wight	0.00
017	B014 Orleans & Franklin	0.00
016	B015 Orleans & Franklin	0.00
018	B016 Riopelle & Franklin	0.00
019	B017 Rivard & Franklin	0.00

020	B018 Franklin & Sweitzer Pl							0.00
021	B019 Randolph & Jefferson							0.00
022	B020 Atwater & Bates							0.00
023	B021 Woodward & Hart Plaza							0.00
024	B022 Woodward & Hart Plaza							0.00
025	B023 1st & Civic Center Dr							0.00
026	B024 W Jefferson & Third							0.00
027	B025 W Jefferson & Cabacier							0.00
028	B026 W Jefferson & 11th							0.00
029	B027 W Jefferson & Rosa Parks							0.00
030	B028 W Jefferson & 14th							0.00
031	B029 W Jefferson & 18th							0.00
032	B030 W Jefferson & 21st							0.00
033	B031 W Jefferson & 24th							0.00
034	B032 W Jefferson & W Grand							0.00
035	B033 W Jefferson & Swain							0.00
036	B034 W Jefferson & Scotten							0.00
037	B035 W Jefferson & McKinstry							0.00
038	B036 W Jefferson & Summit							0.00
039	B037 W Jefferson & Ferdinand							0.00
040	B038 W Jefferson & Morrell							0.00
041	B039 W Jefferson Junction							0.00
042	B040 W Jefferson & Campbell							0.00
043	B041 Detroit River & Dragoon							0.00
044	B042 W Jefferson & Schroeder							0.00
046	B044 W Jefferson & Cary							0.00
047	B045 W Jefferson & Dearborn							0.00
051	B046 Carbon & Rouge River							0.00
056	B049 S Fort & Oakwood							0.00
054	B050 Fort & Oakwood							0.00
059	B054 W Warren & Rouge River							0.00
060	B056 Tireman & Trinity							0.00
048	B059A Jefferson & Pulaski							0.00
048	B059B Jefferson & Pulaski							0.00
061	B060 Spinoza & W Chicago							0.00
062	B063 Rouge Park Dr							0.00
063	B064 Plymouth & Rouge Park							0.00
064	B065 Burt & Capital							0.00
065	B067 Lahser & Dolson							0.00
067	B069 Schoolcraft & Outer Drive							0.00
066	B070 Schoolcraft & Outer Drive							0.00
068	B071 Ray & Brammel							0.00
069	B072 Lyndon & Brammel							0.00
072	B077 Puritan & Rouge River							0.00
073	B079 Ridge & Florence							0.00
074	B080 McNichols & Beaverland							0.00
074	B081 McNichols & Beaverland							0.00
075	B082 Glenhurst & Margareta							0.00
077	B085 W 7 Mile & Berg							0.00
079	B087 Pembroke & Berg							0.00
	Subtotal Uncontrolled CSO Outfalls	0	0	0	0	0	0	0.00
	Event total volume (all reporting outfalls)	**762.20**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**762.20**

PRECIPITATION in Inches	0.73	< see above linked DEQ report for effective rainfall reported (this was apparently estimated based on some or all of 12" snowmelt DWSD reported)
Metro Airport		
PG 002		0.81
PG 003		0.42
PG 004		0.98
PG 005		0.62
PG 006		0.72
PG 007		0.61
PG 008		0.71
PG 009		0.43
PG 010		0.63
PG 011		0.68
PG 012		0.61
PG 013		0.37
PG 014		0.75
PG 015		0.75

	PG 017	0.25
	PG 018	0.80
	PG 019	0.27
	PG 020	0.72
	PG 021	0.70
	PG 022	0.45
	PG 024	0.61
	PG 025	0.80
	PG 026	0.70
	PG 028	0.76
	PG 029	0.56
	PG 030	0.69
	PG 031	0.58
	PG 032	0.51
	PG 033	0.70
	PG 034	0.63

February-15

TALLY OF MONTHLY CSO OVERFLOWS AND PRECIPITATION

Data Source: PC-713 Instrumentation and Control System

	Start Date							
	End Date							FEBRUARY TOTALS
	Event #s							0
	TREATED OUTFALL:	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)
101	101A Hubbell-Southfield CSO Basin							0.00
102	102A Puritan-Fenkell CSO Basin							0.00
103	103A Seven Mile CSO Basin							0.00
104	104A Conner Creek CSO Basin							0.00
105	105A Leib Outfall							0.00
106	106A St Aubin Outfall							0.00
107	107A Baby Creek S & D Facility							0.00
108	108A Belle Isle RTB							0.00
082	109 Oakwood Pump Station							0.00
	SUBTOTAL	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	PARTIALLY TREATED OUTFALL:	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)
049	049A WWTP Primary Effluent DRO-1							0.00
050	050A WWTP Rouge River Outfall							0.00
	SUBTOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0.00**
	COMBINED SEWER OUTFALLS							
080	B001 Fox Creek							0.00
005	B003A Jefferson & McClellan							0.00
005	B003B Jefferson & McClellan							0.00
006	B004 Fischer Pump Station							0.00
007	B005 E Jefferson & Iroquois							0.00
008	B006 E Jefferson & Helen							0.00
009	B007 Mt Elliott & Coast Guard							0.00
011	B009 Adair & Wight							0.00
012	B010 Jos Campau & Wight							0.00
017	B014 Orleans & Franklin							0.00
016	B015 Orleans & Franklin							0.00
018	B016 Riopelle & Franklin							0.00
019	B017 Rivard & Franklin							0.00
020	B018 Franklin & Sweitzer Pl							0.00
021	B019 Randolph & Jefferson							0.00
022	B020 Atwater & Bates							0.00
023	B021 Woodward & Hart Plaza							0.00
024	B022 Woodward & Hart Plaza							0.00
025	B023 1st & Civic Center Dr							0.00
026	B024 W Jefferson & Third							0.00
027	B025 W Jefferson & Cabacier							0.00
028	B026 W Jefferson & 11th							0.00
029	B027 W Jefferson & Rosa Parks							0.00
030	B028 W Jefferson & 14th							0.00
031	B029 W Jefferson & 18th							0.00
032	B030 W Jefferson & 21st							0.00
033	B031 W Jefferson & 24th							0.00
034	B032 W Jefferson & W Grand							0.00

035	B033 W Jefferson & Swain							0.00
036	B034 W Jefferson & Scotten							0.00
037	B035 W Jefferson & McKinstry							0.00
038	B036 W Jefferson & Summit							0.00
039	B037 W Jefferson & Ferdinand							0.00
040	B038 W Jefferson & Morrell							0.00
041	B039 W Jefferson Junction							0.00
042	B040 W Jefferson & Campbell							0.00
043	B041 Detroit River & Dragoon							0.00
044	B042 W Jefferson & Schroeder							0.00
046	B044 W Jefferson & Cary							0.00
047	B045 W Jefferson & Dearborn							0.00
051	B046 Carbon & Rouge River							0.00
056	B049 S Fort & Oakwood							0.00
054	B050 Fort & Oakwood							0.00
059	B054 W Warren & Rouge River							0.00
060	B056 Tireman & Trinity							0.00
048	B059A Jefferson & Pulaski							0.00
048	B059B Jefferson & Pulaski							0.00
061	B060 Spinoza & W Chicago							0.00
062	B063 Rouge Park Dr							0.00
063	B064 Plymouth & Rouge Park							0.00
064	B065 Burt & Capital							0.00
065	B067 Lahser & Dolson							0.00
067	B069 Schoolcraft & Outer Drive							0.00
066	B070 Schoolcraft & Outer Drive							0.00
068	B071 Ray & Brammel							0.00
069	B072 Lyndon & Brammel							0.00
072	B077 Puritan & Rouge River							0.00
073	B079 Ridge & Florence							0.00
074	B080 McNichols & Beaverland							0.00
074	B081 McNichols & Beaverland							0.00
075	B082 Glenhurst & Margareta							0.00
077	B085 W 7 Mile & Berg							0.00
079	B087 Pembroke & Berg							0.00
	Subtotal Uncontrolled CSO Outfalls	0	0	0	0	0	0	0.00
	Event total volume (all reporting outfalls)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

PRECIPITATION in Inches	
Metro Airport	
PG 002	0.35
PG 003	0.14
PG 004	0.13
PG 005	0.00
PG 006	0.06
PG 007	0.36
PG 008	0.02
PG 009	0.00
PG 010	0.05
PG 011	0.24
PG 012	0.61
PG 013	0.16
PG 014	0.01
PG 015	0.70
PG 017	0.11
PG 018	0.29
PG 019	0.03
PG 020	0.26
PG 021	0.02
PG 022	0.00
PG 024	0.25
PG 025	0.73
PG 026	0.18
PG 028	0.52
PG 029	0.40
PG 030	0.23
PG 031	0.17
PG 032	0.00
PG 033	0.29

0.06

January-14

TALLY OF MONTHLY CSO OVERFLOWS AND PRECIPITATION

Data Source: PC-713 Instrumentation and Control System

See linked DEQ "RTB Event" Reports > DEQ 16939

	Start Date	01/03/15						
	End Date	01/05/15						JANUARY TOTALS
DWSD Event #s	see linked Post Event Reports >	1,283						1
	TREATED OUTFALL:	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)
101	101A Hubbell-Southfield CSO Basin							0.00
102	102A Puritan-Fenkell CSO Basin							0.00
103	103A Seven Mile CSO Basin							0.00
104	104A Conner Creek CSO Basin	37.7						37.70
105	105A Leib Outfall							0.00
106	106A St Aubin Outfall	4.3						4.30
107	107A Baby Creek S & D Facility							0.00
108	108A Belle Isle RTB							0.00
082	109 Oakwood Pump Station							0.00
	SUBTOTAL	**42.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**42.00**
	PARTIALLY TREATED OUTFALL:	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)
049	049A WWTP Primary Effluent DRO-1	123.1						123.10
050	050A WWTP Rouge River Outfall	45						45.00
	SUBTOTAL	**168.1**	**0**	**0**	**0**	**0**	**0**	**168.10**

See linked DEQ "CSO Event" Reports > DEQ 16940

	COMBINED SEWER OUTFALLS	
080	B001 Fox Creek	0.00
005	B003A Jefferson & McClellan	0.00
005	B003B Jefferson & McClellan	0.00
006	B004 Fischer Pump Station	0.00
007	B005 E Jefferson & Iroquois	0.00
008	B006 E Jefferson & Helen	0.00
009	B007 Mt Elliott & Coast Guard	0.00
011	B009 Adair & Wight	0.00
012	B010 Jos Campau & Wight	0.00
017	B014 Orleans & Franklin	0.00
016	B015 Orleans & Franklin	0.00
018	B016 Riopelle & Franklin	0.00
019	B017 Rivard & Franklin	0.00
020	B018 Franklin & Sweitzer Pl	0.00
021	B019 Randolph & Jefferson	0.00
022	B020 Atwater & Bates	0.00
023	B021 Woodward & Hart Plaza	0.00
024	B022 Woodward & Hart Plaza	0.00
025	B023 1st & Civic Center Dr	0.00
026	B024 W Jefferson & Third	0.00
027	B025 W Jefferson & Cabacier	0.00
028	B026 W Jefferson & 11th	0.00
029	B027 W Jefferson & Rosa Parks	0.00
030	B028 W Jefferson & 14th	0.00
031	B029 W Jefferson & 18th	0.00
032	B030 W Jefferson & 21st	0.00
033	B031 W Jefferson & 24th	0.00
034	B032 W Jefferson & W Grand	0.00
035	B033 W Jefferson & Swain	0.00
036	B034 W Jefferson & Scotten	0.00
037	B035 W Jefferson & McKinstry	0.00
038	B036 W Jefferson & Summit	0.00
039	B037 W Jefferson & Ferdinand	0.00
040	B038 W Jefferson & Morrell	0.00
041	B039 W Jefferson Junction	0.00
042	B040 W Jefferson & Campbell	0.00
043	B041 Detroit River & Dragoon	0.00
044	B042 W Jefferson & Schroeder	0.00
046	B044 W Jefferson & Cary	0.00
047	B045 W Jefferson & Dearborn	0.00
051	B046 Carbon & Rouge River	0.00
056	B049 S Fort & Oakwood	0.00
054	B050 Fort & Oakwood	0.00

059	B054 W Warren & Rouge River							0.00
060	B056 Tireman & Trinity							0.00
048	B059A Jefferson & Pulaski							0.00
048	B059B Jefferson & Pulaski							0.00
061	B060 Spinoza & W Chicago							0.00
062	B063 Rouge Park Dr							0.00
063	B064 Plymouth & Rouge Park							0.00
064	B065 Burt & Capital							0.00
065	B067 Lahser & Dolson							0.00
067	B069 Schoolcraft & Outer Drive							0.00
066	B070 Schoolcraft & Outer Drive							0.00
068	B071 Ray & Brammel							0.00
069	B072 Lyndon & Brammel							0.00
072	B077 Puritan & Rouge River							0.00
073	B079 Ridge & Florence							0.00
074	B080 McNichols & Beaverland							0.00
074	B081 McNichols & Beaverland							0.00
075	B082 Glenhurst & Margareta							0.00
077	B085 W 7 Mile & Berg							0.00
079	B087 Pembroke & Berg							0.00
	Subtotal Uncontrolled CSO Outfalls	0	0	0	0	0	0	0.00
	Event total volume (all reporting outfalls)	**210.10**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**210.10**

PRECIPITATION in Inches	0.45	< see above linked DWSD report
Metro Airport		
PG 002		0.57
PG 003		0.52
PG 004		0.72
PG 005		0.64
PG 006		0.66
PG 007		0.78
PG 008		0.56
PG 009		0.54
PG 010		0.63
PG 011		0.66
PG 012		0.78
PG 013		0.55
PG 014		0.70
PG 015		0.92
PG 017		0.20
PG 018		0.74
PG 019		0.50
PG 020		0.60
PG 021		0.51
PG 022		0.51
PG 024		0.56
PG 025		0.80
PG 026		0.51
PG 028		0.78
PG 029		0.80
PG 030		0.72
PG 031		0.63
PG 032		0.49
PG 033		0.85
PG 034		0.59

December-14

TALLY OF MONTHLY CSO OVERFLOWS AND PRECIPITATION

Data Source: PC-713 Instrumentation and Control System

See linked DEQ "RTB Event" Report> DEQ 16933

	Start Date	12/24/14						
	End Date	12/26/14						DECEMBER TOTALS
DWSD Event #s	see linked Post Event Reports >	1,282						1
	TREATED OUTFALL:	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)
101	101A Hubbell-Southfield CSO Basin	14.3						14.30
102	102A Puritan-Fenkell CSO Basin							0.00
103	103A Seven Mile CSO Basin							0.00
104	104A Conner Creek CSO Basin	167						167.00
105	105A Leib Outfall							0.00
106	106A St Aubin Outfall							0.00

107	107A Baby Creek S & D Facility	24.6						24.60
108	108A Belle Isle RTB							0.00
082	109 Oakwood Pump Station							0.00
	SUBTOTAL	**205.90**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**205.90**

	PARTIALLY TREATED OUTFALL:	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)
049	049A WWTP Primary Effluent DRO-1	154.9						154.90
050	050A WWTP Rouge River Outfall	65.7	< DEQ 16932					65.70
	SUBTOTAL	**220.6**	**0**	**0**	**0**	**0**	**0**	**220.60**
	See linked DEQ "CSO Event" Report >	DEQ 16965						
	COMBINED SEWER OUTFALLS							
080	B001 Fox Creek							0.00
005	B003A Jefferson & McClellan							0.00
005	B003B Jefferson & McClellan							0.00
006	B004 Fischer Pump Station							0.00
007	B005 E Jefferson & Iroquois							0.00
008	B006 E Jefferson & Helen							0.00
009	B007 Mt Elliott & Coast Guard	0.31						0.31
011	B009 Adair & Wight							0.00
012	B010 Jos Campau & Wight							0.00
017	B014 Orleans & Franklin							0.00
016	B015 Orleans & Franklin							0.00
018	B016 Riopelle & Franklin							0.00
019	B017 Rivard & Franklin							0.00
020	B018 Franklin & Sweitzer Pl							0.00
021	B019 Randolph & Jefferson							0.00
022	B020 Atwater & Bates							0.00
023	B021 Woodward & Hart Plaza							0.00
024	B022 Woodward & Hart Plaza							0.00
025	B023 1st & Civic Center Dr							0.00
026	B024 W Jefferson & Third							0.00
027	B025 W Jefferson & Cabacier							0.00
028	B026 W Jefferson & 11th							0.00
029	B027 W Jefferson & Rosa Parks							0.00
030	B028 W Jefferson & 14th							0.00
031	B029 W Jefferson & 18th							0.00
032	B030 W Jefferson & 21st							0.00
033	B031 W Jefferson & 24th							0.00
034	B032 W Jefferson & W Grand							0.00
035	B033 W Jefferson & Swain							0.00
036	B034 W Jefferson & Scotten							0.00
037	B035 W Jefferson & McKinstry							0.00
038	B036 W Jefferson & Summit							0.00
039	B037 W Jefferson & Ferdinand							0.00
040	B038 W Jefferson & Morrell							0.00
041	B039 W Jefferson Junction							0.00
042	B040 W Jefferson & Campbell							0.00
043	B041 Detroit River & Dragoon							0.00
044	B042 W Jefferson & Schroeder							0.00
046	B044 W Jefferson & Cary							0.00
047	B045 W Jefferson & Dearborn							0.00
051	B046 Carbon & Rouge River							0.00
056	B049 S Fort & Oakwood							0.00
054	B050 Fort & Oakwood							0.00
059	B054 W Warren & Rouge River							0.00
060	B056 Tireman & Trinity							0.00
048	B059A Jefferson & Pulaski							0.00
048	B059B Jefferson & Pulaski							0.00
061	B060 Spinoza & W Chicago							0.00
062	B063 Rouge Park Dr							0.00
063	B064 Plymouth & Rouge Park							0.00
064	B065 Burt & Capital							0.00
065	B067 Lahser & Dolson							0.00
067	B069 Schoolcraft & Outer Drive							0.00
066	B070 Schoolcraft & Outer Drive							0.00
068	B071 Ray & Brammel							0.00
069	B072 Lyndon & Brammel							0.00
072	B077 Puritan & Rouge River							0.00

073	B079 Ridge & Florence							0.00
074	B080 McNichols & Beaverland							0.00
074	B081 McNichols & Beaverland							0.00
075	B082 Glenhurst & Margareta							0.00
077	B085 W 7 Mile & Berg							0.00
079	B087 Pembroke & Berg							0.00
	Subtotal Uncontrolled CSO Outfalls	0.31	0	0	0	0	0	0.31
	Event total volume (all reporting outfalls)	**426.81**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**426.81**

	PRECIPITATION in Inches	0.57	< see above linked DWSD report
	Metro Airport		
	PG 002		0.47
	PG 003		0.46
	PG 004		0.43
	PG 005		0.45
	PG 006		0.48
	PG 007		0.47
	PG 008		0.50
	PG 009		0.46
	PG 010		0.47
	PG 011		0.43
	PG 012		0.47
	PG 013		0.49
	PG 014		0.42
	PG 015		0.50
	PG 017		0.33
	PG 018		0.49
	PG 019		0.43
	PG 020		0.41
	PG 021		0.46
	PG 022		0.43
	PG 024		0.45
	PG 025		0.47
	PG 026		0.38
	PG 028		0.43
	PG 029		0.34
	PG 030		0.44
	PG 031		0.52
	PG 032		0.46
	PG 033		0.47
	PG 034		0.45

November-14

TALLY OF MONTHLY CSO OVERFLOWS AND PRECIPITATION

Data Source: PC-713 Instrumentation and Control System

See linked DEQ "RTB Event" Report > DEQ 16887

	Start Date	11/23/14						
	End Date	11/26/14						NOVEMBER TOTALS
DWSD Event #s	see linked Post Event Reports >	1,281 R						0
	TREATED OUTFALL:	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)
101	101A Hubbell-Southfield CSO Basin	152.4						152.40
102	102A Puritan-Fenkell CSO Basin							0.00
103	103A Seven Mile CSO Basin							0.00
104	104A Conner Creek CSO Basin	683.5						683.50
105	105A Leib Outfall							0.00
106	106A St Aubin Outfall	4.5						4.50
107	107A Baby Creek S & D Facility	86.9						86.90
108	108A Belle Isle RTB							0.00
082	109 Oakwood Pump Station	1.4						1.40
	SUBTOTAL	**928.70**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**928.70**
	PARTIALLY TREATED OUTFALL:	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)
049	049A WWTP Primary Effluent DRO-1	57.6						57.60
050	050A WWTP Rouge River Outfall	28.3	< DEQ 16888					28.30
	SUBTOTAL	**85.9**	**0**	**0**	**0**	**0**	**0**	**85.90**
	See linked DEQ "CSO Event" Report >	DEQ 16889						
	COMBINED SEWER OUTFALLS							
080	B001 Fox Creek							0.00
005	B003A Jefferson & McClellan							0.00

005	B003B Jefferson & McClellan							0.00
006	B004 Fischer Pump Station							0.00
007	B005 E Jefferson & Iroquois	0.59						0.59
008	B006 E Jefferson & Helen							0.00
009	B007 Mt Elliott & Coast Guard							0.00
011	B009 Adair & Wight	0.3						0.30
012	B010 Jos Campau & Wight							0.00
017	B014 Orleans & Franklin							0.00
016	B015 Orleans & Franklin							0.00
018	B016 Riopelle & Franklin							0.00
019	B017 Rivard & Franklin							0.00
020	B018 Franklin & Sweitzer Pl							0.00
021	B019 Randolph & Jefferson							0.00
022	B020 Atwater & Bates	10.16						10.16
023	B021 Woodward & Hart Plaza							0.00
024	B022 Woodward & Hart Plaza							0.00
025	B023 1st & Civic Center Dr	14.99						14.99
026	B024 W Jefferson & Third							0.00
027	B025 W Jefferson & Cabacier							0.00
028	B026 W Jefferson & 11th							0.00
029	B027 W Jefferson & Rosa Parks							0.00
030	B028 W Jefferson & 14th							0.00
031	B029 W Jefferson & 18th							0.00
032	B030 W Jefferson & 21st							0.00
033	B031 W Jefferson & 24th							0.00
034	B032 W Jefferson & W Grand							0.00
035	B033 W Jefferson & Swain							0.00
036	B034 W Jefferson & Scotten							0.00
037	B035 W Jefferson & McKinstry							0.00
038	B036 W Jefferson & Summit							0.00
039	B037 W Jefferson & Ferdinand							0.00
040	B038 W Jefferson & Morrell							0.00
041	B039 W Jefferson Junction							0.00
042	B040 W Jefferson & Campbell							0.00
043	B041 Detroit River & Dragoon							0.00
044	B042 W Jefferson & Schroeder							0.00
046	B044 W Jefferson & Cary							0.00
047	B045 W Jefferson & Dearborn							0.00
051	B046 Carbon & Rouge River							0.00
056	B049 S Fort & Oakwood							0.00
054	B050 Fort & Oakwood	822						822.00
059	B054 W Warren & Rouge River	0.68						0.68
060	B056 Tireman & Trinity							0.00
048	B059A Jefferson & Pulaski							0.00
048	B059B Jefferson & Pulaski							0.00
061	B060 Spinoza & W Chicago							0.00
062	B063 Rouge Park Dr	0.73						0.73
063	B064 Plymouth & Rouge Park							0.00
064	B065 Burt & Capital							0.00
065	B067 Lahser & Dolson							0.00
067	B069 Schoolcraft & Outer Drive							0.00
066	B070 Schoolcraft & Outer Drive							0.00
068	B071 Ray & Brammel							0.00
069	B072 Lyndon & Brammel							0.00
072	B077 Puritan & Rouge River							0.00
073	B079 Ridge & Florence							0.00
074	B080 McNichols & Beaverland							0.00
074	B081 McNichols & Beaverland							0.00
075	B082 Glenhurst & Margareta	0.02						0.02
077	B085 W 7 Mile & Berg							0.00
079	B087 Pembroke & Berg							0.00
	Subtotal Uncontrolled CSO Outfalls	849.47	0	0	0	0	0	849.47
	Event total volume (all reporting outfalls)	**1864.07**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1864.07**

PRECIPITATION in Inches	1.08	< see above linked DWSD report
Metro Airport		
PG 002		1.42
PG 003		1.49
PG 004		1.52

	PG 005	0.90
	PG 006	1.28
	PG 007	1.80
	PG 008	1.28
	PG 009	1.49
	PG 010	1.40
	PG 011	1.33
	PG 012	1.51
	PG 013	1.43
	PG 014	1.48
	PG 015	1.67
	PG 017	0.61
	PG 018	1.58
	PG 019	1.24
	PG 020	1.32
	PG 021	1.38
	PG 022	1.42
	PG 024	1.42
	PG 025	1.31
	PG 026	1.11
	PG 028	1.39
	PG 029	1.58
	PG 030	1.41
	PG 031	1.36
	PG 032	0.91
	PG 033	1.46
	PG 034	1.34

October-14

TALLY OF MONTHLY CSO OVERFLOWS AND PRECIPITATION

Data Source: PC-713 Instrumentation and Control System

See linked DEQ "RTB Event" Report > DEQ 16820

	Start Date	10/14/14						
	End Date	10/15/14						OCTOBER TOTALS
DWSD Event #s	see linked Post Event Reports >	1,280						1
	TREATED OUTFALL:	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)
101	101A Hubbell-Southfield CSO Basin	7.8						7.80
102	102A Puritan-Fenkell CSO Basin							0.00
103	103A Seven Mile CSO Basin							0.00
104	104A Conner Creek CSO Basin	80.8						80.80
105	105A Leib Outfall							0.00
106	106A St Aubin Outfall							0.00
107	107A Baby Creek S & D Facility							0.00
108	108A Belle Isle RTB							0.00
082	109 Oakwood Pump Station							0.00
	SUBTOTAL	**88.60**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**88.60**
	PARTIALLY TREATED OUTFALL:	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)
049	049A WWTP Primary Effluent DRO-1	73.1						73.10
050	050A WWTP Rouge River Outfall	75.5	< DEQ 16819					75.50
	SUBTOTAL	**148.6**	**0**	**0**	**0**	**0**	**0**	**148.60**

See linked DEQ "CSO Event" Report > DEQ 16821

	COMBINED SEWER OUTFALLS	
080	B001 Fox Creek	0.00
005	B003A Jefferson & McClellan	0.00
005	B003B Jefferson & McClellan	0.00
006	B004 Fischer Pump Station	0.00
007	B005 E Jefferson & Iroquois	0.00
008	B006 E Jefferson & Helen	0.00
009	B007 Mt Elliott & Coast Guard	0.00
011	B009 Adair & Wight	0.00
012	B010 Jos Campau & Wight	0.00
017	B014 Orleans & Franklin	0.00
016	B015 Orleans & Franklin	0.00
018	B016 Riopelle & Franklin	0.00
019	B017 Rivard & Franklin	0.00
020	B018 Franklin & Sweitzer Pl	0.00
021	B019 Randolph & Jefferson	0.00
022	B020 Atwater & Bates	0.00
023	B021 Woodward & Hart Plaza	0.00

024	B022 Woodward & Hart Plaza							0.00
025	B023 1st & Civic Center Dr							0.00
026	B024 W Jefferson & Third							0.00
027	B025 W Jefferson & Cabacier							0.00
028	B026 W Jefferson & 11th							0.00
029	B027 W Jefferson & Rosa Parks							0.00
030	B028 W Jefferson & 14th							0.00
031	B029 W Jefferson & 18th							0.00
032	B030 W Jefferson & 21st							0.00
033	B031 W Jefferson & 24th							0.00
034	B032 W Jefferson & W Grand							0.00
035	B033 W Jefferson & Swain							0.00
036	B034 W Jefferson & Scotten							0.00
037	B035 W Jefferson & McKinstry							0.00
038	B036 W Jefferson & Summit							0.00
039	B037 W Jefferson & Ferdinand							0.00
040	B038 W Jefferson & Morrell							0.00
041	B039 W Jefferson Junction							0.00
042	B040 W Jefferson & Campbell							0.00
043	B041 Detroit River & Dragoon							0.00
044	B042 W Jefferson & Schroeder							0.00
046	B044 W Jefferson & Cary							0.00
047	B045 W Jefferson & Dearborn							0.00
051	B046 Carbon & Rouge River							0.00
056	B049 S Fort & Oakwood							0.00
054	B050 Fort & Oakwood							0.00
059	B054 W Warren & Rouge River							0.00
060	B056 Tireman & Trinity							0.00
048	B059A Jefferson & Pulaski							0.00
048	B059B Jefferson & Pulaski							0.00
061	B060 Spinoza & W Chicago							0.00
062	B063 Rouge Park Dr	0.37						0.37
063	B064 Plymouth & Rouge Park							0.00
064	B065 Burt & Capital							0.00
065	B067 Lahser & Dolson							0.00
067	B069 Schoolcraft & Outer Drive							0.00
066	B070 Schoolcraft & Outer Drive							0.00
068	B071 Ray & Brammel							0.00
069	B072 Lyndon & Brammel							0.00
072	B077 Puritan & Rouge River							0.00
073	B079 Ridge & Florence							0.00
074	B080 McNichols & Beaverland							0.00
074	B081 McNichols & Beaverland							0.00
075	B082 Glenhurst & Margareta							0.00
077	B085 W 7 Mile & Berg							0.00
079	B087 Pembroke & Berg							0.00
	Subtotal Uncontrolled CSO Outfalls	0.37	0	0	0	0	0	0.37
	Event total volume (all reporting outfalls)	**237.57**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**237.57**

PRECIPITATION in Inches	0.58	< see above linked DEQ report
Metro Airport		
PG 002		1.51
PG 003		1.64
PG 004		1.69
PG 005		1.06
PG 006		1.56
PG 007		1.90
PG 008		1.50
PG 009		1.66
PG 010		1.71
PG 011		1.39
PG 012		1.74
PG 013		1.67
PG 014		1.53
PG 015		1.62
PG 017		0.94
PG 018		1.48
PG 019		1.67
PG 020		1.65

	PG 021	1.42
	PG 022	1.67
	PG 024	1.72
	PG 025	1.49
	PG 026	1.19
	PG 028	1.68
	PG 029	1.72
	PG 030	1.68
	PG 031	1.39
	PG 032	1.63
	PG 033	1.46
	PG 034	1.62

September-14 TALLY OF MONTHLY CSO OVERFLOWS AND PRECIPITATION

Data Source: PC-713 Instrumentation and Control System

	See linked DEQ "RTB Event" Reports >	DEQ 16716	DEQ 16755	DEQ 16788	DEQ 16802			
	Start Date	09/01/14	09/10/14	09/20/14	09/30/14			SEPTEMBER
	End Date	09/03/14	09/14/14	09/22/14	09/30/14			TOTALS
DWSD Event #s	see linked Post Event Reports >	1,276 R	1,277	1,278	1,279			3
	TREATED OUTFALL:	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)
101	101A Hubbell-Southfield CSO Basin	38.53	222.5	13.8				274.83
102	102A Puritan-Fenkell CSO Basin							0.00
103	103A Seven Mile CSO Basin							0.00
104	104A Conner Creek CSO Basin	302.4	615.3					917.70
105	105A Leib Outfall							0.00
106	106A St Aubin Outfall	2.7	4.2					6.90
107	107A Baby Creek S & D Facility	18	73.1					91.10
108	108A Belle Isle RTB		1.4					1.40
082	109 Oakwood Pump Station		8.9					8.90
	SUBTOTAL	**361.63**	**925.40**	**13.80**	**0.00**	**0.00**	**0.00**	**1300.83**
		DEQ 16717	DEQ 16756	DEQ 16806				
	PARTIALLY TREATED OUTFALL:	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)
049	049A WWTP Primary Effluent DRO-1	204	255.3	174.2	20.36			653.86
050	050A WWTP Rouge River Outfall	264.4	491.9	80.8	12.46			849.56
	SUBTOTAL	**468.4**	**747.2**	**255**	**32.82**	**0**	**0**	**1503.42**
	See linked DEQ "CSO Event" Reports >	DEQ 16797	DEQ 16816	DEQ 16822	DEQ 16801			
	COMBINED SEWER OUTFALLS							
080	B001 Fox Creek							0.00
005	B003A Jefferson & McClellan							0.00
005	B003B Jefferson & McClellan		1.29					1.29
006	B004 Fischer Pump Station							0.00
007	B005 E Jefferson & Iroquois	0.79	6.22	0.14				7.15
008	B006 E Jefferson & Helen							0.00
009	B007 Mt Elliott & Coast Guard	2.5	16.36	2.8				21.66
011	B009 Adair & Wight		1.36					1.36
012	B010 Jos Campau & Wight		22.32					22.32
017	B014 Orleans & Franklin		0.65					0.65
016	B015 Orleans & Franklin		1.06					1.06
018	B016 Riopelle & Franklin		0.27					0.27
019	B017 Rivard & Franklin	2.11						2.11
020	B018 Franklin & Sweitzer Pl							0.00
021	B019 Randolph & Jefferson		2.98					2.98
022	B020 Atwater & Bates	0.34	45.17	15.49				61.00
023	B021 Woodward & Hart Plaza		30.67					30.67
024	B022 Woodward & Hart Plaza							0.00
025	B023 1st & Civic Center Dr	6.14						6.14
026	B024 W Jefferson & Third		0.01					0.01
027	B025 W Jefferson & Cabacier							0.00
028	B026 W Jefferson & 11th		0.01					0.01
029	B027 W Jefferson & Rosa Parks							0.00
030	B028 W Jefferson & 14th							0.00
031	B029 W Jefferson & 18th	0.13	0.4					0.53
032	B030 W Jefferson & 21st							0.00
033	B031 W Jefferson & 24th	0.62	0.13					0.75
034	B032 W Jefferson & W Grand							0.00
035	B033 W Jefferson & Swain							0.00
036	B034 W Jefferson & Scotten							0.00
037	B035 W Jefferson & McKinstry							0.00
038	B036 W Jefferson & Summit		0.4					0.40

039	B037 W Jefferson & Ferdinand		2.48					2.48
040	B038 W Jefferson & Morrell							0.00
041	B039 W Jefferson Junction							0.00
042	B040 W Jefferson & Campbell							0.00
043	B041 Detroit River & Dragoon							0.00
044	B042 W Jefferson & Schroeder							0.00
046	B044 W Jefferson & Cary							0.00
047	B045 W Jefferson & Dearborn							0.00
051	B046 Carbon & Rouge River							0.00
056	B049 S Fort & Oakwood							0.00
054	B050 Fort & Oakwood		20.59					20.59
059	B054 W Warren & Rouge River							0.00
060	B056 Tireman & Trinity							0.00
048	B059A Jefferson & Pulaski							0.00
048	B059B Jefferson & Pulaski							0.00
061	B060 Spinoza & W Chicago							0.00
062	B063 Rouge Park Dr		0.55	0.6				1.15
063	B064 Plymouth & Rouge Park	0.01						0.01
064	B065 Burt & Capital			1.71				1.71
065	B067 Lahser & Dolson							0.00
067	B069 Schoolcraft & Outer Drive							0.00
066	B070 Schoolcraft & Outer Drive							0.00
068	B071 Ray & Brammel							0.00
069	B072 Lyndon & Brammel							0.00
072	B077 Puritan & Rouge River							0.00
073	B079 Ridge & Florence							0.00
074	B080 McNichols & Beaverland							0.00
074	B081 McNichols & Beaverland							0.00
075	B082 Glenhurst & Margareta							0.00
077	B085 W 7 Mile & Berg							0.00
079	B087 Pembroke & Berg							0.00
	Subtotal Uncontrolled CSO Outfalls	12.64	152.92	20.74	0	0	0	186.30
	Event total volume (all reporting outfalls)	**842.67**	**1825.52**	**289.54**	**32.82**	**0.00**	**0.00**	**2990.55**
	PRECIPITATION in Inches	1.66	0.61	0.96	0.1	< see above linked DWSD reports		
	Metro Airport							
	PG 002							2.5
	PG 003							2.31
	PG 004							2.64
	PG 005							1.74
	PG 006							2.18
	PG 007							2.11
	PG 008							2.52
	PG 009							2.18
	PG 010							2.47
	PG 011							2.61
	PG 012							2.56
	PG 013							2.08
	PG 014							2.09
	PG 015							2.63
	PG 017							2.1
	PG 018							2.28
	PG 019							2.14
	PG 020							2.4
	PG 021							1.77
	PG 022							1.68
	PG 024							2.33
	PG 025							2.48
	PG 026							2.44
	PG 028							2.23
	PG 029							2.24
	PG 030							2.63
	PG 031							2.05
	PG 032							2.18
	PG 033							2.29
	PG 034							2.39

	See linked DEQ "RTB Event" Reports >	DEQ 16155	DEQ 16513	DEQ 16526	DEQ 16547	DEQ 16711		
	Start Date	08/05/14	08/11/14	08/19/14	08/21/14	08/26/14		
	End Date	08/06/14	08/14/14	08/20/14	08/23/14	08/27/14		AUGUST TOTALS
DWSD Event #s	see linked Post Event Reports >	1,271	1,272 R	1,273	1,274	1,275		4
	TREATED OUTFALL:	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)
101	101A Hubbell-Southfield CSO Basin		765.2					765.20
102	102A Puritan-Fenkell CSO Basin		0.69					0.69
103	103A Seven Mile CSO Basin		0.49					0.49
104	104A Conner Creek CSO Basin	21.38	718.6		266.6	74.6		1081.18
105	105A Leib Outfall		144.3					144.30
106	106A St Aubin Outfall		11.6			5.8		17.40
107	107A Baby Creek S & D Facility		450.1					450.10
108	108A Belle Isle RTB		2.1					2.10
082	109 Oakwood Pump Station		62.2					62.20
	SUBTOTAL	**21.38**	**2155.28**	**0.00**	**266.60**	**80.40**	**0.00**	**2523.66**
			DEQ 16508	DEQ 16525	DEQ16546	DEQ 16712		
	PARTIALLY TREATED OUTFALL:	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)
049	049A WWTP Primary Effluent DRO-1	44.62	434.88	27.14	125.73	49.37		681.74
050	050A WWTP Rouge River Outfall	54.06	1342.64	72.61	142.53	86.63		1698.47
	SUBTOTAL	**98.68**	**1777.52**	**99.75**	**268.26**	**136**	**0**	**2380.21**
	See linked DEQ "CSO Event" Reports >	DEQ 16511	DEQ 16512	No DEQ 'CSO Event' report	No DEQ 'CSO Event' report	DEQ 16758		
	COMBINED SEWER OUTFALLS							
080	B001 Fox Creek							0.00
005	B003A Jefferson & McClellan		86.3					86.30
005	B003B Jefferson & McClellan							0.00
006	B004 Fischer Pump Station		1.55					1.55
007	B005 E Jefferson & Iroquois		50.1			0		50.10
008	B006 E Jefferson & Helen							0.00
009	B007 Mt Elliott & Coast Guard		385.31			4.04		389.35
011	B009 Adair & Wight		18.98			0.02		19.00
012	B010 Jos Campau & Wight		377.28					377.28
017	B014 Orleans & Franklin							0.00
016	B015 Orleans & Franklin							0.00
018	B016 Riopelle & Franklin							0.00
019	B017 Rivard & Franklin		21.8					21.80
020	B018 Franklin & Sweitzer Pl		5.13					5.13
021	B019 Randolph & Jefferson		13.43					13.43
022	B020 Atwater & Bates		94.07			6.39		100.46
023	B021 Woodward & Hart Plaza		1.22					1.22
024	B022 Woodward & Hart Plaza							0.00
025	B023 1st & Civic Center Dr		77.02			0.01		77.03
026	B024 W Jefferson & Third		37.53					37.53
027	B025 W Jefferson & Cabacier		29.46					29.46
028	B026 W Jefferson & 11th		9.3					9.30
029	B027 W Jefferson & Rosa Parks		0.38					0.38
030	B028 W Jefferson & 14th							0.00
031	B029 W Jefferson & 18th		15.26					15.26
032	B030 W Jefferson & 21st		0.08					0.08
033	B031 W Jefferson & 24th		12.98					12.98
034	B032 W Jefferson & W Grand		0.08					0.08
035	B033 W Jefferson & Swain							0.00
036	B034 W Jefferson & Scotten							0.00
037	B035 W Jefferson & McKinstry		1.76					1.76
038	B036 W Jefferson & Summit		689.17					689.17
039	B037 W Jefferson & Ferdinand							0.00
040	B038 W Jefferson & Morrell		14.04					14.04
041	B039 W Jefferson Junction							0.00
042	B040 W Jefferson & Campbell		6.28					6.28
043	B041 Detroit River & Dragoon							0.00
044	B042 W Jefferson & Schroeder		1.42					1.42
046	B044 W Jefferson & Cary		0.13					0.13
047	B045 W Jefferson & Dearborn							0.00
051	B046 Carbon & Rouge River							0.00
056	B049 S Fort & Oakwood							0.00
054	B050 Fort & Oakwood		195.63					195.63
059	B054 W Warren & Rouge River		1.04					1.04

060	B056 Tireman & Trinity		9.61					9.61
048	B059A Jefferson & Pulaski		0					0.00
048	B059B Jefferson & Pulaski							0.00
061	B060 Spinoza & W Chicago		0			0		0.00
062	B063 Rouge Park Dr	0.01	0.11					0.12
063	B064 Plymouth & Rouge Park	0.01	0.19					0.20
064	B065 Burt & Capital	3.09	190.45					193.54
065	B067 Lahser & Dolson		201.3					201.30
067	B069 Schoolcraft & Outer Drive		0.11					0.11
066	B070 Schoolcraft & Outer Drive		3.93					3.93
068	B071 Ray & Brammel		2.62					2.62
069	B072 Lyndon & Brammel		4.42					4.42
072	B077 Puritan & Rouge River							0.00
073	B079 Ridge & Florence							0.00
074	B080 McNichols & Beaverland		6.33					6.33
074	B081 McNichols & Beaverland		16					16.00
075	B082 Glenhurst & Margareta		0.11					0.11
077	B085 W 7 Mile & Berg		5.69					5.69
079	B087 Pembroke & Berg		42					42.00
	Subtotal Uncontrolled CSO Outfalls	3.11	2629.6	0	0	10.46	0	2643.17
	Event total volume (all reporting outfalls)	**123.17**	**6562.40**	**99.75**	**534.86**	**226.86**	**0.00**	**7547.04**
	PRECIPITATION in Inches	no rain amount reported by DWSD or DEQ	5.27	no rain amount reported by DWSD or DEQ	1.77	0.53 < see above linked reports		
	Metro Airport							
	PG 002							5.38
	PG 003							5.11
	PG 004							4.78
	PG 005							2.64
	PG 006							2.77
	PG 007							3.81
	PG 008							6.18
	PG 009							5.66
	PG 010							3.55
	PG 011							4.10
	PG 012							5.69
	PG 013							4.44
	PG 014							5.59
	PG 015							4.27
	PG 017							4.63
	PG 018							5.75
	PG 019							6.01
	PG 020							4.73
	PG 021							5.94
	PG 022							4.59
	PG 024							6.64
	PG 025							4.05
	PG 026							4.34
	PG 028							5.04
	PG 029							2.20
	PG 030							4.79
	PG 031							5.19
	PG 032							4.63
	PG 033							4.24
	PG 034							5.75

July-14

TALLY OF MONTHLY CSO OVERFLOWS AND PRECIPITATION

Data Source: PC-713 Instrumentation and Control System

See linked DEQ "RTB Event" Reports >		DEQ 16030	DEQ 16046	DEQ 16096				
	Start Date	07/01/14	07/08/14	07/27/14				
	End Date	07/01/14	07/09/14	07/28/14				JULY TOTALS
DWSD Event #s	see linked Post Event Reports >	1,268	1,269	1,270				3
	TREATED OUTFALL:	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)
101	101A Hubbell-Southfield CSO Basin			26.68				26.68
102	102A Puritan-Fenkell CSO Basin							0.00
103	103A Seven Mile CSO Basin							0.00
104	104A Conner Creek CSO Basin		29.6	236.75				266.35
105	105A Leib Outfall	7/7 SSO Event from DRO See linked report						0.00
106	106A St Aubin Outfall			4.4				4.40
107	107A Baby Creek S & D Facility			21.8				21.80

108	108A Belle Isle RTB							0.00
082	109 Oakwood Pump Station			5.1				5.10
	SUBTOTAL	**0.00**	**29.60**	**294.73**	**0.00**	**0.00**	**0.00**	**324.33**
		DEQ 16029	DEQ 16047	DEQ 16095				
	PARTIALLY TREATED OUTFALL:	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)
049	049A WWTP Primary Effluent DRO-1	29.05	32.35	85.6				147.00
050	050A WWTP Rouge River Outfall	18.04	53	189.11				260.15
	SUBTOTAL	**47.09**	**85.35**	**274.71**	**0**	**0**	**0**	**407.15**
	See linked DEQ "CSO Event" Reports >		Event' report	DEQ 16434				
	COMBINED SEWER OUTFALLS							
080	B001 Fox Creek							0.00
005	B003A Jefferson & McClellan							0.00
005	B003B Jefferson & McClellan							0.00
006	B004 Fischer Pump Station							0.00
007	B005 E Jefferson & Iroquois			0.19				0.19
008	B006 E Jefferson & Helen							0.00
009	B007 Mt Elliott & Coast Guard	0.02		1.52				1.54
011	B009 Adair & Wight							0.00
012	B010 Jos Campau & Wight							0.00
017	B014 Orleans & Franklin							0.00
016	B015 Orleans & Franklin							0.00
018	B016 Riopelle & Franklin							0.00
019	B017 Rivard & Franklin			0				0.00
020	B018 Franklin & Sweitzer Pl							0.00
021	B019 Randolph & Jefferson							0.00
022	B020 Atwater & Bates	0.75		6.21				6.96
023	B021 Woodward & Hart Plaza							0.00
024	B022 Woodward & Hart Plaza							0.00
025	B023 1st & Civic Center Dr							0.00
026	B024 W Jefferson & Third							0.00
027	B025 W Jefferson & Cabacier							0.00
028	B026 W Jefferson & 11th							0.00
029	B027 W Jefferson & Rosa Parks							0.00
030	B028 W Jefferson & 14th							0.00
031	B029 W Jefferson & 18th							0.00
032	B030 W Jefferson & 21st							0.00
033	B031 W Jefferson & 24th							0.00
034	B032 W Jefferson & W Grand							0.00
035	B033 W Jefferson & Swain							0.00
036	B034 W Jefferson & Scotten							0.00
037	B035 W Jefferson & McKinstry							0.00
038	B036 W Jefferson & Summit							0.00
039	B037 W Jefferson & Ferdinand							0.00
040	B038 W Jefferson & Morrell							0.00
041	B039 W Jefferson Junction							0.00
042	B040 W Jefferson & Campbell							0.00
043	B041 Detroit River & Dragoon							0.00
044	B042 W Jefferson & Schroeder							0.00
046	B044 W Jefferson & Cary							0.00
047	B045 W Jefferson & Dearborn							0.00
051	B046 Carbon & Rouge River							0.00
056	B049 S Fort & Oakwood							0.00
054	B050 Fort & Oakwood							0.00
059	B054 W Warren & Rouge River							0.00
060	B056 Tireman & Trinity							0.00
048	B059A Jefferson & Pulaski							0.00
048	B059B Jefferson & Pulaski							0.00
061	B060 Spinoza & W Chicago							0.00
062	B063 Rouge Park Dr			0.17				0.17
063	B064 Plymouth & Rouge Park			0				0.00
064	B065 Burt & Capital							0.00
065	B067 Lahser & Dolson							0.00
067	B069 Schoolcraft & Outer Drive							0.00
066	B070 Schoolcraft & Outer Drive							0.00
068	B071 Ray & Brammel							0.00
069	B072 Lyndon & Brammel							0.00
072	B077 Puritan & Rouge River							0.00
073	B079 Ridge & Florence							0.00

074	B080 McNichols & Beaverland							0.00
074	B081 McNichols & Beaverland							0.00
075	B082 Glenhurst & Margareta							0.00
077	B085 W 7 Mile & Berg							0.00
079	B087 Pembroke & Berg							0.00
	Subtotal Uncontrolled CSO Outfalls	0.77	0	8.09	0	0	0	8.86
	Event total volume (all reporting outfalls)	**47.86**	**114.95**	**577.53**	**0.00**	**0.00**	**0.00**	**740.34**
	PRECIPITATION in Inches	no rain amount reported by DWSD or DEQ	no rain amount reported by DWSD or DEQ	no rain amount reported by DWSD or DEQ	< see above linked DEQ and DWSD reports for event rain amounts			
	Metro Airport							
	PG 002							1.52
	PG 003							1.29
	PG 004							1.7
	PG 005							0.87
	PG 006							1.34
	PG 007							1.43
	PG 008							1.42
	PG 009							1.15
	PG 010							1.51
	PG 011							1.62
	PG 012							1.41
	PG 013							1.3
	PG 014							1.28
	PG 015							1.77
	PG 017							1.38
	PG 018							1.55
	PG 019							0.99
	PG 020							1.78
	PG 021							1.7
	PG 022							1.08
	PG 024							1.31
	PG 025							1.17
	PG 026							1.23
	PG 028							1.53
	PG 029							1.74
	PG 030							1.69
	PG 031							1.59
	PG 032							1.53
	PG 033							1.39
	PG 034							1.41

APPENDIX 3

RETENTION TREATMENT BASIN AND

SCREENING-DISINFECTION FACILITY

PERFORMANCE

Attached Hereunder

RTB and SDF Performance FY 2014-2015

Month		Hubbell Southfield RTB	Conner Creek RTB	Oakwood RTB	Saint Aubin SDF	Baby Creek SDF	Lieb SDF	Belle Isle RTB	Seven Mile RTB	Puritan - Fenkell RTB	Totals Treated and Discharged	Totals Retained and Returned
Jul-14	Treated and Discharged	26.68	266.35	5.1	4.4	21.8				0	324.33	
	Retained and Returned	22	124	8.5	1.5	28				0.96		184.96
Aug-14	Treated and Discharged	765.2	1081.18	62.2	17.4	450.1	144.3	2.1			2522.48	
	Retained and Returned	22	248	8.5	3	28	9.5	0.3				319.3
Sep-14	Treated and Discharged	274.83	917.7	8.9	6.9	91.1		1.4		0	1300.83	
	Retained and Returned	66	124	8.5	3	56		0.3		4.32		262.12
Oct-14	Treated and Discharged	7.8	80.8							0	88.6	
	Retained and Returned	22	62							0.44		84.44
Nov-14	Treated and Discharged	152.4	683.5	1.4	4.5	86.9					928.7	
	Retained and Returned	22	62	9	1.5	28		0.087		2.29		124.877
Dec-14	Treated and Discharged	14.3	167			24.6					205.9	
	Retained and Returned	22	62			28						112
Jan-15	Treated and Discharged	0	37.7		4.3	0				0	42	
	Retained and Returned	21.59	62		1.5	25.3				0.52		110.91
Feb-15	Treated and Discharged		0								0	
	Retained and Returned		40.3									40.3
Mar-15	Treated and Discharged	0	321.3			16.1					337.4	
	Retained and Returned	11.94	62			38.3						112.24
Apr-15	Treated and Discharged	72.8	474.9	14.4	0	66.8	0			0	628.9	
	Retained and Returned	39	166.9	11.7	1.4	120.2	0.97			0.23		340.4
May-15	Treated and Discharged	609	797.1	80.8	13.4	248.8		0.2			1749.3	
	Retained and Returned	30.3	297.6	13.13	2.71	75.7		0.3		2.37		422.11
Jun-15	Treated and Discharged	235.15	1262.9	68.3	14.6	61.4		0.4			1642.75	
	Retained and Returned	110	248	39.14	10	140		0.56		5.69		553.39
Totals											9771.19	2667.047