ENVIRONMENTAL PROTECTION

14 WASTEWATER RESOURCE RECOVERY FACILITIES' SPDES PERMITS
COMBINED SEWER OVERFLOWS
BEST MANAGEMENT PRACTICES
ANNUAL REPORT

FOR THE PERIOD
JANUARY 1, 2021 - DECEMBER 31, 2021

CITY OF NEW YORK

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BUREAU OF WASTEWATER TREATMENT

APRIL 2022

Contents

APPENDICES

EXECUTIVE SUMMARY

The waters surrounding New York City are cleaner and healthier than they have been in more than a century. Over the past decade, the New York City Department of Environmental Protection (DEP) has invested approximately $10 billion in projects such as sewer system and wastewater treatment plant upgrades to improve the health of these critical ecosystems. This investment has produced many ecological successes, ushering in the return of a variety of plant and animal species to our waters. It has also supported the redevelopment of vast swaths of our waterfront and numerous recreational opportunities for residents and visitors alike.

Although we continue to make great strides in improving the health of our waterbodies, we still face challenges. New York City, along with hundreds of other American communities, is largely served by a combined sewer system (CSS) where stormwater that falls on roofs, streets, and sidewalks, and wastewater from homes and businesses are carried together through a single sewer pipe to treatment plants. The City's 14 treatment plants can manage and treat to federal Clean Water Act standards all the wastewater created in New York City on a dry weather day, or about 1.3 billion gallons on average. On a rainy day, they have the capacity to partially treat and fully disinfect up to 3.7 billion gallons per day. However, during intense precipitation events, the stormwater that falls on the City's impervious surfaces can exceed that capacity and can cause overflows, otherwise known as combined sewer overflows (CSOs), to be discharged into local waterways.

According to the National Weather Service's annual measurements, 50.36 inches of precipitation fell across NYC in CY2021 based on NOAA Qualitative Precipitation Estimates (QPE). DEP implements three distinct strategies aimed at creating additional capacity in our wastewater system to reduce the number of CSOs during wet weather: grey infrastructure, green infrastructure and CSO Best Management Practices (BMPs).

GREY INFRASTRUCTURE

DEP has spent approximately $2.7 billion on baseline grey projects to date and has forecasted costs of about $6.4 billion for CSO Long Term Control Plan (LTCP) recommended projects and for construction of 2 CSO retention tanks in the Gowanus Canal, as required by the Superfund Record of Decision. To reduce CSOs, DEP has utilized a variety of grey infrastructure controls such as improvements to the headworks of wastewater resource recovery facilities (WRRFs), expanding the storm sewer system, separating storm sewers, sewer system and regulator optimization, and constructing large CSO retention tanks. The CSO LTCPs expand upon past successes and have proposed additional CSO controls and ecological improvement projects. To learn more about the CSO Program visit nyc.gov/dep/ltcp.

Green Infrastructure

DEP has constructed thousands of green infrastructure assets, such as rain gardens, green roofs and porous surfaces to absorb stormwater runoff where it lands, thereby reducing the amount of stormwater entering the sewer system. To achieve this reduction, the Green Infrastructure Program has maintained critical partnerships with the Departments of Transportation (DOT), Parks and Recreation (DPR or Parks) and Education (DOE), the New York City Housing Authority (NYCHA), and other city agencies to implement green infrastructure on city-owned property. We are also continuing to develop private incentives to encourage New Yorkers to join us in managing stormwater and improving water quality. DEP also recently released the Unified Stormwater Rule that will provide for more onsite retention and require much lower rates for stormwater release into the collection system. To date, more than 11,000 green infrastructure assets have been constructed or are in construction citywide. See additional information in section 16.5.

CSO Best Management Practices

DEP has also continued implementation of CSO BMPs to optimize existing facilities to capture and convey more wet-weather flow to the City's WRRFs. The State Pollutant Discharge Elimination System (SPDES) permits for the City's treatment plants list fifteen different CSO BMPs, which amplify EPA's national CSO Control Policy. This 19th Annual Report describes DEP's ongoing program to advance those BMPs and provides statistics for calendar year 2021. The report is divided into seventeen sections covering each of the BMPs and the additional Special Conditions listed in the SPDES permits.

Notable CSO BMP achievements during 2021 include:

- DEP inspected 146,248 feet of intercepting sewers citywide and removed 969 cubic yards of sediment. An additional 7,136 cubic yards of sediment were removed from non-interceptor assets such as treatment plants, pumping stations, regulators, and other sewer appurtenances.
- DEP's in-house forces cleaned over 181.66 miles of sewer in response to 16,903 customer service requests, and 165.25 miles of sewer as a proactive measure to combat buildup from fats, oils, and grease (FOG).

More Information about Water Quality

Beaches (see also Section 1.1): During the summer months, DEP works closely with the NYC Department of Health and Mental Hygiene (DOHMH), which oversees bathing water quality at City beaches. DOHMH has an extensive beach monitoring program and posts wet-weather advisories if local waterways are affected by CSOs or faulty septic systems. DOHMH's 2021 Beach Surveillance and Monitoring report can be found online at: beach-report-2021.pdf (nyc.gov) For information on beaches, visit the NYC Beach Water Quality website at https://maps.nyc.gov/beach/

Other Waterbodies: DEP regularly posts additional monitoring data on our website, including non-beach waterbody advisories. In 2021, DEP launched an updated Waterbody Advisory System that the public can use when planning recreational activities in locations other than beaches; the advisories are based on water quality models and real-time rainfall data.

The new Waterbody Advisory System also:

- Expands from 28 to 45 the number of waterbodies that could receive an advisory
- Utilizes and displays rainfall data from rain gauges at all 14 WRRFs
- Provides more detailed advisory durations based on measured rainfall
- Uses primary contact recreation standards

New Yorkers can visit DEP's website for up-to-date information or register for daily alerts at NotifyNYC.

http://www.nyc.gov/html/dep/html/stormwater/combined_sewer_overflow.shtml

1 CSO MAINTENANCE AND INSPECTION PROGRAM

"The permittee shall develop and implement a written maintenance and inspection program for all CSOs listed beginning on page 3 of this permit. This program shall include all regulators tributary to these CSOs. This is to ensure that no discharge or leakage occurs during dry weather and that the maximum amount of wet weather flow is conveyed to the WWTP for treatment. This program shall consist of scheduled inspections with required repair, cleaning and maintenance performed as needed to prevent dry weather overflow and leakage and ensure maximum wet weather flow is conveyed in accordance with CSO BMP #4. Inspection reports shall contain a record of visual inspections, any observed flow, incidence of rain or snowmelt, condition of equipment and work required."

DEP submitted the CSO Maintenance and Inspection Program to DEC on August 14, 2003. See Appendix 1.1, Exhibit 1.

A summary of preventive and corrective maintenance performed during 2021 on all regulators tributary to each treatment plant is attached as Attachment A (and also submitted under separate cover). The table shows the regulator number, the date when preventive maintenance (PM) was performed at each site and whether any corrective actions were completed (designated on the table by an 'x').

PM of a regulator consists of a physical inspection of the regulator and diversion chambers as well as of the branch interceptors or drop pipes. PM also includes exercising or lubrication of sluice gates and any other maintenance not considered corrective.

Corrective Maintenance (CM) of a regulator includes the clearing or cleaning of all blockages within the diversion chamber, regulator, branch interceptor or drop pipe. CM also consists of any replacement of manhole rungs and the cleaning of all sensors within the chambers.

All inspections performed in 2021 are listed in Attachment A.

1.1 BEACH PROTECTION

During the Enhanced Beach Protection period from May 15 through September 30, DEP performed inspections of beach-sensitive regulators through telemetry twice per day. Shift engineers from the Bureau of Wastewater Treatment (BWT) Collection Facilities Operations (CFO) monitor these locations at the beginnings of their shifts and at the ends of their shifts. If telemetry is inoperable, field crews perform site inspections until the telemetry is corrected. See Attachment A for locations DEP inspected when the telemetry was inoperable (designated by an ‘x’ in the column EBPP).

(b) For all plants except Rockaway: “*The permittee shall include in the maintenance and inspection program a plan to maintain CSO tide gates to prevent infiltration of seawater into the collection system such that the WWTP influent concentration of chlorides does not exceed a twelve-month rolling average of 400 mg/l. The maintenance and inspection program shall specify corrective actions to be taken within twelve months of the influent chloride exceedance of 400 mg/l.”*

Treatment plant and process personnel notify CFO if they measure elevated chloride levels and flow at their respective treatment plants. CFO personnel initiate a “chloride run” in response to the elevated chloride levels and extra flow. A “chloride run” is a visual inspection of the tide gates within the drainage area experiencing the high chlorides, followed by removal of debris, as needed, and closing of any gates found to be open. DEP performs chloride inspections in addition to the standard regulator maintenance and inspection of regulators. Please refer to Attachment A for the results of those inspections (table column designated Cl).

Attachment A contains a summary of PM and CM performed during 2021 on all tide gates tributary to each WRRF. The table sets forth the Regulator Numbers, the dates when the corresponding facility performed PM (designated by an ‘x’ in the column TG PM) and whether any corrective actions were completed (designated on the table by an ‘x’ in the column TG CM).

PM of a tide gate consists of the physical inspection and exercising of the tide gate as well as any other maintenance not considered corrective.

CM of a tide gate includes removal of debris from the gate, cleaning of the rubber seals and rebuilding and refurbishing of all hardware as well as of the flap itself (which includes stop planking, gate removal, hardware cleaning, tap and chase adjusting bolts and new seals if required).

Chloride levels decreased at the following facilities:

Coney Island, Jamaica, Bowery Bay

Chloride levels increased at the following facilities:

Ward’s Island, North River, Hunt’s Point, 26th Ward, Owl’s Head, Newtown Creek, Red Hook, Tallman’s Island, Rockaway, Oakwood Beach.

Analysis for calendar year 2021 shows that the following WRRFs exceeded the twelve-month rolling average of influent chlorides concentrations of 400 mg/l:

Wards Island, Hunt’s Point, Coney Island, Newtown Creek, Red Hook, Bowery Bay, and Port Richmond

For more information regarding chloride levels at all 14 WRRFs see Appendix 1, Table 1.

Comparative yearly analysis of CY 2020 and CY 2021 average tidal inflow (Appendix 1, Table 2) indicates:

A decrease in estimated tidal inflow occurred at the following WRRFs:

- Coney Island, Bowery Bay, Rockaway

An increase in estimated tidal inflow occurred at the following WRRFs:

- Wards Island, 26th Ward, Owls Head, Red Hook, Jamaica, Tallman Island, Oakwood Beach, North River, Hunts Point, Newtown Creek, Port Richmond.

(b) For Rockaway only: "The permittee shall include in the maintenance and inspection program a plan to maintain CSO tide gates to prevent infiltration of seawater into the collection system such that the WWTP influent concentration of chlorides does not exceed a twelve-month rolling average of 3,000 mg/l. Should the twelve-month rolling average be exceeded, the permittee shall conduct an inspection of the tide gates and submit a report to the Department within 3 months describing the inspection findings, remedies taken and, if necessary, a schedule for completing repairs that cannot be completed by the time of the report submission. If the elevated concentrations persist upon completion of the repairs, the permittee shall initiate a chloride source investigation Infiltration & Inflow (I&I) Study within 12 to 24 months of the chloride exceedance. The Permittee shall complete the I & I study and submit an approvable report within 36 months of determining that the elevated chloride concentrations persist, describing the findings of the I&I study and providing a schedule for collection system repairs."

As per the 2015 SPDES permit for Rockaway WRRF, the requirements included in CSO BMP No. 1(b) have changed as described above. Analysis for calendar year 2021 (from Table 1) shows that Rockaway did not exceed the twelve-month rolling average of influent chlorides concentration of 3,000 mg/l.

(c) "The permittee shall include in the maintenance and inspection program a schedule for telemetering regulators and a plan to report the telemetering results. Within six months after completion of the telemetering of regulators required in the NYSDEC/NYCDEP Omnibus IV Consent Order Compliance Schedule (as noted in the outfall description page), the permittee shall record and report the number and duration of events that cause a discharge at an outfall during dry weather conditions."

DEP completed the installation of the telemetering equipment at 102 regulators in May 2001 pursuant to the Compliance Schedule set forth in the Omnibus IV Consent Order, DEC Case # R2-0045-93-05. At present, DEP maintains the upgraded system at 100 regulators through a service contract. The contractor is responsible for all maintenance issues and for providing monthly reports detailing all significant events.

The successful implementation of the regulator telemetry system has had a significant impact on the reduction of raw sewage bypasses. The system has allowed CFO field personnel to respond to problems in a timely manner and to reduce or prevent dry weather bypassing.

In calendar year 2021, Collections Operations field personnel responded to a total of 277 pump station and regulator-related alarms sent by the SCADA Telemetry System. All alarms that resulted in call-outs were either false or resulted in elimination of a bypass event.

> *(d) "CSO maintenance and inspection program reports shall be available for DEC review no later than 9 AM on the day following the day the inspection was conducted and shall be available for DEC review at the associated WWTP no later than 30 days following the inspection."*

DEP keeps the CSO maintenance and inspection program reports, log sheets and inspection forms at each respective crew quarters, and the documents are available for DEC review upon request.

2 MAXIMUM USE OF COLLECTION SYSTEM FOR STORAGE

"The permittee shall optimize the collection system by operating and maintaining it to minimize the discharge of pollutants from CSOs. It is intended that the maximum amount of in-system storage capacity be used (without causing service backups) to minimize CSOs and convey the maximum amount of combined sewage to the treatment plant in accordance with BMP #4 below. This shall be accomplished by an evaluation of the hydraulic capacity of the system but should also include a program of flushing or cleaning to prevent deposition of solids and the adjustment of regulators and weirs to maximize storage."

Interceptors that deliver wet weather flow to the WRRFs have the ability to provide in-line storage during wet weather. The following conditions induce this storage: when (a) the influent wet weather flow exceeds the WRRF capacity and the facility must throttle, (b) the WRRF wet well operates above the invert of the influent sewers, or (c) other site-specific circumstances occur. Generally, in these cases, in-line storage of a few hundred thousand to a few million gallons (MG) will be induced in the system.

The SPDES permits also contain management practices for maximizing use of the collection system to reduce CSOs. In May 2011, DEP initiated a pilot program in which the Stationary Electric Engineer (SEE) at the BWT Communication Center monitors approaching storms and notifies the plant Operations SEEs to begin reducing their wet-well elevations immediately, prior to the onset of rain. This action helps increase available capacity in the interceptor, which can reduce CSO volumes. Each plant has established low-well elevation set points for impending rain events and has documented them in its Wet Weather Operating Plan (WWOP).

In-line storage upstream of CSO Control Facilities induces storage within the barrels upstream from the CSO facilities when operated in accordance with their WWOPs, as described below.

- Paerdegat Basin CSO Retention Facility – DEP certified completion of construction of this facility in May 2011 in accordance with the CSO Order on Consent entered into by NYC and DEC on January 14, 2005, (DEC # CO2-2000107-8, as modified) (hereinafter, the "CSO Order"), and placed the facility into service at that time. The Paerdegat Basin CSO retention facility induces 20 MG of tank storage in conjunction with 10 MG of in-line storage in the influent sewers and another 20 MG in the upstream combined sewers.
- Flushing Bay CSO Retention Facility – DEP certified completion of construction of this facility in January 2011 in accordance with the CSO Order and placed the facility into service at that time. The Flushing Bay CSO retention facility induces 28.7 MG of tank storage in conjunction with 15.1 MG of in-line storage in the upstream sewers.

- Spring Creek CSO Retention Facility – DEP certified completion of construction of this facility in July 2009 in accordance with the CSO Order and placed the facility into service at that time. The Spring Creek CSO Retention Facility induces 13.8 MG of tank storage in conjunction with 6.2 MG of in-inline storage.
- Gowanus Canal CSO Facilities Upgrade – DEP certified completion of upgrades to this facility in February 2015 pursuant to the CSO Order. The RH-034 CSO outfall screens include a combination of fixed weirs and hydraulically operated outfall gates that direct flow through the CSO screens and induce inline storage within the combined sewers upstream of the outfall. DEP estimates, using InfoWorks models, that this inline storage may reduce CSOs by about 16 MG/yr.
- Newtown Creek Bending Weirs – DEP certified completion of the bending weirs and floatables control on November 22, 2017, and these modifications have resulted in about a 310 MGY reduction in CSO discharges. Flushing Bay High Level Interceptor Regulator Modifications – These modifications to the Flushing Bay regulators were certified complete on June 8, 2018, and resulted in approximately a 347 MGY reduction in CSO discharges.
- Westchester Creek Regulator Modifications and Parallel Sewer – DEP certified construction completion for these two projects on September 21, 2020 and March 2, 2020, respectively. These two projects resulted in an approximately 440 MGY reduction of CSO discharges into Westchester Creek.

2.1 SCADA/Collection Facilities Telemetry System Project

BWT completed the upgrade work on the SCADA project in 2013. The overall project involved the upgrade of the SCADA software, communication hardware to dual wireless and installation of additional instrumentation for the computerized data collection system. On February 18, 2013, DEP declared the Citywide Collection Facilities SCADA System (CCFISS) upgrade contract REG-027 “substantially complete” at all Pump Stations, 102 regulators and CSO Overflow facilities.

During 2021, DEP serviced the system through a maintenance contract. The contractor is responsible for the maintenance of the monitoring hardware to ensure continuous operation of the telemetry system. As per the SPDES Permit Requirement, CSO BMP Special Conditions, Appendix B.5 (b) – Key Regulator(s) Monitoring Reporting, DEP submits to DEC an annual report of potential CSO discharges outside the period of critical wet weather events, using the data from the telemetry system at key regulators.

The list of regulators under the SCADA project is in Appendix 2 (DEP BWT), Table 1.

2.2 Tide Gates

A program is in place to repair defective tide gates in order to prevent tidal waters from entering the system. Below is an update of tide gate locations completed and those under reconstruction:

Regulator/Tide Gate Report Status

Reg. #	Status	Schedule	Scope	Comments
NR-34	Complete	August 2012	New Gate	Contract REG-025L
NC(M)-48	Complete	September 2011	New Gate	Contract REG-025L
NC(M)-21	Complete	September 2011	New Gate	Contract REG-025L
NC(M)-23	Complete	September 2011	New Gate	Contract REG-025L
NC(M)-33	Complete	September 2011	New Gate	Contract REG-025L
WI(M)-24	Complete	April 2013	New pull box	Contract REG-025L
Oakwood Beach Flume	Canceled			DEC instructed not to install this gate
BBLL1,3,4,8, 9,11,17,18,21,22, 23,30, HL-2, L-2	Complete	December 2017	21 New Gates	JOC Contract
NCB-1,6,7,9,14	Complete	January 2013	15 New Gates	JOC Contract
RH-9,11,15	Complete	January 2013	4 New Gates	JOC Contract
PR-9E,11E,13E, 16E,36	Complete	January 2013	8 New Gates	JOC Contract
WIM-14,15,16,50	Complete	3/ 14/ 2013	4 New Gates	JOC Contract
NCM-18,31,51A	Complete	2/ 26 / 2013	3 New Gates	JOC Contract
WIB-67	Complete	2 /22 / 2013	4 New Gates	JOC Contract
JAM-14	Complete	9 /5/ 2013	4 New Gates	JOC Contract
26W- 01	Complete	6/7/2018	6 New Gates	JOC Contract

26W-02	In Construction	Estimated completion – 09/30/2022	16 New Gates	JOC Contract
WIB -68	Completed	March 14, 2018	2 New Gates	JOC Contract
TI-1	Completed	Done by CFN in 2017	Cover & Frame	CFN
TI-2	Completed	Tide gate is no longer needed.	1 gate	CFN
TI-4	Completed	May 11, 2017	1 New Gate	JOC Contract
TI- 5	Completed	June 7, 2019	1 New Gate	JOC Contract
HP-14	Completed	June 7, 2019	4 New Gate	JOC Contract
PR -4E, 8E, 17E, 29E, 31E, 34E, 37E, 6W	In Construction	Estimated Completion – 12/31/2022	12 New Gate	JOC Contract
NCM-1	In Design	Estimated Construction Completion – Dec 2023	1	JOC Contract

2.3 INTERCEPTOR IMPROVEMENT PROGRAM

In 2021, BWT continued with its intercepting sewer inspection, cleaning, and rehabilitation program.

2.3.1 Scope of Work Completed in 2021

In 2021, DEP's Interceptor Improvement Program proceeded with inspections, cleaning, and rehabilitation of large intercepting sewers. During 2021, 146,248 feet of intercepting sewers were inspected citywide and 969 cubic yards of sediment were removed from interceptors. An additional 7,136 cubic yards of sediment were removed from non-interceptor assets such as treatment plants, pumping stations, regulators, and other sewer appurtenances, for a total of 8105 cubic yards.

Table 1: Interceptor Inspected Pipe Summary and Sediments Removed by Drainage Area (2021)

Table 1: Interceptor Inspected Pipe Summary and Sediments Removed by Drainage Area (2021)		
Drainage Area	Inspected Length (ft)	Sediment Removed (cubic yards)
26th Ward		
Bowery Bay		233.93
Coney Island	32,214.6	152.34
Hunts Point		14.56
Jamaica		
Newtown Creek	44572.2	
North River	4860.6	
Oakwood Beach	38517.8	27.69
Owls Head		311.24
Port Richmond		326.60
Red Hook		19.00
Rockaway		23.17

Tallman Island		831.47
Wards Island	26083.2	6165.00
Total	**146,248.4**	**8105.00**

Using the Pipeline Assessment Certification Program (PACP) defect coding and condition scoring rating system developed by National Association of Sewer Service Companies (NASSCO) along with sound engineering judgment, DEP prioritized work such as repairs and cleaning of intercepting sewers. As a screening tool, the PACP system allows for quantitative identification of differences in pipe condition between one CCTV/sonar (inspection) and subsequent inspections, and prioritization based on significance of the defects in the different pipe segments.

The PACP grades two categories of defects: 1) structural and 2) operation and maintenance (O&M). Each condition defect code is assigned a grade from 1 to 5 (with 5 being the worst condition), based on significance of the defect. For each category an overall pipe index/rating is calculated from a summation of all of the defects and the total number of defects. A rank from 1 to 5 (with a 1 being the highest priority) is then assigned to the pipe, depending on the severity of the defects over the entire pipe (manhole to manhole).

Pipes with priority ranking of 1 in the O&M category will be cleaned. Pipes with priority ranking of 1 in the structural category (those with the highest PACP grades) will be subject to a detailed engineering investigation to determine whether their rehabilitation and inclusion in the capital program are necessary. DEP will track the condition of pipes with lower ranks (and lower priority) over time to follow their structural degradation and impact on flow and storage capacity; closer attention will be given to those with a priority ranking of 2.

Other important information to note Appendix 2.2.3 contains Table 3 – Intercepting Sewer Inspections 2021 – Pipe Rating Index and Ranking. Additionally, the 2021 Map of Intercepting Sewers inspected (CCTV/Sonar) and the locations cleaned are shown in Appendix 2.2.5

2.4 SEWER CLEANING AND INSPECTION

2.4.1 Introduction:

DEP maintains its sewers through a program of inspections and cleaning. DEP does inspections either in person or via camera (CCTV, zoom camera, or push cams). Sewer cleaning methods include hydraulic (flushing), mechanical (e.g., dragging, rodding, vactoring) and chemical (degreasing) procedures. DEP personnel and various contractors perform this work. Table 2-1 summarizes cleaning activities performed in calendar year (CY) 2021. Maps of the cleaning activities, by Community Board, for the NYC Department of Design and Construction (DDC) are in Appendix 2.

2.4.2 Sewer Maintenance – Complaint-based Inspection and Response:

The Bureau of Water & Sewer Operations (BWSO), Division of Field Operations, has personnel including construction laborers, supervisors, and technical staff whose primary functions are operation, maintenance, and repair of the sewer collection and water distribution systems. For the sewer collection system, this Division performs investigations and responds to all sewer complaints received by the City's 311 call center, including sewer back-ups (SBUs), catch basin flooding, and street flooding. The Division also performs programmatic work involving sewer cleaning and catch basin survey inspections and cleaning. The group works in conjunction with the BWT Industrial Waste section to investigate grease conditions, to perform programmatic degreasing to ensure proper operation, and to perform routine inspections with the engineering-based Collection Systems Investigation (CSI) section. Maintenance and repair yard facilities are located throughout the five boroughs of NYC; they are equipped with heavy duty and light duty construction vehicles, including truck-mounted crane vehicles (catch basin cleaning trucks), power jet flushing vehicles, power rodding auger trucks, and combined flusher/vacuum trucks.

During CY 2021, there were 16,903 customer service requests that resulted in sewer inspections. Of those requests, DEP determined that 12,967 were unrelated to the DEP infrastructure. In response to each request, the sewer maintenance division performs an initial inspection. This initial inspection includes inspecting the downstream and upstream manholes nearest the complaint location and collecting all data relevant to the incident. If the manhole inspection determines that the complaint was unconfirmed, meaning that the sewer was functioning as designed, crews are directed to perform hydraulic cleaning for at least two sections of sewer. If the sewer complaint is confirmed, meaning that there was evidence that the sewer was overtaxed, the crews are directed to initially perform hydraulic cleaning; if hydraulic cleaning does not alleviate the condition, crews perform mechanical cleaning to remove material obstructing flow in the sewer in order to resolve the condition.

In response to these complaints, DEP's in-house forces cleaned over 181.66 miles of sewer. This number either represents actual footage, or, when there was no report of an actual footage, represents an estimate of 150 linear feet between two manholes. As indicated, DEP performed the inspections and cleaning in response to service requests, and some of the footages may overlap with requests made at different times.

2.4.3 Sewer Maintenance – Proactive Inspection and Response

BWSO performs proactive sewer inspections and response through a program called the Sewer Operations and Analysis Program (SOAP), initiated by DEP in 2011. Quarterly, areas of the city associated with recurring, confirmed SBU complaints are assigned to each of the sewer yards for inspection.

Using its Geospatial Information System (GIS), DEP has divided the city into more than 157,700 sewer segments. A sewer segment is defined as a city block, street center line to street center line. Analysis has shown that approximately 1.33% of the overall sewer segments experienced a confirmed SBU, while only 0.42% of the overall sewer segments experienced more than 1 SBU event. Locations with recurring service issues are the focal point of the SOAP program. Under the SOAP program, in-house staff inspects and investigates each street segment. The inspections may lead to cleaning, as warranted, spot repair, if necessary, or referral for capital replacement, as appropriate.

DEP manages FOG issues of varying severity to ensure effective resolution and future maintenance. DEP's Programmatic Degreasing List addresses recurring FOG conditions. DEP tracks and visits the locations on the List, and cleans them mechanically, hydraulically, or chemically according to an established programmatic schedule. During CY 2021, under this program, DEP proactively cleaned 165.25 miles of sewer. Some of these lengths may overlap depending on the frequency warranted by the FOG condition.

2.4.4 CSI Sewer Inspections

At times, field crews identify sewer conditions that require cleaning beyond the crews' capabilities. For example, the size and condition of the sewer or a record of recent, repeated cleanings may limit a crew's ability to take effective action. In these instances, DEP transfers the work to its CSI Section. The CSI staff then delineates the specific needs and boundaries of the work via more robust field inspection. Once staff defines the scope, DEP can assign the work to DEP's citywide contractors for cleaning and debris removal.

DEP's CSI Section is also responsible for performing internal, visual inspections of sewers. Field crew initial responders identify most areas that require inspection. Other agencies, such as the New York City Department of Transportation (NYCDOT) and DDC, identify the balance of the inspection work when it is required to support their capital planning work. DEP's CSI Section, through in-house personnel and citywide contracting, inspected 1,114,846 linear feet (or 211.15 miles) of sewers at 714 locations throughout the city during CY 2021. Some of this footage overlaps with areas addressed by field crews. As explained above and further below, this overlap occurs because the visual inspection is done prior to cleaning activities, as it is necessary to determine the extent of cleaning needed. DEP also conducts post-cleaning inspections to verify that the contractor has completed the work in an acceptable manner.

2.4.5 Citywide Sewer Cleaning Contracts

As discussed above, after DEP inspects the sewers to determine the scope of cleaning required, it assigns the work to a contractor who performs the work for DEP at various locations citywide. The contractor has equipment capable of cleaning sewers with diameters up to and including 204”. Using the citywide sewer cleaning contractor resources, DEP cleaned 512,666 linear feet or approximately 97.1 miles of sewers in CY 2021. The cost of this work was $10,571,261.

2.4.6 Sewer Cleaning for Lining and Guniting Activities

DEP also rehabilitates sewers with the use of lining and guniting methods. For both lining and guniting, the first step is to remove all debris, grease, and silt from within the sewer. Upon completion of the rehabilitation, the sewers are either TV-inspected or visually inspected. In CY 2021, DEP lined 31,215 linear feet (or 5.91 miles) of sewer at a cost of $4,551,397. In CY 2021, DEP gunited 11,767 linear feet (or 2.23 miles) of sewers at a cost of $6,292,935.

2.4.7 Sewer Cleaning and Inspection: Capital Project Design

When DEP plans capital work for a specific location, DDC may perform sewer maintenance work associated with its capital project design program, i.e., it may inspect the sewer infrastructure in the street via TV camera and then clean as necessary. In CY 2021, DDC inspected and cleaned 0 linear feet or 0 miles. (See Table 2-1 and Appendix 2)

Table 2-1: Summary of Sewers Inspected & Cleaned by DEP BWSO & DDC in CY 2021

METHOD	INSPECTED & CLEANED (miles)
In-House (Reactive)	181.66
In-House (Proactive)	431.75
CSI Unit	211.15
Lining	5.91

Guniting	2.23
DDC Inspections & Cleaning	0
TOTALS:	**832.7**

3 MAXIMIZE FLOW TO POTW

"Factors cited in BMP #2 above, shall also be considered in maximizing flow to the WWTP. Maximum delivery to the WWTP is particularly critical in treatment of "first-flush" flows. For each wet weather event, the treatment plant shall be physically capable of: receiving and treating a minimum of (plant specific wet weather capacity) through the plant headworks; a minimum of (plant specific wet weather capacity) through the primary treatment works (and disinfection works if applicable); and a minimum of (plant specific secondary system wet weather capacity) through the secondary treatment works during wet weather. The actual process control set points may be established by the Wet Weather Operating Plan required in BMP #4. The sewer collection system and associated regulating devices shall be optimized to the extent practicable to minimize the release of combined sewer overflows. In satisfying this BMP, the Permittee shall also comply with the Additional CSO BMP Special Conditions section of this permit."

DEP's WRRFs and associated interceptor sewers have been designed and constructed to deliver and treat approximately two times dry weather flow during wet weather. In order to protect the WRRFs' biological process to ensure effective treatment, as well as to guard against homes being flooded during wet weather events, conveyance structures called "regulators" were incorporated into the City's combined sewer system to regulate the flows that reach the interceptors and the WRRFs. As the City's sewer system was constructed since the early 1900s, almost five hundred regulators were installed to regulate the flow to 135 miles of interceptors and 14 WRRFs. Regulators allow all dry-weather sewage and some stormwater runoff to enter the interceptor. During times when the amount of flow due to wet weather exceeds the design capacity of the sewer system, combined sewage spills over a fixed weir inside the regulator, and into a local water body. These discharges, subject to certain conditions, are permitted under DEP's SPDES permits.

Most of the regulators are located along waterways. The outfall pipes from the regulators are only a short distance from the waterbody, while the tributary WRRF may be miles away. Consequently, depending on the length and/or intensity of the wet weather event, and consistent with the design of the collection system, overflows from regulators during storms can occur at outfall pipes some distance from the WRRF and long before the wastewater in a regulator's catchment area reaches the WRRF.

DEP has completed a number of CSO projects to convey more flow to the WRRFs as part of its CSO Program, and these projects include:

- Avenue V Pump Station – DEP certified completion in June 2012 of a project which increased the capacity of the pump station from 30 MGD to 80 MGD in conjunction with constructing a wet weather force main to convey this additional flow;

- Gowanus Pump Station – DEP certified completion in February 2015 of a project which increased the capacity of the pump station from 20 MGD to 30 MGD and constructed a new force main to convey the additional flow directly into the Columbia Street interceptor;
- Jamaica Bay Bending Weirs – DEP certified completion in June 2016 of the construction of bending weirs that reduce CSO discharges into Thurston and Bergen Basins and convey additional wet weather flow to the Jamaica WRRF upon completion of the new Bergen Basin lateral sewer.
- Newtown Creek Bending Weirs – DEP certified completion of the Newtown Creek Bending Weirs in November 2017; these bending weirs will reduce CSO discharges into Newtown Creek and will convey additional wet weather flow to the Newtown Creek WRRF.
- Bergen Basin Parallel Interceptor – DEP certified completion of the new Bergen Basin Parallel Interceptor in December 2017; this interceptor in conjunction with previously certified Jamaica Bay Bending Weirs will reduce CSOs into the Bergen and Thurston Tributaries and convey additional wet weather flow to the Jamaica WRRF.
- Flushing Bay Weir Modifications – DEP certified completion of the weir modifications of the high level weirs in June 2018; these modifications will reduce CSO discharges into Flushing Bay and convey more wet weather flow to the Bowery Bay WRRF
- Westchester Creek Weir Modifications – DEP certified construction completion for these two projects on September 21, 2020 and March 2, 2020, respectively. These modifications will convey more wet weather flow to the Hunts Point WRRF.
- 26th Ward Wet Weather Enhancements – DEP certified completion of Main Sewage Pumps rehabilitation and construction of 5th Primary Settling Tank on October 27, 2021. These upgrades will enable the 26th Ward WRRF to treat more reliably at 2xDDWF.
- 26th Ward Phase 2 High Level Storm Sewers – DEP certified completion of the Phase 2 High Level Storm Sewers in Fresh Creek on September 21, 2021. This project will reduce the volume of CSO being discharged into Fresh Creek.

3.1 KEY REGULATOR MONITORING

Pursuant to the 2014 CSO BMP Order and 2015 SPDES permits, DEP undertook the Key Regulator Monitoring Program. Beginning in June 2014, DEP began submitting reports of all known or suspected CSO discharges from key regulators outside the period of a critical wet weather event. These reports provide itemized lists of such CSO discharges, the approximate start time and end time for each discharge, the corresponding WRRF flow rate, and the start time and end time of the critical wet weather event. Table 3.1 summarizes the observations of Key Regulators during CY2021.

Appendix 3.1 includes the Key Regulators Monitoring Report CY2021 Summary, which includes the details reported in the monthly reports sorted by regulator. Additionally, quarterly engineering analysis report submittals were required for the first year after the effective date of the Order and then, for each calendar year, as part of the Annual CSO BMP Report (see Section 14).

On February 1, 2016, DEP submitted the deliverable “Regulator(s) with CSO Monitoring Equipment Identification Program Report” to DEC. To generate that report, DEP undertook a 12-month Regulator Monitoring Program, from August 2014 through July 2015, of all regulators with CSO monitoring equipment. This requirement appears in the DEP WRRF SPDES permits, Additional CSO BMP Special Conditions, Appendix B, Item 5.c.

Table 3-1: Key Regulators with Potential CSO Discharges outside the Period of a Critical Wet Weather Event, January through December 2021

Key Regulator	2021 Number of Occurrences													Total Duration (hours)	Analysis Category
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total		
26W-01	0	0	0	0	0	0	1	0	1	0	0	1	3	3.25	A
26W-02	1	0	1	0	1	1	1	0	0	0	0	0	5	7.50	A
BBH-02	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	B
BBH-06	0	0	0	0	2	3	3	3	1	1	0	0	13	5.50	C
BBL-04	1	2	2	3	0	3	8	4	1	0	2	1	27	11.75	C
BBL-22	0	0	0	0	0	0	2	1	0	1	0	0	4	1.25	B
HP-05	1	0	1	1	2	0	4	4	0	2	0	0	15	29.25	A
HP-10	0	0	0	0	0	1	2	1	0	0	0	0	4	2.50	B
HP-13	2	3	5	4	5	2	5	5	*	4	1	0	36	93.25	A
JA-03	1	0	1	0	0	2	2	2	1	1	0	0	10	6.50	B
NCB-01	1	1	1	0	2	3	6	4	1	1	0	1	21	13.50	C
NCB-04	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
NCM-47	1	1	0	0	1	2	1	2	1	1	0	0	10	8.50	C
NR-16	1	1	0	0	1	1	3	0	0	2	0	0	9	13.25	B
NR-23	1	0	0	0	0	2	1	0	0	0	0	0	4	4.25	B
NR-33	0	0	0	0	0	0	1	0	0	1	0	0	2	2.00	B
OH-01	0	0	0	0	0	0	0	0	1	0	0	0	1	1.25	B
OH-06	0	0	0	0	0	1	0	0	0	0	0	0	1	1.00	B
PR-06W	0	2	1	1	2	3	5	2	1	3	0	0	20	26.50	C
PR-13E	1	3	3	3	3	4	3	3	*	4	1	1	29	85.50	C
RH-02	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	B
RH-20	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	B
TI-09	2	3	3	2	4	2	7	3	1	0	0	1	28	61.25	C
TI-10A	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	B
WIB-53	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	B
WIB-67	0	1	1	1	2	1	1	0	0	1	0	0	8	14.75	B
WIM-23	0	0	0	0	0	1	1	2	1	0	0	0	5	1.75	B
Count**	11	9	10	7	11	16	19	13	10	12	3	5	21		

**Count of regulators with at least one event

Analysis Categories:

- Category A: Key Regulators that may be influenced by planned capital improvements (Projects are currently in design or construction that may result in CSO reductions and additional wet weather capture);
- Category B: Key Regulators averaging one or fewer potential discharge outside the period of a critical wet weather event per month
- Category C: All other Key Regulators with an average of more than one potential discharge outside the the period of a critical wet weather event per month

3.2 CRITICAL WET WEATHER EVENTS

The 2014 CSO BMP Order and the 2015 SPDES permits define a critical wet weather event as "a wet weather event which causes or would cause the influent flow at the WRRF to exceed the wet weather flow identified in the associated SPDES permit." Generally, the wet weather flow identified in the associated SPDES permit of the WRRF is two times the design dry weather flow (2xDDWF), but it may be less than 2xDDWF under certain operational limitations (e.g., when DEP reports critical equipment is out of service and submits a reduced capacity request to DEC). CSO discharges from key regulators that occurred outside of a critical wet weather event were determined based on inference from synoptic data collected from the city telemetry system, meteorological and tidal observations, and plant operational data. Using InfoWorks CS models of the city's collection system, DEP performs analysis of mitigation strategies to reduce the occurrence of discharges outside the critical wet weather periods.

Included in Appendix 3.2 is the CY2021 Critical Wet Weather Event Summary for each plant (January to December.) The summary tables include details related to the critical wet weather events for each plant, including: the event-specific wet weather capacity, plant throttling information, and the start and end times of the critical event with its corresponding maximum and average flows.

Additionally, DEP continued reporting, within the required two-hour time frame, events in which the WRRF throttled but never achieved the applicable SPDES-permitted wet weather capacity at any point during the period the WRRF throttled, except in instances when the WRRF was at reduced capacity in accordance with the Wet Weather Operating Plan and with prior approval by the DEC. DEP reported these events with Bypass Item Nos.

3.3 CRITICAL EQUIPMENT NOTIFICATIONS

In accordance with the 2015 SPDES permits, DEP continued notifying DEC whenever critical equipment is anticipated to be, or is, out of service for necessary repair or maintenance for more than 48 hours or under a DEC-approved schedule. Upon receipt of such notice, and on a case-by-case basis, DEC may adjust the flow that must pass through the WRRF in consideration of the recommendations contained within an approved WWOP. DEP based all subsequent required reporting, including determination of critical wet weather events, on the reduced wet weather capacity levels submitted in these critical equipment notifications.

3.4 WRRF ENGINEERING ANALYSIS

As per the 2014 CSO BMP Order, on August 6, 2014, DEP submitted to DEC Engineering Analyses of WRRF influent flow throttling operations. These analyses provided specific recommendations for initiation and cessation of wet weather flow throttling operations designed to maximize flow through the WRRF. Based on comments received from DEC, on December 12, 2014, DEP submitted supplements to the WRRF Engineering Analyses. These supplements included a brief summary of throttling protocol set points and indicators used to determine how and when throttling occurs at each WRRF.

3.5 COMBINED SEWER OVERFLOWS ANNUAL REPORT CHECKLIST PART III – CSO BMP'S

Checklist Part III, Section 4, Maximize Flow to WRRF, Question 3 asks whether a plan and schedule have been submitted to DEC for addressing any inability of the headworks, primary treatment works, secondary treatment works and disinfection works to pass the flows specified in the permit for all wet weather flows in 2021. In 2014, DEP submitted Engineering Analyses of WRRF influent flow throttling operations and updated WWOPs pursuant to Appendix B, sections 2 and 4 of the CSO BMP Order, which provide recommendations for maximizing flow through the WRRFs.

For 26th Ward, an interim wet weather flow limit of 127.5 MGD was approved to facilitate completion of work required under the CSO Order, Appendix A, Section XII.K which includes rehabilitation of the existing four primary settling tanks and construction of a new primary settling tank. 26th Ward returned to full wet weather capacity, with five primary settling tanks available for service, in October 2021.

For Coney Island, an interim wet weather flow limit of 198 MGD was approved, by consent order, to facilitate completion of the replacement of the main sewage pump system as part of the Emergency Stabilization Project.

For Newtown Creek, an interim wet weather flow limit of 620 MGD was approved to facilitate completion of state of good repair work for the replacement of plug valves and actuators for the North and Central return activated sludge pumps. Interim limits were in place from October 2021 to January 2022.

For Owls Head, an interim wet weather flow limit of 180 MGD was approved, by consent order, to facilitate completion of state of good repair work for the primary settling tanks. Interim limits were in place from September 2020 to July 2021.

3.6 Combined Sewage and Floatables Percent Capture at NYC WRRFs

DEP uses a calibrated InfoWorks Hydraulic Model in conjunction with NOAA rain gauge data, and plant operating and rain gauge information to calculate the annual percent wet weather capture. A detailed report on Combined Sewage and Floatables Percent Capture at DEP WRRFs is included in Appendix 3.

4 WET WEATHER OPERATING PLAN

> *"The permittee shall maximize treatment during wet weather events. This shall be accomplished by having a WWOP containing procedures and guidance for operating unit processes, including any regional CSO treatment/retention facilities listed in this permit. The WWOP requirements are provided in the Additional CSO BMP Conditions section of this permit."*

"DEP shall maximize flow through the WWTP during wet weather events. This shall be accomplished by having a WWOP containing procedures and guidance for operating unit processes, including any regional CSO treatment/retention facilities listed in this permit. The goals of the WWOP are to provide operational guidance to WWTP staff for treating the maximum flows, while not appreciably diminishing effluent quality or destabilizing treatment upon return to dry weather operation. The WWOP will establish process control procedures and set points to maintain the stability and efficiency of the Biological Nitrogen Removal (BNR) process, if required, for the host WWTP. The WWOP shall be written in accordance with the DEC publication, Wet Weather Operating Practices for POTWs with Combined Sewers. DEP shall incorporate the throttling protocol and guidance developed during the CSO BMP Order, Pilot Study into the WWOP. The WWOP shall also include an update of the critical equipment lists for the WWTPs, which shall include screening facilities at pump station that deliver flow directly to the WWTP and at WWTP headworks. The updated WWOP shall be submitted to Region 2 for review and approval within 6 months. After approval by the Department, DEP shall implement and follow the terms of the approved WWOP, submitted on December 12, 2014."

A Wet Weather Operating Plan (WWOP) is required for each WRRF and CSO retention facility. Appendix 4 summarizes the most recent submittal to DEC of the WWOP for each WRRF. In accordance with the SPDES permit and the 2014 CSO BMP Order on Consent, in December 2014, DEP submitted to DEC an updated WWOP for each WRRF (see Appendix 4). Additionally, in accordance with the CSO Order on Consent, DEP re-submitted the WWOP for 26th Ward WRRF in October 2015 and again in March 2016 in response to DEC comments. DEP re-submitted the WWOP for Bowery Bay in March 2016 in accordance with the then-draft Omni Order. There were no modifications in 2021 to the WWOPs submitted.

4.1 COMBINED SEWER OVERFLOWS ANNUAL REPORT CHECKLIST

Question 2, Section 5 Wet Weather Operating Plan (WWOP)

"In the past year, did treatment of wet weather flows cause any effluent violations or destabilize treatment upon return to normal service?"

DEP answer: Yes, there have been instances when wet weather flows have caused effluent violations; however, there have been no instances when wet weather flows have destabilized treatment upon return to normal service. Specifically, in the past year, DEP has reported effluent violations for parameters such as daily maximum total suspended solids (TSS) concentration at various WRRFs. Elevated flows due to wet weather can result in solids washout from the final clarifiers which can contribute to elevated fecal coliform counts or effluent TSS concentrations. Please refer to the monthly Discharge Monitoring Report submittals for specific information.

Question 7, Section 5 Wet Weather Operating Plan (WWOP)

"Does the plant identify the maximum flows through preliminary, primary, secondary treatment, tertiary, and disinfection units?"

DEP answer: "No." The WWOPs identify the minimum flow capacity rates through the treatment units, not the maximum flow capacity.

5 PROHIBITION OF DRY WEATHER OVERFLOW

"Dry weather overflows from the combined sewer system are prohibited. The occurrence of any dry weather overflow shall be promptly abated and reported to the NYSDEC Region 2 Office within 24 hours. A written report shall also be submitted within fourteen (14) days of the time the permittee becomes aware of the occurrence. Such reports shall contain the information listed in 6 NYCRR Part 750-2.7."

Dry weather overflows from the combined sewer system are prohibited and DEP's goal is to reduce and eliminate dry weather bypasses. As a result of DEP's continuing efforts in this regard, in CY 2021, pump station and regulator bypasses continue to remain at low levels.

DEP promptly abates any dry weather overflow and reports it to DEC through the NY-Alert notification system within two hours of confirmation of the discharge. DEP also submits a written report to DEC within five (5) days of the confirmed time of occurrence.

A yearly comparison of regulators, pump stations and WRRFs' dry weather bypassing is attached in Appendix 5.

Dry weather bypasses from the NYC collection system during the reporting period totaled 2.47 MG, as listed in Appendix 5. This total includes discharges from other locations including outfalls and street locations. Bypasses from pump stations and regulators were 0.00058% (2.47 MG) of the total 407 billion gallons (BG) of dry weather flow treated by NYC's 14 WRRFs in CY2021.

Pump station and regulator failures that resulted in dry weather bypassing during CY 2021 were categorized by cause and grouped by cause code. Major causes were further sub-coded and identified in more detail. These bypasses were analyzed for trends at individual locations and, as a result, DEP is studying specific locations for improvements or modifications to reduce future bypassing.

5.1 PUMP STATION DRY WEATHER BYPASSING AND ANALYSIS

On April 29, 2021, DEP reported a raw sewage bypass from the Hollers Avenue Pumping Station located in the Bronx, NY. The discharge appeared to be coming from the pump station's 8-inch force main, which is located at the bottom of the Hutchinson River. The DEP crew on-site immediately began response actions. DEP's emergency repair contractor brought in divers to inspect and repair the forcemain break. The divers confirmed that there was a broken section of pipe, which was removed and replaced. Upon completion of installation of the new section of pipe on May 3, 2021, a dye test with fresh water was performed prior to returning the Hollers Avenue Pumping Station to service to confirm no further leakage. The incident caused a bypass of approximately 87,500 gallons.

On July 8, 2021, DEP responded to a report at 5:03 pm of a temporary power outage at the 122nd Street Pumping Station. The power outage was caused by power dips affecting the Northern Queens area during the extreme weather caused by Tropical Storm Elsa. An estimated 32,500 gallons of raw sewage were discharged into the Flushing Bay. DEP personnel arrived onsite and discovered two pumps had been tripped due to the power dip. Subsequently, the pumps were reset, and the pumping station resumed normal operations at 7:30 pm.

On July 8, 2021, DEP responded to a report of a temporary power outage at the Riker's Island North Pumping Station. The power outage was caused by power dips affecting the Northern Queens area during the extreme weather caused by Tropical Storm Elsa. The power is sourced from a Department of Corrections feeder. The feeder connection was lost but returned within a few seconds. Due to the short duration of power loss, the automatic transfer switch did not transfer power over to the on-site emergency generator. The initial power loss resulted in a voltage drop which impacted the pump operations. An estimated 86,400 gallons of raw sewage were discharged into the East River. DEP contractors arrived on-site and restarted the pumps in hand mode. This action bypassed any control strategies and limited the time the station was non-operational. Power was restored to the pumping station at 6:24pm.

On September 2, 2021, due to heavy flooding from the remnants of Hurricane Ida, the 6th Road Pump Station, a sanitary pump station, was out of service for approximately 14 hours. The pump station sustained damage to the electrical system and instrumentation. A temporary pump-around system was installed and placed into operation from approximately 7:00 PM on September 2 through September 6, when one pump was restored to operation. Both pumps were restored to automatic operations by September 7. The temporary pump-around system remains on standby. Approximately 0.23 MG of raw sewage mixed with additional CSO was discharged into the East River due to this event.

On September 2, 2021, due to heavy flooding from the remnants of Hurricane Ida, the 24th Avenue Pump Station, a sanitary pump station, was out of service for approximately six hours. The pump station was completely flooded and sustained significant damage to the electrical system, controls, and pumping equipment. Personnel were able to restore pumping by approximately 9:30 AM on September 2 and had all three pumps running in manual mode by approximately 4 PM on September 2; however, the dry well pumps began having issues due to the flooding. Personnel installed a pump-around system overnight and placed it into operation at approximately 2:30 AM on September 3. The temporary pump-around system remains on standby. Approximately 0.19 MG of raw sewage mixed with additional CSO was discharged into Little Neck Bay due to this event.

On September 2, 2021, due to flooding from the remnants of Hurricane Ida, the 37th Avenue Pump Station, a combined flow pump station, was out of service for approximately six hours. The pump station sustained damage to the electrical system and instrumentation. One pump was restored to operation at approximately 6:30 AM on September 2. Approximately 0.26 MG of raw sewage mixed with additional CSO was discharged into Flushing Bay due to this event.

On September 20, 2021, DEP personnel were notified by the BWT communications center of a SCADA alarm that a dry weather bypass was occurring from Regulator OH-11. This regulator is on the site of and is the source of the influent flow to the Avenue V Pump Station. When DEP personnel arrived on site, they immediately observed that the primary Programmable Logic Controller (PLC) was not operational and the secondary, or backup, PLC failed to reset the station into service. Station controls were manually reset, and the backup PLC was placed out of service. While the pumps were operating in manual mode, DEP personnel had to take the backup PLC system out of service to return the primary PLC system to normal operation. Afterwards, the level controls worked normally, and the bypass stopped. There will be further troubleshooting of the PLC control system to improve alarming and/or automatic resetting of the main PLC. The incident caused a bypass of approximately 765,000 gallons

5.2 REGULATOR DRY WEATHER BYPASSING AND ANALYSIS

On May 15, 2021, there was a raw sewage bypass from Bowery Bay Regulator HL-08 due to a blockage inside a 12-inch line pipe. The blockage was apparently caused by rocks and cement debris. This led to an overflow, and untreated flow entered Flushing Bay. Upon discovery of the discharge, a DEP Collections crew was sent to Regulator HL-08 to investigate the area and remove the debris causing the overflow. The blockage was removed within the hour, thus ending the bypass. The incident caused a bypass of approximately 15,690 gallons

On July 24, 2021, DEP responded to a bypass from TI-Regulator No. 49. Upon further investigation, DEP found the cause to be open hydrants near 220th Place and 46th Ave, which caused elevated flows into the regulator resulting in the bypass condition through Outfall TI-008 into Alley Creek. The hydrants were opened to flush the water distribution system after DEP identified drinking water quality anomalies in the water samples. The flushing resolved the anomalies. DEP personnel closed the open hydrants, returning the regulator to normal operations, which abated the bypass condition. The incident caused a bypass of approximately 5000 gallons

On September 30, 2021, a raw sewage bypass was discovered at Regulator WIM-14 during a routine inspection of the regulator. The bypass was due to a blockage between the diversion chamber and the regulator. DEP personnel deployed a vactor truck to the site to clear the blockage through the sluice gate opening. Once the debris was cleared, the discharge ended. The incident caused a bypass of approximately 260,000 gallons

On October 13, 2021, a raw sewage bypass was discovered at Regulator WIB-60 during a routine inspection of the regulator. The bypass was due to a blockage from debris buildup. DEP personnel deployed a vacuum truck to the site to clear the blockage. Once the debris was cleared, the tide gates closed and the discharge ended. The incident caused a bypass of approximately 280,000 gallons

On October 13, 2021, a raw sewage bypass was discovered at Regulator TI-29 during a routine inspection of the regulator. The bypass was due to a blockage between the diversion chamber and the regulator. Operations deployed personnel to clear the blockage and return the regulator to normal service. The incident caused a bypass of approximately 3,100 gallons.

On December 14, 2021, DEP was notified of a potential raw sewage bypass from Regulator WIB-61. The regulator was found to have high flows with a high level in the diversion chamber, which splashed sewage onto the overflow bench. The branch interceptor and drop manhole were checked and flushed. BWSO is performing leak detection in the area to ensure leaks are not contributing to flow, and BWT adjusted the overflow bench level to end the bypass. DEP is continuing to investigate connections into the chamber and the configuration of the flow channel to improve the diversion chamber level. The incident caused a bypass of approximately 130,100 gallons

5.3 WRRF Dry Weather Bypassing and Analysis

On April 11, 2021, there was a raw sewage bypass with associated combined sewer overflow (CSO) from the Bowery Bay WRRF. During a wet weather event, the WRRF’s main 5kV breaker that was powering all main sewage pumps was tripped; the Bowery Bay WRRF was pumping at two times design dry weather flow at the time. The WRRF breakers were in an adjusted configuration at the time of the event to prepare for power distribution improvement work that was scheduled for April 12 and 13. As a result of this power outage, all main sewage pumps were temporarily out of service. DEP personnel onsite had to close the influent gates to prevent flooding of the WRRF and damage to the critical equipment. The closing of the influent gates resulted in a raw sewage bypass with additional CSO during the wet weather period. Influent gates were closed to prevent flooding of downstream equipment, and two submersible pumps were started at 5:10 PM to reduce the volume bypassed. Operations staff investigated and restored the system to normal operating conditions in approximately one hour from the start of the event. The incident caused a bypass of approximately 5.16 MG.

5.4 Other Locations Dry Weather Bypassing and Analysis

On March 11, 2021, DEP personnel responded to a consumer complaint of a sanitary sewer overflow from a manhole at the intersection of Huguenot Avenue and Arthur Kill Road in Staten Island. Upon further investigation, DEP personnel found rags and grease were causing a blockage in the 10” sanitary sewer. This blockage led to an overflow of untreated sewage into the storm catch basin on Huguenot Avenue which discharged into the Arthur Kill waterbody. DEP cleaned the sewer with a jet flusher and removed the obstruction. After the removal of the blockage, the sewer was running down properly. However, out of an abundance of caution, DEP will use a vactor truck to clear additional debris. DEP also intends to televise the sewer pipe. The incident caused a bypass of approximately 1,500 gallons.

On June 28, 2021, DEP was notified by a neighboring property owner of a sewage odor. Upon further investigation, DEP found a blockage of a sanitary sewer – DCAS infrastructure on Parks property. This blockage led to a sanitary sewer overflow into the inlet of OB-653 storm sewer, located at Forest Hill Road between Walcott Avenue and Steers Street. An estimated 50 gallons per minute (GPM) of flow was being discharged into Springville Creek through outfall OB-653. DEP notified DCAS and Parks to assess and clear the blockage. Additionally, DEP personnel took samples to determine whether sewer overflow entered the storm sewer. The samples resulted in a positive test for fecal and enterococcus. NYC is making efforts to resolve the discharge.

On August 13, 2021, DEP issued a NY-Alert (Incident ID: 1663977704653536) of a sanitary sewer overflow caused by a force main break at the privately owned pumping station located at 2952 Victory Blvd, Staten Island, known as the Trailways Pumping Station. The pumping station’s owner hired a contractor to make the necessary repairs and utilized septage haulers to transport sewage from the pump station while the repairs to the force main were being made. During this work, there was a discharge through the pumping station’s emergency overflow pipe into a storm sewer. An estimated 100 gallons of untreated sewage was discharged into Main Creek through Outfall PR-612. The pumping station’s owner hired a contractor to make the necessary repairs and utilized septage haulers to transport sewage from the pump station while the repairs were being made. However, additional resources were required, and DEP deployed its emergency repair contractor to the site to begin excavation and repairs on the private force main break. The incident caused a bypass of approximately 100 gallons.

On November 24, 2021, there was a sanitary sewer overflow caused by a blockage in the 6" sanitary sewer on Utter Avenue in Staten Island. The overflow reached the catch basin at Drake Avenue and Slosson Avenue which leads to the Kill van Kull. BWSO responded to the site at 8:15 AM and confirmed the overflow. A sewer maintenance crew flushed the sewer at 8:45 AM and abated the overflow. The incident caused a bypass of approximately 100 gallons.

On December 10, 2021, DEP personnel responded to a consumer complaint of a sanitary sewer overflow from a manhole 300’ Northwest of the intersection between 43 Four Corners Road and Richmond Road in Staten Island. Upon further investigation, DEP found millings and blacktop from street paving to be the cause of a blockage in the 10” sanitary sewer. This blockage led to an overflow of untreated sewage into the storm catch basin No. CB510967 in front of 35 Four Corners Road, which discharged into the

Lower Bay. DEP was able to relieve the overflow using a flusher truck and vactor. The obstruction was removed, and the sewer is running down properly. The incident caused a bypass of approximately 1,005 gallons.

6 INDUSTRIAL PRETREATMENT

"The approved Industrial Pretreatment Program shall consider the impacts of discharges of toxic pollutants from unregulated, relocated, or new SIUs tributary to CSOs that were not identified in the report entitled, 'CSO Abatement in the City of New York: Report on Meeting the Nine Minimum CSO Control Standards'. The approved Industrial Pretreatment Program shall consider CSOs in the calculation of local limits for indirect discharges. Discharge of persistent toxics upstream of CSOs will be in accordance with guidance under (NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.3.8, New Discharges to POTWs. For industrial operations characterized by use of batch discharge, consideration shall be given to the feasibility of a schedule of discharge during conditions of no CSO. For industrial discharges characterized by continuous discharge, consideration must be given to the collection system capacity to maximize delivery of waste to the treatment plant. Non-contact cooling water should be excluded from the combined system to the maximum extent practicable. Direct discharges of cooling water must apply for a SPDES permit. To the maximum extent practicable, consideration shall be given to maximize the capture of industrial waste containing toxic pollutants and this wastewater should be given priority over residential/commercial service areas for capture and treatment by the POTW. These factors shall be considered in the location and siting of new industrial users with preference to service by areas not tributary to CSOs or having sufficient capacity to deliver all industrial wastewater during all conditions to the POTW. These provisions apply to both new and existing industrial users"

This program continues as described in last year's Report. During 2021, DEP performed 405 inspections of regulated industries and issued 43 summonses.

Attached in Appendix 6, Exhibit 1 is a copy of the letter sent to industrial users (IU) informing them that their permits had been amended, and a graph of annual trends in discharges to NYC WRRFs that contain metals. The total amount of metal being discharged by regulated industries remains very low. In 2021, the average daily discharge containing metals by all regulated industries to the NYC WRRFs was 7.7 lb/day. This amount corresponds to a trend of declining IU discharges. If the same percentage of CSO bypass (1.5%) from the CSO report is applied to the 2021 data, then on average approximately 0.115 lb./day of total metal would be included in CSO dry weather overflows.

Between 1997 and 2021, the total amount of metal being discharged by regulated industries in the City has been reduced by more than two orders of magnitude. The total metals loadings for 1997–2009, 2012, and 2017 were calculated based on monthly metal sampling, and the remaining years were calculated based on annual priority pollutant scans. A list of regulated industries, with average daily wastewater discharge flows and average pollutant loadings is summarized in the 2021 IPP Progress Report.

6.1 Requirement for Significant Industrial Users to Hold Their Process Wastewater and Non-contact Cooling Water to the Maximum Extent Practicable During Heavy Rains

As an alternative means to reduce the likelihood of CSOs during storm events, DEP requires regulated industries to hold their process wastewater and non-contact cooling water to the maximum extent practicable during heavy rains. In 2021, DEP continued to implement this requirement for Significant Industrial Users (SIUs). Please see the CY2009 CSO BMP Annual Report for more details about this program. Additional information may be found in Appendix 6.

7 CONTROL OF FLOATABLE AND SETTLEABLE SOLIDS

The discharge of floating solids, oil and grease, or solids which cause deposition in the receiving waters, is a violation of the NYS Narrative Water Quality Standards. The permittee shall implement the following best management practices in order to eliminate or minimize the discharge of these substances:

7a. ***Catch Basin Repair and Maintenance -*** *The permittee shall inspect each catch basin in the tributary collection system a minimum of once every 36 months. Catch basins will be cleaned as required based on these inspections and in accordance with the permittee's criteria for catch basin cleaning. The permittee shall replace missing or damaged catch basin hoods within 90 days after the date of inspection for basins known to be hooded upon completion of the catch basin hooding program. For all future catch basins in the tributary collection system found by inspection to require extensive repairs before a hood can be installed, the permittee shall repair and install a hood within 24 months.*

7b. ***Booming, Skimming and Netting -*** *The permittee shall operate and maintain the floatable containment boom (or floatable containment netting) as applicable for the CSO outfalls listed in this permit. The in-water containment boom shall be inspected within 48 hours of a confirmed CSO event and, if necessary, cleared of floating debris. The permittee shall visually inspect floatable containment netting on a weekly basis and shall replace damaged or full netting bags as necessary.*

7c. ***Institutional, Regulatory, and Public Education –*** *The permittee shall continue to implement the City-Wide Floatables Plan.*

The permittee may apply to the Department for an alternative implementation schedule for Items 7a. and 7b. for combined sewer areas that are tributary to a permanent land-based CSO abatement and treatment facility designed and permitted by the Department for control of floatables.

7.1 CATCH BASIN REPAIR AND MAINTENANCE

Catch basin maintenance and repair work is a major focus of DEP's daily activities. DEP devotes significant resources to these tasks both as part of its three-year programmatic inspection cycle in compliance with the SPDES permits, and in response to complaints received from the public.

DEP tracks catch basin maintenance and repair activities through Infor Public Sector (IPS), a complaint and work order management system. DEP performed 35,023 programmatic catch basin inspections in 2021. Table 7.1-1: “CY 2021 Catch Basin Inspection & Cleaning” presents a summary of catch basin cleaning identified through the inspection program and other routine maintenance activities for each borough.

Catch basin hooding, one of EPA’s Nine Minimum Controls, is an important element of DEP’s CSO floatables control program and can significantly reduce the discharge of street litter to combined sewers, storm sewers, and receiving waters. In 2021, DEP hooded 1,198 catch basins; 618 of those were found to require extensive repairs before a hood could be installed and the work took on average 62 days. The rest (580) were installed within an average of 71 days, with 71% completed within the 90 days. Table 7.1-2: CY 2021 Catch Basin Hooding, summarizes catch basin hooding during 2021 for each WRRF drainage area. The status of these basins is monitored through DEP’s IPS system to ensure compliance within the allotted time.

7.2 BOOMING, SKIMMING AND NETTING

BWT maintains 22 permanent floatable containment facilities and 1 temporary CSO boom at the Gowanus Canal for a total of 23, corresponding to storm and combined sewer drainage areas totaling approximately 60,000 acres. Floatable containment site locations and offloading facilities are depicted in Figure 7-2. The floatable materials contained by the boom and net sites are retrieved by three, City-owned skimmer vessels. Offloading currently occurs at three DEP WRRFs. The skimmer vessels are operated by BWT marine title personnel. The personnel also provide containment site inspections, maintenance and repair. Skimmer vessel maintenance and repair services are handled either by in-house personnel or, when necessary, via a marine services contract.

Skimmer vessels are dispatched to retrieve collected floatables from booms and nets based on inspections conducted with small vessels within 24 to 48 hours of significant rain events. The small, inspection vessels are also equipped with hand netting tools for retrieval of small accumulations of floatables, so that the skimmer vessel use is more focused on containment sites with large amounts of floatables. In dry weather, boom and net inspections occur at least weekly and may occur more often for certain sites where specific tide and wind conditions may cause debris to accumulate outside of rain events.

In 2021, about 255.75 cubic yards of floatable material were retrieved from the 23 containment facilities and some minor open water skimming (see Table 7.2-C). Total floatable recovery per each year is provided in Figure 7.2-B and in Appendix 7.2.1, Table 7.2-A. Floatable recovery totals for 2021 per each of the boom and net sites are included in Appendix 7.2.2, Table 7.2-B.

Figure 7-4. DEP Skimmer Vessel "Shearwater"

DEP currently has two self-propelled skimmer vessels (Aquarius Systems Custom Model HSTH235 - High Speed Trash Hunter) and one old vintage skimmer vessel which must be towed. DEP relinquished 1 vessel in April 2019 and is currently procuring a new vessel.

Table 7.2-D reflects NYCDEP CSO Floatable Removal Program via Skimmer Vessels – Collection Summary (Cubic Yards).

7.3 INSTITUTIONAL, REGULATORY, AND PUBLIC EDUCATION CONTROLS

In 2021, DEP continued, in partnership with other City agencies, to implement a variety of institutional, regulatory, and public education controls. For a detailed description and history of the City's work to reduce trash and settleable debris citywide, please refer to prior CSO BMP Reports available at https://www1.nyc.gov/site/dep/water/combined-sewer-overflows.page and the NYC Stormwater Management Program (SWMP) Plan available at www.nyc.gov/dep/ms4.

7.3.1 Public Engagement - 2021 Activities

In 2021, DEP continued to educate the public and raise awareness about the New York City wastewater treatment and water supply systems and stormwater management (including floatables reduction, litter reduction, the proper disposal of grease, and water conservation). DEP developed and implemented through its Bureau of Public Affairs &

Communication (BPAC), a comprehensive education and outreach program featuring in-person and virtual formats:

- School programs (grades pre-K-college graduate)
- Education programs for professional organizations
- Visitor Center at Newtown Creek programs
- Professional learning opportunities for formal and non-formal educators
- Special education programs and events
- Public exhibitions
- Volunteer Programs
- Multi-media distribution
- Publications
- Promotional items
- Website updates

In 2021, the City continued its annual “Clean Streets = Clean Beaches” Campaign, which featured an informational poster with the slogan “Don’t Mess up Summer” for display at area beaches, on NYC Department of Sanitation (DSNY) fleet vehicles and on City agency social media.

Through coordination with other city agencies, including DSNY and Parks, the public engagement program not only increased the public’s awareness of the impact of littering, but also directly reduced litter through community cleanups and reduced rainfall runoff through tree planting, all of which work to reduce CSOs and their impacts on New York Harbor.

7.3.2 Development of BMPs for the Automotive Industries

DEP completed the automotive booklet in 2013. For a full description of this work, please see the CY 2012 CSO BMP Annual Report. In 2021, the Environmental Compliance Outreach (ECO) unit visited 58 automotive businesses in Queens in the Jamaica Bay drainage area and 53 businesses in Brooklyn in the Coney Island Creek drainage area.

7.3.3 Control of Floatables in Bluebelts

Development of New Creek, South Beach, and Oakwood Beach Bluebelts: In 2021, construction continued at New Creek BMPs NC-11, NC-12, NC-13, NC-14, and NC-16. Contract award for the construction of NC-6 and NC-15 is anticipated before the end of June 2022. The US Army Corps of Engineers will be constructing BMPs in the Oakwood Beach, New Creek, and South Beach areas within the next three years as part of the South Shore Staten Island Coastal Storm Risk Management program.

BMPs at Wood Duck Pond (WD-1, WD-2, WD-3, and WD-4) and Travis Area were completed in 2021.

Adopt-a-Bluebelt – This program continued in 2021. The total number of sites adopted and maintained by local community groups, companies, or individuals is 47, covering an area of 46,250 square feet.

Volunteer Cleanups – In 2021, there were no volunteer cleanups due to constraints imposed by the pandemic.

Catch Basin Outreach and Education – All existing and newly-installed catch basins that are tributary to Bluebelts are marked with the "No dumping – flows to Bluebelt" message.

Floatables Control – New dynamic detention weirs with trash capturing devices have been installed in the New Creek Bluebelt. Trash racks are maintained regularly to keep floatables out of New Creek. These weirs have eliminated the need for floating booms. A recently completed weir at BMP NC-12 on Hylan Boulevard is on-line.

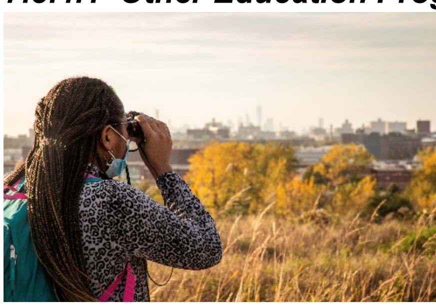
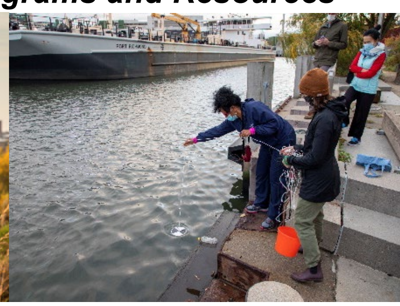
Illegal Dumping Enforcement – The DEP Bluebelt division has a new debris removal contract in the award process for the purposes of removing illegal dumping and other debris found on DEP-owned Bluebelt properties. During the reporting period, with the assistance of the City Cleanup Corps, the Bluebelt program removed 1,315 cubic yards of dumped trash and debris from Bluebelt sites.

7.3.4 School and Visitor Center Programs, Professional Development, Special Events and Exhibitions

DEP manages an extensive education and outreach program that targets NYC students, teachers, parents, school administrators, curriculum specialists, non-formal educators, residents, community organizations, businesses, and visitors and internet users. The program is supported through education programs at the Visitor Center at Newtown Creek and the Newtown Creek Nature Walk, education classes taught at schools and public events, digital resources and print material, multi-media public service campaigns, exhibitions, publications, promotional item distribution, and the DEP website.

BPAC's education programs and resources continued to reach thousands of young people and adults in 2021. Some specific examples of these programs are presented below.

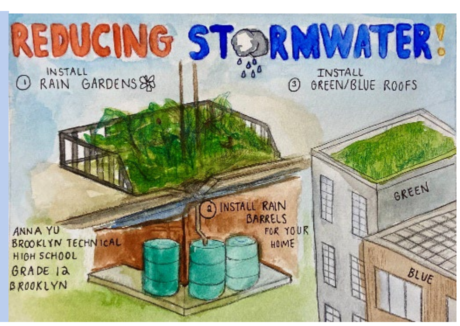
7.3.4.1 Other Education Programs and Resources


In 2021, DEP conducted hundreds of educational programs with young people and adults through both in-person and virtual school visits, field trips, Visitor Center at Newtown Creek presentations, teacher professional learning opportunities, and other educational programs and events. DEP developed and distributed educational materials to thousands of recipients throughout NYC, including information about NYC's wastewater treatment and water supply systems and about harbor water quality; teacher lessons and student activities; and educational resource guides. Of particular interest to teachers was a new curriculum guide for K-8 classrooms titled *Understanding New York City's Water Story*, which includes a compilation of lessons and activities highlighting the wastewater treatment process, stormwater management, and wastewater resource recovery in NYC. Additionally, DEP enhanced the Jamaica Bay Education Resource Directory and designed four virtual tours for schools and the public using ArcGIS StoryMaps. The virtual tours explore the NYC watershed, sewer system, wastewater treatment process, and harbor protection programs using maps, in-the-field footage, expert interviews, and historical images. Detailed information about these programs and resources is available from BPAC's Education Office and on DEP's website.

The Visitor Center at Newtown Creek, located at the Newtown Creek WRRF in Greenpoint, Brooklyn, provides an important venue for students, educators, professionals working in the field, and the public to learn about NYC's wastewater and water supply systems and stewardship opportunities. Exhibitions and programs focus on the city's vital, but hidden, infrastructure; green solutions to stormwater management, including bluebelts, rain gardens, green and blue roofs, and rain barrels; the NYC sewer system, including its MS4; harbor water monitoring, including the role of NYC's fleet of vessels and scientific monitoring; and ways to become more effective stewards of the environment by disposing of litter and grease properly and by conserving water. The Visitor Center provides the ideal setting for DEP educators to present hands-on, multi-disciplinary lessons for grades pre-K through college, aligning with New York State and City standards, and STEM and humanities initiatives. The Visitor Center (and the Newtown Creek Nature Walk), open year-round, is a popular destination for school field trips and teacher professional learning opportunities. In 2021, DEP continued to engage students and educators through virtual tours and in-person presentations at the Visitor Center at Newtown Creek WRRF. Over the last year, DEP enhanced the visitor experience by designing and installing a new educational exhibit on NYC's sewer system and stewardship actions to help protect the harbor and reduce stormwater pollution.

In 2021, DEP conducted its 35th annual Water Resources Art & Poetry award ceremony to recognize student's knowledge of the city's valuable water resources through their creative expression using art and poetry. More than 1,300 NYC and watershed students from 2nd through 12th grade attending public, charter, independent, and parochial schools, and home-schooled, participated in this special program; their poetry, photographs, digital art, paintings, and crafts were judged based on knowledge and creativity. Winning entries are featured on DEP's website. DEP hosted a virtual celebration to honor the outstanding efforts of all the participating students.



In 2021, DEP continued to collaborate with Trout Unlimited on the Trout in the Classroom (TIC) program, an upstate/downstate watershed environmental education initiative for elementary through high-school students. In October, educators from NYC and NYC's watersheds east and west of the Hudson River attended the annual TIC teacher conference, where they received trout eggs distributed by the NYS Department of Environmental Conservation (DEC) to raise in their classrooms. Throughout the eight-month program, eggs hatched in classroom tanks and trout were raised by approximately 10,000 students in more than 150 schools in NYC and its watersheds. In the spring, NYC students and teachers released their trout into watershed streams and participated in in-person and virtual hands-on activities focused on water stewardship and the importance of forests in helping to protect water quality.

DEP also participated with DEC during the annual statewide Citizen Science "A Day in the Life of the Hudson and Harbor" program. In 2021, DEP once again met middle school students in person, making environmental observations, collecting and analyzing water samples, and assessing water quality along the East River at Gantry Plaza State Park. School participants shared with DEC their data, which tracked the river's tides and currents, examined the water chemistry and identified local aquatic species.

Throughout the year, DEP conducted professional learning opportunities (PLO) for formal and non-formal educators. Topics included harbor water quality, watersheds, stormwater management, wastewater resource recovery, climate change, and the history of the New York City water supply system. Partners included the NYC DOE Science and STEM units and Office of Sustainability, DOE Genovesi Environmental Study Center, New York State Parks, New York City Mayor's Office of Climate Policy and Programs, Watershed Agricultural Council, South Street Seaport Museum, Math for America, Newtown Creek Alliance, and many other cultural and environmental organizations. Participants learned about creative ways to incorporate into the curriculum teaching and learning about water. Some 2021 highlights include DEP's popular Wastewater Resource Recovery in NYC PLO, outdoor walking tours of the newly opened Shirley Chisholm State Park and the recently expanded Newtown Creek Nature Walk, a Rain Garden Stewardship PLO, and a Climate Change Education Virtual Workshop Series. As a Continuing Teacher and Leader Education (CTLE) sponsor, as approved by the New York State Education Department, DEP continued to support New York State teachers who participated in our PLOs by providing credit towards their required training hours.

7.4 Floatables Monitoring Program Progress Report

DEP has been tasked through its SPDES permit requirements to implement and maintain a floatables control program and a monitoring program to provide a means to assess and measure the effectiveness of the programs. These control and monitoring programs are embodied in the City-Wide Comprehensive CSO Floatables Plan Modified Facility Planning Report (Floatables Plan, July 2005) inclusive of Addendum 1 – Pilot Floatables Monitoring Program Work plan (December 2005)

The Floatables Plan contains a conceptual framework for the monitoring of floatables conditions in the waters of New York Harbor. A pilot program was conducted over the course of 2006 and 2007 to develop and test the monitoring methodology envisioned in the framework, and the full program began in 2008. A progress report, presented in conjunction with the CSO BMP Annual Report under separate cover, describes the progress that DEP has made.

The floatables monitoring program is based on observations of the presence/absence of floatables from monitoring stations throughout the harbor and has developed into one of a number of methods to assess floatables control programs. These basic monitoring data have been used to prioritize and select sites for more comprehensive site-specific investigations focused on priority sites with persistent poor ratings. The site-specific investigations characterize floatables, identify sources of floatables, correlate rating trends to floatables control programs where applicable, and, in conjunction with CSO LTCP processes, provide the first steps for appropriate remediation planning where feasible.

In addition to the floatables controls listed in BMPs 7a through 7d, the City engages in a street sweeping program to reduce floatables' entry into catch basins and the combined sewer system. The program is administered by DSNY and evaluated through systematic street litter monitoring, known as the "Scorecard Program," conducted by the Mayor's Office of Operations. According to the Scorecard Program, citywide street litter levels have improved somewhat since 2003 with clear improvements in the percent acceptable and percent filthy ratings. Scorecard Program results for the past forty-four years are summarized in Appendix 7.4.

8 COMBINED SEWER SYSTEM REPLACEMENT

> *"Replacement of combined sewers shall not be designed or constructed unless approved by NYS Department of Health and specified in the NYCDEP Master Plan for Sewers and Drainage. When replacement of a combined sewer is necessary it shall be replaced by separate sanitary and storm sewers to the greatest extent possible. These separate sanitary and storm sewers shall be designed and constructed simultaneously but without interconnections to maximum extent practicable. When combined sewers are replaced, the design should contain cross sections which provide sewage velocities which prevent deposition of organic solids during low flow conditions."*

Private Drains or Private Sewers are constructed in conformance with Drainage Proposals or Amended Drainage Plans. Any sewers built by private developers are in conformance with their Drainage Proposals or Amended Drainage Plans and do not extend combined sewers beyond the combined sewer area.

9 COMBINED SEWER/EXTENSION

"Combined sewer/extension, when allowed should be accomplished using separate sewers. These sanitary and storm sewer extensions shall be designed and constructed simultaneously but without interconnections. No new source of storm water shall be connected to any separate sanitary sewer in the collection system. If separate sewers are to be extended from combined sewers, the permittee shall demonstrate the ability of the sewerage system to convey, and the treatment plant to adequately treat, the increased dry-weather flows. Upon written notification by the Regional Water Engineer, the permittee shall assess the effects of the increased flow of sanitary sewage or industrial waste, on the frequency, flow and pollutant loading on the CSOs including the impacts on the receiving water quality and usage. This assessment should use techniques such as collection system and water quality modeling contained in the Water Environment Federation Manual of Practice FD-17 Combined Sewer Overflow Pollution Treatment."

In 2021, nineteen private combined sewer extensions were reviewed and approved and five previously approved private combined sewer extensions completed construction. Sewer extensions are reviewed and approved in accordance with the City drainage plan.

10 SEWER CONNECTION & EXTENSION PROHIBITIONS

"If, there are documented, recurrent instances of sewage backing up into house(s) or discharges of raw sewage onto the ground surface from surcharging manholes, the permittee shall, upon letter notification from DEC, prohibit further connections that would make the surcharging/back-up problems worse. Wastewater connections to the combined sewer system downstream of the last regulator or diversion chamber are prohibited."

For the calendar year 2021, DEP received no letter notification from DEC concerning chronic sewer backups or manhole overflows that would prompt DEP to prohibit additional sewer connections or sewer extensions

11 Septage and Hauled Waste

> *"The discharge or release of septage or hauled waste upstream of a CSO is prohibited."*

The septage and hauled waste program continued unchanged since the 2020 Annual BMP Report issued in 2021.

12 CONTROL OF RUN-OFF

> *"All sewer certifications for new development shall be consistent with NYCDEP rules and regulations and shall require on-site detention or retention to not exceed the capacity of the existing sewers fronting the property. Only allowable flow will be permitted to discharge into the combined or storm sewer system."*\

Connecting to or repairing/relaying an existing connection to any combined, storm or sanitary sewer requires a permit from DEP. A new connection is conditioned upon the submission of a Certification of a Site Connection Proposal (SCP) or a House Connection Proposal (HCP). A NYC Licensed Master Plumber can apply for a sewer connection permit provided there is a certified HCP/SCP submitted by a NYS Licensed Professional Engineer or Registered Architect.

BWSO oversees the sewer permitting process and inspects and approves water and sewer connections performed by licensed plumbers and/or authorized contractors. This oversight and the review of certifications of SCPs and HCPs allow DEP to ascertain whether the volume of sewage entering the collection system conforms to the City's Drainage Plan and will be conveyed to WRRFs without causing sewage back-ups.

DEP administers this program pursuant to the Clean Water Act and State and local laws regulating the treatment and disposal of wastewater. The City's "Rules Governing House/Site Connections to the Sewer System" are set forth in Title 15 of the Rules of the City of New York, Chapter 31.

Connections to any City sewer require DEP (BWSO) inspection, generating a "connection card" or "Certificate of Inspection." Such certification is a prerequisite to the property owner's receiving a Certificate of Occupancy from the NYC Department of Buildings (DOB). BWSO's Borough Water & Sewer Records Office maintains records of all connections.

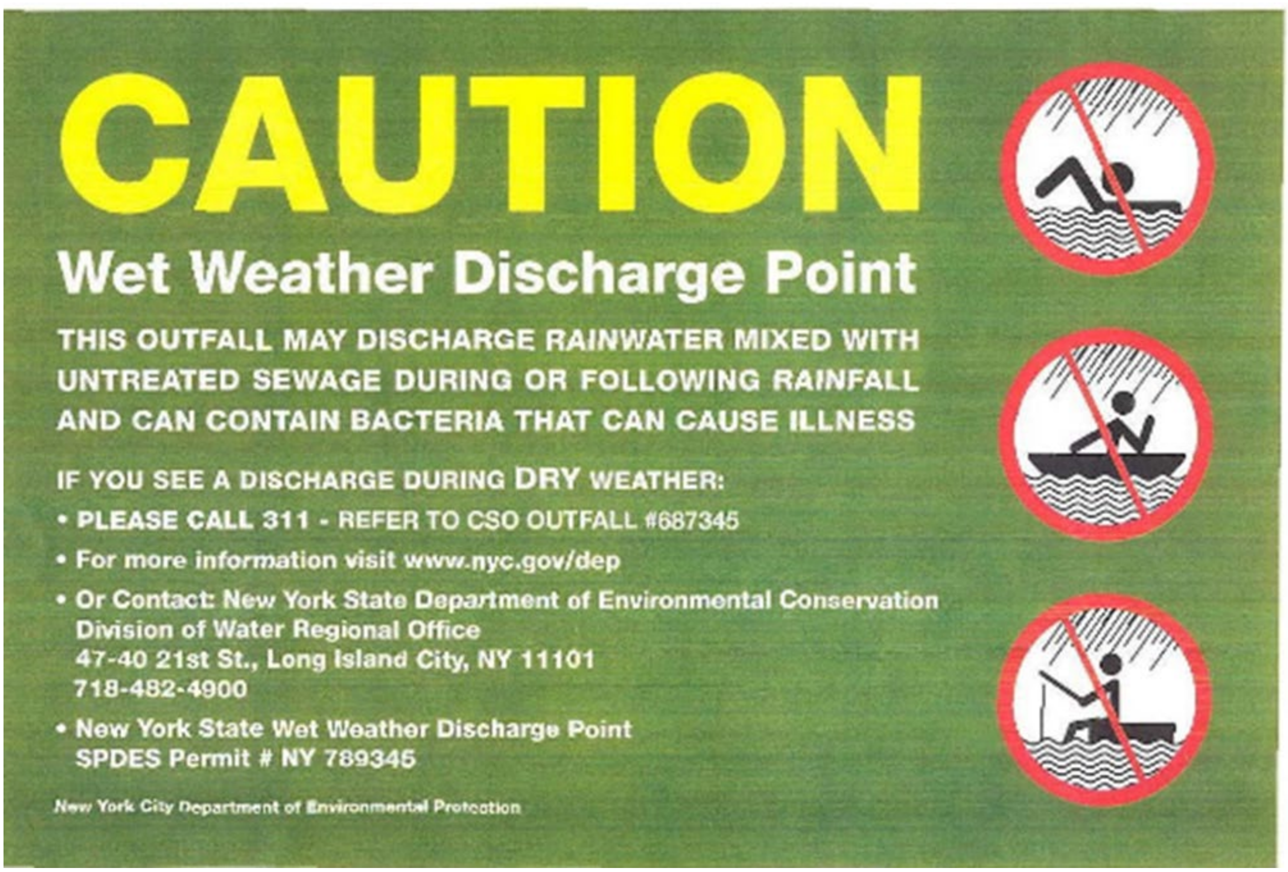
The Chapter 31 rule to "reduce the release rate of storm flow to combined sewers from new developments to 10% of the drainage plan allowable or 0.25 cfs, whichever is higher (for cases when the allowable storm flow is more than 0.25 cfs)," was promulgated on January 4, 2012, and has been in effect since July 4, 2012.

A copy of the Sewer Certification Form and Site Connection Proposal Form that must be filed for new development are attached in Appendix 8.

13 PUBLIC NOTIFICATION

a. " The permittee shall install and maintain identification signs at all CSO outfalls owned and operated by the permittee as listed on the Additional Combined Sewer Outfall page(s) of this permit. The permittee shall place the signs at or near the CSO outfalls and ensure that the signs are easily readable by the public. The signs shall have minimum dimensions, information and appearance as specified in the Discharge Notification Requirements page of this permit."

DEP installed signs at all CSO outfalls in 2003. Under the project "Signs Installation Plant-Wide," initiated in November 2005, DEP installed signs at all WRRF outfalls in 2007. The sign panels are 24" x 36" and the plaques are 6" x 9" with white letters on a green background. Each notification sign and plaque asks the public to contact DEP with the depicted Outfall number and SPDES number if they observe dry weather discharge from the outfall.



In 2010, DEP changed the design of the outfall signs at the recommendation of the Floatables Citizens Advisory Committee which requested that we include specific information about the water quality at these locations. The new design was approved by DEC, the Arts Commission and Parks, as well as Community Boards in the five boroughs. Recommendations were made to include warnings about recreational activities such as swimming, boating and fishing at the outfall locations. The new design emphasizes the word “Caution” in order to alert the public to the fact that the location is a point of release of wastewater into surface water during wet weather. The signs also provide graphics of non-recommended activities. The replacement of the signs was completed in May of 2011 with the newly designed CSO signs; see Appendix 10 for the list of installed CSO sign locations.

The signs also provide contact information for reporting discharges during dry weather. The ID number can help a 311 operator or a DEP employee to recognize the location from which someone is reporting discharges and to take immediate action. DEP has received calls prompted by these signs. These calls are handled by a trained group of employees who are aware of related response actions. Calls are evaluated and forwarded to responsible staff who will take the appropriate action.

The knowledge of New York's citizens about their water environment is being expanded with posting of DEP's educational signs. The notice depicts a typical CSO sewer regulator, explains its purpose, and alerts the public to action to be taken in the event of a release of wastewater from an outfall into surface waters during dry weather. The sign also serves a secondary purpose: it involves the citizen in community environmental actions.

Communication with Community Boards was essential to inform them that DEP would be working in their areas in response to the "Fisherman's Right to Know" mandate. The purpose of the Act was explained and specific contact points within DEP were established.

"Waterwalk" Educational Signage

> *b. "The permittee shall implement a public notification program to inform citizens of the location and occurrence of CSO events. As long as the Department of Health and Mental Hygiene provides a "Your location" public notification program, the permittee may submit a summary of the program in the annual BMP report, rather than developing their own program. The program shall include a mechanism (public media broadcast, standing beach advisories, newspaper notice etc.) to alert potential users of the receiving waters affected by CSOs and a system to determine the nature and duration of conditions that are potentially harmful to users of these receiving waters due to CSOs. "*

The DOHMH *2021 NYC Beach Surveillance and Monitoring Report* can be accessed at:

https://www1.nyc.gov/assets/doh/downloads/pdf/beach/beach-report-2021.pdf

13.1 Summary of DOHMH Report:

13.1.1 Routine Monitoring and Surveillance Procedures

The routine beach monitoring and surveillance procedures consist of the following three major components:

- Routine beach water quality monitoring;
- Compliance inspections; and
- Regulatory surveillance.

DOHMH monitors and samples each beach weekly with the exception of the Rockaway and Breezy Point beaches, which are sampled biweekly. Additional samples may be collected when necessary. The determining factors for additional sampling may include:

- Proximity to suspected pollution sources;
- Extent of pollution;
- Beach use;
- Historical water quality data; and
- Other health risk factors.

Prior to sample collection, a visual inspection is performed to identify any existing and/or potential sources of pollution that are likely to affect beach water quality. During a sample event, three samples are collected at each beach. At larger beaches, such as Coney Island and Rockaway, additional samples are taken at multiple locations to ensure adequate representation and reliable data results. Water samples are collected at knee-depth (18 inches) in three feet of water, at the middle of a typical or most highly used area of the beach, or near a potential source of pollution. The collected samples are delivered to the DOHMH Office of Public Health Laboratories (PHL) for analysis. The analytical turnaround time for Enterococci is 24 hours.

13.1.2 Public Notification and Risk Communication

Of the eight public beaches, seven had at least one swimming advisory warning notice issued during the 2021 bathing season due to a rainfall event or water quality exceedance. These advisories resulted in 81 warning days, each advisory ranging from 1 to 25 days. There was a total of 19 closure days due to tropical storm warnings or water quality exceedances, each warning ranging from 2 to 3 days.

Of the 17 private beaches in NYC, 16 were open in 2021. Thirteen (13) had at least one swimming advisory warning notice issued during the bathing season. These advisories resulted in 431 warning days, each advisory ranging from 1 to 42 days. American Turner had the largest total number of warning days with 76. Across all private beaches there were 75 closures. Douglaston Manor had the largest number of closure days with 39. The lengths of all beach closures ranged from 5 to 18 days. Public notification details can be found in Appendix B (pages 18 to 21 of the Beach Report 2021).

Due to storm warnings from the National Weather Service, all eight public beaches were pre-emptively closed to swimming on Sunday, August 22 ahead of the landfall of Tropical Storm Henri. On August 24, all NYC public beaches reopened through the end of the season on Sunday, September 12.

13.1.3 Water Quality and Illness Reporting

Routine water quality monitoring and sample collection were performed at all 25 permitted beaches. Over 570 samples were collected and analyzed from these beaches between April and September 2021. In 2021, DEP did not receive notice of any specific beach water quality illnesses or complaints

Because of ongoing operational and safety-related impacts of the COVID-19 pandemic on DEP response, DEP implemented a modified beach monitoring plan in 2021. DEP maintained the normal frequency of sampling but collected fewer total samples than during a typical beach season. In 2021, DEP collected approximately 570 samples, compared to more than 1,000 samples in a normal beach season. Given the limitations of this beach season, DEP interpreted sample results conservatively, and in some cases did not initiate resampling events to use resample information to reduce notification periods.

13.1.4 Inspections

During the 2021 beach season, DEP successfully conducted inspections of all 24 open, public and private beaches. One facility was cited for violations at the time of inspection (during a Coney Island inspection, minor disrepair of parts of the boardwalk was observed) as indicated in Appendix C of the 2021 Beach Report.

14 CHARACTERIZATION AND MONITORING

"The permittee shall characterize the combined sewer system, determine the frequency of overflows, and identify CSO impacts in accordance with Combined Sewer Overflows, Guidance for Nine Minimum Controls, EPA, 1995, Chapter 10. These are minimum requirements, more extensive characterization and monitoring efforts which may be required as part of the Long Term Control Plan."

Because DEP maintains many regulator structures that have very complex geometry and are tidally influenced, it is not feasible to monitor all CSO outfalls. DEP does have a SCADA system that helps provide some information pertaining to water levels in the regulator structures and provides some indication of whether a CSO is occurring, but SCADA does not provide a direct flow measurement and is influenced by factors such as tidal elevations. DEP has also conducted some very comprehensive and intense interim flow monitoring using specialized vendors at representative locations to calibrate and validate the InfoWork sewer system models. These calibrated InfoWork models are used to estimate the annual CSO volume and frequency for all the CSO outfalls.

There are four (4) NOAA rain gauges at the area airports, and DEP maintains rain gauges at all fourteen (14) WRRFs.

For additional details, refer to the CY 2021 Potential CSO Discharges table in Appendix 11.

DEP also regularly posts additional monitoring data on its website, including waterbody advisories. Information on the City's waterbody advisory application can be found here:

https://www1.nyc.gov/html/dep/html/harborwater/nyc_waterbody_advisory.shtml

15 ADDITIONAL CSO BMP SPECIAL CONDITIONS

5. b. "Key Regulator(s) Monitoring Reporting: Following installation of the CSO monitoring equipment described in Subparagraph 3(a) above, within 45 days after the end of each month, DEP shall provide to DEC, a monthly report of all known or suspected CSO discharges from key regulators outside the period of a critical wet weather event. Such monthly report shall provide an itemized list of such CSO discharges, the approximate start time and end time for each discharge, the corresponding WWTP flow rate and the start time and end time of the critical wet weather event. Within 90 days after the end of each quarter (after the first year, reports shall be filed for each calendar year and shall be submitted with the Annual CSO BMP Report), DEP shall submit for DEC approval an engineering analysis of the cause(s) for each discharge and an analysis of options to reduce or eliminate similar future events. A schedule must be provided for all reasonable and cost effective options which can be completed within two years (exclusive of the time required for procurement) and DEP must complete those projects in accordance with a DEC approved schedule. All other options shall be considered as part of the Long Term Control Plan ("LTCP") process towards achieving the water quality goals of the Clean Water Act, and built into the LTCP hydraulic model per Paragraph 6 below.

First year quarterly reports have been submitted and annual reports to be submitted hereafter with the Annual CSO BMP Reports."

DEP includes this section pursuant to Item 5.c. in Appendix B of Additional CSO BMP Special Conditions in the SPDES Permits. Item 5.b requires DEP to submit reports of all known or suspected CSO discharges from key regulators outside the period of a critical wet weather event. For the first year after the effective date of the 2014 CSO BMP Order, Item 5.b also required DEP to quarterly "submit for DEC approval an engineering analysis of the cause(s) for each discharge and an analysis of options to reduce or eliminate similar future events." DEP is to provide subsequent updates of the engineering analyses in the CSO BMP Annual Reports, and this section fulfills that requirement.

DEP's SPDES permits define a critical wet weather event as "*a wet weather event which causes or would cause the influent flow at the WWTP to exceed the wet weather flow identified in the associated SPDES permit*." Generally, the wet weather flow identified in the associated SPDES permit of the WRRF is two times the design dry weather flow (2xDDWF), but it may be less than 2xDDWF under certain operational limitations (e.g., when DEP has reported critical equipment to be out of service and has submitted a reduced capacity notice to DEC). CSO discharges from key regulators that occurred outside of a critical wet weather event were determined based on inference from synoptic data collected from the city telemetry system, meteorological and tidal observations, and plant operational data. Analysis of mitigation strategies to reduce the occurrence of discharges outside the critical wet weather periods is being performed using InfoWorks CS models of the city's collection systems.

This submission evaluates observations from January 2021 through December 2021 of all known or suspected CSO discharges from key regulators outside the period of a critical wet weather event. A discussion of the methodology, calculations and analysis, and potential limitations to mitigation strategies can be found in the quarterly report submittals provided for the first year of analysis.

15.1 ENGINEERING ANALYSIS

The SPDES permit requires DEP to evaluate and report on Key Regulators and stipulates that DEP shall "submit for DEC approval an engineering analysis of the cause(s) for each discharge and an analysis of options to reduce or eliminate similar future events." It should be noted that DEP implemented an extensive Regulator Improvement Program in the 1990s, through which low-cost upgrades were made to dozens of regulators.

As discussed in previous report submittals, several strategies were identified that may alter the timing of regulator discharges so that such discharges occur less frequently. We considered the following strategies to have the greatest potential for success:

- Capital Improvements Already in Development. Capital projects in various stages of planning and development are expected to alter the timing of CSO discharges. These include not only projects directly at the regulator, but also other projects that may influence regulator performance, such as new force mains, the operation of a regional CSO facility, or downstream conveyance enhancements.
- Removal of Existing Elbow in Drop Pipe. In certain locations, vertical pipes convey flow from the regulator to the interceptor. As a result of the historical practice of installing elbows as a means of energy dissipation, vertical pipes are known to have chronic clogging that could contribute to early tipping.
- Enhanced Operations & Maintenance. Regulators can be influenced by the performance of the downstream interceptor, which may be influenced by, among other things, sedimentation or wet well operation at the WRRF.
- Flow Transference. The City sewers are divided into several mostly independent service areas. This division suggests there may be potential for diverting flow from an area of limited wet weather capacity to a nearby area with excess wet weather capacity.
- Continued Monitoring. Monitoring over a longer period is prescribed where regulator performance is not yet clearly understood, or where a regulator yields a small number of events compared to other Key Regulators. Limited sample sizes

increase the risk of misinterpretation of data, and resultant ineffective mitigation strategy or inappropriate action taken at a regulator that is not actually significantly discharging early. A larger data set will allow for more accurate interpretation and better decision-making on future capital commitments.

- Citywide/Open Waters LTCP. As part of the Open Waters/Citywide LTCP all category A and B regulators discharging into the open waters were evaluated to assess alternatives to reduce hours of CSO discharges outside of the critical period. These alternatives included raising and lengthening of weir structures, opening of orifices, enlargement of branch interceptors, and in some locations expanding pump station capacities.

15.2 RESULTS

Potential mitigation strategies were not analyzed for those Key Regulators that are expected to be hydraulically influenced by capital projects already developed to reduce CSO discharges and increase flow to the WRRF, as required by enforceable milestones under the CSO Order. Examples of potential, cost-effective mitigation strategies that were evaluated include weir modifications, flow transference, enhanced operation and maintenance, and resizing branch interceptors. After consideration of the cause(s) of their discharging outside of a critical wet weather event and any possible system limitations and approaches that might be expected to reduce the occurrence of such discharges, no reasonable options that could be completed within two years were evaluated. The results of the open waters regulator evaluations were included in the Citywide / Open Waters LTCP that was submitted on October 1, 2020. See Appendix 12.2 for a summary of the status of all telemetered regulators. The Citywide CSO LTCP proposed the following projects to further reduce CSO discharges and convey additional wet weather flow to the WRRFs:

- Gravity flow diversion structure at Hannah Street Pump Station (PR WRRF)
- Automated gate for Regulator OH-9C, CSO Outfall OH-015 (OH WRRF)
- Bending weir and regulator modifications at CSO Outfalls TI-003 and TI-023 (TI WRRF)
- Optimization of regulators at CSO Outfalls RH-005 and RH-014 (RH WRRF)
- Optimization of regulators at CSO Outfalls NR-038, NR-040, and NR-046 (NR WRRF)

Table 15.1 summarizes the observations of Key Regulators during the period of analysis, which includes data from January 2021 through December 2021. Of the locations where no capital improvements are currently planned, five (5) regulators had no occurrences and ten (10) locations had an average of one or fewer occurrences per month.

Table 15.1 Key Regulators with Potential CSO Discharges outside the Period of a Critical Wet Weather Event, January through December 2021

Key Regulator	2021 Number of Occurrences													Total Duration (hours)	Analysis Category
	J	F	M	A	M	J	J		S	O	N	D	Total		
26W-01	0	0	0	0	0	0	1	0	1	0	0	1	3	3.25	A
26W-02	1	0	1	0	1	1	1	0	0	0	0	0	5	7.50	A
BBH-02	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	B
BBH-06	0	0	0	0	2	3	3	3	1	1	0	0	13	5.50	C
BBL-04	1	2	2	3	0	3	8	4	1	0	2	1	27	11.75	C
BBL-22	0	0	0	0	0	0	2	1	0	1	0	0	4	1.25	B
HP-05	1	0	1	1	2	0	4	4	0	2	0	0	15	29.25	A
HP-10	0	0	0	0	0	1	2	1	0	0	0	0	4	2.50	B
HP-13	2	3	5	4	5	2	5	5	*	4	1	0	36	93.25	A
JA-03	1	0	1	0	0	2	2	2	1	1	0	0	10	6.50	B
NCB-01	1	1	1	0	2	3	6	4	1	1	0	1	21	13.50	C
NCB-04	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
NCM-47	1	1	0	0	1	2	1	2	1	1	0	0	10	8.50	C
NR-16	1	1	0	0	1	1	3	0	0	2	0	0	9	13.25	B
NR-23	1	0	0	0	0	2	1	0	0	0	0	0	4	4.25	B
NR-33	0	0	0	0	0	0	1	0	0	1	0	0	2	2.00	B
OH-01	0	0	0	0	0	0	0	0	1	0	0	0	1	1.25	B
OH-06	0	0	0	0	0	1	0	0	0	0	0	0	1	1.00	B
PR-06W	0	2	1	1	2	3	5	2	1	3	0	0	20	26.50	C

PR-13E	1	3	3	3	3	4	3	3	*	4	1	1	29	85.50	C
RH-02	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	B
RH-20	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	B
TI-09	2	3	3	2	4	2	7	3	1	0	0	1	28	61.25	C
TI-10A	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	B
WIB-53	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	B
WIB-67	0	1	1	1	2	1	1	0	0	1	0	0	8	14.75	B
WIM-23	0	0	0	0	0	1	1	2	1	0	0	0	5	1.75	B
Count**	11	9	10	7	11	16	19	13	10	12	3	5	21		

*Count of regulators with at least one event

Analysis Categories

Category A: Key Regulators that may be influenced by planned capital improvements (Projects are currently in design or construction that may result in CSO reductions and additional wet weather capture);

Category B: Key Regulators averaging one or fewer potential discharge outside the period of a critical wet weather event per month

Category C: All other Key Regulators with an average of more than one potential discharge outside the period of a critical wet weather event per month.

Key Regulators that may be influenced by planned capital improvements (projects currently in design or construction that may result in CSO reductions and additional wet weather capture)

26W-01

Regulator 26W-01 had three (3) potential discharges outside the period of a critical wet weather event; the total duration of these periods was 3.25 hours. Note, 26th Ward WRRF operated at a reduced interim wet weather capacity for most of 2021. In addition, there are several planned capital improvements scheduled at the 26th Ward WRRF proceeding pursuant to the CSO Order that may influence the performance of regulator 26W-01:

Installation of a new primary settling tank under Contract 26W-20 was completed at the end of 2021. DEP will commence a 12-month monitoring period and will provide details in the CSO BMP Annual Report following that 12-month monitoring period.

26W-02

Regulator 26W-02 had five (5) potential discharges outside the period of a critical wet weather event; the total duration of these periods was 7.50 hours. Note, 26th Ward WRRF operated at a reduced interim wet weather capacity for most of 2021 due to ongoing construction. Pursuant to the CSO Order, there was a high-level storm sewer project completed in late CY2021 that, in conjunction with the recently completed construction of a fifth primary settling tank, will help reduce CSO discharges into Fresh Creek. DEP will commence a 12-month monitoring period and will provide details in the applicable CSO BMP Annual Report following that 12-month monitoring period.

HP-05

Regulator HP-05 had fifteen (15) potential discharges outside the period of a critical wet weather event; the total duration of these periods was 29.25 hours. Regulator HP-05 had a planned capital improvement, the installation of the Pugsley Parallel Interceptor upstream of this regulator under Contract CS-ER-WCP, which was completed in February 2020. There is also additional work planned at regulator HP-09 and at regulator HP-05 under the approved Bronx River LTCP that will impact performance; the current construction completion milestone is September 2026. Once the new facilities are in service, DEP will commence a 12-month monitoring period, and provide an engineering analysis in the applicable CSO BMP Annual Report following that 12-month monitoring period.

Key Regulators Averaging One Discharge or Fewer per Month

BBH-02

Regulator BBH-02 did not have any potential discharges outside the period of a critical wet weather event. However, DEP will continue to monitor it and report in accordance with DEP's SPDES permits. Regulator BBH-02 had previously been in Category A prior to 2019, as a regulator potentially influenced by planned capital improvements that included work at regulator BBH-02 to raise the weir.

BBL-22

Regulator BBL-22 had four (4) potential discharges outside the period of a critical wet weather event; the total duration of these periods 1.25 hours. Regulator BBL-22 had previously been in Category A prior to 2019, as a regulator potentially influenced by planned capital improvements. Regulator BBL-22 was further evaluated as part of the Citywide / Open Waters LTCP but no viable alternative was identified.

HP-10

Regulator HP-10 had four (4) potential discharges outside the period of a critical wet weather event; the total duration of these periods was 2.50 hours. The evaluation for Regulator HP-10 was previously submitted to DEC in the Quarterly Key Regulator Monitoring Reports; it was identified as requiring further consideration as part of the LTCP process. Regulator HP-13 was further evaluated as part of the Citywide / Open Waters LTCP, but no viable alternative was identified.

HP-13

Regulator HP-13 had thirty-six (36) potential discharges outside the period of a critical wet weather event; the total duration of these periods was 93.25 hours. A review of the inclinometer data has been used to confirm the accuracy of the reported number of discharges. The Bronx River LTCP recommended regulator modifications and a parallel sewer at this regulator that is currently anticipated to be completed in 2026.

JA-03

Regulator JA-03 had ten (10) potential discharges outside the period of a critical wet weather event. The total duration of these periods was 6.50 hours. Regulator JA-03 had previously been in Category A prior to 2021, as a regulator potentially influenced by planned capital improvements. Bending weirs were installed at Regulators JA-03 & JA-14 along with a parallel interceptor to convey additional flow to the plant. As of June 2020, a new lateral Bergen Basin sewer was constructed enabling the sluice gate at Regulator JA-14 to be fully opened to maximize wet weather flow to the Jamaica WRRF. DEP commenced a 12-month monitoring period and found it to average one discharge or fewer per month.

NR-16

Regulator NR-16 had nine (9) potential discharges outside the period of a critical wet weather event; the total duration of these periods was 13.25 hours. Regulator NR-16 was further evaluated as part of the Citywide/Open Waters LTCP, but no viable alternative was identified.

NR-23

Regulator NR-23 had four (4) potential discharges outside the period of a critical wet weather event; the total duration of these events was 4.25 hours. Regulator NR-23 was further evaluated as part of the Citywide/Open Waters LTCP, but no viable alternative was identified.

NR-33

Regulator NR-33 had two (2) potential discharges outside the period of a critical wet weather event; the total duration of these events was 2.00 hours. However, DEP will continue to monitor it and report in accordance with DEP's SPDES permits.

OH-01

Regulator OH-01 had one (1) potential discharge outside the period of a critical wet weather event; the total duration of this period was 1.25 hours. The evaluation for Regulator OH-01 was previously submitted to DEC in the Quarterly Key Regulator Monitoring Reports and was further evaluated as part of the Citywide/Open Waters LTCP, but no viable alternative was identified.

OH-06

Regulator OH-06 had one (1) potential discharge outside the period of a critical wet weather event; the total duration of this period was 1.00 hour. The evaluation for Regulator OH-06 was previously submitted to DEC in the Quarterly Key Regulator

Monitoring Reports. Regulator OH-06 was further evaluated as part of the Citywide/Open Waters LTCP.

RH-02

Regulator RH-02 did not have any potential discharges outside the period of a critical wet weather event. However, DEP will continue to monitor it and report in accordance with DEP's SPDES permits.

RH-20

Regulator RH-20 did not have any potential discharges outside the period of a critical wet weather event. However, DEP will continue to monitor it and report in accordance with DEP's SPDES permits.

TI-10A

Regulator TI-10A did not have any potential discharges outside the period of a critical wet weather event. However, DEP will continue to monitor it and report in accordance with DEP's SPDES permits.

WIB-53

Regulator WIB-53 did not have any potential discharges outside the period of a critical wet weather event. WIB-53 had previously been in Category A prior to 2020, as a regulator potentially influenced by planned capital improvements. WIB-53 is about 1,000 feet from the Bronx Grit Chamber, where all four bar screens have been replaced. In addition, the main sewage pumps at the Wards Island WRRF were replaced with construction completion certified in August 2019. The bar screen replacement work was completed in January 2017.

WIB-67

Regulator WIB-67 had eight (8) potential discharges outside the period of a critical wet weather event; the total duration of these periods was 14.75 hours. WIB-67 had previously been in Category A prior to 2020, as a regulator potentially influenced by planned capital improvements. WIB-67 was influenced by the Bronx Grit Chamber and by the main sewage pump work at the Wards Island WRRF. Regulator WIB-67 was further evaluated as part of the Citywide/Open Waters LTCP, and there is a proposal to daylight Tibbett's Brook that will take a significant portion of wet weather flow that is currently being discharged into the combined sewers and divert it directly to the Harlem

River. This effort will result in considerably less wet weather flow going to regulator WIB-67.

WIM-23

Regulator WIM-23 had five (5) potential discharges outside the period of a critical wet weather event; the total duration of these periods was 1.75 hours. WIM-23 had previously been in Category A prior to 2020, as a regulator potentially influenced by planned capital improvements. Regulator WIM-23 was influenced by the Manhattan Grit Chamber and by the main sewage pump work at the Wards Island WRRF. Regulator WIM-23 was further evaluated as part of the Citywide/Open Waters LTCP, but no viable alternative was identified.

15.2.1 Key Regulators Averaging More than One Discharge per Month

BBH-06

Regulator BBH-06 had thirteen (13) potential discharges outside the period of a critical wet weather event; the total duration of these periods was 5.50 hours. Regulator BBH-06 had previously been in Category A prior to 2019, as a regulator potentially influenced by planned capital improvements. The Flushing Bay LTCP recommended construction of a CSO Storage Tunnel that would capture overflow from this regulator.

BBL-04

Regulator BBL-04 had twenty-seven (27) potential discharges outside the period of a critical wet weather event; the total duration of these periods was 11.75 hours. Regulator BBL-04 had previously been in Category A prior to 2019, regulators potentially influenced by planned capital improvements. The Newtown Creek LTCP recommended diversion of wet weather flow to the Borden Avenue Pump station and increasing capacity of this pump station.

Regulator HP-13 had hours. A review of the inclinometer data has been used to confirm the accuracy of the reported number of discharges. The Bronx River LTCP recommended regulator modifications and a parallel sewer at this regulator that is currently anticipated to be completed in 2026.

NCB-01

Regulator NCB-01 had twenty-one (21) potential discharges outside the period of a critical wet weather event; the total duration of these periods was 13.50 hours. The Newtown Creek LTCP recommended a CSO Storage Tunnel that would capture overflow from this regulator.

NCB-04

Regulator NCB-04 had a sensor malfunction, resulting in no reportable data available to be assessed during the CY2021 monitoring period. Regulator NCB-04 was further evaluated as part of the Citywide/Open Waters LTCP, but no viable alternative was identified.

NCM-47

Regulator NCM-47 had fourteen (14) potential discharges outside the period of a critical wet weather event; the total duration of these was 8.50 hours. Regulator NCM-47 was further evaluated as part of the Citywide/Open Waters LTCP.

PR-06W

Regulator PR-06W had twenty (20) potential discharges outside the period of a critical wet weather event; the total duration of these periods was 26.50 hours. The evaluation for Regulator PR-06W was previously submitted to DEC in the Quarterly Key Regulator Monitoring Reports; it was further evaluated as part of the Citywide/Open Waters LTCP, but no viable alternative was identified.

PR-13E

Regulator PR-13E had twenty-nine (29) potential discharges outside the period of a critical wet weather event; the total duration of these periods was 85.50 hours. The evaluation for Regulator PR-13E was previously submitted to DEC in the Quarterly Key Regulator Monitoring Reports; it was further evaluated as part of the Citywide/Open Waters LTCP, but no viable alternative was identified.

TI-09

Regulator TI-09 had twenty-eight (28) potential discharges outside the period of a critical wet weather event; the total duration of these periods was 61.25 hours. The Flushing Creek LTCP recommended floatables control and disinfection at this regulator.

15.2.2 Non-Key Regulators with CSO Monitoring Equipment Identification Program Reporting

In February 2016, in accordance with Item 5.c. in Appendix B of Additional CSO BMP Special Conditions in the SPDES Permits, DEP submitted the report on Regulator(s) with CSO Monitoring Equipment Identification Program. Item 5.c. required DEP to commence a 12-month data gathering period and to submit a report of all known or suspected CSO discharges outside the period of a critical wet weather event from all regulators with CSO monitoring equipment. The report presented findings from the 12-month data gathering period of August 2014 through July 2015. Several regulators were reported to be in Category A at that time, which had current or future capital improvements that would potentially render the data collected unrepresentative of future conditions. As stated in the report submittal, once the new facilities were in service, DEP would commence a 12-month monitoring period, and provide an engineering analysis in the applicable CSO BMP Annual Report following that 12-month monitoring period. Below are the results of the non-key regulators in which the capital improvement work has been completed and 12 months of monitoring data under normal operations are available. The 12-month period is January 2021 – December 2021, see Appendix 11.1 for the CY2021 Non-Key Regulator Monitoring Reports.

HP-04

Regulator HP-04 had twenty (20) potential discharges outside the period of a critical wet weather event; the total duration of these periods was 33.25 hours. Regulator HP-04 was further evaluated as part of the Citywide/Open Waters LTCP.

JA-14

Regulator JA-14 had no potential discharges outside the period of a critical wet weather event. Bending weirs were installed at Regulators JA-03 & JA-14 along with a parallel interceptor to convey additional flow to the plant. As of June 2020, a new lateral Bergen Basin sewer was constructed enabling the sluice gate at Regulator JA-14 to be fully opened to maximize wet weather flow to the Jamaica WRRF. DEP commenced a 12-month monitoring period and found it to average one discharge or fewer per month.

WIM-02B

Regulator WIM-02B had a sensor malfunction resulting in no reportable data available to be assessed during the CY2021 monitoring period. Regulator WIM-02B was further evaluated as part of the Citywide/Open Waters LTCP.

WIM-07

Regulator WIM-07 had a sensor malfunction resulting in no reportable data available to be assessed during the CY2021 monitoring period. Regulator WIM-07 was further evaluated as part of the Citywide/Open Waters LTCP.

WIM-24

Regulator WIM-24 had no potential discharges outside the period of a critical wet weather event. Regulator WIM-24 was further evaluated as part of the Citywide/Open Waters LTCP.

WIM-38

Regulator WIM-38 had three (3) potential discharges outside the period of a critical wet weather event; the total duration of these periods was 0* hours, which indicates that the potential CSO discharge duration was each less than the 15-minute reportable interval. Regulator WIM-38 was further evaluated as part of the Citywide/Open Waters LTCP.

WIM-45

Regulator WIM-45 had a sensor malfunction resulting in no reportable data available to be assessed during the CY2021 monitoring period. Regulator WIM-45 was further evaluated as part of the Citywide/Open Waters LTCP.

WIM-46

Regulator WIM-46 had one (1) potential discharge outside the period of a critical wet weather event; the total duration of this period was 0* hours, which indicates that the potential CSO discharge duration was less than the 15-minute reportable interval. Regulator WIM-46 was further evaluated as part of the Citywide/Open Waters LTCP.

WIM-51

Regulator WIM-51 had three (3) potential discharges outside the period of a critical wet weather event; the total duration of these periods was 2.25 hours. Regulator WIM-51 was further evaluated as part of the Citywide/Open Waters LTCP.

WIM-52

Regulator WIM-52 had twenty-five (25) potential discharges outside the period of a critical wet weather event; the total duration of these periods was 6.75 hours. Regulator WIM-52 was further evaluated as part of the Citywide/Open Waters LTCP.

WIB-58

Regulator WIB-58 had twenty-five (25) potential discharges outside the period of a critical wet weather event; the total duration of these periods was 16.50 hours. Regulator WIB-58 was further evaluated as part of the Citywide/Open Waters LTCP.

WIB-60

Regulator WIB-60 had two (2) potential discharges outside the period of a critical wet weather event; the total duration of these periods was 3.25 hours. Regulator WIB-60 was further evaluated as part of the Citywide/Open Waters LTCP.

WIB-62

Regulator WIB-62 had thirty-three (33) potential discharges outside the period of a critical wet weather event; the total duration of these periods was 46.50 hours. Regulator WIB-62 was further evaluated as part of the Citywide/Open Waters LTCP.

WIB-68

Regulator WIB-68 had eleven (11) potential discharges outside the period of a critical wet weather event; the total duration of these periods was 1.00 hour. Regulator WIB-68 was further evaluated as part of the Citywide/Open Waters LTCP.

16 SUSTAINABILITY AND POLLUTION PREVENTION ACTIVITIES

16.1 WATER CONSERVATION

DEP values the role of water conservation and demand management in the responsible long-term management of New York City's water supply. As a result, actual water demand is down more than 30% since the 1990s, despite increasing population. However, DEP must consider the increasing uncertainty of climate change — predictions of warmer temperatures and greater precipitation variability — in its management of the City's water supply and the demand for this resource. Further, the leaking of the Delaware Aqueduct and its planned shutdown and repair in 2022 as part of DEP's Water for the Future Program is a near-term certain event that provides an imperative not only to proactively manage, but also to explicitly reduce, existing water demand to ensure adequate water supply through this period.

16.1.1 Program Description

DEP's water conservation efforts aim to reduce water use in New York City and upstate communities by 20 million gallons per day (MGD). This goal is detailed in the 2018 Water Demand Management Plan, accessible here

https://www1.nyc.gov/assets/dep/downloads/pdf/water/drinking-water/2018-water-demand-management-plan.pdf.The plan sets forth six major strategies DEP continues to implement to reduce water use. Below are the plan's six strategies:

- Municipal Water Efficiency Program: Involves retrofits of city-owned properties.
- Residential Water Efficiency Program: Focuses primarily on the Toilet Replacement Program for multi-family buildings.
- Non-Residential Water Efficiency Program: Collaboration with private sector organizations including restaurants, hotels, hospitals, and universities.
- Water Distribution System Optimization: Entails system repairs and upgrades, managing water pressure, and refining water meter accuracy and leak detection.
- Water Supply Shortage Management: Encompasses the review and revision of plans to prepare for a drought and other water shortages.
- Wholesale Customers Water Demand Management Program: Targets demand management planning and implementation for wholesale customers north of the City.

The following is a summary of DEP's 2021 progress in implementing the above-listed strategies.

16.1.2 Municipal Water Efficiency Program

DEP has established partnerships and completed several projects with key municipal agencies and entities to support water efficiency measures in their facilities. Partners include DOE, Parks, the New York City Fire Department (FDNY), the City University of New York (CUNY), New York City Health and Hospitals Corporation (HHC), DCAS, and New York City Department of Cultural Affairs - Cultural Institutions Group (CIG).

Through its ongoing partnership with DOE, DEP has funded to date the replacement of more than 35,600 toilets and urinals with high-efficiency models in 421 school facilities across all five boroughs. In 2021, DEP retrofitted a total of 19 schools that included 767 toilets and 243 urinals. In total, DOE retrofits are expected to save 4.71 MGD.

In 2021, DEP continued partnering with Parks on two projects. In Central Park, DEP is partnering with Central Park Conservancy (CPC) and Parks on the North End Recirculation Project which will connect the Park's northern waterbodies, including the Harlem Meer, to recirculate stormwater. The project is currently in design and will allow for use of recirculated water rather than potable water with anticipated savings of 0.83 MGD. In addition to the potable water reduction, other benefits include a CSO reduction of up to 4 million gallons per year in the East River, and improved water quality in the Park's northern waterbodies.

In Prospect Park, DEP is partnering with Prospect Park Alliance (PPA) and Parks to replace a valve on the make-up water line for the Park's lake system. This project is anticipated to result in a savings of 0.80 MGD. The project has successfully executed a Memorandum of Understanding (MOU) and funding transfer from DEP to Parks, and design has commenced. As an integrated, One Water project, this valve replacement is expected to reduce CSOs during rain events to Gravesend Bay and the Upper Bay by up to 12 million gallons per year.

In March 2020, DEP and HHC executed a Memorandum of Understanding to implement water efficiency fixture upgrades at Jacobi Hospital, Woodhull Hospital, Elmhurst Hospital, Bellevue Hospital, and North Central Bronx Hospital. HHC's contractor began surveying these facilities in early 2020 to identify the precise count and type of fixtures that are eligible for replacement or upgrade. The surveys were paused in spring 2020 and the project overall remains on hold due to the COVID-19 pandemic. However, DEP and HHC resumed their partnership in 2021 and are currently moving forward with surveys to identify opportunities for fixture retrofits.

CUNY is part of New York State's public university system and is comprised of 25 colleges across the five boroughs, making it the largest urban public university in the

United States. In 2021, DEP and CUNY extended their partnership and executed an Interagency Agreement to replace inefficient fixtures at Queens College. In total, DEP and CUNY anticipate replacing over 600 fixtures across four campus buildings at Queens College, for an anticipated savings of 0.03 MGD. Because of delays caused by the COVID-19 pandemic, DEP and CUNY anticipate beginning these upgrades in 2022.

16.1.3 Residential Water Efficiency Program

In 2019, DEP concluded the Toilet Replacement Program, after five years of successful implementation. The program provided eligible residential building owners with $125 vouchers to replace old, inefficient toilets with high-efficiency, WaterSense-certified models. DEP managed contracts with four toilet wholesale vendors to accept the vouchers and provide the toilets to consumers through the program's online application tool. Through the program, approximately 13,300 toilets were retrofitted citywide, for a savings of 0.63 MGD.

In addition to the Toilet Replacement Program, DEP directed its contractor, Honeywell, to provide building owners with complimentary household water conservation surveys. The surveys assist building owners in identifying opportunities for water savings and leak detection. In 2020, Honeywell surveyed 1,533 individual apartment units before surveys were suspended due to the pandemic. Since the program started, home surveys have saved an estimated 0.4 MGD.

16.1.4 Non-Residential Water Efficiency Program

DEP successfully completed Water Challenges in four different commercial sectors: hotels, restaurants, hospitals, and universities. Modeled after the Mayor's Carbon Challenge, the program encourages participants to reduce their annual water consumption by an average of 5% from their baseline year (measured as the 12-month period prior to the beginning of the Challenge). DEP prepares monthly reports to help participants track their consumption and their performance against the other participants. DEP also hosts quarterly workshops to help participants learn how to make their facilities more water efficient.

DEP's fifth Water Challenge began in January 2020 and was completed in January 2021. This Water Challenge was the first time all 14 WRRFs were encouraged to reduce their daily water consumption by 10 percent over the course of a year. Of the 14 WRRFs, eight were able to reduce water consumption by at least 10%. The fifth Water Challenge resulted in a total savings of approximately 0.9 MGD.

To determine how effective the Water Challenge was at achieving sustained savings, WRRF consumption was monitored beyond the life of the challenge, providing an opportunity to see the impact that water conservation measures implemented through the Water Challenge had on long-term consumption trends at WRRFs. To accomplish this, consumption data was pulled from January 2021, the end of the Water Challenge, to December 2021 and compared to consumption seen over the course of the Water Challenge. These data showed a percent decrease of 10% in total consumption at WRRFs between 2020 and 2021, indicating a continued overall decrease in consumption across the board.

DEP's Water Conservation and Reuse Grant Pilot Program provides commercial, industrial, and multi-family residential property owners with incentives to install fixture retrofits and other water efficiency technologies, such as on-site water reuse systems, totaling $50,000 or more on a single private property. In 2020, DEP received over 20 applications. Of the projects that were offered grant funding, one applicant has accepted and is currently in the process of confirming its funding and legal agreements. The project includes a 400,000 gallon per day water reuse system that contributes not only water conservation benefits, but also CSO reductions. DEP is accepting new applications to the Grant Program through June 1, 2022, and anticipates announcing additional application rounds in the future.

Recognizing that water reuse systems reduce the amount of wastewater discharged to the sewer, New York City was an early leader in water reuse implementation, policies, and incentives. DEP has established a powerful business case for reuse by showing that it can help achieve potable water savings, reduce CSOs, save property owners money, and create green jobs. As such, DEP is also working to optimize the return on investment for property owners through rate discounts. In addition to the Water Conservation and Reuse Grant program, the City recently updated water rates to offer an additional 76 percent wastewater bill discount for systems that significantly reduce wastewater flows, in addition to the existing 25 percent water bill reduction for properties that reduce at least 25 percent of their water use through reuse. Eligibility criteria for these discounts were also updated to apply to district-scale systems.

DEP has also coordinated closely with DOB and DOHMH to provide more clarity on plumbing code requirements and allowable end uses for reuse. Reuse was officially incorporated into the Plumbing Code in 2014, and DEP has worked closely with DOHMH to develop new standards for Onsite Non-potable Water Systems. In 2019, New York City Council unanimously voted to bring the New York City Plumbing Code up to date, which will go into effect in late 2022. These policies have played a critical role in advancing water reuse in New York City.

16.1.5 Water Distribution System Optimization

Water distribution system optimization includes system repairs and upgrades, water pressure management, refining water meter accuracy, and leak detection. DEP has a large service area with approximately 7,000 miles of pipes that distribute water to end users. As water travels through these underground pipes, undetected leaks can occur; therefore, constant maintenance, leak detection and metering optimization are key to efficient management of New York City's water supply. DEP's goal is to increase leak survey efforts by modernizing the leak detection program to detect, locate, and stop water leakage by leveraging best-in-class technology to pinpoint hard-to-find and unreported leaks. Additionally, DEP's goal is to increase the number of miles surveyed by increasing staffing to reinstitute multiple, proactive surveys of high-risk mains.

New York City has more than 109,500 hydrants located throughout the five boroughs. These critical fire suppression assets can discharge up to 1,000 gallons per minute. When New Yorkers open hydrants in the summer to cool off and fail to use an approved spray cap, local water pressure can be negatively impacted. Therefore, DEP sponsors the Hydrant Education Action Team (HEAT) to educate New Yorkers about the risks of illegally opening hydrants.

DEP ensures proper maintenance by performing assessments, testing pressure and repairing hydrants when necessary. In 2021, DEP repaired 7,301 hydrants, replaced 1,047, and provided other maintenance services to 10,985 additional hydrants.

DEP continually works to improve maintenance of the pressure zones within the city's water distribution system. In 2021, the number of breaks per 100 miles was 6.23, below the City's 10-year average of 6.8, and below the accepted industry average of 25 breaks per 100 miles annually. In 2021, DEP completed 4,970 preventative maintenance inspections/calibrations on pressure regulating valves. DEP also overhauled 2 of the 437 pressure regulating valves that are in use citywide.

DEP's efforts to achieve universal metering of all DEP water and sewer accounts is motivated by the need to reduce non-revenue water use and to promote conservation among water users by providing accurate consumption information. The universal metering initiative is also critical to DEP's measuring the success of many other demand management strategies. Accurate consumption data enable DEP to determine whether target consumer groups have achieved projected consumption reductions or how demand management strategies may be adapted to improve their effectiveness. In 2021, DEP replaced 3,815 large meters (i.e., those over 2 inches in diameter).

DEP's Bureau of Customer Services (BCS) provides customers with online access to their water consumption data, allowing customers to view their consumption and identify leaks and other inefficiencies. By becoming familiar with their consumption trends, customers can correct identified leaks in their own homes to save money and water. To date, more than 370,000 customers have signed up for "My DEP" to view their bills, water usage and payment history online, more than 114,000 customers have signed up for automatic billing (eBills) and 692,000 customers have signed up for leak alerts, which sends an alert when consumption triples for five consecutive days. DEP continues to promote "My DEP" and leak detection alert enrollment as an ongoing initiative.

16.1.6 Water Supply Shortage Management

DEP is in the process of amending the “Drought Emergency Rules” (15 RCNY Chapter 21). The rulemaking process in New York City, called City Administrative Procedure Act (CAPA), is proceeding and a public hearing was held in February 2022. The proposed, revised title is “Water Shortage Rules,” replacing the narrower focus of the previous title. The proposed revisions address water shortage emergencies due to circumstances other than natural conditions, such as planned and unplanned infrastructure outages and repairs that the City may face over the next several years. The proposed revisions also add, remove, and change certain water-use prohibitions during the different stages of water shortage emergencies to better reflect DEP’s understanding of City water use. DEP anticipates formal adoption of the revised rules prior to the 2022 shutdown.

16.1.7 Upstate Wholesale Customers Demand Management Program

In 2014, DEP launched the Wholesale Customer Demand Management Program to extend demand reduction strategies to its wholesale customers (Utility Partners). The goal of this program is to have Utility Partners implement demand management projects to reduce demand, by October 2022, by 5 percent from their 2013 baseline demand. To achieve this, DEP partnered with some of its largest utility partners to develop custom Water Demand Management Plans (WDMP) tailored to each Utility Partner’s water system. These Utility Partners include the Town of Greenburgh, the Village of Ossining, the Village of Scarsdale, the Village of Tarrytown, Westchester Joint Water Works (WJWW), the City of White Plains and the City of Yonkers.

Because of the COVID-19 pandemic, anticipated funding for this program was reallocated to help offset fiscal impacts brought on by the pandemic. Utility Partners were encouraged to continue utilizing tools that were introduced and discussed during prior collaborations, including continuing to improve their efforts to address non-revenue water. DEP’s outreach and engagement, coupled with the determination and initiative of the Utility Partners, has resulted in considerable demand savings, despite the pandemic-related impacts. In total, the three-year sustained water demand savings achieved by these 7 Utility Partners is 5.71 MGD.

16.1.8 Drinking Water Supply and Quality Statement

In 2021, DEP continued efforts to notify the public of the availability of the 2020 Drinking Water Supply and Quality Statement. The agency sent bill inserts to 700,000 bill-paying customers notifying them of the report’s availability on the DEP website; another 105,000 customers were notified electronically, and 32,000 customers were sent postcards. Additionally, outreach to all customers included:

- Prominently displaying information about the Report on the DEP homepage beginning on March 1, 2021. The TV spot (discussed in more detail below) was featured on the home page carousel beginning March 1, 2021.
- Highlighting and mentioning the Report in the March 9, 2021 issue of Pipeline. Pipeline is the DEP newsletter which is distributed weekly to all 6,000 DEP employees and 2,000+ members of media, public, and public officials.
- Posting about the publication of the Report on Twitter and Facebook seven (7) times on each platform between April and June 2021. DEP currently has about 20,500 Twitter followers, and 12,800 “NYC Water” Facebook followers.
- Promoting the publication of the Report in a Facebook ad campaign that ran from April 1 to April 30, 2021, and had over 419,000 impressions.
- Running an advertising campaign on various platforms across New York City, including:
    - On 114 bus shelters from April 1-30, 2021.
    - Displayed on the NYC Ferry system from April 1-30, 2021.
    - Posted on NYC Sanitation trucks for a total of 5,000 frames, between May 1-31, 2021.
    - Through LinkNYC, a communications network replacing New York City pay phones with state-of-the-art kiosks, an image of the campaign was posted at 1,837 screens between April 1-May 31, 2021. The advertisement had over 1.3 million impressions (an impression is a countable unit of measure of how many times the advertisement ran).
    - A public service announcement (PSA), recorded by DEP Commissioner Sapienza, ran on the NYC Life television channel from April 1 - August 31, 2021, and aired on Taxi TV from April 5 - August 31, 2021, with about 750,000 impressions.
    - The audio from the PSA ran on radio station WNYE 91.5 FM and on 311 from April 1- August 31, 2021.
- Contacting large housing complexes across New York City by phone and email to ask that they spread the word about the Report. The total populations reached in private large housing complexes is over 226,000 tenants; additionally, NYCHA distribution reached 600,000 residents.
- Regular outreach to New York City’s libraries; at community and civic association meetings, outreach events (including trade shows, Greenmarkets, health fairs and street fairs), town halls, project tours, and tabling events; and at DEP speaking engagements throughout the five boroughs and the entire watershed have been somewhat hampered by the COVID19 pandemic. 2,200 copies of the 2020 Report were distributed; and copies of the Report are mailed out to the public upon request.

16.1.9 Rain Barrel Program

Because of the COVID-19 pandemic, DEP did not host any barrel giveaways in 2021. The rain barrel program will resume when city, state, and federal health and safety regulations allow.

16.2 GREASE OUTREACH

16.2.1 Development of an Expanded Grease Interceptor Program

DEP continues to develop the Expanded Grease Trap Program. The following summarizes activities during calendar year 2021:

- 181 Initial inspections performed;
- 361 Follow-ups/maintenance inspections performed;
- 459 Commissioner's Orders issued;
- 80 Summonses issued;
- 544 New grease interceptor installations required.

The Bureau of Public Affairs & Communication's Environmental Compliance Outreach (ECO) Unit completed the following activities in 2021 relating to grease compliance and BMPs for the handling and disposal of grease and oils:

- Conducted 2 workshops for property owners and/or tenants

- Handled general inquiries from businesses (such as how to obtain a licensed, used cooking oil hauler by way of the NYC Business Integrity Commission).

Grease outreach has transitioned to the "Trash It, Don't Flush It" campaign, which has a more encompassing message on trash issues citywide and includes continued outreach to residents and businesses on proper grease disposal.

See below also for specific activities regarding DEP's ongoing SE Queens (Community Boards 12 & 13) and South Brooklyn (community Boards 13 & 15) projects:

DEP continued to distribute "Cease the Grease" posters and flyers (in various languages) and promotional products such as jar openers, sponges, grease recycling bags, and sink strainers, all of which contain proper grease management messaging. ECO also attended 1 community program.

Because of the pandemic, consultative-type visits regarding commercial grease requirements (e.g., grease trap sizing, grease trap configuration, recycling of used cooking oil, etc.) were suspended. DEP continued to distribute information and grease logs to businesses through the established business hotline.

16.2.2 Environmental Compliance Outreach to Business Community

In 2021, DEP's ECO Unit continued, on a limited basis, to administer its core programs on compliance. ECO continued to work with its primary partners including local business groups and trade associations, providing assistance by way of answering inquiries, and ECO participated in a citywide program called Community District Recovery Safety Plan (CDRSP). Starting in May 2021, the Mayor's Office convened weekly meetings with all Business Improvement Districts in all 5 boroughs where leaders in business communities could bring attention to local problems. ECO represented DEP and fielded flooding and back-up issues. After Hurricane Ida, ECO performed business outreach to those 35 businesses damaged by the storm in Long Island City. ECO also continued to do outreach to NYC property owners on DEP's grease requirements.

16.2.3 Southeast Queens Outreach

In 2021, ECO suspended extensive door-to-door residential outreach in Southeast Queens but was able to reach 440 units of housing for outreach.

16.2.4 South Brooklyn Outreach

In 2021, ECO continued outreach, to the extent allowed by the pandemic, to Brooklyn Community Boards 13 & 15. ECO focused on the Coney Island Creek area, performing outreach to 1743 households, including 218 NYCHA residences

16.2.5 Staten Island Outreach

Because of the pandemic no outreach was conducted in Staten Island.

16.3 Stormwater Regulations and Activities

16.3.1 Stormwater Rule (see also Section 13 below)

DEP's stormwater performance standard ("Stormwater Rule") enables the City to manage stormwater runoff more effectively and to maximize the capacity of the City's combined sewer systems to the maximum extent practicable. Promulgated in July 2012, the Stormwater Rule requires any new connections to the City's combined sewer system to comply with stricter stormwater release rates, effectively requiring greater on-site detention. The Stormwater Rule applies to new development and to alterations of existing development in the City's combined sewer area. For a new development, the stormwater release rate (RCNY Title 15, § 31-01(b)) cannot exceed 0.25 cubic feet per second (cfs) or 10% of the drainage plan allowable flow, whichever is greater (allowable flow is defined as the storm flow from developments that can be released into an existing storm or combined sewer based on existing sewer design criteria). If allowable flow is less than 0.25 cfs, the stormwater release rate cannot be greater than that flow. For alterations of existing development, the stormwater release rate for the altered area is directly proportional to the ratio of the altered area to the total site area, and no new points of discharge are permitted (RCNY Title 15, § 31-03(a)(2)).

In conjunction with the implementation of the Stormwater Rule, DEP published a companion document, Guidelines for the Design and Construction of Stormwater Management Systems, to assist NYC's development community and licensed professionals in the selection, planning, design and construction of compliant on-site source controls.

In 2021, DEP developed a package of stormwater regulation revisions, referred to as the Unified Stormwater Rule, to update the 2012 Stormwater Rule requirements and provide alignment between the Stormwater Rule and the City's new Construction and Post-Construction Program (C/PC), which was launched in 2019. The City's C/PC Program complements the NYSDEC General Permit for Stormwater Discharges from Construction Activity (CGP) program in the NYC MS4 area by requiring DEP review and approval of stormwater pollution prevention plans (SWPPPs), and DEP inspection of construction sites both for stormwater impacts and for operation of post-construction stormwater management practices (SMPs). The final Unified Stormwater Rule was published and effective on February 15, 2022.

DEP provides regular updates on the 2012 Stormwater Rule and the recently published Unified Stormwater Rule as part of its Green Infrastructure Annual Reports available on its website here https://www1.nyc.gov/site/dep/water/green-infrastructure.page.

16.3.2 Green Roof Tax Abatement

In 2019, the New York State legislature renewed the Green Roof Property Tax Abatement available to property owners installing green roofs. It reauthorized the reimbursement of $5.23 per square foot of installed green roof and allowed the City to designate up to five community districts that would receive an enhanced abatement of $15 per square foot. The list of priority districts and the final rule were released in January 2021 and can be found on the NYC Mayor's Office of Sustainability website. T

16.3.3 Local Laws 92 and 94 of 2019

As part of the New York City Climate Mobilization Act passed in 2019, New York City Council passed Local Laws 92 and 94, which require new and substantially renovated or enlarged rooftops to incorporate sustainable roofing on all available roof space. Owners can choose to install solar photovoltaics or green roofs to reduce energy costs and the urban heat island effect. The City anticipates that these laws will help buildings manage up to 1 million additional gallons of stormwater per year, and help manage water quality and urban flooding.

16.3.4 Parking Lot Stormwater Pilot Program

First initiated in 2011, DEP's Parking Lot Stormwater Pilot Program generates revenue for operation and maintenance of the City's wastewater system. The program applies a stormwater discharge fee to stand-alone parking lots that contribute runoff to the City's wastewater system but do not receive (or pay for) City water service. Effective July 1, 2021, DEP's stormwater discharge fee is currently $0.0696 per square foot. On July 1, 2021, DEP billed 483 accounts for $304,314.20 for FY 2022. Parking lot owners who implement green infrastructure practices are exempt from the stormwater discharge fee. To date, no parking lot owners have implemented green infrastructure practices to become exempt from the stormwater discharge fee.

16.4 ONENYC INITIATIVES

The Mayor's Offices of Sustainability (MOS) and Resiliency (MOR) lead the City's sustainability planning efforts, leveraging and expanding upon many DEP programs. In 2021, the Mayor's Office issued the OneNYC 2021 Progress Report, detailing progress on 30 strategic initiatives for the City's future to address critical challenges such as climate change and increasing unaffordability. OneNYC pledges to protect and preserve the City from the risks of aging infrastructure and the impacts of climate change. Initiatives include committing to carbon neutrality by 2050, and strengthening communities, buildings, infrastructure, and the waterfront to be more resilient. DEP is implementing these initiatives in conjunction with its goals of reducing greenhouse gas emissions, eliminating solid waste sent to landfills, realizing the best air quality of all large cities in the U.S., mitigating neighborhood flooding, and creating useful, accessible, and beautiful open spaces. The OneNYC 2021 Progress Report included several DEP highlights, many of which are further described in this Report, including expansion of green infrastructure implementation and drainage improvement projects.

16.5 NYC GREEN INFRASTRUCTURE PROGRAM

Released in September 2010, the NYC Green Infrastructure Plan sets forth a comprehensive strategy to use green infrastructure, together with water conservation, and cost-effective grey infrastructure, to improve the quality of the City's waterways. In March 2012, DEC and DEP modified the CSO Order to incorporate green infrastructure into the regulatory framework. The resulting Green Infrastructure Program includes a citywide goal of managing the equivalent of one inch of stormwater runoff from 10% of impervious surfaces or a corresponding estimated volume of 1.67 billion gallons of capture within combined sewer areas by 2030 as approved by DEC in the 2017 Performance Metric Report. The Program primarily implements green infrastructure in three areas – within the City's streets and sidewalks through right-of-way (ROW) retrofits, within parks, schools and housing properties through public on-site retrofits, and on private property through stormwater incentives and regulations. To date, the Program is tracking over 11,000 green infrastructure assets constructed or currently in construction, managing over 1,500 greened acres.1

In 2021, DEP certified 1,181 greened acres and 507 million gallons per year (MGY) CSO volume reduction – meeting the Program's 1.5% green infrastructure application rate milestone. Over 9,100 assets, constructed through over 50 individual construction contracts, went into the certification, demonstrating the tremendous effort that went into meeting the goal. The Program continued design and construction of ROW green infrastructure, initiated construction on over 40 public properties while simultaneously advancing designs for over 200 additional public properties, registered a $53M contract to advance green infrastructure on private property, finalized the draft Unified Stormwater Rule and initiated rulemaking, laid out a plan to accelerate green infrastructure as part of the New Normal Report and more.

In 2022, the Program will advance construction on ROW rain garden and infiltration basin contracts in Jamacia Bay and East River Open Water CSO tributary areas, advance design on area-wide ROW porous pavement in Gravesend Bay CSO tributary areas and initiate design on area-wide ROW porous pavement in the Bronx. The Program will also initiate construction of green infrastructure retrofits at 32 Parks and 1 NYCHA site and continuing advancing design on over 200 additional public properties.

More information on these initiatives and other updates on the Green Infrastructure Program can be found in the Green Infrastructure Annual Reports published on the DEP website every year on April 30 https://www1.nyc.gov/site/dep/water/green-infrastructure.page.

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[1] A greened acre is the equivalent of one inch of stormwater runoff over one impervious acre

16.6 CLIMATE CHANGE RESILIENCY PLANNING

DEP continues to study climate change and to prepare for its impacts by modeling the potential effect of various climate scenarios on the City's water supply system through the Climate Change Integrated Modeling Project; protecting wastewater treatment plants from storm surge as part of the Wastewater Resiliency Program; and reducing urban flooding through cost-effective investments in grey and green infrastructure. Nine projects from DEP's Wastewater Resiliency Plan have been initiated as part of a portfolio of strategies to flood-proof critical equipment at WRRFs. These projects will harden the infrastructure at the Bowery Bay, Hunts Point, Red Hook, Newtown Creek, Owl's Head, Port Richmond, Tallman Island, and Wards Island WRRFs as well as several pumping stations. These investments enhance resiliency against future coastal storms and include a buffer for sea level rise.

Extreme rainfall events are also becoming more frequent and disruptive in New York City, as demonstrated by Tropical Storm Ida in 2021. Climate projections suggest that this trend will continue and that New York City will likely experience increased precipitation in the future. New York City's Stormwater Resiliency Plan and maps were released in May 2021, followed by *The New Normal: Combating Storm-Related Extreme Weather in New York City*. The report prioritized stormwater resilience initiatives, including bringing cloudburst management projects into neighborhoods vulnerable to flooding from heavy rain. This approach is based on the initial success of DEP's "Cloudburst Resiliency Planning Study" in Southeast Queens, which leveraged a partnership with the City of Copenhagen and resulting pilot projects with partners at DOT, DDC, and NYCHA.

These "cloudburst" projects will help manage extreme rainfall events in St Albans and the South Jamaica Houses, both in Southeast Queens, by capturing rainfall of up to 2.3 inches per hour—a storm with a 10% chance of occurring in any given year by the middle of the century. In 2021, DEP also concluded a feasibility study with NYCHA for a cloudburst project at the Clinton Houses in East Harlem. The feasibility study was partially funded by the Federal Emergency Management Agency (FEMA) and included conceptual design and cost-benefit analysis to determine the eligibility of the project for FEMA hazard mitigation funding.

DEP will be working with an Inter-Agency Cloudburst Task Force to identify additional areas at risk of flooding from extreme rain events to be initial "Cloudburst Neighborhoods." The task force is led by DEP and the Mayor's Office of Climate Resiliency and includes the NYC Department of City Planning (DCP), Parks, Office of Emergency Management (OEM), DDC, DOT, and NYCHA, among others. Together, these agencies are carrying out a multi-year approach to cloudburst neighborhood planning.

17 ANNUAL REPORT

> *"The permittee shall submit an annual report summarizing implementation of the above BMPs. The report shall list existing documentation of implementation of the BMPs and shall be submitted by May 1st of each year to the offices listed on the Recording, Reporting and Additional Monitoring page of this permit. Examples of recommended documentation of the BMP's are found in Combined Sewer Overflows, Guidance for Nine Minimum Controls, EPA, 1995. The permittee may obtain an electronic copy of the NMC guidance at http://www.epa.gov/npdes/pubs/owm0030.pdf. For guidance on developing the annual report, a BMP checklist is available from DEC on-line at http://www.dec.ny.gov/docs/water_pdf/csobmp.pdf. The permittee must submit a completed copy of this checklist along with the annual report. The actual documentation shall be stored at a central location and be made available to DEC upon request."*

This report is the 19th annual report summarizing the implementation of the BMPs performed by DEP in calendar year 2021.

Field inspection logs, maintenance and repair schedules, summaries and analysis of performance are stored at DEP's Lefrak City office and respective crew quarters and are available to DEC upon request.

CONTENTS

Appendix 1:

- Exhibit 1 – CSO Maintenance Program
- Exhibit 2 – Rockaway Sanitary and Storm Sewer Projects
- Table 1 – CY’17 Chloride Concentrations Rolling Average Summary
- Table 2 – Yearly Average Tidal Inflow Comparison for CY’20-‘21

Appendix 1.1: EXHIBIT 1 - CSO MAINTENANCE PROGRAM

August 14, 2003

Mr. Robert Elburn	Re:	NY0026131	NY0026115
Regional Water Engineer		NY0026191	NY0026239
New York State Department of		NY0026204	NY0026158
Environmental Conservation, Region 2		NY0026182	NY0026221
Division of Water		NY0026166	NY0026107
47-40 21st Street - 2nd Floor		NY0026212	NY0026247
Long Island City, New York 11101		NY0027073	

Dear Mr. Elburn:

The attached CSO Maintenance and Inspection Program is submitted in compliance with the CSO Best Management Practice #1 contained in the SPDES permits for the following New York City WPCPs: Bowery Bay (Section XV(e)), Coney Island (Section XV(d)), Tallman Island (Section XV(e)), Jamaica (Section XIV(d)), Newtown Creek (Section XIV(e)), 26th Ward (Section XIV(e)), Hunts Point (Section XIV(e)), Rockaway (Section XIV(e), Owls Head (Section XIII(e)), Port Richmond (Section XIII(e)), Red Hook (Section XIII(e)), Wards Island (Section XIII(e)) and North River (Section XII(e)).

Sincerely yours,

A. Lopez

for Alfonso R. Lopez, P.E.
Deputy Commissioner

SR/fk

xc: Quinn/Sapienza/Rozelman/Volgende/Eckels/Hammerman/Kulcsar

CSO MAINTENANCE & INSPECTION PROGRAM

BEST MANAGEMENT PRACTICE #1 SPDES PERMIT

Section VIII (26W, HP, JA, NC, RK);
Section IX (BB, CI, TI);
Section VI (NR);
Section VII (OH, PR, RH, WI)

(a) *The permittee shall develop and implement a written maintenance and inspection program for all CSO's listed beginning on page 3 of this permit. This program shall include all regulators tributary to these CSOs. This is to insure that no discharge or leakage occurs during dry weather and that the maximum amount of wet weather flow is conveyed to the WPCP for treatment. This program shall consist of scheduled inspections with required repair, cleaning and maintenance performed as needed to prevent dry weather overflow and leakage and ensure maximum wet weather flow is conveyed in accordance with CSO BMP#4. Inspection reports shall contain a record of visual inspections, any observed flow, incidence of rain or snowmelt, condition of equipment and work required.*

Regulator / Tide Gate Maintenance Inspection Schedule

High priority regulators shall be inspected four times per month.
High Priority Regulators are regulators that convey at least five million gallons per day and / or inherently require high maintenance, or pose a threat to beaches because of their locations.

Normal priority regulators shall be inspected once per month.

Items of Inspection

The field crews inspect the entire regulator including, tide gates, sluice gates, access ways, electrical controls and any mechanical equipment and instrumentation located within each site. An inspection report must be completed for each CSO facility. This form is attached in appendix A.

During the inspection, the crews are responsible for correcting any conditions that they encounter which may have adverse effects on the proper operation of the regulator. Examples of these conditions include blockages or obstructions caused by debris that may result in partial or full dry weather bypassing.

Any blockage that the crew is not capable of removing is referred to an emergency Contractor, who is retained by the NYC DEP for such cases. The contractor is required to respond to the site within twenty-four hours of notification.
Furthermore, any structural damage noticed during the inspections upstream of the

regulators is referred to the appropriate group within DEP for repairs.

(b) *The permittee shall include in the maintenance and inspection program a plan to maintain CSO tide gates to prevent infiltration of seawater into the collection system such that the WPCP influent concentration of chlorides does not exceed a twelvemonth rolling average of 400 mg/l. The maintenance and inspection program shall specify corrective actions to be taken within twelve months of the influent chloride exceedance of 400 mg/l.*

CSO Tide Gate Maintenance Program

All tide gates are maintained and inspected on the same schedule as regulators. Antiquated tide gates are earmarked for replacement or reconstruction.

The maximum twelve-month rolling average of influent chloride concentration in the SPDES permits at all the applicable WPCPs except North River is 400-mg/L. The influent chloride concentration in the SPDES permit for North River WPCP is 250-mg/L.

In order to maintain CSO tide gates to prevent inflow of seawater into collection system the crews are responsible for correcting any conditions that they encounter during the inspections that may have adverse effects on the proper operation of the tide gates.

DEP is responsible for developing a drainage area evaluation program to identify possible sources of seawater infiltration. Chloride sampling and tide gate repairs are performed immediately by the CFO crews when seawater inflow is discovered and result in elevated levels of chlorides at the WPCPs. Corrective actions are taken within twelve months of influent chloride exceedance of 400 mg/l.

(c) *The permittee shall include in the maintenance and inspection program a schedule for telemetering regulators and a plan to report the telemetering results. Within six months after the completion of the telemetering of regulators required in the NYSDEC/NYCDEP Omnibus IV Consent Order Compliance Schedule (as noted in the outfall description page) the permittee shall record and report the number and duration of events that cause a discharge at an outfall during dry weather conditions.*

Regulator Telemetering

The installation of the telemetering equipment at one hundred and two regulators was completed in May, 2001 in accordance with the compliance schedule in Schedule B to the Omnibus IV Order on Consent.

The system is currently maintained through a service contract. The contractor is responsible for all maintenance work.

DEP records and reports the number and duration of events that cause a discharge during dry weather conditions.

(d) *CSO maintenance and inspection program reports shall be available for DEC review no later than 9 AM on the day following the day of the inspection was conducted and shall be available for DEC review at the associated WPCP no later than 30 days following the inspection*

Maintenance and Inspection Reports

The CSO maintenance and inspection program reports are kept at each respective crew quarters and are available for DEC by 9:00 AM on the day following an inspection. Rather than store these reports at WPCP's where they may get misplaced, we have centralized the storage into 5 collection crew quarters.

These crew quarters are located as follows:

Tallman Island WPCP
Wards Island WPCP
Paedergat Pump Station
Gowanus Pump Station
Oakwood Beach WPCP

We believe this record storage policy is more condusive to record retention and retrieval than storing at WPCP's, many of which are undergoing massive upgrades.

Regulator Truck # : ____________

REGULATOR and TIDE GATE Inspection Log

Backup Truck # : ____________

DATE: ______________ RUN : ____________________________ WEATHER : ______________

	Regulator Tide Gate Number*	Inspection Level 1 / 2 / 3 ?	y / n Diversion	Inspection Of Regulator	y / n Tide Gate
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					

Reporting System for Regulator and Tide Gate Locations

INSPECTION LEVEL :

LEVEL 1):	Diversion, Regulator and Tide Gate Manhole Inspections performed from above ground which DO NOT involve entry into regulator or tide gate chambers
LEVEL 2) :	FULL ENTRY Regulator and Tide Gate inspections which DO NOT involve the use of back - up trucks
LEVEL 3) :	FULL ENTRY Regulator and Tide Gate inspections which DO involve the use of back - up trucks

REGULATOR CHAMBERS :

A 1):	Regulator flow O.K. No visible flow obstruction through regulator. Gate operational in automatic mode.
A 2):	Regulator flow O.K. No visible flow obstruction through regulator. Gate operational in manual mode ONLY ! **Explanation of problem required on log sheet**
A 3):	Regulator flow O.K. No visible flow obstruction through regulator. Gate NOT OPERATIONAL ! **Explanation of problem required on log sheet**
A 4):	Partial Blockage in Regulator. When flow through regulator is partially obstructed by debris, which may result in dry weather by-passing **Explanation required**
A 5):	Blockage in Regulator causing partial or full dry weather by-passing. **Explanation of problem required on log sheet**

TIDE GATE CHAMBERS :

INSPECTIONS DURING HIGH TIDE :

B 1):	No leak from TIDE GATE. When the gate is properly closed and there is no tidal flow
B 2):	Minor leak from TIDE GATE. When tidal inflow is small and acceptable.
B 3):	Mild leak from TIDE GATE. When tidal inflow is noticeably higher than a Minor leak.
B 4):	MAJOR LEAK from TIDE GATE. When tidal inflow is significantly high and may impact treatment plant processes with high chlorides

INSPECTIONS DURING LOW TIDE :

C 1):	No leak from TIDE GATE. When the gate is properly closed and there is no evidence of any potential tidal inflow problem.
C 2):	TIDE GATE is visibly held open by DEBRIS or FROZEN HINGES etc. **Explanation of problem required on log sheet**
C 3):	TIDE GATE Vulnerable to inflow. When gate is closed, damaged seals, warping or other factors likely to allow leakage. **Explanation of problem required on log sheet**

S.S.T.W. : ____________________ S.E.E. : ________________ S.S.E.E. ______________ CHIEF : __________

Appendix A

Appendix 1.2: Exhibit 2 - Rockaway Sanitary and Storm Sewer Projects

Appendix 1.2.1: Completed Projects

Project No. Locations Status

PS-312Q Beach Channel. Completed in Sep-2017

SEQ-002516/ 200352 Cornaga Ave. Completed in Jun-2006, part of QED-965

SE-196/372 Camp Road, etc. Completed in Jun-1991

SE-378A/379A B. 130th Street, etc. Completed in Mar-1989

SE-378B/379B Rockaway Beach Blvd. etc. Completed in Nov-1998

SE-422A/423A B. 121st Street, etc. Completed in Jun-1989

SE-422B/423B B. 123rd Street, etc. Completed in Apr-1990

SE-422C/423C B. 127th Street, etc. Completed in Apr-1991

SE-424A/425A B. 132nd Street, etc. Completed in Apr-1993

SE-426A/427A B. 135th Street, etc. Completed in Dec-1990

SE-426B/427B B. 138th Street, etc. Completed in Nov-1990

SE-426C/427C B. 140th Street, etc. Completed in Jun-2003

SE-424B/425B B. 134th Street, etc. Completed in Aug-1999

SE-426C/427C Beach 69th St. Completed in Jan-2003

SE-772/87HW Formerly SEQ-200350 Beach 71st Str. Completed in Dec-2004

SE-789/ HWQ631B1 Sommerville Area. Completed in May-2014

SE-795 Chandler St. Completed in Jun-2017

SE-817 Beach 29th St. Completed in Aug-2015

SEQ-002546/ 200425 Grandview Terrace. Completed in Mar-2004

SEQ-200358 Beach 87th St. Completed in Sep-2002

SEQ-200368 Redfern Ave. Completed in Jun-2006

SEQ-002348 Rockaway Blvd., etc. Completed in May-1997

SEQ-002355 Beach 43rd Street, etc. Completed in Apr-1991

SEQ-002363 Beach 37th Street, etc. Completed in Apr-1996

SEQ-002380 Rockaway Beach Blvd. Completed in Nov-1996

SEQ-002402 Beach 45th Street, etc. Completed in Sep-1997

SEQ-002413/ 200275 R. Collier Avenue, etc. Completed in Mar-2005

SEQ-002426 Bay 25th Street, etc. Completed in Sep-1998

SEQ-002427 Cold Spring Road, etc. Completed in May-1998

SEQ-002428 Healy Avenue, etc. Completed in Jan-2000

SEQ-002460 West Bourne Ave, etc. Completed in Nov-2000

SEQ-002499 Beach 61st St. Completed in Sep-2000

SEQ-002511/ 200347 Beach 36th St. Completed in Jan-2003

SEQ-002538/ 200371 Beach 18th St. Completed in Aug-2003

SEQ-002550/ 200390 Beach 40 St. (Edgemere Phase HD153B). Completed in Nov-2005

SEQ-002551/ 200398 (HD153B1) Edgemere Phase B1. Completed in Jun-2007

SEQ-002571/ 200412 Hope VI Phase A. Completed in Apr-2004

SEQ-02479/ QED-983/ SEQ-200341 Rockaway Beach Blvd. Completed in Sep-2014

SEQ-200239 Rockaway Freeway, etc. Completed in Aug-1996

SEQ-200240 Rockaway Freeway, etc. Completed in Aug-1996

SEQ-200251 Rockaway Beach Blvd. Completed in May-1997

SEQ-200254 Beach 108th Street, etc. Completed in Nov-1998

SEQ-200305 Amstel Blvd, etc. Completed in May-2000

SEQ-200311 Beach 35th St. Edgemere. Completed in Apr-2002

SEQ-200378 Seagirt Blvd. Completed in Sep-2002

SEQ-200453 Thursby Ave. Completed in Jun-2007

SEQ-200508 Beach 32nd St. Completed in Jun-2015

SEQ-200523 New Haven Avenue, etc. Completed in Aug-2013

SEQ-200524 Beach 21st St. Completed in Apr-2020

SEQ-200533 Beach 42nd St. Completed in Jun-2012

HD153C1/ SEQ-002562/ SEQ-200406 Edgemere C1. Completed in Nov-2016

HD153C2/ SEQ-200421/ SEQ-002576 Edgemere C2. Completed in Sep-2014

HD153C1/ SEQ-200406/ 2562 Edgemere C1. Completed in Apr-2009

HWQ631 Beach 72 St. Completed in Dec-2004

SEQ-002442 Burchell Ave. Completed in Jun-2000

SEQ-002443 Beach 87 St. Completed in Apr-2000

SEQ-200251 Rockaway Beach Blvd. Completed in May-1997

SEQ-0201A6 Burchell Ave. Completed in May-2001

SEQ-0201A7 Beach 67 St. Completed in Aug-2002

SEQ-0201B3 Beach 86 St. Completed

SE-569U Thursby Ave. Completed in May-2004

SE-569V Almeda Ave. Completed in May-2005

SE-569W Shore Front Parkway. Completed in May-2006

SE-569Y Beach 80 St. Completed

SEQ-0201B5 Beach 113 St. Completed

SEQ-201BS4 Beach 87th St. Completed

SEQ-201BS2 Beach 114 St. Completed

SEC-20004I Seaside Ave. Completed

SEQ-200381R Beach 53 St. Completed in Mar-2004

HWQ230GR Cornaga Ave. Completed in Sep-2005

HWQ1126A Almeda Ave. Completed in Apr-2004

SEQ-002413R Collier Ave. Completed in Mar-2005

QED-973 Rockaway Turnpike. Completed in Jul-2002

SE-196B Camp Road. Completed in Jun-1998

SE-610 Granada Place. Completed in Dec-1996

SEQ-200364 Edgemere Ave. Completed in Apr-2003

QED-988 Channing Road. Completed in Jan-2007

SEQ-002623 Nameoke St. Completed in Jun-2007

SEQ-200550 Beach 99th St. Completed in May-2018

SEQ-002453 B. 47th Street, etc. Canceled Dec-1997

SEQ-002507 Beach 69th St. Canceled, included SEQ-200356 in HWQ641 Completed in Dec-2004

SEQ-200381 Beach 53th St. Canceled due to LIPA issues, was scheduled for FY2002

HWQ1682/ SE-884 Shore Front Parkway. Canceled Mar-2015

QED-982/ SANDHW13 Rockaway Beach Blvd. & B. 73rd St. Completed in Jun-2020

SEQ-200524 B. 21st St. Completed in Jun-2020

SEQ-200582/ HWQ1182A Broad Channel Phase I. Completed in May-2020

QED-1007 Rockaway Beach Blvd. & B. 49 St. Completed in Mar-2021

SANDHW11/ QED-1030 Beach Channel. Completed in May-2021

Appendix 1.2.2: Active Projects

Project No. Locations Status

HWQ1126C Rockaway Beach - on hold

SEQ-200426/ HWQ1126B Hope VI Phase B - on hold

SEQ-200595/ HWQ1187 Westbourne Norton Drive Reconstruction - Revising CPI, FY2022

HD-153C3/ SEQ-002682 Edgemere C3 - on hold

SEQ-200597/ HWQ631B2 Somerville Area - CPI development, FY2026

SEQ-200598/ HWQ631B3 Somerville - CPI development, FY2029

SEQ200599/ HWQ631B3 Somerville Area - CPI development, FY2032

SEQ-200586/ HWQ1182B Broad Channel Phase II - Construction started 6/15/20, projected completion 6/14/24

SANDR02/ SE-830 Far Rockaway Business District - Construction started 9/3/19, projected completion 8/17/22

SE-829 Brunswick Ave. - CPI development, FY2027

SE-886/ HWQ1079 Beach Channel Dr. area - CPI development, FY2026

SE-887/ HWQ1079 Cornaga Ave area - CPI development, FY2030

SE-900 Beach 22 Street area – CPI development, FY2030

SANDR04 /QED-1044 Beach 108th Street - Construction started 4/20/20, projected completion 6/18/22

SANDHW11B/ QED-1030B Beach Channel Phase 2 – Design, FY2025

Appendix 1.3: TABLE 1 - 2021 12 MONTH ROLLING AVERAGE INFLUENT CHLORIDES (MG/L)

	Jan-2021	Feb-2021	Mar-2021	Apr-2021	May-2021	Jun-2021	Jul-2021	Aug-2021	Sep-2021	Oct-2021	Nov-2021	Dec-2021
Wards Island	470	480	490	490	470	470	470	460	450	450	440	430
North River	380	400	400	400	390	390	360	350	340	330	330	330
Hunts Point	540	570	590	580	560	580	570	560	640	690	700	670
26th Ward	250	280	290	320	320	330	340	360	360	370	400	390
Coney Island	940	960	950	960	980	980	990	1,010	1,080	1,090	1,130	1,110
Owls Head	280	360	370	380	390	390	400	400	400	400	400	380
Newtown Creek	780	800	800	830	810	800	820	820	810	830	840	860
Red Hook	290	370	380	390	370	430	430	460	460	460	460	460
Jamaica	210	230	230	240	230	230	230	230	230	230	240	230

Tallman Island	310	350	340	350	350	340	340	340	340	350	350	350
Bowery Bay	620	670	660	530	410	380	320	320	310	330	320	320
Rockaway	2330	2330	2340	2330	2330	2270	2250	2180	2150	2180	2190	2200
Oakwood Beach	240	270	280	290	290	290	280	290	300	320	340	350
Port Richmond	460	490	480	490	500	550	540	530	520	520	530	580

(*) The chloride concentration action level for WRRFs is 400 mg/L with the exception of Rockaway that has a plant specific action level of 3,000 mg/L.

TABLE 2 **YEARLY AVERAGE TIDAL INFLOW COMPARISON FOR CY '20-'21**

WPCP	JANUARY - DECEMBER 20		JANUARY - DECEMBER 21		VARIANCE (CY21-CY20)		REMARKS*
	INFLOW (MGD)	% DWF	INFLOW (MGD)	% DWF	INFLOW (MGD)	% DWF	
WARDS ISLAND	4.6	2.6%	4.7	2.4%	0.05	-0.1%	1.1% Increase
NORTH RIVER	2.6	2.8%	2.7	2.5%	0.12	-0.3%	4.9% Increase
HUNTS POINT	2.7	2.2%	3.9	2.9%	1.23	0.7%	45.9% Increase
26th WARD	0.4	1.0%	0.9	1.8%	0.50	0.8%	114.7% Increase
CONEY ISLAND	3.5	4.2%	3.4	4.1%	-0.17	0.0%	4.7% Decrease
OWLS HEAD	0.7	0.9%	1.5	1.6%	0.76	0.7%	108.1% Increase
NEWTOWN CREEK	6.5	3.8%	8.1	4.1%	1.60	0.3%	24.7% Increase
RED HOOK	0.3	1.2%	0.5	2.0%	0.25	0.8%	89.4% Increase
JAMAICA	0.7	0.9%	0.8	1.0%	0.11	0.1%	15.2% Increase

TALLMAN ISLAND	0.7	1.2%	0.9	1.5%	0.20	0.3%	29.2% Increase
BOWERY BAY	2.2	2.5%	1.4	1.4%	-0.81	-1.1%	36.5% Decrease
ROCKAWAY	2.2	10.1%	2.0	9.8%	-0.17	-0.3%	7.8% Decrease
OAKWOOD BEACH	0.2	0.9%	0.4	1.4%	0.18	0.5%	78.3% Increase
PORT RICHMOND	0.6	2.4%	0.7	2.4%	0.13	0.0%	23% Increase

WRRF Dry Weather Flows (MGD)			
WRRF	CY2019	CY2020	Variance
WARDS ISLAND	182	180	-1.2%
NORTH RIVER	102	91	-10.5%
HUNTS POINT	116	121	4.5%
26th WARD	42	43	2.2%
CONEY ISLAND	95	84	-11.5%
OWLS HEAD	82	82	0.3%
NEWTOWN CREEK	195	172	-12.0%
RED HOOK	26	23	-12.2%
JAMAICA	79	77	-2.6%
TALLMAN ISLAND	59	55	-6.1%
BOWERY BAY	90	90	-0.5%
ROCKAWAY	21	22	2.4%
OAKWOOD BEACH	31	26	-15.2%
PORT RICHMOND	26	24	-6.7%
			-4.88%

WRRF Influent			
WRRF	CY2019	CY2020	Variance
WARDS ISLAND	465	449	-3.4%
NORTH RIVER	284	365	28.4%
HUNTS POINT	523	532	1.6%
26th WARD	391	235	-39.9%
CONEY ISLAND	976	1131	15.9%
OWLS HEAD	309	240	-22.4%
NEWTOWN CREEK	653	779	19.3%
RED HOOK	368	288	-21.5%
JAMAICA	269	213	-20.7%
TALLMAN ISLAND	327	298	-8.7%
BOWERY BAY	396	598	50.9%
ROCKAWAY	2050	2333	13.8%
OAKWOOD BEACH	264	235	-11.0%
PORT RICHMOND	417	480	15.2%
			6.31%

WRRF Dry Weather Flows (MGD)

WRRF	CY2020	CY2021	Variance
WARDS ISLAND	180	193	7.3%
NORTH RIVER	91	106	15.7%
HUNTS POINT	121	137	12.7%
26th WARD	43	51	19.1%
CONEY ISLAND	84	81	-3.7%
OWLS HEAD	82	94	14.6%
NEWTOWN CREEK	172	197	14.5%
RED HOOK	23	27	16.1%
JAMAICA	77	81	5.5%
TALLMAN ISLAND	55	59	7.1%
BOWERY BAY	90	103	15.0%
ROCKAWAY	22	21	-4.7%
OAKWOOD BEACH	26	30	14.3%
PORT RICHMOND	24	30	25.4%
			10.93%

WRRF Influent

WRRF	CY2020	CY2021	Variance
WARDS ISLAND	449	423	-5.8%
NORTH RIVER	365	331	-9.4%
HUNTS POINT	532	688	29.5%
26th WARD	235	424	80.3%
CONEY ISLAND	1131	1118	-1.1%
OWLS HEAD	240	436	81.7%
NEWTOWN CREEK	779	848	8.9%
RED HOOK	288	471	63.2%
JAMAICA	213	233	9.2%
TALLMAN ISLAND	298	360	20.7%
BOWERY BAY	598	330	-44.7%
ROCKAWAY	2333	2255	-3.3%
OAKWOOD BEACH	235	367	56.0%
PORT RICHMOND	480	471	-1.9%
			7.07%

Receiving Waters

WRRF	CY2019	CY2020	East River	Harlem & Hudson	New York Bay	Jamaica Bay	Arthur and Kill Van Kull	Check
WARDS ISLAND	17,800	17,800	40%	60%				100%
NORTH RIVER	13,000	13,000		100%				100%
HUNTS POINT	25,000	25,000	100%					100%
26th WARD	23,000	23,000				100%		100%
CONEY ISLAND	27,000	27,000			80%	20%		100%
OWLS HEAD	28,000	28,000			100%			100%
NEWTOWN CREEK	22,600	22,600	80%	20%				100%
RED HOOK	25,000	25,000	100%					100%
JAMAICA	23,000	23,000				100%		100%
TALLMAN ISLAND	25,000	25,000	100%					100%
BOWERY BAY	25,000	25,000	100%					100%
ROCKAWAY	23,000	23,000				100%		100%
OAKWOOD BEACH	26,400	26,400			80%		20%	100%
PORT RICHMOND	20,000	20,000					100%	100%

Receiving Water Salinity

Waterbody	WRRF	Salinity
East River	WI, TI, HP, BB, NC, RH	25,000
New York Bay	OH, CI, OB	28,000
Arthur & Kill Van Kull	PR	20,000
Harlem & Hudson River	NR	13,000
Jamaica Bay	JA, 26W, RK	23,000

Receiving Waters

WRRF	CY2020	CY2021	East River	Harlem & Hudson	New York Bay	Jamaica Bay	Newtown Creek	Arthur and Kill Van Kull	Check
WARDS ISLAND	17,800	17,400	40%	60%					100%
NORTH RIVER	13,000	13,000		100%					100%
HUNTS POINT	25,000	24,000	100%						100%
26th WARD	23,000	23,000				100%			100%
CONEY ISLAND	27,000	27,000			80%	20%			100%
OWLS HEAD	28,000	28,000			100%				100%
NEWTOWN CREEK	22,600	20,600	50%	20%			30%		100%
RED HOOK	25,000	24,000	100%						100%
JAMAICA	23,000	23,000				100%			100%
TALLMAN ISLAND	25,000	24,000	100%						100%
BOWERY BAY	25,000	24,000	100%						100%
ROCKAWAY	23,000	23,000				100%			100%
OAKWOOD BEACH	26,400	26,400			80%			20%	100%

PORT RICHMOND	20,000	20,000						100%	100%

Receiving Water Salinity

Waterbody	WRRF	Salinity
East River	WI, TI, HP, BB, NC, RH	24,000
Newtown Creek	NC	20,000
New York Bay	OH, CI, OB	28,000
Arthur & Kill Van Kull	PR & OB	20,000
Harlem & Hudson River	NR & WI	13,000
Jamaica Bay	JA, 26W, RK	23,000

Appendix 2:

Appendix 2.2: BWT

- Appendix 2.2.1: Table 1 – Summary of 100 Telemetered Regulators
- Appendix 2.2.2: Table 2 – Sediments Removed from Non-Interceptor Assets
- Appendix 2.2.3: Table 3 – Intercepting Sewer Inspections 2019 – Pipe Rating Index and Ranking
- Appendix 2.2.4: Map 1 - 2019 BMP Interceptors and Local Sewers CCTV/SONAR, Pump Stations, Regulators and Interceptors/Local Sewers Cleaned Map

Appendix 2.2.1: Table 1 - Summary of 100 Telemetered Regulators (2021)

Summary of 100 Telemetered Regulators

= 17 with Inclinometers

= 27 Key Regulators*

05/01/16

No.	WPCP	Reg. No.	Regulator Location	Outfall SPDES No.	Reg. Type	Flow Compartment	Weir Data Length (ft)	Weir Data Elev. (ft)	Hydraulic Capacity (mgd)	Flow Data Peak (mgd)	Flow Data Mean DWF (mgd)
1	26W	01	TIDE GATE (26 WARD WPCP)	004	TG.	S.G./72"x56"			N/A	21.71	19.15
2	26W	02	WILLIAMS & FLATLANDS AVES.	003	HYD.	S.G./48"x36"	68'-0"	-6.00	32.85	11.34	9.80
3	26W	03	CRESENT ST. & FLATLANDS AVE.	005	HYD.	S.G./48"x36"	76'-0"	-6.85	38.53	29.72	24.64
3 Subtotal											
1	BBL	L-04	47th AV. BETW. 28th & 29th ST.	026	HYD	SG/36"x30"	9'-0"	-2.50	24.46	9.57	6.67
2	BBL	L-21	37th AVE. & VERNON BLVD.	028	HYD	SG/30"x24"	22'-6"	-4.00	20.00	14.50	11.19
3	BBL	L-22	VRNON BLVD. & BROADWAY	029	HYD	SG/30"x24"	12'-0"	-5.00	19.72	12.18	9.06
4	BBL	L-23	30th RD. & VERNON BLVD.	030	DC/TG	FO/12"DIA.	2'-0"	-1.75	1.36	N/A	0.21
5	BBL	L-30	ASTORIA PARKS E/O SHORE BLVD.	034	HYD	SG/24"x24"	13'-0"	-0.25	12.67	15.48	12.28
6	BBH	02	45th ST. & PLANT	002	DC/TG	AT THE PLANT	9'-0"	-3.50	N/A	89.08	61.32
7	BBH	03	HAZEN ST. & 19th ST. AVE.	003	DC/TG	FO /18" DIA.	5'-6"	+4.00	7.45	2.16	1.54
8	BBH	06	108th ST. & DITMARS BLVD.	008	DC	FO,DP	4'-0"	+9.00	94.94	N/A	33.29
9	BBH	09	108th ST. & 43rd. AVE.	008	DC	FO,DP	5'-0"	+14.80	99.58	49.71	40.27
9 Subtotal											
1	HP	01	E.177th ST. E/O TIERNEY PL.	022	HYD.	S.G./18"x12"	9'-2"	-5.00	4.35	1.52	0.61
2	HP	02	SHORE DR. S/O PENNYFIELD AVE.	021	HYD.	S.G./30"x30"	8'-0"	-4.77	13.17	6.56	5.61
3	HP	03	CALHOUN AVE. S/O SCHURZ AVE.	019	HYD.	S.G./12"x12"	8'-0"	-2.88	2.71	1.84	1.30
4	HP	04	BRUSH AVE. & BRUCKNER BLVD.	016	HYD.	S.G./30"x30"	8'-10"	-4.50	9.84	4.18	3.18
5	HP	05	WHITE PL. RD. S/O RIVER AVE.	011	HYD.	S.G./18"x12"	26'-0"	-4.50	1.87	N/A	0.50
6	HP	06	WHITE PL. RD. & O'BRIEN AVE.	011	HYD.	S.G./2EA.72"x48"	8'-0"	-5.00	150.13	81.41	66.49
7	HP	08	TRUXTON ST. & OAKPOINT AVE.	025	HYD.	S.G./24"x24"	9'-0"	-2.92	15.27	6.86	5.30
8	HP	09	TIFFANY ST. & EAST BAY AVE.	002	HYD.	S.G.48"x36"	12'-0"	-3.60	52.54	15.41	11.94
9	HP	10	HUNTS POINT AVE. & RYAWA AVE.	003	HYD.	S.G./2EA.36"x30"	15'-0"	-3.65	56.38	18.01	15.58
10	HP	11	EMERSON & SCHURZ AVENUES	017	HYD.	S.G.18"x18"	16'-6"	-4.00	5.58	2.33	1.40
11	HP	12	ROBINSON & SCHURZ AVENUES	018	HYD.	S.G./12"x12"	4'-0"	-2.72	3.48	0.17	0.09
12	HP	13	METCALF AVE. & SOUNDVIEW PARK	009	HYD.	S.G./2EA.36"x30"	21'-0"	-5.00	51.37	44.07	21.63
13	HP	14	EDGEWATER PARK	026	TG.	F.O.			N/A	N/A	N/A
13 Subtotal											
1	JA	01	JFK AIRPORT	006	DC/TG.	F.O.	12'-0"	+1.00	N/A	N/A	53.95
2	JA	02	79th ST. N. CONDUIT AVE.	26W-005	HYD. MAN	S.G./36"x24" S.G./36"x48"	5'-0"	-0.21	23.14	N/A	2.82
3	JA	03	123rd. PLACE & 150th AVE.	003	HYD.	S.G./36"x48"	16'-3"	+3.15	40.92	14.20	11.06
4	JA	09	LINDEN BLVD. & SPRINGFIELD BLVD.	005	DC.	F.O.	22'-0"	+27.77	N/A	N/A	8.30
5	JA	14	124th ST. & N.CONDUIT AVE.	003a	HYD.	S.G./24"x18"	30'-0"	-1.35	N/A	3.70	2.69
5 Subtotal											
1	NC(Q)	Q-01	RUST ST. & 56th ST.	077	HYD.	S.G./24"x24"	16'-0"	+1.00	15.14	8.07	4.92
2	NC(B)	B-01	JOHNSON AVE. W/O PORTER AVE.	015	HYD.	S.G./2ea.48"x36"		-4.68	157.45	44.53	36.57
3	NC(B)	B-04	KENT AVE. & TAYLOR ST.	014	HYD.	S.G./48"x36"	12'-3"	-8.57	41.08	47.68	40.91
4	NC(B)	B-05	DIVISION AVE. W/O KENT AVE.	013	HYD.	S.G./48"x36"	12'-0"	-4.59	52.86	20.17	17.27
5	NC(B)	B-06	S.5th AVE. W/O KENT AVE.	012	HYD.	S.G./36"x24"	16'-6"	-2.59	20.95	15.99	11.98

1	RK	01	B.106th ST. & BEACH CHANNEL DR.	029	MECH.	.G./2EA.40.75"x20	5'-6"	-6.00	103.98	13.89	10.99
1 Subtotal											
1	TI	09	LINDEN PL & 32nd AVE.	011	HYD.	F.O. 60"DIA.	15'-9"	+4.75	103.40	46.74	32.56
2	TI	10A	144th ST. & 7th AVE.	003	DC.	F.O./12"DIA.	5'-0"	+8.50	30.34	9.89	N/A
3	TI	13	15th DR. & WILLETS POINT BLVD.	023	HYD.	S.G./24"x18"	9'-0"	+24.65	12.78	3.87	2.81
4	TI	30	QUINCE AVE. & KISSENA BLVD.	010	MECH.	S.G./9"x33"	10'-0"	+1.88	5.45	5.27	2.10
5	TI	40	FRESH MEADOW LA. & PECK AVE.	010	HYD.	S.G./36"x28"	11'-6"	+19.05	24.31	7.56	5.00
6	TI	46	210 th ST. & LIE (N.S)	008	DC.	F.O./30"DIA.	12'-0"	+51.10	15.91	4.90	2.54
7	TI	47	218th ST & LIE (N.S)	008	DC.	F.O.	7'-6"	+69.40	12.48	0.80	0.61
8	TI	49	220th PL. & 46th AVE.	008	DC.	F.O./12"DIA.	6'-6"	+44.50	1.57	0.43	0.23
8 Subtotal											
1	WI(M)	02B	N/O E. 74th ST. & FDR DR.	003	HYD.	S.G./30"x24"			26.00	N/A	N/A
2	WI(M)	07	E.79th ST. & FDR DR.	008	HYD.	S.G./30"x24"	4'-4"	-2.14	22.27	11.98	8.00
3	WI(M)	23	E.106th ST. & FDR DR.	023	HYD.	S.G./30"x24"	15'-0"	-3.82	16.84	10.17	6.81
4	WI(M)	24	E.110th ST. & FDR DR.	024	HYD.	S.G./48"x36"	17'-0"	-4.57	38.28	14.63	10.70
5	WI(M)	38	E.135th ST. & E/O HARLEM R. DR.	038	HYD.	S.G./24"x24"	5'-0"	-4.30	15.36	13.38	10.63
6	WI(M)	45	W.147th ST. & IRT YARD	045	MAN.	S.G./18"x18"	7'-6"	-4.47	7.29	6.88	5.28
7	WI(M)	46	W.151st ST. & PLAYGROUND	046	HYD.	S.G./30"x24"	13'-0"	-3.50	19.36	11.37	10.20
8	WI(M)	51	N/S HARLEM R. DR. (W.167th ST.)	051	HYD.	S.G./18"x18"	3'-6"	+9.80	10.81	5.69	3.98
9	WI(M)	52	N/S HARLEM R. DR. (W.176th ST.)	052	HYD.	S.G./18"x18"	7'-0"	+43.88	8.32	6.20	3.94
10	WI(B)	53	BRUCKNER BLVD. & BROOK AVE.	068	HYD.	S.G./42"x42"	25'-0"	-7.42	248.67	62.39	52.64
11	WI(B)	58	MAJOR DEEGAN S/S 138th ST.	075	HYD.	S.G./30"x24"	11'-2"	-3.75	16.06	17.47	7.79
12	WI(B)	60	JEROME AVE. & McCOMBS DAM PARK	062	HYD.	S.G./42"x42"	9'-3"	-2.81	67.29	16.10	13.42
13	WI(B)	62	UNDERCLIFF & SEDGEWICK AVE.	060	HYD.	S.G./30"x24"	12'-8"	-3.83	16.36	36.24	22.66
14	WI(B)	67	E.192nd ST. W/O BAYLEY AVE.	056	HYD.	S.G./48"x36"	28'-0"	-3.55	57.85	49.05	36.38
15	WI(B)	68	E.149th ST. & EAST RIVER	072	HYD.	S.G./24"x24"	8'-0"	-3.00	13.6	9.14	8.27
15 Subtotal											
100 Total			*Original count of 28 Key Regulators temporaily included PR-35W while PR-13E and PR-06W were out of service for repair.								

Appendix 2.2.2: Table 2 - Sediments From Non-interceptor Assets 2021

Plant Name	Asset Type Cleaned	Cubic Yards Removed
BB	BB Sludge well + Thickener	158.8
HP	HP WRRF Scavenger Line	14.56
OH	Inffluent Thickener & sludge Well	5.74
PR	Sludge Thickner Tank 4A	15.47
WI	WI-D Battery Tank, Influent Channel, and FST #34, 36	6165
Total		**6378.57**

CSO Name	Asset Type Cleaned	Tons Removed	Cubic Yards Removed
Holding Tank	Paerdegat Facility	60.60	39.10
Total		**60.60**	**39.10**

Pump Station Name	Asset Type Cleaned	Tons Removed	Cubic Yards Removed
108th St	Wet Well & Bar Screens	27.18	17.54
2nd Ave	Wet Well & Bar Screens	9.31	6.01
Ave V	Wet Well & Bar Screens	464.20	299.49
Berrian Blvd	Wet Well & Bar Screens	21.9	14.13
Hannah St	Wet Well & Bar Screens	382.27	246.61
Mason Ave	Wet Well & Bar Screens	42.91	27.69
Merserau Ave	Wet Well & Bar Screens	75.74	48.86
Nautilus Court	Wet Well & Bar Screens	9.85	6.35
Park Drive	Wet Well & Bar Screens	29.76	19.20
Seagirt	Wet Well & Bar Screens	35.92	23.17
Victory Blvd	Wet Well & Bar Screens	14.43	9.31
Total		**1113.47**	**718.36**

Appendix 2.2.3

Table 3 - Intercepting Sewer Inspections 2021 – Pipe Rating Index and Ranking

Pipeline segment ref:	O_M Rating	Structural Rating	O&M Rank	Structural Rank
OB_W_74	1.91	0.00	4	4
OB_W_75	1.53	0.00	4	4
OB_W_76	2.40	0.00	4	4
OB_W_77	2.86	0.00	4	4
OB_W_78	3.00	0.00	3	4
OB_W_79	2.93	0.00	4	4
OB_W_80	2.98	0.00	4	4
OB_W_81	3.00	0.00	3	4
OB_W_84	3.00	0.00	3	4
OB_W_83	3.00	0.00	3	4
OB_FK_W_12	2.00	0.00	4	4
OB_FK_W_13	2.00	0.00	4	4
OB_FK_W_14	2.00	0.00	4	4
OB_FK_W_15	2.00	0.00	4	4
OB_FK_W_16	2.00	0.00	4	4
OB_FK_W_17	2.00	0.00	4	4
OB_FK_W_18	2.00	0.00	4	4
OB_FK_W_19	2.00	0.00	4	4
OB_FK_W_20	2.00	0.00	4	4
OB_FK_W_21	2.17	0.00	4	4
OB_FK_W_22	2.00	0.00	4	4
OB_FK_W_23	2.00	0.00	4	4
OB_FK_W_24	2.00	0.00	4	4
OB_FK_W_25	2.00	0.00	4	4
OB_FK_W_26	2.11	0.00	4	4
OB_FK_W_27	2.20	0.00	4	4
OB_FK_W_28	2.00	0.00	4	4
OB_FK_W_30	2.00	0.00	4	4
OB_FK_W_31	2.00	0.00	4	4
OB_FK_W_32	2.00	0.00	4	4
OB_FK_W_33	2.00	0.00	4	4
OB_FK_W_34	2.00	0.00	4	4
OB_FK_W_35	2.07	0.00	4	4
OB_FK_W_36	2.00	0.00	4	4
OB_FK_W_29	2.00	0.00	4	4
OB_FK_W_37	2.00	0.00	4	4
OB_FK_W_38	2.00	0.00	4	4
OB_FK_W_39	2.00	0.00	4	4
OB_FK_W_40	2.00	0.00	4	4
OB_FK_W_41	2.00	0.00	4	4
OB_FK_W_42	2.00	0.00	4	4
OB_FK_W_43	2.00	0.00	4	4

Pipeline segment ref:	O_M Rating	Structural Rating	O&M Rank	Structural Rank
OB_FK_W_44	2.00	0.00	4	4
OB_W_50_1	2.00	2.00	4	4
OB_W_50_2	2.00	0.00	4	4
OB_FK_E_11	2.00	0.00	4	4
OB_FK_E_12	2.00	0.00	4	4
OB_FK_E_13	2.00	0.00	4	4
OB_FK_E_14	2.13	0.00	4	4
OB_W_31_C	2.00	3.00	4	3
OB_FK_E_17	2.00	0.00	4	4
OB_FK_E_18	2.00	0.00	4	4
OB_FK_E_19	2.00	0.00	4	4
OB_FK_E_20	2.17	0.00	4	4
OB_FK_E_21	3.50	0.00	3	4
OB_FK_E_22	2.13	0.00	4	4
OB_FK_E_24	2.00	0.00	4	4
OB_FK_E_25	2.00	0.00	4	4
OB_FK_E_26	2.00	0.00	4	4
OB_FK_E_27	2.00	0.00	4	4
OB_FK_E_28	2.00	0.00	4	4
OB_FK_E_29	2.00	0.00	4	4
OB_FK_E_30	2.00	0.00	4	4
OB_FK_E_31	2.00	0.00	4	4
OB_FK_E_32	2.00	0.00	4	4
OB_FK_E_33	2.38	0.00	4	4
OB_FK_E_23	2.11	0.00	4	4
OB_EL_2	2.00	0.00	4	4
OB_EL_3	2.00	0.00	4	4
OB_EL_4	2.00	0.00	4	4
OB_EL_5	2.00	0.00	4	4
OB_EL_9	2.00	0.00	4	4
OB_EL_10	2.00	0.00	4	4
OB_EL_11	2.00	0.00	4	4
OB_EL_8	2.00	0.00	4	4
OB_W_11	2.00	0.00	4	4
OB_W_12	2.00	0.00	4	4
OB_W_8	2.09	0.00	4	4
OB_W_9	2.00	0.00	4	4
OB_W_10	2.00	0.00	4	4
OB_W_5	2.00	0.00	4	4
OB_W_6	2.00	0.00	4	4
OB_W_7	2.00	0.00	4	4
OB_W_63	2.23	0.00	4	4

Pipeline segment ref:	O_M Rating	Structural Rating	O&M Rank	Structural Rank
OB_FK_W_63	2.17	0.00	4	4
OB_FK_W_64	2.00	0.00	4	4
OB_FK_W_65	2.00	0.00	4	4
OB_FK_W_66	2.00	0.00	4	4
OB_FK_W_67	2.00	0.00	4	4
OB_FK_W_58	2.00	0.00	4	4
OB_FK_W_59	2.00	0.00	4	4
OB_FK_W_60	2.00	0.00	4	4
OB_FK_W_61	2.00	0.00	4	4
OB_FK_W_62	2.00	0.00	4	4
OB_FK_W_57	2.00	0.00	4	4
OB_FK_W_68	2.75	0.00	4	4
OB_FK_W_56	2.00	0.00	4	4
OB_FK_W_51	2.00	0.00	4	4
OB_FK_W_52	2.00	0.00	4	4
OB_FK_W_53	2.00	0.00	4	4
OB_FK_W_54	2.00	0.00	4	4
OB_FK_W_46	2.00	0.00	4	4
OB_FK_W_47	2.00	0.00	4	4
OB_FK_W_48	2.00	0.00	4	4
OB_FK_W_49	2.00	0.00	4	4
OB_FK_W_50	2.00	0.00	4	4
NCB_W_21	2.00	0.00	4	4
NCB_W_22	2.00	0.00	4	4
NCB_W_23	2.00	0.00	4	4
NCB_W_19	2.14	0.00	4	4
NCB_W_20	2.13	0.00	4	4
NCB_W_17	2.00	0.00	4	4
NCB_W_18	2.00	0.00	4	4
NCB_W_15	2.00	0.00	4	4
NCB_W_13	2.00	0.00	4	4
NCB_W_14	2.00	0.00	4	4
NCB_W_11	2.11	0.00	4	4
NCB_W_11A	2.13	0.00	4	4
NCB_W_12	2.00	0.00	4	4
NCB_W_7	2.00	0.00	4	4
NCB_W_8	2.00	0.00	4	4
NCB_W_9	2.00	0.00	4	4
NCB_W_10	2.00	0.00	4	4
NCB_W_6	2.00	2.00	4	4
NCB_E_3	2.00	0.00	4	4
NCB_E_2	2.00	0.00	4	4

Pipeline segment ref:	O_M Rating	Structural Rating	O&M Rank	Structural Rank
NCB_E_12	2.06	0.00	4	4
NCB_E_13	2.00	0.00	4	4
NCB_E_14	2.00	0.00	4	4
NCB_E_10	2.00	0.00	4	4
NCB_E_11	2.00	0.00	4	4
NCB_E_8	2.09	0.00	4	4
NCB_E_9	2.00	0.00	4	4
NCB_E_7	2.00	0.00	4	4
NCB_E_6	2.00	1.50	4	4
NCB_E_24	2.40	0.00	4	4
NCM_S_4	2.00	0.00	4	4
NCM_S_13	2.11	0.00	4	4
NCM_S_14	2.00	3.00	4	3
NCM_S_11	2.00	3.00	4	3
NCM_S_12	2.00	3.00	4	3
NCB_NW_5	2.00	0.00	4	4
NCB_NW_6	2.00	3.00	4	3
NCB_NW_7	2.00	0.00	4	4
NCM_S_3	2.00	0.00	4	4
NCB_NW_2	2.00	2.00	4	4
NCB_NW_3	2.00	0.00	4	4
NCB_NW_4	2.14	0.00	4	4
NCM_S_15	2.00	0.00	4	4
NCM_S_16	2.30	3.00	4	3
NCM_S_17	2.00	0.00	4	4
NCM_S_18	2.00	0.00	4	4
NCM_S_19	2.00	0.00	4	4
NCM_S_20	2.00	0.00	4	4
NCM_S_22	2.00	0.00	4	4
NCM_S_22A	2.00	0.00	4	4
NCM_S_23	2.00	0.00	4	4
NCM_N_5	2.00	0.00	4	4
NCM_N_6	2.00	0.00	4	4
NCM_N_3	2.00	0.00	4	4
NCM_N_4	2.00	0.00	4	4
NCM_S_23A	2.00	0.00	4	4
NCM_S_24	2.00	0.00	4	4
NCM_S_25a	2.20	0.00	4	4
NCM_S_25	3.33	0.00	3	4
TI_S_73B	2.13	0.00	4	4
TI_S_72	2.33	3.00	4	3
NCM_S_26a	2.00	0.00	4	4

Pipeline segment ref:	O_M Rating	Structural Rating	O&M Rank	Structural Rank
NCM_S_26	2.50	3.00	4	3
NCM_S_27	2.00	0.00	4	4
NCM_S_28	2.00	0.00	4	4
NCM_S_29	2.11	0.00	4	4
NCM_S_30	2.00	0.00	4	4
NCM_S_31	2.10	0.00	4	4
NCM_S_32	2.00	0.00	4	4
NCM_S_33	2.00	0.00	4	4
NCM_S_34	2.00	3.00	4	3
NCM_S_35	2.00	3.00	4	3
NCM_S_36	2.00	0.00	4	4
NCM_S_39A	2.60	0.00	4	4
NCM_S_39B	2.50	0.00	4	4
NCM_S_39C	2.00	3.00	4	3
NCM_S_39D	2.00	0.00	4	4
NCM_S_39E	2.00	0.00	4	4
NCM_S_39F	2.00	3.00	4	3
NCM_S_39G	2.25	3.00	4	3
NCM_S_39H	2.20	0.00	4	4
NCM_S_39I	2.00	4.00	4	3
NCM_S_39J	2.33	0.00	4	4
NCM_S_39K	2.00	0.00	4	4
NCM_S_39L	2.00	0.00	4	4
NCM_S_40	2.25	3.00	4	3
NCM_S_40_1	2.00	0.00	4	4
NCM_S_37	2.00	0.00	4	4
NCM_S_39	2.00	0.00	4	4
NCM_N_19	2.00	2.00	4	4
NCM_N_20	2.00	0.00	4	4
NCB_E_4	2.00	0.00	4	4
NCB_E_5	2.00	0.00	4	4
NCB_W_24	2.00	0.00	4	4
NCB_W_25	2.00	0.00	4	4
NCB_W_26	2.00	3.00	4	3
NCB_W_26_1	2.50	0.00	4	4
NCM_N_7_2	2.00	3.00	4	3
NCM_N_7_1	2.00	0.00	4	4
OB_E_42	2.50	0.00	4	4
OB_E_41	2.00	0.00	4	4
OB_E_36	2.00	0.00	4	4
OB_E_37	2.00	0.00	4	4
OB_E_40	2.00	0.00	4	4

Pipeline segment ref:	O_M Rating	Structural Rating	O&M Rank	Structural Rank
OB_E_39	2.00	0.00	4	4
OB_E_38	2.00	0.00	4	4
OB_E_4	2.08	0.00	4	4
OB_E_5	2.15	0.00	4	4
CI_W_4	2.10	0.00	4	4
CI_W_5	2.00	4.00	4	3
CI_W_7	2.00	4.00	4	3
CI_W_10	2.25	4.00	4	3
CI_W_11	2.13	4.00	4	3
CI_W_12	2.00	4.00	4	3
CI_W_13	2.00	4.00	4	3
CI_W_16	2.00	4.00	4	3
CI_W_19	2.17	4.00	4	3
CI_W_20	2.00	4.00	4	3
CI_W_21	2.00	4.00	4	3
CI_W_23	2.00	4.00	4	3
CI_W_24	2.00	4.00	4	3
CI_W_25	2.00	4.00	4	3
CI_W_26	2.00	4.00	4	3
CI_W_27	2.15	4.00	4	3
CI_W_28	2.00	4.00	4	3
CI_W_29	2.00	4.00	4	3
CI_W_30	2.04	4.00	4	3
CI_W_31	2.13	4.00	4	3
CI_W_32	2.00	4.00	4	3
CI_N_20	2.00	4.00	4	3
CI_N_21	2.10	4.00	4	3
CI_N_22	2.00	4.00	4	3
CI_N_23	2.00	4.00	4	3
CI_N_24	2.08	4.00	4	3
CI_N_25	2.10	4.00	4	3
CI_N_26	2.00	4.00	4	3
CI_N_27	2.30	4.00	4	3
CI_N_28	2.80	4.00	4	3
CI_N_29	2.09	4.00	4	3
CI_N_30	2.00	4.00	4	3
CI_N_31	2.00	4.00	4	3
CI_N_33	3.40	2.33	3	4
CI_N_33A	2.71	3.00	4	3
CI_N_34	3.29	2.75	3	4
CI_N_35	2.71	2.50	4	4
CI_N_36	2.50	3.00	4	3

Pipeline segment ref:	O_M Rating	Structural Rating	O&M Rank	Structural Rank
CI_N_37	2.00	3.00	4	3
CI_N_38	2.20	0.00	4	4
CI_N_39	2.20	0.00	4	4
CI_N_40	2.13	2.00	4	4
CI_N_41A	2.36	0.00	4	4
CI_N_42	2.00	0.00	4	4
CI_N_43	2.69	0.00	4	4
CI_N_19	2.00	4.00	4	3
OB_W_73	2.00	0.00	4	4
NCB_E_22	2.25	0.00	4	4
NCB_E_21	2.00	0.00	4	4
NCB_E_20	3.50	0.00	3	4
CI_N_10	3.18	0.00	3	4
CI_N_17	2.09	4.00	4	3
CI_N_18	2.00	4.00	4	3
OB_W_82	4.17	0.00	1	4
OB_W_86	2.00	0.00	4	4
OB_W_87	2.00	0.00	4	4
OB_W_88	2.60	0.00	4	4
OB_EL_7	2.00	0.00	4	4
OB_FK_E_15	2.80	0.00	4	4
OB_FK_E_16	2.00	0.00	4	4
NCB_E_18	2.00	0.00	4	4
CI_N_14	2.22	0.00	4	4
CI_N_15	2.27	0.00	4	4
CI_N_16	2.63	0.00	4	4
CI_N_11	2.00	0.00	4	4
CI_N_12	2.17	0.00	4	4
CI_N_13	2.00	0.00	4	4
CI_N_9	3.17	0.00	3	4
CI_N_8	4.56	0.00	1	4
CI_N_3	3.78	0.00	3	4
CI_N_4	3.50	0.00	3	4
CI_N_7	2.14	4.00	4	3
WIM_S_19	2.00	0.00	4	4
WIM_S_20	2.00	0.00	4	4
WIM_S_21	2.00	0.00	4	4
CI_N_6	2.05	0.00	4	4
WIM_N_38	2.50	0.00	4	4
WIM_N_36	2.33	0.00	4	4
WIM_N_4	3.41	0.00	3	4
WIM_N_5	3.94	0.00	3	4

Pipeline segment ref:	O_M Rating	Structural Rating	O&M Rank	Structural Rank
WIM_N_36	2.00	0.00	4	4
WIM_N_3	3.06	0.00	3	4
WIM_N_35A	2.80	0.00	4	4
WIM_N_19	2.17	0.00	4	4
WIM_N_20	2.24	0.00	4	4
NR_S_7	2.02	3.00	4	3
WIM_S_7	2.00	0.00	4	4
WIM_S_8	2.00	0.00	4	4
WIM_S_9	2.00	0.00	4	4
WIM_S_5	2.00	0.00	4	4
WIM_S_6	2.00	0.00	4	4
NR_S_7	2.05	2.00	4	4
WIM_N_16	3.00	0.00	3	4
WIM_N_6	2.50	0.00	4	4
WIM_N_18	3.25	0.00	3	4
WIM_N_17	3.00	0.00	3	4
WIM_N_15A	2.50	0.00	4	4
WIM_N_8	2.00	0.00	4	4
WIM_N_10	2.20	0.00	4	4
WIB_E_3	2.00	0.00	4	4
WIB_E_4	2.00	0.00	4	4
WIM_N_10	2.22	0.00	4	4
WIM_N_9	2.25	0.00	4	4
WIM_S_10	2.00	0.00	4	4
WIB_E_14_2	2.27	0.00	4	4
WIB_E_14_2A	3.11	0.00	3	4
WIB_E_14_1	3.20	0.00	3	4
WIB_E_2	2.00	0.00	4	4
WIM_S_11	2.00	0.00	4	4
WIB_E_14	2.00	0.00	4	4
WIB_E_10	2.58	0.00	4	4
WIB_E_11	2.77	0.00	4	4
WIB_E_12	2.63	0.00	4	4
WIM_S_14	2.00	0.00	4	4
WIB_E_13	2.71	0.00	4	4
WIB_E_14	2.50	0.00	4	4
WIB_E_5	2.40	0.00	4	4
WIB_E_6	2.80	0.00	4	4
WIB_E_7	2.25	0.00	4	4
WIM_S_15	2.00	0.00	4	4
WIM_S_16	2.00	0.00	4	4
WIB_E_9	2.14	0.00	4	4

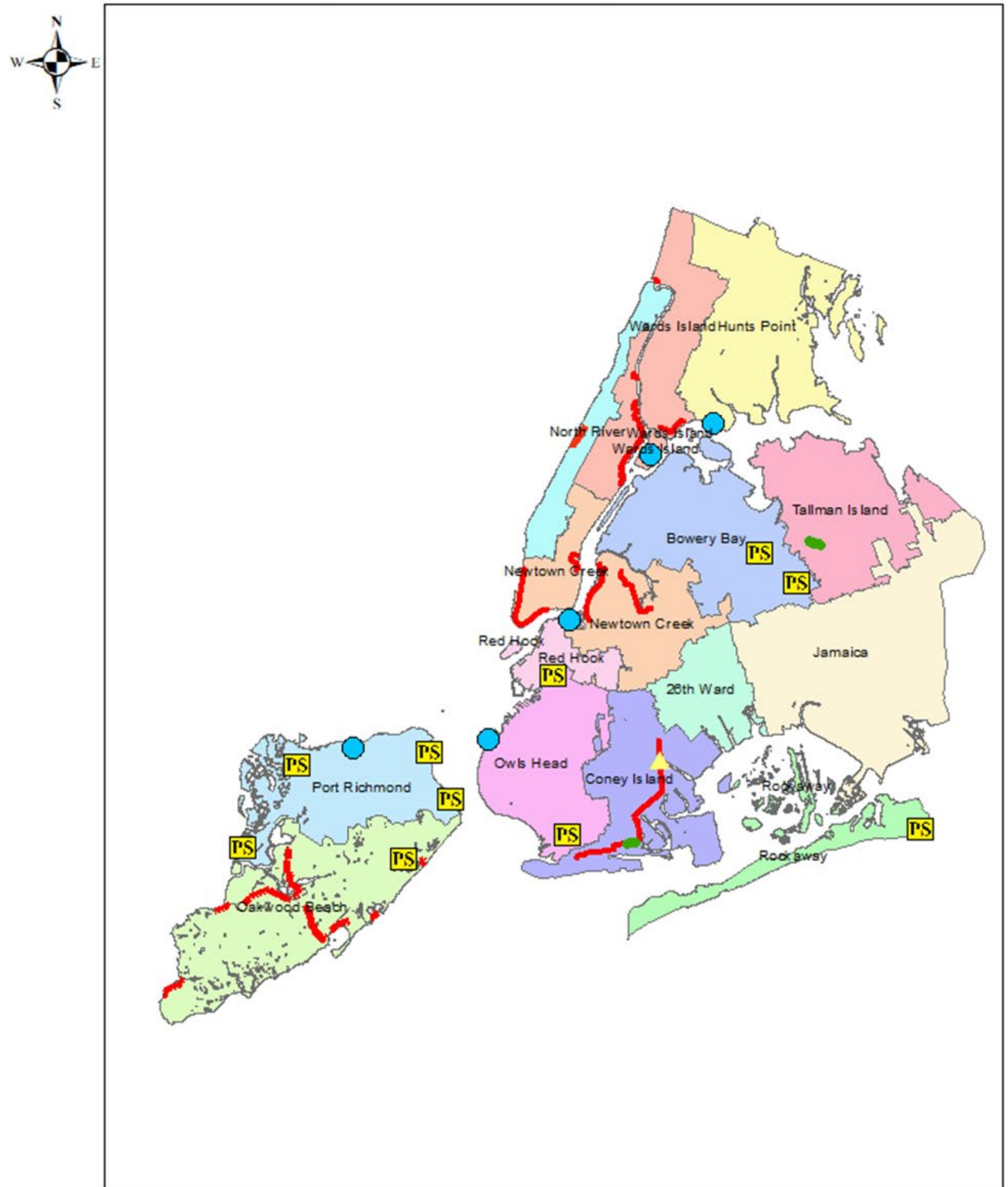
Pipeline segment ref:	O_M Rating	Structural Rating	O&M Rank	Structural Rank
WIB_E_8	2.00	0.00	4	4
WIM_N_39	2.00	0.00	4	4
WIB_MH_11	2.92	0.00	4	4
WIB_E_1	2.00	0.00	4	4
WIM_N_2	2.00	0.00	4	4
WIM_N_35	2.12	0.00	4	4
WIM_S_17	2.00	0.00	4	4
WIB_MH_10	2.67	0.00	4	4
WIM_N_34	2.20	0.00	4	4
WIM_N_33A	2.13	0.00	4	4
WIM_N_40	2.00	0.00	4	4
WIM_S_12	2.60	1.00	4	4
WIM_S_13	2.11	0.00	4	4
WIM_S_12	2.00	0.00	4	4
WIM_N_33	2.25	0.00	4	4
NCB_E_16	2.13	0.00	4	4
NCB_E_19	2.17	0.00	4	4
NCB_E_18	2.73	0.00	4	4

Appendix 2.2.4: 2021 Asset Repair List

Asset Name	Date Inspected	Lengt h (ft)	Defect	Structural Index	Comments	Final Decision	Corrective Action By
N/A					No assets found in need of repair		

Appendix 2.2.5: Map 1 - 2021 BMP Interceptors and Local Sewers CCTV/SONAR, Pump Stations, Regulators and Interceptors/Local Sewers Cleaned Map

2021: Map of Assets Inspected and Cleaned



Appendix 3:

- Appendix 3.1: Key Regulator Monitoring Report Summary CY2021Appendix 3.2: Critical Wet Weather Event Summary – CY2021
- Appendix 3.3: Estimation of Wet-Weather Capture

Appendix 3.1: KEY REGULATOR MONITORING REPORT SUMMARY CY2021

CY2021 Key Regulator Monitoring Report

Regulator 26W-01	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Jul-21	1	7/25/21 5:15 AM	7/25/21 7:00 AM	1.75	74	111	127.5	N/A	N/A	N/A	N/A
Sep-21	1	9/23/21 8:00 PM	9/23/21 8:00 PM	0.00*	77	77	127.5	9/23/21 8:15 PM	9/24/21 8:15 AM	142	134
Dec-21	1	12/6/21 4:30 AM	12/6/21 6:00 AM	1.50	126	163	170	N/A	N/A	N/A	N/A

CY2021 Key Regulator Monitoring Report

Regulator 26W-02	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Jan-21	1	1/2/21 1:30 AM	1/2/21 3:45 AM	2.25	127	127	127.5	1/1/21 8:15 PM	1/2/21 1:15 AM	139	132
Mar-21	1	3/28/21 2:30 PM	3/28/21 3:00 PM	0.50	118	118	127.5	3/28/21 9:30 AM	3/28/21 2:15 PM	137	131
May-21	1	5/29/21 5:15 AM	5/29/21 5:30 AM	0.25	124	124	127.5	5/28/21 7:30 PM	5/29/21 5:00 AM	133	128
Jun-21	1	6/4/21 7:30 PM	6/4/21 10:45 PM	3.25	118	118	127.5	6/4/21 4:45 PM	6/4/21 7:15 PM	147	133
Jul-21	1	7/10/21 1:45 AM	7/10/21 3:00 AM	1.25	127	127	127.5	7/9/21 10:15 PM	7/10/21 1:30 AM	148	134

CY2021 Key Regulator Monitoring Report

Regulator BBH-02	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Regulator BBH-02 has had no potential discharges outside the period of a critical wet weather event.											

CY2021 Key Regulator Monitoring Report

Regulator BBH-06	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
May-21	1	5/4/21 12:15 AM	5/4/21 12:45 AM	0.50	292	297	300	5/4/21 1:00 AM	5/4/21 6:00 AM	323	309
	2	5/30/21 2:15 PM	5/30/21 2:45 PM	0.50	244	261	300	5/30/21 3:00 PM	5/30/21 9:15 PM	315	307
Jun-21	1	6/4/21 4:30 PM	6/4/21 4:45 PM	0.25	160	264	300	6/4/21 5:00 PM	6/4/21 7:00 PM	353	314
	2	6/8/21 5:00 PM	6/8/21 5:15 PM	0.25	129	233	300	6/8/21 5:30 PM	6/8/21 8:30 PM	322	307
	3	6/30/21 10:30 PM	6/30/21 10:45 PM	0.25	170	272	300	6/30/21 11:00 PM	7/1/21 12:00 AM	322	315
Jul-21	1	7/2/21 4:00 PM	7/2/21 6:30 PM	2.50	126	265	300	7/2/21 8:00 PM	7/3/21 12:45 AM	351	321
	2	7/18/21 1:00 AM	7/18/21 1:15 AM	0.25	292	296	300	7/18/21 1:30 AM	7/18/21 2:30 AM	308	304
	3	7/26/21 2:15 AM	7/26/21 2:30 AM	0.25	162	281	300	7/26/21 2:45 AM	7/26/21 5:00 AM	315	307
Aug-21	1	8/19/21 6:00 AM	8/19/21 6:15 AM	0.25	198	293	300	8/19/21 6:30 AM	8/19/21 8:45 AM	320	315
	2	8/21/21 8:30 PM	8/21/21 8:30 PM	0.00*	128	128	300	8/21/21 8:45 PM	8/22/21 3:15 AM	332	314
	3	8/27/21 5:45 PM	8/27/21 6:15 PM	0.50	213	292	300	N/A	N/A	N/A	N/A
Sep-21	1	9/23/21 8:15 PM	9/23/21 8:15 PM	0.00*	200	200	300	9/23/21 8:30 PM	9/24/21 3:00 AM	348	310
Oct-21	1	10/26/21 8:15 PM	10/26/21 8:15 PM	0.00*	152	152	300	10/26/21 8:30 PM	10/27/21 2:45 AM	324	308

CY2021 Key Regulator Monitoring Report

Regulator BBL-04	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Jan-21	1	1/16/21 2:00 AM	1/16/21 2:00 AM	0.00*	284	284	300	1/15/21 11:15 PM	1/16/21 1:45 AM	318	311
Feb-21	1	2/16/21 2:45 AM	2/16/21 2:45 AM	0.00*	213	213	300	2/16/21 3:00 AM	2/16/21 10:00 AM	361	313
	2	2/22/21 2:15 PM	2/22/21 2:30 PM	0.25	209	278	300	2/22/21 2:45 PM	2/22/21 7:15 PM	329	317
Mar-21	1	3/24/21 5:45 PM	3/24/21 6:15 PM	0.50	189	246	300	3/24/21 6:30 PM	3/25/21 12:15 AM	317	308
	2	3/28/21 10:00 AM	3/28/21 10:30 AM	0.50	182	244	300	3/28/21 10:45 AM	3/28/21 2:30 PM	315	304
Apr-21	1	4/11/21 1:30 PM	4/11/21 2:00 PM	0.50	151	207	300	4/11/21 3:15 PM	4/11/21 7:45 PM	323	313
	2	4/15/21 1:00 PM	4/15/21 1:30 PM	0.50	236	282	300	4/15/21 1:45 PM	4/15/21 8:15 PM	328	312
	3	4/25/21 6:15 AM	4/25/21 6:30 AM	0.25	281	292	300	4/25/21 6:45 AM	4/25/21 10:30 AM	320	305
Jun-21	1a	6/4/21 4:15 PM	6/4/21 4:45 PM	0.50	151	264	300	6/4/21 5:00 PM	6/4/21 7:00 PM	353	314
	1b	6/4/21 7:15 PM	6/4/21 7:30 PM	0.25	290	290	300				
	2	6/8/21 4:45 PM	6/8/21 5:15 PM	0.50	122	233	300	6/8/21 5:30 PM	6/8/21 8:30 PM	322	307
	3	6/30/21 10:15 PM	6/30/21 10:45 PM	0.50	144	272	300	6/30/21 11:00 PM	7/1/21 12:00 AM	322	315
Jul-21	1	7/1/21 6:15 PM	7/1/21 6:45 PM	0.50	133	210	300	7/1/21 7:00 PM	7/1/21 10:15 PM	321	311
	2	7/6/21 9:45 PM	7/6/21 9:45 PM	0.00	259	259	300	7/6/21 10:00 PM	7/7/21 12:15 AM	317	313
	3a	7/8/21 5:15 PM	7/8/21 5:30 PM	0.25	114	232	300	7/8/21 5:45 PM	7/8/21 7:45 PM	326	316
	3b	7/9/21 3:30 AM	7/9/21 3:45 AM	0.25	171	208	300	7/9/21 4:00 AM	7/9/21 11:45 AM	345	313
	4	7/9/21 10:30 PM	7/9/21 10:45 PM	0.25	141	196	300	7/9/21 11:00 PM	7/10/21 1:45 AM	320	315
	5	7/12/21 2:45 AM	7/12/21 3:15 AM	0.50	96	220	300	7/12/21 3:30 AM	7/12/21 5:45 AM	327	309
	6	7/18/21 1:00 AM	7/18/21 1:15 AM	0.25	292	296	300	7/18/21 1:30 AM	7/18/21 2:30 AM	308	304
	7	7/25/21 4:30 AM	7/25/21 5:45 AM	1.25	125	278	300	7/25/21 6:00 AM	7/25/21 6:15 AM	304	302
	8	7/28/21 4:15 AM	7/28/21 4:45 AM	0.50	256	277	300	N/A	N/A	N/A	N/A
Aug-21	1a	8/10/21 7:45 PM	8/10/21 8:45 PM	1.00	108	275	300	8/10/21 9:00 PM	8/10/21 10:30 PM	319	310
	1b	8/10/21 7:45 PM	8/10/21 8:45 PM	1.00		275	300				
	2	8/19/21 6:00 AM	8/19/21 6:00 AM	0.00*	198	198	300	8/19/2021 6:30	8/19/2021 8:45	320	315
	3	8/21/21 8:30 PM	8/21/21 8:30 PM	0.00*	128	128	300	8/21/21 8:45 PM	8/22/21 3:15 AM	332	314
	4	8/23/21 6:00 AM	8/23/21 6:00 AM	0.00*	181	181	300	8/23/21 6:15 AM	8/23/21 11:15 AM	348	312
Sep-21	1	9/23/21 7:45 PM	9/23/21 8:15 PM	0.50	114	200	300	9/23/21 8:30 PM	9/24/21 3:00 AM	348	310
Nov-21	1	11/12/21 11:45 AM	11/12/21 12:15 PM	0.50	184	203	270	11/12/21 12:30 PM	11/12/21 4:45 PM	314	296
	2	11/13/21 2:45 PM	11/13/21 3:00 PM	0.25	103	249	270	11/13/21 3:15 PM	11/13/21 4:45 PM	281	272
Dec-21	1	12/6/21 4:00 AM	12/6/21 4:30 AM	0.50	85	163	300	12/6/21 4:45 AM	12/6/21 6:15 AM	316	305

CY2021 Key Regulator Monitoring Report

Regulator BBL-22	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Jul-21	1	7/12/21 3:00 AM	7/12/21 3:15 AM	0.25	100	220	300	7/12/21 3:30 AM	7/12/21 5:45 AM	327	309
	2	7/26/21 2:15 AM	7/26/21 2:30 AM	0.25	162	281	300	7/26/21 2:45 AM	7/26/21 5:00 AM	315	307
Aug-21	1	8/27/21 5:45 PM	8/27/21 6:15 PM	0.50	213	292	300	N/A	N/A	N/A	N/A
Oct-21	1	10/29/21 10:15 PM	10/29/21 10:30 PM	0.25	174	183	250	10/29/21 10:45 PM	10/30/21 3:00 AM	284	271

CY2021 Key Regulator Monitoring Report

Regulator HP-05	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Jan-21	1	1/2/21 6:00 AM	1/2/21 6:30 AM	0.50	164	164	400	N/A	N/A	N/A	N/A
Mar-21	1a	3/28/21 2:00 PM	3/28/21 3:00 PM	1.00	347	347	400	3/28/21 12:15 PM	3/28/21 1:45 PM	413	393***
	1b	3/28/21 3:45 PM	3/28/21 4:45 PM	1.00	186	194	400				
Apr-21	1	4/15/21 6:00 PM	4/15/21 7:45 PM	1.75	396	396	400	4/15/21 2:00 PM	4/15/21 5:45 PM	440	408
May-21	1	5/29/21 5:15 AM	5/29/21 8:30 AM	3.25	380	380	400	5/28/21 7:45 PM	5/29/21 5:00 AM	420	408
	2	5/30/21 5:00 PM	5/30/21 9:00 PM	4.00	399	399	400	5/30/21 4:00 PM	5/30/21 4:45 PM	403	402
Jul-21	1	7/1/21 9:30 PM	7/1/21 9:45 PM	0.25	367	367	400	7/1/21 6:00 PM	7/1/21 9:15 PM	431	408
	2	7/9/21 4:30 PM	7/9/21 5:30 PM	1.00	241	241	400	7/9/21 5:15 AM	7/9/21 12:30 PM	423	408
	3	7/12/21 4:00 AM	7/12/21 6:30 AM	2.50	378	378	400	N/A	N/A	N/A	N/A
	4	7/26/21 5:45 AM	7/26/21 6:15 AM	0.50	148	148	400	N/A	N/A	N/A	N/A
Aug-21	1	8/12/21 7:00 PM	8/12/21 7:30 PM	0.50	318	318	400	N/A	N/A	N/A	N/A
	2	8/22/21 2:30 AM	8/22/21 4:30 AM	2.00	399	399	400	8/21/21 9:45 PM	8/22/21 2:15 AM	438	408
	3a	8/23/21 3:15 AM	8/23/21 6:15 AM	3.00	194	291	370	8/23/21 6:30 AM	8/23/21 9:30 AM	382	361***
	3b	8/23/21 3:15 PM	8/23/21 5:15 PM	2.00	354	354		8/23/21 11:30 AM	8/23/21 3:00 PM	403	394
	4	8/27/21 5:30 PM	8/27/21 7:45 PM	2.25	373	392	400	N/A	N/A	N/A	N/A
Oct-21	1	10/26/21 9:30 AM	10/26/21 10:15 AM	0.75	398	399	400	10/26/21 2:15 AM	10/26/21 9:15 AM	415	403
								10/26/21 10:30 AM	10/26/21 12:30 PM	409	403
	2a	10/29/21 11:15 PM	10/30/21 12:30 AM	1.25	356	378	400	N/A	N/A	N/A	N/A
	2b	10/30/21 12:45 AM	10/30/21 1:30 AM	0.75	339	339	400	N/A	N/A	N/A	N/A
	2c	10/30/21 1:45 AM	10/30/21 2:45 AM	1.00	276	276	400	N/A	N/A	N/A	N/A

CY2021 Key Regulator Monitoring Report

Regulator HP-10	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Jun-21	1	6/8/21 4:45 PM	6/8/21 5:45 PM	1.00	195	339	400	N/A	N/A	N/A	N/A
Jul-21	1	7/8/21 4:00 PM	7/8/21 4:00 PM	0.00	385	385	400	7/8/21 4:15 PM	7/8/21 7:15 PM	419	410
	2	7/12/21 3:30 AM	7/12/21 4:30 AM	1.00	391	391	400	N/A	N/A	N/A	N/A
Aug-21	1	8/12/21 6:00 PM	8/12/21 6:30 PM	0.50	309	382	400	N/A	N/A	N/A	N/A

CY2021 Key Regulator Monitoring Report

Regulator HP-13	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Jan-21	1	1/1/21 8:15 PM	1/1/21 11:15 PM	3.00	178	399	400	N/A	N/A	N/A	N/A
	2	1/16/21 5:45 AM	1/16/21 8:00 AM	2.25	382	382	400	1/15/21 11:00 PM	1/15/21 11:30 PM	413	405
Feb-21	1	2/16/21 6:00 AM	2/16/21 9:30 AM	3.50	290	322	400	N/A	N/A	N/A	N/A
	2	2/22/21 2:45 PM	2/22/21 5:45 PM	3.00	283	392	400	N/A	N/A	N/A	N/A
	3	2/27/21 1:30 PM	2/27/21 2:15 PM	0.75	369	369	400	N/A	N/A	N/A	N/A
Mar-21	1	3/18/21 3:15 PM	3/18/21 4:45 PM	1.50	331	331	400	N/A	N/A	N/A	N/A
	2	3/24/21 7:00 PM	3/25/21 1:00 AM	6.00	391	391	400	3/24/21 6:15 PM	3/24/21 6:45 PM	406	403
	3	3/27/21 11:15 AM	3/27/21 12:00PM	0.75	146	151	400	N/A	N/A	N/A	N/A
	4a	3/28/21 11:30 AM	3/28/21 12:00 PM	0.50	397	397	400	3/28/21 9:45 AM	3/28/21 11:15 AM	411	407
	4b	3/28/21 2:00 PM	3/28/21 4:00 PM	2.00	347	347	400	3/28/21 12:15 PM	3/28/21 1:45 PM	413	393
	4c	3/28/21 8:30 PM	3/28/21 11:00 PM	1.50	372	372	400				
	5	3/31/21 10:30 PM	4/1/21 1:30 AM	3.00	149	150	400	N/A	N/A	N/A	N/A
Apr-21	1	4/12/21 9:45 PM	4/12/21 11:00 PM	1.25	332	361	400	N/A	N/A	N/A	N/A
	2a	4/15/21 1:30 PM	4/15/21 1:45 PM	0.25	298	367	400	4/15/21 2:00 PM	4/15/21 5:45 PM	440	408
	2b	4/15/21 6:00 PM	4/15/21 8:15 PM	2.25	396	396	400				
	3a	4/17/21 4:30 PM	4/17/21 5:15 PM	0.75	140	141	400	N/A	N/A	N/A	N/A
	3b	4/17/21 8:30 PM	4/17/21 8:45 PM	0.25	138	138	400				
	4	4/25/21 7:00 AM	4/25/21 11:15 AM	4.25	345	368	400	N/A	N/A	N/A	N/A
May-21	1	5/3/21 11:00 PM	5/4/21 5:00 AM	6.00	299	361	400	N/A	N/A	N/A	N/A
	2	5/9/21 8:15 PM	5/9/21 11:30 PM	3.25	279	350	400	N/A	N/A	N/A	N/A
	3	5/22/21 6:30 PM	5/22/21 7:00 PM	0.50	127	128	400	N/A	N/A	N/A	N/A
	4	5/29/21 5:15 AM	5/29/21 6:00 AM	0.75	380	380	400	5/28/21 7:45 PM	5/29/21 5:00 AM	420	408
	5a	5/30/21 2:30 PM	5/30/21 3:45 PM	1.25		399	400	5/30/21 4:00 PM	5/30/21 4:45 PM	403	402
	5b	5/30/21 5:00 PM	5/30/21 8:00 PM	3.00	399	399	400				
Jun-21	1	6/4/21 6:15 PM	6/4/21 8:00 PM	1.75	393	393	400	6/4/21 4:30 PM	6/4/21 6:00 PM	423	411
	2	6/8/21 4:30 PM	6/8/21 8:00 PM	3.50	142	392	400	N/A	N/A	N/A	N/A
Jul-21	1a	7/1/21 2:30 PM	7/1/21 5:45 PM	2.25	388	388	400	7/1/21 6:00 PM	7/1/21 9:15 PM	431	408
	1b	7/1/21 9:30 PM	7/1/21 10:30 PM	1.00	367	367	400				
	2	7/9/21 12:45 PM	7/9/21 3:00 PM	2.25	397	397	400	7/9/21 5:15 AM	7/9/21 12:30 PM	423	408
	3	7/12/21 2:45 AM	7/12/21 5:00 AM	2.25	131	391	400	N/A	N/A	N/A	N/A
	4	7/26/21 1:30 AM	7/6/21 4:00 AM	2.50	121	383	400	N/A	N/A	N/A	N/A
	5	7/28/21 3:15 AM	7/28/21 4:45 AM	1.50	221	313	400	N/A	N/A	N/A	N/A
Aug-21	1	8/12/21 5:45 PM	8/12/21 7:15 PM	1.50	275	382	400	N/A	N/A	N/A	N/A
	2	8/22/21 2:30 AM	8/22/21 3:15 AM	0.75	399	399	400	8/21/21 9:45 PM	8/22/21 2:15 AM	438	408
	3a	8/22/21 11:45 AM	8/22/21 12:30 PM	0.75	252	384	400	8/22/21 12:45 PM	8/22/21 8:00 PM	430	406
	3b	8/22/21 8:15 PM	8/22/21 11:15 PM	3.00	394	399	400				
	4a	8/23/21 5:45 AM	8/23/21 6:15 AM	0.50	200	291	370	8/23/21 6:30 AM	8/23/21 9:30 AM	382	361
	4b	8/23/21 9:45 AM	8/23/21 11:15 AM	1.50	358	360	370	8/23/21 11:30 AM	8/23/21 12:45 PM	394	388
	4c	8/23/21 1:00 PM	8/23/21 2:00 PM	1.00	392	392	400	8/23/21 2:15 PM	8/23/21 3:00 PM	421	405
	4d	8/23/21 3:15 PM	8/23/21 5:15 PM	2.00	354	354	400				
	5	8/27/21 5:00 PM	8/27/21 7:15 PM	2.25	166	392	400	N/A	N/A	N/A	N/A
Oct-21	1	10/4/21 8:00 PM	10/4/21 10:15 PM	2.25	289	324	400	N/A	N/A	N/A	N/A
	2	10/5/21 11:00 AM	10/5/21 12:15 PM	1.25	171	174	400	N/A	N/A	N/A	N/A
	3	10/10/21 2:00 PM	10/10/21 4:30 PM	2.50	278	366	400	N/A	N/A	N/A	N/A
	4	10/29/21 10:00 PM	10/30/21 1:30 AM	3.50	111	378	400	N/A	N/A	N/A	N/A
Nov-21	1	11/13/21 2:30 PM	11/13/21 4:30 PM	2.00	134	346	400	N/A	N/A	N/A	N/A

CY2021 Key Regulator Monitoring Report

Regulator JA-03	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Jan-21	1	1/16/21 3:15 AM	1/16/21 4:00 AM	0.75	147	178	200	N/A	N/A	N/A	N/A
Mar-21	1	3/24/21 9:30 PM	3/24/21 9:30 PM	0.00*	198	198	200	3/24/21 7:30 PM	3/24/21 9:15 PM	209	205
Jun-21	1	6/4/21 5:00 PM	6/4/21 5:30 PM	0.50	140	165	200	N/A	N/A	N/A	N/A
	2	6/8/21 5:15 PM	6/8/21 6:00 PM	0.75	122	177	200	N/A	N/A	N/A	N/A
Jul-21	1	7/2/21 10:45 PM	7/2/21 11:15 PM	0.50	134	173	200	N/A	N/A	N/A	N/A
	2	7/9/21 10:30 PM	7/9/21 11:30 PM	1.00	125	172	200	N/A	N/A	N/A	N/A
Aug-21	1a	8/21/21 8:30 PM	8/21/21 8:45 PM	0.25	156	198	200	8/21/21 9:00 PM	8/22/21 1:45 AM	231	220
	1b	8/23/21 7:15 AM	8/23/21 8:00 AM	0.75	158	184	200	8/23/21 8:30 AM	8/23/21 11:30 AM	223	214
	2	8/27/21 4:30 PM	8/27/21 5:15 PM	0.75	111	160	200	N/A	N/A	N/A	N/A
Sep-21	1	9/23/21 11:15 PM	9/23/21 11:45 PM	0.50	197	197	200	N/A	N/A	N/A	N/A
Oct-21	1a	10/26/21 2:00 AM	10/26/21 2:45 AM	0.75	131	157	200	10/26/21 6:00 AM	10/26/21 12:15 PM	226	212
	1b	10/26/21 5:45 AM	10/26/21 5:45 AM	0.00*	197	197	200				

CY2021 Key Regulator Monitoring Report

Regulator NCB-01	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Jan-21	1a	1/16/21 2:45 AM	1/16/21 2:45 AM	0.00*	469	469	700	1/16/21 3:00 AM	1/16/21 5:45 AM	808	737
	1b	1/16/21 6:00 AM	1/16/21 6:15 AM	0.25	694	694					
Feb-21	1a	2/16/21 4:15 AM	2/16/21 4:45 AM	0.50	543	613	700	2/16/21 5:00 AM	2/16/21 5:30 AM	745	730
	1b	2/16/21 5:45 AM	2/16/21 6:30 AM	0.75	696	696	700				
Mar-21	1	3/24/21 6:00 PM	3/24/21 6:00 PM	0.00*	682	682	700	3/24/21 6:15 PM	3/24/21 11:15 PM	801	738
May-21	1	5/4/21 12:15 AM	5/4/21 1:00 AM	0.75	462	669	700	5/4/21 1:15 AM	5/4/21 1:30 AM	722	711
	2a	5/30/21 8:15 AM	5/30/21 8:45 AM	0.50	447	642	700	5/30/21 4:00 PM	5/30/21 5:00 PM	727	718
	2b	5/30/21 2:45 PM	5/30/21 3:45 PM	1.00	664	684					
Jun-21	1	6/4/21 4:30 PM	6/4/21 4:30 PM	0.00	487	487	700	6/4/21 4:45 PM	6/4/21 7:00 PM	749	715
	2	6/8/21 4:45 PM	6/8/21 5:15 PM	0.50	568	680	700	6/8/21 5:30 PM	6/8/21 7:00 PM	775	726
	3	6/30/21 10:30 PM	6/30/21 11:00 PM	0.50	389	514	700	6/30/21 11:30 PM	7/1/21 12:30 AM	668	626
Jul-21	1a	7/1/21 7:15 PM	7/1/21 7:45 PM	0.50	672	672	700	N/A	N/A	N/A	N/A
	1b	7/1/21 8:45 PM	7/1/21 9:45 PM	1.00	656	656	700	N/A	N/A	N/A	N/A
	2a	7/2/21 6:00 PM	7/2/21 6:45 PM	0.75	446	446	700	N/A	N/A	N/A	N/A
	2b	7/2/21 10:30 PM	7/2/21 11:00 PM	0.50	553	568	700	N/A	N/A	N/A	N/A
	3	7/8/21 5:00 PM	7/8/21 5:30 PM	0.50	478	606	700	7/8/21 5:45 PM	7/8/21 6:15 PM	733	709
	4	7/12/21 3:00 AM	7/12/21 3:00 AM	0.00	511	511	700	7/12/21 3:15 AM	7/12/21 4:15 AM	746	709
	5	7/18/21 1:00 AM	7/18/21 1:00 AM	0.00	690	690	700	7/18/21 1:15 AM	7/18/21 2:00 AM	725	716
	6	7/25/21 5:15 AM	7/25/21 5:45 AM	0.50	481	554	700	N/A	N/A	N/A	N/A
Aug-21	1	8/10/21 8:15 PM	8/10/21 8:30 PM	0.25	663	687	700	8/10/21 8:45 PM	8/11/21 9:15 PM	734	715
	2	8/19/21 5:30 AM	8/19/21 7:00 AM	1.50	457	666	700	N/A	N/A	N/A	N/A
	3	8/22/21 1:15 AM	8/22/21 1:30 AM	0.25	578	578	700	8/21/21 8:30 PM	8/22/21 1:00 AM	755	618***
	4	8/27/21 4:00 PM	8/27/21 5:00 PM	1.00		474	700	N/A	N/A	N/A	N/A
Sep-21	1a	9/23/21 8:00 PM	9/23/21 8:00 PM	0.00*	524	524	700	9/23/21 8:15 PM	9/23/21 11:00 PM	764	664
	1b	9/24/21 12:00 AM	9/24/21 1:00 AM	1.00	626	687	700				
Oct-21	1	10/26/21 8:30 PM	10/26/21 8:30 PM	0.00*	419	419	620	10/26/21 8:45 PM	10/27/21 1:30 AM	670	598***
Dec-21	1	12/6/21 4:30 AM	12/6/21 5:30 AM	1.00	410	482	620	N/A	N/A	N/A	N/A

CY2021 Key Regulator Monitoring Report

Regulator NCB-04	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Regulator NCB-04 had a sensor malfunction; no reportable data for CY2021											

CY2021 Key Regulator Monitoring Report

Regulator NCM-47	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Jan-21	1	1/16/21 2:30 AM	1/16/21 2:45 AM	0.25	353	469	700	1/16/21 3:00 AM	1/16/21 5:45 AM	808	737
Feb-21	1a	2/22/21 12:30 PM	2/22/21 2:00 PM	1.50	237	422	700	2/22/21 2:45 PM	2/22/21 3:45 PM	758	722
	1b	2/22/21 4:00 PM	2/22/21 5:15 PM	1.25	698	698	700				
May-21	1	5/28/21 11:00 PM	5/28/21 11:00 PM	0.00*	692	692	700	5/28/21 9:45 PM	5/28/21 10:45 PM	777	728
Jun-21	1	6/8/21 7:15 PM	6/8/21 7:45 PM	0.50	582	582	700	6/8/21 5:30 PM	6/8/21 7:00 PM	775	726
	2	6/8/21 8:15 PM	6/8/21 8:45 PM	0.50	319	319	700				
Jul-21	1a	7/25/21 4:15 AM	7/25/21 5:00 AM	0.75	233	444	700	N/A	N/A	N/A	N/A
	1b	7/25/21 5:15 AM	7/25/21 7:15 AM	2.00	481	591	700	N/A	N/A	N/A	N/A
Aug-21	1	8/22/21 1:15 AM	8/22/21 1:45 AM	0.50	578	578	700	8/21/21 8:30 PM	8/22/21 1:00 AM	755	618***
	2a	8/23/21 6:15 AM	8/23/21 6:15 AM	0.00	627	627	700	8/23/21 6:30 AM	8/23/21 9:00 AM	790	759
	2b	8/23/21 1:30 PM	8/23/21 2:00 PM	0.50	405	416	700				
Sep-21	1	9/23/21 7:15 PM	9/23/21 8:00 PM	0.75	310	524	700	9/23/21 8:15 PM	9/23/21 11:00 PM	764	664
Oct-21	1	10/29/21 10:00 PM	10/29/21 10:00 PM	0.00*	275	275	620	10/29/21 10:15 PM	10/30/21 12:00 AM	692	581***

CY2021 Key Regulator Monitoring Report

Regulator NR-16	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Jan-21	1	1/16/21 3:00 AM	1/16/21 6:00 AM	3.00	233	319	340	N/A	N/A	N/A	N/A
Feb-21	1	2/16/21 5:15 AM	2/16/21 6:00 AM	0.75	244	262	340	N/A	N/A	N/A	N/A
May-21	1	5/30/21 2:00 PM	5/30/21 2:45 PM	0.75	134	234	340	5/30/21 3:00 PM	5/30/21 7:30 PM	353	302
Jun-21	1	6/8/21 4:30 PM	6/8/21 5:00 PM	0.50	130	151	340	N/A	N/A	N/A	N/A
Jul-21	1	7/8/21 3:15 PM	7/8/21 4:45 PM	1.50	192	281	340	7/8/21 5:00 PM	7/9/21 1:15 AM	359	285
	2a	7/12/21 1:45 AM	7/12/21 2:15 AM	0.50	95	95	340	N/A	N/A	N/A	N/A
	2b	7/12/21 3:00 AM	7/12/21 3:30 AM	0.50	194	199	340	N/A	N/A	N/A	N/A
	3a	7/29/21 3:00 PM	7/29/21 3:30 PM	0.50	132	178	340	N/A	N/A	N/A	N/A
	3b	7/29/21 7:30 PM	7/29/21 8:00 PM	0.50	230	276	340	N/A	N/A	N/A	N/A
Oct-21	1	10/26/21 4:00 AM	10/26/21 8:00 AM	4.00	307	334	340	N/A	N/A	N/A	N/A
	2	10/29/21 10:00 PM	10/29/21 10:45 PM	0.75	193	283	340	N/A	N/A	N/A	N/A

CY2021 Key Regulator Monitoring Report

Regulator NR-23	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Jan-21	1a	1/16/21 3:00 AM	1/16/21 3:30 AM	0.50	233	234	340	N/A	N/A	N/A	N/A
	1b	1/16/21 4:15 AM	1/16/21 5:15 AM	1.00	269	278		N/A	N/A	N/A	N/A
Jun-21	1	6/4/21 4:15 PM	6/4/21 5:00 PM	0.75	162	247	340	N/A	N/A	N/A	N/A
	2	6/8/21 4:30 PM	6/8/21 5:00 PM	0.50	130	151	340	N/A	N/A	N/A	N/A
Jul-21	1a	7/9/21 7:15 AM	7/9/21 8:15 AM	1.00	291	291	340	7/9/21 6:15 AM	7/9/21 7:00 AM	349	345
	1b	7/9/21 8:30 AM	7/9/21 9:00 AM	0.50	221	325	340				

CY2021 Key Regulator Monitoring Report

Regulator NR-33	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Jul-21	1	7/9/21 7:15 AM	7/9/21 8:00 AM	0.75	291	291	340	7/9/21 6:15 AM	7/9/21 7:00 AM	349	345
Oct-21	1	10/26/21 7:00 AM	10/26/21 8:15 AM	1.25	328	328	340	N/A	N/A	N/A	N/A

CY2021 Key Regulator Monitoring Report

Regulator OH-01	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Sep-21	1	9/24/21 4:45 AM	9/24/21 6:00 AM	1.25	185	186	240	9/23/21 6:45 PM	9/24/21 1:15 AM	245	237***

CY2021 Key Regulator Monitoring Report

Regulator OH-06	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Jun-21	1	6/4/21 4:30 PM	6/4/21 5:30 PM	1.00	154	154	180	6/3/21 8:45 PM	6/4/21 1:45 AM	225	192

CY2021 Key Regulator Monitoring Report

Regulator PR-06W	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Feb-21	1	2/16/21 4:45 AM	2/16/21 6:15 AM	1.50	92	110	120	N/A	N/A	N/A	N/A
	2	2/22/21 3:15 PM	2/22/21 4:45 PM	1.50	94	99	120	N/A	N/A	N/A	N/A
Mar-21	1	3/18/21 2:45 PM	3/18/21 4:15 PM	1.50	96	96	120	N/A	N/A	N/A	N/A
Apr-21	1	4/15/21 2:00 PM	4/15/21 2:30 PM	0.50	94	97	120	N/A	N/A	N/A	N/A
May-21	1a	5/29/21 1:45 AM	5/29/21 4:15 AM	2.50	108	110	120	5/29/21 12:00 AM	5/29/21 12:00 AM	123	123
	1b	5/29/21 12:00 PM	5/29/21 1:30 PM	1.50	103	103					
	2a	5/30/21 2:30 PM	5/30/21 2:45 PM	0.25	104	117	120	5/30/21 3:00 PM	5/30/21 3:15 PM	121	121
	2b	5/30/21 3:30 PM	5/30/21 7:15 PM	3.75	119	119					
Jun-21	1	6/3/21 10:00 PM	6/3/21 10:30 PM	0.50	84	89	120	N/A	N/A	N/A	N/A
	2a	6/4/21 4:45 PM	6/4/21 4:45 PM	0.00*	113	113	120	6/4/21 5:00 PM	6/4/21 5:30 PM	133	127
	2b	6/4/21 5:45 PM	6/4/21 8:00 PM	2.25	114	114	120				
	3	6/8/21 4:30 PM	6/8/21 4:30 PM	0.00*	71	71	120	6/8/21 4:45 PM	6/8/21 8:00 PM	130	119
Jul-21	1a	7/6/21 9:30 PM	7/6/21 9:45 PM	0.25	59	59	120	7/6/21 10:00 PM	7/7/21 1:15 AM	136	128
	1b	7/7/21 1:30 AM	7/7/21 2:00 AM	0.50	97	97	120				
	2	7/9/21 3:30 AM	7/9/21 3:45 AM	0.25	60	87	120	7/9/21 4:00 AM	7/9/21 5:00 AM	124	123
	3a	7/10/21 2:30 AM	7/10/21 2:30 AM	0.00	104	104	120	7/9/21 10:15 PM	7/10/21 2:15 AM	138	129
	3b	7/10/21 11:45 AM	7/10/21 12:45 PM	1.00	81	81	120				
	4	7/12/21 2:30 AM	7/12/21 4:30 AM	2.00	76	116	120	N/A	N/A	N/A	N/A
	5	7/29/21 7:45 PM	7/29/21 8:15 PM	0.50	88	91	120	N/A	N/A	N/A	N/A
Aug-21	1a	8/22/21 11:45 AM	8/22/21 12:30 PM	0.75	100	117	120	8/22/21 12:45 PM	8/22/21 3:15 PM	129	123
	1b	8/22/21 3:30 PM	8/22/21 3:30 PM	0.00	119	119	120				
	2	8/27/21 5:15 PM	8/27/21 6:15 PM	1.00	57	113	120	N/A	N/A	N/A	N/A
Sep-21	1	9/24/21 4:30 AM	9/24/21 5:30 AM	1.00		112	120	9/23/21 7:45 PM	9/23/21 9:00 PM	130	129
Oct-21	1	10/29/21 10:00 PM	10/29/21 11:45 PM	1.75	90	106	120	N/A	N/A	N/A	N/A
	2	10/30/21 12:45 AM	10/30/21 1:30 AM	0.75	102	102	120	N/A	N/A	N/A	N/A
	3	10/31/21 6:30 AM	10/31/21 7:30 AM	1.00	72	92	120	N/A	N/A	N/A	N/A

CY2021 Key Regulator Monitoring Report

Regulator PR-13E	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Jan-21	1	1/16/21 2:00 AM	1/16/21 6:30 AM	4.50	89	90	120	N/A	N/A	N/A	N/A
Feb-21	1a	2/16/21 2:30 AM	2/16/21 8:30 AM	6.00	29	110	120	N/A	N/A	N/A	N/A
	1b	2/16/21 2:30 PM	2/16/21 5:15 PM	2.75	90	90					
	2	2/22/21 2:00 PM	2/22/21 5:15 PM	3.25	49	99	120	N/A	N/A	N/A	N/A
	3	2/27/21 10:15 AM	2/27/21 1:00 PM	2.75	96	114	120	N/A	N/A	N/A	N/A
Mar-21	1	3/18/21 2:30 PM	3/18/21 5:00 PM	2.50	98	98	120	N/A	N/A	N/A	N/A
	2	3/24/21 5:45 PM	3/24/21 6:45 PM	1.00	54	107	120	3/24/21 7:00 PM	3/24/21 11:30 PM	127	124
	3	3/28/21 10:30 AM	3/28/21 1:00 PM	2.50	46	85	120	N/A	N/A	N/A	N/A
Apr-21	1	4/11/21 3:00 PM	4/11/21 3:30 PM	0.50	72	72	120	N/A	N/A	N/A	N/A
	2	4/15/21 1:30 PM	4/15/21 3:00 PM	1.50	66	100	120	N/A	N/A	N/A	N/A
	3	4/25/21 6:00 AM	4/25/21 6:45 AM	0.75	51	75	120	N/A	N/A	N/A	N/A
May-21	1	5/3/21 10:15 PM	5/3/21 10:45 PM	0.50	49	64	120	N/A	N/A	N/A	N/A
	2a	5/29/21 1:00 AM	5/29/21 4:00 AM	3.00	106	110	120	5/29/21 12:00 AM	5/29/21 12:00 AM	123	123
	2b	5/29/21 10:00 AM	5/29/21 12:30 PM	2.50	95	115					
	3a	5/30/21 7:45 AM	5/30/21 9:00 AM	1.25	32	96	120	5/30/21 3:00 PM	5/30/21 3:15 PM	121	121
	3b	5/30/21 10:30 AM	5/30/21 11:00 AM	0.50	96	96					
	3c	5/30/21 12:45 PM	5/30/21 1:30 PM	0.75	78	78					
	3d	5/30/21 2:00 PM	5/30/21 2:45 PM	0.75	44	117					
	3e	5/30/21 3:30 PM	5/30/21 7:00 PM	3.50	119	119					
Jun-21	1	6/3/21 9:00 PM	6/3/21 10:45 PM	1.75	37	92	120	N/A	N/A	N/A	N/A
	2	6/4/21 4:30 PM	6/4/21 4:45 PM	0.25	93	113	120	6/4/21 5:00 PM	6/4/21 5:30 PM	133	127
	3	6/26/21 3:15 PM	6/26/21 6:45 PM	3.50	30	39	120	N/A	N/A	N/A	N/A
	4	6/30/21 10:15 PM	6/30/21 11:00 PM	0.75		76	120	N/A	N/A	N/A	N/A
Jul-21	1a	7/1/21 6:15 PM	7/1/21 7:30 PM	1.25	59	99	120	N/A	N/A	N/A	N/A
	1b	7/1/21 8:45 PM	7/1/21 9:15 PM	0.50	94	94	120	N/A	N/A	N/A	N/A
	1c	7/2/21 6:45 AM	7/2/21 7:15 AM	0.50	30	30	120	N/A	N/A	N/A	N/A
	2	7/9/21 3:15 AM	7/9/21 3:45 AM	0.50	60	87	120	7/9/21 4:00 AM	7/9/21 5:00 AM	124	123
	3	7/12/21 2:45 AM	7/12/21 4:00 AM	1.25	90	116	120	N/A	N/A	N/A	N/A
Aug-21	1	8/21/21 8:30 PM	8/21/21 10:00 PM	1.50	39	85	120	8/21/22 10:30 PM	8/21/22 11:15 PM	135	129
	2a	8/22/21 6:00 AM	8/22/21 12:30 PM	6.50	93	117	120	8/22/21 1:45 AM	8/22/21 5:15 AM	134	129
	2b	8/22/21 6:00 PM	8/22/21 11:45 PM	5.75	119	119	120	8/22/21 4:45 PM	8/22/21 5:45 PM	121	121
	3	8/23/21 10:30 AM	8/23/21 12:30 PM	2.00	118	118	120	8/23/21 7:30 AM	8/23/21 10:15 AM	125	123
Oct-21	1a	10/26/21 1:30 AM	10/26/21 4:30 AM	3.00	33	117	120	10/26/21 4:45 AM	10/26/21 12:30 PM	132	125
	1b	10/26/21 12:45 PM	10/26/21 5:30 PM	4.75	113	113	120				
	2	10/27/21 11:30 PM	10/28/21 12:00 AM	0.50	41	40	120	N/A	N/A	N/A	N/A
	3	10/29/21 10:30 PM	10/30/21 2:00 AM	3.50	90	99	120	N/A	N/A	N/A	N/A
	4	10/31/21 6:30 AM	10/31/21 7:00 AM	0.50	74	82	120	N/A	N/A	N/A	N/A
Nov-21	1	11/12/21 11:30 AM	11/12/21 2:30 PM	3.00	55	94	120	N/A	N/A	N/A	N/A
Dec-21	1	12/26/21 12:00 AM	12/26/21 3:30 AM	3.50	28	103	120	N/A	N/A	N/A	N/A

CY2021 Key Regulator Monitoring Report

Regulator RH-02	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Regulator RH-02 has had no potential discharges outside the period of a critical wet weather event.											

CY2021 Key Regulator Monitoring Report

Regulator RH-20	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Regulator RH-20 has had no potential discharges outside the period of a critical wet weather event.											

CY2021 Key Regulator Monitoring Report

Regulator TI-09	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Jan-21	1a	1/1/21 9:30 PM	1/1/21 10:00 PM	0.50	136	153	160				
	1b	1/1/21 10:45 PM	1/1/21 10:45 PM	0.00*	159	159	160	1/1/21 11:00 PM	1/1/21 11:00 PM	161	161
	1c	1/1/21 11:15 PM	1/2/21 1:00 AM	1.75	159	159	160				
	2a	1/16/21 12:15 AM	1/16/21 12:45 AM	0.50	140	140	160				
	2b	1/16/21 3:15 AM	1/16/21 4:45 AM	1.50	101	159	160	1/16/21 5:00 AM	1/16/21 5:45 AM	163	162
	2c	1/16/21 6:00 AM	1/16/21 7:00 AM	1.00	159	159	160				
Feb-21	1	2/16/21 4:30 AM	2/16/21 9:15 AM	4.75	143	157	160	N/A	N/A	N/A	N/A
	2	2/22/21 3:15 PM	2/22/21 7:00 PM	1.75	150	152	160	N/A	N/A	N/A	N/A
	3	2/27/21 10:15 AM	2/27/21 1:30 PM	1.00	142	152	160	N/A	N/A	N/A	N/A
Mar-21	1	3/18/21 3:30 PM	3/18/21 5:15 PM	1.75	139	139	160	N/A	N/A	N/A	N/A
	2	3/24/21 7:15 PM	3/24/21 8:15 PM	1.00	124	159	160	3/24/21 8:30 PM	3/24/21 11:00 PM	165	162
	3	3/28/21 11:15 AM	3/28/21 1:45 PM	2.50	150	157	160	N/A	N/A	N/A	N/A
Apr-21	1	4/11/21 6:30 PM	4/11/21 7:15 PM	0.75	137	137	160	N/A	N/A	N/A	N/A
	2	4/15/21 2:00 PM	4/15/21 8:45 PM	6.75	136	156	160	N/A	N/A	N/A	N/A
May-21	1	5/4/21 12:30 AM	5/4/21 2:15 AM	1.75	125	147	160	N/A	N/A	N/A	N/A
	2	5/9/21 10:00 PM	5/9/21 10:45 PM	0.75	137	139	160	N/A	N/A	N/A	N/A
	3a	5/28/21 9:30 PM	5/28/21 11:45 PM	2.25	146	154	160				
	3b	5/29/21 12:00 AM	5/29/21 1:00 AM	1.00	157	158		N/A	N/A	N/A	N/A
	3c	5/29/21 1:15 AM	5/28/21 5:00 AM	3.75	156	156	160				
	3d	5/29/21 11:00 AM	5/29/21 12:45 PM	1.75	143	143					
	4	5/30/21 2:45 PM	5/30/21 8:30 PM	5.75	131	157	160	N/A	N/A	N/A	N/A
Jun-21	1	6/4/21 6:15 PM	6/4/21 6:45 PM	0.50	156	156	160	6/4/21 5:00 PM	6/4/21 6:00 PM	163	163
	2	6/8/21 5:15 PM	6/8/21 6:45 PM	1.50		140	160	N/A	N/A	N/A	N/A
Jul-21	1a	7/1/21 7:45 PM	7/1/21 8:30 PM	0.75	141	146	160	N/A	N/A	N/A	N/A
	1b	7/1/21 8:45 PM	7/1/21 9:45 PM	1.00	152	159	160	N/A	N/A	N/A	N/A
	1c	7/1/21 10:00 PM	7/1/21 10:45 PM	0.75	145	146	160	N/A	N/A	N/A	N/A
	2a	7/2/21 3:30 PM	7/2/21 3:45 PM	0.25	90	110	160	7/2/21 4:00 PM	7/3/21 7:30 PM	168	163
	2b	7/2/21 9:30 PM	7/2/21 10:15 PM	0.75	96	153	160	7/2/21 10:30 PM	7/3/21 12:45 AM	165	162
	3	7/3/21 1:15 PM	7/3/21 2:15 PM	1.00	141	148	160	N/A	N/A	N/A	N/A
	4	7/6/21 11:00 PM	7/7/21 12:00 AM	1.00	134	144	160	N/A	N/A	N/A	N/A
	5	7/8/21 5:00 PM	7/8/21 5:45 PM	0.75	57	154	160	7/8/21 6:00 PM	7/8/21 7:00 PM	170	166
	6a	7/9/21 6:00 AM	7/9/21 6:00 AM	0.00	153	153	160	7/9/21 6:15 AM	7/9/21 11:15 AM	170	163
	6b	7/9/21 11:30 AM	7/9/21 11:30 AM	0.00	159	159	160				
	7	7/26/21 2:45 AM	7/26/21 4:30 AM	1.75	104	156	160	N/A	N/A	N/A	N/A
Aug-21	1	8/8/21 8:00 PM	8/8/21 9:30 PM	1.50	118	146	160	N/A	N/A	N/A	N/A
	2	8/19/21 6:15 AM	8/19/21 7:15 AM	1.00	100	150	160	N/A	N/A	N/A	N/A
	3a	8/21/21 8:30 PM	8/21/21 9:15 PM	0.75	70	144	160	8/21/21 9:30 PM	8/22/21 1:45 AM	170	164
	3b	8/22/21 2:00 AM	8/22/21 2:15 AM	0.25	158	158	160				
	3c	8/22/21 11:00 AM	8/22/21 11:00 AM	0.00*	149	149	160	8/22/21 11:15 AM	8/22/21 12:30 PM	164	161
	3d	8/22/21 12:45 PM	8/22/21 1:15 PM	0.50	156	158	160				
	3e	8/22/21 1:30 PM	8/22/21 2:30 PM	1.00	154	158	160	8/22/21 2:45 PM	8/22/21 8:45 PM	172	164
	3f	8/22/21 9:00 PM	8/22/21 9:15 PM	0.25	154	154	160				
	3g	8/23/21 10:00 AM	8/23/21 10:30 AM	0.50	151	151	160	8/23/21 7:00 AM	8/23/21 9:45 AM	167	165
Sep-21	1	9/23/21 10:00 PM	9/24/21 12:30 AM	2.25	145	155	160	N/A	N/A	N/A	N/A
Dec-21	1	12/6/21 4:45 AM	12/6/21 5:30 AM	0.75	100	138	160	N/A	N/A	N/A	N/A

CY2021 Key Regulator Monitoring Report

Regulator TI-10A	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Regulator TI-10A has had no potential discharges outside the period of a critical wet weather event.											

CY2021 Key Regulator Monitoring Report

Regulator WIB-53	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Regulator WIB-53 has had no potential discharges outside the period of a critical wet weather event.											

CY2021 Key Regulator Monitoring Report

Regulator WIB-67	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Feb-21	1	2/27/21 11:45 AM	2/27/21 8:45 PM	9.00	430	477	507	N/A	N/A	N/A	N/A
Mar-21	1	3/28/21 12:00 PM	3/28/21 12:30 PM	0.50	459	459	507	3/28/21 8:45 AM	3/28/21 11:30 AM	577	553
Apr-21	1	4/15/21 7:15 PM	4/15/21 7:45 PM	0.50	405	405	420	4/15/21 1:15 PM	4/15/21 7:00 PM	590	516
May-21	1a	5/29/21 3:30 AM	5/29/21 5:00 AM	1.50	379	383	420	5/28/21 7:00 PM	5/29/21 3:15 AM	620	542
	1b	5/29/21 10:00 AM	5/29/21 10:30 AM	0.50	327	405		5/29/21 10:45 AM	5/29/21 12:30 AM	489	471
	2a	5/30/21 8:15 AM	5/30/21 8:45 AM	0.50	277	372	420	5/30/21 9:00 AM	5/30/21 9:00 AM	474	474
	2b	5/30/21 9:15 AM	5/30/21 9:45 AM	0.50	416	416					
	2c	5/30/21 7:15 PM	5/30/21 8:00 PM	0.75	415	415		5/30/21 2:30 PM	5/30/21 7:00 PM	550	492
Jun-21	1	6/3/21 10:30 AM	6/3/21 10:30 AM	0.00*	289	289	420	6/3/21 10:45 AM	6/3/21 11:30 AM	573	489
Jul-21	1	7/9/21 3:00 AM	7/9/21 3:30 AM	0.50	311	383	440	7/9/21 3:45 AM	7/9/21 12:15 PM	544	503
Oct-21	1	10/30/21 12:30 AM	10/30/21 1:00 AM	0.50	408	408	440	10/29/21 10:15 PM	10/30/21 12:15 AM	608	552

CY2021 Key Regulator Monitoring Report

Regulator WIM-23	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Jun-21	1	6/8/21 4:30 PM	6/8/21 4:45 PM	0.25	264	318	420	6/8/21 5:00 PM	6/8/21 7:30 PM	593	507
Jul-21	1	7/26/21 4:00 AM	7/26/21 4:30 AM	0.50	438	438	440	7/26/21 2:00 AM	7/26/21 3:45 AM	542	509
Aug-21	1	8/10/21 7:45 PM	8/10/21 8:15 PM	0.50	266	376	440	8/10/21 8:30 PM	8/10/21 10:00 PM	596	509
	2	8/23/21 6:00 AM	8/23/21 6:00 AM	0.00*	391	391	440	8/23/21 6:15 AM	8/23/21 9:15 AM	647	604
Sep-21	1	9/23/21 7:45 PM	9/23/21 8:15 PM	0.50	239	369	440	9/23/21 8:30 PM	9/24/21 2:15 AM	608	519

Appendix 3.2: CRITICAL WET WEATHER EVENT SUMMARY – CY 2021

26TH WARD - WET WEATHER THROTTLING SUMMARY

		Plant Throttling Information					Critical Wet Weather Event					
Storm Dates	WET WEATHER PLANT CAPACITY (MGD)	Did Plant Throttle? Yes/No	Flow at Start of Throttling (MGD)	Throttling Max Flow (MGD)	Throttling Avg Flow (MGD)	Bypass Item No.	Critical Event Start Date & Time		Critical Event End Date & Time		Critical Event Max Flow (MGD)	Critical Event Avg Flow (MGD)
1/1/2021 - 1/2/2021	127.5 (interim limit)	YES	135	135	131	N/A	1/1/2021	8:15 PM	1/2/2021	1:15 AM	139	132
1/15/2021 -1/16/2021	127.5 (interim limit)	YES	151	151	136	N/A	1/15/2021	10:15 PM	1/16/2021	12:30 AM	151	135
	127.5 (interim limit)	YES	137	137	132	N/A	1/16/2021	2:45 AM	1/16/2021	8:15 AM	137	132
2/16/2021	127.5 (interim limit)	YES	135	140	132	N/A	2/16/2021	2:45 AM	2/16/2021	10:45 AM	140	132
2/22/2021	127.5 (interim limit)	YES	143	143	131	N/A	2/22/2021	2:15 PM	2/22/2021	7:45 PM	150	132
2/27/2021	127.5 (interim limit)	YES	135	135	129	N/A	2/27/2021	10:00 AM	2/27/2021	12:15 PM	135	129
3/18/2021	127.5 (interim limit)	YES	135	135	134	N/A	3/18/2021	12:45 PM	3/18/2021	5:30 PM	135	130
	127.5 (interim limit)	YES	135	135	127	N/A						
3/24/2021 - 3/25/2021	127.5 (interim limit)	YES	135	135	125	N/A	3/24/2021	5:00 PM	3/25/2021	12:15 AM	135	126
3/28/2021	127.5 (interim limit)	YES	135	137	131	N/A	3/28/2021	9:30 AM	3/28/2021	2:15 PM	137	131
3/31/2021 - 4/1/2021	127.5 (interim limit)	YES	138	138	126	N/A	3/31/2021	10:45 PM	4/1/2021	1:30 AM	138	126
4/15/2021	127.5 (interim limit)	YES	140	143	133	N/A	4/15/2021	1:15 PM	4/15/2021	7:30 PM	143	133
4/25/2021	127.5 (interim limit)	YES	133	136	135	N/A	4/25/2021	6:00 AM	4/25/2021	8:00 AM	136	134
5/4/2021	127.5 (interim limit)	YES	132	132	131	N/A	5/4/2021	12:00 AM	5/4/2021	1:45 AM	134	131
5/28/2021 - 5/29/2021	127.5 (interim limit)	YES	132	133	128	N/A	5/28/2021	7:30 PM	5/29/2021	5:00 AM	133	128
	127.5 (interim limit)	YES	136	138	137	N/A	5/29/2021	10:15 AM	5/29/2021	1:00 PM	137	143
5/30/2021	127.5 (interim limit)	NO	N/A	N/A	N/A	N/A	5/30/2021	8:00 AM	5/30/2021	9:15 AM	133	132
	127.5 (interim limit)	YES	138	140	134	N/A	5/30/2021	2:30 PM	5/30/2021	8:30 PM	140	134
6/3/2021	127.5 (interim limit)	YES	140	140	133	N/A	6/3/2021	9:15 PM	6/3/2021	11:30 PM	140	133
6/4/2021	127.5 (interim limit)	YES	137	147	133	N/A	6/4/2021	4:45 PM	6/4/2021	7:15 PM	147	133
6/8/2021	127.5 (interim limit)	YES	138	144	132	N/A	6/8/2021	4:45 PM	6/8/2021	10:45 PM	144	131
7/1/2021	127.5 (interim limit)	YES	139	142	131	N/A	7/1/2021	6:45 PM	7/1/2021	10:00 PM	142	131
7/2/2021	127.5 (interim limit)	YES	142	141	135	N/A	7/2/2021	10:15 PM	7/2/2021	12:15 AM	141	135
7/6/2021	127.5 (interim limit)	YES	148	143	133	N/A	7/6/2021	10:45 PM	7/7/021	12:15 AM	143	133
7/8/2021 - 7/10/2021	127.5 (interim limit)	YES	143	138	131	N/A	7/8/2021	4:30 PM	7/8/2021	9:30 PM	136	131
	127.5 (interim limit)	YES	144	144	133	N/A	7/9/2021	3:15 AM	7/9/2021	1:30 PM	144	133
	127.5 (interim limit)	YES	144	148	135	N/A	7/9/2021	10:15 PM	7/10/2021	1:30 AM	148	134
7/12/2021	127.5 (interim limit)	YES	138	133	127	N/A	7/12/2021	3:30 AM	7/12/2021	4:45 AM	133	128

26TH WARD - WET WEATHER THROTTLING SUMMARY

		Plant Throttling Information					Critical Wet Weather Event					
Storm Dates	WET WEATHER PLANT CAPACITY (MGD)	Did Plant Throttle? Yes/No	Flow at Start of Throttling (MGD)	Throttling Max Flow (MGD)	Throttling Avg Flow (MGD)	Bypass Item No.	Critical Event Start Date & Time		Critical Event End Date & Time		Critical Event Max Flow (MGD)	Critical Event Avg Flow (MGD)
7/18/2021	127.5 (interim limit)	YES	140	140	130	N/A	7/18/2021	12:45 AM	7/18/2021	2:00 AM	140	130
7/21/2021	127.5 (interim limit)	YES	136	136	133	N/A	7/21/2021	1:45 PM	7/21/2021	3:15 PM	136	133
7/29/2021	127.5 (interim limit)	YES	131	133	129	N/A	7/29/2021	7:30 PM	7/29/2021	9:30 PM	133	129
8/8/2021	127.5 (interim limit)	NO	N/A	N/A	N/A	N/A	8/8/2021	8:15 PM	8/8/2021	9:15 PM	140	136
8/10/2021	127.5 (interim limit)	YES	138	140	136	N/A	8/10/2021	8:00 PM	8/10/2021	11:30 PM	140	134
8/11/2021	127.5 (interim limit)	YES	135	135	129	N/A	8/11/2021	10:15 PM	8/11/2021	11:30 PM	135	129
8/19/2021	127.5 (interim limit)	YES	135	135	132	N/A	8/19/2021	6:15 AM	8/19/2021	7:45 AM	135	132
8/21/2021 - 8/23/2021	127.5 (interim limit)	YES	133	134	131	N/A	8/21/2021	8:00 PM	8/22/2021	4:00 AM	134	131
	127.5 (interim limit)	YES	135	141	135	N/A	8/22/2021	9:30 AM	8/22/2021	11:45 PM	139	135
	127.5 (interim limit)	YES	134	137	132	N/A	8/23/2021	6:30 AM	8/23/2021	4:00 PM	137	132
8/27/2021	127.5 (interim limit)	YES	137	138	133	N/A	8/27/2021	4:15 PM	8/27/2021	8:15 PM	138	133
8/28/2021	127.5 (interim limit)	NO	N/A	N/A	N/A	N/A	8/28/2021	6:45 AM	8/28/2021	7:00 AM	135	133
9/1/2021 - 9/2/2021	127.5 (interim limit)	YES	137	137	130	N/A	9/1/2021	6:30 PM	9/2/2021	5:30 AM	137	130
9/13/2021 - 9/14/2021	127.5 (interim limit)	YES	139	139	134	N/A	9/13/2021	11:00 PM	9/14/2021	12:00 AM	139	134
9/23/2021 - 9/24/2021	127.5 (interim limit)	YES	140	142	134	N/A	9/23/2021	8:15 PM	9/24/2021	8:15 AM	142	134
10/26/2021 - 10/27/2021	170	YES	174	176	174	N/A	10/26/2021	1:30 AM	10/26/2021	3:15 AM	176	174
	170	YES	176	179	176	N/A	10/26/2021	4:00 AM	10/26/2021	2:15 PM	179	175
	170	YES	175	175	174	N/A	10/26/2021	8:30 PM	10/27/2021	12:30 AM	175	174
10/29/2022	170	NO	N/A	N/A	N/A	N/A	10/29/2022	11:00 PM	10/29/2022	11:00 PM	170	170
11/13/2021	170	YES	175	175	167	N/A	11/13/2021	3:30 PM	11/13/2021	6:15 PM	175	161

BOWERY BAY - WET WEATHER THROTTLING SUMMARY

		Plant Throttling Information					Critical Wet Weather Event					
Storm Dates	**WET WEATHER PLANT CAPACITY (MGD)**	**Did Plant Throttle? Yes/No**	**Flow at Start of Throttling (MGD)**	**Throttling Max Flow (MGD)**	**Throttling Avg Flow (MGD)**	**Bypass Item No.**	**Critical Event Start Date & Time**		**Critical Event End Date & Time**		**Critical Event Max Flow (MGD)**	**Critical Event Avg Flow (MGD)**
1/1/2021 - 1/2/2021	300	YES	317	319	316	N/A	1/1/2021	10:30 PM	1/2/2021	2:30 AM	327	314
1/15/2021 - 1/16/2021	300	YES	309	318	313	N/A	1/15/2021	11:15 PM	1/16/2021	1:45 AM	318	311
	300	YES	306	361	308	N/A	1/16/2021	3:15 AM	1/16/2021	8:00 AM	361	308
2/16/2021	300	NO	N/A	N/A	N/A	N/A	2/16/2021	3:00 AM	2/16/2021	10:00 AM	361	313
2/22/2021	300	NO	N/A	N/A	N/A	N/A	2/22/2021	2:45 PM	2/22/2021	7:15 PM	329	317
2/27/2021	300	YES	315	315	305	N/A	2/27/2021	9:45 AM	2/27/2021	1:45 PM	315	306
3/18/2021	300	YES	305	317	311	N/A	3/18/2021	2:00 PM	3/18/2021	6:00 PM	317	311
3/24/2021 - 3/25/2021	300	YES	300	317	308	N/A	3/24/2021	6:30 PM	3/25/2021	12:15 AM	317	308
3/28/2021	300	YES	305	315	304	N/A	3/28/2021	10:45 AM	3/28/2021	2:30 PM	315	304
3/31/2021 - 4/1/2021	300	YES	322	342	321	N/A	3/31/2021	11:00 PM	4/1/2021	1:45 AM	342	316
4/11/2021	300	YES	309	316	312	N/A	4/11/2021	3:15 PM	4/11/2021	7:45 PM	323	313
4/12/2021	300	NO	N/A	N/A	N/A	N/A	4/12/2021	9:15 PM	4/12/2021	11:15 PM	338	308
4/15/2021	300	YES	305	313	305	N/A	4/15/2021	1:45 PM	4/15/2021	8:15 PM	328	312
4/25/2021	300	YES	320	320	305		4/25/2021	6:45 AM	4/25/2021	10:30 AM	320	305
5/4/2021	300	YES	313	323	310	N/A	5/4/2021	1:00 AM	5/4/2021	5:45 AM	323	309
5/9/2021	300	NO	N/A	N/A	N/A	N/A	5/9/2021	9:00 PM	5/9/2021	12:15 AM	320	311
5/28/2021 - 5/29/2021	300	YES	312	328	316	N/A	5/28/2021	7:15 PM	5/29/2021	5:30 AM	328	315
	300	YES	309	327	316	N/A	5/29/2021	10:30 AM	5/29/2021	1:15 PM	327	316
5/30/2021	300	NO	N/A	N/A	N/A	N/A	5/30/2021	8:45 AM	5/30/2021	9:30 AM	342	314
	300	NO	N/A	N/A	N/A	N/A	5/30/2021	11:00 AM	5/30/2021	11:00 AM	300	300
	300	YES	303	315	307	N/A	5/30/2021	3:00 PM	5/30/2021	9:15 PM	315	307
6/4/2021	300	YES	304	353	315	N/A	6/4/2021	5:00 PM	6/4/2021	7:00 PM	353	314
6/8/2021	300	YES	315	322	307	N/A	6/8/2021	5:30 PM	6/8/2021	8:30 PM	322	307
6/30/2021 - 7/1/2021	300	NO	N/A	N/A	N/A	N/A	6/30/2021	11:00 PM	7/1/2021	12:00 AM	322	315
7/1/2021	300	YES	306	321	311	N/A	7/1/2021	7:00 PM	7/1/2021	10:15 PM	321	311
7/2/2021 - 7/3/2021	300	YES	320	351	323	N/A	7/2/2021	8:00 PM	7/3/2021	12:45 AM	351	321
7/6/2021 - 7/7/2021	300	NO	N/A	N/A	N/A	N/A	7/6/2021	10:00 PM	7/7/2021	12:15 AM	317	313

BOWERY BAY - WET WEATHER THROTTLING SUMMARY

		Plant Throttling Information					Critical Wet Weather Event					
Storm Dates	**WET WEATHER PLANT CAPACITY (MGD)**	**Did Plant Throttle? Yes/No**	**Flow at Start of Throttling (MGD)**	**Throttling Max Flow (MGD)**	**Throttling Avg Flow (MGD)**	**Bypass Item No.**	**Critical Event Start Date & Time**		**Critical Event End Date & Time**		**Critical Event Max Flow (MGD)**	**Critical Event Avg Flow (MGD)**
7/8/2021 - 7/10/2021	300	NO	N/A	N/A	N/A	N/A	7/8/2021	5:45 PM	7/8/2021	7:45 PM	326	316
	300	YES	313	345	313	N/A	7/9/2021	4:00 AM	7/9/2021	11:45 AM	345	313
	300	YES	313	320	318	N/A	7/9/2021	11:00 PM	7/10/2021	1:45 AM	320	315
7/12/2021	300	YES	311	327	314	N/A	7/12/2021	3:30 AM	7/12/2021	5:45 AM	327	309
7/18/2021	300	NO	N/A	N/A	N/A	N/A	7/18/2021	1:30 AM	7/18/2021	2:30 AM	308	304
7/25/2021	300	NO	N/A	N/A	N/A	N/A	7/25/2021	6:00 AM	7/25/2021	6:15 AM	304	302
7/26/2021	300	YES	315	315	307	N/A	7/26/2021	2:45 AM	7/26/2021	5:00 AM	315	307
7/29/2021	300	NO	N/A	N/A	N/A	N/A	7/29/2021	8:00 PM	7/29/2021	9:00 PM	310	305
8/10/2021	300	NO	N/A	N/A	N/A	N/A	8/10/2021	9:00 PM	8/10/2021	11:30 PM	319	310
8/19/2021	300	NO	N/A	N/A	N/A	N/A	8/19/2021	6:30 AM	8/19/2021	8:45 AM	320	315
8/21/2021 - 8/23/2021	300	YES	310	332	315	N/A	8/21/2021	8:45 PM	8/22/2021	3:30 AM	332	314
	300	YES	306	352	312	N/A	8/22/2021	10:45 AM	8/22/2021	10:30 PM	352	312
	300	YES	314	348	310	N/A	8/23/2021	6:15 AM	8/23/2021	11:15 AM	348	312
9/1/2021 - 9/2/2021	300	YES	304	322	310	5603	9/1/2021	6:45 PM	9/2/2021	8:00 AM	322	309
9/23/2021 - 9/24/2021	300	YES	312	348	310	5606	9/23/2021	8:30 PM	9/24/2021	3:15 AM	348	310
	300	YES	286	307	293	N/A	9/24/2021	4:00 AM	9/24/2021	7:45 AM	310	298
10/26/2021 - 10/27/2021	300	YES	305	318	313	N/A	10/26/2021	1:45 AM	10/26/2021	1:30 PM	318	312
	300	YES	313	324	308	N/A	10/26/2021	8:30 PM	10/27/2021	2:45 AM	324	308
	300	NO	N/A	N/A	N/A	N/A	10/27/2021	3:30 AM	10/27/2021	5:00 AM	310	305
10/29/2021-10/30/2021	250 (PST o/s)	YES	273	284	273	N/A	10/29/2021	10:45 PM	10/30/2021	3:00 AM	284	271
	250 (PST o/s)	NO	N/A	N/A	N/A	N/A	10/30/2021	5:45 AM	10/30/2021	6:30 AM	274	262
11/12/2021	270 (PST o/s)	YES	300	312	294	N/A	11/12/2021	12:30 PM	11/12/2021	4:45 PM	314	296
11/13/2021	270 (PST o/s)	YES	280	280	268	N/A	11/13/2021	3:15 PM	11/13/2021	4:45 PM	281	272
12/6/2021	300	YES	312	316	305	N/A	12/6/2021	4:45 AM	12/6/2021	6:15 AM	316	305

CONEY ISLAND - WET WEATHER THROTTLING SUMMARY

		Plant Throttling Information					Critical Wet Weather Event					
Storm Dates	WET WEATHER PLANT CAPACITY (MGD)	Did Plant Throttle? Yes/No	Flow at Start of Throttling (MGD)	Throttling Max Flow (MGD)	Throttling Avg Flow (MGD)	Bypass Item No.	Critical Event Start Date & Time		Critical Event End Date & Time		Critical Event Max Flow (MGD)	Critical Event Avg Flow (MGD)
1/1/2021 - 1/2/2021	198 (Consent Order)	YES	165	190	158	N/A	1/1/2021	10:15 PM	1/2/2021	10:15 AM	190	158
1/16/2021	198 (Consent Order)	YES	204	205	164	N/A	1/16/2021	1:00 AM	1/16/2021	7:45 PM	205	164
2/16/2021	198 (Consent Order)	YES	199	205	168	N/A	2/16/2021	4:15 AM	2/16/2021	7:30 PM	205	168
3/18/2021 - 3/19/2021	198 (Consent Order)	YES	158	201	143	N/A	3/18/2021	1:45 PM	3/19/2021	12:30 AM	201	143
3/24/2021 - 3/25/2021	198 (Consent Order)	YES	198	208	199	N/A	3/24/2021	7:15 PM	3/25/2021	5:45 AM	208	199
3/28/2021	198 (Consent Order)	YES	200	200	161	N/A	3/28/2021	12:15 PM	3/28/2021	6:30 PM	200	161
3/31/2021 - 4/1/2021	198 (Consent Order)	YES	179	179	174	N/A	4/1/2021	12:00 AM	4/1/2021	1:30 AM	179	174
4/15/2021 - 4/16/2021	198 (Consent Order)	YES	208	211	206	N/A	4/15/2021	3:00 PM	4/16/2021	12:05 AM	211	206
5/29/2021	198 (Consent Order)	YES	201	206	200	N/A	5/29/2021	12:30 AM	5/29/2021	7:15 PM	206	200
6/4/2021 - 6/5/2021	198 (Consent Order)	YES	210	213	207	N/A	6/4/2021	5:30 PM	6/5/2021	12:30 AM	213	207
6/8/2021 - 6/9/2021	198 (Consent Order)	YES	174	181	170	N/A	6/8/2021	5:15 PM	6/9/2021	4:30 AM	181	170
7/9/2021 - 7/10/2021	198 (Consent Order)	YES	179	215	191	N/A	7/9/2021	4:30 AM	7/9/2021	7:15 PM	215	191
	198 (Consent Order)	YES	217	217	203	N/A	7/9/2021	11:15 PM	7/10/2021	4:15 AM	217	203
8/11/2021	198 (Consent Order)	NO	N/A	N/A	N/A	N/A	8/11/2021	12:00 AM	8/11/2021	12:00 AM	204	204
8/21/2021 - 8/23/2021	198 (Consent Order)	YES	202	216	208	N/A	8/21/2021	8:45 PM	8/23/2021	11:00 PM	216	209
9/1/2021 - 9/2/2021	198 (Consent Order)	YES	210	226	212	N/A	9/1/2021	7:00 PM	9/2/2021	7:15 PM	226	212
9/23/2021 - 9/24/2021	165 (PST o/s)	YES	180	184	176	N/A	9/23/2021	8:30 PM	9/24/2021	6:15 PM	184	176
10/26/2021 - 10/27/2021	165 (PST o/s)	YES	169	181	171	N/A	10/26/2021	2:00 AM	10/27/2021	6:30 PM	181	171
10/29/2021-10/30/2021	165 (PST o/s)	YES	174	174	171	N/A	10/29/2021	10:45 PM	10/30/2021	2:30 AM	174	171
11/13/2021	165 (PST o/s)	YES	167	170	148	N/A	11/13/2021	3:30 PM	11/13/2021	5:45 PM	170	148
12/6/2021	165 (PST o/s)	NO	N/A	N/A	N/A	N/A	12/6/2021	5:00 AM	12/6/2021	5:00 AM	177	177
	165 (PST o/s)	YES	99	131	96	N/A	12/6/2021	6:00 AM	12/6/2021	10:30 PM	131	96
12/29/2021	165 (PST o/s)	NO	N/A	N/A	N/A	N/A	12/29/2021	2:00 AM	12/29/2021	2:00 AM	166	166

HUNTS POINT - WET WEATHER THROTTLING SUMMARY

		Plant Throttling Information					Critical Wet Weather Event					
Storm Dates	WET WEATHER PLANT CAPACITY (MGD)	Did Plant Throttle? Yes/No	Flow at Start of Throttling (MGD)	Throttling Max Flow (MGD)	Throttling Avg Flow (MGD)	Bypass Item No.	Critical Event Start Date & Time		Critical Event End Date & Time		Critical Event Max Flow (MGD)	Critical Event Avg Flow (MGD)
1/15/2021	400	YES	413	413	408	N/A	1/15/2021	11:00 PM	1/15/2021	11:30 PM	413	405
3/24/2021	400	NO	N/A	N/A	N/A	N/A	3/24/2021	6:15 PM	3/24/2021	6:45 PM	406	403
3/28/2021	400	NO	N/A	N/A	N/A	N/A	3/28/2021	9:45 AM	3/28/2021	11:15 AM	411	407
	400	YES	413	413	393	N/A	3/28/2021	12:15 PM	3/28/2021	1:45 PM	413	393
4/15/2021	400	YES	413	440	411	N/A	4/15/2021	2:00 PM	4/15/2021	5:45 PM	440	408
5/28/2021 - 5/29/2021	400	YES	415	420	408	N/A	5/28/2021	7:45 PM	5/29/2021	5:00 AM	420	408
5/30/2021	400	NO	N/A	N/A	N/A	N/A	5/30/2021	4:00 PM	5/30/2021	4:45 PM	403	402
6/4/2021	400	YES	423	423	411	N/A	6/4/2021	4:30 PM	6/4/2021	6:00 PM	423	411
6/30/2021	400	YES	417	417	382	N/A	6/30/2021	9:15 PM	6/30/2021	11:15 PM	417	382
7/1/2021	400	YES	418	418	408	N/A	7/1/2021	2:00 PM	7/1/2021	2:15 PM	418	408
	400	YES	421	431	408	N/A	7/1/2021	6:00 PM	7/1/2021	9:15 PM	431	408
7/8/2021 - 7/9/2021	400	YES	418	419	411	5597	7/8/2021	4:15 PM	7/8/2021	7:15 PM	419	410
	400	YES	423	423	405		7/9/2021	5:15 AM	7/9/2021	12:30 PM	423	408
8/21/2021-8/22/2021	400	YES	419	438	408	N/A	8/21/2021	9:45 PM	8/22/2021	2:15 AM	438	408
8/22/2021 - 8/23/2021	400	YES	421	430	406	N/A	8/22/2021	12:45 PM	8/22/2021	8:00 PM	430	406
	370 (PST o/s)	YES	382	382	361	N/A	8/23/2021	6:30 AM	8/23/2021	9:30 AM	382	361
	370 (PST o/s)	NO	N/A	N/A	N/A	N/A	8/23/2021	11:30 AM	8/23/2021	12:45 PM	394	388
	400	YES	421	421	405	N/A	8/23/2021	2:15 PM	8/23/2021	3:00 PM	421	405
9/1/2021 - 9/2/2021	400	YES	418	418	400	N/A	9/1/2021	7:15 PM	9/2/2021	10:00 AM	418	400
10/26/2021	400	YES	411	415	403	N/A	10/26/2021	2:15 AM	10/26/2021	9:15 AM	415	403
	400	YES	409	409	404	N/A	10/26/2021	10:30 AM	10/26/2021	12:30 PM	409	403
	400	NO	N/A	N/A	N/A	N/A	10/26/2021	1:30 PM	10/26/2021	2:15 PM	400	400
	400	YES	418	416	411	N/A	10/26/2021	8:00 PM	10/26/2021	9:45 PM	416	409

JAMAICA - WET WEATHER THROTTLING SUMMARY

		Plant Throttling Information					Critical Wet Weather Event					
Storm Dates	WET WEATHER PLANT CAPACITY (MGD)	Did Plant Throttle? Yes/No	Flow at Start of Throttling (MGD)	Throttling Max Flow (MGD)	Throttling Avg Flow (MGD)	Bypass Item No.	Critical Event Start Date & Time		Critical Event End Date & Time		Critical Event Max Flow (MGD)	Critical Event Avg Flow (MGD)
3/24/2021	200	NO	N/A	N/A	N/A	N/A	3/24/2021	7:30 PM	3/24/2021	9:15 PM	209	205
4/15/2021	200	NO	N/A	N/A	N/A	N/A	4/15/2021	2:45 PM	4/15/2021	4:00 PM	206	204
5/29/2021	200	NO	N/A	N/A	N/A	N/A	5/29/2021	12:15 AM	5/29/2021	12:15 AM	200	200
7/8/2021	200	YES	215	215	210	N/A	7/8/2021	6:15 PM	7/8/2021	8:00 PM	215	209
8/21/2021 - 823/2021	200	YES	213	231	226	N/A	8/21/2021	9:00 PM	8/22/2021	1:45 AM	231	220
	200	YES	211	219	203	N/A	8/22/2021	12:00 PM	8/22/2021	10:00 PM	223	205
	200	YES	205	223	214	N/A	8/23/2021	8:30 AM	8/23/2021	11:30 AM	223	214
9/1/2021 - 92/2021	200	YES	219	221	204	N/A	9/1/2021	8:45 PM	9/2/2021	3:45 AM	221	205
10/26/2021 - 10/27/2021	200	NO	N/A	N/A	N/A	N/A	10/26/2021	6:00 AM	10/26/2021	12:15 PM	226	212
	200	NO	N/A	N/A	N/A	N/A	10/26/2021	8:45 PM	10/27/2021	12:00 AM	228	213

NEWTOWN CREEK - WET WEATHER THROTTLING SUMMARY

		Plant Throttling Information							Critical Wet Weather Event					
Storm Dates	**WET WEATHER PLANT CAPACITY (MGD)**	**Did Plant Throttle? Yes/No (BQ)**	**CCT Flow at Start of B/Q Throttling (MGD)**	**Did Plant Throttle? Yes/No (MPS)**	**MPS Flow at Start of MPS Throttling (MGD)**	**Throttling Max Flow (MGD)**	**Throttling Avg Flow (MGD)**	**Bypass Item No.**	**Critical Event Start Date & Time**		**Critical Event End Date & Time**		**Critical Event Max Flow (MGD)**	**Critical Event Avg Flow (MGD)**
1/1/2021	700	YES	804	YES	N/A	762	750	N/A	1/1/2021	10:00 PM	1/1/2021	11:45 PM	804	751
1/15/2021 - 1/16/2021	700	YES	621	NO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	700	YES	778	YES	391	778	721	N/A	1/16/2021	3:00 AM	1/16/2021	5:45 AM	808	737
2/16/2021	700	YES	607	YES	383	745	730	N/A	2/16/2021	5:00 AM	2/16/2021	5:30 AM	745	730
2/22/2021	700	YES	758	NO	N/A	N/A	N/A	N/A	2/22/2021	2:45 PM	2/22/2021	3:45 PM	758	722
3/18/2021	700	YES	565	NO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/24/2021	700	YES	764	YES	356	801	738	N/A	3/24/2021	6:15 PM	3/24/2021	11:15 PM	801	738
3/28/2021	700	NO	N/A	NO	N/A	N/A	N/A	N/A	3/28/2021	10:15 AM	3/28/2021	11:30 AM	771	745
4/15/2021	700	YES	751	YES	484	777	725	N/A	4/15/2021	1:45 PM	4/15/2021	5:00 PM	777	725
5/4/2021	700	YES	462	YES	N/A	722	722	N/A	5/4/2021	1:15 AM	5/4/2021	1:30 AM	722	711
5/28/2021 - 5/29/2021	700	NO	N/A	NO	N/A	N/A	N/A	Cancelled Item No. 5572	5/28/2021	9:45 PM	5/28/2021	10:45 PM	777	728
	700	YES	746	YES	377	786	757	N/A	5/28/2021	11:15 PM	5/29/2021	3:30 AM	803	758
5/30/2021	700	NO	N/A	NO	N/A	N/A	N/A	N/A	5/30/2021	4:00 PM	5/30/2021	5:00 PM	727	718
6/4/2021	700	YES	749	YES	387	749	715	N/A	6/4/2021	4:45 PM	6/4/2021	7:00 PM	749	715
6/8/2021	700	YES	775	YES	480	775	726	N/A	6/8/2021	5:30 PM	6/8/2021	7:00 PM	775	726
6/30/2021 - 7/1/2021	700	YES	668	YES	480	668	626	5594	6/30/2021	11:30 PM	7/1/2021	12:30 AM	668	626
7/2/2021	700	NO	N/A	YES	345	n/a	n/a	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/8/2021 - 7/9/2021	700	YES	727	YES	345	733	730	N/A	7/8/2021	5:45 PM	7/8/2021	6:15 PM	733	709
	700	YES	746	YES	345	700	686	N/A	7/9/2021	3:45 AM	7/9/2021	5:00 AM	746	686
		YES	777	YES	345	777	726	N/A	7/9/2021	5:30 AM	7/9/2021	10:30 AM	777	727
7/9/2021 - 7/10/2021	700	YES	764	YES	343	764	763	N/A	7/9/2021	10:45 PM	7/10/2021	12:15 AM	764	744
7/12/2021	700	YES	746	YES	341	746	709	N/A	7/12/2021	3:15 AM	7/12/2021	4:15 AM	746	709
7/18/2021	700	YES	725	NO	N/A	N/A	N/A	N/A	7/18/2021	1:15 AM	7/18/2021	2:00 AM	725	716
8/10/2021	700	NO	N/A	YES	390	N/A	N/A	N/A	8/10/2021	8:45 PM	8/10/2021	9:15 PM	734	715
8/19/2021	700	YES	700	NO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8/21/2021 - 8/22/2021	700	YES	700	YES	398	755	612	N/A	8/21/2021	8:45 PM	8/22/2021	1:00 AM	755	618
	700	YES	848	YES	399	789	711	N/A	8/22/2021	11:00 AM	8/22/2021	5:00 PM	789	711
8/23/2021	700	YES	790	YES	395	790	759	N/A	8/23/2021	6:30 AM	8/23/2021	9:00 AM	790	759
9/1/2021 - 9/2/2021	700	YES	787	YES	380	857	771	N/A	9/1/2021	6:30 PM	9/2/2021	3:15 AM	857	771
	700	NO	N/A	NO	N/A	N/A	N/A	N/A	9/2/2021	4:00 AM	9/2/2021	4:00 AM	701	701
9/23/2021 - 9/24/2021	700	YES	764	YES	484	764	664	N/A	9/23/2021	8:15 PM	9/24/2021	11:00 PM	764	664
	700	YES	782	YES	393	782	762	N/A	9/24/2021	5:00 AM	9/24/2021	6:00 AM	782	747
10/26/2021 - 10/27/2021	620 (Interim Limit)	YES	636	YES	380	639	613	N/A	10/26/2021	1:45 AM	10/26/2021	1:30 PM	639	613
	620 (Interim Limit)	YES	670	YES	380	670	598	N/A	10/26/2021	8:45 PM	10/27/2021	1:30 AM	670	598

NEWTOWN CREEK - WET WEATHER THROTTLING SUMMARY

		Plant Throttling Information							Critical Wet Weather Event					
Storm Dates	WET WEATHER PLANT CAPACITY (MGD)	Did Plant Throttle? Yes/No (BQ)	CCT Flow at Start of B/Q Throttling (MGD)	Did Plant Throttle? Yes/No (MPS)	MPS Flow at Start of MPS Throttling (MGD)	Throttling Max Flow (MGD)	Throttling Avg Flow (MGD)	Bypass Item No.	Critical Event Start Date & Time		Critical Event End Date & Time		Critical Event Max Flow (MGD)	Critical Event Avg Flow (MGD)
10/29/2021 - 10/30/2021	620 (Interim Limit)	YES	622	YES	350	692	581	N/A	10/29/2021	10:15 PM	10/30/2021	12:00 AM	692	581
	620 (Interim Limit)	YES	624	NO	N/A	N/A	N/A	N/A	10/30/2021	5:00 AM	10/30/2021	6:15 AM	669	647
11/12/2021	620 (Interim Limit)	YES	622	NO	N/A	N/A	N/A	N/A	11/12/2021	12:30 PM	11/12/2021	12:30 PM	622	622
12/6/2021	620 (Interim Limit)	YES	608	NO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/29/2021	620 (Interim Limit)	YES	624	NO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

NORTH RIVER - WET WEATHER THROTTLING SUMMARY

		Plant Throttling Information					Critical Wet Weather Event					
Storm Dates	WET WEATHER PLANT CAPACITY (MGD)	Did Plant Throttle? Yes/No	Flow at Start of Throttling (MGD)	Throttling Max Flow (MGD)	Throttling Avg Flow (MGD)	Bypass Item No.	Critical Event Start Date & Time		Critical Event End Date & Time		Critical Event Max Flow (MGD)	Critical Event Avg Flow (MGD)
3/24/2021 - 3/25/2021	340	YES	348	357	331	N/A	3/24/2021	7:15 PM	3/25/2021	1:15 AM	357	331
4/15/2021	340	YES	351	351	331	N/A	4/15/2021	2:45 PM	4/15/2021	7:00 PM	351	332
5/28/2021 - 5/29/2021	340	YES	343	347	258	N/A	5/28/2021	9:00 PM	5/29/2021	2:00 PM	347	258
5/30/2021	340	YES	348	348	288	N/A	5/30/2021	3:00 PM	5/30/2021	7:30 PM	352	302
7/1/2021 - 7/2/2021	340	YES	176	280	216	N/A	7/1/2021	6:45 PM	7/2/2021	4:30 AM	280	216
7/8/2021 - 7/9/2021	340	YES	364	359	285	N/A	7/8/2021	5:00 PM	7/9/2021	1:15 AM	359	285
	340	NO	N/A	N/A	N/A	N/A	7/9/2021	4:00 AM	7/9/2021	4:15 AM	343	342
	340	NO	N/A	N/A	N/A	N/A	7/9/2021	6:15 AM	7/9/2021	7:00 AM	349	345
8/21/2021 - 8/23/2021	340	YES	348	348	316	5601 (Cancelled)	8/21/2021	9:45 PM	8/22/2021	5:00 AM	348	316
	340	YES	352	290	261	5601 (Cancelled)	8/22/2021	12:00 PM	8/23/2021	1:30 AM	290	261
	340	YES	349	359	335	N/A	8/23/2021	6:15 AM	8/23/2021	1:15 PM	359	335
9/1/2021	340	NO	N/A	N/A	N/A	N/A	9/1/2021	7:00 PM	9/1/2021	7:00 PM	343	343
9/23/2021 - 9/24/2021	340	YES	344	344	286	N/A	9/23/2021	8:30 PM	9/24/2021	8:30 AM	344	286

OAKWOOD BEACH - WET WEATHER THROTTLING SUMMARY

		Plant Throttling Information					Critical Wet Weather Event					
Storm Dates	WET WEATHER PLANT CAPACITY (MGD)	Did Plant Throttle? Yes/No	Flow at Start of Throttling (MGD)	Throttling Max Flow (MGD)	Throttling Avg Flow (MGD)	Bypass Item No.	Critical Event Start Date & Time		Critical Event End Date & Time		Critical Event Max Flow (MGD)	Critical Event Avg Flow (MGD)
3/24/2021	79.8	NO	N/A	N/A	N/A	N/A	3/24/2021	7:15 PM	3/24/2021	9:00 PM	96	86
7/6/2021 - 7/7/2021	79.8	NO	N/A	N/A	N/A	N/A	7/6/2021	10:45 PM	7/7/2021	12:30 AM	103	93
7/9/2021	79.8	NO	N/A	N/A	N/A	N/A	7/9/2021	7:30 AM	7/9/2021	11:00 AM	103	95
7/29/2021	80.8	NO	N/A	N/A	N/A	N/A	7/29/2021	9:30 PM	7/29/2021	10:00 PM	83	82
8/22/2021	79.8	NO	N/A	N/A	N/A	N/A	8/22/2021	3:00 AM	8/22/2021	7:15 AM	90	85
8/23/2021	79.8	NO	N/A	N/A	N/A	N/A	8/23/2021	7:30 AM	8/23/2021	12:30 PM	100	96
8/27/2021	79.8	NO	N/A	N/A	N/A	N/A	8/27/2021	6:45 PM	8/27/2021	8:00 PM	90	85
9/1/2021 - 9/3/2021	79.8	NO	N/A	N/A	N/A	N/A	9/1/2021	7:30 PM	9/3/2021	12:15 AM	104	96
9/23/2021	79.8	NO	N/A	N/A	N/A	N/A	9/23/2021	8:00 PM	9/23/2021	8:15 PM	84	82
10/26/2021 - 10/27/2021	79.8	NO	N/A	N/A	N/A	N/A	10/26/2021	7:00 AM	10/26/2021	1:00 PM	103	94
	79.8	NO	N/A	N/A	N/A	N/A	10/26/2021	11:45 PM	10/27/2021	1:00 AM	81	81

OWLS HEAD - WET WEATHER THROTTLING SUMMARY

		Plant Throttling Information					Critical Wet Weather Event					
Storm Dates	**WET WEATHER PLANT CAPACITY (MGD)**	**Did Plant Throttle? Yes/No**	**Flow at Start of Throttling (MGD)**	**Throttling Max Flow (MGD)**	**Throttling Avg Flow (MGD)**	**Bypass Item No.**	**Critical Event Start Date & Time**		**Critical Event End Date & Time**		**Critical Event Max Flow (MGD)**	**Critical Event Avg Flow (MGD)**
1/1/2021 - 1/2/2021	180 (Interim Limit)	YES	181	184	181	N/A	1/1/2021	7:45 PM	1/2/2021	3:15 AM	184	181
1/3/2021	180 (Interim Limit)	YES	181	183	178	N/A	1/3/2021	7:00 PM	1/3/2021	10:30 PM	183	179
1/15/2021 - 1/16/2021	180 (Interim Limit)	YES	180	186	181	N/A	1/15/2021	10:15 PM	1/16/2021	10:00 AM	186	181
2/5/2021	180 (Interim Limit)	YES	180	184	181	N/A	2/5/2021	1:00 PM	2/5/2021	9:00 PM	184	181
2/8/2021	180 (Interim Limit)	YES	182	182	182	N/A	2/8/2021	2:30 PM	2/8/2021	2:45 PM	182	181
2/16/2021	180 (Interim Limit)	YES	181	184	182	N/A	2/16/2021	3:00 AM	2/16/2021	5:30 PM	184	182
2/22/2021	180 (Interim Limit)	YES	181	182	180	N/A	2/22/2021	2:00 PM	2/22/2021	10:15 PM	182	180
2/27/2021	240	YES	241	245	241	N/A	2/27/2021	9:45 AM	2/27/2021	1:00 PM	245	241
3/18/2021 - 3/19/2021	180 (Interim Limit)	YES	180	185	181	N/A	3/18/2021	12:00 PM	3/18/2021	9:30 PM	185	181
	180 (Interim Limit)	YES	186	186	180	N/A	3/19/2021	2:45 AM	3/19/2021	4:45 AM	186	180
3/24/2021 - 3/25/2021	180 (Interim Limit)	YES	185	185	179	N/A	3/24/2021	5:15 PM	3/25/2021	12:00 AM	185	179
3/28/2021	180 (Interim Limit)	YES	190	190	181	N/A	3/28/2021	10:45 AM	3/28/2021	4:00 PM	190	181
	180 (Interim Limit)	YES	184	185	180	N/A	3/28/2021	9:00 PM	3/28/2021	12:45 AM	185	180
3/31/2021 - 4/1/2021	180 (Interim Limit)	YES	181	180	180	N/A	3/31/2021	9:45 PM	4/1/2021	3:45 AM	182	180
4/11/2021-4/12/2021	180 (Interim Limit)	YES	182	183	181	N/A	4/11/2021	1:30 PM	4/12/2021	2:45 AM	183	181
4/12/2021	180 (Interim Limit)	YES	183	185	183	N/A	4/12/2021	6:00 PM	4/12/2021	11:45 PM	185	183
4/15/2021	180 (Interim Limit)	YES	180	187	183	N/A	4/15/2021	1:00 PM	4/15/2021	9:30 PM	187	183
4/25/2021	180 (Interim Limit)	YES	181	182	181	N/A	4/25/2021	5:00 AM	4/25/2021	12:00 PM	182	181
4/29/2021 - 4/30/2021	180 (Interim Limit)	YES	189	189	182	N/A	4/29/2021	9:00 PM	4/30/2021	12:00 AM	189	182
4/30/2021	180 (Interim Limit)	NO	N/A	N/A	N/A	N/A	4/30/2021	10:00 PM	4/30/2021	11:45 PM	193	191
5/3/2021 - 5/4/2021	180 (Interim Limit)	YES	186	186	181	N/A	5/3/2021	10:15 PM	5/4/2021	6:15 AM	186	181
5/5/2021	180 (Interim Limit)	NO	N/A	N/A	N/A	N/A	5/5/2021	3:45 PM	5/5/2021	4:30 PM	182	181
	180 (Interim Limit)	YES	184	184	180	N/A	5/5/2021	8:30 PM	5/5/2021	10:45 PM	184	181
5/9/2021	240	YES	241	241	240	N/A	5/9/2021	8:30 PM	5/9/2021	11:30 PM	241	240
5/28/2021 - 5/29/2021	180 (Interim Limit)	YES	185	185	178	N/A	5/28/2021	6:45 PM	5/29/2021	7:00 AM	185	178
	180 (Interim Limit)	YES	182	182	178	N/A	5/29/2021	10:00 AM	5/29/2021	4:30 PM	182	178
5/30/2021	180 (Interim Limit)	YES	182	184	180	N/A	5/30/2021	8:00 AM	5/30/2021	10:00 PM	184	180
6/3/2021 - 6/4/2021	180 (Interim Limit)	YES	185	225	192	N/A	6/3/2021	8:45 PM	6/4/2021	1:45 AM	225	192
6/4/2021	180 (Interim Limit)	YES	181	183	182	N/A	6/4/2021	4:00 PM	6/4/2021	9:30 PM	183	182

OWLS HEAD - WET WEATHER THROTTLING SUMMARY

		Plant Throttling Information					Critical Wet Weather Event					
Storm Dates	**WET WEATHER PLANT CAPACITY (MGD)**	**Did Plant Throttle? Yes/No**	**Flow at Start of Throttling (MGD)**	**Throttling Max Flow (MGD)**	**Throttling Avg Flow (MGD)**	**Bypass Item No.**	**Critical Event Start Date & Time**		**Critical Event End Date & Time**		**Critical Event Max Flow (MGD)**	**Critical Event Avg Flow (MGD)**
6/8/2021	180 (Interim Limit)	YES	188	188	184	N/A	6/8/2021	4:30 PM	6/8/2021	10:30 PM	188	183
6/14/2021 - 6/15/2021	180 (Interim Limit)	YES	183	183	181	N/A	6/14/2021	12:15 PM	6/14/2021	2:15 PM	183	181
	180 (Interim Limit)	YES	184	185	182	N/A	6/14/2021	10:45 PM	6/15/2021	3:45 AM	185	182
6/30/2021	180 (Interim Limit)	YES	181	181	179	N/A	6/30/2021	10:45 PM	6/30/2021	11:45 PM	181	179
7/1/2021	180 (Interim Limit)	YES	185	185	181	N/A	7/1/2021	6:00 PM	7/2/2021	12:45 AM	185	181
7/6/2021 - 7/7/2021	240	YES	246	246	241	N/A	7/6/2021	10:15 PM	7/7/2021	12:15 AM	246	241
7/9/2021 - 7/10/2021	240	YES	246	246	231	N/A	7/9/2021	3:15 AM	7/9/2021	11:15 AM	246	231
	240	YES	245	245	240	N/A	7/9/2021	9:45 PM	7/10/2021	12:45 AM	245	240
7/18/2021	240	YES	244	244	237	N/A	7/18/2021	12:00 AM	7/18/2021	3:15 AM	244	237
7/21/2021	240	YES	240	242	241	N/A	7/21/2021	5:45 PM	7/21/2021	6:30 PM	242	241
7/29/2021	240	YES	241	241	238	N/A	7/29/2021	7:30 PM	7/29/2021	10:30 PM	241	238

OWLS HEAD - WET WEATHER THROTTLING SUMMARY

		Plant Throttling Information					Critical Wet Weather Event					
Storm Dates	WET WEATHER PLANT CAPACITY (MGD)	Did Plant Throttle? Yes/No	Flow at Start of Throttling (MGD)	Throttling Max Flow (MGD)	Throttling Avg Flow (MGD)	Bypass Item No.	Critical Event Start Date & Time		Critical Event End Date & Time		Critical Event Max Flow (MGD)	Critical Event Avg Flow (MGD)
8/10/2021	240	YES	242	243	239	N/A	8/10/2021	8:00 PM	8/10/2021	11:45 PM	243	239
8/11/2021	240	YES	244	244	234	N/A	8/11/2021	9:15 PM	8/11/2021	12:15 AM	224	234
8/19/2021	240	YES	243	247	242	N/A	8/19/2021	5:30 AM	8/19/2021	7:30 AM	247	242
8/21/2021 - 8/23/2021	240	YES	250	250	242	N/A	8/21/2021	10:30 PM	8/22/2021	4:15 AM	250	242
	240	YES	241	244	234	N/A	8/22/2021	10:30 AM	8/22/2021	9:15 PM	244	234
	240	YES	243	243	238	N/A	8/23/2021	6:00 AM	8/23/2021	12:45 PM	243	238
9/1/2021 - 9/2/2021	240	YES	242	244	239	N/A	9/1/2021	6:30 PM	9/2/2021	3:30 AM	244	239
9/13/2021	240	YES	241	241	237	N/A	9/13/2021	11:05 PM	9/13/2021	11:50 PM	241	237
9/23/2021 - 9/24/2021	240	YES	240	242	239	N/A	9/23/2021	6:45 PM	9/24/2021	1:15 AM	245	237
	240	YES	242	245	232	N/A						
10/26/2021 - 10/27/2021	240	YES	242	248	243	N/A	10/26/2021	1:30 AM	10/26/2021	12:15 PM	248	243
	240	YES	244	245	242	N/A	10/26/2021	8:45 PM	10/27/2021	2:45 AM	245	242
10/29/2021 -10/30/2021	240	YES	241	244	238	N/A	10/29/2021	9:45 PM	10/29/2021	1:45 AM	244	238
11/12/2021	240	YES	242	242	238	N/A	11/12/2021	12:15 PM	11/12/2021	2:45 PM	242	238
12/25/2021	180 (1 PST o/s)	YES	182	181	170	N/A	12/25/2021	12:00 PM	12/25/2021	1:30 PM	185	172
12/29/2021	180 (1 PST o/s)	YES	182	185	180	N/A	12/29/2021	12:45 AM	12/29/2021	5:45 AM	185	180

PORT RICHMOND - WET WEATHER THROTTLING SUMMARY

		Plant Throttling Information					Critical Wet Weather Event					
Storm Dates	WET WEATHER PLANT CAPACITY (MGD)	Did Plant Throttle? Yes/No	Flow at Start of Throttling (MGD)	Throttling Max Flow (MGD)	Throttling Avg Flow (MGD)	Bypass Item No.	Critical Event Start Date & Time		Critical Event End Date & Time		Critical Event Max Flow (MGD)	Critical Event Avg Flow (MGD)
1/1/2021	120	NO	N/A	N/A	N/A	N/A	1/1/2021	10:45 PM	1/1/2021	11:00 PM	124	123
3/24/2021	120	YES	127	127	124	N/A	3/24/2021	7:00 PM	3/24/2021	11:30 PM	127	124
4/11/2021	120	NO	N/A	N/A	N/A	N/A	4/11/2021	9:00 PM	4/11/2021	9:00 PM	120	120
5/29/2021	120	NO	N/A	N/A	N/A	N/A	5/29/2021	12:00 AM	5/29/2021	12:00 AM	123	123
5/30/2021	120	NO	N/A	N/A	N/A	N/A	5/30/2021	3:00 PM	5/30/2021	3:15 PM	121	121
6/4/2021	120	NO	N/A	N/A	N/A	N/A	6/4/2021	5:00 PM	6/4/2021	5:30 PM	133	127
6/8/2021	120	YES	122	130	119	N/A	6/8/2021	4:45 PM	6/8/2021	8:00 PM	130	119
7/6/2021 - 7/7/2021	120	YES	133	136	128	N/A	7/6/2021	10:00 PM	7/7/2021	1:15 AM	136	128
7/9/2021 - 7/10/2021	120	NO	N/A	N/A	N/A	N/A	7/9/2021	4:00 AM	7/9/2021	5:00 AM	124	123
	120	YES	133	141	130	N/A	7/9/2021	6:15 AM	7/9/2021	12:15 PM	141	130
	120	YES	138	138	131	N/A	7/9/2021	10:15 PM	7/10/2021	2:15 AM	138	130
8/11/2021	120	NO	N/A	N/A	N/A	N/A	8/11/2021	9:45 PM	8/11/2021	10:15 PM	125	123
8/21/2021 -8/22/2021	120	NO	N/A	N/A	N/A	N/A	8/21/2021	10:30 PM	8/21/2021	11:15 PM	135	129
	120	YES	131	134	131	N/A	8/22/2021	1:45 AM	8/22/2021	5:15 AM	134	130
	120	NO	N/A	N/A	N/A	N/A	8/22/2021	12:45 PM	8/22/2021	3:15 PM	129	123
	120	NO	N/A	N/A	N/A	N/A	8/22/2021	4:45 PM	8/22/2021	5:45 PM	121	121
8/23/2021	120	NO	N/A	N/A	N/A	N/A	8/23/2021	7:30 AM	8/23/2021	10:15 AM	125	123
9/1/2021 - 9/3/2021	90 (1 PST o/s)	YES	120	139	109	N/A	9/1/2021	10:15 PM	9/2/2021	1:45 PM	139	108
	90 (1 PST o/s)	NO	N/A	N/A	N/A	N/A	9/2/2021	2:30 PM	9/2/2021	7:00 PM	92	91
	90 (1 PST o/s)	NO	N/A	N/A	N/A	N/A	9/2/2021	9:30 PM	9/3/2021	8:45 AM	130	108
9/23/2021	120	YES	122	130	129	N/A	9/23/2021	7:45 PM	9/23/2021	9:00 PM	130	129
10/26/2021	120	YES	130	142	116	N/A	10/26/2021	4:30 AM	10/26/2021	12:45 PM	142	120
	120	NO	N/A	N/A	N/A	N/A	10/26/2021	10:00 PM	10/26/2021	10:45 PM	130	126

RED HOOK - WET WEATHER THROTTLING SUMMARY

		Plant Throttling Information					Critical Wet Weather Event					
Storm Dates	**WET WEATHER PLANT CAPACITY (MGD)**	**Did Plant Throttle? Yes/No**	**Flow at Start of Throttling (MGD)**	**Throttling Max Flow (MGD)**	**Throttling Avg Flow (MGD)**	**Bypass Item No.**	**Critical Event Start Date & Time**		**Critical Event End Date & Time**		**Critical Event Max Flow (MGD)**	**Critical Event Avg Flow (MGD)**
1/1/2021 - 1/2/2021	120	YES	125	126	121	N/A	1/1/2021	9:45 PM	1/2/2021	12:45 AM	126	121
1/16/2021	120	YES	126	126	119	N/A	1/16/2021	2:45 AM	1/16/2021	7:15 AM	126	119
2/16/2021	120	YES	118	118	111	N/A	2/16/2021	3:45 AM	2/16/2021	8:45 AM	118	111
2/22/2021	120	NO	N/A	N/A	N/A	N/A	2/22/2021	4:00 PM	2/22/2021	4:15 PM	120	120
3/24/2021	120	YES	122	123	121	N/A	3/24/2021	6:00 PM	3/24/2021	11:30 PM	123	121
4/15/2021	120	YES	122	122	121	N/A	4/15/2021	1:45 PM	4/15/2021	5:00 PM	122	121
5/4/2021	120	YES	122	121	114	N/A	5/4/2021	1:30 AM	5/4/2021	2:45 AM	122	115
5/28/2021 - 5/29/2021	90 (MSP's o/s)	NO	N/A	N/A	N/A	N/A	5/28/2021	7:00 PM	5/28/2021	8:45 PM	97	95
	90 (MSP's o/s)	YES	97	98	95	N/A	5/28/2021	9:15 PM	5/29/2021	6:15 AM	98	95
	90 (MSP's o/s)	YES	100	100	99	N/A	5/29/2021	10:00 AM	5/29/2021	1:00 PM	100	99
5/30/2021	90 (MSP's o/s)	YES	99	99	98	N/A	5/30/2021	8:45 AM	5/30/2021	9:45 AM	99	97
	90 (MSP's o/s)	YES	94	99	69	N/A	5/30/2021	2:22 PM	5/30/2021	10:30 PM	99	69
6/3/2021	90 (MSP's o/s)	YES	99	99	94	N/A	6/3/2021	10:15 PM	6/3/2021	11:30 PM	99	94
6/4/2021	90 (MSP's o/s)	YES	101	102	99	N/A	6/4/2021	4:15 PM	6/4/2021	9:30 PM	102	95
6/8/2021	120	YES	99	103	98	N/A	6/8/2021	4:45 PM	6/8/2021	9:30 PM	103	98
6/30/2021	120	YES	127	127	124	N/A	6/30/2021	10:15 PM	6/30/2021	11:45 PM	127	124
7/1/2021	n/a	NO	N/A	N/A	N/A	N/A	7/1/2021	9:45 PM	7/1/2021	10:00 PM	127	124
7/6/2021	n/a	NO	N/A	N/A	N/A	N/A	7/6/2021	11:00 PM	7/6/2021	11:00 PM	122	122
7/8/2021 - 7/10/2021	120	YES	125	126	123	N/A	7/8/2021	5:30 PM	7/8/2021	7:00 PM	126	123
	120	YES	127	128	126	N/A	7/9/2021	3:30 AM	7/9/2021	11:15 AM	128	126
	120	YES	127	127	123	N/A	7/9/2021	10:30 PM	7/10/2021	1:15 AM	127	123
7/12/2021	120	YES	127	127	123	N/A	7/12/2021	2:45 AM	7/12/2021	5:30 AM	127	123
7/18/2021	120	YES	127	128	121	N/A	7/18/2021	12:30 AM	7/18/2021	2:45 AM	128	121
8/10/2021 - 8/11/2021	90 (1 PST o/s)	YES	96	100	95	N/A	8/10/2021	7:45 PM	8/11/2021	12:45 AM	100	95
8/11/2021 - 8/12/2021	90 (1 PST o/s)	YES	96	99	96	N/A	8/11/2021	9:45 PM	8/12/2021	12:45 AM	99	96
8/19/2021	120	YES	127	129	125	N/A	8/19/2021	5:30 AM	8/19/2021	8:15 AM	129	125

RED HOOK - WET WEATHER THROTTLING SUMMARY

		Plant Throttling Information					Critical Wet Weather Event					
Storm Dates	WET WEATHER PLANT CAPACITY (MGD)	Did Plant Throttle? Yes/No	Flow at Start of Throttling (MGD)	Throttling Max Flow (MGD)	Throttling Avg Flow (MGD)	Bypass Item No.	Critical Event Start Date & Time		Critical Event End Date & Time		Critical Event Max Flow (MGD)	Critical Event Avg Flow (MGD)
8/21/2021 - 8/23/2021	120	YES	127	129	126	N/A	8/21/2021	8:30 PM	8/22/2021	3:45 AM	129	126
	120	YES	126	127	125	N/A	8/22/2021	10:45 AM	8/22/2021	9:45 PM	127	125
	120	YES	127	131	126	N/A	8/23/2021	6:15 AM	8/23/2021	11:30 AM	131	126
8/27/2021	120	YES	127	127	124	N/A	8/27/2021	5:45 PM	8/27/2021	7:30 PM	127	124
9/1/2021 - 9/2/2021	120	YES	126	128	124	N/A	9/1/2021	6:15 PM	9/2/2021	4:00 AM	128	124
9/23/2021 - 9/24/2021	120	YES	127	127	124	N/A	9/23/2021	7:15 PM	9/24/2021	2:45 AM	127	124
	120	YES	126	128	124	N/A	9/24/2021	4:15 AM	9/24/2021	7:00 AM	127	123
10/26/2021 - 10/27/2021	120	YES	126	128	124	N/A	10/26/2021	1:15 AM	10/26/2021	2:00 PM	128	124
	120	YES	127	128	123	N/A	10/26/2021	8:30 PM	10/27/2021	1:45 AM	128	123
10/29/2021 - 10/30/2021	120	YES	127	128	123	N/A	10/29/2021	10:00 PM	10/30/2021	1:00 AM	128	123
12/29/2021	120	YES	126	126	124	N/A	12/29/2021	1:30 AM	12/29/2021	2:45 AM	126	124

ROCKAWAY - WET WEATHER THROTTLING SUMMARY

		Plant Throttling Information					Critical Wet Weather Event					
Storm Dates	WET WEATHER PLANT CAPACITY (MGD)	Did Plant Throttle? Yes/No	Flow at Start of Throttling (MGD)	Throttling Max Flow (MGD)	Throttling Avg Flow (MGD)	Bypass Item No.	Critical Event Start Date & Time		Critical Event End Date & Time		Critical Event Max Flow (MGD)	Critical Event Avg Flow (MGD)
NO EVENTS												

TALLMAN ISLAND - WET WEATHER THROTTLING SUMMARY

		Plant Throttling Information					Critical Wet Weather Event					
Storm Dates	WET WEATHER PLANT CAPACITY (MGD)	Did Plant Throttle? Yes/No	Flow at Start of Throttling (MGD)	Throttling Max Flow (MGD)	Throttling Avg Flow (MGD)	Bypass Item No.	Critical Event Start Date & Time		Critical Event End Date & Time		Critical Event Max Flow (MGD)	Critical Event Avg Flow (MGD)
1/1/2021	160	NO	N/A	N/A	N/A	N/A	1/1/2021	11:00 PM	1/1/2021	11:00 PM	161	161
1/16/2021	160	NO	N/A	N/A	N/A	N/A	1/16/2021	5:00 AM	1/16/2021	5:45 AM	163	162
3/24/2021	160	NO	N/A	N/A	N/A	N/A	3/24/2021	8:30 PM	3/24/2021	11:00 PM	165	162
4/15/2021	160	NO	N/A	N/A	N/A	N/A	4/15/2021	3:00 PM	4/15/2021	4:00 PM	162	162
6/4/2021	160	NO	N/A	N/A	N/A	N/A	6/4/2021	5:00 PM	6/4/2021	6:00 PM	163	163
7/2/2021 - 7/3/2021	160	YES	168	168	163	N/A	7/2/2021	4:00 PM	7/2/2022	7:30 PM	168	163
	160	YES	161	165	162	N/A	7/2/2021	10:30 PM	7/3/2021	12:45 AM	165	162
7/8/2021 - 7/9/2021	160	YES	167	170	166	5596	7/8/2021	6:00 PM	7/8/2021	7:00 PM	170	166
	160	YES	168	170	162	N/A	7/9/2021	6:15 AM	7/9/2021	11:15 AM	170	163
8/21/2021 - 8/23/2021	160	YES	164	170	164	N/A	8/21/2021	9:30 PM	8/22/2021	1:45 AM	170	164
	160	NO	N/A	N/A	N/A	N/A	8/22/2021	11:15 AM	8/22/2021	12:30 PM	164	161
	160	YES	163	171	162	N/A	8/22/2021	2:45 PM	8/22/2021	9:15 PM	171	162
	160	NO	N/A	N/A	N/A	N/A	8/23/2021	7:00 AM	8/23/2021	9:45 AM	167	165
9/1/2021 - 9/2/2021	160	YES	168	171	164	N/A	9/1/2021	8:00 PM	9/2/2021	5:15 AM	171	164
10/26/2021	160	YES	168	170	165	N/A	10/26/2021	5:45 AM	10/26/2021	2:15 PM	170	165
	160	NO	N/A	N/A	N/A	N/A	10/26/2021	9:00 PM	10/26/2021	10:45 PM	165	162

WARDS ISLAND - WET WEATHER THROTTLING SUMMARY

		Plant Throttling Information							Critical Wet Weather Event					
Storm Dates	WET WEATHER PLANT CAPACITY (MGD)	Did MGC Throttle? Yes/No	Flow at Start of MGC Throttling (MGD)	Did BGC Throttle? Yes/No	Flow at Start of BGC Throttling (MGD)	Throttling Max Flow (MGD)	Throttling Avg Flow (MGD)	Bypass Item No.	Critical Event Start Date & Time		Critical Event End Date & Time		Critical Event Max Flow (MGD)	Critical Event Avg Flow (MGD)
1/1/2021	507 (Channel o/s)	NO	N/A	NO	N/A	N/A	N/A	N/A	1/1/2021	10:00 PM	1/1/2021	11:30 PM	565	548
1/15/2021 - 1/16/2021	507 (Channel o/s)	YES	654	YES	665	674	623	N/A	1/15/2021	10:45 PM	1/16/2021	12:30 AM	571	554
									1/16/2021	3:00 AM	1/16/2021	6:30 AM	674	584
2/16/2021	507 (Channel o/s)	NO	N/A	YES	551	N/A	N/A	N/A	2/16/2021	4:15 AM	2/16/2021	6:45 AM	551	532
									2/16/2021	7:15 AM	2/16/2021	8:00 AM	567	550
2/27/2021	507 (Channel o/s)	YES	566	NO	N/A	N/A	N/A	N/A	2/27/2021	10:45 AM	2/27/2021	10:45 AM	566	566
									2/27/2021	11:15 AM	2/27/2021	11:15 AM	521	521
3/18/2021	507 (Channel o/s)	NO	N/A	NO	N/A	N/A	N/A	N/A	3/18/2021	12:00 PM	3/18/2021	12:00 PM	543	543
3/24/2021	507 (Channel o/s)	YES	549	YES	564	564	539	N/A	3/24/2021	5:15 PM	3/24/2021	10:45 PM	567	546
3/28/2021	550	NO	N/A	NO	N/A	N/A	N/A	N/A	3/28/2021	8:45 AM	3/28/2021	11:30 AM	577	533
	550	NO	N/A	NO	N/A	N/A	N/A	N/A	3/28/2021	7:30 PM	3/28/2021	8:00 PM	518	517
4/11/2021	420 (2 Channels o/s)	YES	505	NO	N/A	N/A	N/A	N/A	4/11/2021	3:30 PM	4/11/2021	5:45 PM	505	448
4/12/2021	420 (2 Channels o/s)	YES	491	NO	N/A	N/A	N/A	N/A	4/12/2021	8:00 PM	4/12/2021	11:00 PM	491	471
4/15/2021	420 (2 Channels o/s)	NO	N/A	NO	539	N/A	N/A	N/A	4/15/2021	1:15 PM	4/15/2021	7:00 PM	590	516
4/25/2021	550	NO	N/A	NO	N/A	N/A	N/A	N/A	4/25/2021	6:15 AM	4/25/2021	6:15 AM	420	420
	550	NO	N/A	NO	N/A	N/A	N/A	N/A	4/25/2021	6:30 AM	4/25/2021	9:45 AM	484	464
4/30/2021	550	NO	N/A	NO	N/A	N/A	N/A	N/A	4/30/2021	8:45 AM	4/30/2021	10:15 AM	600	511
	550	NO	N/A	NO	N/A	N/A	N/A	N/A	4/30/2021	10:00 PM	4/30/2021	11:15 PM	493	463
5/3/2021 - 5/4/2021	550	NO	N/A	NO	N/A	N/A	N/A	N/A	5/3/2021	10:45 PM	5/3/2021	11:45 PM	496	454
	420 (2 Channels o/s)	YES	620	NO	N/A	N/A	N/A	N/A	5/4/2021	12:15 AM	5/4/2021	2:45 AM	620	517
5/9/2021	420 (2 Channels o/s)	NO	N/A	NO	N/A	N/A	N/A	N/A	5/9/2021	8:45 PM	5/9/2021	11:30 PM	444	434
5/28/2021 - 5/29/2021	420 (2 Channels o/s)	YES	620	YES	615	620	545	N/A	5/28/2021	7:00 PM	5/29/2021	3:15 AM	620	542
	420 (2 Channels o/s)	NO	N/A	NO	N/A	N/A	N/A	N/A	5/29/2021	10:45 AM	5/29/2021	12:30 PM	489	471
5/30/2021	420 (2 Channels o/s)	NO	N/A	NO	N/A	N/A	N/A	N/A	5/30/2021	9:00 AM	5/30/2021	9:00 AM	474	474
	420 (2 Channels o/s)	NO	N/A	NO	N/A	N/A	N/A	N/A	5/30/2021	2:30 PM	5/30/2021	7:00 PM	550	492
6/3/2021	420 (2 Channels o/s)	YES	573	YES	573	573	489	N/A	6/3/2021	10:45 AM	6/3/2021	11:30 AM	573	489
6/4/2021	550	YES	644	YES	588	644	640	N/A	6/4/2021	4:30 PM	6/4/2021	6:15 PM	644	616
6/8/2021	550	NO	N/A	NO	N/A	N/A	N/A	N/A	6/8/2021	5:00 PM	6/8/2021	5:15 PM	593	578
6/30/2021	440 (MSP's o/s)	NO	N/A	NO	N/A	N/A	N/A	N/A	6/30/2021	10:15 PM	6/30/2021	11:30 PM	506	472
7/1/2021	440 (MSP's o/s)	NO	N/A	NO	N/A	N/A	N/A	N/A	7/1/2021	2:00 PM	7/1/2021	2:45 PM	507	475
	440 (MSP's o/s)	YES	538	YES	544	538	514	N/A	7/1/2021	6:00 PM	7/1/2021	9:45 PM	544	507
7/3/2021	440 (MSP's o/s)	NO	N/A	NO	N/A	N/A	N/A	N/A	7/3/2021	8:00 AM	7/3/2021	8:15 AM	479	466
7/6/2021	440 (MSP's o/s)	NO	N/A	NO	N/A	N/A	N/A	N/A	7/6/2021	9:45 PM	7/6/2021	10:00 PM	466	455

WARDS ISLAND - WET WEATHER THROTTLING SUMMARY

		Plant Throttling Information							Critical Wet Weather Event					
Storm Dates	WET WEATHER PLANT CAPACITY (MGD)	Did MGC Throttle? Yes/No	Flow at Start of MGC Throttling (MGD)	Did BGC Throttle? Yes/No	Flow at Start of BGC Throttling (MGD)	Throttling Max Flow (MGD)	Throttling Avg Flow (MGD)	Bypass Item No.	Critical Event Start Date & Time		Critical Event End Date & Time		Critical Event Max Flow (MGD)	Critical Event Avg Flow (MGD)
7/8/2021 - 7/10/2021	440 (MSP's o/s)	YES	550	YES	555	550	502	N/A	7/8/2021	3:45 PM	7/8/2021	10:30 PM	550	500
	440 (MSP's o/s)	NO	N/A	NO	N/A	N/A	N/A	N/A	7/9/2021	3:45 AM	7/9/2021	12:15 PM	544	503
	440 (MSP's o/s)	YES	544	NO	N/A	N/A	N/A	N/A	7/9/2021	10:45 PM	7/10/2021	12:00 AM	482	475
7/10/2021	440 (MSP's o/s)	NO	N/A	NO	N/A	N/A	N/A	N/A	7/10/2021	9:45 PM	7/10/2021	10:45 PM	517	475
7/12/2021	440 (MSP's o/s)	YES	504	NO	N/A	N/A	N/A	N/A	7/12/2021	3:00 AM	7/12/2021	5:00 AM	515	494
7/18/2021	440 (MSP's o/s)	NO	N/A	NO	N/A	N/A	N/A	N/A	7/18/2021	12:00 AM	7/18/2021	12:15 AM	487	475
	440 (MSP's o/s)	NO	N/A	NO	N/A	N/A	N/A	N/A	7/18/2021	1:30 AM	7/18/2021	2:15 AM	499	471
7/25/2021	440 (MSP's o/s)	YES	499	NO	N/A	N/A	N/A	N/A	7/25/2021	4:45 AM	7/25/2021	5:45 AM	520	497
7/26/2021	440 (MSP's o/s)	YES	530	NO	N/A	N/A	N/A	N/A	7/26/2021	2:00 AM	7/26/2021	3:45 AM	542	509
7/29/2021	440 (MSP's o/s)	NO	N/A	NO	N/A	N/A	N/A	N/A	7/29/2021	7:00 PM	7/29/2021	9:00 PM	572	539
8/10/2021	440 (MSP's o/s)	NO	N/A	NO	N/A	N/A	N/A	N/A	8/10/2021	8:30 PM	8/10/2021	10:00 PM	596	509
8/21/2021 - 8/23/2021	440 (MSP's o/s)	YES	637	NO	N/A	N/A	N/A	N/A	8/21/2021	9:00 PM	8/22/2021	2:30 AM	641	571
	440 (MSP's o/s)	NO	N/A	YES	600	N/A	N/A	N/A	8/22/2021	10:00 AM	8/22/2021	10:00 PM	647	556
	440 (MSP's o/s)	NO	N/A	NO	N/A	N/A	N/A	N/A	8/23/2022	6:15 AM	8/23/2021	9:15 AM	647	604
	440 (MSP's o/s)	NO	N/A	NO	N/A	N/A	N/A	N/A	8/23/2022	11:45 AM	8/23/2021	12:45 PM	584	494
8/27/2021	440 (MSP's o/s)	NO	N/A	NO	N/A	N/A	N/A	N/A	8/27/2021	5:30 PM	8/27/2021	5:30 PM	549	549
	440 (MSP's o/s)	NO	N/A	NO	N/A	N/A	N/A	N/A	8/27/2021	6:15 PM	8/27/2021	7:00 PM	589	526
9/1/2021 - 9/2/2021	440 (MSP's o/s)	YES	682	YES	670	682	625	N/A	9/1/2021	5:45 PM	9/2/2021	8:30 AM	682	580
9/23/2021 - 9/24/2021	440 (MSP's o/s)	NO	N/A	NO	N/A	N/A	N/A	N/A	9/23/2021	8:30 PM	9/24/2021	2:15 AM	608	519
	440 (MSP's o/s)	NO	N/A	NO	N/A	N/A	N/A	N/A	9/24/2021	4:30 AM	9/24/2021	6:30 AM	605	568
10/26/2021 - 10/27/2021	440 (MSP's o/s)	NO	N/A	NO	N/A	N/A	N/A	N/A	10/26/2021	12:00 AM	10/26/2021	12:15 AM	485	469
	440 (MSP's o/s)	YES	608	YES	611	N/A	N/A	N/A	10/26/2021	1:30 AM	10/26/2021	1:45 PM	652	572
	440 (MSP's o/s)	NO	N/A	NO	N/A	N/A	N/A	N/A	10/26/2021	8:15 PM	10/27/2021	12:15 AM	650	545
10/29/2021 - 10/30/2021	440 (MSP's o/s)	NO	N/A	NO	N/A	N/A	N/A	N/A	10/29/2021	10:15 PM	10/30/2021	12:15 AM	608	552
11/12/2021 - 11/13/2021	440 (MSP's o/s)	NO	N/A	NO	N/A	N/A	N/A	N/A	11/12/2021	10:00 AM	11/12/2021	10:15 AM	502	478
		NO	N/A	NO	N/A	N/A	N/A	N/A	11/13/2021	12:45 PM	11/13/2021	2:00 PM	488	466

Appendix 3.3: ESTIMATION OF WET-WEATHER CAPTURE

Appendix 3.3.1: Estimation Of Wet-Weather Capture

This section provides a description of analyses used to calculate the wet-weather capture of combined-sewage (CS) flow and associated floatables at the New York City (NYC) treatment facilities (referred to as Wastewater Resource Recovery Facilities, WRRFs) during calendar year (CY) 2021. Section 3.1 describes the difference between runoff capture and combined-sewage capture. Section 3.2 discusses the scenarios used to evaluate the capture. Section 3.3 summarizes the modeling approach: InfoWorks ICM is an advanced integrated catchment modeling software used to calculate flow volume capture for CY2021 at all drainage areas served wholly or partially by combined sewers. Section 3.4 describes the 2021 wet-weather combined-sewage percent capture results for these drainage areas. References are listed in Section 3.5.

The Environmental Protection Agency (EPA) issued the current guidance pertaining to the intent and calculation of "combined-sewage capture" in 1995. Prior to that time, a different parameter, known as "runoff capture", was used to assess the operation of the collection/treatment system. As detailed in a subsequent section, runoff capture measured the ratio of runoff treated to runoff collected in a sewer system. For the NYC WRRFs, historically speaking, the runoff capture values were typically about 15 percentage points less than the corresponding CS capture values. The runoff capture remains a useful parameter in the calculation of floatables capture. CS capture has replaced runoff capture as the pertinent measure of flow-capture performance, and as such, runoff capture is no longer reported. However, runoff capture is used in the calculation of floatables capture.

Since 1998, capture of CS floatables has also been calculated and reported. Initially, the basis for this measurement was the floatables passing into combined sewers from the catch basins (see Figure 3-1), but because the catch basins themselves are considered part of the sewer system, an estimate of catch basin retention was added to the calculation of the floatables-capture. As a result, the basis for floatables capture is now what enters the catch basins.

Historically, capture of flow and floatables has been simulated and reported for three different scenarios. The first simulation scenario reflects actual operation of the collection/treatment system (in terms of the flow rates treated at a WRRF during wet weather) and the actual rainfall (and tides) affecting the system during the subject, calendar-year period. The results of this simulation scenario indicate the actual capture performance for the period.

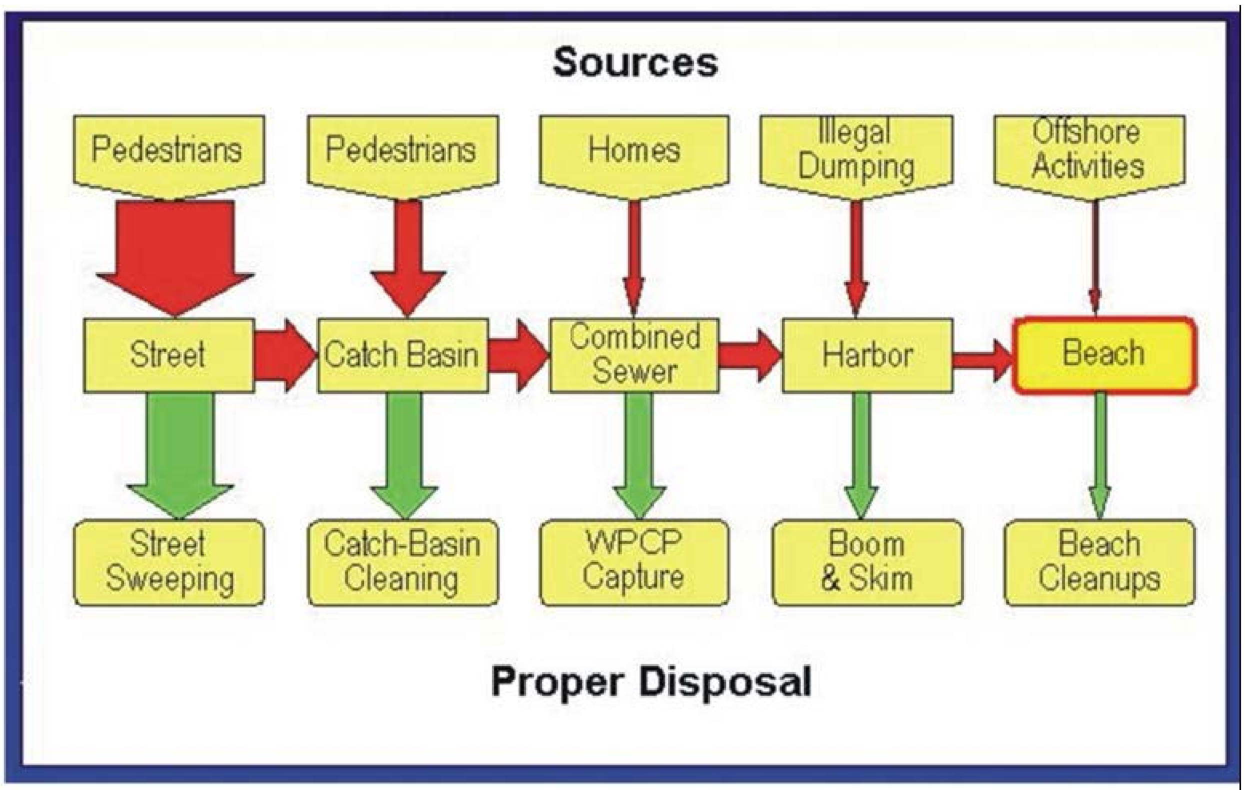


Figure 3-1. Sources and Fate of Floatables in New York City of New York DEP

The methodology for calculation of flow capture has evolved historically with the advent of improved modeling tools and increasing computing power. Initially, flow capture was estimated using the "Statistical Method" (Hydroscience, 1978), an approach relying on drainage area/runoff-coefficient information from a calibrated sewer-system rainfall-runoff model (such as the EPA's Storm Water Management Model, SWMM), but which can be used without the complicated set-up and computational runtimes associated with those models. Finally, as part of the CSO Long Term Control Plan (LTCP) project, DEP adopted an InfoWorks modeling framework to support facility-planning analyses citywide. InfoWorks is a state-of-the-art hydrology and hydraulics linked model that will provide the most sophisticated and accurate representation of the NYC drainage areas. Although model set up and calibration do require extensive effort, advancements in computing have lessened run-time requirements so that the use of these models becomes reasonable for planning and design-level analyses.

For 2021, the percent-capture analyses utilize the InfoWorks modeling framework for all drainage areas wholly or partially served by combined sewers. Section 3.3 provides a more detailed discussion of the InfoWorks model.

InfoWorks models constructed for various WRRF drainage areas have undergone a major recalibration process in the 2009-11 period and the DEP had submitted a detailed report on this recalibration effort to New York State DEC in June 2012 along with additional calibration and validation being done as part of developing the CSO Long Term Control Plans (LTCPs). DEP adopted the updated models to support the capture calculations for CY2021. Table 3-1 shows the rainfall statistics for the current year precipitation conditions. Based on the model updates and the use of different standard rainfall conditions, the percent capture information presented in this report may not be directly comparable with those reported in previous calendar years.

For the CY2021 analysis, a new rainfall dataset from NOAA/NSSL called Quantitative Precipitation Estimates (QPE) was used instead of DEP or NOAA rain gauges, as have been used in the past. This decision was made for several reasons. First, the NOAA rain gauges in CPK, JFK, LGA, and EWR are often very far from the WRRFs model areas to which they are applied. Second, the DEP WRRF rain gauges frequently suffer from outages and other reporting issues, leading to incomplete or inaccurate datasets. Therefore, the new NOAA/NSSL QPE data was used, which is described below:

- The new NOAA/NSSL product provides spatially distributed, hourly estimates of precipitation is based on multiple radars, satellite and numerical weather prediction models, surface and upper air observations, lightning detection systems and rain gauges. In addition to hourly, QPE is available in other time increments (such as 3 hr, 6 hr, 12 hr, daily, 48 hr and 72 hr) and in spatial resolution of roughly 1 km x 1 km.
- Most common application of radar QPE data is to simulate or predict flash flood events using rainfall-runoff models [Willie, D. et al. 2017; Zhang et al. 2016; Rafieeinasab et al. 2015; Chen and Chandrasekar 2015].
- Validation of the high resolution radar QPE data was made against the ground-based precipitation data obtained from the NOAA stations rain gauge data: Central Park (CPK), Newark Airport (EWR), JFK Airport (JFK) and LaGuardia Airport (LGA).
- The high resolution and broad spatial coverage of the radar QPE data provides more realistic forcing at the time scales relevant to the CY2021 wet-weather capture modeling analysis.
- Processing methodology for NOAA/NSSL QPE data:

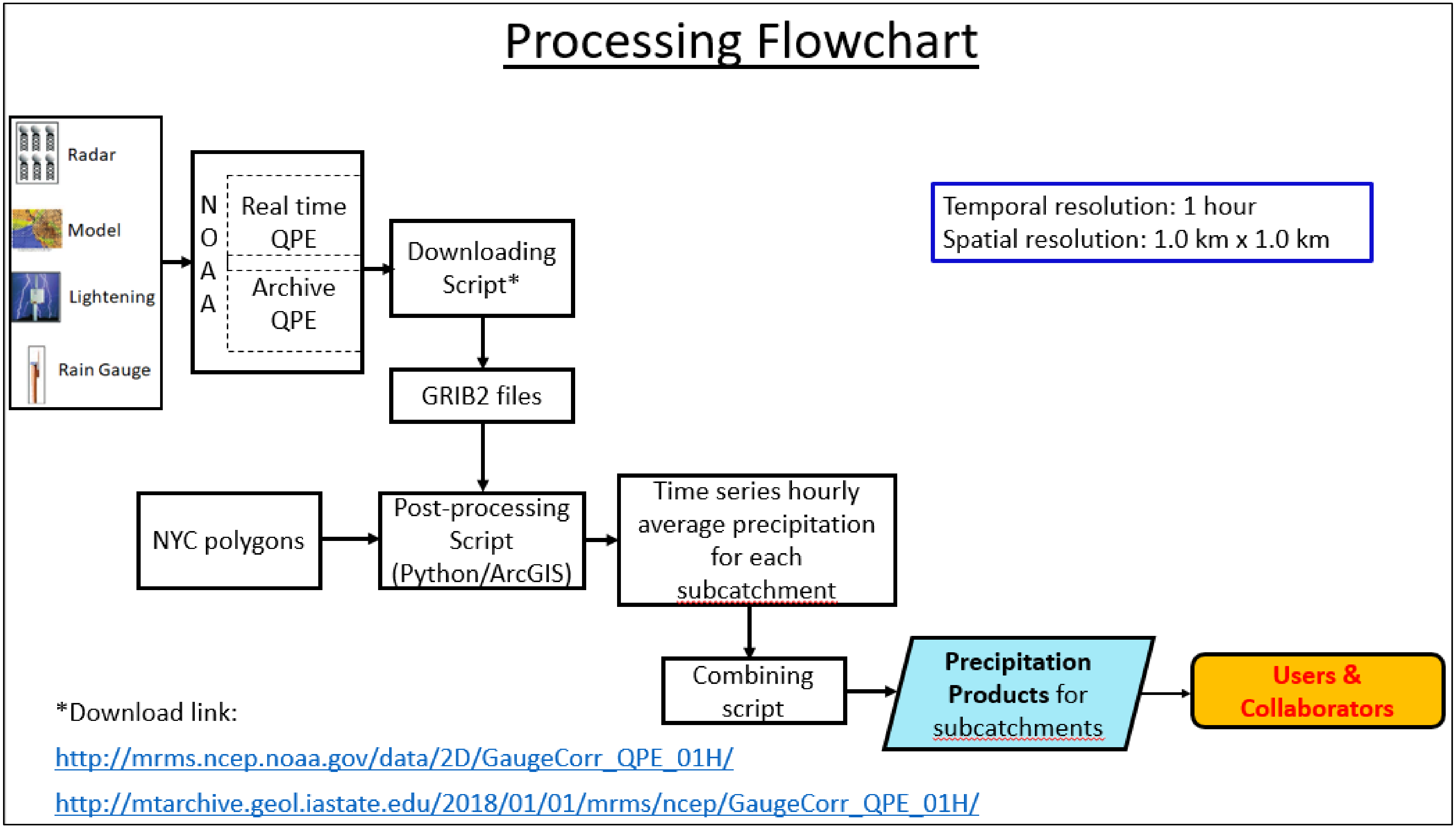

Processing Flowchart
Radar
Model
Lightening
Rain Gauge
NOAA
Real time QPE
Archive QPE
Downloading Script*
GRIB2 files
NYC polygons
Post-processing Script (Python/ArcGIS)
Time series hourly average precipitation for each subcatchment
Combining script
Precipitation Products for subcatchments
Users & Collaborators
Temporal resolution: 1 hour
Spatial resolution: 1.0 km x 1.0 km
*Download link:
http://mrms.ncep.noaa.gov/data/2D/GaugeCorr_QPE_01H/
http://mtarchive.geol.iastate.edu/2018/01/01/mrms/ncep/GaugeCorr_QPE_01H/

Table 3-1 Annual NYC Rainfall Statistics, 2021 (6)

Gage Location (1)	Period	Number of Storms Avg.	Precipitation(in.)			Storm Intensity (in/hr.)		Storm Duration (hour)		Delta (2) (hour)	
			Annual Total	Storm Avg.	Storm COV (3)	Avg.	COV (3)	Avg.	COV (3)	Avg.	COV (3)
26W	2021	146	48.27	0.33	1.94	0.0589	1.45	4.90	1.06	59.97	1.09
BB	2021	140	48.16	0.34	1.87	0.0537	1.38	5.41	0.90	62.54	1.09
CI	2021	146	48.16	0.33	1.94	0.0580	1.49	5.18	1.05	60.10	1.07
HP	2021	139	50.55	0.36	2.11	0.0515	1.18	5.53	1.02	63.00	1.04
JA	2021	143	44.47	0.31	1.67	0.0505	1.16	5.42	0.99	61.24	1.08
NC	2021	143	50.91	0.36	2.00	0.0562	1.55	5.36	0.99	61.23	1.07
NR	2021	151	51.19	0.34	2.09	0.0516	1.43	5.13	0.98	57.96	1.03
OH	2021	143	49.83	0.35	2.02	0.0551	1.43	5.08	1.09	61.38	1.05
PR	2021	146	57.14	0.39	2.08	0.0658	1.55	5.28	1.06	60.10	1.06
RH	2021	141	54.78	0.39	2.08	0.0603	1.67	5.50	0.97	62.10	1.07
TI	2021	141	45.96	0.33	1.85	0.0493	1.36	5.45	0.96	62.26	1.05
WI	2021	144	51.00	0.35	2.14	0.0492	1.10	5.38	0.99	60.80	1.08

(1) National Oceanic and Atmospheric Administration Data Center rain gauges

(2) Delta refers to time between storms midpoints

(3) Coefficient of Variation (average/standard deviation)

(4) Values reported as "Typical for NYC Metropolitan Area, circa 1950 through 1976" (from Hydroscience 1978)

(6) Statistics calculated using EPA's SYNOP package with inputs for interevent time of 4 hours and zero minimum rainfall depth

Appendix 3.3.2: Definitions Of Combined-Sewage Capture And Runoff Capture

Previous EPA guidance defined wet-weather capture at combined-sewer treatment facilities in terms of the ratio of runoff captured to the total runoff generated. This ratio, expressed as a percentage, is herein referred to as "runoff capture". For the purposes of this study, the runoff capture is estimated as the ratio of total treated volume of runoff from combined-sewer areas (the sum of the runoff treated by the plant and the runoff treated by any off-line storage facilities) to the total volume of runoff generated from combined-sewer areas during wet weather. More recent EPA guidance (EPA 1995) suggests an alternate definition of capture in terms of both runoff and sanitary sewage. One of the Presumptive Approach criteria is:

> *"The elimination or the capture for treatment of no less than 85% by volume of the combined sewage collected in the CSS [combined-sewer system] during precipitation events on a system-wide annual basis."*

This definition of capture, herein referred to as "combined-sewage capture," is the ratio of CS volume captured at the WRRF to the total runoff and sanitary sewage entering the combined-sewer system during wet-weather periods.

Figure 3-2 presents a schematic representation of both runoff capture and CS capture. With runoff capture, WRRF flow rates exceeding average diurnal (dry-weather) sanitary flows during wet-weather periods were assumed to represent captured runoff. In reality, the flow in the sewer system is a mixture of runoff and sanitary flow, and a portion of CSOs is sanitary in nature. The combined-sewage capture definition takes into account the sanitary flow already in the sewer system during wet weather, and hence is a more realistic measure of the capture at WRRFs during wet-weather periods.

In NYC, values for CS capture are typically about 15 percent points higher than those for runoff capture. EPA's CSO guidance (EPA 1995) has established a target criterion of 85 percent CS capture for the presumptive approach to CSO control.

Appendix 3.3.3: Percent-Capture Evaluation

Wet-weather capture depends upon the particular weather patterns within the subject period, the state of a sewer system and wet-weather operation of the WRRFs. Capture values tend to increase when storm patterns produce sustained, low-level flows to the plant. Capture values also increase when sewer-system restrictions are eliminated and flows to the WRRF are maximized. If the interceptors and combined sewers are not surcharged, when the plant inflows reach 2XDDWF levels in certain drainage areas, those may provide some additional in-line storage for wet-weather flow and, as such, can increase the wet weather capture rate. Although it is important to record the actual capture achieved at WRRFs each year, it is also useful to isolate the effect of the uncontrollable, year-to-year rainfall variations from the controllable aspects related to the operation and maintenance of the collection system and treatment plant. To address these issues, the model results presented herein represent two different scenarios:

- the "Actual" captures, reflecting the "state and operation of the collection/ treatment system" during the subject period, as well as the actual rainfall and tidal conditions during the subject period,
- the "Standardized" captures, reflecting the "state and operation of the collection/treatment system" during the subject period, but with rainfall and tide conditions representing the standardized (typical) rainfall year, and

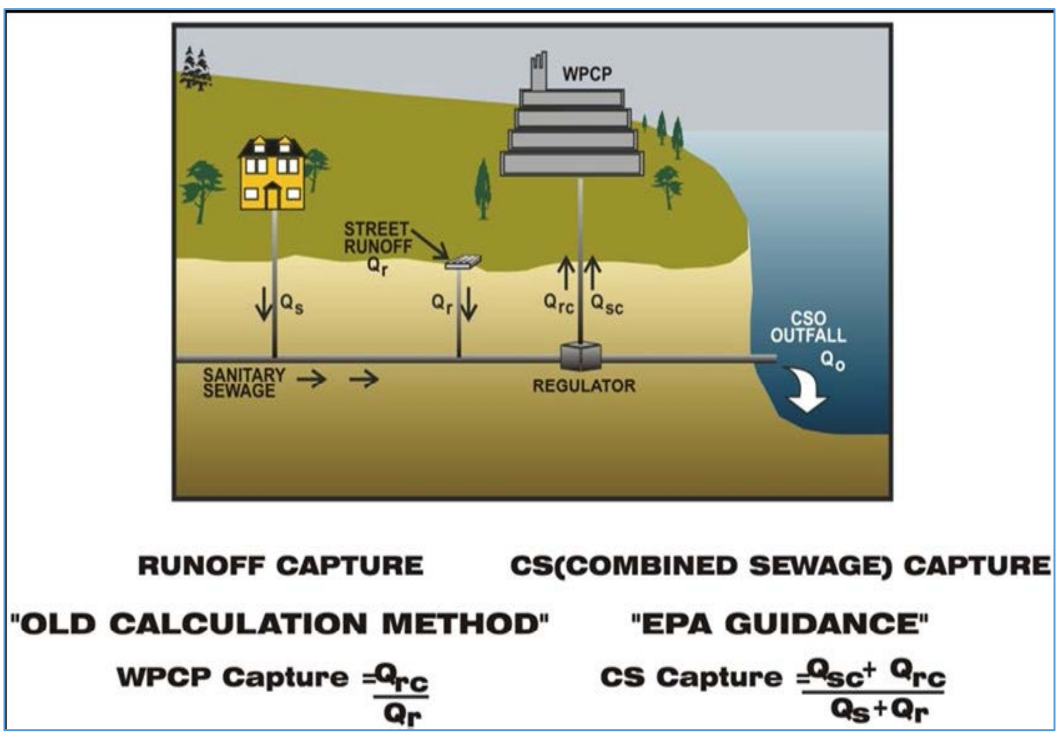


Figure 3-2. Wet Weather Flow Capture at WRRF

Appendix 3.3.4: Tools To Calculate Wet-Weather Flow Capture

Although the definitions presented in Section 3.1 and the equations on Figure 3-2 are relatively simple, actual application to calculate CS capture can be rather complicated. Because the capture must be evaluated over a long-term (annual) period, and with hundreds of potential CSO outfalls City-wide, direct measurements of all parameters would be impractical. Furthermore, measurements of flow and rainfall distribution over a large geographical area have proved to be less than reliable. A more practical approach is to estimate the terms presented on Figure 3-2 using calibrated sewer-system models to simulate (instead of directly measuring through monitoring) system performance during the subject period. The following section describes the modeling approach applied for 2021 calculations, namely, InfoWorks ICM. As indicated earlier, InfoWorks was adopted for citywide use and has been calibrated for all service areas that are wholly or partially served by combined sewers.

Appendix 3.3.5: InfoWorks Model

The InfoWorks model, distributed by Innovyze from the U.K., has been used in DEP projects since 2001. The model engine is a FORTRAN program, linked with a front interface that contains both relational databases of the sewer network and GIS databases of the geographic attributes such as latitude, longitude, and ground elevations. Based on comparative evaluations performed in 2002-03 by the DEP and its consultants, this interface appeared to offer several advantages over other commercial models such as easy interfacing with GIS for graphical and input/output data analysis and faster computational times for annual simulations. The model utilizes an implicit finite difference-based numerical solution technique to provide more stable modeling of key elements of the sewer systems. The model incorporates full Saint-Venant's equations for continuity and momentum for hydraulic routing and, as such, is well suited for modeling of the backwater effects and reverse flow, open channels, sewers, detention ponds, complex pipe connections and complex ancillary structures such as culverts, orifices and weirs.

Similar to other urban drainage models, the InfoWorks model calculates runoff volumes first using the same algorithms used in the SWMM model and routes the runoff over sub-areas (subcatchments) to generate runoff hydrographs. The hydrographs are then applied to the channel-sewer system for hydraulic routing. Dry weather flows (DWF) are added at the respective manholes for routing towards the treatment plant. Figure 3-3 presents a schematic of the InfoWorks model linkage and outputs used to calculate the wet-weather and runoff percent captures.

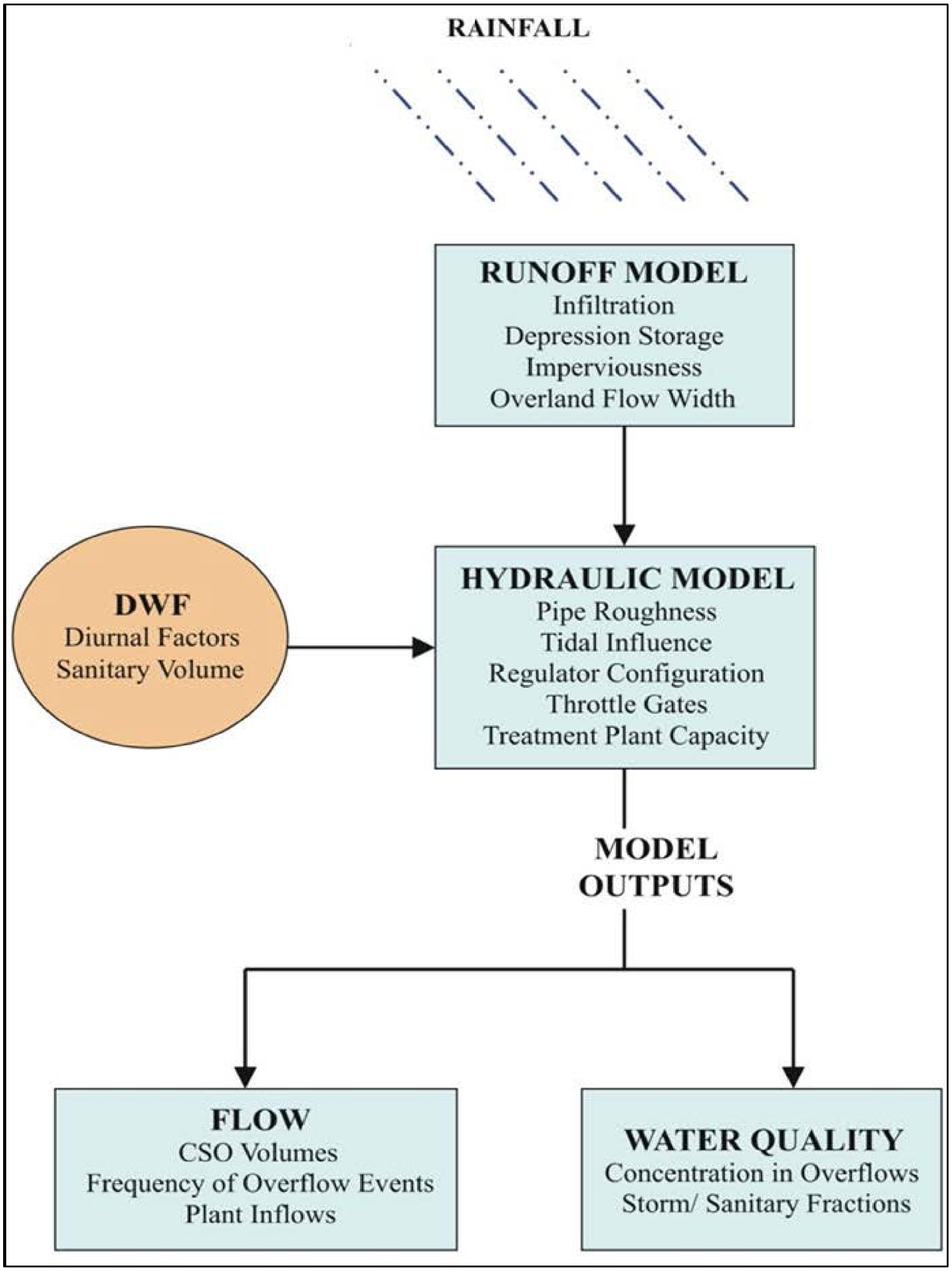


Figure 3-3. Schematic Representation of InfoWorks Model

The SWMM RUNOFF option has been chosen as the InfoWorks runoff simulation algorithm. Each WRRF drainage area was divided into component regulator drainage areas. All pipes larger than 48 inches were included in all WRRF models, and some pipes in the range of 12 to 42 inches in selected WRRF models that were expanded based on local hydraulic conditions. The pipe network was used to further divide the regulator drainage area into smaller sub-catchments that drain to individual manholes. Each sub-catchment was then divided into impervious and pervious areas, based on geographical features including rooftops, driveways, roadways, lawns, parking lots, and parks/open spaces. An example representation of pipes, manholes and surface features is shown in Figure 3-4.

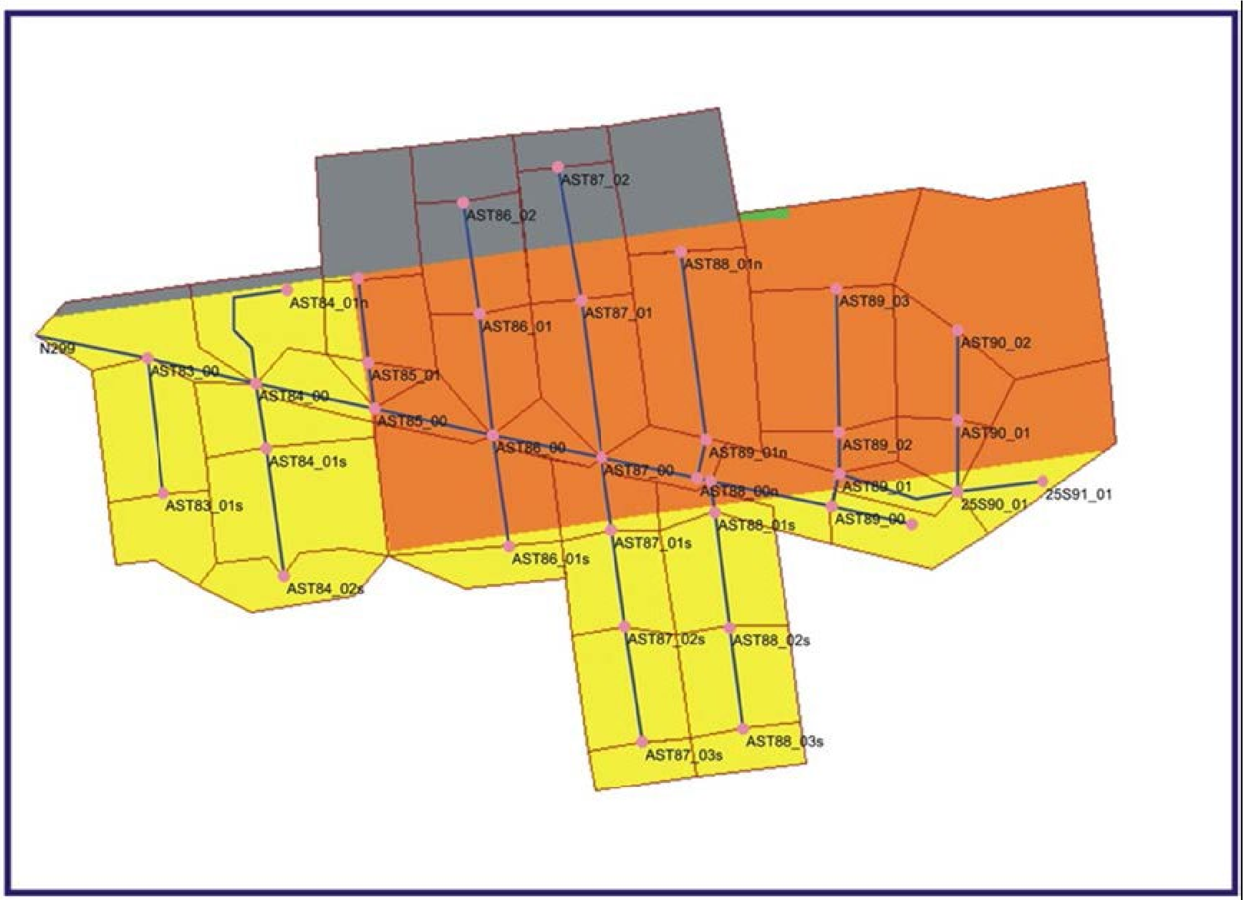


Figure 3-4. Geographical and Sewer System Data in InfoWorks Model

A major component of the 2011 InfoWorks model update was the satellite-imagery based imperviousness estimate. This process was well documented in the 2011 recalibration report submittal to the DEC. Although this estimate represents the total impervious area in each subcatchment, the flow monitoring performed by DEP confirmed that only a fraction of this area was contributing runoff directly to the sewer system. This fraction is referred to as the directly connected impervious area (DCIA) for each subcatchment, which is one of the calibration parameters. The DCIA, in essence, is equivalent to the runoff coefficient used in traditional sewer design principles with a standard rational approach. Hydrologic parameters included in the InfoWorks model for impervious surfaces are: DCIA, depression storage (initial losses), and surface roughness.

Similarly, the pervious areas were represented with the same three parameters – only difference being that the pervious areas were divided into open surfaces (parks, cemeteries or large open areas) and non-open surfaces (pervious areas in residential, commercial, industrial landuses). Soil compaction due to several factors in these two distinct surfaces presents different runoff loss rates, which led to the explicit representation of open and non-open areas with different runoff coefficients in the InfoWorks models. Runoff is generated from each of these three surfaces within a subcatchment for a given rainfall intensity/volume. An example image and associated definition of pervious and impervious (complement of pervious areas) from the Newtown Creek WRRF drainage area is shown in Figure 3-5. The areas within red boundaries represent the catchment areas to two flow metering locations within this WRRF drainage area.

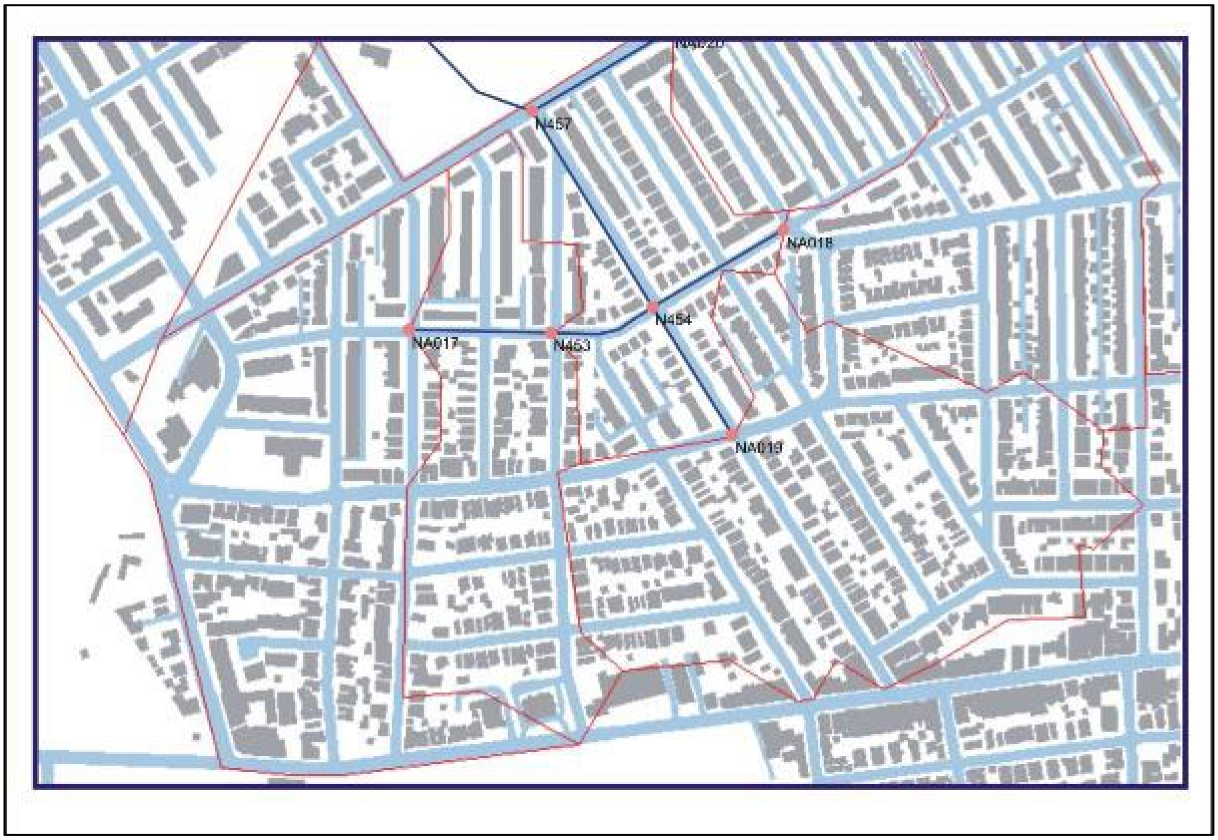


Figure 3-5. Landcover Definitions Using Remote Sensing Data

Monthly evaporation data was obtained from the Northeast Climate Center at Cornell University for all the four NOAA rain gage locations. This data was further processed based on the geographical proximity of WRRF service areas and used to develop the inputs for evaporation rates in the model.

The InfoWorks model uses the SWMM's non-linear reservoir model to route the runoff through urban landscapes to the sewer entry-point (catch basin/manhole included in the model). Sub-catchments are modeled as idealized rectangular areas with the slope of a sub-basin perpendicular to the width. The routing is performed according to the equation:

$$Q = \frac{1.486}{n} W (d - d_s)^{\frac{5}{3}} S^{\frac{1}{2}}$$

where:

Q is surface runoff (cfs);

W is width of sub-area (ft);

S is average slope of sub-area (ft/ft);

d is depth in the non-linear reservoir (ft);

d_s is the depression storage depth in the non-linear reservoir (ft); and

n is the Manning's roughness coefficients.

For hydraulic routing, the model uses the Saint-Venant equations to describe the conservation of mass and momentum:

$$\frac{\delta A}{\delta t}+\frac{\delta Q}{\delta x}=0$$

$$\frac{\delta Q}{\delta t}+\frac{\delta}{\delta x}\left(\frac{Q^2}{A}\right)+gA\left(\cos\theta\frac{\delta g}{\delta x}-S_o+\frac{Q|Q|}{K^2}\right)=0$$

with: Q Discharge (m^3/s)

A Cross-sectional area (m^2)

g Acceleration due to gravity (m/s^2)

2 Angle of bed to horizontal (°)

S_o Bed slope

K Conveyance

With the use of the Saint Venant equations, the following complex phenomena that occur in a sewer system can be dynamically characterized:

Presence of sewer sediments

- Pump-station operations (variable, step-wise, etc.), along with wet-well controls
- Inverted siphon
- Bifurcations
- Regulator operations during tidal conditions
- Throttling at treatment plants during wet weather to limit inflows
- Behavior of in-line regulators
- Street and basement flooding
- Groundwater infiltration into combined and separately sewers.

Depending on the complexity of each WRRF drainage area, some or all of the above processes were modeled in InfoWorks. Available CSO and in-system flow and depth monitoring data compiled during development of waterbody-watershed facility planning studies and CSO LTCPs was used to update the sewer system models of the 12 WRRF drainage areas with combined sewers and the Rockaway WRRF service area with separate sewers. The system-wide calibration involved the use of flow and depth data compiled at several in-system locations, selected outfalls, DEP SCADA locations, and at the influent of a WRRF. The city has been using a grid-based radar rainfall data framework to characterize the spatial-temporal variability. Selected storms ranging in intensity and total volumes observed during the calibration period were used to calibrate the appropriate hydrologic (e.g., runoff coefficient (DCIA), depression storage, and roughness) and hydraulic (pipe roughness, pump operations, weir coefficients and gate controls) model parameters. Additional wet weather events (storms) were used to independently validate the model performance. DEP used a weight-of-evidence approach to assess the adequacy of model calibration including correlation plots between observed and modeled runoff volumes, flow rates, and water depths in sewers; and also the temporal comparisons of flows during wet events at various calibration points including the plant influent. Figure 3-6 illustrates the detailed calibration/validation approach that involves assessing correlations at different spatial scales and also using a variety of flow/depth monitoring data.

The input parameters necessary for InfoWorks application to compute percent capture include: (a) maximum WRRF capacity that can be varied on a monthly basis – represented in the form of a wet well elevation versus pump capacity curve; (b) precipitation at hourly or shorter intervals; (c) dry weather flow at each regulator and its diurnal pattern that can be varied on a monthly basis; (d) distribution of land uses within each subcatchment along with losses such as evaporation and depression storage; (e) operation of throttling/sluice gates within a system; (f) tide conditions near the various outfalls within a system. Since the model accounts for surcharging and backups within sewers, such complex aspects as in-line storage are modeled accurately.

Tide data were developed from the three permanent tide gages maintained by NOAA near New York City – namely, King's Point, The Battery, and Sandy Hook. NOAA also publishes tidal correction factors in terms of differences in time and amplitude at several locations in the NY-NJ Harbor. The correction factors were tabulated for the locations of the waterbody near each or a set of outfalls, and then the data from the nearest NOAA station were used to develop the tidal boundary conditions for each or a set of outfalls within a drainage area.

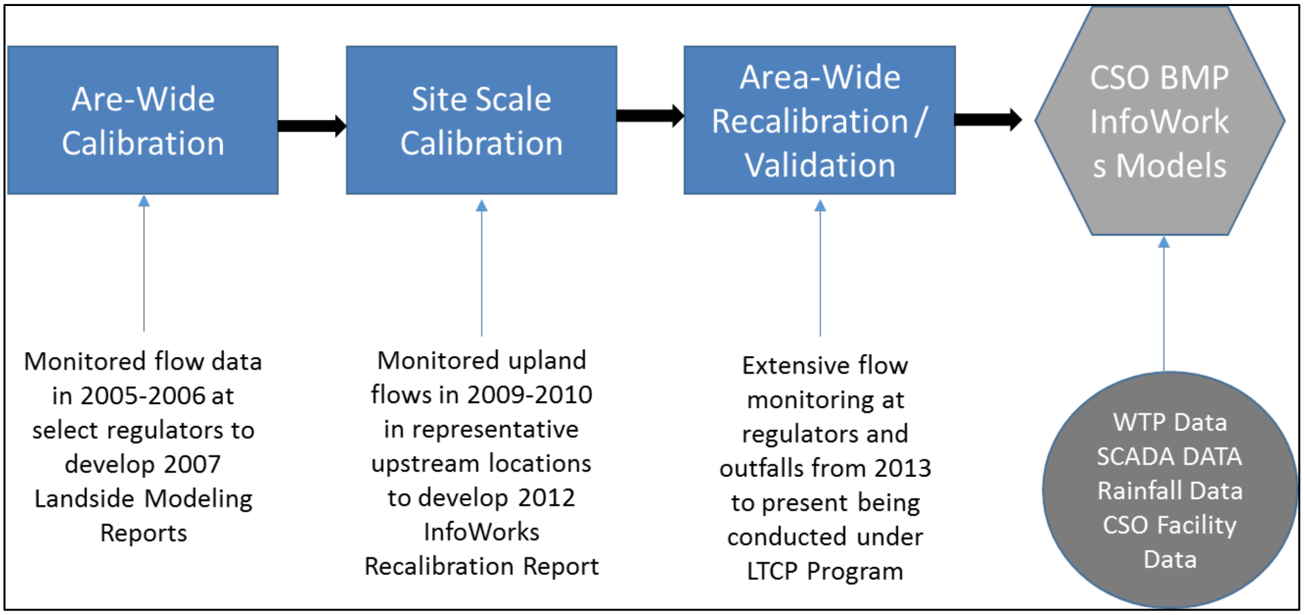


Figure 3-6. Comprehensive InfoWorks Model Calibration Approach

As a first step, the plant flow data at each WRRF was reviewed to develop the wet-well elevation versus pump discharge curves on a monthly basis. Appropriate dry weather flows and diurnal patterns were used for all regulators within the drainage area. The modeled and monitored plant flows were compared to confirm the adequacy of calibration of plant influent in the InfoWorks model for CY2019 conditions. If needed, the pump rating curves were adjusted to better match the monitored and modeled flows. Similarly, the rule curves associated with throttling gates, if appropriate, were modified to achieve better agreement between modeled and observed inflows at the plant. No other hydrologic or hydraulic model parameters were adjusted in the drainage area during this model application process. Specific hydraulic adjustments of the models have been made in select WRRF models to account for changes to the conveyance system, such as the operation of the Alley Creek, Flushing Creek, Paerdegat Basin and Spring Creek CSO retention facilities. The modeled inputs used in the InfoWorks model for all drainage areas with combined sewers are summarized in Table 3-2. Figure 3-7 shows an example correlation between measured and modeled inflows to the Bowery Bay WRRF, for CY2019.

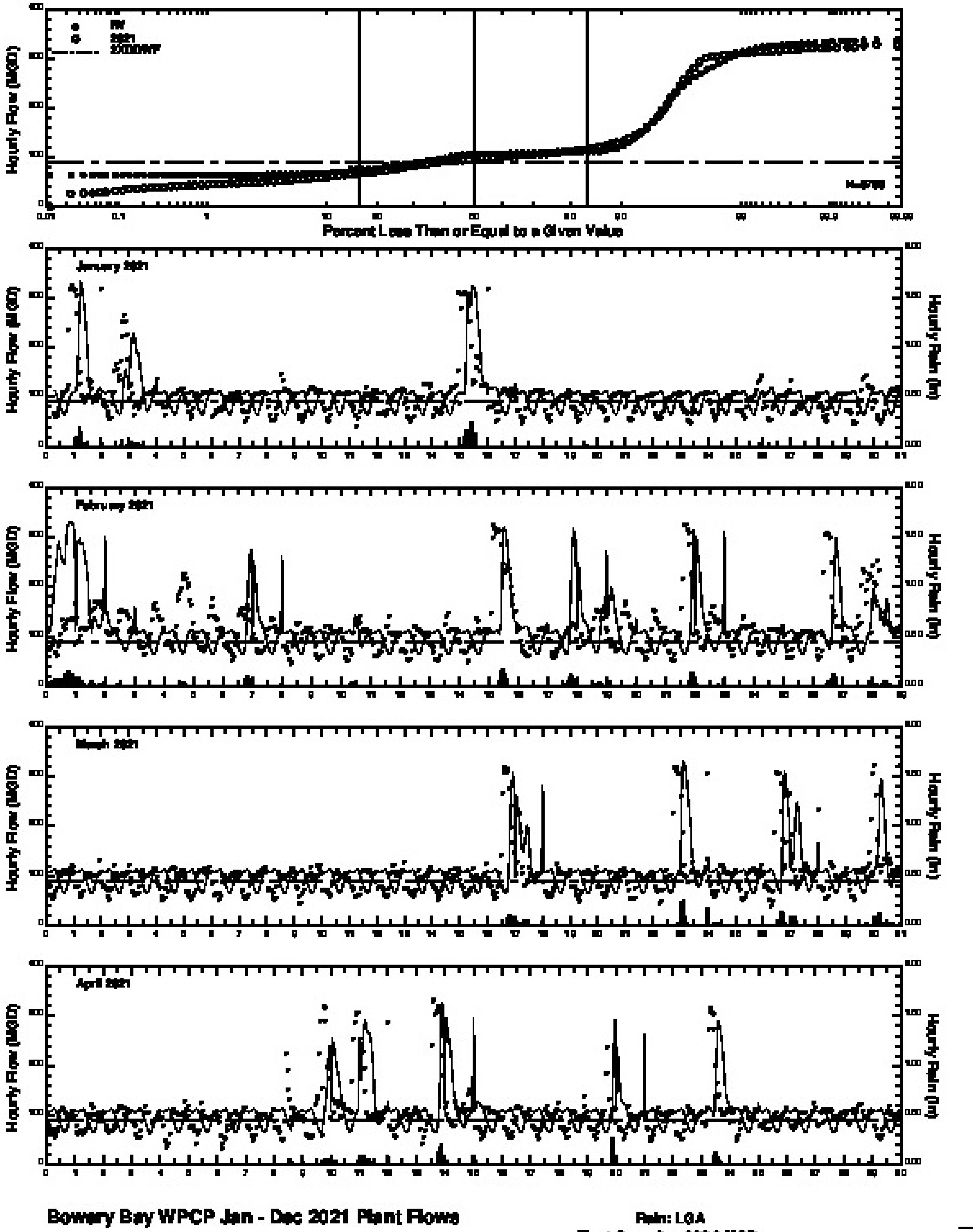


Figure 3-7. InfoWorks Sample Results 2021

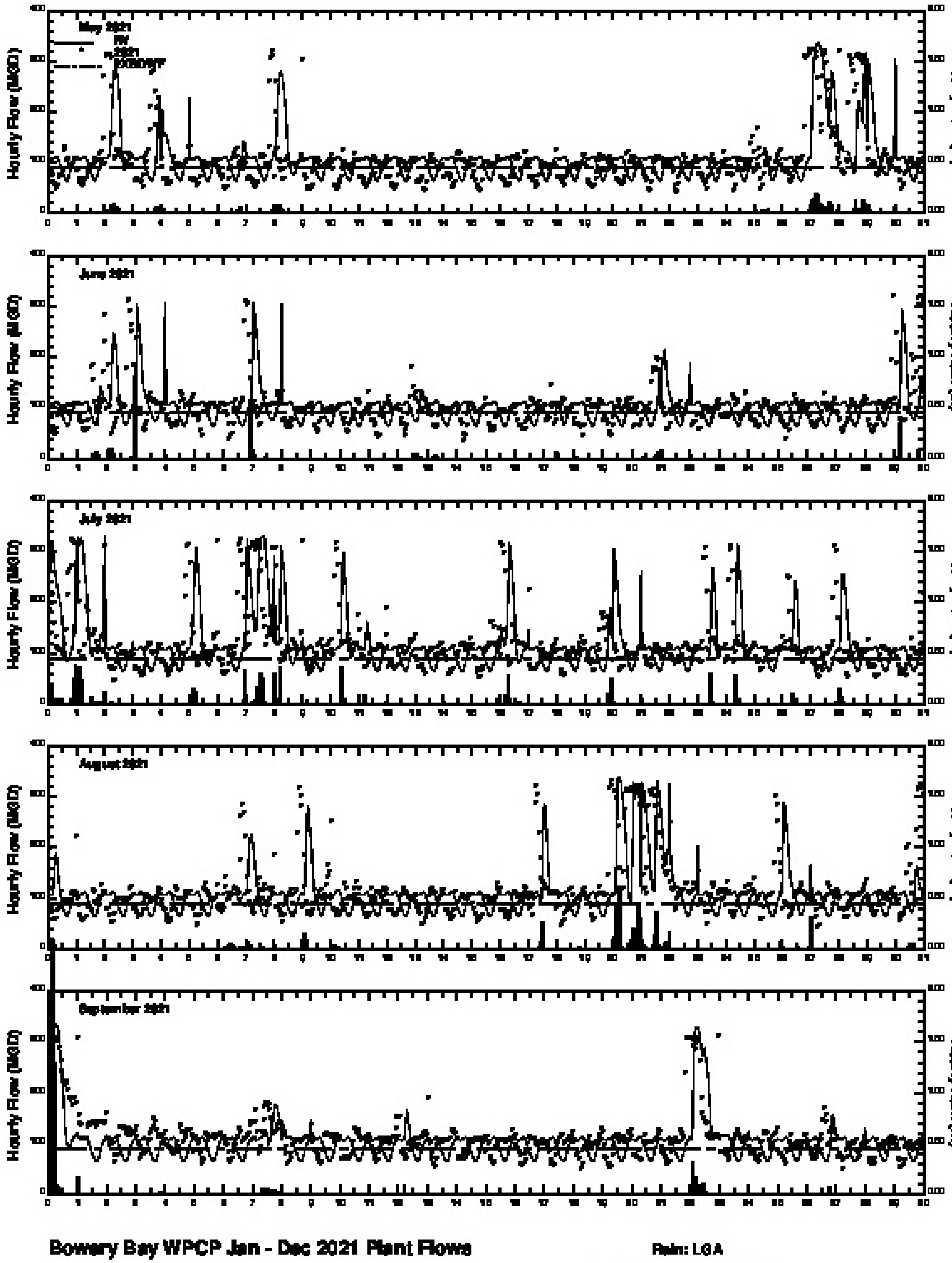


Figure 3-7. InfoWorks Sample Results 2021

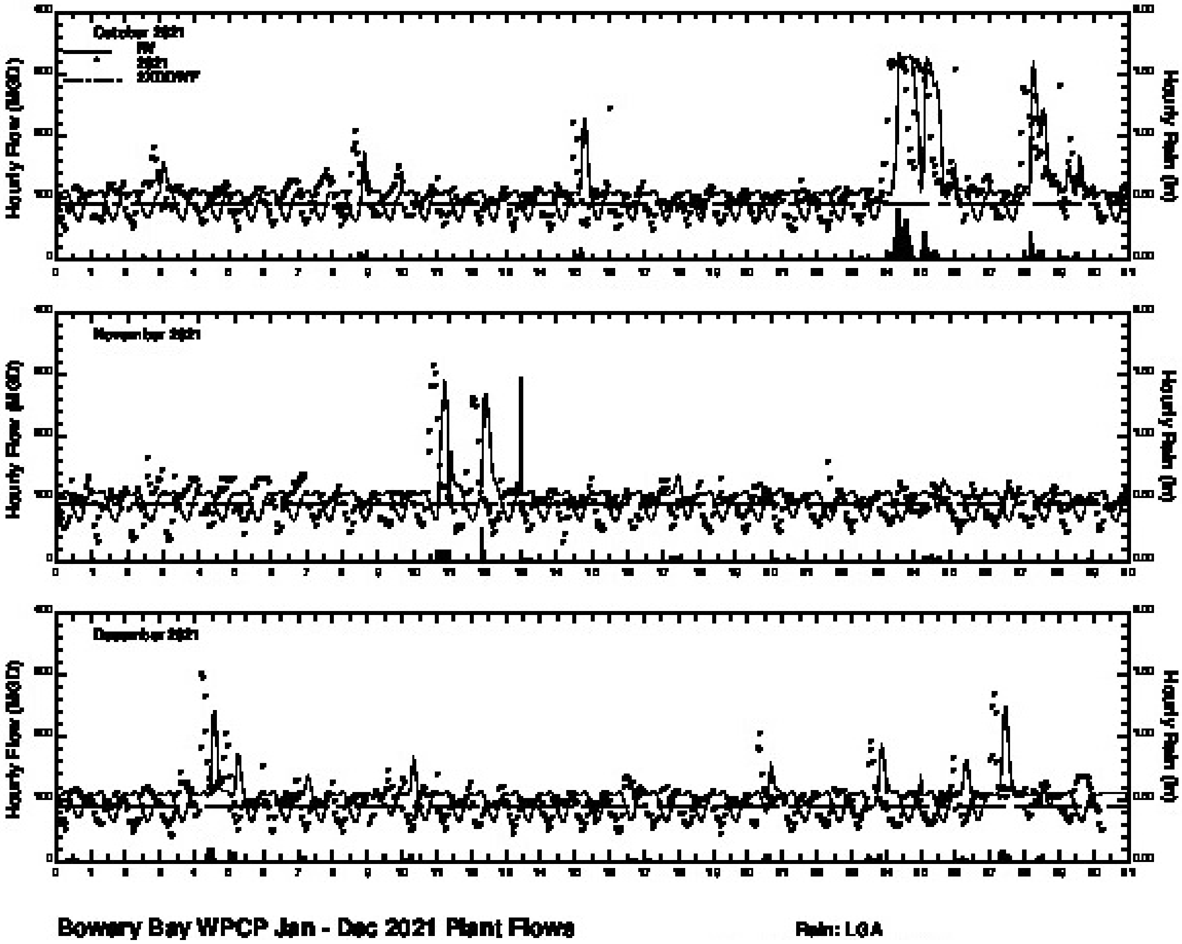


Figure 3-7. InfoWorks Sample Results 2021

Appendix 3.4: COMBINED-SEWAGE CAPTURE RESULTS - 2021 FLOW VOLUME

Table 3-2 presents the results of the combined-sewage volume percent capture evaluation performed for CY2021. The InfoWorks models were used to analyze drainage areas for the two scenarios, as discussed in Section 3.2 - "Actual" refers to the actual conveyance/treatment system performance and rainfall in 2021.

As shown in Table 3-3, the "Actual" scenario capture of combined-sewage volume in 2021 averaged 77 percent citywide. Combined-sewage capture at individual, combined area WRRFs varied from a low at Owls Head (67 percent) to a high at North River (90 percent each). Combined-sewage flow capture is not applicable at the separately sewered WPCPs (Oakwood Beach and Rockaway).

Table 3-2. As-Modeled WRRF Service Area Characteristics – CY 2021

WRRF	Total Drainage Area (acres)	Combined Sewage Drainage Area (acres)	Average Dry Weather Flow (MGD)	Design Dry Weather Flow (MGD)	Maximum Wet Weather Flow(1) (MGD)	Permitted Wet Weather Flow(2) (MGD)
26W	5,787	4,358	51	85	175	170
BB	14,232	12,446	90	150	322	300
CI	6,779	6,070	78.9	110	215	220
HP	22,543	11,546	124	200	408	400
JA	26,421	5,451	76.1	100	208	200
NC	15,103	13,562	188.8	350	738	700
NR	5,572	4,448	98.2	170	350	340
OH	10,078	9,448	85.4	120	258	240
PR	11,541	3,575	26.0	60	130	120
RH	3,738	2,991	26.7	60	127	120
TI	18,314	8,721	55.5	80	167	160
WI	15,799	12,822	182.7	275	625	550
NYC CS Total	155,907	95,438	1,083.3	1,760	3,723	
Separate Areas						
RO	5,710	NA	19.5	45	45	90
OB(3)	10,779	NA	29.0	40	104	80
NYC overall	172,396	95,438	1,131.8	1,845	3,872	

(1) The maximum 99.9th percentile wet weather flows were used to set the peak pumping capacity to be used in the InfoWorks model.
(2) Permitted flow is max design flow, or twice design dry-weather flow (2xDDWF), except as noted.
(3) Certain statistics excluded for RO and OB because these areas are separately sewered.

Table 3-3. Combined-Sewage Capture Results – Flow Volume Calendar Year 2021	
WRRF	**Actual (1) (2021)**
26W	85%
BB	70%
CI	84%
HP	74%
JA	85%
NC	84%
NR	90%
OH	67%
PR	70%
RH	75%
TI	71%
WI	82%
NYC Avg. (2)	77%

Notes:
(1) The "actual" case capture results reflect the ―state and operation of the collection/treatment system during the subject period, as well as the actual rainfall patterns during the subject period.
(2) Averages are combined sewage drainage-area weighted and exclude separately (Oakwood Beach and Rockaway).

Appendix 3.5: REFERENCES

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https://www.nssl.noaa.gov/projects/mrms/

Appendix 4:

- Appendix 4.1: Table 1 - Wet Weather Operating Plan (WWOP) Submittal Schedule - WRRF's
- Appendix 4.2: Table 2 - Wet Weather Operating Plan (WWOP) Submittal Schedule - CSO Facilities

Appendix 4.1: TABLE 1 - WET WEATHER OPERATING PLAN (WWOP) SUBMITTAL SCHEDULE - WRRF'S

	Submittal Dates		
Facilities	**Original**	**Revisions**	**Status**
Wards Island	Jul-03	Sept. 2004, April 2007, Aug. 2007, June 2008 (submitted Sept. 2008), Dec. 2008, June 2009, Jan. 2011, Oct. 2014, Dec. 2014	Jun 2009 version Approved (Mar. 2010) Awaiting DEC approval of the Dec. 2014 version
North River	Apr-04	July 2011, Dec. 2014	April 2004 version Approved (Jan. 2006) July 2011 submittal was an amendment to WWOP due to fire Awaiting DEC approval of the Dec. 2014 version
Hunts Point	Jul-03	Sept. 2004, April 2010, Aug. 2010, Dec. 2014	Aug. 2010 version Approved (Oct. 2010) Awaiting DEC approval of the Dec. 2014 version
26th Ward	Jul-03	Sept. 2004, May 2007, Oct. 2007, Feb. 2009, Aug. 2009, July 2010, Dec. 2014, Oct. 2015, Mar. 2016	Mar. 2016 version Approved (Mar. 2016)
Coney Island	Apr-05	Dec. 2007, May 2010, Oct. 2010, Dec. 2014	Dec. 2007 version Approved (Mar. 2008) Awaiting DEC approval of the Dec. 2014 version
Owls Head	Apr-05	Dec. 2007, Sept. 2008, Dec. 2008, Dec. 2014	Dec. 2008 version Approved (Jan. 2009) Awaiting DEC approval of the Dec. 2014 version
Newtown Creek	Jun-03	April 2005, March 2009, April 2010, Oct. 2011, April 2013, Dec. 2014	April 2013 version Approved (Jun. 2013) Awaiting DEC approval of the Dec. 2014 version
Red Hook	Feb. 2005	Dec. 2014	WWOP Approved (Jan. 2006) Awaiting DEC approval of the Dec. 2014 version
Jamaica	Apr-05	April 2007, June 2007, Dec. 2014	June 2007 version Approved (Sept. 2007) Awaiting DEC approval of the Dec. 2014 version
Tallman Island	Jul-03	Sept. 2004, May 2007, Oct. 2007, Aug. 2009, April 2010, July 2010, July 2011, Dec. 2014	July 2010 version Approved (Sept. 2010) Awaiting DEC approval of the Dec. 2014 version
Bowery Bay	Jul-03	Sept. 2004, March 2009, Dec. 2014, Mar. 2016	March 2009 version Conditionally Approved (May 2009) Awaiting DEC approval of the Mar. 2016 version

Rockaway	Apr-05	Dec. 2007, Dec. 2014	Dec. 2007 version Approved (Mar. 2008) Awaiting DEC approval of the Dec. 2014 version
Oakwood Beach	Apr-05	Dec. 2007, Dec. 2014	Dec. 2007 version Approved (Mar. 2008) Awaiting DEC approval of the Dec. 2014 version
Port Richmond	Apr-05	Dec. 2007, Dec. 2014	Dec. 2007 version Approved (Mar. 2008) Awaiting DEC approval of the Dec. 2014 version

Appendix 4.2: TABLE 2 - WET WEATHER OPERATING PLAN (WWOP) SUBMITTAL SCHEDULE - CSO FACILITIES

	Submittal Dates		
Facilities	**Original**	**Revisions**	**Status**
Spring Creek	Jun-03	May 2007, Oct. 2007, Feb. 2009, Aug. 2009, July 2010, Dec 2014, Oct. 2015, Mar. 2016	appended to 26W WWOP
Flushing Bay	Dec. 2003	May 2007, Oct. 2007, Aug. 2009, April 2010, July 2010, July 2011, Dec-14	appended to TI WWOP
Alley Creek	Dec. 2003	May 2007, Oct. 2007, Aug. 2009, April 2010, July 2010, July 2011, Dec-14	appended to TI WWOP
Peardegat Basin	Dec. 2003	May 2010, Oct. 2010, Dec 2014	appended to CI WWOP
Corona Avenue	Dec. 2003	March 2009, Dec 2014, Mar. 2016	appended to BB WWOP

Appendix 5:

Figure 1: Dry Weather Raw Sewage Bypass Graph (CY2017 – 2021)

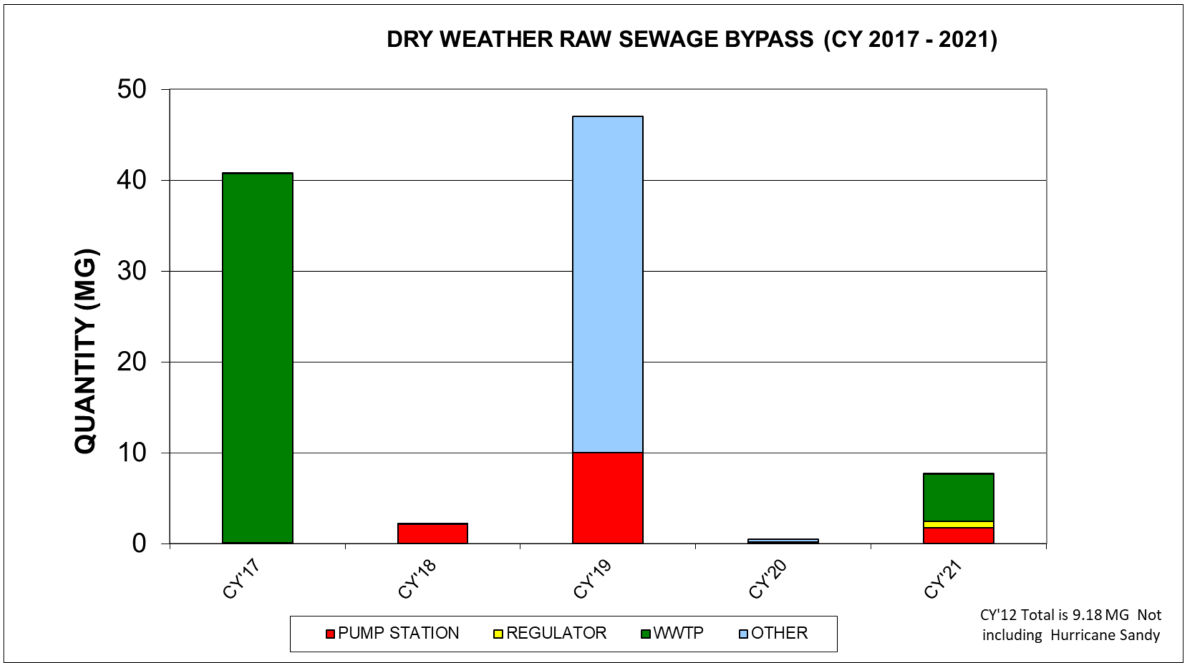


Table 1: Dry Weather Bypassing CY'17-CY'21

SOURCE	CY'17	CY'18	CY'19	CY'20	CY'21
PUMP STATION	0.02	2.13	10.00	0.05	1.65
REGULATOR	0.09	0.01	0.01	0.10	0.69
WWTP	40.60	n/a	0.00	0.00	5.16
OTHER	0.02	0.01	37.01	0.35	0.0027
TOTAL	40.72	2.16	47.01	0.50	7.51

*In 2021, there was a Bypass during Wet Weather at Bowery Bay which is included in the above totals.

*In 2021, there were bypasses that occurred from private sewers which overflowed to DEP-owned catchbasins/outfalls which are included in the above totals. Some of these events had unknown amounts and end times; these are included in the # of events but the amount and duration are unknown.

Table 2: Dry Weather Raw Sewage Bypasses CY2-17-2021 - Pump Station

Years	# of Events	Total Bypass (MG)	Duration (Hrs)
CY2017	2	0.02	6.50
CY2018	2	2.13	13.33
CY2019	4	10.00	67.23
CY2020	3	0.05	5.50
CY2021	7	1.65	41.03

Table 3: Dry Weather Raw Sewage Bypasses CY 2017-2021 – Regulator

Years	# of Events	Total Bypass (MG)	Duration (Hrs)
CY2017	2	0.09	9.08
CY2018	3	0.01	3.83
CY2019	3	0.009	5.92
CY2020	4	0.10	14.80
CY2021	6	0.69	33.05

Table 4: Dry Weather Raw Sewage Bypasses CY2017-2021 – WWTP

Years	# of Events	Total Bypass (MG)	Duration (Hrs)
CY2017 *	2	40.60	19.3
CY2018	0	0.00	0.00
CY2019 *	1	0.00	1.4
CY2020	0	0.00	0.0
CY2021 *	1	5.16	1.1

*In 2017, there were Bypasses during Wet Weather at Hunts Point and Bowery Bay which are included in the above totals.

*In 2019, there was a Potential Raw Sewage Bypass at Jamaica, but it was not confirmed.

*In 2021, there was a Bypass during Wet Weather at Bowery Bay which is included in the above totals.

Table 5: Dry Weather Raw Sewage Bypasses CY2017-2021 - Other Location

Years	# of Events	Total Bypass (MG)	Duration (Hrs)
CY2017	7	0.02	39.48
CY2018 *	1	0.01	3.50
CY2019	6	37.01	395.47
CY2020	4	0.35	59.25
CY2021 *	5	0.0027	8.22

*In 2018 this includes illegal connections

*In 2021, there were bypasses that occurred from private sewers which overflowed to DEP-owned catchbasins/outfalls which are included in the above totals. Some of these events had unknown amounts and end times; these are included in the # of events but the amount and duration are unknown.

Table 6: Pump Station Bypassing Summary CY2021 by Location

LOCATION	EVENTS	% EVENTS	MG	% MG	HOURS	% HOURS
HP-Hollers Avenue PS	1	14%	0.21	12%	10.00	24%
TI-122nd Street PS	1	14%	0.03	2%	2.45	6%
HP-Rikers Island N. PS	1	14%	0.09	5%	1.33	3%
TI-6th Road PS	1	14%	0.23	13%	14.00	34%
TI-24th Avenue PS	1	14%	0.19	11%	6.00	15%
BB-37th Avenue PS	1	14%	0.26	15%	6.00	15%
OH-Avenue V PS	1	14%	0.77	43%	1.25	3%
TOTAL	7	100%	1.77	100%	41.03	100%

Table 7: Pump Station Bypassing Summary CY2021 by Cause Code

CAUSE CODE	CODE DESCRIPTION	EVENTS	% EVENTS	MG	% MG	HOURS	% HOURS
2B	Electrical Utility Failure: Network	2	29%	0.12	7%	3.78	9%
3B	Electrical Equipment Failure: Influent or Regulator Gate Control System	1	14%	0.77	43%	1.25	3%
7A	Rupture or Collapse: Pumping Station Force Main	1	14%	0.21	12%	10.00	24%
8C	Flooding: Other	3	43%	0.7	38%	26.00	63%
TOTAL		7	100%	1.77	100%	41.03	100%

Table 8: Regulator Bypassing Summary CY2021 by Location

LOCATION	EVENTS	% EVENTS	MG	% MG	HOURS	% HOURS
108th Street & 31st Avenue	1	17%	0.016	2%	0.67	2%
TI-Reg. No. 49	1	17%	0.005	1%	1.72	5%
WI-DAMU No. WIM-014	1	17%	0.260	37%	2.25	7%
TI-Reg. No. 29	1	17%	0.003	0%	0.58	2%
Regulator WIB-60	1	17%	0.280	40%	2.50	8%
WI-Reg. No. WI-B61	1	17%	0.130	19%	25.33	77%
TOTAL	6	100%	0.694	100%	33.05	100%

Table 9: Regulator Bypassing Summary CY2021 by Cause Code

.

CAUSE CODE	CODE DESCRIPTION	EVENT S	% EVENTS	MG	% MG	HOURS	% HOURS
5E	Uncollected: High Flows	2	33%	0.13	19%	27.05	82%
6A	Blockages: Regulator	4	67%	0.56	81%	6.00	18%
TOTAL		6	100%	0.69	100%	33.05	100%

Table 10: WWTP Bypass Summary CY2021 by Location

LOCATION	EVENTS	% EVENTS	MG	% MG	HOURS	% HOURS
BB-Bowery Bay	1	100%	5.16	100%	1.08	100%
TOTAL	1	100%	5.16	100%	1.08	100%

Table 11: WWTP Bypassing Summary CY2021 by Cause Code

CAUSE CODE	CODE DESCRIPTION	EVENT S	% EVENT S	MG	% MG	HOURS	% HOURS
3A	Electrical Equipment Failure: Distribution on Equipment	1	100%	5.16	100%	1.08	100%
TOTAL		1	100%	5.16	100%	1.08	100%

Table 12: Other Bypassing Summary CY2021 by Location

LOCATION	EVENTS	% EVENTS	MG	% MG	HOURS	% HOURS
Intersection of Huguenot Avenue & Arthur Kill Road	1	20%	0.0015	55%	3.50	43%
Outfall OB-653	1	20%	n/a	-	n/a	-
Outfall PR-612	1	20%	0.0001	4%	0.42	5%
65 Utter Avenue	1	20%	0.0001	4%	0.95	12%
43 Four Corners Road & Richmond Road	1	20%	0.0010	37%	3.35	41%
TOTAL	5	100%	0.0027	100.00%	8.22	100.00%

Table 13: Other Bypassing Summary CY2021 by Cause Code

CAUSE CODE	CODE DESCRIPTION	EVENTS	% EVENTS	MG	% MG	HOURS	% HOURS
n/a	n/a	3	60%	0.0026	96%	7.80	95%
5C	Uncollected: Illegal Connection to Storm	1	20%	n/a	-	n/a	-
7A	Rupture or Collapse: Pumping Station Force Main	1	20%	0.0001	4%	0.42	5%
TOTAL		5	100%	0.0027	100%	8.22	100%

Appendix 6:

- Appendix 6.1: Exhibit 1 – Letter to Industrial Users Amending Permits and Directives
- Appendix 6.2: Exhibit 2 – Trends in Metals Loadings to New York City WRRFs

Appendix 6.1: EXHIBIT 1 – LETTER TO INDUSTRIAL USERS AMENDING PERMITS AND DIRECTIVES

The City of New York
Department of Environmental Protection
59-17 Junction Boulevard
Flushing, New York
11373-5108

Christopher O. Ward
Commissioner

Alfonso R. Lopez, P.E.
Deputy Commissioner

Bureau of Wastewater Treatment

Tel. (718) 595-5050
(Fax (718) 595-6950
Alopez@dep.nyc.gov

September 1, 2004

Re: **Industrial Wastewater Discharge Permit/Commissioner's Order and Directive Amendments**

Certified Mail/Return Receipt Requested

Dear Industrial User:

This is to notify you that the New York City Department of Environmental Protection (DEP) is hereby amending the requirements of your Industrial Wastewater Discharge Permit/Commissioner's Order and Directive (Permit/Directive) as follows:

1. Your establishment is now required to hold its process wastewater and non-contact cooling water to the maximum extent practicable during heavy wet weather events.

The reason for this is that in New York City, combined sewers carry both wastewater and storm water to the City's Water Pollution Control Plants (WPCP). Combined Sewer Overflows (CSOs) can occur during heavy wet weather events, causing wastewater and storm water to be discharged to the receiving waters, without treatment at a WPCP, due to the inability of the WPCP to accept the increased flow. This has an adverse affect on New York City's waterways. DEP has made significant reductions in the size and frequency of CSO events within the City; however, this problem can still occur during heavy rainfall.

2. Part II, Section A of your Permit/Directive is hereby amended, raising the maximum civil and misdemeanor penalties from $1,000.00 to $10,000.00, as per an amendment to the New York City Administrative Code.

3. Part II, Section C (2) (c) is amended to require inclusion of the dates of analysis for each sample and the laboratory's sample identification for each sample in the laboratory report. Please see the amended Industrial User Self Monitoring Report Form and the Sample Laboratory Report Form enclosed for all information establishment is required to submit.

All other requirements of your Permit/Directive remain in effect.

If you have any questions regarding this matter, please telephone Ms. Frances Leung at (718) 595-4763.

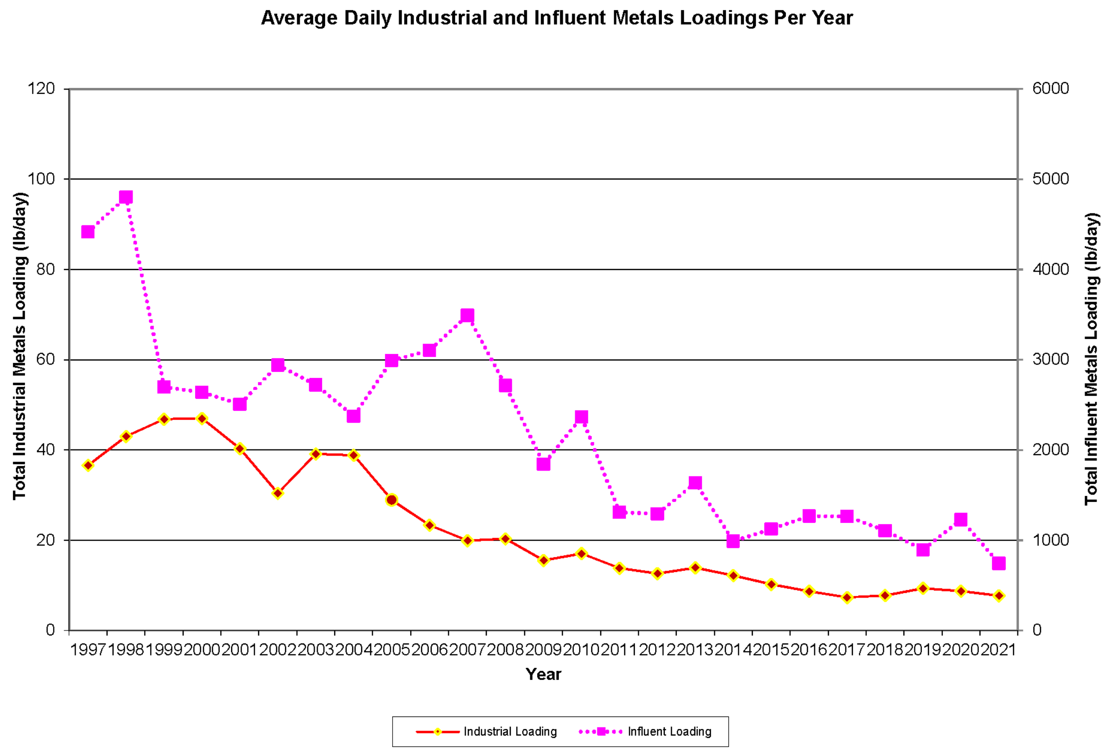
Sincerely,

Leslie Lipton

Leslie Lipton, Esq., Chief
Division of Pollution Control and Monitoring

Enc. Industrial User Self Monitoring Report Form
Sample Laboratory Report Form

Appendix 6.2: EXHIBIT 2 – TRENDS IN METALS LOADINGS TO NEW YORK CITY WRRFS



Appendix 7: BWSO

Appendix 7.1.1: Table 7.1-A - CY2021 Catch Basin (CB) Survey & Cleaning

Borough	Total CB Inspections	Scheduled CB Cleanings	Complaint Based CB Cleaned	Total CB Cleaned
Bronx	1,507	2,299	283	2,582
Brooklyn	10,490	4,195	1,468	5,663
Manhattan	2,377	957	721	1,678
Queens	15,148	7,837	3,407	11,244
Staten Island	5,501	1,704	814	2,518
Total	**35,023**	**16,992**	**6,693**	**23,685**

Appendix 7.1.2: Table 7.1-B - CY2021 Catch Basin Hooding

Wastewater Resource Recovery Facility (WRRF) Drainage Area	Quantity
26th Ward	62
Bowery Bay	95
Coney Island	193
Hunts Point	15
Jamaica	262
Newtown Creek	23
North River	59
Oakwood Beach	107
Owls Head	91
Port Richmond	2
Red Hook	15
Rockaway	0
Tallman Island	242
Wards Island	32
Total	**1,198**

APPENDIX 7.2 BWT

Appendix 7.2.1: Table 7.2-A - City-Wide Floatable Material Recovery 2004-2021 **Table 7.2-A - City-Wide Floatable Material Recovery 2004-2021**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
No. Sites[(1)]																		
FCP[(2)] Permanent	21.00	21.00	22.00	21.00	21.00	24.00	23.00	23.00	23.00	23.00	23.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00
FCP Temporary[(3)]	2.00	2.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Other Sites	2.00	2.00	3.00	4.00	4.00	3.00	12.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	25.00	25.00	26.00	27.00	27.00	29.00	36.00	24.00	24.00	24.00	24.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00
Volume [cy][(4)]																		
FCP Permanent	1,460.00	1,047.50	1,614.50	2,131.30	1,881.75	1,368.75	1774.50	1,988.25	1,384.00	921.00	437.75	246.5	454.625	579.625	513.00	349.50	444.75	255.75
FCP Temporary	2.00	3.00	18.00	25.50	18.25	1.00	5.00	1.50	9.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Sites	32.00	80.25	70.50	151.50	136.50	207.50	523.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	**1,494.00**	**1,130.75**	**1,703.00**	**2,308.30**	**2,036.50**	**1,577.25**	**2,302.50**	**1,989.75**	**1,393.00**	**927.00**	**437.75**	**246.50**	**454.625**	**579.625**	**513.00**	**349.50**	**444.75**	**255.75**

(1) Maximum number of sites operating during calendar year period.

(2) Floatables Containment Program.

(3) "Temporary" status refers to sites which do not have a permanent floatables containment installation - Gowanus Canal.

(4) Total volume of floatables retrieved from sites during period.

Appendix 7.1.3: Table 7.2-B - City-Wide Floatable Material Recovery Per CSO Floatable Containment Sites, 2021

Month-Year	FRESH CREEK	BERGEN BASIN	THURSTON BASIN	FLUSHING BAY I	FLUSHING BAY II	FLUSHING CREEK I	FLUSHING CREEK II	BRONX RIVER	CRYDERS LANE	HENDRIX CREEK	ENGLISH KILLS	CONEY ISLAND	GOWANUS CANAL
Jan-21	0	0	0	0	0	0	0	30	0	0	0	0	0
Feb-21	0	0	0	0	0	0	0	27	0	0	0	0	0
Mar-21	0	0	0	0	0	0	1	27	0	0	0	0	0
Apr-21	0.75	16	1	0	0	0	0	0	0	0	0	0	0
May-21	0	0	0	0	0	0	0	0	0	0	0	0	0
Jun-21	0	0	0	0	0	0	0	0	0	0	0	0	0
Jul-21	0	0	0	0	0	0	0	0	0	0	0	0	0
Aug-21	0	0	0	0	0	0	0	53	0	0	0	0	0
Sep-21	3	18	0	0	0	0	0	28	0	0	0	0	0
Oct-21	0	0	0	0	0	0	0	6	0	0	0	0	0
Nov-21	0	0	0	0	0	0	0	0	0	0	0	0	0
Dec-21	0	0	0	0	0	0	0	37	0	0	0	0	0
2021 Total	**3.75**	**34**	**1**	**0**	**0**	**0**	**1**	**208**	**0**	**0**	**0**	**0**	**0**

Month-Year	MASPETH CREEK	BOWERY BAY	BUSHWICK INLET	EAST BRANCH	HUNTS POINT		OWLS HEAD	WALLABOUT I	WALLABOUT II	WESTCHESTER CREEK	CLASON POINT	OUTSIDE CONTAINMENT (1)	2021 Total
Jan-21	0	0	0	0	0		0	0	0	0	0	0	**30**
Feb-21	0	0	0	0	0		0	0	0	**0**	**0**	0.5	**27.5**
Mar-21	0	0	0	0	0		0	0	0	**0**	**0**	5	**33**
Apr-21	0	0	0	0	0		0	0	0	**0**	**0**	0.25	**18**
May-21	0	0	0	0	0		0	0	0	**0**	**0**	0.5	**0.5**
Jun-21	0	0	0	0	0		0	0	0	**0**	**0**	0	**0**
Jul-21	0	0	0	0	0		0	0	0	**0**	**0**	0	**0**
Aug-21	0	0	0	0	0		0	0	0	**0**	**0**	0.5	**53.5**
Sep-21	0	0	0	0	0		0	0	0	**0**	**0**	1	**50**
Oct-21	0	0	0	0	0		0	0	0	**0**	**0**	0.25	**6.25**
Nov-21	0	0	0	0	0		0	0	0	**0**	**0**	0	**0**
Dec-21	0	0	0	0	0		0	0	0	**0**	**0**	0	**37**
2021 Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**255.75**

Appendix 7.1.4: Table 7.2-C - City-Wide Floatable Material Recovery While Navigating to Containment Sites, 2021

Month-Year	BOWERY BAY	UPPER NY BAY	East River	Bronx River	Sheepshead Bay	Whale Creek	Wallabout Creek*	Shellbank Basin	Newtown Creek	2021 Total
Jan-21	0	0	0	0	0	0	0	0	0	**0**
Feb-21	0	0	0	0	0	0.25	0	0	0.25	**0.5**
Mar-21	0	0	1	0	0	2.5	0	0	1.5	**5**
Apr-21	0	0	0	0	0	0	0	0.25	0	**0.25**
May-21	0	0	0.25	0	0	0.25	0	0	0	**0.5**
Jun-21	0	0	0	0	0	0	0	0	0	**0**
Jul-21	0	0	0	0	0	0	0	0	0	**0**
Aug-21	0	0	0	0.5	0	0	0	0	0	**0.5**
Sep-21	0	0	0	1	0	0	0	0	0	**1**
Oct-21	0	0	0	0	0	0.25	0	0	0	**0.25**
Nov-21	0	0	0	0	0	0	0	0	0	**0**
Dec-21	0	0	0	0	0	0	0	0	0	**0**
2021 Total	0	0	1.25	1.5	0	3.25	0	0.25	1.75	**8**

*Wallabout Creek is the waterbody enroute to Wallabout 1 and Wallabout 2

Appendix 7.1.5: Table 7.3-D - NYCDEP CSO Floatables Removal Program via Skimmer Vessels Collection Summary

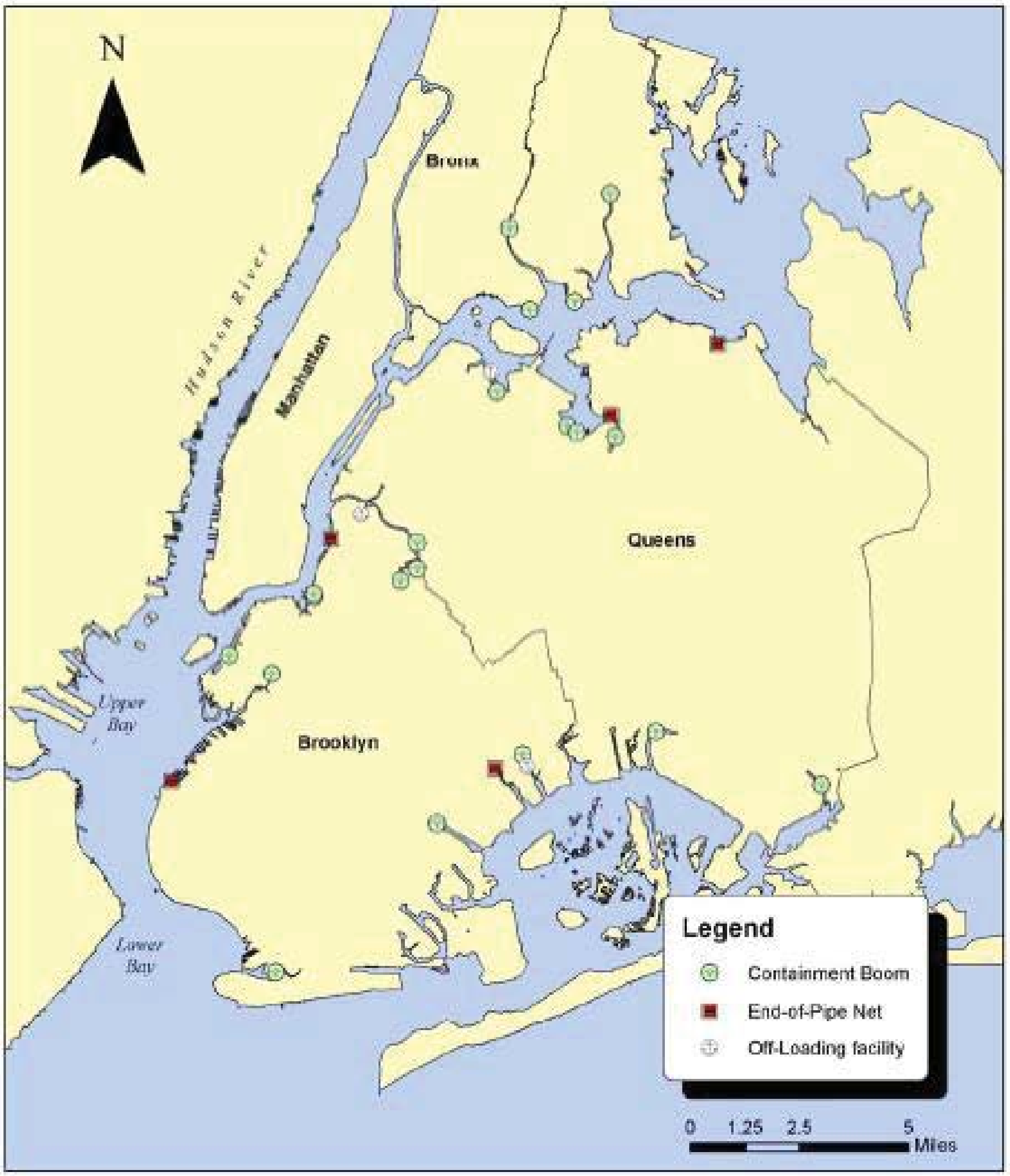
MONTH	ZONE I	ZONE II/III	ZONE IV	TOTAL
January	0	0	30	30
February	0	0.5	27	27.5
March	0	5	28	33
April	18	0	0	18
May	0	0.5	0	0.5
June	0	0	0	0
July	0	0	0	0
August	0	0	53.5	53.5
September	21	0	29	50
October	0	0.25	6	6.25
November	0	0	0	0
December	0	0	37	37
2021 TOTAL YTD	**39**	**6.25**	**210.5**	**255.75**

ZONE I	ZONE II/III	ZONE IV
	CONEY ISLAND	BOWERY BAY

FRESH CREEK	OWLS HEAD	FLUSHING BAY I
HENDRIX CREEK	GOWANUS CANAL	FLUSHING BAY II
BERGEN BASIN	WALLABOUT I	FLUSHING CREEK I
THURSTON BASIN	WALLABOUT II	FLUSHING CREEK II
SHEEPSHEAD BAY	BUSHWICK INLET	WESTCHESTER CREEK
SHELLBANK BASIN	UPPER NY BAY	CLASON POINT
	MASPETH CREEK	BRONX RIVER
	EAST BRANCH	HUNTS POINT
	ENGLISH KILLS	CRYDERS LANE
	WHALE CREEK	EAST RIVER
	NEWTOWN CREEK	BOWERY BAY
		BRONX RIVER

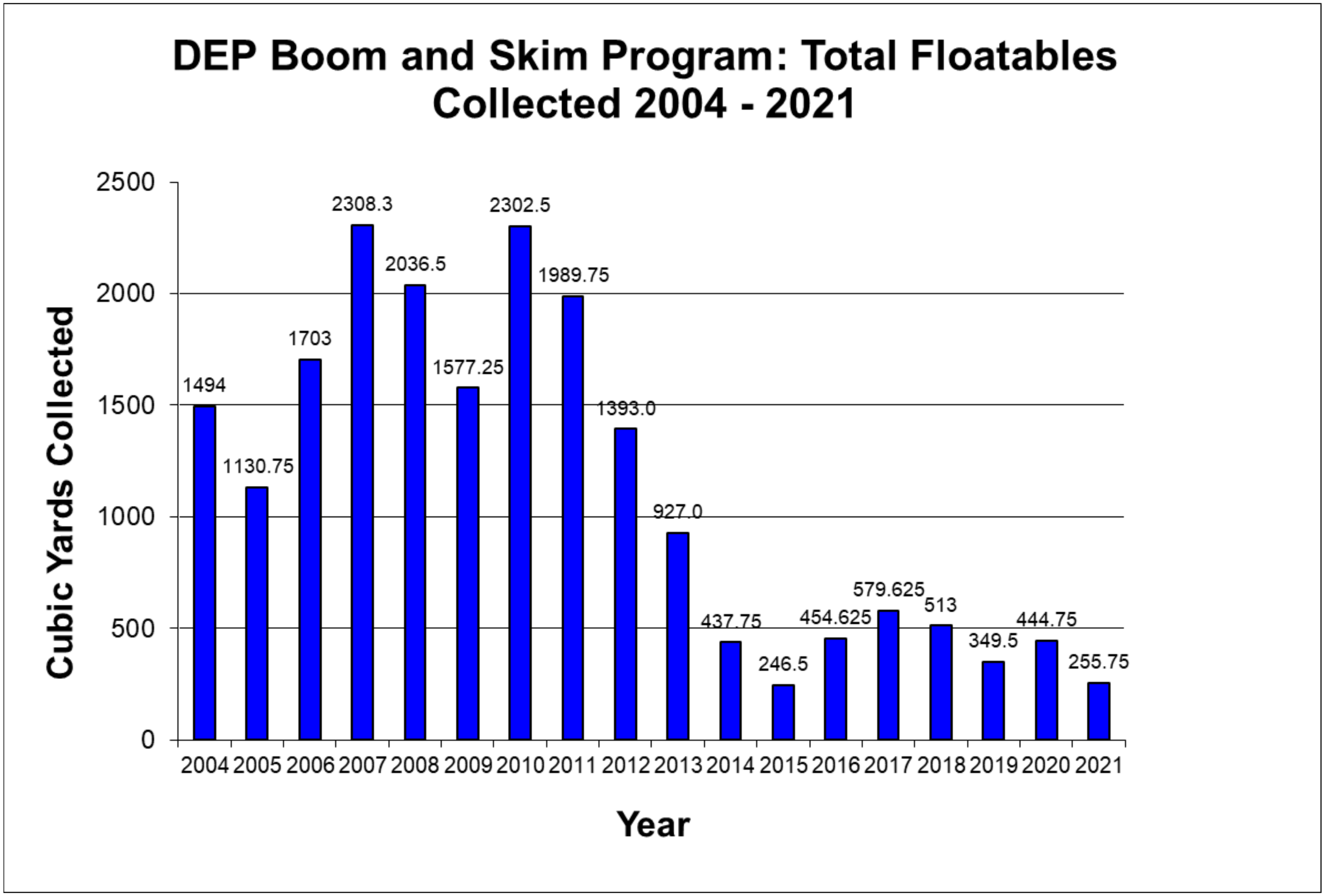
Red - Open Water
Blue - Temporary site
Black - CSO floatable containment

Appendix 7.1.6: Figure 7.2-A - Floatables Booming, Netting, and Offloading Sites

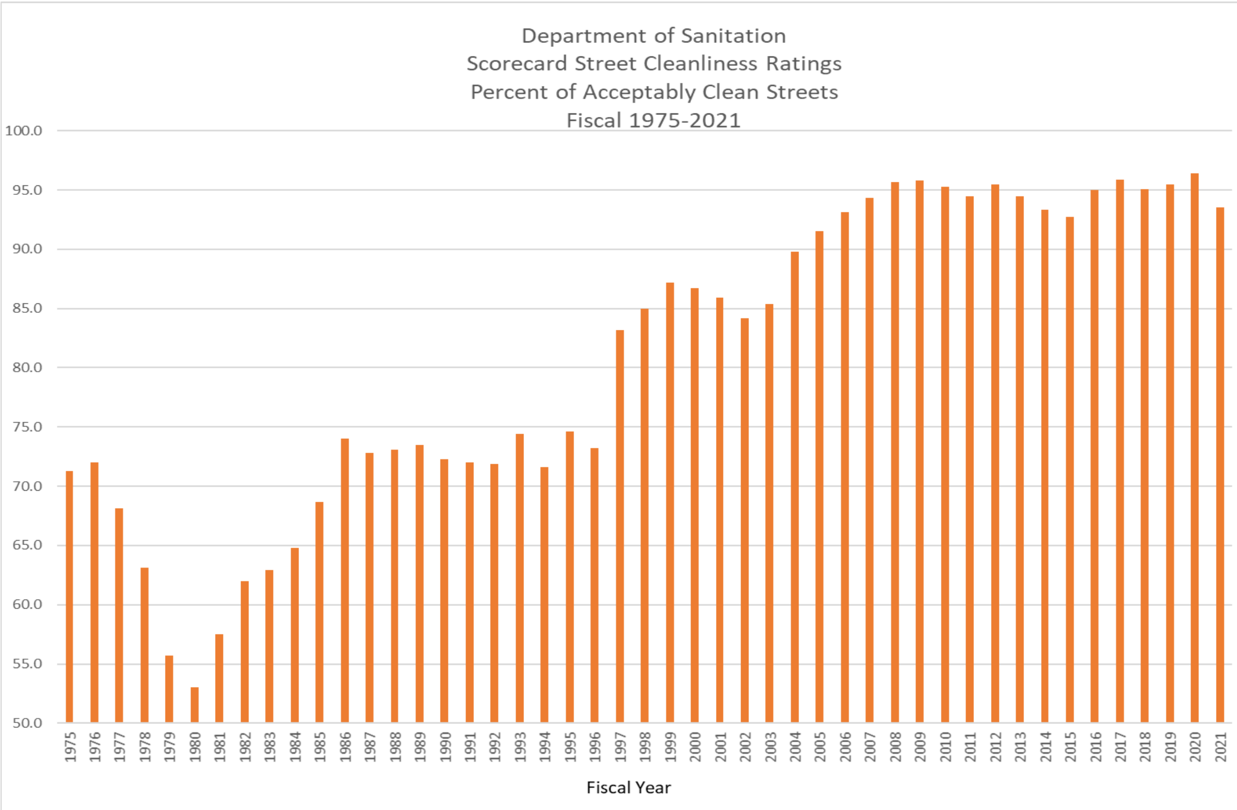


1200 MacArthur Boulevard Mahwah, New Jersey 07430 (201) 529-5151 f:(201) 529-5728	Figure 7-2 Floatables Booming, Netting and Offloading Sites Annual Report on Best Management Practices for CSO's	DEP

Appendix 7.1.7: Figure 7.2-B - City-Wide Floatables Material Recovery 2004-2021



Appendix 7.1.8: Figure 7.2-C - NYC DSNY Scorecard Fiscal 1975 - 2021



Appendix 8: SITE CONNECTION PROPOSAL FORM

Environmental Protection

DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER & SEWER OPERATIONS

SITE CONNECTION PROPOSAL FORM
VALID FOR TWO (2) YEARS
[SC /]

PE/RA signature and original seal

A. PROJECT DATA:

Borough of ____________ Building Dept. No (s) ____________

Tax Block ________ Lot (s) ________ Zoning ________ Map No.________

Project Location ____________________

Applicant ____________________

Address ____________ Zip ________ Phone (___)________

Owner ____________________

Address ____________ Zip ________ Phone (___)________

B. PROJECT USE:

TYPE: ☐ 1, 2, 3, Family ☐ Multiple Dwelling ☐ Commercial ____________

Number of Buildings ________ Total Number of Dwelling Units ____________

Ownership: ☐ Fee Simple ☐ Condominium ☐ Home Owner Association ☐ Other ________

C. SITE CONNECTIONS REQUESTED:

Total Developed Site Storm Flow ______ cfs

Allow. Storm Flow to the Sewers ______ cfs

☐ Detention ☐ Retention

	Sanit.	Storm	Comb.	Drywells
No. Requested	____	____	____	xxxxxx
Size	____	____	____	xxxxxx
Material (s)	____	____	____	xxxxxx
Total Q (s)	____	____	____	____

Note: **The property owner is responsible for plugging all inactive pre-existing sewer connections.**

D. CONNECTION INFO:

1. ☐ Connection to existing
   ☐ Spur ☐ Riser ☐ Curb Connection
2. ☐ Proposed New Riser
3. ☐ Fold Spur in
4. ☐ Drill in
5. ☐ M.H. Conn ☐ Exist ☐ Prop
6. ☐ Reuse Plugged Connections

E. SEWER DATA:

1. P.D. Plan No. ____________ Date Approved ____________ Expiration Date ________
2. Date Construction Permit Was Issued ____________________
3. Date Sewer Was Accepted By DEP ____________________
4. Sanitary Discharge Tributary to: ____________________

			Location
Private Sewage Treatment Plant	☐ No	☐ Yes	____________
Private Pumping Station	☐ No	☐ Yes	____________
Private Sewer	☐ No	☐ Yes	____________

F. LOCATION PLAN: ☐ As shown below ☐ See Attached Location Plan Attachment "F"

Rev. 3/19

G. SUPPORT DOCUMENTS:

*1.	Site Plan – 6 copies with hydraulic calculations ______		
*2.	Survey – 3 copies with watercourse stamp ______		
*3.	Tentative Lot Number Request Form – Attached ______	Not Applicable ______	
¤4.	Owners Consent for STP/PS Connection – Attached ______	Not Applicable ______	
5.	Department of Health Approval – Attached ______	Not Applicable ______	
6.	Department of Building Amendment Request – Attached ______	Not Applicable ______	
ß7.	Condo/HOA Prospectus or Affidavit – Attached ______	Not Applicable ______	
8.	Industrial Waste Approval – Attached ______	Not Applicable ______	
9.	Associated Mapping/Demapping Action – Attached ______	Not Applicable ______	
10.	Builders Pavement Plan – Attached ______	Not Applicable ______	
11.	Boring Logs – Attached ______	Not Applicable ______	
12.	Other (Specify) ______	Attached ______	

* Requires PE/RA Stamp and Original Signature (L.S. for Survey)
¤ Must Be Notarized
ß Must be Notarized and have Corporate Seal Imposed

SEWER INFORMATION CERTIFIED BY D.E.P.

			PUBLIC	PRIVATE
1. There is is not a sanitary sewer fronting the property available for connections.	SIZE	______	______	______
2. There is is not a storm sewer fronting the property available for connections.	SIZE	______	______	______
3. There is is not a combined sewer fronting the property available for connections.	SIZE	______	______	______

4. Sanitary discharge tributary to:

			Location
City Treatment Plant -	☐ NO	☐ YES	______
Private Sewage Treatment Plant -	☐ NO	☐ YES	______
Private Pumping Station -	☐ NO	☐ YES	______

5. Distance to, and location of nearest allowable drainage plan sewer:
   a) Sanitary Outlet ______
   b) Storm Outlet ______
   c) Combined Outlet ______

CERTIFICATION, RESTRICTIONS, SPECIAL CONDITIONS:

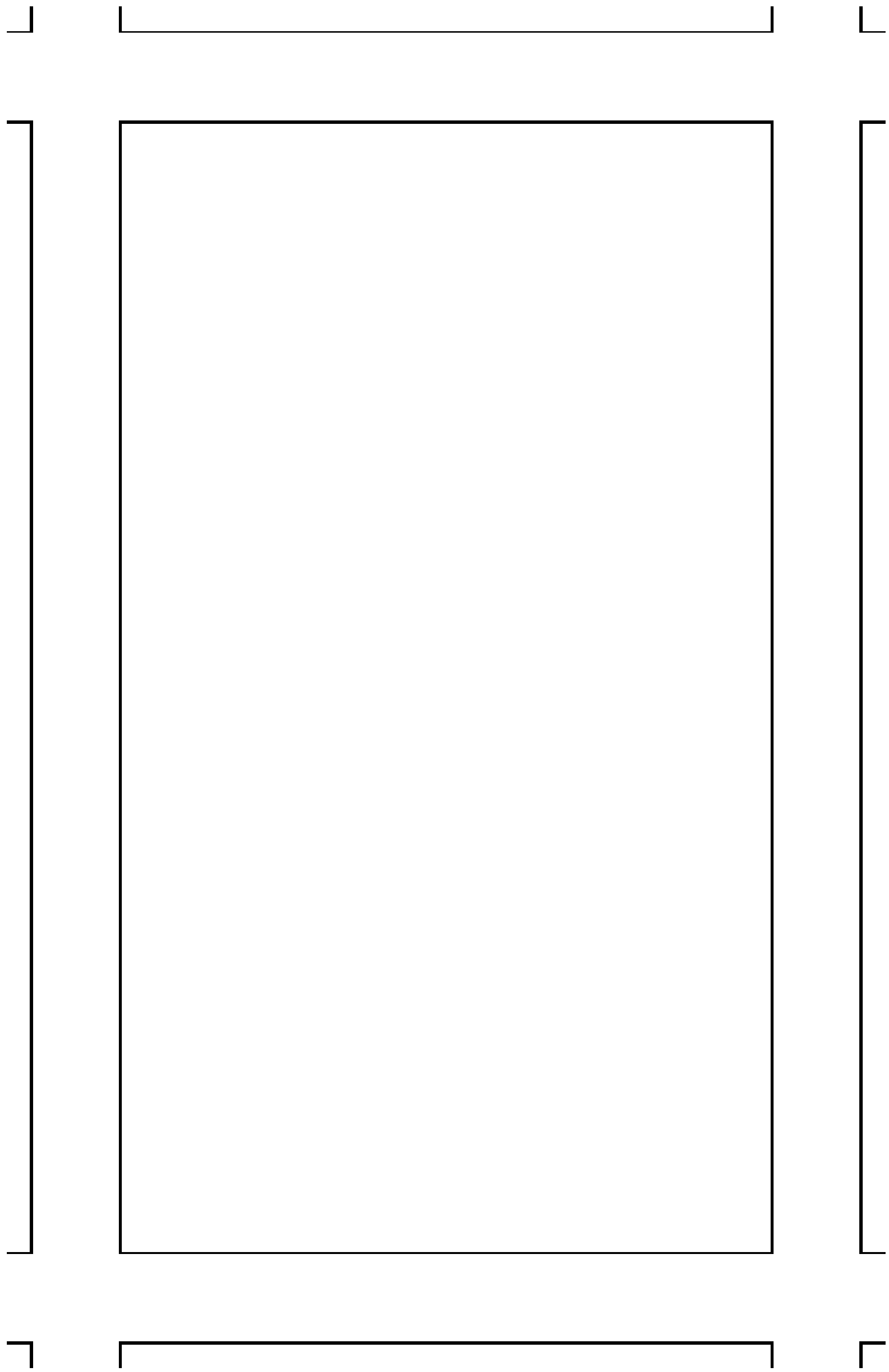
ADDITIONAL, INFORMATION, COMMENTS BY D.E.P. OFFICE:

1. Topo Map No. ______ Watercourse shown: ☐YES ☐ NO
2. Comments:

Rev. 3/19

ATTACHMENT "F"

LOCATION PLAN:

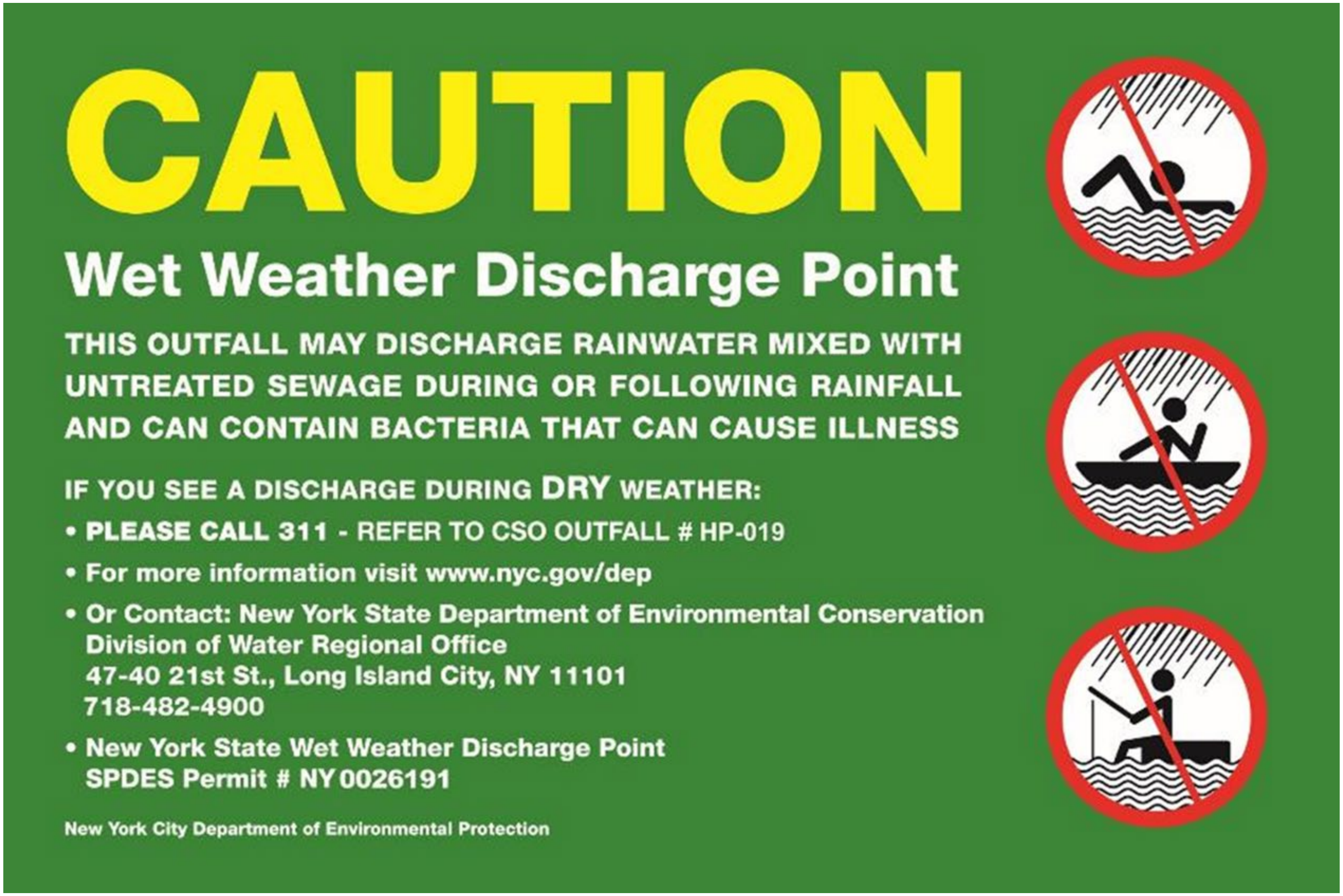


Rev. 3/19

Appendix 9:

- Appendix. 9.1: CSO Sign Sample
- Appendix. 9.2: Table: List of installed CSO Signs

Appendix 9.1: CSO Sign Sample



Appendix 9.2: TABLE: LIST OF INSTALLED CSO SIGNS

No	OUTFALLID	OUTFALL LOCATION	CONTRIBUTORS	STATUS/COMMENTS
1	**WI - 001**	**Wards Island W.P.C.P. Outfall**		Installed
2	WIM-002	EAST RIVER & E. 73rd STREET	REG #1	Installed
3	WIM-003	EAST RIVER & E. 74th STREET	REG #2A, 2B	Installed
4	WIM-004	EAST RIVER & E. 75th STREET	REG #3	Installed
5	WIM-005	EAST RIVER & E. 76th STREET	REG #4	Installed
6	WIM-006	EAST RIVER & E. 77th STREET	REG #5	Installed
7	WIM-007	EAST RIVER & E. 78th STREET	REG #6	Installed
8	WIM-008	EAST RIVER & E. 79th STREET	REG #7	Installed
9	WIM-009	EAST RIVER & E. 83rd STREET	REG #8	Installed
10	WIM-010	EAST RIVER & E. 84th STREET	REG #9	Installed
11	WIM-011	EAST RIVER & E. 86th STREET	REG #10	Installed
12	WIM-012	EAST RIVER & E. 89th STREET	REG #11	Installed
13	WIM-013	EAST RIVER & E. 90th STREET	REG #12	Installed
14	WIM-014	EAST RIVER & E. 91st STREET	REG #13	Installed
15	WIM-015	EAST RIVER & E. 92nd STREET	REG #14	Installed
16	WIM-016	EAST RIVER & E. 95th STREET	REG #15	Installed
17	WIM-017	EAST RIVER & E. 96th STREET	REG #16	Installed
18	WIM-018	EAST RIVER & E. 100th STREET	REG #17	Installed
19	WIM-019	EAST RIVER & E. 101st STREET	REG #18	Installed
20	WIM-020	EAST RIVER & E. 103rd STREET	REG #20	Installed
21	WIM-021	EAST RIVER & E. 104th STREET	REG #21	Installed
22	WIM-022	EAST RIVER & E. 105th STREET	REG #22	Installed
23	WIM-023	EAST RIVER & E. 106th STREET	REG #23	Installed
24	WIM-024	EAST RIVER & E. 110th STREET	REG #24	Installed
25	WIM-025	EAST RIVER & E. 114th STREET	REG #25	Installed
26	WIM-026	EAST RIVER & E. 115th STREET	REG #26	Installed
27	WIM-027	EAST RIVER & E. 116th STREET	REG #27	Installed

28	WIM-030	EAST RIVER & E. 119th STREET	REG #30	Installed
29	WIM-031	EAST RIVER & E. 120th STREET	REG #31	Installed
30	WIM-032	EAST RIVER & E. 121st STREET	REG #32	Installed
31	WIM-033	EAST RIVER & E. 122nd STREET	REG #33	Installed
No	**OUTFALLID**	**OUTFALL LOCATION**	**CONTRIBUTORS**	**STATUS/COMMENTS**
32	WIM-034	EAST RIVER & E. 124th STREET	REG #34	Installed
33	WIM-035	EAST RIVER & E. 125th STREET	REG #35	Installed
34	WIM-036	HARLEM RIVER & E. 129th STREET	REG #36	Installed
35	WIM-037	HARLEM RIVER & E. 130th STREET	REG #37	Installed
36	WIM-038	HARLEM RIVER & E. 135th STREET	REG #38	Installed
37	WIM-039	HARLEM RIVER & W. 140th STREET	REG #39	Installed
38	WIM-040	HARLEM RIVER & W. 141st STREET	REG #40	Installed
39	WIM-041	HARLEM RIVER & W. 142nd STREET	REG #41	Installed
40	WIM-042	HARLEM RIVER & W. 143rd STREET	REG #42	Installed
41	WIM-043	EAST RIVER & E. 102nd STREET	REG #19	Installed
42	WIM-044	HARLEM RIVER & W. 145th STREET	REG #44	Installed
43	WIM-045	HARLEM RIVER & W. 149th STREET	REG #45	Installed
44	WIM-046	HARLEM RIVER & W. 151st STREET	REG #46	Installed
45	WIM-047	HARLEM RIVER & W. 154th STREET	REG #47	Installed
46	WIM-048	HARLEM RIVER & W. 155th STREET	REG #48	Installed
47	WIM-050	HARLEM RIVER & W. 156th STREET	REG #50	Installed
48	WIM-051	HARLEM RIVER & W. 167th STREET	REG #51	Installed
49	WIM-052	HARLEM RIVER & W. 176th STREET	REG #52	Installed
50	WIB-053	HUDSON RIVER & W. 256th STREET	REG #R-3	Installed
51	WIB-054	HUDSON RIVER & W. 248th STREET	REG #R-2	Installed
52	WIB-055	HUDSON RIVER & W. 236th STREET	REG #R-1	Installed
53	WIB-056	HARLEM RIVER & W. 192nd STREET	REG #67	Installed
54	WIB-057	HARLEM RIVER & LANDING ROAD	REG #66	Installed
55	WIB-058	HARLEM RIVER & W. 178th STREET	REG #65	Installed
56	WIB-059	HARLEM RIVER & W. 176th STREET	REG #64	Installed

57	WIB-060	HARLEM RIVER & UNDER HIGH BRIDGE	REG #62	Installed
58	WIB-061	HARLEM RIVER & W. 167th STREET	REG #61	Installed
59	WIB-062	HARLEM RIVER & JEROME AVENUE	REG #60, 60A	Installed
60	WIB-063	HARLEM RIVER & S/O MCCOMBS DAM BRIDGE	REG #72	Installed
61	WIB-064	HARLEM RIVER & E. 149th STREET	REG #59	Installed
62	WIB-065	HARLEM RIVER & PARK AVENUE	REG #57	Installed
63	WIB-066	HARLEM RIVER & THIRD AVENUE BRIDGE	REG #56	Installed
64	WIB-067	HARLEM RIVER & LINCOLN AVENUE	REG #55	Installed
65	WIB-068	BRONX KILL & BROOK AVENUE	REG #53, 54	Installed
No	**OUTFALLID**	**OUTFALL LOCATION**	**CONTRIBUTORS**	**STATUS/COMMENTS**
66	WIB-069	BRONX KILL & CYPRESS AVENUE	REG #71	Installed
67	WIB-070	EAST RIVER & E. 134th STREET	REG #70	Installed
68	WIB-071	EAST RIVER & E. 138th STREET	REG #69	Installed
69	WIB-072	EAST RIVER & E. 149th STREET	REG #68	Installed
70	WIB-073	BRONX KILL & SAINT ANN'S AVENUE	REG #73	Installed
71	WIB-075	HARLEM RIVER & E. 138th STREET	REG #58	Installed
72	WIB-076	HARLEM RIVER & BRADLEY TERRACE	REG #MH-1	Installed
73	WIB-077	HARLEM RIVER & TEUNISSEN PLACE	REG #MH-2	Installed
74	WIB-078	HARLEM RIVER & W. BROADWAY BRIDGE	REG #MH-3	Installed
75	WIB-079	HUDSON RIVER & W. 261st STREET (MT. ST. VINCENT)	REG #R-4	Installed
76	**NR - 001**	**North River W.P.C.P. Outfall**		Installed
77	NR-002	HUDSON RIVER & W. 152nd STREET	REG #N-20,21,21A,21B	Installed
78	NR-003	HUDSON RIVER & W. 158th STREET	REG #N-19	Installed
79	NR-004	HUDSON RIVER & W. 171st STREET	REG #N-18	Installed
80	NR-005	HUDSON RIVER & W. 190th STREET	REG #N-17	Installed
81	NR-006	HUDSON RIVER & DYCKMAN STREET	REG #N-16	Installed
82	NR-007	HARLEM RIVER & W. 218th STREET	REG #N-15	Installed
83	NR-008	HARLEM RIVER & W. 216th STREET	REG #N-14	Installed
84	NR-009	HARLEM RIVER & W. 215th STREET	REG #N-13	Installed
85	NR-010	HARLEM RIVER & W. 211th STREET	REG #N-10, N-11, N-12	Installed

86	NR-011	HARLEM RIVER & W. 209th STREET	REG #N-9	Installed
87	NR-012	HARLEM RIVER & W. 207th STREET	REG #N-7	Installed
88	NR-013	HARLEM RIVER & W. 206th STREET	REG #N-6	Installed
89	NR-014	HARLEM RIVER & W. 205th STREET	REG #N-5	Installed
90	NR-016	HARLEM RIVER & W. 203rd STREET	REG #N-4	Installed
91	NR-017	HARLEM RIVER & W. 201st STREET	REG #N-3	Installed
92	NR-018	HARLEM RIVER & HIGHBRIDGE PARK	REG #N-1	Installed
93	NR-019	HUDSON RIVER & BANK STREET	REG #N-56	Installed
94	NR-020	HUDSON RIVER & JANE STREET	REG #N-55	Installed
95	NR-021	HUDSON RIVER & GANSEVOORT STREET	REG #N-54	Installed
96	NR-022	HUDSON RIVER & S/O W. 17th STREET	REG #N-51	Installed
97	NR-023	HUDSON RIVER & W. 18th STREET	REG #N-50	Installed
98	NR-024	HUDSON RIVER & W. 21st STREET	REG #N-48, N-49	Installed
99	NR-025	HUDSON RIVER & W. 24th STREET	REG #N-47	Installed
No	**OUTFALLID**	**OUTFALL LOCATION**	**CONTRIBUTORS**	**STATUS/COMMENTS**
100	NR-026	HUDSON RIVER & W. 26th STREET	REG #N-46	Installed
101	NR-027	HUDSON RIVER & W. 30th STREET	REG #N-45	Installed
102	*NR-028*	*HUDSON RIVER & W. 36th STREET*	*REG #N-43*	*WAIVER*
103	NR-029	HUDSON RIVER & W. 40th STREET	REG #N-42	Installed
104	NR-030	HUDSON RIVER & W. 43rd STREET	REG #N-39, N-40	Installed
105	NR-031	HUDSON RIVER & W. 44th STREET	REG #N-38	Installed
106	NR-032	HUDSON RIVER & W. 46th STREET	REG #N-36, N-37	Installed
107	NR-033	HUDSON RIVER & W. 48th STREET	REG #N-33, N-34	Installed
108	NR-034	HUDSON RIVER & W. 50th STREET	REG #N-32	Installed
109	NR-035	HUDSON RIVER & W. 56th STREET	REG #N-31	Installed
110	NR-036	HUDSON RIVER & W. 59th STREET	REG #N-30	Installed
111	NR-037	HUDSON RIVER & W. 72nd STREET	REG #N-29	Installed
112	NR-038	HUDSON RIVER & W. 80th STREET	REG #N-28	Installed
113	NR-039	HUDSON RIVER & W. 91st STREET	REG #N-27	Installed
114	NR-040	HUDSON RIVER & W. 96th STREET	REG #N-26, N-26A	Installed

115	NR-041	HUDSON RIVER & W. 108th STREET	REG #N-25	Installed
116	NR-042	HUDSON RIVER & W. 115th STREET	REG #N-24	Installed
117	NR-043	HUDSON RIVER & SAINT CLAIR PL	REG #N-23	Installed
118	NR-044	HUDSON RIVER & W. 138th STREET	REG #N-22	Installed
119	NR-045	HARLEM RIVER & ACADEMY STREET	REG #N-2	Installed
120	NR-046	HUDSON RIVER & W. 66th STREET	REG #N-29A	Installed
121	NR-047	HUDSON RIVER & W. 47th STREET	REG #N-35	Installed
122	NR-048	HUDSON RIVER & W. 42nd STREET	REG #N-40, N-41	Installed
123	NR-049	HUDSON RIVER & W. 14th STREET	REG #N-52	Installed
124	NR-050	HUDSON RIVER & BLOOMFIELD STREET	REG #N-53	Installed
125	NR-051	HUDSON RIVER & W. 49th STREET	N/A	Installed
126	NR-052	HUDSON RIVER & W. 34th STREET	REG #N-44	Installed
127	NR-055	HARLEM RIVER & W. 207th STREET	REG #N-7, N-8	Installed
128	NR-056	HUDSON RIVER & W. 142nd STREET	REG #N-22A	Installed
129	**HP - 001**	**Hunt's Point W.P.C.P. Outfall**		Installed
130	HP-002	EAST RIVER & TIFFANY STREET	REG #9, 9A	Installed
131	HP-003	EAST RIVER & FARRAGUT STREET	REG #10	Installed
132	HP-004	BRONX RIVER & WEST FARM ROAD	CSO-28, 28A	Installed
133	HP-005	HUTCHINSON RIVER & HOLLERS AVENUE PS	HOLLERS AVENUE P.S.	Installed
No	**OUTFALLID**	**OUTFALL LOCATION**	**CONTRIBUTORS**	**STATUS/COMMENTS**
134	HP-006	HUTCHINSON RIVER & BARTOW AVENUE	CO-OP CITY SO PS, ELY AVE PS	Installed
135	HP-007	BRONX RIVER & E. 177th STREET	CSO-27, 27A	Installed
136	HP-008	BRONX RIVER & LAFAYETTE AVENUE	CSO-26	Installed
137	HP-009	BRONX RIVER & METCALF AVENUE	REG #13	Installed
138	HP-010	BRONX RIVER & LACOMBE AVENUE	CSO-25	Installed
139	HP-011	EAST RIVER & WHITE PLAINS ROAD	REG #5, 6, 7	Installed
140	HP-012	WESTCHESTER CREEK & LAFAYETTE AVENUE	CSO-23A	Installed
141	HP-013	PUGSLEY'S CREEK & NEWMAN AVENUE	CSO-24	Installed
142	HP-014	WESTCHESTER CREEK & EAST TREMONT AVENUE	CSO-29, 29A	Installed
143	HP-015	WESTCHESTER CREEK & LATTING STREET	CSO-22	Installed

144	HP-016	WESTCHESTER CREEK & BRUCKNER EXPWY	REG #4	Installed
145	HP-017	EAST RIVER & EMERSON AVENUE	REG #11	Installed
146	HP-018	EAST RIVER & ROBINSON AVENUE	REG #12	Installed
147	HP-019	EAST RIVER & CALHOUN AVENUE	REG #3	Installed
148	HP-020	EAST RIVER & THROGS NECK BLVD	REG #2A	Installed
149	HP-021	EAST RIVER & PENNYFIELD AVENUE	REG #2	Installed
150	HP-022	EASTCHESTER BAY & E 177th STREET	REG #1	Installed
151	HP-023	HUTCHINSON RIVER & CONNER STREET	REG #15, CONNOR ST.PS	Installed
152	HP-024	HUTCHINSON RIVER & E 233rd STREET	REG #15A	Installed
153	HP-025	EAST RIVER & TRUXTON STREET	REG #8	Installed
154	HP-026	WEIR CREEK & ELLESWORTH AVENUE	REG #14	Installed
155	HP-028	EASTCHESTER BAY & OUTLOOK AVENUE	CSO-20	Installed
156	HP-029	EASTCHESTER BAY & WATT AVENUE	CSO-21	Installed
157	HP-031	HUTCHINSON RIVER & BELLAMY LOOP	CSO-32, CO-OP CITY N. P.S.	Installed
158	HP-032	EAST RIVER & RIKERS ISLAND NORTH	RIKER'S ISLAND N. P.S.	Installed
159	HP-033	WESTCHESTER CREEK & S/O BRUCKNER BLVD, E/O ZEREGA AVE	CSO-23	Installed
160	HP-034	WESTCHESTER CREEK & NEWBOLD AVENUE (CITY ISLAND)	COMMERCE AVENUE P.S.	Installed
161	HP-036	LONG ISLAND SOUND & SCHOFIELD STREET	CITY ISLAND P.S.	Installed
162	*HP-037*	*SHORE ROAD LAGOON & ORCHARD BEACH*	*ORCHARD BEACH P.S.*	*WAIVER*
163	HP-039	EAST RIVER & N/O HUNTS POINT AVE	HUNT'S PONT MARKET P.S.	Installed
164	**NC - 001**	**Newtown Creek W.P.C.P. Outfall**		Installed
165	NCB-002	WHALE CREEK & WWTP OVERFLOW	WWTP OVERFLOW	Installed
166	NCB-003	EAST RIVER & GREENPOINT AVENUE	REG #B-11	Installed
No	**OUTFALLID**	**OUTFALL LOCATION**	**CONTRIBUTORS**	**STATUS/COMMENTS**
167	NCB-004	EAST RIVER & QUAY STREET	REG #B-10	Installed
168	NCM-005	EAST RIVER & E. 63rd STREET	REG #M-51	Installed
169	NCB-006	EAST RIVER & N. 12th STREET	REG #B-9	Installed
170	NCB-007	EAST RIVER & N. 5th STREET	REG #B-8	Installed
171	NCB-008	EAST RIVER & METROPOLITAN AVENUE	REG #B-7	Installed
172	NCB-010	EAST RIVER & GRAND STREET	REG #B-6A	Installed

173	NCM-011	EAST RIVER & E. 48th STREET	REG #M-47A	Installed
174	NCB-012	EAST RIVER & S. 5th STREET	REG #B-6	Installed
175	NCB-013	WALLABOUT CHANNEL & DIVISION AVENUE	REG #B-5	Installed
176	NCB-014	WALLABOUT CHANNEL & KENT AVENUE	REG #B-3, B-4	Installed
177	NCB-015	ENGLISH KILLS & JOHNSON AVENUE	REG #B-1	Installed
178	*NCM-016*	*EAST RIVER & E. 46th STREET*	*REG #M-46*	*WAIVER*
179	NCM-017	EAST RIVER & E. 42nd STREET	REG #M-45A	Installed
180	NCM-018	EAST RIVER & E. 41st STREET	REG #M-45	Installed
181	NCB-019	NEWTOWN CREEK & METROPOLITAN AVENUE	REG #B-2	Installed
182	NCM-020	EAST RIVER & E. HOUSTON STREET	REG #M-31	Installed
183	NCB-021	NEWTOWN CREEK & MCGUINNESS BOULEVARD	CSO next to B-17	Installed
184	NCB-022	NEWTOWN CREEK & MCGUINNESS BOULEVARD	REG #B-17	Installed
185	NCB-023	NEWTOWN CREEK & FRANKLIN STREET	REG #B-16	Installed
186	NCB-024	EAST RIVER & DUPONT STREET	REG #B-15	Installed
187	NCB-025	EAST RIVER & FREEMAN STREET	REG #B-14	Installed
188	NCB-026	EAST RIVER & GREEN STREET	REG #B-13	Installed
189	NCB-027	EAST RIVER & HURON STREET	REG #B-12	Installed
190	NCM-028	EAST RIVER & DELANCEY STREET	REG #M-28	Installed
191	NCQ-029	NEWTOWN CREEK & 43rd STREET	REG #Q-2	Installed
192	NCM-030	EAST RIVER & E. 71st STREET	REG #M-51C	Installed
193	NCM-031	EAST RIVER & E. 70th STREET	REG #M-51A, M-15B	Installed
194	NCM-032	EAST RIVER & E. 61st STREET	REG #M-50	Installed
195	NCM-033	EAST RIVER & E. 57th STREET	REG #M-49	Installed
196	NCM-034	EAST RIVER & E. 54th STREET	REG #M-48	Installed
197	NCM-035	EAST RIVER & E. 53rd STREET	REG #M-48A	Installed
198	NCM-036	EAST RIVER & E. 49th STREET	REG #M-47	Installed
199	NCM-037	EAST RIVER & E. 41st STREET	REG #M-44	Installed
200	NCM-038	EAST RIVER & E. 38th STREET	REG #M-43B	Installed
No	**OUTFALLID**	**OUTFALL LOCATION**	**CONTRIBUTORS**	**STATUS/COMMENTS**
201	NCM-039	EAST RIVER & E. 37th STREET	REG #M-43A	Installed

202	NCM-040	EAST RIVER & E. 36th STREET	REG #M-43	Installed
203	NCM-041	EAST RIVER & E. 33rd STREET	REG #M-42	Installed
204	NCM-042	EAST RIVER & BROOME STREET	REG #M-27	Installed
205	NCM-043	EAST RIVER & E. 30th STREET	REG #M-41	Installed
206	*NCM-044*	*EAST RIVER & E. 29th STREET*	*REG #M-41A*	*WAIVER*
207	*NCM-045*	*EAST RIVER & E. 26th STREET*	*REG #M-40*	*WAIVER*
208	NCM-046	EAST RIVER & E. 24th STREET	REG #M-39, M-39A	Installed
209	NCM-047	EAST RIVER & E. 23rd STREET	REG #M-38B	Installed
210	NCM-048	EAST RIVER & E. 21st STREET	REG #M-38	Installed
211	NCM-049	EAST RIVER & E. 18th STREET	REG #M-37	Installed
212	NCM-051	EAST RIVER & OLD SLIP	REG #M-12	Installed
213	NCM-052	EAST RIVER & E. 14th STREET	REG #M-36	Installed
214	NCM-053	EAST RIVER & E. 11th STREET	REG #M-35	Installed
215	NCM-054	EAST RIVER & E. 8th STREET	REG #M-34	Installed
216	NCM-055	NEWTOWN CREEK & E. 6th STREET	REG #M-33	Installed
217	NCM-056	EAST RIVER & E. 3rd STREET	REG #M-32	Installed
218	NCM-057	EAST RIVER & STANTON STREET	REG #M-30	Installed
219	NCM-058	EAST RIVER & RIVINGTON STREET	REG #M-29	Installed
220	NCM-059	EAST RIVER & S/O GRAND STREET	REG #M-26	Installed
221	NCM-060	EAST RIVER & S/O CORLEARS HOOK PARK	REG #M-25	Installed
222	NCM-061	EAST RIVER & JACKSON STREET	REG #M-23	Installed
223	NCM-062	EAST RIVER & GOUVERNEUR SLIP E.	REG #M-22	Installed
224	NCM-063	EAST RIVER & JEFFERSON STREET	REG #M-21	Installed
225	NCM-064	EAST RIVER & MARKET SLIP	REG #M-20	Installed
226	NCM-065	EAST RIVER & S/O CATHERINE STREET	REG #M-18	Installed
227	NCM-066	EAST RIVER & ROBERT WAGNER SR. PLACE	REG #M-17	Installed
228	NCM-067	EAST RIVER & MAIDEN LANE	REG #M-13	Installed
229	NCM-068	EAST RIVER & COENTIES SLIP	REG #M-11	Installed
230	NCM-069	EAST RIVER & BROAD STREET	REG #M-10	Installed
231	*NCM-070*	*HUDSON RIVER & BATTERY PLACE*	*REG #M-9*	*WAIVER*

232	*NCM-071*	*HUDSON RIVER & RECTOR STREET*	*REG #M-6, M-7*	*WAIVER*
233	*NCM-072*	*HUDSON RIVER & VESEY STREET*	*REG #M-5*	*WAIVER*
234	*NCM-073*	*HUDSON RIVER & DUANE STREET*	*REG #M-4*	*WAIVER*
No	**OUTFALLID**	**OUTFALL LOCATION**	**CONTRIBUTORS**	**STATUS/COMMENTS**
235	NCM-074	HUDSON RIVER & VESTRY STREET	REG #M-3	Installed
236	NCM-075	HUDSON RIVER & WATTS STREET	REG #M-2	Installed
237	NCM-076	HUDSON RIVER & CLARKSON STREET	REG #M-1	Installed
238	NCQ-077	MASPETH CREEK & 49th STREET	REG #Q-1	Installed
239	NCM-078	EAST RIVER & N/O DOVER STREET	REG #M-16	Installed
240	NCM-080	HUDSON RIVER & N/O VANDAM STREET	REG #TG-2	Installed
241	NCM-081	HUDSON RIVER & N/O CHARLES STREET	REG #TG-1	Installed
242	NCB-082	EAST RIVER & S. 8th STREET	REG #B-5A	Installed
243	NCB-083	NEWTOWN CREEK & METROPOLITAN/SCOTT AVENUE	N/A	Installed
244	NCM-087	EAST RIVER & E 22nd STREET	REG #M-38A	Installed
245	**RH - 001**	**Red Hook W.P.C.P. Outfall**		Installed
246	RH-002	EAST RIVER & HUDSON AVENUE	REG #R-21A	Installed
247	RH-003	EAST RIVER & HUDSON AVENUE	REG #R-21	Installed
248	RH-005	EAST RIVER & GOLD STREET	REG #R-20A	Installed
249	RH-006	EAST RIVER & PEARL STREET	REG #R-19A	Installed
250	RH-007	EAST RIVER & ADAMS STREET	REG #R-19	Installed
251	RH-008	EAST RIVER & WASHINGTON STREET	REG #R-18A	Installed
252	RH-009	EAST RIVER & MAIN STREET	REG #R-18	Installed
253	RH-010	EAST RIVER & ORANGE STREET	REG #R-16	Installed
254	RH-011	EAST RIVER & MONTAGUE STREET	REG #R-15	Installed
255	RH-012	EAST RIVER & CADMAN PLAZA	REG #R-17	Installed
256	RH-013	EAST RIVER & JORALEMON STREET	REG #R-14	Installed
257	RH-014	EAST RIVER & ATLANTIC AVENUE	REG #R-13	Installed
258	RH-016	EAST RIVER & AMITY STREET	REG #R-12	Installed
259	RH-018	EAST RIVER & KANE STREET	REG #R-11	Installed
260	RH-019	BUTTERMILK CHANNEL & HAMILTON AVENUE	REG #R-9	Installed

261	RH-020	BUTTERMILK CHANNEL & DEGRAW STREET	REG #R-10	Installed
262	RH-021	BUTTERMILK CHANNEL & SACKETT STREET	REG #R-9A	Installed
263	RH-022	ATLANTIC BASIN & BOWNE STREET	REG #R-8	Installed
264	RH-023	ATLANTIC BASIN & COMMERCE STREET	REG #R-7	Installed
265	RH-024	ATLANTIC BASIN & VERONA STREET	REG #R-6	Installed
266	RH-025	ATLANTIC BASIN & PIONEER STREET	REG #R-5	Installed
267	RH-028	BUTTERMILK CHANNEL & WOLCOTT STREET	REG #R-2	Installed
268	RH-029	UPPER NEW YORK BAY & VAN BRUNT STREET	REG #R-1, VAN BLANT ST. PS	Installed
No	**OUTFALLID**	**OUTFALL LOCATION**	**CONTRIBUTORS**	**STATUS/COMMENTS**
269	RH-030	GOWANUS CANAL & HICKS STREET	CSO-2	Installed
270	RH-031	GOWANUS CANAL & CREAMER STREET	BOND-LORRAINE SWR RELIEF	Installed
271	RH-033	GOWANUS CANAL & DOUGLASS STREET (E)	REG #R-25	Installed
272	RH-034	HEAD OF GOWANUS CANAL	GOWANUS PS	Installed
273	RH-035	GOWANUS CANAL & BOND STREET	CSO-3, BOND-LORR SWR REL.	Installed
274	RH-036	GOWANUS CANAL & PRESIDENT STREET	REG #R-22	Installed
275	RH-037	GOWANUS CANAL & SACKETT STREET	REG #R-23	Installed
276	RH-038	GOWANUS CANAL & DEGRAW STREET	REG #R-24	Installed
277	RH-040	EAST RIVER & NAVY YARD	REG #R-26	Installed
278	**TI - 001**	**Tallman Island W.P.C.P. Outfall**		Installed
279	TI-003	POWELL'S COVE & N/O 7th AVENUE	REG #10A, 10B	Installed
280	TI-004	EAST RIVER & 151st STREET	REG #11	Installed
281	TI-005	EAST RIVER & 154th STREET	REG #12	Installed
282	TI-006	LITTLE NECK BAY & 24th AVENUE	24 AVENUE P.S.	Installed
283	TI-007	ALLEY CREEK & NORTHERN BLVD	OLD DOUG P.S.	Installed
284	TI-008	ALLEY CREEK & 46th AVENUE	REG #46, 47, 48, 49	Installed
285	*TI-009*	*LITTLE NECK BASIN & DOUG. BAY P.S.*	*DOUG BAY P.S.*	*WAIVER*
286	TI-010	FLUSHING RIVER & ROOSEVELT AVENUE	REG #30, 31, 40, 44	Installed
287	TI-011	FLUSHING BAY & 32nd AVENUE	REG #9, 51, 52, 53, 54	Installed
288	TI-012	FLUSHING BAY & 29th AVENUE	122ND STREET P.S.	Installed
289	TI-014	FLUSHING BAY & 23rd AVENUE	REG #7	Installed

290	TI-015	FLUSHING BAY & 22nd AVENUE	REG #6	Installed
291	TI-016	FLUSHING BAY & 20th AVENUE	REG #5	Installed
292	TI-017	FLUSHING BAY & 15th AVENUE	REG #4	Installed
293	TI-018	FLUSHING BAY & 14th AVENUE	REG #3	Installed
294	TI-019	EAST RIVER & 9th AVENUE	REG #2	Installed
295	TI-020	EAST RIVER & COLLEGE PLACE	REG #1	Installed
296	TI-022	FLUSHING RIVER & 40th ROAD	REG #55, 56, 57, 58	Installed
297	TI-023	LITTLE BAY & CRYDERS LANE	REG #13, CLEARVIEW P.S.	Installed
298	TI-024	ALLEY POND & 61st AVENUE	NEW DOUG P.S.	Installed
299	TI-025	ALLEY CREEK (W) & 400' SOUTH OF LIRR BRIDGE	Alley Creek CSO Storage Facility	Installed
300	**BB - 001**	**Bowery Bay W.P.C.P. Outfall**		Installed
301	BB-002	RIKER'S ISLAND CHANNEL & 45th STREET	REG #2	Installed
No	**OUTFALLID**	**OUTFALL LOCATION**	**CONTRIBUTORS**	**STATUS/COMMENTS**
302	BB-003	BOWERY BAY & HAZEN STREET	REG #3	Installed
303	BB-004	DUTCH KILLS & BORDEN AVENUE	REG #L-3, L-41	Installed
304	BB-005	BOWERY BAY & E/O 81st STREET	REG #4	Installed
305	BB-006	FLUSHING BAY & W/O MARINA (114th STREET)	REG #10, 12, 13	Installed
306	BB-007	FLUSHING BAY & 27th AVENUE	REG #5	Installed
307	BB-008	FLUSHING BAY & 31st DR (108th STREET)	REG #6, 7, 8, 9	Installed
308	BB-009	DUTCH KILLS & HUNTERS POINT AVE.	REG #L-3B, L-37,L-38,L-41,L-3A	Installed
309	BB-010	DUTCH KILLS & QUEENS-MIDTOWN EXPWY	REG #L-3C	Installed
310	BB-011	NEWTOWN CREEK & GREENPOINT AVENUE	REG #L-1	Installed
311	BB-012	NEWTOWN CREEK & 35th STREET	REG #L-2	Installed
312	BB-013	NEWTOWN CREEK & 11th STREET	REG #L-8	Installed
313	BB-014	NEWTOWN CREEK & VERNON BLVD	REG #L-9	Installed
314	BB-015	NEWTOWN CREEK & 5th STREET	REG #L-10	Installed
315	BB-016	EAST RIVER & 51st AVENUE	REG #L-11	Installed
316	BB-017	EAST RIVER & 50th AVENUE	REG #L-12	Installed
317	BB-018	EAST RIVER & 49th AVENUE	REG #L-12A	Installed
318	BB-021	EAST RIVER & 47th AVENUE	REG #L-15	Installed

319	BB-022	EAST RIVER & 5th STREET	REG #L-16	Installed
320	BB-023	EAST RIVER & 44th DRIVE	REG #L-17	Installed
321	BB-024	EAST RIVER & 43rd AVENUE	REG #L-18	Installed
322	BB-025	EAST RIVER & 41st AVENUE	REG #L-19	Installed
323	BB-026	DUTCH KILLS & BETW. 28th & 29th STREET	REG #L-4, L-39, L-40, L-42	Installed
324	BB-027	EAST RIVER & 38th AVENUE	REG #L-20	Installed
325	BB-028	EAST RIVER & 37th AVENUE	REG #L-21	Installed
326	BB-029	EAST RIVER & BROADWAY	REG #L-22	Installed
327	BB-030	EAST RIVER & 30th ROAD	REG #L-23	Installed
328	BB-032	EAST RIVER & MAIN AVENUE	REG #L-29, L-29A, MH-15	Installed
329	BB-033	EAST RIVER & 27th AVENUE	REG #L-27	Installed
330	BB-034	EAST RIVER & HOYT AVENUE	REG #L-30	Installed
331	BB-035	EAST RIVER & DITMARS BLVD	REG #L-31	Installed
332	BB-036	EAST RIVER & 21st AVENUE	REG #L-32	Installed
333	BB-037	EAST RIVER & 20th AVENUE	REG #L-33	Installed
334	BB-040	DUTCH KILLS & 49th AVENUE	REG #L-5	Installed
335	BB-041	LUYSTER CREEK & 19th AVENUE	REG #1	Installed
No	**OUTFALLID**	**OUTFALL LOCATION**	**CONTRIBUTORS**	**STATUS/COMMENTS**
336	BB-042	DUTCH KILLS & W/O 27th STREET	REG #L-6	Installed
337	BB-043	NEWTOWN CREEK & 11th STREET	REG #L-7	Installed
338	BB-045	EAST RIVER & 9th STREET	REG #L-25	Installed
339	BB-046	EAST RIVER & 3rd STREET	REG #L-26	Installed
340	BB-047	EAST RIVER & ASTORIA BLVD	REG #L-28	Installed
341	BB-049	NEWTOWN CREEK & 21st STREET	N/A	Installed
342	BB-053	HELL GATE & 20th AVENUE	N/A	Installed
343	**26W - 001**	**26th Ward W.P.C.P. Outfall**		Installed
344	26W-002	HENDRIX CREEK & PLANT BYPASS	PLANT BYPASS	Installed
345	26W-003	FRESH CREEK BASIN & WILLIAMS AVENUE	REG #2	Installed
346	26W-004	HENDRIX CREEK & HENDRIX STREET	REG #1	Installed
347	26W-005	SPRING CREEK & SPRING CREEK AUXILIARY WWTP	REG #3, JAM REG #2	Installed

348	**CI - 001**	**Coney Island W.P.C.P. Outfall**		Installed
349	**CI - 002**	**Coney Island W.P.C.P. Outfall**		Installed
350	CI-004	PAERDEGAT BASIN & FLATLANDS AVENUE	TG #5	Installed
351	CI-005	PAERDEGAT BASIN & FLATLANDS AVENUE	REG #1, 2, 3, 4	Installed
352	CI-006	PAERDEGAT BASIN & RALPH AVENUE	REG #6	Installed
353	**OH - 001**	**Owls Head W.P.C.P. Outfall**		Installed
354	OH-002	UPPER NEW YORK BAY & 64th STREET	REG #6A, 6B, 6C	Installed
355	OH-003	UPPER NEW YORK BAY & 49th STREET	REG #7A, 7B, 7C	Installed
356	*OH-004*	*UPPER NEW YORK BAY & 43rd STREET*	*REG #7D, 19th ST. PS*	*WAIVER*
357	OH-005	GOWANUS CANAL & CARROLL STREET	3rd AVE SEWER RELIEF	Installed
358	OH-006	GOWANUS CANAL & 19th STREET (N0RTH SIDE)	3rd AVE SEWER RELIEF	Installed
359	OH-007	GOWANUS CANAL & 2nd AVENUE	2nd AVENUE P.S.	Installed
360	OH-015	GRAVESEND BAY & 17th AVENUE	REG #9A, 9B, 9C	Installed
361	OH-017	UPPER NEW YORK BAY & 92nd STREET	REG #1	Installed
362	OH-018	UPPER NEW YORK BAY & 79th STREET	REG #2, 3	Installed
363	OH-019	UPPER NEW YORK BAY & 71st STREET	REG #4	Installed
364	OH-020	UPPER NEW YORK BAY & BAY RIDGE AVENUE	REG #5	Installed
365	OH-021	CONEY ISLAND CREEK & W 15th STREET	REG #10, 11, AVE.V P.S.	Installed
366	OH-022	GOWANUS BAY & 32nd STREET (Bush Terminal Complex)	2nd AVE SEWER RELIEF	Installed
367	OH-024	GOWANUS CANAL & 23rd STREET	3rd AVE SEWER RELIEF	Installed
368	***Jam - 001***	***Jamaica W.P.C.P. Outfall***		***WAIVER***
369	JAM-003	BERGEN BASIN & 123rd STREET	REG #3	Installed
No	**OUTFALLID**	**OUTFALL LOCATION**	**CONTRIBUTORS**	**STATUS/COMMENTS**
370	JAM-003A	BERGEN BASIN & 123rd STREET	REG #14	Installed
371	JAM-005	HEAD OF THURSTON BASIN & JFK AIRPORT	REG #6, 7, 8, 9	Installed
372	JAM-006	HEAD OF BERGEN BASIN & JFK AIRPORT	REG #1, 4, 10, SECONDARY PLANT EFFLUENT	Installed
373	JAM-007	HEAD OF THURSTON BASIN & JFK AIRPORT (NEXT TO JA-005)	REG #6, 7, 8, 9	Installed
374	**Roc - 001**	**Rockaway W.P.C.P. Outfall**		Installed
375	ROC-003	JAMAICA BAY & PLANT BYPASS	PLANT BYPASS	Installed
376	ROC-009	JAMAICA BAY & BEACH 98th STREET	REG #D-6	Installed

377	ROC-014	JAMAICA BAY & BEACH 91st STREET	REG #D-2	Installed
378	ROC-016	NORTON BASIN & BAYSWATER AVENUE	BAYSWATER P.S.	Installed
379	ROC-017	BANNISTER CREEK & BEACH 3rd STREET	SEAGIRT AVE. P.S.	Installed
380	ROC-029	JAMAICA BAY & BEACH 106 STREET	REG #1, 2	Installed
381	ROC-031	MOTT BASIN & REDFERN AVENUE	NAMEOKE P.S.	Installed
382	ROC-032	JAMAICA BAY & BEACH 98th STREET	REG #D-7,D-8,D-9,D-10,D-11	Installed
383	ROC-033	JAMAICA BAY & BEACH 106th STREET	REG #D-12	Installed
384	**OB - 001**	**Oakwood Beach W.P.C.P. Outfall**		Installed
385	OB-001A	LOWER NEW YORK BAY & PLANT BYPASS	PLANT BYPASS	Installed
386	**PR - 001**	**Port Richmond W.P.C.P. Outfall**		Installed
387	PR-002	KILL VAN KULL & E/O TAYLOR STREET	REG #R-34	Installed
388	PR-003	KILL VAN KULL & BROADWAY	REG #R-33	Installed
389	PR-004	KILL VAN KULL & BARD AVENUE	REG #R-29	Installed
390	PR-005	KILL VAN KULL & W/O KISSEL AVENUE	REG #R-28	Installed
391	PR-006	KILL VAN KULL & CLINTON AVENUE	REG #R-23	Installed
392	PR-007	KILL VAN KULL & SAILOR SNUG HARBOR	REG #R-27	Installed
393	PR-008	KILL VAN KULL & FRANKLIN AVENUE	REG #R-21	Installed
394	PR-009	KILL VAN KULL & JERSEY STREET	REG #R-20	Installed
395	PR-010	UPPER NEW YORK BAY & ST. PETERS PLACE	REG #R-19	Installed
396	PR-011	UPPER NEW YORK BAY & HAMILTON AVENUE	REG #R-18	Installed
397	PR-013	UPPER NEW YORK BAY & VICTORY BLVD.	REG #R-17	Installed
398	PR-014	UPPER NEW YORK BAY & BALTIC STREET	REG #R-15	Installed
399	PR-015	UPPER NEW YORK BAY & S/O DOCK STREET	REG #R-11	Installed
400	PR-016	UPPER NEW YORK BAY & MARINE HOSPITAL	REG #R-10	Installed
401	PR-017	UPPER NEW YORK BAY & NORWOOD AVENUE	REG #R-9	Installed
402	PR-018	UPPER NEW YORK BAY & N/O CAMDEN STREET	REG #R-8	Installed
No	**OUTFALLID**	**OUTFALL LOCATION**	**CONTRIBUTORS**	**STATUS/COMMENTS**
403	PR-019	UPPER NEW YORK BAY & S/O LYNHURST AVENUE	REG #R-7	Installed
404	PR-020	UPPER NEW YORK BAY & N/O SYLVA LANE	REG #R-5	Installed
405	PR-021	UPPER NEW YORK BAY & HYLAN BOULEVARD	REG #R-4	Installed

406	PR-023	UPPER NEW YORK BAY & NAUTILUS STREET	REG #R-3	Installed
407	PR-023A	UPPER NEW YORK BAY & NAUTILUS STREET	REG #R-2	Installed
408	PR-023B	UPPER NEW YORK BAY & NAUTILUS STREET	REG #R-1	Installed
409	PR-024	NEWARK BAY & W/O HOLLAND AVENUE	REG #R-1W	Installed
410	PR-025	NEWARK BAY & SOUTH AVENUE	REG #R-2W	Installed
411	PR-026	NEWARK BAY & HARBOR ROAD	REG #R-3W	Installed
412	PR-027	NEWARK BAY & UNION AVENUE	REG #R-4W	Installed
413	PR-028	NEWARK BAY & HOUSEMAN AVENUE	REG #R-5W	Installed
414	PR-029	NEWARK BAY & NICHOLAS STREET	REG #R-6W	Installed
415	PR-030	UPPER NEW YORK BAY & SYLVATON TER..	REG #R-6	Installed
416	PR-031	UPPER NEW YORK BAY & CANAL STREET	REG #13	Installed
417	PR-032	UPPER NEW YORK BAY & VICTORY BOULEVARD	REG #16	Installed
418	PR-033	KILL VAN KULL & ELIZABETH AVENUE	REG #R-31	Installed
419	PR-034	KILL VAN KULL & BEMENT AVENUE	REG #R-32	Installed
420	PR-035	KILL VAN KULL & BODINE STREET	REG #R-35	Installed
421	PR-036	BODINE CREEK & RECTOR STREET	REG #R-36	Installed
422	PR-037	KILL VAN KULL & RICHMOND AVENUE	REG #R-37	Installed

Appendix 9.3: NEW YORK CITY 2021 BEACH SURVEILLANCE AND MONITORING PROGRAM


Photo by DOHMH Beach Program Staff

New York City

2021

Beach Surveillance and Monitoring Program

NYC Health

Table of Contents

161

LIST OF TABLES & FIGURES

SECTION 1

INTRODUCTION

In accordance with the New York City Administrative Code §18-131(c)(4), this annual report summarizes the 2021 New York City Beach Surveillance and Monitoring Program for beaches permitted by the Department of Health and Mental Hygiene (DOHMH or the "Department"). This law requires that the Health Commissioner "forward a combined report of the dates and results of all inspections of all beaches and the dates and reasons for any warning advisory or closure, and such other information deemed appropriate by the Commissioner of Health and Mental Hygiene, for the Friday proceeding the last Monday of May until the Friday after the first Monday of September of each year, to the mayor, the public advocate and the speaker of the council."

With the principal goal of protecting ocean beachgoers from potential health and safety hazards, the Department closely monitors and conducts surveillance of permitted beaches in New York City. Under the regulatory directive and authority of both Article 167 of the New York City Health Code (Article 167) and Subpart 6-2 of the New York State Sanitary Code (Subpart 6-2), the Department administers the Beach Surveillance and Monitoring Program for all beaches operating within the city limits and with a permit issued by the Department. The Program responsibilities include: 1) beach monitoring and surveillance, 2) public notification and communication and 3) safety inspections.

The city's beaches function as an important recreational resource for city residents and neighboring communities. As shown in Figure 1 (page 2) and Table 1 (page 3), there are eight public beaches operated by the Department of Parks and Recreations (the Parks Department) and 17 privately operated beaches permitted within New York City limits.

This year, despite the continuing impact of the COVID-19 pandemic, the bathing beach season was not limited as it was in 2020. Parks Department beaches were open from May 29, 2021, Memorial Day weekend, through September 12, 2021.

FIGURE 1: NEW YORK CITY PERMITTED BEACHES

= Public Beach (NYC Dept. Parks and Recreation)

TABLE 1: NEW YORK CITY PERMITTED BEACHES AND WATER BODY IDENTIFICATION

Borough	Beaches	Water Body
Brooklyn	*Public:* Coney Island, Manhattan Beach *Private:* Sea Gate, Gerritsen/Kiddie Beach, Kingsborough Community College	Lower New York Harbor
Bronx	*Public:* Orchard Beach *Private:* American Turner, Danish American Beach Club, Manhem Club, White Cross Fishing Club, Morris Yacht Club, Schuyler Hill Civic Association, Trinity Danish, Locust Point Yacht Club, West Fordham Street Association	Eastchester Bay, Western Long Island Sound
Queens	*Public:* Rockaway Beach *Private:* Breezy Point	Atlantic Ocean
	Private: Douglaston Manor, Whitestone Booster Civic Association	Western Long Island Sound
Staten Island	*Public:* South Beach, Midland Beach, Cedar Grove Beach, Wolfe's Pond Beach	Lower New York Bay
	Private: Staten Island YMCA	Private Freshwater Lake

1.1 Public Risk Communication

The Department continued public notification and risk communication during the beach season, using easy-to-interpret signs shown in Figure 2 for beach closures and warnings in 2021.

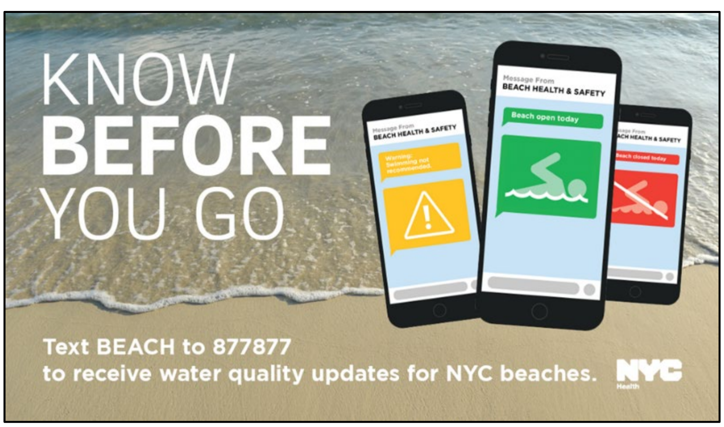
FIGURE 2: BEACH WARNING AND CLOSED SIGNS

"Know Before You Go", a free texting service introduced in 2014, was continued for the 2021 beach season. The service enables subscribers to make informed decisions before they go to a public beach by checking if the beach is open or closed or if there are any warnings due to wet weather conditions or water quality concerns. Subscribers simply text "BEACH" to 877-877 to learn the status of any of the eight public beaches in New York City. This tool also can be used by the Department to deliver notifications of high priority water quality warnings or closures, as well as safety-related messages such as warnings for high rip currents, closures for extreme weather and when beaches open and close for the season. For example, DOHMH issued the following notification to all enrolled users:

> *Due to Tropical Storm Henri, a beach closure is in effect for all NYC beaches on 8/22 and 8/23: Cedar Grove Beach, Coney Island Beach, Manhattan Beach, Midland Beach, Orchard Beach, Rockaway Beach, South Beach, and Wolfe's Pond Beach. Swimming and wading are not permitted. For more information call 3-1-1, or go to http://on.nyc.gov/2eJRxxz*

In 2021, the Department did not conduct any paid campaign promotions for the "Know Before You Go" service. However, it did use its social media channels to increase awareness which resulted in modest increases in enrollment. At the beginning of the season, the texting service had 14,451 English-language subscribers and 612 Spanish-language subscribers. By the close of the beach season, there were 15,016 English-language subscribers (4% increase) and 615 Spanish-language subscribers (negligible increase).

FIGURE 3: KNOW BEFORE YOU GO TEXTING PROGRAM



SECTION 2

BACKGROUND INFORMATION

This chapter provides background information on the New York City Beach Surveillance and Monitoring Program.

2.1 Water Quality Criteria

Under the New York State Sanitary Code §6-2.15, Article §167.13 of the New York City Health Code and the Federal Beaches Environmental Assessment and Coastal Health Act of 2000 (BEACH), enterococcus is the indicator organism mandated for evaluating the microbiological quality of marine (saline) recreational beach water.

Under the New York State Sanitary Code and the New York City Health Code, enterococci concentrations for a single sample may not exceed 104 enterococci per 100 mL (61 enterococci per 100 mL for freshwater), and the enterococci geometric mean may not exceed 35 enterococci per 100 mL (33 enterococci per 100 mL for freshwater) for a series of five or more samples collected during a 30 day period. The geometric mean and single sample maximum are determined by analyzing samples for the presence and quantification of enterococci using the IDEXX Enterolert test method, New York State ELAP method #1040, and as described in Standard Methods for the Examination of Water and Wastewater 23 9230D. Water quality is measured in most probable number per 100 mL of water (MPN/100mL), an estimate of the number of bacteria in a water sample.

In November 2012, the Environmental Protection Agency (EPA) released revised Recreational Water Quality Criteria (RWQC). The revised criteria use a geometric mean and a statistical threshold value to indicate whether waters designated for primary contact recreation use are protective of human health. The 2012 revised criteria for marine waters are a 30 day geometric mean of 35 enterococci per 100 mL and a statistical threshold value of 130 enterococci per 100 mL; the statistical threshold value is calculated as no more than 10% of samples within 30 days shall exceed the criteria. The EPA also introduced a Beach Action Value (BAV) of 70 enterococci per 100 mL to be used as a precautionary notification threshold for beach management, replacing earlier guidance that provided single sample maximum values. These water quality criteria have been adopted by the New York State Department of Environmental Conservation (DEC) and became effective November 1, 2019. The New York State Department of Health (NYSDOH), however, has not yet promulgated equivalent bathing beach water quality standards in the State Sanitary Code, which is required before local beach programs can implement them.

Also in the revised 2012 RWQC, EPA published criteria and methods to detect and quantify *Enterococcus* spp. rapidly with quantitative polymerase chain reaction (qPCR) (EPA Methods 1609 and 1611). These are optional methods of analysis which may be used by beach managers to potentially inform same-day decision making. In 2019, the Department initiated a pilot project to assess qPCR sampling and analysis implementation for New York City beach surveillance and monitoring. The pilot continued through 2021, and the Department collected additional, paired samples from a selection of beaches throughout the season. These additional samples were analyzed with qPCR method 1609 with use of Bio Rad's QX 200 system, for comparison with the currently utilized Enterolert culture method. Analysis is ongoing and DOHMH intends to continue this project to advance sampling protocols and assess feasibility of implementation in future seasons.

2.2 Rainfall Events

Preemptive rainfall thresholds have been developed for New York City beaches through statistical modeling of historical precipitation and water quality data. These preemptive thresholds are used as a management tool to provide a quick and reliable indication of water quality conditions. Because the majority of the city has combined stormwater and sewer conveyance systems, high levels of precipitation, greater than the rainfall thresholds, may result in combined sewage and stormwater runoff bypassing the treatment system and flowing into local waterbodies. This process, known as Combined Sewer Overflow (CSO), poses a public health threat to nearby beaches. When preemptive rainfall thresholds are met, as defined in Table 2, a public notification or warning takes effect for the predetermined duration.

TABLE 2: NEW YORK CITY PREEMPTIVE RAINFALL THRESHOLDS

Beach (Borough)	Rainfall Threshold (within 24 hours)	Duration of Warning
South Beach, Midland Beach, Cedar Grove Beach (Staten Island) Manhattan Beach, Kingsborough Community College (Brooklyn)	1.5 – 2.5 inches	12 hours
	> 2.5 inches	24 hours
Orchard Beach (Brooklyn)	> 2.5 inches	24 hours
Coney Island (Brooklyn)	> 2.5 inches	12 hours
Gerritsen/Kiddie Beach (Brooklyn) Whitestone Booster Civic Association (Queens)	0.3 - 0.6 inches	18 hours
	> 0.6 inches	40 hours
American Turner, Danish American Beach Club, Manhem Club, White Cross Fishing Club, Morris Yacht Club, Schuyler Hill Civic Association, Trinity Danish, Locust Point Yacht Club, West Fordham Street Association (Bronx)	0.6 – 2.5 inches	36 hours
	> 2.5 inches	48 hours
Douglaston Manor (Queens)	0.3 – 0.6 inches	30 hours
	> 0.6 – 2.5 inches	60 hours

	> 2.5 inches	72 hours

2.3 Beach Classifications

There are three swimming classifications for New York City beaches which are determined by assessing water quality, rainfall and pollution events, onsite sanitary surveys, and/or historical information. Beaches, except those specifically restricted under Article §167.05, are classified as follows:

Class A: Open for Swimming and Wading. Beaches may be classified as open and approved for swimming and wading when *all* of the following conditions are met:

1. Beach water quality is in accordance with standards defined under Article §167.13.
2. Sanitary and safety surveys are satisfactory in accordance with Article §167.25.
3. The epidemiological history is satisfactory to the Department, i.e., no repeated complaints or reports of illness/injury received from the public or from owners/operators of city beaches.

Class B: Warning – Not Recommended for Swimming and Wading. Beaches may be classified as "Not Recommended for Swimming and Wading," resulting in notifications to the public that swimming should be avoided to prevent contracting a swimming-related illness, when *one or more* of the following conditions exists:

1. Rainfall events exceed the preemptive rainfall thresholds.
2. A water quality sample exceeds the water quality standard or a beach notification threshold. The notification should remain in effect until resampling indicates that the beach water quality standard and/or notification thresholds are being met.
3. An onsite sanitary survey or investigation reveals the presence of floatable debris, medical/infectious waste, toxic contaminants, petroleum products, other contamination, or evidence of sewage and wastewater discharge.

Class C: Closed – Temporarily Restricted for Swimming and Wading: Beaches may be classified as "Temporarily Restricted for Swimming and Wading" when *one or more* of the following conditions exists:

1. Sampling by bacteriological testing that finds beach water quality exceeding the statutory water quality standard for marine water beaches.
2. Epidemiological data indicates a significant incidence of related illnesses or repeated complaints/reports of illness/injury received from beach patrons.
3. A sanitary and safety survey or an investigation reveals the presence of potentially hazardous amounts of floatable debris, medical/infectious waste, toxic contaminants, petroleum products or other contaminants on the beach, or there is evidence of sewage

and wastewater discharges in sufficient quantities that will adversely affect the quality of the beach water.

4. Any other environmental factors determined to be a public health or safety hazard by the Department are present.

2.4 Beach Monitoring and Surveillance

Starting one month before the beach season, the Department monitors and samples each beach weekly, except for Rockaway and Breezy Point beaches, which are sampled biweekly. In addition to routine water quality monitoring, the Department monitors daily regional wet weather conditions and occasional wastewater treatment plant bypasses, operational upsets and spills through interagency communication and cooperation. This information can be used to assess and make beach status determinations.

During a sample event, a routine onsite sanitary survey inspection is performed to identify any existing and/or potential sources of pollution that are likely to affect beach water quality. Water samples are collected at representative points on the beach by wading into the water to a point where water depth is three feet and submerging the bottle to 18 inches below the water surface. At larger beaches, such as Coney Island and Rockaway Beach, samples are taken at more locations to ensure adequate representation and reliable results. The collected samples are delivered to the Department's Public Health Laboratory for analysis. The analytical and processing turnaround time for enterococci is at least 24 hours.

The water quality of the samples analyzed is reviewed and assessed for conformance to applicable standards. If the regulatory limit for enterococci is exceeded or conditions exist that may pose a threat to the health and/or safety of the public, the Department either conducts immediate re-sampling, issues a warning and conducts re-sampling, or closes the beach and conducts re-sampling. The determining factors for additional sampling may include proximity to suspected pollution sources, the extent of pollution, beach use, historical water quality data, and other health risk factors.

2.5 Public Notification and Risk Communication

When beach status changes based upon evaluation and assessment of beach water quality as specified above, the Department notifies the public through on-site beach signage, website postings, 311 non-emergency government service hotline, Notify NYC, "Know Before You Go" texting service, and Department press releases when necessary. Beach operators are notified by phone, email and/or text as to the necessary onsite postings. The specific notification procedures and requirements are as follows:

Onsite Signage: When notified by the Department, the permittee is required to post or remove the warning or closure signs in designated areas visible to beach users, such as beach entrances, bulletin boards, comfort stations or the general vicinity of the common swimming areas.

"Know Before You Go" Texting Service: Subscribers text "BEACH" to 877-877 to learn the beach status for any of the eight public beaches in New York City.

Website Postings: The Department has developed an easily accessible website with up-to-date information for all permitted beaches: www.nyc.gov/health/beach. The website contains background information on the beach program, explains the causes and sources of surface water pollution, and summarizes the beach classification system, including the different types of warnings. In 2021, the Department updated the map of city beaches to improve information delivery and ease-of-use. The map visually indicates the respective status (Open, Closed, or Warning) for all beaches and provides the most recent sample results, along with all year-to-date samples results for that beach.

Notify NYC: When notified by the Department of status changes relating to public beaches, the Office of Emergency Management will share this information with members of the public who have signed up for Notify NYC status information via Twitter, RSS feed, e-mail and SMS.

311: The 311 telephone operators monitor the Department's website for updates on warning or closure information, as described above, and convey that information to 311 callers. The public can also report a swimming-related illness via 311.

NYC Press Release: Press releases are disseminated to various types of media (newspaper, radio, website, television), as well as elected officials.

2.6 Inspections

The Department conducts annual safety inspections and complaint inspections at bathing beaches to assure that (1) all staff, especially lifeguards and supervisors, have proper certificates and coverage, including CPR certification; (2) all required life-saving equipment is available, including rescue tubes, spine boards, first aid kits, and resuscitation equipment; and (3) there is proper signage posted on site. Direct observations of conditions are supplemented by interviews with lifeguards and other personnel. The inspections also evaluate beach facility cleanliness.

SECTION 3

FINDINGS

3.1 Water Quality and Illness Reporting

Routine water quality monitoring and sample collection was performed at all 25 permitted beaches and one permitted freshwater lake between May and September 2021. In 2021, the Department did not receive any specific beach water quality or illness complaints.

Due to ongoing operational and safety related impacts of the COVID-19 pandemic and Departmental response, a modified beach monitoring plan was implemented in 2021. The Department collected fewer total samples than during a typical beach season while maintaining the normal frequency of sampling. In 2021, the Department collected roughly 570 samples, compared to over 1,000 samples in a normal beach season. Given the limitations of this beach season, the Department interpreted sample results conservatively, and in some cases did not initiate resampling events to use resample information to reduce notification periods.

Water quality sample results, including 30-day geometric mean and daily averages and any associated criteria exceedances can be found in Appendix A (pages 12 to 17). Warnings and closures issued by the Department throughout the season are summarized in Appendix B (pages 18 to 21).

Among private beaches, Douglaston Manor had the highest daily average exceedance rate (50%), followed by White Cross Fishing (47%), while all other private beaches had an average of two exceedances this season (10%). Among public beaches, Wolfes Pond Beach had the highest daily exceedance rate (22%), while most other public beaches had an average of one exceedance (8%).

The increase in sample exceedance rate in 2021 from previous years could be attributed to excessive flooding from multiple tropical storms (Elsa, Ida, and Henri) that impacted the New York City shoreline.

3.2 Public Notification for Warnings and Closures

Out of the eight public beaches, seven were issued at least one swimming advisory warning notice during the 2021 bathing season due to a rainfall event or water quality exceedance. This resulted in a total of 81 warning days ranging in length from 1 to 25 days. There was a total of 19 closure days due to tropical storm warnings or water quality exceedances ranging from 2 to 3 days. Due to storm warnings from the National Weather Service, all eight public beaches were pre-emptively closed to swimming on Sunday, August 22nd ahead of the landfall of Tropical Storm Henri.

On August 24th, all NYC public beaches reopened through the end of the season on Sunday, September 12th.

Of the 17 private beaches in NYC, 16 were open in 2021. Thirteen (13) were issued at least one swimming advisory warning notice during the bathing season. There was a total of 431 warning days with lengths ranging from 1 to 42 days. American Turner had the largest total number of warning days with a total of 76. Across all private beaches there were a total of 75 closures. Douglaston Manor had the largest number of closure days with a total of 39. The length of all beach closures ranged from 5 to 18 days. Public notification details can be found in Appendix B (pages 18 to 21).

The increase in warning and closure days in 2021 from previous years could be attributed to excessive flooding from multiple tropical storms (Elsa, Henri and Ida) that impacted the New York City shoreline.

3.3 Inspections

During the 2021 beach season, inspections of all open 24 public and private beaches were successfully conducted by the Department. One beach was cited for violations at the time of inspection; disrepair of parts of the boardwalk was observed during the inspection of Coney Island, as indicated in Appendix C. This violation is a “general” category, and not considered a serious or immediate public health risk. The Parks Department responded with adequate interim safety measures until the issue can be permanently corrected.

APPENDIX A: 2021 WATER QUALITY RESULTS AND EXCEEDANCE

Table A1-1: Brooklyn Beaches Water Quality Results

Enterococci 30 Day Geometric Mean/Daily Average (MPN/100mL)

Water Quality Standards: 30 day geomean limit: 35 MPN/100mL, Daily average limit: 104 MPN/100mL

Date of Week Ending	CONEY ISLAND BEACH (public)		MANHATTAN BEACH (public)		GERRITSEN/ KIDDIE BEACH (private)		KINGSBOROUGH COMMUNITY COLLEGE (private)		SEA GATE 42ND (private)		SEA GATE BEACH CLUB (private)	
	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily
5/29/2021	16	10	98	364	10	10	42	42	10	10	10	10
6/5/2021	17	24	62	10	20	41	36	31	10	10	10	10
6/12/2021	16	10	40	31	30	64	23	10	10	10	13	20
6/19/2021	14	20	37	20	23	10	25	31	10	10	12	10
6/26/2021	13	13	30	10	26	42	29	53	10	10	11	10
7/3/2021	14	13	14	10	36	53	25	20	11	20	17	75
7/10/2021	14	52	15	10	31	20	20	10	11	10	17	10
*7/17/2021**	23	41	15	42	25	20	27	42	14	31	17	20
7/24/2021	21	17	13	10	24	10	21	10	14	10	17	10
7/31/2021	22	17	13	10	24	42	18	20	14	10	20	20
8/7/2021	23	41	15	20	18	10	15	10	12	10	15	20
8/14/2021	22	24	18	20	20	42	25	111	16	31	21	53
8/21/2021	16	20	13	10	18	10	33	178	12	10	18	10
8/28/2021	21	65	20	87	25	53	58	164	17	53	30	111
9/4/2021	20	10	20	10	32	137	145	>2005	22	31	30	20
9/11/2021	21	24	18	10								

* mid-week sample result on 7/17/2021 at Manhattan Beach resulted in water quality concerns, see appendix B for description.

Values highlighted in red indicate exceedance of recreational water quality criteria.

Table A1-2: Bronx Beaches Water Quality Results

Enterococci 30 Day Geometric Mean/Daily Average (MPN/100mL)

Water Quality Standards: 30 day geomean limit: 35 MPN/100mL, Daily average limit: 104 MPN/100mL

Date of Week Ending	ORCHARD BEACH (public)		AMERICAN TURNER (private)		DANISH AMERICAN BEACH CLUB (private)		LOCUST POINT YACHT CLUB (private)		MANHEM CLUB (private)		MORRIS YACHT AND BEACH CLUB (private)		SCHUYLER HILL CIVIC ASSOC. (private)		TRINITY DANISH (private)		WEST FORDHAM STREET ASSOC. (private)		WHITE CROSS FISHING CLUB (private)	
	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily
*5/29/2021**	17	10	10	10	10	10	10	10	10	10	75	75	10	10	10	10	31	31	10	10
6/5/2021	16	10	10	10	10	10	18	31	14	20	39	20	10	10	10	10	18	10	29	87
6/12/2021	15	13	10	10	16	42	18	20	13	10	25	10	13	20	18	64	18	20	52	164
6/19/2021	13	10	20	160	22	52	21	31	16	31	23	20	16	31	24	52	16	10	74	216
6/26/2021	14	13	29	124	18	10	26	64	14	10	20	10	18	31	48	782	18	31	90	192
7/3/2021	11	10	36	31	21	20	26	10	14	10	13	10	21	20	48	10	18	31	103	20
7/10/2021	11	10	71	288	34	99	26	31	12	10	17	64	21	10	104	478	18	10	155	659
7/17/2021	14	46	162	624	48	238	32	53	22	178	17	10	30	124	208	>2005	16	10	256	>2005
7/24/2021	15	13	135	64	34	10	32	31	18	10	21	64	24	10	216	64	16	10	159	20
7/31/2021	17	39	122	75	61	178	22	10	31	178	36	137	28	75	161	178	14	20	168	254
8/7/2021	17	10	112	20	53	10	22	10	36	20	41	20	25	10	161	10	11	10	146	10
8/14/2021	23	38	71	31	38	20	22	31	36	10	28	10	33	42	99	42	11	10	73	20
*8/21/2021**	25	24	36	20	20	10	16	10	20	10	28	10	20	10	34	10	11	10	45	192
8/28/2021	26	17	40	111	31	75	13	12	27	42	24	31	31	99	33	53	17	75	53	42
9/4/2021	22	13	27	10	17	10	12	10	15	10	14	10	21	10	19	10	15	10	28	10
9/11/2021	26	24	23	10	20	20					12	10	21	10	23	31	15	10		
9/18/2021											14	20					17	20		
9/25/2021											10	14								

*mid-week sample on result 5/29/21 and 8/21/21 at Orchard Beach resulted in a water quality exceedance, see appendix B for description.

Values highlighted in red indicate exceedance of recreational water quality criteria.

Table A1-3: Queens Beaches Water Quality Results

Enterococci 30 Day Geometric Mean/Daily Average (MPN/100mL)

Water Quality Standards: 30 day geomean limit: 35 MPN/100mL, Daily Average limit: 104 MPN/100mL

Date of Week Ending	ROCKAWAY BEACH (Public)		BREEZY POINT 219 (Private)		BREEZY POINT Reid Ave (Private)		WHITESTONE BOOSTER CIVIC ASSOCIATION (Private)		DOUGLASTON MANOR ASSOCIATION (Private)	
	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily
5/22/2021	10	10								
5/29/2021							10	10	10	10
6/5/2021	10	10	10	10	10	10	10	10	18	31
6/12/2021							13	20	18	20
6/19/2021	11	13	10	10	10	10	14	20	16	10
6/26/2021							18	53	24	124
7/3/2021	11	10	10	10	10	10	18	10	41	150
7/10/2021							38	384	33	10
7/17/2021	11	10	10	10	10	10	53	99	82	>2005
7/24/2021							53	20	109	42
7/31/2021	10	10	10	10	10	10	43	20	126	254
8/7/2021							68	100	106	64
*8/14/2021**	13	12	13	20	10	10	48	64	307	2005
8/21/2021							30	10	106	10
8/28/2021	14	12	27	99	10	10	43	111	162	344
9/4/2021							52	53	148	164
9/11/2021	14	10							170	124

*mid-week sample on result 8/14/21 at Rockaway Beach resulted in a localized water quality concern. Given historical water quality sampling records, advisory signage was posted to the affected area and Rockaway Beach was kept in open status pending immediate resampling.

Values highlighted in red indicate exceedance of recreational water quality criteria.

Table A1-4: Staten Island Beaches and Lake Water Quality Results

Enterococci 30 Day Geometric Mean/Daily Average (MPN/100mL)

Water Quality Standards: 30 day Geomean limit: 35 MPN/100mL, Daily Average limit: 104 MPN/100mL

Freshwater Standards: 30 day Geomean limit: 33 MPN/100mL, Daily Average limit: 61 MPN/100mL

Date of Week Ending	SOUTH BEACH* (Public)		MIDLAND BEACH (Public)		CEDAR GROVE BEACH (Public)		WOLFE'S POND BEACH (Public)		SI YMCA (Private Freshwater Lake)	
	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily	30 Day	Daily
5/29/2021	10	10	19	10	13	10	10	10	14	42
6/5/2021	10	10	17	10	13	10	10	10	13	10
6/12/2021	10	10	14	10	12	10	10	10	21	99
6/19/2021	11	20	10	10	12	31	14	63	21	10
6/26/2021	11	10	10	10	12	10	14	10	21	10
7/3/2021	11	10	10	10	13	10	14	10	22	53
7/10/2021	12	10	10	10	13	10	18	31	28	31
*7/17/2021**	15	10	12	20	13	10	25	10	17	10
7/24/2021	16	20	11	10	14	64	22	10	17	10
7/31/2021	16	10	11	10	14	10	22	10	17	10
8/7/2021	17	20	11	10	14	10	22	10	16	31
*8/14/2021**	21	42	14	31	37	49	19	31	12	10
8/21/2021	18	10	12	10	31	10	22	10	12	10
*8/28/2021**	42	71	26	24	30	17	44	79	19	75
*9/4/2021**	42	72	25	20	30	31	68	84	19	10
*9/11/2021**	49	92	29	31	40	103	91	1401		

*mid-week sample on result 7/17/21 at South and Wolfe's Pond beaches resulted in a water quality exceedance, see appendix B for description.
*mid-week sample on result 8/14/21 at Cedar Grove and Wolfe's Pond beaches resulted in a water quality exceedance, see appendix B for description.
*mid-week sample on result 8/28/21 at all four beaches resulted in a water quality exceedance, see appendix B for description.
*mid-week sample on result 9/4/21 at South and Wolfe's Pond beaches resulted in a water quality exceedance, see appendix B for description.
*mid-week sample on result 9/11/21 at Cedar Grove, South and Wolfe's Pond beaches resulted in a water quality exceedance, see appendix B for description.
Values highlighted in red indicate exceedance of recreational water quality criteria.
Values highlighted in orange indicate exceedance of freshwater standards.

Table A2-1: 2021 Summary of Beach Samples and Single-Sample Exceedances

Beach	Sample Location	Total # of Samples	# of Sample Exceed 104	% of Sample Exceed 104
ALL Beaches TOTAL		**554**	**64**	**11.55%**
Public Beaches TOTAL		**303**	**26**	**8.58%**
Private Beaches TOTAL		**251**	**38**	**15.14%**

Table A2-2: 2021 Public Beaches Samples and Single-Sample Exceedances

Beach	Sample Location		Total # of Samples	# of Sample Exceed 104	% of Sample Exceed 104 (Location)	% of Sample Exceed 104 (Beach)
CEDAR GROVE	CEDAR GROVE	Left	3	0	0.00%	*10.71%*
	CEDAR GROVE	Center	22	3	13.64%	
	CEDAR GROVE	Right	3	0	0.00%	
CONEY ISLAND	CONEY ISLAND BR. 15TH - 6TH	Center	10	0	0.00%	*6.90%*
	CONEY ISLAND BR. 6TH - OCEAN PKWY	Center	9	1	11.11%	
	CONEY ISLAND OCEAN PKWY - WEST 8TH	Center	10	0	0.00%	
	CONEY ISLAND WEST 8TH - PIER	Center	9	1	11.11%	
	CONEY ISLAND WEST 16TH - WEST 27TH	Center	9	1	11.11%	
	CONEY ISLAND WEST 28TH - WEST 37TH	Center	11	1	9.09%	
MANHATTAN BEACH	MANHATTAN BEACH	Left	0	0		*10.53%*
	MANHATTAN BEACH	Center	19	2	10.53%	
	MANHATTAN BEACH	Right	0	0		
MIDLAND BEACH	MIDLAND BEACH	Left	1	0	0.00%	*4.55%*
	MIDLAND BEACH	Center	20	1	5.00%	
	MIDLAND BEACH	Right	1	0	0.00%	
ORCHARD BEACH	ORCHARD BEACH	Left	21	1	4.76%	*3.17%*
	ORCHARD BEACH	Center	21	1	4.76%	
	ORCHARD BEACH	Right	21	0	0.00%	
ROCKAWAY BEACH	ROCKAWAY BEACH 9TH - 13TH	Center	5	0	0.00%	*2.27%*
	ROCKAWAY BEACH 15TH - 22TH	Center	6	1	16.67%	
	ROCKAWAY BEACH 23RD - 59TH	Center	5	0	0.00%	
	ROCKAWAY BEACH 59TH - 80TH	Center	6	0	0.00%	
	ROCKAWAY BEACH 80TH - 95TH	Center	5	0	0.00%	
	ROCKAWAY BEACH 95TH - 116TH	Center	6	0	0.00%	
	ROCKAWAY BEACH 116TH - 126TH	Center	5	0	0.00%	
	ROCKAWAY BEACH 126TH - 149TH	Center	6	0	0.00%	
SOUTH BEACH	SOUTH BEACH	Left	5	0	0.00%	*15.15%*
	SOUTH BEACH	Center	23	2	8.70%	
	SOUTH BEACH	Right	5	3	60.00%	
WOLFE'S POND BEACH	WOLFE'S POND BEACH	Left	6	1	16.67%	*22.22%*
	WOLFE'S POND BEACH	Center	24	6	25.00%	
	WOLFE'S POND BEACH	Right	6	1	16.67%	
Public Beaches (Locations) Total			**303**	**26**	**8.58%**	

Table A2-3: 2021 Private Beaches Samples and Single-Sample Exceedances

Beach	Sample Location		Total # of Samples	# of Sample Exceed 104	% of Sample Exceed 104 (Location)	% of Sample Exceed 104 (Beach)
AMERICAN TURNER	AMERICAN TURNER	Center	16	5	31.25%	*31.25%*
BREEZY POINT 219	BREEZY POINT 219	Center	8	0	0.00%	*0.00%*
BREEZY POINT Reid	BREEZY POINT Reid Ave	Center	8	0	0.00%	*0.00%*
DANISH AMERICAN BEACH CLUB	DANISH AMERICAN BEACH CLUB	Center	16	2	12.50%	*12.50%*
DOUGLASTON MANOR ASSOCIATION	DOUGLASTON MANOR ASSOCIATION	Center	16	8	50.00%	*50.00%*
GERRITSEN/KIDDIE BEACH	GERRITSEN/KIDDIE BEACH	Center	15	1	6.67%	*6.67%*
KINGSBOROUGH COMMUNITY COLLEGE	KINGSBOROUGH COMMUNITY COLLEGE	Center	15	4	26.67%	*26.67%*
LOCUST POINT YACHT CLUB	LOCUST POINT YACHT CLUB	Center	15	0	0.00%	*0.00%*
MANHEM CLUB	MANHEM CLUB	Center	15	2	13.33%	*13.33%*
MORRIS YACHT AND BEACH CLUB	MORRIS YACHT AND BEACH CLUB	Center	18	1	5.56%	*5.56%*
SCHUYLER HILL CIVIC ASSOCIATION	SCHUYLER HILL CIVIC ASSOCIATION	Center	16	1	6.25%	*6.25%*
SEA GATE 42ND	SEA GATE 42ND	Center	15	0	0.00%	*0.00%*
SEA GATE BEACH CLUB	SEA GATE BEACH CLUB	Center	15	1	6.67%	*6.67%*
TRINITY DANISH	TRINITY DANISH	Center	16	4	25.00%	*25.00%*
WEST FORDHAM STREET ASSOCIATION	WEST FORDHAM STREET ASSOCIATION	Center	17	0	0.00%	*0.00%*
WHITE CROSS FISHING CLUB	WHITE CROSS FISHING CLUB	Center	15	7	46.67%	*46.67%*
WHITESTONE BOOSTER CIVIC ASSOCIATION	WHITESTONE BOOSTER CIVIC ASSOCIATION	Center	15	2	13.33%	*13.33%*
Private Beaches (Locations) Total			**251**	**38**	**15.14%**	

Table A2-4: 2021 Private Freshwater Lake Samples and Single-Sample Exceedances

Beach	Sample Location		Total # of Samples	# of Sample Exceed 61	% of Sample Exceed 61 (Location)	% of Sample Exceed 61 (Lake)
Staten Island YMCA	Staten Island YMCA	Center	18	2	11.11%	*11.11%*
Private Freshwater Lake (Locations) Total			**18**	**2**	**11.11%**	

Appendix B: 2021 Warnings and Closures

Table B-1: Summary of Beach Warnings and Closure

Beach	Types	Reason	Start Date	End Date	Beach Open Days	# of Beach-Specific Days	Notification (Beach Specific Days)		
							Warning	Closure	Total
NYC ALL Beaches (N=25*)	Warning or Closure	Enterococci Exceedance or Rainfall Event	5/29/2021	9/12/2021	**1416**	**606**	**512**	**94**	**606**

*One private beach did not open for 2021 season.

Table B-2: Public Beaches Warnings and Closures

Beach	Types	Reason	Start Date	End Date	Beach Open Days	# of Beach-Specific Days	Notification (Beach Specific Days)		
							Warning	Closure	Total
CEDAR GROVE	Warning	Rainfall Event	5/29/2021	5/29/2021	93	1	12	2	14
	Warning	Enterococci Exceedance	8/11/2021	8/17/2021		7			
	Closure	Tropical Storm	8/22/2021	8/23/2021		2			
	Warning	Rainfall Event	9/2/2021	9/2/2021		1			
	Warning	Enterococci Exceedance	9/10/2021	9/12/2021		3			
CONEY ISLAND	Warning	Enterococci Exceedance	7/14/2021	7/15/2021	102	2	3	2	5
	Closure	Tropical Storm	8/22/2021	8/23/2021		2			
	Warning	Rainfall Event	9/2/2021	9/2/2021		1			
MANHATTAN BEACH	Warning	Enterococci Exceedance	5/29/2021	6/22/2021	79	25	26	2	28
	Closure	Tropical Storm	8/22/2021	8/23/2021		2			
	Warning	Rainfall Event	9/2/2021	9/2/2021		1			
MIDLAND BEACH	Warning	Rainfall Event	5/29/2021	5/29/2021	103	1	2	2	4
	Closure	Tropical Storm	8/22/2021	8/23/2021		2			
	Warning	Rainfall Event	9/2/2021	9/2/2021		1			
ROCKAWAY BEACH	Closure	Tropical Storm	8/22/2021	8/23/2021	105	2	0	2	2
ORCHARD BEACH	Closure	Tropical Storm	8/22/2021	8/23/2021	104	2	1	2	3
	Warning	Rainfall Event	9/2/2021	9/2/2021		1			
SOUTH BEACH	Warning	Rainfall Event	5/29/2021	5/29/2021	86	1	19	2	21
	Warning	Enterococci Exceedance	7/14/2021	7/15/2021		2			
	Closure	Tropical Storm	8/22/2021	8/23/2021		2			
	Warning	Enterococci Exceedance	8/28/2021	9/12/2021		16			
WOLFE'S POND PARK	Warning	Enterococci Exceedance	7/14/2021	7/15/2021	84	2	18	5	23
	Warning	Enterococci Exceedance	8/11/2021	8/13/2021		3			
	Closure	Tropical Storm	8/22/2021	8/23/2021		2			
	Warning	Enterococci Exceedance	8/28/2021	9/9/2021		13			
	Closure	Enterococci Exceedance	9/10/2021	9/12/2021		3			
Public Beaches TOTAL					**756**	**100**	**81**	**19**	**100**

Table B-3: Private Beaches Warnings and Closures

Beach	Types	Reason	Start Date	End Date	Beach Open Days	# of Beach-Specific Days	Notification (Beach Specific Days)		
							Warning	Closure	Total
AMERICAN TURNER	Warning	Rainfall Event	5/29/2021	5/30/2021	24	2	76	7	83
	Warning	Rainfall Event	5/31/2021	5/31/2021		1			
	Warning	Rainfall Event	6/5/2021	6/5/2021		1			
	Warning	Enterococci Exceedance	6/17/2021	7/14/2021		28			
	Closure	Enterococci Exceedance	7/15/2021	7/21/2021		7			
	Warning	Enterococci Exceedance	7/22/2021	9/1/2021		42			
	Warning	Rainfall Event	9/2/2021	9/3/2021		2			
BREEZY POINT 219					45	0	0	0	0
BREEZY POINT REID					45	0	0	0	0
DANISH AMERICAN BEACH CLUB	Warning	Rainfall Event	5/29/2021	5/30/2021	60	2	40	7	47
	Warning	Rainfall Event	5/31/2021	5/31/2021		1			
	Warning	Rainfall Event	6/5/2021	6/5/2021		1			
	Warning	Rainfall Event	7/1/2021	7/1/2021		1			
	Warning	Rainfall Event	7/2/2021	7/4/2021		3			
	Warning	Rainfall Event	7/9/2021	7/10/2021		2			
	Closure	Enterococci Exceedance	7/15/2021	7/21/2021		7			
	Warning	Rainfall Event	7/26/2021	7/27/2021		2			
	Warning	Enterococci Exceedance	7/29/2021	8/18/2021		21			
	Warning	Rainfall Event	8/22/2021	8/24/2021		3			
	Warning	Rainfall Event	8/28/2021	8/29/2021		2			
	Warning	Rainfall Event	9/2/2021	9/3/2021		2			
DOUGLASTON MANOR ASSOCIATION	Warning	Enterococci Exceedance	7/1/2021	7/7/2021	2	7	33	39	72
	Warning	Rainfall Event	7/9/2021	7/12/2021		4			
	Closure	Enterococci Exceedance	7/14/2021	7/22/2021		9			
	Warning	Enterococci Exceedance	7/23/2021	7/29/2021		7			
	Closure	Enterococci Exceedance	7/30/2021	8/3/2021		5			
	Warning	Enterococci Exceedance	8/4/2021	8/10/2021		7			
	Closure	Enterococci Exceedance	8/11/2021	8/17/2021		7			
	Warning	Enterococci Exceedance	8/18/2021	8/25/2021		8			
	Closure	Enterococci Exceedance	8/26/2021	9/12/2021		18			

Beach	Types	Reason	Start Date	End Date	Beach Open Days	# of Beach-Specific Days	Notification (Beach Specific Days)		
							Warning	Closure	Total
GERRITSEN/KIDDIE BEACH	Warning	Rainfall Event	5/29/2021	5/30/2021	71	2	30	0	30
	Warning	Rainfall Event	5/31/2021	6/1/2021		2			
	Warning	Rainfall Event	6/5/2021	6/5/2021		1			
	Warning	Rainfall Event	6/9/2021	6/9/2021		1			
	Warning	Enterococci Exceedance	7/1/2021	7/7/2021		7			
	Warning	Rainfall Event	7/9/2021	7/10/2021		2			
	Warning	Rainfall Event	7/18/2021	7/18/2021		1			
	Warning	Rainfall Event	7/25/2021	7/25/2021		1			
	Warning	Rainfall Event	8/8/2021	8/8/2021		1			
	Warning	Rainfall Event	8/11/2021	8/11/2021		1			
	Warning	Rainfall Event	8/22/2021	8/24/2021		3			
	Warning	Rainfall Event	8/28/2021	8/29/2021		2			
	Warning	Enterococci Exceedance	9/1/2021	9/6/2021		6			
KINGSBOROUGH COMMUNITY COLLEGE	*Did not open for 2021 Season*				0	0	0	0	0
LOCUST POINT YACHT CLUB	Warning	Rainfall Event	7/26/2021	7/27/2021	36	2	9	0	9
	Warning	Rainfall Event	8/22/2021	8/24/2021		3			
	Warning	Rainfall Event	8/28/2021	8/29/2021		2			
	Warning	Rainfall Event	9/2/2021	9/3/2021		2			
MANHEM BEACH CLUB	Warning	Rainfall Event	7/3/2021	7/4/2021	25	2	41	0	41
	Warning	Rainfall Event	7/9/2021	7/10/2021		2			
	Warning	Enterococci Exceedance	7/15/2021	7/21/2021		7			
	Warning	Rainfall Event	7/26/2021	7/27/2021		2			
	Warning	Enterococci Exceedance	7/29/2021	8/18/2021		21			
	Warning	Rainfall Event	8/22/2021	8/24/2021		3			
	Warning	Rainfall Event	8/28/2021	8/29/2021		2			
	Warning	Rainfall Event	9/2/2021	9/3/2021		2			
MORRIS YACHT AND BEACH CLUB	Warning	Enterococci Exceedance	5/29/2021	6/10/2021	64	13	43	0	43
	Warning	Rainfall Event	7/1/2021	7/1/2021		1			
	Warning	Rainfall Event	7/2/2021	7/4/2021		3			
	Warning	Rainfall Event	7/9/2021	7/10/2021		2			
	Warning	Rainfall Event	7/18/2021	7/19/2021		2			
	Warning	Rainfall Event	7/26/2021	7/27/2021		2			
	Warning	Enterococci Exceedance	7/30/2021	8/11/2021		13			
	Warning	Rainfall Event	8/22/2021	8/24/2021		3			
	Warning	Rainfall Event	8/28/2021	8/29/2021		2			
	Warning	Rainfall Event	9/2/2021	9/3/2021		2			

Beach	Types	Reason	Start Date	End Date	Beach Open Days	# of Beach-Specific Days	Notification (Beach Specific Days)		
							Warning	Closure	Total
SCHUYLER HILL CIVIC ASSOCIATION	Warning	Rainfall Event	5/29/2021	5/30/2021	81	2	26	0	26
	Warning	Rainfall Event	5/31/2021	5/31/2021		1			
	Warning	Rainfall Event	6/5/2021	6/5/2021		1			
	Warning	Rainfall Event	7/1/2021	7/1/2021		1			
	Warning	Rainfall Event	7/2/2021	7/4/2021		3			
	Warning	Rainfall Event	7/9/2021	7/10/2021		2			
	Warning	Enterococci Exceedance	7/15/2021	7/21/2021		7			
	Warning	Rainfall Event	7/26/2021	7/27/2021		2			
	Warning	Rainfall Event	8/22/2021	8/24/2021		3			
	Warning	Rainfall Event	8/28/2021	8/29/2021		2			
	Warning	Rainfall Event	9/2/2021	9/3/2021		2			
SEAGATE 42nd					46	0	0	0	0
SEAGATE BEACH CLUB	Warning	Enterococci Exceedance	8/26/2021	8/31/2021	40	6	6	0	6
TRINITY DANISH YOUNG PEOPLE'S SOCIETY	Warning	Enterococci Exceedance	7/24/2021	7/28/2021	18	5	26	7	33
	Closure	Enterococci Exceedance	7/29/2021	8/4/2021		7			
	Warning	Enterococci Exceedance	8/5/2021	8/18/2021		14			
	Warning	Rainfall Event	8/22/2021	8/24/2021		3			
	Warning	Rainfall Event	8/28/2021	8/29/2021		2			
	Warning	Rainfall Event	9/2/2021	9/3/2021		2			
WEST FORDHAM STREET ASSOCIATION	Warning	Rainfall Event	7/1/2021	7/1/2021	77	1	17	0	17
	Warning	Rainfall Event	7/2/2021	7/4/2021		3			
	Warning	Rainfall Event	7/9/2021	7/10/2021		2			
	Warning	Rainfall Event	7/18/2021	7/19/2021		2			
	Warning	Rainfall Event	7/26/2021	7/27/2021		2			
	Warning	Rainfall Event	8/22/2021	8/24/2021		3			
	Warning	Rainfall Event	8/28/2021	8/29/2021		2			
	Warning	Rainfall Event	9/2/2021	9/3/2021		2			
WHITE CROSS FISHING CLUB	Warning	Enterococci Exceedance	7/24/2021	7/28/2021	3	5	27	15	42
	Closure	Enterococci Exceedance	7/29/2021	8/4/2021		7			
	Warning	Enterococci Exceedance	8/5/2021	8/18/2021		14			
	Closure	Enterococci Exceedance	8/19/2021	8/26/2021		8			
	Warning	Enterococci Exceedance	8/27/2021	9/1/2021		6			
	Warning	Rainfall Event	9/2/2021	9/3/2021		2			
WHITESTONE BOOSTER CIVIC ASSOCIATION	Warning	Rainfall Event	7/3/2021	7/4/2021	23	2	57	0	57
	Warning	Enterococci Exceedance	7/9/2021	8/18/2021		41			
	Warning	Rainfall Event	8/22/2021	8/24/2021		3			
	Warning	Enterococci Exceedance	8/27/2021	9/6/2021		11			
Private Beaches TOTAL					**288**	**181**	**159**	**22**	**181**

APPENDIX C: 2021 INSPECTION SUMMARY

Table C-1: Inspection Non-Compliance Summary*

Beach Name	General Violations**
	167.09 (13)
CONEY ISLAND BEACH	√

*All beaches were in full compliance of the regulations at the time of inspection.

**** General Violations:**

§167.09(13)	Any other condition determined to be a Public Health Hazard by the department (e.g. Boardwalk in disrepair).

Appendix 10:

- Appendix 10.1: Combined Sewer Overflow Annual Report Checklist
- Appendix 10.2: Table: Upcoming CSO milestones
- Appendix 10.3: Table: Reports to be submitted
- Appendix 10.4: CSO Discharges for CY2018 Checklist

Appendix 10.1: COMBINED SEWER OVERFLOW ANNUAL REPORT CHECKLIST

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF WATER

COMBINED SEWER OVERFLOWS ANNUAL REPORT

PART I. GENERAL INSTRUCTIONS: The Combined Sewer Overflows (CSO) Annual Report is consistent with the EPA CSO Long-Term Control Policy requiring permitting authorities to report "Measures of Success" of the policy implementation. Hence, the goal of this report is to obtain information regarding:

1. Compliance with the 15 CSO Best Management Practices;
2. The condition and operation of the combine sewer system (CSS) components. Most importantly, the end-of-pipe measures that show trends in the discharge of CSS flows to the receiving water body, such as reduction of pollutant loadings, the frequency of CSOs, and the duration of CSOs;
3. Receiving water body measures that show trends of the conditions in the water body to which the CSO occurs;
4. Overall status of the CSO LTCP, if applicable;
5. Key CSO control accomplishments and design and construction progress in the previous year

Permittee must complete ALL parts of the form and must attach all supporting documents. Please be aware that this annual report form template highlights the minimum requirement a permittee is expected to submit. Permittee is obligated to complete abatement activities to ensure compliance with the Clean Water Act. This report is also consistent with NYS *6 NYCRR 750-2.1(i)*.

Special Instructions:

1. Multiple permittees (for instance NYC and Albany Pool) responsible to develop a single LTCP can submit one form and also complete Section D of this form.
2. **ALL SECTIONS OF THIS REPORT MUST BE COMPLETED.**

PERMITTEE NAME: NYC Department of Environmental Protection SPDES PERMIT NO.: NY- see below

Part II - CSO LTCP Control Information

CSO Facility: NY-0026212: Spring Creek; NY-0026182: Paerdegat Basin; NY-0026239: Alley	Flow: MGD

SECTION A: CSO LTCP GENERAL INFORMATION

LTCP Development/Implementation:

Check all that apply:		*Describe other controls currently being used or planned. Also describe how the objectives of the CSO Control Policy have been met.*
In Development	☐	DEP has submitted eleven (11) CSO LTCPs to date and nine (9) have been approved by the DEC including the Alley Creek, Bronx River, Coney Island Creek, Gowanus Canal, Hutchinson River, Flushing Bay, Flushing Creek, Newtown Creek, and Westchester Creek CSO LTCPs. The last Citywide/Open Waters LTCP was submitted September 2020.
Submitted	☑	
Approved	☑	
In Progress	☑	
Completed	☑	
Not Required	☐	

CSO Controls:

Check all that apply:		*Describe other controls currently being used or planned. Also describe how the objectives of the CSO Control Policy have been met under the selected controls*
Source Controls	☑	1995 - 2021: Four (4) CSO Storage Tanks (118 MG); Pumping Station Expansion (Ave V and Gowanus); Bronx River Nets and Screens; Sewer Improvements (26th Ward and Jamaica); Green Infrastructure; Gowanus Canal Flushing Tunnel; Environmental Dredging (Hendrix Creek and Paerdegat Basin); English Kills In-stream Aeration; Bending Weirs Installations (Bergen Basin, Thurston Basin, Flushing Bay, and Newtown Creek), Flushing Bay Environmental Dredging; Wet Weather Improvements at Wards Island WRRF; Regulator and Conveyance Improvement in Westchester Creek; Fresh Creek High Level Sewer Separation; Wet Weather Enhancements at 26th Ward WRRF; and Ongoing Citywide GI. Ongoing and Planned Projects: CSO Storage Tunnels (Newtown Creek and Flushing Bay); Disinfection (Flushing Bay, Alley Creek, Hutchinson River); Sewer and Regulator Improvements in Bronx River; Citywide Regulator and Conveyance Improvements; Environmental Dredging of
Collection System Controls	☑	
Storage Technologies	☑	
Treatment Technologies	☑	
Floatable Controls	☑	
Disinfection	☑	
Type:		

Post-Construction Compliance Monitoring (PCCM) Program:

Check all that apply:		*Describe PCCM findings, status, updates, and future plan. Attach a separate sheet if necessary and describe if the PCCM confirms that LTCP is meeting the t objectives of the CSO Control Policy*
In Development	☑	DEP has been conducting and completed PCCM for a number of water bodies including Alley Creek, Paerdegat Basin, Gowanus Canal, Flushing Bay, Flushing Creek, Newtown Creek; Coney Island Creek; and Spring Creek as required under it's previously approved Waterbody Watershed Facility Plans. DEP is preparing an updated CSO LTCP PCCM Sampling Plan and upon completion of proposed LTCP projects DEP will be conducting additional PCCM to assess efficacy of the LTCP recommended controls.
Submitted	☑	
Approved	☐	
In Progress	☑	
Completed	☑	
Not Required	☐	

Part II - CSO LTCP Control Information

SECTION B: OUTFALL INFORMATION

List all existing and active CSO the outfalls. Attach extra sheets, if necessary.

Outfall #	Latitude	Longitude	Receiving Water/Classification	# of Regulators Associated with this Outfall	Type of Regulator(s) Associated with this Outfall (Fixed Dam, Float / Dynamic, Elevated Pipe, Wet Well Overflow, etc.)
This	information	was	submitted to the NYSDEC under	separate cover on	March 30, 2021

Part II - CSO LTCP Control Information

List all CSO the outfalls that have been closed or separated since LTCP development. Attach extra sheets, if necessary.

Outfall #	Latitude	Longitude	Receiving Water/Classification	Indicate Reason for Closure
This	information	was	submitted to NYSDEC under	separate cover on March 30, 2021

PERMITTEE NAME: NYC Department of Environmental Protection SPDES PERMIT NO.: NY-see below

Part II - CSO LTCP Control Information

SECTION C: CSO EVENTS, DISCHARGE VOLUME, ETC. Provide an estimate or actual data on overflow events. If necessary, use a separate spreadsheet to report all CSO outfalls.

CSO Outfall #	No. of overflow events in the previous year		Total Annual CSO Volume Discharged (MG)		Total Annual Volume Captured or Diverted to POTW (MG)		# of CSO Outfalls		Indicate type of overflow measurements (e.g. metered, estimated, or modeled). *If other, please describe.*
	Baseline	Current	Baseline	Current	Baseline	Current	Baseline	Current	
See	attached	spreadsheet	that	has	been	provided	with	this	Checklist

Part II - CSO LTCP Control Information

CSO Outfall #	No. of overflow events in the previous year		Total Annual CSO Volume Discharged (MG)		Total Annual Volume Captured or Diverted to POTW (MG)		# of CSO Outfalls		Indicate type of overflow measurements (e.g. metered, estimated, or modeled). *If other, please describe.*
	Baseline	Current	Baseline	Current	Baseline	Current	Baseline	Current	
See	attached	spreadsheet	that	has	been	provided	with	this	Checklist
TOTAL									

Part II - CSO LTCP Control Information

SECTION D: Collection System Information

	Baseline	After CSO BMP and/or LTCP Implementation	Current
Percentage of the collection system owned by the permittee that is combined.		60%	60%
Approximate no. of miles of combined sewers in the permittee owned system		3,337	3,337
Number of combined sewer outfalls in the permittee owned system	404	408	408
Average annual no. of CSO events in the permittee owned system	38	TBD	21
Average annual CSO volume discharged from the permittee owned system (MG)	29,566	TBD	26,411
Population served by the permittee's owned system	8,000,000	TBD	8,600,000
Number of satellite system connections	N/A	N/A	N/A

Use the space below to provide any further relevant information on the collection system. This should include a description of any unique ownership, operation and maintenance agreements or further explanation and description of satellite system connections. (Attach extra sheets, if necessary):

(1) Baseline is taken from the 2007 Waterbody Watershed Facility Plans (WWFP) baseline conditions that was selected as the most appropriate pre CSO BMP Baseline Condition. The baseline condition uses projected 2040 sanitary flows at the time of the WWFP submittal, JFK 1988 annual precipitation data, and 2003 WRRF wet weather operating conditions.
(2) Percentage of system that is combined is based on the 2012 NYCDEP State of the Sewers Report.
(3) Current is based on the 2012 InfoWork Recalibration Report and other refinements made to the InfoWork models as part of the LTCP development in conjunction with sanitary flows, precipitation data, and WRRF wet weather operations.

Part II - CSO LTCP Control Information

SECTION F: Use this section to describe how the implementation of the LTCP development and implementation have met the water quality standards of the receiving stream(s) and also objectives of the EPA CSO Control Policy (attach extra sheets as necessary):

DEP has been completed PCCM program in two (2) waterbodies including Spring Creek and Flushing Creek and have been conducting PCCM sampling in five (5) other water bodies including Alley Creek, Paerdegat Basin, Gowanus Canal, Newtown Creek, and Coney Island Creek. The data has been consistent with previous modeling projections and two of these waterbodies (Paerdegat Basin and Spring Creek) have been attaining primary contact criteria for bacteria. DEP also conducts an extensive Harbor Monitoring Program and the Open Waters including vast majority of East River, Hudson River, Harlem River, Inner and Outer Bay, and Jamaica Bay are attaining primary contact standards.

DEP has also submitted eleven (11) CSO LTCPs in accordance with EPA CSO Policy and nine (9) of these LTCPs have been approved. Upon implementation of these additional controls DEP anticipates further improvements in the tributaries and embayments but will likely not be able to fully attain primary contact standards in all waterbodies due to man-made alterations and poor circulation.

SECTION G: Use the following space to summarize other planned CSO control projects (attach extra sheets as necessary):

CY2020&21 Milestones:
Construction Completion for the Westchester Creek Modifications to CSO-29 and CSO-29A; Pugsley Creek Parallel Sewer
New Bergen Basin Sanitary Sewer; Fresh Creek High Level Storm Sewers; 26W WRRF Wet Weather Enhancements
Flushing Bay CSO Storage Tunnel Design Initiation

Ongoing or Planned
Ongoing design for Borden Ave Pump Station Expansion; Disinfection Facilities for Alley Creek, Flushing Creek, and Hutchinson River; Conveyance Improvements in Bronx River; and Tibbett's Brook Daylighting.

Planned projects for Newtown Creek Storage Tunnel; Flushing Bay Storage Tunnel; Open Waters Regulator Improvements; Bergen Basin Dredging; Ribbed Mussels in Bergen & Thurston Basins; Jamaica Bay Wetland Restorations.

* Please note some of these projects are linked to a pending LTCP approval or may be modified via some open modification requests.

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

Name: Keith Mahoney	**Official Title:** Director, WIP&M	**Phone:** 347-595-5972
Signature: Keith Mahoney	**Date Signed:** 4/20/22	**Email:** Kmahoney@dep.nyc.gov

PERMITTEE NAME: NYC Department of Environmental Protection SPDES PERMIT NO.: NY- see below

PART III - CSO BEST MANAGEMENT PRACTICES

Check N/A if not required in the permit, consent order, or LTCP:

1. **CSO Maintenance/Inspection** *6 NYCRR 750-2.8(a)(2) (EPA NMC: Proper Operation and Maintenance)*	YES	NO	N/A
Is there a written program for the operation, inspection and maintenance of the CSS?	✔		
Does the program include procedures for ALL outfalls in the permit?	✔		
Does the program include procedures for ALL regulators in the permit?	✔		
Are inspections conducted at least as frequently as required in the permit (weekly or monthly)?	✔		
Are inspections conducted during dry and wet weather?	✔		
Do the inspection reports indicate visual inspection, any observed flows, incidence of rain or snowmelt, condition of equipment, and any work required?	✔		
Are inspection reports submitted to the DEC regional office with the monthly operating reports?			
Is the written program sufficiently detailed? Indicate which of the following additional components are included in the plan.	✔		
Pump Stations	✔		
Sewer cleaning			✔
Sewer Manholes and Catch Basins			✔
Outfalls			✔
CSO Controls			✔
Are there inter-municipal agreements which require inspection and maintenance?			✔
Are any changes planned in the upcoming year for the agreements to make them more effective?			✔
Is the collection system mapped using GIS?	✔		
Entire system, including manholes and catch basins?			✔
In the past year, was significant mapping progress accomplished?			✔
In the upcoming year, is GIS mapping planned?	✔		
Is the collection system monitored using a SCADA system?	✔		
In the past year, was significant progress accomplished in installing or expanding monitoring with a SCADA system?			✔
In the upcoming year, is installation of a SCADA system planned or being expanded?			✔
Does the municipality have an asset management plan that includes the collection system?			✔
Are funds available to carry out the BMP requirements?			✔
Are any major equipment purchases planned or expected in the next five years related to the BMP requirements? If yes, describe below			✔
Is the pump inventory, including spare parts, adequate for the upcoming year?			✔
Is sufficient staff training available?			✔

PERMITTEE NAME: NYC Department of Environmental Protection SPDES PERMIT NO.: NY- see below

PART III - CSO BEST MANAGEMENT PRACTICES

Is funding for training adequate and available?	☐	☐	☑

	YES	NO	N/A
Is sufficient staff training available?	☐	☐	☑
Is funding for training adequate and available?	☐	☐	☑
Have any work efforts or problems in the past year resulted in changes in overflows? If yes, describe below	☐	☑	
Fewer events	☐	☐	
Less volume	☐	☐	
Reduction in floatables, settleable solids or oil and grease discharged	☐	☐	
Reduction in industrial pollutants (chemicals)	☐	☐	
Improvement in water quality of receiving waterbody	☐	☐	
In the past year, was the inspection and maintenance program mostly:			
Reactive (responding to problems)	☐	☑	☐
Proactive (focusing on preventative maintenance to avoid problems)?	☑	☐	☐
If the program is mostly reactive, describe below any plans to shift the emphasis to prevention	☐	☐	☑

DESCRIBE BELOW HOW THIS BMP IMPLEMENTATION HAS MET THE REQUIREMENTS OF THE SPDES PERMIT, AND THE OBJECTIVES OF THE EPA NINE MINIMUM CONTROLS. (Attach extra sheet if necessary)

See CSO BMP Report for more details.

PERMITTEE NAME: NYC Department of Environmental Protection SPDES PERMIT NO.: NY- see below

PART III - CSO BEST MANAGEMENT PRACTICES

2. Maximum Use of Collection System for Storage *6 NYCRR 750-2.7(f), 750-2.8(a)(2), 750-2.8(a)(5) (EPA NMC: Maximum Use of Collection System for Storage)*	**Yes**	**No**	**N/A**
Are CSOs minimized, and flow to the treatment plant maximized?	✔		
Has the hydraulic capacity of the system been evaluated?	✔		
Is there a continuous program of flushing and cleaning to prevent deposition of solids?	✔		
Have regulators and weirs been adjusted to maximize storage without causing service backups?	✔		
In the past year or the upcoming year, have any changes to structures or procedures been made or planned that will improve use of the collection system for storage? Describe below	✔		
Tidegates maintenance/repairs/replacement		✔	
FOG program		✔	
Removal of small systems bottlenecks			✔
Sewer cleaning and sediment removal		✔	
Removal of flow obstructions			✔
Regulator or weir adjustment - list locations below	✔		
In-line storage: Inflatable dams or sluice gates			✔
Wet Weather Operating Plan	✔		
Do the municipalities within the combined sewer system have a water conservation program for homeowners?	✔		
In the upcoming year are there any studies, work, or projects planned (other than routine activities) to improve use of collection system for storage? Describe below.			✔

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PERMITTEE NAME: NYC Department of Environmental Protection SPDES PERMIT NO.: NY- see below

PART III - CSO BEST MANAGEMENT PRACTICES

3. Industrial Pretreatment *6 NYCRR 750-2.7(f) and 2.9(a)(4)* *(EPA NMC: Review and Modify Pretreatment Requirements)* ☐ **N/A**	**YES**	**NO**	**N/A**
Has the impact on CSOs from nondomestic users that discharge toxic pollutants been evaluated, and steps taken to minimize such impacts?	✔	☐	☐
Is there an approved pretreatment or mini-pretreatment program?	✔	☐	☐
If there is no pretreatment or min-pretreatment program, are there any nondomestic users? If No to both of the previous questions, go to BMP 4	☐	☐	☐
Is there an inventory of industrial dischargers? Is the following information included?	✔	☐	☐
Volume of discharge?	✔	☐	☐
Pollutants in discharge?	✔	☐	☐
Are any pollutants classified as "persistent toxics" or bioaccumulative?	✔	☐	☐
Is the location included on the collection system map?	☐	☐	✔
Are there any industrial discharges that could reach CSO outfalls?	✔	☐	☐
If yes, have any industrial dischargers been identified as contributing to a water quality impairment?	☐	✔	☐
If yes, does the industry have a holding tank or EQ tank to store wastewater prior to discharge to the collection system?	☐	☐	✔
If yes, does the industry have a written plan to store or hold discharges during rain events?	☐	☐	✔
If yes, has the industry been asked to prepare a written plan to store or hold discharges?	☐	☐	✔
In the past year, have there been negotiations or changes to agreements with industrial dischargers which will potentially reduce impacts during CSO events? Describe below.	☐	✔	☐
In the upcoming year, are any negotiations or changes to agreements with industrial dischargers planned which will potentially reduce impacts during CSO events? Describe below.	☐	✔	☐

DESCRIBE BELOW HOW THIS BMP IMPLEMENTATION HAS MET THE REQUIREMENTS OF THE SPDES PERMIT, AND THE OBJECTIVES OF THE EPA NINE MINIMUM CONTROLS. (Attach extra sheet if necessary)

1995 - 2021: Completed projects include Four (4) CSO Storage Tanks (118 MG); Pumping Station Expansion (Ave V and Gowanus); Bronx River Nets and Screens; Sewer Improvements (26th Ward and Jamaica); Green Infrastructure; Gowanus Canal Flushing Tunnel; Environmental Dredging (Hendrix Creek and Paerdegat Basin); English Kills In stream Aeration; Bending Weirs Installations (Bergen Basin, Thurston Basin, and Newtown Creek); Flushing Bay Environmental Dredging; Wet Weather Improvements at Wards Island, Westchester Creek Regulator Improvements; Pugsley Creek Relief Sewer; Flushing Bay Regulator Modifications; Sewer Improvements in Jamaica; Newtown Creek In stream Aeration; Fresh Creek High Level Sewer Separation; Wet Weather Stabilization at 26th Ward WRRF

All these CSO projects helped to reduce overall CSO discharges by either increasing conveyance to WRRF or by retaining flow in the collection system then sending back to WRRF for treatment.

See CSO BMP Report for details.

PERMITTEE NAME: NYC Department of Environmental Protection SPDES PERMIT NO.: NY- see below

PART III - CSO BEST MANAGEMENT PRACTICES

4. Maximize Flow to POTW *6 NYCRR 750-2.7(f), 2.8(a)(2), and 2.8(a)(5)* *(EPA NMC: Maximum Flow to POTW for Treatment)* ☐ **N/A**	**YES**	**NO**	**N/A**
In the past year, were the headworks, primary treatment works and disinfection works able to pass the flows specified in the permit for all wet weather flows?	☐	✔	☐
In the past year, was the secondary treatment works able to treat the flows specified in the permit for all wet weather flows?	☐	✔	☐
If the answer to either of the above questions was No, has a plan and schedule to accomplish this been submitted to the Department?	✔	☐	☐
In the past year have there been any physical modifications to the collection system which have allowed more flow to reach the POTW? Describe below.	✔	☐	☐
Are any physical modifications planned for the upcoming year?	✔	☐	☐
Are there areas of the collection system, including pump stations that need additional study to evaluate capacity, condition, or to determine if illegal connections (i.e. inflow) exist? List below	✔	☐	☐
In the past year, have any new problem areas been identified that restrict flow to the plant? List locations below	☐	✔	☐
In the upcoming year, are there plans to address hydraulic restrictions or bottlenecks?	☐	☐	✔
Pipe replacement	☐	☐	✔
Construction of relief sewer	✔	☐	☐
Construction of overflow tank	☐	✔	☐
Pump station improvements	☐	☐	✔
Pump replacement	☐	☐	✔
Weir adjustment	✔	☐	☐
Smoke testing, dye testing to identify illicit connections	☐	✔	☐
Other:	☐	☐	✔

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1995 - 2021: Completed projects include Four (4) CSO Storage Tanks (118 MG); Pumping Station Expansion (Ave V and Gowanus); Bronx River Nets and Screens; Sewer Improvements (26th Ward and Jamaica); Green Infrastructure; Gowanus Canal Flushing Tunnel; Environmental Dredging (Hendrix Creek and Paerdegat Basin); English Kills In stream Aeration; Bending Weirs Installations (Bergen Basin, Thurston Basin, and Newtown Creek); Flushing Bay Environmental Dredging; Wet Weather Improvements at Wards Island, Westchester Creek Regulator Improvements; Pugsley Creek Relief Sewer; Flushing Bay Regulator Modifications; Sewer Improvements in Jamaica; Newtown Creek In stream Aeration; Fresh Creek High Level Sewer Separation; Wet Weather Stabilization at 26th Ward WRRF

All these CSO projects helped to reduce overall CSO discharges by either increasing conveyance to WRRF or by retaining flow in the collection system then sending back to WRRF for treatment.

DEP also performs routine upgrades to it's pipes and pump stations but these aren't linked to any bottlenecks, just state of good repair.

See CSO BMP Report for more details.

PERMITTEE NAME: NYC Department of Environmental Protection SPDES PERMIT NO.: NY- see below

PART III - CSO BEST MANAGEMENT PRACTICES

5. Wet Weather Operating Plan (WWOP) *6 NYCRR 750-2.8(a) (EPA NMC: None)* ☐ **N/A**	**YES**	**NO**	**N/A**
Has a WWOP been developed, specifying procedures for unit operations, to maximize treatment during wet weather events while not diminishing effluent quality or destabilizing treatment upon return to dry weather operation?	☑	☐	☐
In the past year, did treatment of wet weather flows cause any effluent violations or destabilize treatment upon return to normal service?	☑	☐	☐
Has the WWOP been developed in accordance with the DEC guidance, "Wet Weather Operating Practices for POTWs with Combined Sewers"? If no, describe changes needed.	☑	☐	☐
Has the WWOP been submitted to the Regional Office and Bureau of Water Permits (Albany) for review and approval?	☑	☐	☐
If the collection system or plant has been modified or upgraded, has the WWOP been modified to reflect new flow rates or new procedures?	☑	☐	☐
If yes, has the revised plan been submitted to the Regional Office for approval?	☑	☐	☐
Does the plan identify the maximum flows through preliminary, primary, secondary treatment, tertiary, and disinfection units?	☑	☐	☐
In the upcoming year, are changes to the plan expected?	☐	☑	☐

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See CSO BMP Report for details.

PERMITTEE NAME: NYC Department of Environmental Protection SPDES PERMIT NO.: NY- see below

PART III - CSO BEST MANAGEMENT PRACTICES

6. Prohibition of Dry Weather Overflows *6 NYCRR 750-2.7 and 2.8(b)(2)* *(EPA NMC: Eliminate Dry Weather Overflows)* **N/A** ☐	**YES**	**NO**	**N/A**
In the past year, were there any dry weather overflows? If no, skip to BMP 7.	✔		
Were all dry weather overflows reported in accordance with 6 NYCRR Part 750-2.7 (incident reporting)?	✔		
If dry weather overflows occurred, indicate which procedures or equipment have been improved or replaced			
Schedule for routine inspections		✔	
Management, operation and maintenance program			✔
Modification of existing or issuance of new inter-municipal agreements			✔
FOG program		✔	
Removal of illicit connections		✔	
I/I Control program		✔	
Leaky tidegates		✔	
Adjustment and/or repair of regulators		✔	
Pumps		✔	
Auxiliary power		✔	
Elimination of hydraulic bottlenecks			✔
Adequate dry weather flow capacity at the treatment plant		✔	
Other, list below			✔
Has additional staff training been provided?			✔
Has the likelihood of future dry weather overflows been eliminated? If not, describe additional information below.		✔	

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See CSO BMP Report narrative for details.

PERMITTEE NAME: NYC Department of Environmental Protection SPDES PERMIT NO.: NY- see below

PART III - CSO BEST MANAGEMENT PRACTICES

7. Control of Floatables and Settleable Solids *6 NYCRR 750-2.8(a)(4)* *(EPA NMC: Control of Solid and Floatable Materials in CSOs)* ☐ **N/A**	**YES**	**NO**	**N/A**
In the past year, were did any outfalls discharge floating solids, oil and grease, or solids of sewage origin?	✔	☐	☐
Have BMPs been implemented to eliminate or minimize the discharge of floatables and settleable solids?	✔	☐	☐
Have any of the following measures been implemented (either existing from previous years, in the past year) or will any be implemented in the upcoming year? If significant progress has been made in implementing these, or if significant improvements have occurred, describe below.	✔	☐	☐
Floatables quantification	✔	☐	☐
Booming and skimming of open waters	✔	☐	☐
Source controls (street cleaning, public education, household hazardous waste collection, solid waste collection, recycling, and/or composting of lawn/leaf/roadkill deer)	✔	☐	☐
In-line netting	✔	☐	☐
Screens	✔	☐	☐
Catch basin hoods	✔	☐	☐
Other:	☐	☐	✔
Are any changes needed or planned for the upcoming year? Describe additional information below.	☐	✔	☐

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See CSO BMP Report narrative for details.

PERMITTEE NAME: NYC Department of Environmental Protection SPDES PERMIT NO.: NY- see below

PART III - CSO BEST MANAGEMENT PRACTICES

8. **Combined Sewer System Replacement** *6 NYCRR 750-2.10(i) (EPA NMC: None)* ☐ **N/A**	**YES**	**NO**	**N/A**
In the past year, were any combined sewers designed or constructed that were not approved by DEC?	☐	☑	☐
If yes, was the combined sewer replaced by separate sanitary and storm sewers to the greatest extent possible?	☐	☐	☑
If yes, were the separate sanitary and storm sewers designed and constructed simultaneously but without interconnections to the maximum extent practicable?	☐	☐	☑
Is the combined portion of the collection system completely identified on maps or GIS?	☑	☐	☐
Are there any plans or current projects to separate combined sewers into sanitary and storm sewers?	☑	☐	☐
Is there an approved engineering plan for this project?	☑	☐	☐
In the past year, how many areas of combined sewer were separated? acres			
In the upcoming year, how many areas of combined sewer are scheduled to be separated? acres			
Are the sewer replacement projects on schedule? If no, describe below.	☐	☐	☑
Overall, has the implementation of this BMP resulted in fewer overflow events and/or less volume discharged? Describe below.	☐	☐	☑

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There are many ongoing sewer separation projects that are ongoing throughout NYC and these are long term projects to improve drainage in certain areas and not typically done for CSO reductions with the exception of a high level storm sewer project planned in 26th Ward WRRF drainage area.

See CSO BMP Report for more details.

PERMITTEE NAME: ____________ SPDES PERMIT NO.: NY- see below

PART III - CSO BEST MANAGEMENT PRACTICES

9. **Combined Sewer Extension** *6 NYCRR 750-2.10(i) (EPA NMC: None)* ☐ **N/A**	**YES**	**NO**	**N/A**
In the past year, were any combined sewers extended not using separate sewers?	✔	☐	☐
Were sanitary and storm sewers extensions designed and constructed simultaneously but without interconnections?	☐	✔	☐
Were any new sources of stormwater added to a separate sewer anywhere in the collection system?	☐	✔	☐
If separate sewers were extended from combined sewers, was it demonstrated that the sewerage system had the ability to convey, and the treatment plant had the ability to adequately treat, the increased dry-weather flows?	✔	☐	☐
If determined necessary by the Regional Water Engineer, was an assessment made of the effects of the increased flow of sanitary sewage or industrial waste on the strength of CSOs and their frequency of occurrence, including the impacts upon best usage of the receiving water?	☐	☐	✔
Has a recent combined sewer extension resulted in increased discharge from a CSO?	☐	✔	☐
Has a recent combined sewer extension resulted in increased flow to the POTW? Describe any CSO impacts below.	☐	✔	☐
Is any development planned upstream of a combined sewer?	✔	☐	☐
If yes, has a sewer extension plan been submitted for review and approval?	☐	☐	✔
If the approval contained a flow credit requiring removal of I/I, what was the requirement or ratio?	☐	☐	✔
Does the plan include any flow retention structures?	☐	☐	✔

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PERMITTEE NAME: NYC Department of Environmental Protection SPDES PERMIT NO.: NY- see below

PART III - CSO BEST MANAGEMENT PRACTICES

10. **Connection Prohibitions** *6 NYCRR750-2.9(a)(5) (EPA NMC: None)* ☐ **N/A**	**YES**	**NO**	**N/A**
In the past year, were any sewer connections approved, in spite of a notice from DEC to prohibit further connections due to documented, recurrent instances of sewage backing up into house(s) or discharges of raw sewage onto the ground surface from surcharging manholes?	☐	☐	☑
Are new connections prohibited by the DEC? If no, skip to BMP 11.	☐	☑	☐
Is this due to basement backups?	☐	☐	☑
Is this due to surcharging manholes?	☐	☐	☑
In the upcoming year, is any work planned to either increase capacity or reduce hydraulic loading? Describe below.	☐	☐	☑

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PERMITTEE NAME: NYC Department of Environmental Protection SPDES PERMIT NO.: NY- see below

PART III - CSO BEST MANAGEMENT PRACTICES

11. **Septage and Hauled Waste** *6 NYCRR750-2.7(f) and 2.8(a)(1) (EPA NMC: None)* ☐ **N/A**	**YES**	**NO**	**N/A**
In the past year, has there been any discharge or release of septage or hauled waste into the collection system upstream of a CSO?	☐	☑	☐
Does the facility have authorization from DEC to accept hauled waste or septage at a location other than the POTW? Describe below.	☐	☑	☐
Are any of these locations upstream of a CSO?	☐	☐	☑
Are there any agreements with haulers to accept waste at a location other than at the POTW?	☐	☐	☑
In the past year, was any hauled waste or septage accepted at a location other than at the POTW?	☐	☐	☑
What was the total volume received at locations other than the POTW?	☐	☐	☑
Is there a dedicated location to discharge septage at the POTW?	☑	☐	☐
Are there restrictions on when the plant accepts hauled waste or septage?	☑	☐	☐
Have there been any changes to the POTW's policy on septage and hauled waste in the past year? Are any changes needed or planned in the upcoming year?	☐	☑	☐

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PERMITTEE NAME: NYC Department of Environmental Protection SPDES PERMIT NO.: NY- see below

PART III - CSO BEST MANAGEMENT PRACTICES

12. **Control of Run-off** *6 NYCRR750- 2.1(e) (EPA NMC: None)* ☐ **N/A**	**YES**	**NO**	**N/A**
Is sediment in runoff from construction zones entering catch basins in the combined sewer system?	☐	☐	☑
Is there adequate communication between the local municipal department that enforces local stormwater codes and ordinances and the collection system staff regarding stormwater runoff?	☐	☐	☑
Do the municipalities within the combined sewer system have adequate storm water pollution prevention programs to reduce pollutants in stormwater?	☐	☐	☑
Annual household hazardous waste collection	☑	☐	☐
Autumn leaf collection	☑	☐	☐
Lawn clippings	☑	☐	☐
Christmas tree pickup	☑	☐	☐
Roadkill deer composting	☐	☐	☑
Fertilizer and pesticide management	☐	☐	☑
Enforcement of litter laws	☑	☐	☐
Public education programs on composting	☑	☐	☐
Are any changes needed in the implementation of this BMP to reduce the number of CSO events, the volume discharged, or pollutants in the discharge? If yes, describe below.	☐	☑	☐

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PERMITTEE NAME: NYC Department of Environmental Protection SPDES PERMIT NO.: NY- see below

PART III - CSO BEST MANAGEMENT PRACTICES

13. **Public Notification** *6 NYCRR 750-1.12 (EPA NMC: Public Notification)* ☐ **N/A**	**YES**	**NO**	**N/A**
Have identification signs been installed and maintained at all CSO outfalls owned and operated by the permittee?	✔	☐	☐
Are all signs placed at or near the outfall?	✔	☐	☐
Are the signs easily readable by the public?	✔	☐	☐
Are the signs a minimum size of 18" by 24"?	✔	☐	☐
Do the signs have white letters on a green background?	✔	☐	☐
Do all the signs contain the following information:	☐	☐	☐
SPDES permit number	✔	☐	☐
Outfall number	✔	☐	☐
Permittee name, contact name and phone number at business office or NYSDEC Division of Water regional contact address and phone number	✔	☐	☐
For waters that are Class B or higher, is a public notification program implemented to inform citizens of the location and occurrence of CSO events?	✔	☐	☐
Does this program include a mechanism (public media broadcast, standing beach advisories, newspaper notice, etc) to alert potential users of the receiving waters affected by CSOs?	✔	☐	☐
Does this program include a system to determine the nature and duration of conditions that are potentially harmful to users of these receiving waters due to CSOs?	✔	☐	☐
Were there any problems in the past year with missing or damaged signs? Describe below.	✔	☐	☐
Is there a written public notification plan?	✔	☐	☐
Does the plan list all methods used to notify the public of CSO events?	✔	☐	☐
Does the plan list outfalls where signs are posted?	✔	☐	☐

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See CSO BMP Report for details.

PERMITTEE NAME: NYC Department of Environmental Protection SPDES PERMIT NO.: NY- see below

PART III - CSO BEST MANAGEMENT PRACTICES

14. **Characterization and Monitoring** (*6 NYCRR 750-1.11(a), 2.5(a) and 2.7(g)) (EPA NMC: Monitoring)*	YES	NO	N/A
If required in the permit, has the combined sewer system been characterized to determine the frequency of overflows, and identify CSO impacts?	☐	☐	☑
Was a baseline sampling program established as part of the LTCP development?	☑	☐	☐
Are all outfalls monitored during discharge events for:	☐	☐	☐
Flow Volume:	☐	☑	☐
Frequency:	☐	☑	☐
Duration:	☐	☑	☐
If all outfalls are not monitored, explain how sufficient data is obtained to document the success of the BMPs.	☐	☐	☑
List locations of rain gauges or the source of data, below.	☐	☐	☑
Has a Post Construction Modeling and Monitoring plan been submitted to the Department for review and approval?	☑	☐	☐
Has the Department approved the Post Construction Modeling and Monitoring plan?	☑	☐	☐
Has post construction monitoring and modeling of the receiving water begun? Attach results if this has not already been provided.	☑	☐	☐

DESCRIBE BELOW HOW THIS BMP IMPLEMENTATION HAS MET THE REQUIREMENTS OF THE SPDES PERMIT, AND THE OBJECTIVES OF THE EPA NINE MINIMUM CONTROLS. (Attach extra sheet if necessary)

DEP has too many regulator structures with very complex geometry and that are tidally influenced that make it not viable to monitor all CSO outfalls. However, DEP does have a SCADA system that helps provide some information pertaining to water levels in the regulator structures that provide some indication on whether on not a CSO is occurring but its not a direct flow measurement and is influenced by other factors such as tidal elevations. DEP has also conducted some very comprehensive and intense interim flow monitoring using specialized vendors at a number of representative locations to calibrate and validate the InfoWork models. These calibrated InfoWork models are then used to estimate this CSO annual volume and frequency for all the CSO outfalls.

PERMITTEE NAME: NYC Department of Environmental Protection SPDES PERMIT NO.: NY- see below

PART III - CSO BEST MANAGEMENT PRACTICES

15. **Annual report** *6 NYCRR 750-2.1(i)* ☐ **N/A** *(EPA NMC: None; Required in LTCP permit)*	YES	NO	N/A
Is this report being used to satisfy BMP 15, Annual report, and the BMP checklist?	☑	☐	☐
Is existing documentation of implementation of the BMPs included?	☑	☐	☐
Is this annual report submitted by January 31 to the Regional Office and the Bureau of Water Permits (Albany)?	☐	☐	☑
Attach any additional information necessary to document the implementation of BMPs in the past year or list plans for the upcoming year.	☑	☐	☐
Overall, was implementation of the BMPs effective in controlling and minimizing CSO discharges?	☑	☐	☐
If no, list any improvements needed that have not been described elsewhere	☐	☐	☑

See CSO BMP Report for details.

PERMITTEE NAME: NYC Department of Environmental Protection SPDES PERMIT NO.: NY- see below

PART III - CSO BEST MANAGEMENT PRACTICES

ADDITIONAL INFORMATION:

DESCRIBE BELOW IN DETAIL OTHER "MEASURE OF SUCCESS" ABOVE AND BEYOND THE REQUIREMENTS OF THE SPDES PERMIT. DESCRIBE HOW ADDITIONAL PROJECT(S) HAS HELPED TO MEET THE OBJECTIVES OF THE EPA NINE MINIMUM CONTROLS POLICY. (Attach extra sheet if necessary)

PART III - CSO BEST MANAGEMENT PRACTICES

SECTION D: For Multiple Permittees Only

Permittee Name	SPDES Permit Name	SPDES Permit No

SECTION E: GLOSSARY/ACCRONYMS

For the purposes of this annual report, the following terms and acronyms are described below:

Baseline: Conditions before the development and/or implementation of CSO BMPs and/or LTCP.

Best Management Practice (BMP): Permit condition used in place of or in conjunction with effluent limitations to prevent or control the discharge of pollutants. May include schedule of activities, prohibition of practices, maintenance procedure, or other management practice. BMPs may include, but are not limited to, treatment requirements, operating procedures, or practices to control plant site runoff, spillage, leaks, sludge or waste disposal, or drainage from raw material storage.

Bypass: A discharge of wastewater, stormwater, or combination of both, around a treatment unit designed for the removal of pollutants.

Catch Basin: A chamber usually built at the curbline of a street, which admits surface water for discharge into a storm drain

Collection System: A wastewater collection system which conveys sanitary wastewaters (domestic, commercial and industrial wastewaters) and stormwater through a single pipe to a publicly owned treatment works for treatment prior to discharge to surface waters.

Combined Sewer: A sewer designed to carry wastewater and stormwater runoff.

Combined Sewer Overflows (CSO): A discharge of untreated wastewater from a combined sewer system at a point prior to the headworks of a publicly owned treatment works. CSOs generally occur during wet weather (rainfall or snowmelt). During periods of wet weather, these systems become overloaded, bypass treatment works, and discharge directly to receiving waters.

Combined Sewer System (CSS): A wastewater collection system that conveys sanitary wastewaters and storm water through a single pipe to a publicly owned treatment works for treatment prior to discharge to surface waters.

Demonstrative Regulatory Approach: Control approach where a permittee develops and implement an LTCP that meets the state water quality standards. A permittee could develop an LTCP that would provide for attainment of water quality standards, or it could use a total maximum daily load (TMDL) to *demonstrate* that water quality standards can be attained through a combination of CSO controls and other controls.

EPA: Environmental Protection Agency

EQ Tank: Equalization Tank often used to smooth hydraulic peaks to a POTW or WWTP.

Fats Oil & Grease (FOG)

Geographic Information System (GIS) is a computer-based tool for mapping and analyzing features in the environment. GIS support a wide range of activities including water quality modeling, watershed planning, and wetlands permitting and mitigation.

GI: Green” Infrastructure

Infiltration/Inflow (I/I): Rainwater, snowmelt, or groundwater flowing into separate sanitary or combined sewers, typically introduced via connected roof downspouts and/or building footing drains or infiltrating into the pipe through cracks in the pipe walls or joints.

This Period: Period covering the last 12 months from January to December

Last Period: Activities covering the 12 calendar months prior to the end of the current period

PART III - CSO BEST MANAGEMENT PRACTICES

Long Term Control Plan (LTCP): An engineering document that characterizes and assesses CSO discharge to a receiving waterbody. The goal of the Plan is to comply with the water quality standards of the receiving waterbody.

Million Gallons per Day (MGD) is a unit of flow commonly used for wastewater discharges. One mgd is equivalent to 1.547 cubic feet per second.

Multiple Permittees here is described as when a group of permittees (e.g. Albany Pool) is responsible to develop a single LTCP or when a single LTCP is required for multiple SPDES permit under a single permittee (e.g. NYC).

Nine Minimum Controls (NMC) provide information on nine minimum technology-based controls that permittees are expected to use to address CSO problems, without extensive engineering studies or significant construction costs, before long-term measures are taken.

NYSDEC: New State Department of Environmental Conservation (interchangeably uses as DEC)

Publicly Owned Treatment Works (POTW): Also commonly referred to as "treatment facility, WWTP (Wastewater Treatment Plant)

SPDES Permit: State Pollutant Discharge Elimination System Permit. A permit issued by DEC, authorized under the federal Clean Water Act, to discharge treated wastewater to waters of the United States.

Overflow Events: An event starts once an overflow starts from an outfall, and ends once the overflow stops and the pumpback to treatment facility have ended.

Presumptive Approach: The presumption approach is based on the assumption that an LTCP that meets certain minimum defined performance criteria. The "presumption approach," under which achievement of certain performance criteria (i.e., 4-6 untreated overflow events or 85 percent by volume capture) would be presumed to provide an adequate level of control to attain water quality standards

Raw Sewage: Untreated sanitary sewage.

Sanitary Sewer Overflow (SSO) is an untreated or partially treated sewage discharge from the sanitary sewer collection system.

Separate Sewer (SS): A pipe or conduit intended to convey only sanitary sewage to a wastewater treatment facility.

SPDES: State Pollutant Discharge Elimination System

Sewer System: A public or privately owned wastewater collection facility designed and used to convey or treat sanitary sewage or sanitary sewage and storm water. Sewer system does not include an on-site wastewater treatment system serving one residential unit or duplex.

Supervisory Control and Data Acquisition (SCADA) is a complex computer system that provides automatic control of stormwater storage and overflows at various locations within the sewer system.

Volume Discharged: Total discharge volume for the event (in millions of gallons) from each CSO outfall within this reporting period.

Volume Captured: Total discharge volume for the event (in millions of gallons) that were either captured via an offline treatment facility before discharge or diverted to the WWTP for treatment.

WWOP: Wet Weather Operating Plan

Water Quality Standards (WQS) are regulations that establish the uses for which surface waters of the state are protected and include numeric and narrative criteria to protect those uses.

Appendix 10.2: Table - Upcoming CSO milestones

* See Appendix 10.1

Appendix 10.3: TABLE - REPORTS TO BE SUBMITTED:

* See appendix 10.1

Appendix 10.4: CSO DISCHARGES FOR CY2021 CHECKLIST

			Pre-WWFP			CY2020 - QPE			CY2021 - QPE		
WWTPs	**Waterbody**	**CSO Outfalls**	**CSO Events (Count)**	**Annual CSO Volume (MGY)**	**Total Annual Flow Treated at WWTP (MGY)**	**CSO Events (Count)**	**Annual CSO Volume (MGY)**	**Total Annual Flow Treated at WWTP (MGY)**	**CSO Events (Count)**	**Annual CSO Volume (MGY)**	**Total Annual Flow Treated at WWTP (MGY)**
26th Ward		**ALL**	**23**	**628**		**19**	**330**	**19,931**	**15**	**798**	**21,066**
26th Ward	HC	26-003	47	494		18	153		14	326	
26th Ward	HC	26-004	16	36		39	137		26	104	21,066
26th Ward	HC	26-005	5	98		1	40		5	368	
Bowery Bay		**ALL**	**33**	**6,083**		**38**	**2,781**	**38,367**	**37**	**3,625**	**37,103**
Bowery Bay	OW	BB-002	NA	988		84	139		68	145	
Bowery Bay	OW	BB-003	NA	54		51	23		42	41	
Bowery Bay	OW	BB-005	NA	1,520		58	263		69	416	
Bowery Bay	FB	BB-006L	NA	1,434		26	138		23	274	
Bowery Bay	FB	BB-006U	NA			69	580		60	694	
Bowery Bay	FB	BB-007	NA	3		78	137		63	136	
Bowery Bay	FB	BB-008	NA	534		71	883		60	978	
Bowery Bay	NC	BB-004	NA	0		0	0		1	1	
Bowery Bay	NC	BB-041	NA	126		85	65		68	83	
Bowery Bay	NC	BB-009	35	35		41	24		37	58	
Bowery Bay	NC	BB-010	16	2		6	0		6	1	
Bowery Bay	NC	BB-011	24	3		16	1		20	2	
Bowery Bay	NC	BB-012	NA	0		0	0		1	0	
Bowery Bay	NC	BB-013	44	39		45	14		45	16	
Bowery Bay	NC	BB-014	35	3		35	1		36	3	
Bowery Bay	NC	BB-015	39	3		42	1		38	1	
Bowery Bay	OW	BB-016	NA	2		36	1		33	2	
Bowery Bay	OW	BB-017	NA	2		26	1		28	2	
Bowery Bay	OW	BB-018	NA	2		18	0		23	1	
Bowery Bay	OW	BB-021	NA	31		42	13		39	21	
Bowery Bay	OW	BB-022	NA	2		28	0		32	2	
Bowery Bay	OW	BB-023	NA	27		39	9		40	18	
Bowery Bay	OW	BB-024	NA	97		40	19	38,367	39	36	37,103
Bowery Bay	OW	BB-025	NA	18		35	5		37	10	
Bowery Bay	NC	BB-026	47	187		44	91		41	116	
Bowery Bay	OW	BB-027	NA	8		37	3		34	6	
Bowery Bay	OW	BB-028	NA	456		43	114		40	178	
Bowery Bay	OW	BB-029	NA	180		38	47		36	96	
Bowery Bay	OW	BB-030	NA	19		72	19		63	26	
Bowery Bay	OW	BB-031	NA	22		46	3		43	4	
Bowery Bay	OW	BB-032	NA	3		15	1		18	2	
Bowery Bay	OW	BB-033	NA	9		32	3		35	6	
Bowery Bay	OW	BB-034	NA	223		92	160		71	211	
Bowery Bay	OW	BB-035	NA	4		42	3		40	4	
Bowery Bay	OW	BB-036	NA	10		36	5		39	9	
Bowery Bay	OW	BB-037	NA	1		6	0		5	1	
Bowery Bay	OW	BB-038	NA	10		0	0				
Bowery Bay	NC	BB-040	21	1		22	1		28	2	
Bowery Bay	NC	BB-042	29	2		37	1		36	3	
Bowery Bay	OW	BB-043	40	14		43	7		40	10	
Bowery Bay	OW	BB-045	NA	0		0	0		1	0	
Bowery Bay	OW	BB-046	NA	8		39	4		36	7	
Bowery Bay	OW	BB-047	NA	2		21	1		24	2	

Bowery Bay	NC	BB-049	NA								
Bowery Bay	NC	BB-053	NA								
Coney Island		**ALL**	**61**	**2,749**		**5**	**347**	**35,305**	**10**	**2,074**	**32,261**
Coney Island	PB	CI-004	61	1,210							
Coney Island	PB	CI-005	61	973							
Coney Island	PB	CI-006	NA	566				35,305			32,261
Coney Island	PB	Tank	NA			7	168		11	893	
Coney Island	PB	Tank Bypass	NA			2	10		7	289	
Coney Island	PB	Tank Overflow	NA			7	168		11	893	
Hunts Point		**ALL**	**29**	**4,199**		**34**	**2,284**	**39,250**	**26**	**3,342**	**38,410**
Hunts Point	OW	HP-002	NA	119		56	26		39	88	
Hunts Point	OW	HP-003	NA	359		43	108		31	198	
Hunts Point	BR	HP-004	56	100		23	10		18	62	
Hunts Point	HR	HP-005	NA	0		1	0		3	0	
Hunts Point	NR	HP-006	NA	0		0	0		1	0	
Hunts Point	BR	HP-007	21	88		12	15		9	111	
Hunts Point	BR	HP-008	17	4		3	0		4	11	
Hunts Point	BR	HP-009	51	814		82	664		36	367	
Hunts Point	BR	HP-010	1	1		0	0		2	9	
Hunts Point	OW	HP-011	NA	828		63	237		52	305	
Hunts Point	WC	HP-012	NA	27		9	13		7	80	
Hunts Point	WC	HP-013	54	144		21	98		21	232	
Hunts Point	WC	HP-014	NA	516		52	331		40	573	
Hunts Point	WC	HP-015	NA	0		1	0		3	10	
Hunts Point	WC	HP-016	24	72		42	42		32	90	
Hunts Point	OW	HP-017	NA	35		50	41		35	61	
Hunts Point	OW	HP-018	NA	2		34	2		28	6	
Hunts Point	OW	HP-019	NA	18		50	10		36	22	
Hunts Point	OW	HP-020	NA	0		17	0	39,250	14	2	38,410
Hunts Point	OW	HP-021	NA	298		61	254		47	268	
Hunts Point	OW	HP-022	NA	31		40	25		33	43	
Hunts Point	HR	HP-023	NA	115		57	132		43	179	
Hunts Point	HR	HP-024	NA	254		50	129		36	273	
Hunts Point	OW	HP-025	NA	130		79	88		66	143	
Hunts Point	OW	HP-026	NA	79		31	36		24	116	
Hunts Point	OW	HP-027	NA	0							
Hunts Point	OW	HP-028	NA	0							
Hunts Point	OW	HP-029	NA	4		34	8		24	14	
Hunts Point	OW	HP-030	NA	0							
Hunts Point	HR	HP-031	NA	83		46	13		33	27	
Hunts Point	OW	HP-032	NA	0							
Hunts Point	WC	HP-033	5	78		2	3		6	52	
Hunts Point	WC	HP-034	NA	0							
Hunts Point	OW	HP-036	NA	0							
Hunts Point	OW	HP-037	NA	0							
Hunts Point	OW	HP-038	NA	0							
Hunts Point	OW	HP-039	NA								
Jamaica		**ALL**	**55**	**1,557**		**41**	**753**	**29,134**	**42**	**1,089**	**29,003**
Jamaica	BB	JA-003	47	319		59	424		49	524	
Jamaica	BB	JA-003A	57	300		33	103		28	159	
Jamaica	TB	JA-005	55	908		28	128	29,134	37	270	29,003
Jamaica	TB	JA-007				73	97		64	133	
Jamaica	TB	JA-006	61	30		14	1		32	3	
Newtown Creek		**ALL**	**49**	**2,974**		**13**	**2,098**	**77,106**	**12**	**3,765**	**77,208**
Newtown Creek	NC	NC-002	NA								

Newtown Creek	OW	NC-003	NA	1	5	0		6	1	
Newtown Creek	OW	NC-004	NA	18	39	12		32	22	
Newtown Creek	OW	NC-005	NA	79	36	27		31	47	
Newtown Creek	OW	NC-006	NA	104	13	53		10	135	
Newtown Creek	OW	NC-007	NA	9	29	6		24	11	
Newtown Creek	OW	NC-008	NA	27	31	15		26	31	
Newtown Creek	OW	NC-009	NA	0						
Newtown Creek	OW	NC-010	NA	0	0	0		2	0	
Newtown Creek	OW	NC-011	NA	0	0	0		1	0	
Newtown Creek	OW	NC-012	NA	27	20	23		16	61	
Newtown Creek	OW	NC-013	NA	42	27	41		24	111	
Newtown Creek	OW	NC-014	NA	337	37	512		28	850	
Newtown Creek	NC	NC-015	33	308	31	182		26	340	
Newtown Creek	OW	NC-016	NA	4	6	1		6	5	
Newtown Creek	OW	NC-017	NA	0	3	0		4	3	
Newtown Creek	OW	NC-018	NA	14	36	8		29	11	
Newtown Creek	NC	NC-019	NA	0	15	2		13	5	
Newtown Creek	OW	NC-020	NA	4	5	2		13	10	
Newtown Creek	NC	NC-021	NA	0	0	0		1	0	
Newtown Creek	NC	NC-022	42	8	25	5		22	10	
Newtown Creek	NC	NC-023	NA	0	3	0		4	1	
Newtown Creek	OW	NC-024	NA	0	0	0		2	0	
Newtown Creek	OW	NC-025	NA	1	5	0		6	1	
Newtown Creek	OW	NC-026	NA	0	3	0		4	1	
Newtown Creek	OW	NC-027	NA	24	29	9		28	28	
Newtown Creek	OW	NC-028	NA	0				0	0	
Newtown Creek	NC	NC-029	48	18	50	16		40	25	
Newtown Creek	OW	NC-030	NA	0	2	0		5	0	
Newtown Creek	OW	NC-031	NA	1	10	1		13	4	
Newtown Creek	OW	NC-032	NA	6	5	3		5	12	
Newtown Creek	OW	NC-033	NA	1	3	0		4	1	
Newtown Creek	OW	NC-034	NA	0	2	1		3	3	
Newtown Creek	OW	NC-035	NA	5	10	1		9	4	
Newtown Creek	OW	NC-036	NA	81	12	31		10	112	
Newtown Creek	OW	NC-037	NA	0	2	1		2	9	
Newtown Creek	OW	NC-038	NA	9	12	4		9	13	
Newtown Creek	OW	NC-039	NA	5	4	1		3	2	
Newtown Creek	OW	NC-040	NA	1	0	0		2	0	
Newtown Creek	OW	NC-041	NA	45	12	12		9	36	
Newtown Creek	OW	NC-042	NA	0	2	0		4	2	
Newtown Creek	OW	NC-043	NA	4	10	2	77,106	9	6	77,208
Newtown Creek	OW	NC-044	NA	1	1	0		3	0	
Newtown Creek	OW	NC-045	NA	34	13	10		9	31	
Newtown Creek	OW	NC-046	NA	13	19	6		15	16	
Newtown Creek	OW	NC-047	NA	1	0	0		1	1	
Newtown Creek	OW	NC-048	NA	24	10	4		9	9	
Newtown Creek	OW	NC-049	NA	26	10	10		10	29	
Newtown Creek	OW	NC-050	NA	53	17	17		10	41	
Newtown Creek	OW	NC-051	NA	0	3	0		2	2	
Newtown Creek	OW	NC-052	NA	41	17	21		12	34	
Newtown Creek	OW	NC-053	NA	3	3	4		7	17	
Newtown Creek	OW	NC-054	NA	3	7	1		3	8	
Newtown Creek	OW	NC-055	NA	2	10	1		6	2	
Newtown Creek	OW	NC-056	NA	72	24	18		18	28	
Newtown Creek	OW	NC-057	NA	11	9	3		8	9	

Newtown Creek	OW	NC-058	NA	37		17	10		12	22	
Newtown Creek	OW	NC-059	NA	44		15	6		12	12	
Newtown Creek	OW	NC-060	NA	4		2	0		3	1	
Newtown Creek	OW	NC-061	NA	2		11	1		11	4	
Newtown Creek	OW	NC-062	NA	17		35	8		29	13	
Newtown Creek	OW	NC-063	NA	45		6	6		8	24	
Newtown Creek	OW	NC-064	NA	9		9	4		9	12	
Newtown Creek	OW	NC-065	NA	0		1	0		3	1	
Newtown Creek	OW	NC-066	NA	38		7	2		6	9	
Newtown Creek	OW	NC-067	NA	6		4	2		5	10	
Newtown Creek	OW	NC-068	NA	0		1	0		2	1	
Newtown Creek	OW	NC-069	NA	8		5	4		5	15	
Newtown Creek	OW	NC-070	NA	1		16	2		10	6	
Newtown Creek	OW	NC-071	NA	10		12	3		11	10	
Newtown Creek	OW	NC-072	NA	9		8	4		9	12	
Newtown Creek	OW	NC-073	NA	29		15	13		11	34	
Newtown Creek	OW	NC-074	NA	13		9	5		9	14	
Newtown Creek	OW	NC-075	NA	81		18	38		12	89	
Newtown Creek	OW	NC-076	NA	292		43	133		34	217	
Newtown Creek	NC	NC-077	49	262		67	444		50	558	
Newtown Creek	OW	NC-078	NA	11		1	1		2	5	
Newtown Creek	OW	NC-079	NA	1		12	1		11	2	
Newtown Creek	OW	NC-080	NA	2		6	0		9	1	
Newtown Creek	OW	NC-081	NA	2		8	0		12	1	
Newtown Creek	OW	NC-082	NA	0		4	0		6	2	
Newtown Creek	NC	NC-083	71	586		56	342		46	540	
Newtown Creek	OW	NC-087	NA	1		2	1		6	7	
North River		**ALL**		**806**		**8**	**235**	**35,986**	**9**	**868**	**38,363**
North River	OW	NR-002	NA	54		43	20		37	37	
North River	OW	NR-003	NA	9		5	3		9	13	
North River	OW	NR-004	NA	7		6	4		7	15	
North River	OW	NR-005	NA	0		0	0		1	0	
North River	OW	NR-006	NA	76		20	18		14	64	
North River	OW	NR-007	NA	2		4	0		6	2	
North River	OW	NR-008	NA	27		36	13		28	23	
North River	OW	NR-009	NA	3		17	1		15	2	
North River	OW	NR-010	NA	14		10	4		11	15	
North River	OW	NR-011	NA	3		2	1		6	4	
North River	OW	NR-012	NA	2		2	0		6	2	
North River	OW	NR-013	NA	1		1	0		6	1	
North River	OW	NR-014	NA	3		5	1		6	3	
North River	OW	NR-016	NA	3		3	0		6	2	
North River	OW	NR-017	NA	67		20	15		13	37	
North River	OW	NR-018	NA	0		2	0		2	0	
North River	OW	NR-019	NA	5		11	2		12	5	
North River	OW	NR-020	NA	18		18	6		16	17	
North River	OW	NR-021	NA	6		9	2		11	6	
North River	OW	NR-022	NA	16		8	3		8	13	
North River	OW	NR-023	NA	41		7	10		8	45	
North River	OW	NR-024	NA	18		8	4		11	17	
North River	OW	NR-025	NA	19		6	4		8	17	
North River	OW	NR-026	NA	26		19	8		16	24	
North River	OW	NR-027	NA	72		10	25		10	121	
North River	OW	NR-028	NA	13		3	2	35,986	7	7	38,363
North River	OW	NR-029	NA	7		6	2		7	8	

North River	OW	NR-030	NA	3		3	1		7	3	
North River	OW	NR-031	NA	4		4	1		8	5	
North River	OW	NR-032	NA	2		1	1		6	3	
North River	OW	NR-033	NA	24		5	14		10	62	
North River	OW	NR-034	NA	8		12	2		12	9	
North River	OW	NR-035	NA	10		14	3		13	11	
North River	OW	NR-036	NA	20		10	5		10	19	
North River	OW	NR-037	NA	1		2	1		3	9	
North River	OW	NR-038	NA	6		5	5		6	20	
North River	OW	NR-039	NA	0		0	0		1	0	
North River	OW	NR-040	NA	33		4	9		10	45	
North River	OW	NR-041	NA	3		5	1		6	4	
North River	OW	NR-042	NA	4		7	1		7	5	
North River	OW	NR-043	NA	132		15	27		14	108	
North River	OW	NR-044	NA	2		6	1		7	2	
North River	OW	NR-045	NA	17		8	5		11	20	
North River	OW	NR-046	NA	8		7	5		9	17	
North River	OW	NR-047	NA	0		1	0		3	0	
North River	OW	NR-048	NA	4		8	1		10	6	
North River	OW	NR-049	NA	14		17	4		13	16	
North River	OW	NR-050	NA	0		1	0		4	0	
North River	OW	NR-051	NA	0							
North River	OW	NR-052	NA	2		2	0		4	2	
North River	OW	NR-055	NA	1		4	0		6	1	
North River	OW	NR-056	NA	0							
Owls Head	**OW**	**ALL**	**30**	**2,791**		**38**	**2,142**	**34,055**	**36**	**3,506**	**34,590**
Owls Head	OW	OH-002	NA	413		38	295		36	517	
Owls Head	OW	OH-003	NA	397		94	302		94	384	
Owls Head	OW	OH-004	NA	1		8	2		11	16	
Owls Head	GC	OH-005	5	1		2	0		3	7	
Owls Head	GC	OH-006	33	13		36	14		35	33	
Owls Head	GC	OH-007	47	69		56	55		50	104	
Owls Head	OW	OH-015	NA	1,140		79	962		70	1,492	
Owls Head	OW	OH-017	NA	235		41	345		37	579	
Owls Head	OW	OH-018	NA	163		43	78	34,055	37	162	34,590
Owls Head	OW	OH-019	NA	42		34	21		36	36	
Owls Head	OW	OH-020	NA	1		25	1		28	3	
Owls Head	OW	OH-021	NA	292		20	43		17	127	
Owls Head	GC	OH-022	NA	0							
Owls Head	OW	OH-023	NA	1		9	1		11	3	
Owls Head	GC	OH-024	35	23		40	21		35	43	
Owls Head	GC	OH-025	NA								
Owls Head	GC	OH-026	NA								
Port Richmond	**OW**	**ALL**		**550**		**20**	**542**	**9,831**	**21**	**1,164**	**11,120**
Port Richmond	OW	PR-002	NA	0		0	0		1	0	
Port Richmond	OW	PR-003	NA	0		0	0		1	0	
Port Richmond	OW	PR-004	NA	0		0	0		1	1	
Port Richmond	OW	PR-005	NA	0		1	0		6	3	
Port Richmond	OW	PR-006	NA	6		24	4		22	17	
Port Richmond	OW	PR-007	NA	0		0	0		0	0	
Port Richmond	OW	PR-008	NA	0		0	0		0	0	
Port Richmond	OW	PR-009	NA	0		0	0		1	2	
Port Richmond	OW	PR-010	NA	0		5	1		13	5	
Port Richmond	OW	PR-011	NA	0		3	0		6	2	
Port Richmond	OW	PR-013	NA	28		38	38		38	96	

Port Richmond	OW	PR-014	NA	23		53	32		51	63	
Port Richmond	OW	PR-015	NA	1		15	1		21	6	
Port Richmond	OW	PR-016	NA	0		31	1		34	3	
Port Richmond	OW	PR-017	NA	12		48	12		48	24	
Port Richmond	OW	PR-018	NA	3		48	3		48	5	
Port Richmond	OW	PR-019	NA	26		52	59		51	106	
Port Richmond	OW	PR-020	NA	2		52	23	9,831	51	29	11,120
Port Richmond	OW	PR-021	NA	0		46	6		42	9	
Port Richmond	OW	PR-023	NA	0		35	36		36	86	
Port Richmond	OW	PR-023A	NA	76							
Port Richmond	OW	PR-023B	NA								
Port Richmond	OW	PR-024	NA	0		0	0		2	0	
Port Richmond	OW	PR-025	NA	0		0	0		0	0	
Port Richmond	OW	PR-026	NA	1		4	1		8	7	
Port Richmond	OW	PR-027	NA	1		5	1		11	5	
Port Richmond	OW	PR-028	NA	10		34	12		36	32	
Port Richmond	OW	PR-029	NA	217		50	146		47	314	
Port Richmond	OW	PR-030	NA	0		52	8		51	10	
Port Richmond	OW	PR-031	NA	139		52	156		52	327	
Port Richmond	OW	PR-032	NA	0		23	1		26	4	
Port Richmond	OW	PR-033	NA	0		0	0		1	0	
Port Richmond	OW	PR-034	NA	0		0	0		1	0	
Port Richmond	OW	PR-035	NA	0		0	0		0	0	
Port Richmond	OW	PR-036	NA	0		0	0		0	0	
Port Richmond	OW	PR-037	NA	4		20	2		20	10	
Red Hook	**OW**	**ALL**		**670**		**15**	**353**	**10,604**	**16**	**909**	**10,957**
Red Hook	OW	RH-002	NA	0		0	0		0	0	
Red Hook	OW	RH-003	NA	0		4	0		10	2	
Red Hook	OW	RH-005	NA	153		21	88		22	256	
Red Hook	OW	RH-006	NA	8		26	5		25	14	
Red Hook	OW	RH-007	NA	1		13	1		12	2	
Red Hook	OW	RH-008	NA	2		16	2		14	6	
Red Hook	OW	RH-009	NA	2		16	2		16	5	
Red Hook	OW	RH-010	NA	0		1	0		3	1	
Red Hook	OW	RH-011	NA	3		15	2		14	9	
Red Hook	OW	RH-012	NA	8		15	5		14	22	
Red Hook	OW	RH-013	NA	0		3	0		7	1	
Red Hook	OW	RH-014	NA	20		46	24		47	44	
Red Hook	OW	RH-016	NA	18		17	20		20	58	
Red Hook	OW	RH-018	NA	4		16	5		16	16	
Red Hook	OW	RH-019	NA	13		20	8		20	19	
Red Hook	OW	RH-020	NA	0		12	1		10	2	
Red Hook	OW	RH-021	NA	0		20	6	10,604	20	11	10,957
Red Hook	OW	RH-022	NA	2		17	3		13	5	
Red Hook	OW	RH-023	NA	2		17	3		17	5	
Red Hook	OW	RH-024	NA	2		16	3		15	5	
Red Hook	OW	RH-025	NA	5		16	4		14	7	
Red Hook	OW	RH-028	NA	97		13	12		12	49	
Red Hook	OW	RH-029	NA	2		17	2		16	5	
Red Hook	GC	RH-030	NA	18		16	12		15	31	
Red Hook	GC	RH-030 A	NA								
Red Hook	GC	RH-031	NA	35		16	12		15	37	
Red Hook	GC	RH-033	NA	0		5	0		8	1	
Red Hook	GC	RH-034	NA	121		40	113		42	237	
Red Hook	GC	RH-035	NA	111		16	4		14	16	

Red Hook	GC	RH-036	NA	2		13	1		11	3	
Red Hook	GC	RH-037	NA	1		5	0		8	1	
Red Hook	GC	RH-038	NA	1		9	1		8	2	
Red Hook	OW	RH-040	NA	37		16	13		19	38	
Tallman Island	**OW**	**ALL**	**45**	**2,375**		**32**	**1,086**	**24,013**	**24**	**1,974**	**23,400**
Tallman Island	OW	TI-003	NA	127		88	93		70	113	
Tallman Island	OW	TI-004	NA	10		15	2		10	5	
Tallman Island	OW	TI-005	NA	0		0	0		1	0	
Tallman Island	AC	TI-006	NA	0					0	0	
Tallman Island	AC	TI-007	NA	0		0	0		1	1	
Tallman Island	AC	TI-008	38	59		0	0		0	0	
Tallman Island	AC	TI-009	NA	0		0	0				
Tallman Island	FB	TI-010	73	1,580		43	351		43	970	
Tallman Island	FC	TI-011	54	332		58	339		54	398	
Tallman Island	FC	TI-012	NA	0					0	0	
Tallman Island	FB	TI-013	NA	0				24,013	0	0	23,400
Tallman Island	FB	TI-014	32	2		44	11		40	14	
Tallman Island	FB	TI-015	29	1		26	3		24	4	
Tallman Island	FB	TI-016	45	28		53	31		49	38	
Tallman Island	FB	TI-017	NA	0		24	2		20	4	
Tallman Island	FB	TI-018	34	2		37	5		35	6	
Tallman Island	OW	TI-019	NA	0		15	1		11	2	
Tallman Island	OW	TI-020	NA	6		35	6		33	8	
Tallman Island	FB	TI-022	55	30		75	71		66	95	
Tallman Island	OW	TI-023	NA	198		41	81		36	122	
Tallman Island	AC	TI-024	NA	0					0	0	
Tallman Island	AC	TI-025	NA	0		19	90		13	194	
Wards Island	**OW**	**ALL**		**4,181**		**34**	**1,867**	**74,196**	**25**	**3,296**	**74,086**
Wards Island	OW	WI-002	NA	11		57	6		47	6	
Wards Island	OW	WI-003	NA	115		66	67		53	115	
Wards Island	OW	WI-004	NA	12		57	5		46	6	
Wards Island	OW	WI-005	NA	10		45	4		39	5	
Wards Island	OW	WI-006	NA	12		47	4		37	5	
Wards Island	OW	WI-007	NA	11		45	4		39	5	
Wards Island	OW	WI-008	NA	224		61	112		57	170	
Wards Island	OW	WI-009	NA	0		0	0		2	0	
Wards Island	OW	WI-010	NA	0		0	0		2	0	
Wards Island	OW	WI-011	NA	3		17	1		13	7	
Wards Island	OW	WI-012	NA	41		25	10		18	16	
Wards Island	OW	WI-013	NA	1		23	0		12	0	
Wards Island	OW	WI-014	NA	1		23	0		10	0	
Wards Island	OW	WI-015	NA	14		23	3		11	6	
Wards Island	OW	WI-016	NA	30		37	11		32	18	
Wards Island	OW	WI-017	NA	17		23	4		11	6	
Wards Island	OW	WI-018	NA	1		20	0		6	0	
Wards Island	OW	WI-019	NA	1		20	0		7	0	
Wards Island	OW	WI-020	NA	0							
Wards Island	OW	WI-021	NA	1		16	0		7	1	
Wards Island	OW	WI-022	NA	1		18	0		9	1	
Wards Island	OW	WI-023	NA	79		29	26		24	49	
Wards Island	OW	WI-024	NA	100		23	25		10	57	
Wards Island	OW	WI-025	NA	35		60	20		47	30	
Wards Island	OW	WI-026	NA	1		16	0		5	1	
Wards Island	OW	WI-027	NA	1		13	0		6	0	
Wards Island	OW	WI-028	NA	1		20	0		11	1	

Wards Island	OW	WI-029	NA	3	24	1		12	2	
Wards Island	OW	WI-030	NA	2	23	0		8	1	
Wards Island	OW	WI-031	NA	5	23	2		9	4	
Wards Island	OW	WI-032	NA	0	16	0		4	0	
Wards Island	OW	WI-033	NA	4	21	1		11	3	
Wards Island	OW	WI-034	NA	1	21	0		8	1	
Wards Island	OW	WI-035	NA	8	22	3		10	7	
Wards Island	OW	WI-036	NA	3	50	1		45	2	
Wards Island	OW	WI-037	NA	9	23	3		11	7	
Wards Island	OW	WI-038	NA	39	24	11		17	23	
Wards Island	OW	WI-039	NA	3	23	1		17	3	
Wards Island	OW	WI-040	NA	3	25	1	74,196	16	2	74,086
Wards Island	OW	WI-041	NA	13	35	4		26	7	
Wards Island	OW	WI-042	NA	3	25	1		19	1	
Wards Island	OW	WI-043	NA	7	23	1		11	2	

Appendix 11:

Appendix 11.1: NON-KEY REGULATOR MONITORING REPORT SUMMARY CY 2021

CY2021 Non-Key Regulator Monitoring Report

Regulator HP-04	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Jan-21	1	1/16/21 6:30 AM	1/16/21 9:15 AM	2.75	373	373	400	1/15/21 11:00 PM	1/15/21 11:45 PM	413	405
Feb-21	1	2/16/21 5:45 AM	2/16/21 9:45 AM	4.00	363	363	400	N/A	N/A	N/A	N/A
	2	2/22/21 3:15 PM	2/22/21 4:00 PM	0.75	360	392	400	N/A	N/A	N/A	N/A
Mar-21	1	3/24/21 11:00 PM	3/24/21 11:45 PM	0.75	299	299	400	3/24/2021 6:15 PM	3/24/2021 6:45 PM	406	403
	2	3/25/21 12:15 AM	3/25/21 1:30 AM	1.25	247	247	400	N/A	N/A	N/A	N/A
Apr-21	1	4/15/21 6:00 PM	4/15/21 8:00 PM	2.00	396	396	400	4/15/21 2:00 PM	4/15/21 5:45 PM	440	408
May-21	1	5/3/21 11:00 PM	5/3/21 11:45 PM	0.75	299	361	400	N/A	N/A	N/A	N/A
	2	5/28/21 7:15 PM	5/28/21 7:30 PM	0.25	295	357	400	5/28/2021 7:45 PM	5/29/2021 5:00 AM	420	408
	3	5/29/21 5:15 AM	5/29/21 7:45 AM	2.50	380	380	400				
	4a	5/30/21 8:30 AM	5/30/21 9:00 AM	0.50	253	290	400	5/30/2021 4:00 PM	5/30/2021 4:45 PM	403	402
	4b	5/30/21 7:00 PM	5/30/21 7:30 PM	0.50	387	387	400				
Jun-21	1	6/8/21 5:00 PM	6/8/21 7:45 PM	2.75	203	392	415	N/A	N/A	N/A	N/A
Jul-21	1	7/1/21 12:30 AM	7/1/21 1:00 AM	0.50	283	283	400	N/A	N/A	N/A	N/A
	2	7/1/21 9:30 PM	7/1/21 9:45 PM	0.25	367	367	400	7/1/2021 6:00 PM	7/1/2021 9:15 PM	431	408
	3	7/12/21 3:45 AM	7/12/21 5:00 AM	1.25	382	382	400	N/A	N/A	N/A	N/A
	4	7/25/21 5:00 AM	7/25/21 5:30 AM	0.50	287	324	400	N/A	N/A	N/A	N/A
Aug-21	1a	8/22/21 2:30 AM	8/22/21 8:45 AM	6.25	399	399	400	8/21/2021 9:45 PM	8/22/2021 2:15 AM	419	408
	1b	8/22/21 8:15 PM	8/22/21 8:15 PM	0.00*	394	394	400	8/22/2021 12:45 PM	8/22/2021 8:00 PM	430	406
	2	8/27/21 6:30 PM	8/27/21 8:15 PM	1.75	386	392	400	N/A	N/A	N/A	N/A
Sep-21	1	9/23/21 8:30 PM	9/23/21 10:00 PM	1.50	235	388	400	N/A	N/A	N/A	N/A
Oct-21	1a	10/26/21 9:30 AM	10/26/21 10:00 AM	0.50	398	400	400	10/26/2021 2:15 AM	10/26/2021 9:15 AM	415	403
	1b	10/26/21 10:00 PM	10/26/21 10:30 PM	0.50	394	396	400	10/26/2021 8:00 PM	10/26/2021 9:45 PM	416	409
	2	10/29/21 10:45 PM	10/30/21 12:15 AM	1.50	350	378	400	N/A	N/A	N/A	N/A

NOTES:

* Potential CSO Discharge Duration was less than the 15-minute reportable interval.

** "WWTP Event Maximum Flow" values reported with two asterisks (**) had a maximum flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"), see below:

*** "WWTP Event Average Flow" values reported with three asterisks (***) had an average flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"). These events were reported in the Wet Weather Quarterly Report submittal.

CY2021 Non-Key Regulator Monitoring Report

Regulator JA-14	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Regulator JA-14 has had no potential discharges outside the period of a critical wet weather event.											

NOTES:

*	Potential CSO Discharge Duration was less than the 15-minute reportable interval.
**	"WWTP Event Maximum Flow" values reported with two asterisks (**) had a maximum flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"), see below:
***	"WWTP Event Average Flow" values reported with three asterisks (***) had an average flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"). These events were reported in the Wet Weather Quarterly Report submittal.

CY2021 Non-Key Regulator Monitoring Report

Regulator WIM-02B	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Regulator WIM-02B had a sensor malfunction; no reportable data for CY2021.											

NOTES:

* Potential CSO Discharge Duration was less than the 15-minute reportable interval.

** "WWTP Event Maximum Flow" values reported with two asterisks (**) had a maximum flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"), see below:

*** "WWTP Event Average Flow" values reported with three asterisks (***) had an average flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"). These events were reported in the Wet Weather Quarterly Report submittal.

**** Sensor malfunction caused no reading or a reading equal to the regulator setpoint for the entire year.

CY2021 Non-Key Regulator Monitoring Report

Regulator WIM-07	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Regulator WIM-07 had a sensor malfunction; no reportable data for CY2021.											

NOTES:

*	Potential CSO Discharge Duration was less than the 15-minute reportable interval.
**	"WWTP Event Maximum Flow" values reported with two asterisks (**) had a maximum flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"), see below:
***	"WWTP Event Average Flow" values reported with three asterisks (***) had an average flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"). These events were reported in the Wet Weather Quarterly Report submittal.
****	Sensor malfunction caused no reading for the entire year.

CY2021 Non-Key Regulator Monitoring Report

Regulator WIM-24	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Regulator WIM-24 has had no potential discharges outside the period of a critical wet weather event.											

NOTES:

*	Potential CSO Discharge Duration was less than the 15-minute reportable interval.
**	"WWTP Event Maximum Flow" values reported with two asterisks (**) had a maximum flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"), see below:
***	"WWTP Event Average Flow" values reported with three asterisks (***) had an average flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"). These events were reported in the Wet Weather Quarterly Report submittal.

CY2021 Non-Key Regulator Monitoring Report

Regulator OH-10	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Jul-21	1	7/25/21 4:30 AM	7/25/21 4:30 AM	0.00*	197	197	440	7/25/21 4:45 AM	7/25/21 5:45 AM	520	497
Sep-21	1	9/24/21 4:15 AM	9/24/21 4:15 AM	0.00*	344	344	440	9/24/21 4:30 AM	9/24/21 6:30 AM	600	568
Oct-21	1	10/29/21 10:00 PM	10/29/21 10:00 PM	0.00*	259	259	440	10/29/21 10:15 PM	10/30/21 12:15 AM	608	552

NOTES:

* Potential CSO Discharge Duration was less than the 15-minute reportable interval.

** "WWTP Event Maximum Flow" values reported with two asterisks (**) had a maximum flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"), see below:

*** "WWTP Event Average Flow" values reported with three asterisks (***) had an average flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"). These events were reported in the Wet Weather Quarterly Report submittal.

CY2021 Non-Key Regulator Monitoring Report

Regulator WIM-45	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Regulator WIM-45 had a sensor malfunction; no reportable data for CY2021.											

NOTES:

*	Potential CSO Discharge Duration was less than the 15-minute reportable interval.
**	"WWTP Event Maximum Flow" values reported with two asterisks (**) had a maximum flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"), see below:
***	"WWTP Event Average Flow" values reported with three asterisks (***) had an average flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"). These events were reported in the Wet Weather Quarterly Report submittal.
****	Sensor malfunction caused stagnant regulator chamber liquid levels for the entire year.

CY2021 Non-Key Regulator Monitoring Report

Regulator WIM-46	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Oct-21	1	10/29/21 10:00 PM	10/29/21 10:00 PM	0.00*	259	259	440	10/29/2021 10:15 PM	10/30/2021 12:15 AM	608	552

NOTES:

* Potential CSO Discharge Duration was less than the 15-minute reportable interval.

** "WWTP Event Maximum Flow" values reported with two asterisks (**) had a maximum flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"), see below:

*** "WWTP Event Average Flow" values reported with three asterisks (***) had an average flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"). These events were reported in the Wet Weather Quarterly Report submittal.

CY2021 Non-Key Regulator Monitoring Report

Regulator WIM-51	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Mar-21	1	3/28/21 1:15 PM	3/28/21 3:00 PM	1.75	288.38	301.47	550	3/28/2021 8:45 AM	3/28/2021 11:30 AM	577	553
May-21	1a	5/3/21 10:15 PM	5/3/21 10:30 PM	0.25	226	269	420	5/3/2021 10:45 PM	5/3/2021 11:45 PM	496	454
	1b	5/4/21 12:00 AM	5/4/21 12:00 AM	0.00*	384	384	420	5/4/2021 12:15 AM	5/4/2021 2:45 AM	620	514
	2	5/9/21 8:15 PM	5/9/21 8:30 PM	0.25	396	412	420	5/9/2021 8:45 PM	5/9/2021 11:30 PM	444	434

NOTES:

* Potential CSO Discharge Duration was less than the 15-minute reportable interval.

** "WWTP Event Maximum Flow" values reported with two asterisks (**) had a maximum flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"), see below:

*** "WWTP Event Average Flow" values reported with three asterisks (***) had an average flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"). These events were reported in the Wet Weather Quarterly Report submittal.

CY2021 Non-Key Regulator Monitoring Report

Regulator WIM-52	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Jan-21	1	1/1/21 9:45 PM	1/1/21 9:45 PM	0.00*	492	492	507	1/1/21 10:00 PM	1/1/21 11:30 PM	565	548
	2	1/15/21 9:45 PM	1/15/21 10:30 PM	0.75	202	327	507	1/15/21 10:45 PM	1/16/21 12:30 AM	571	554
	3	1/16/21 2:45 AM	1/16/21 2:45 AM	0.00*	267	267	507	1/16/21 3:00 AM	1/16/21 6:30 AM	674	584
Apr-21	1	4/15/21 12:45 PM	4/15/21 1:15 PM	0.50	230	539	420	4/15/2021 1:30 PM	4/15/2021 7:00 PM	590	516
May-21	1	5/3/21 10:15 PM	5/3/21 10:15 PM	0.00*	226	226	420	5/3/2021 10:45 PM	5/3/2021 11:45 PM	620	542
	2	5/30/21 1:45 PM	5/30/21 2:15 PM	0.50	270	314	420	5/30/2021 2:30 PM	5/30/2021 7:00 PM	550	492
Jun-21	1	6/3/21 10:15 AM	6/3/21 10:15 AM	0.00*	201	201	420	6/3/2021 10:45 AM	6/3/2021 11:30 AM	573	489
	2	6/4/21 4:15 PM	6/4/21 4:15 PM	0.00*	311	311	420	6/4/2021 4:30 PM	6/4/2021 6:45 PM	644	582
	3	6/8/21 4:30 PM	6/8/21 4:45 PM	0.25	264	318	420	6/8/2021 5:00 PM	6/8/2021 7:30 PM	562	507
	4	6/30/21 9:00 PM	6/30/21 9:00 PM	0.00*	346	346	420	6/30/21 9:15 PM	6/30/21 9:15 PM	519	519
Jul-21	1	7/8/21 3:15 PM	7/8/21 3:30 PM	0.25	235	271	440	7/8/2021 3:45 PM	7/8/2021 10:30 PM	515	500
	2	7/9/21 3:30 AM	7/9/21 3:30 AM	0.00*	383	383	440	7/9/2021 3:45 AM	7/9/2021 12:15 PM	544	503
	3	7/18/21 1:00 AM	7/18/21 1:00 AM	0.00*	390	390	440	7/18/2021 1:30 AM	7/18/2021 2:45 AM	499	471
	4	7/28/21 2:45 AM	7/28/21 3:15 AM	0.50	211	258	440	N/A	N/A	N/A	N/A
	5	7/29/21 7:15 PM	7/29/21 8:00 PM	0.75	559	572	440	7/29/2021 7:15 PM	7/29/2021 8:00 PM	520	497
Aug-21	1	8/10/21 7:45 PM	8/10/21 8:15 PM	0.50	266	376	440	8/10/2021 8:30 PM	8/10/2021 10:00 PM	596	509
	2	8/21/21 8:30 PM	8/21/21 8:30 PM	0.00*	235	235	440	8/21/2021 9:00 PM	8/22/2021 2:30 AM	641	571
	3	8/23/21 5:45 AM	8/23/21 6:00 AM	0.25	353	391	440	8/23/2021 6:15 AM	8/23/2021 9:15 AM	647	604
Sep-21	1	9/23/21 7:45 PM	9/23/21 8:15 PM	0.50	239	369	440	9/23/2021 8:30 PM	9/24/2021 2:15 AM	608	519
	2	9/24/21 3:45 AM	9/24/21 4:15 AM	0.50	288	344	440	9/24/2021 4:30 AM	9/24/2021 6:30 AM	600	568
Oct-21	1	10/4/21 6:45 PM	10/4/21 7:15 PM	0.50	217	259	440	10/26/2021 12:00 AM	10/26/2021 12:15 AM	485	469
	2	10/25/21 11:15 PM	10/25/21 11:45 PM	0.50	271	400	440				
	3	10/26/21 7:45 PM	10/26/21 7:45 PM	0.00*	331	331	440	10/26/2021 8:15 PM	10/27/2021 12:15 AM	650	545
	4	10/29/21 10:00 PM	10/29/21 10:00 PM	0.00*	259	259	440	10/29/2021 10:15 PM	10/30/2021 12:15 AM	608	552
Nov-21	1	11/12/21 11:45 AM	11/12/21 12:15 PM	0.50	341	387	440	11/12/2021 10:00 AM	11/12/2021 10:15 AM	502	478

NOTES:

* Potential CSO Discharge Duration was less than the 15-minute reportable interval.

** "WWTP Event Maximum Flow" values reported with two asterisks (**) had a maximum flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"), see below:

*** "WWTP Event Average Flow" values reported with three asterisks (***) had an average flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"). These events were reported in the Wet Weather Quarterly Report submittal.

CY2021 Non-Key Regulator Monitoring Report

Regulator NCM-21	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Feb-21	1	2/16/21 7:00 AM	2/16/21 7:00 AM	0.00*	504	504	507	2/16/2021 4:15 AM	2/16/2021 6:45 AM	551	532
								2/16/2021 7:15 AM	2/16/2021 8:00 AM	567	550
	2	2/22/21 2:30 PM	2/22/21 3:30 PM	1.00	506	506	507	N/A	N/A	N/A	N/A
	3	2/27/21 11:45 AM	2/27/21 3:00 PM	3.25	430	477	507	2/27/2021 11:15 AM	2/27/2021 11:15 AM	521	521
Mar-21	1	3/28/21 12:15 PM	3/28/21 12:45 PM	0.50	436.73	436.73	550	3/28/2021 8:45 AM	3/28/2021 11:30 AM	577	553
May-21	1	5/3/21 10:30 PM	5/3/21 10:30 PM	0.00*	269	269	420	5/3/2021 10:45 PM	5/3/2021 11:45 PM	496	454
Jun-21	1	6/3/21 10:15 AM	6/3/21 10:30 AM	0.25	201	289	420	6/3/2021 10:45 AM	6/3/2021 11:30 AM	573	489
	2	6/8/21 4:30 PM	6/8/21 4:45 PM	0.25	264	318	420	6/8/2021 5:00 PM	6/8/2021 5:15 PM	593	578
	3	6/14/21 7:00 AM	6/14/21 7:30 AM	0.50	101	331	420	N/A	N/A	N/A	N/A
	4	6/29/21 6:00 PM	6/29/21 8:30 PM	2.50	300	330	420	N/A	N/A	N/A	N/A
	5a	6/30/21 8:15 PM	6/30/21 8:45 PM	0.50	348	348	420	6/30/2021 10:15 PM	6/30/2021 9:15 PM	506	472
	5b	6/30/21 9:30 PM	6/30/21 10:00 PM	0.50	388	388	420				
Jul-21	1	7/1/21 5:45 PM	7/1/21 5:45 PM	0.00*	305	305	440	7/1/2021 6:00 PM	7/1/2021 9:45 PM	544	507
	2a	7/3/21 7:45 AM	7/3/21 7:45 AM	0.00*	399	399	440	7/3/2021 8:00 AM	7/3/2021 8:15 AM	479	466
	2b	7/3/21 8:30 AM	7/3/21 8:45 AM	0.25	425	425	440				
	3a	7/8/21 3:15 PM	7/8/21 3:30 PM	0.25	235	271	440	7/8/21 3:45 PM	7/8/21 10:30 PM	550	500
	3b	7/9/21 3:00 AM	7/9/21 3:30 AM	0.50	311	383	440	7/9/21 3:45 AM	7/9/21 12:15 PM	544	503
	4	7/17/21 10:45 PM	7/17/21 11:30 PM	0.75	279	389	440	7/18/21 1:30 AM	7/18/21 2:15 AM	499	471
	5	7/21/21 12:45 PM	7/21/21 1:45 PM	1.00	232	346	440	N/A	N/A	N/A	N/A
	6	7/25/21 4:30 AM	7/25/21 4:30 AM	0.00*	197	197	440	7/25/21 4:45 AM	7/25/21 5:45 AM	520	497
	7	7/29/21 6:45 PM	7/29/21 6:45 PM	0.00*	335	335	440	7/29/21 7:00 PM	7/29/21 9:00 PM	572	539
Aug-21	1	8/12/21 5:45 PM	8/12/21 6:45 PM	1.00	330	368	440	N/A	N/A	N/A	N/A
	2a	8/23/21 6:00 AM	8/23/21 6:00 AM	0.00*	391	391	440	8/23/21 6:15 AM	8/23/21 9:15 AM	647	604
	2b	8/23/21 2:15 PM	8/23/21 4:00 PM	1.75	411	433	440	8/23/21 11:45 AM	8/23/21 12:45 PM	584	494
	3	8/27/21 6:00 PM	8/27/21 6:00 PM	0.00*	292	292	440	8/27/21 6:15 PM	8/27/21 7:00 PM	589	526
Sep-21	1	9/24/21 4:00 AM	9/24/21 4:15 AM	0.25	291	344	440	9/24/21 4:30 AM	9/24/21 6:30 AM	605	568
Oct-21	1	10/26/21 8:00 PM	10/26/21 8:00 PM	0.00*	366	366	440	10/26/21 8:15 PM	10/27/21 12:15 AM	650	545
	2	10/29/21 10:00 PM	10/29/21 10:00 PM	0.00*	259	259	440	10/29/21 10:15 PM	10/30/21 12:15 AM	608	552
Dec-21	1	12/6/21 4:15 AM	12/6/21 5:15 AM	1.00	253	358	440	N/A	N/A	N/A	N/A
	2	12/22/21 6:30 AM	12/22/21 7:00 AM	0.50	226	327	440	N/A	N/A	N/A	N/A

NOTES:

*	Potential CSO Discharge Duration was less than the 15-minute reportable interval.
**	"WWTP Event Maximum Flow" values reported with two asterisks (**) had a maximum flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"), see
***	"WWTP Event Average Flow" values reported with three asterisks (***) had an average flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity").

CY2021 Non-Key Regulator Monitoring Report

Regulator WIB-60	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Feb-21	1	2/27/21 11:30 AM	2/27/21 2:15 PM	2.75	434	477	507	2/27/2021 11:15 AM	2/27/2021 11:15 AM	521	521
Mar-21	1	3/28/21 12:15 PM	3/28/21 12:45 PM	0.50	437	437	507	3/28/2021 8:45 AM	3/28/2021 11:30 AM	577	553

NOTES:

* Potential CSO Discharge Duration was less than the 15-minute reportable interval.

** "WWTP Event Maximum Flow" values reported with two asterisks (**) had a maximum flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"), see below:

*** "WWTP Event Average Flow" values reported with three asterisks (***) had an average flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"). These events were reported in the Wet Weather Quarterly Report submittal.

CY2021 Non-Key Regulator Monitoring Report

Regulator WIB-62	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Jan-21	1	1/16/21 6:45 AM	1/16/21 7:15 AM	0.50	465	465	507	1/16/21 3:00 AM	1/16/21 6:30 AM	674	584
Feb-21	1a	2/16/21 3:00 AM	2/16/21 4:00 AM	1.00	499	502	507	2/16/21 4:15 AM	2/16/21 6:45 AM	551	532
	1b	2/16/21 7:00 AM	2/16/21 7:00 AM	0.00*	504	504	507				
	1c	2/16/21 8:15 AM	2/16/21 8:15 AM	0.00*	501	501	507	2/16/21 7:15 AM	2/16/21 8:00 AM	567	550
	2	2/22/21 2:45 PM	2/22/21 5:45 PM	3.00	483	504	507	N/A	N/A	N/A	N/A
	3a	2/27/21 10:30 AM	2/27/21 10:30 AM	0.00*	459	459	507	2/27/21 10:45 AM	2/27/21 10:45 AM	566	566
	3b	2/27/21 11:00 AM	2/27/21 11:00 AM	0.00*	454	454	507	2/27/21 11:15 AM	2/27/21 11:15 AM	521	521
	3c	2/27/21 11:30 AM	2/27/21 2:45 PM	3.25	434	477	507				
Mar-21	1	3/1/21 1:15 AM	3/1/21 2:00 AM	0.75	274	310	550	N/A	N/A	N/A	N/A
	2	3/18/21 3:15 PM	3/18/21 5:30 PM	2.25	383	383	507	3/18/2021 12:00 PM	3/18/2021 12:00 PM	543	543
	3	3/24/21 9:45 PM	3/24/21 11:30 PM	1.75	495	495	507	3/24/2021 5:15 PM	3/24/2021 9:30 PM	567	549
	4	3/28/21 11:45 AM	3/28/21 2:15 PM	2.50	499	499	507	3/28/2021 8:45 AM	3/28/2021 11:30 AM	577	553
Apr-21	1	4/11/21 2:45 PM	4/11/21 3:15 PM	0.50	292	330	420	4/11/21 3:30 PM	4/11/21 5:45 PM	505	448
	2	4/15/21 7:15 PM	4/15/21 8:00 PM	0.75	405	405	420	4/15/21 1:15 PM	4/15/21 7:00 PM	590	516
	3	4/25/21 10:00 AM	4/25/21 11:00 AM	1.00	404	404	420	4/25/21 6:30 AM	4/25/21 9:45 AM	484	464
May-21	1	5/3/21 10:30 PM	5/3/21 10:30 PM	0.00*	269	269	420	5/3/2021 10:45 PM	5/3/2021 11:45 PM	496	454
	2	5/9/21 11:45 PM	5/10/21 12:00 AM	0.25	394	394	420	5/9/2021 8:45 PM	5/9/2021 11:30 PM	444	434
	3a	5/29/21 3:30 AM	5/29/21 4:15 AM	0.75	379	381	420	5/28/2021 7:00 PM	5/30/2021 3:15 AM	620	542
	3b	5/29/21 12:45 PM	5/29/21 1:15 PM	0.50	409	409	420	5/29/2021 10:45 AM	5/29/2021 12:30 PM	489	471
	4a	5/30/21 8:30 AM	5/30/21 8:45 AM	0.25	339	372	420	5/30/2021 9:00 AM	5/30/2021 9:00 AM	474	474
	4b	5/30/21 9:15 AM	5/30/21 10:00 AM	0.75	416	416	420				
	4c	5/30/21 7:15 PM	5/30/21 8:15 PM	1.00	415	415	420	5/30/2021 2:30 PM	5/30/2021 7:00 PM	550	492
Jun-21	1a	6/3/21 10:30 AM	6/3/21 10:30 AM	0.00*	289	289	420	6/3/2021 10:45 AM	6/3/2021 11:30 AM	573	489
	1b	6/3/21 11:45 AM	6/3/21 12:15 PM	0.50	417	417	420				
	2	6/22/21 3:45 PM	6/22/21 4:15 PM	0.50	313	332	420	N/A	N/A	N/A	N/A
	3a	6/30/21 3:30 PM	6/30/21 9:00 PM	5.50	284	348	420	6/30/2021 9:15 PM	6/30/2021 9:15 PM	519	519
	3b	6/30/21 9:30 PM	6/30/21 10:00 PM	0.50	388	388	420				

NOTES:

* Potential CSO Discharge Duration was less than the 15-minute reportable interval.

** "WWTP Event Maximum Flow" values reported with two asterisks (**) had a maximum flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"), see below:

*** "WWTP Event Average Flow" values reported with three asterisks (***) had an average flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"). These events were reported in the Wet Weather Quarterly Report submittal.

CY2021 Non-Key Regulator Monitoring Report

Regulator WIB-62	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Jul-21	1a	7/1/21 12:30 AM	7/1/21 12:30 AM	0.00*	371	371	440	6/30/2021 10:15 PM	6/30/2021 11:45 PM	506	465
	1b	7/1/21 1:30 PM	7/1/21 1:45 PM	0.25	268	387	440	7/1/2021 2:00 PM	7/1/2021 2:45 PM	507	475
	1c	7/1/21 5:45 PM	7/1/21 5:45 PM	0.00*	305	305	440	7/1/2021 6:00 PM	7/1/2021 9:45 PM	544	507
	1d	7/1/21 10:00 PM	7/1/21 10:30 PM	0.50	408	408	440				
	2a	7/6/21 7:15 PM	7/6/21 8:00 PM	0.75	299	419	440	7/6/2021 9:45 PM	7/6/2021 10:00 PM	466	455
	2b	7/6/21 8:45 PM	7/6/21 9:30 PM	0.75	361	422	440				
	2c	7/6/21 10:15 PM	7/6/21 11:30 PM	1.25	434	434	440				
	3a	7/8/21 3:30 PM	7/8/21 3:30 PM	0.00*	271	271	440	7/8/2021 3:45 PM	7/8/2021 10:30 PM	515	500
	3b	7/8/21 11:30 PM	7/9/21 1:00 AM	1.50	402	404	440				
	3c	7/9/21 3:00 AM	7/9/21 3:30 AM	0.50	311	383	440	7/9/2021 3:45 AM	7/9/2021 12:15 PM	544	503
	3d	7/9/21 12:30 PM	7/9/21 2:45 PM	2.25	434	434	440				
	4a	7/17/21 11:00 PM	7/17/21 11:45 PM	0.75	309	398	440	7/18/2021 12:00 AM	7/18/2021 12:15 AM	487	475
	4b	7/18/21 12:30 AM	7/18/21 12:45 AM	0.25	439	439	440				
	4c	7/18/21 1:15 AM	7/18/21 1:15 AM	0.00*	436	436	440	7/18/2021 1:30 AM	7/18/2021 2:15 AM	499	471
	5	7/21/21 1:00 PM	7/21/21 1:45 PM	0.75	277	346	440	N/A	N/A	N/A	N/A
	6	7/25/21 6:00 AM	7/25/21 6:00 AM	0.00*	413	413	440	7/25/2021 4:45 AM	7/25/2021 5:45 AM	520	497
	7a	7/28/21 3:00 AM	7/28/21 3:30 AM	0.50	215	337	440	N/A	N/A	N/A	N/A
	7b	7/29/21 3:15 PM	7/29/21 5:15 PM	2.00	220	427	440	7/29/2021 7:00 PM	7/29/2021 9:00 PM	572	539
	7c	7/29/21 9:15 PM	7/29/21 9:45 PM	0.50	437	437	440				
Aug-21	1	8/10/21 8:00 PM	8/10/21 8:15 PM	0.25	338	376	440	8/10/2021 8:30 PM	8/10/2021 10:00 PM	596	509
	2a	8/23/21 5:45 AM	8/23/21 6:00 AM	0.25	353	391	440	8/23/2021 6:15 AM	8/23/2021 9:15 AM	647	604
	2b	8/23/21 2:00 PM	8/23/21 4:00 PM	2.00	408	433	440	8/23/2021 11:45 AM	8/23/2021 12:45 PM	584	494
	3a	8/27/21 5:15 PM	8/27/21 5:15 PM	0.00*	265	265	440	8/27/2021 5:30 PM	8/27/2021 5:30 PM	549	549
	3b	8/27/21 5:45 PM	8/27/21 6:00 PM	0.25	426	426	440				
	3c	8/27/21 7:15 PM	8/27/21 8:15 PM	1.00	259	350	440	8/27/2021 6:15 PM	8/27/2021 7:00 PM	589	526
Sep-21	1	9/23/21 8:15 PM	9/23/21 8:15 PM	0.00*	369	369	440	9/23/2021 8:30 PM	9/24/2021 2:15 AM	608	519
	2	9/24/21 2:15 AM	9/24/21 2:15 AM	0.00*	446	446	440				
Oct-21	1	10/30/21 12:30 AM	10/30/21 1:15 AM	0.75	408	408	440	10/29/2021 10:15 PM	10/30/2021 12:15 AM	608	552
Dec-21	1	12/6/21 4:45 AM	12/6/21 6:00 AM	1.25	323	358	440	N/A	N/A	N/A	N/A
	2	12/22/21 6:45 AM	12/22/21 7:15 AM	0.50	277	316	440	N/A	N/A	N/A	N/A

NOTES:

* Potential CSO Discharge Duration was less than the 15-minute reportable interval.

** "WWTP Event Maximum Flow" values reported with two asterisks (**) had a maximum flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"), see below:

*** "WWTP Event Average Flow" values reported with three asterisks (***) had an average flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"). These events were reported in the Wet Weather Quarterly Report submittal.

CY2021 Non-Key Regulator Monitoring Report

Regulator WIM-68	Potential CSO Discharges Outside the Period of a Critical Wet Weather Event						WWTP Event Capacity (MGD)	Critical Wet Weather Event			
	Event #	Start Time	End Time	Duration (hrs)	WWTP Flow at Start (MGD)	WWTP Max Flow (MGD)		Start Time	End Time	WWTP Event Max Flow (MGD)	WWTP Event Avg Flow (MGD)
Feb-21	1	2/16/21 7:00 AM	2/16/21 7:00 AM	0.00*	504	504	507	2/16/21 4:15 AM	2/16/21 6:45 AM	551	532
May-21	1	5/28/21 6:45 PM	5/28/21 6:45 PM	0.00*	299	299	420	5/28/2021 7:00 PM	5/29/2021 3:15 AM	620	542
Jun-21	1	6/8/21 4:30 PM	6/8/21 4:45 PM	0.25	264	318	420	6/8/21 5:00 PM	6/8/21 7:30 PM	593	507
Jul-21	1	7/1/21 12:30 AM	7/1/21 12:30 AM	0.00*	371	371	440	6/30/2021 10:15 PM	6/30/2021 11:45 PM	506	465
	2	7/18/21 1:00 AM	7/18/21 1:00 AM	0.00*	390	390	440	7/18/2021 1:30 AM	7/18/2021 2:15 AM	499	471
	3	7/25/21 4:30 AM	7/25/21 4:30 AM	0.00*	197	197	440	7/25/2021 4:45 AM	7/25/2021 5:45 AM	520	497
Aug-21	1	8/10/21 8:00 PM	8/10/21 8:00 PM	0.00*	338	338	440	8/10/2021 8:30 PM	8/10/2021 10:00 PM	596	509
Sep-21	1	9/23/21 8:00 PM	9/23/21 8:15 PM	0.25	318	369	440	9/23/2021 8:30 PM	9/24/2021 2:15 AM	608	519
Oct-21	1	10/26/21 8:00 PM	10/26/21 8:00 PM	0.00*	366	366	440	10/26/2021 8:15 PM	10/27/2021 12:15 AM	650	545
	2	10/29/21 10:00 PM	10/29/21 10:00 PM	0.00*	259	259	440	10/29/2021 10:15 PM	10/30/2021 12:15 AM	608	552
Nov-21	1	11/13/21 2:45 PM	11/13/21 3:15 PM	0.50	323	380	440	11/13/2021 12:45 PM	11/13/2021 2:00 PM	488	466

NOTES:

* Potential CSO Discharge Duration was less than the 15-minute reportable interval.

** "WWTP Event Maximum Flow" values reported with two asterisks (**) had a maximum flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"), see below:

*** "WWTP Event Average Flow" values reported with three asterisks (***) had an average flow during the critical wet weather event that was less than the wet weather flow requirement ("WWTP Event Capacity"). These events were reported in the Wet Weather Quarterly Report submittal.

**** Due to problems with the wet switch, SCADA historian that had stored the telemetry reading showed false events on 02/23/2021.

Appendix 11.2: All Regulator Status CY 2021

Status of All Telemetered Regulators with Potential CSO Discharges Outside of a Critical Wet Weather Event

No.	WWTP	Reg No.	Outfall SPDES No.	Key Regulator	2015 BMP Report Original Category	2016 BMP Report Updated Category	2017 BMP Report Updated Category	2018 BMP Report Updated Category	2019 BMP Report Updated Category	2020 BMP Report Updated Category	2021 BMP Report Updated Category (Current)	Monitoring Status in 2021 BMP Report	Additional Notes
1	26W	01	004	Key	A	A	A	A	A	A	A	monthly monitoring (key) 12-month analysis to be completed	Capital Improvements: 5th PST construction at 26W - Oct 2021 (COMPLETE)
2	26W	02	003	Key	A	A	A	A	A	A	A	monthly monitoring (key) 12-month analysis to be completed	Capital Improvements: Phase 2 HLSS in Fresh Creek - Sept 2021 (COMPLETE) & 5th PST construction at 26W - Oct 2021 (COMPLETE)
3	26W	03	005		E	E	E	E	E	E	E	no further monitoring	Does not directly discharge to a waterbody
1	BBL	L-04	026	Key	A	A	A	A	C	C	C	monthly monitoring (key) LTCP consideration	NC LTCP recommends diverting this flow to an expanded Borden Ave Pump Station
2	BBL	L-21	028		A	A	A	A	C	C	C	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
3	BBL	L-22	029	Key	A	A	A	A	C	B	B	monthly monitoring (key) LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
4	BBL	L-23	030		A	A	A	A	C	C	C	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
5	BBL	L-30	034		A	A	A	A	C	C	C	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
6	BBH	02	002	Key	A	A	A	A	B	B	B	monthly monitoring (key)	Key regulator that averaged one or fewer events per month
7	BBH	03	003		A	A	A	A	C	C	C	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
8	BBH	06	008	Key	A	A	A	A	C	C	C	monthly monitoring (key) LTCP consideration	FB LTCP recommends a CSO Storage Tunnel for outfalls BB-006 & BB-008
9	BBH	09	008		A	A	A	A	C	C	C	LTCP consideration	FB LTCP recommends a CSO Storage Tunnel for outfalls BB-006 & BB-008
1	HP	01	022		C	C	C	C	C	C	C	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
2	HP	02	023		C	C	C	C	C	C	C	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
3	HP	03	019		B	B	B	B	B	B	B	no further monitoring	Non-key regulator that averaged one or fewer events per month
4	HP	04	016		C	C	A	A	A	A	C	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
5	HP	05	011	Key	A	A	A	A	A	A	A	monthly monitoring (key) LTCP consideration	Bronx River LTCP recommended modifications to this regulator to mitigate floatables
6	HP	06	011		E	E	E	E	E	E	E	no further monitoring	Does not directly discharge to a waterbody
7	HP	08	025		C	C	C	C	C	C	C	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
8	HP	09	002		B	B	B	B	B	B	B	no further monitoring	Non-key regulator that averaged one or fewer events per month
9	HP	10	003	Key	C	C	C	C	C	B	B	monthly monitoring (key) LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
10	HP	11	017		C	C	C	C	C	C	C	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
11	HP	12	018		C	C	C	C	C	C	C	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
12	HP	13	009	Key	B	C	C	C	C	C	A	monthly monitoring (key) LTCP consideration	Bronx River LTCP recommended weir modification and parallel sewer at this regulator
13	HP	14	026		B	B	B	B	B	B	B	no further monitoring	Non-key regulator that averaged one or fewer events per month
1	JA	01	006		D	D	D	D	D	D	D	12-month analysis once equipment available	Absence of power to operate telemetry
2	JA	02	26W-005		E	E	E	E	E	E	E	no further monitoring	Does not directly discharge to a waterbody
3	JA	03	003	Key	A	A	A	A	A	A	B	monthly monitoring (key)	Capital Improvements: installation of bending weirs, parallel interceptor, & new lateral sanitary sewer - (June 2020)
4	JA	09	005		B	B	B	B	B	B	B	no further monitoring	Non-key regulator that averaged one or fewer events per month
5	JA	14	003a		A	A	A	A	A	A	B	no further monitoring	Capital Improvements: installation of bending weirs, parallel interceptor, & new lateral sanitary sewer - (June 2020)

Status of All Telemetered Regulators with Potential CSO Discharges Outside of a Critical Wet Weather Event

No.	WWTP	Reg No.	Outfall SPDES No.	Key Regulator	2015 BMP Report Original Category	2016 BMP Report Updated Category	2017 BMP Report Updated Category	2018 BMP Report Updated Category	2019 BMP Report Updated Category	2020 BMP Report Updated Category	2021 BMP Report Updated Category (Current)	Monitoring Status in 2021 BMP Report	Additional Notes
1	NC(Q)	Q-01	077		A	A	A	C	C	C	C	LTCP consideration	Newtown Creek LTCP recommends storage tunnel for outfalls NC-077,NC-015, & NC-083
2	NC(B)	B-01	015	Key	A	A	A	C	C	C	C	monthly monitoring (key) LTCP consideration	Newtown Creek LTCP recommends storage tunnel for outfalls NC-077,NC-015, & NC-083
3	NC(B)	B-04	014	Key	B	C	C	C	C	C	C	monthly monitoring (key) LTCP consideration	Was evaluated under the Citywide / Open Water LTCP
4	NC(B)	B-05	013		C	C	C	C	C	C	C	LTCP consideration	Was evaluated under the Citywide / Open Water LTCP
5	NC(B)	B-06	012		B	B	B	B	B	B	B	no further monitoring	Non-key regulator that averaged one or fewer events per month
6	NC(B)	B-09	006		C	C	C	C	C	C	C	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
7	NC(M)	M-01	076		C	C	C	C	C	C	C	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
8	NC(M)	M-02	075		B	B	B	B	B	B	B	no further monitoring	Non-key regulator that averaged one or fewer events per month
9	NC(M)	M-10	069		B	B	B	B	B	B	B	no further monitoring	Non-key regulator that averaged one or fewer events per month
10	NC(M)	M-16	078		B	B	B	B	B	B	B	no further monitoring	Non-key regulator that averaged one or fewer events per month
11	NC(M)	M-17	066		B	B	B	B	B	B	B	no further monitoring	Non-key regulator that averaged one or fewer events per month
12	NC(M)	M-19	050		C	C	C	C	C	C	C	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
13	NC(M)	M-21	063		D	B	B	B	B	B	B	no further monitoring	Non-key regulator that averaged one or fewer events per month
14	NC(M)	M-36	052		B	B	B	B	B	B	B	no further monitoring	Non-key regulator that averaged one or fewer events per month
15	NC(M)	M-37	049		B	B	B	B	B	B	B	no further monitoring	Non-key regulator that averaged one or fewer events per month
16	NC(M)	M-40	045		C	C	C	C	C	C	C	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
17	NC(M)	M-42	041		B	B	B	B	B	B	B	no further monitoring	Non-key regulator that averaged one or fewer events per month
18	NC(M)	M-44	037		B	B	B	B	B	B	B	no further monitoring	Non-key regulator that averaged one or fewer events per month
19	NC(M)	M-47	036	Key	B	B	B	C	B	C	C	monthly monitoring (key)	Was evaluated under the Citywide / Open Waters LTCP
20	NC(M)	M-50	032		C	C	C	C	C	C	C	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
1	NR	N-03	017		C	C	C	C	C	C	C	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
2	NR	N-16	006	Key	B	C	B / C	C	C	C	B	monthly monitoring (key) LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
3	NR	N-18	004		C	C	C	C	C	C	C	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
4	NR	N-23	043	Key	B	B	B	C	C	B	B	monthly monitoring (key) LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
5	NR	N-26	040		B	B	B	B	B	B	B	no further monitoring	Non-key regulator that averaged one or fewer events per month
6	NR	N-28	038		B	B	B	B	B	B	B	no further monitoring	Non-key regulator that averaged one or fewer events per month
7	NR	N-29A	046		C	C	C	C	C	C	C	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
8	NR	N-33	033	Key	B	B	B	B	B	B	B	monthly monitoring (key)	Key regulator that averaged one or fewer events per month
9	NR	N-45	027		C	C	C	C	C	C	C	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
10	NR	N-50	023		B	B	B	B	B	B	B	no further monitoring	Non-key regulator that averaged one or fewer events per month
1	OH	01	017	Key	C	B / C	B / C	B	C	B	B	monthly monitoring (key) LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
2	OH	03	018		B	B	B	B	B	B	B	no further monitoring	Non-key regulator that averaged one or fewer events per month
3	OH	04	019		B	B	B	B	B	B	B	no further monitoring	Non-key regulator that averaged one or fewer events per month
4	OH	06	002	Key	C	C	B / C	B	B	B	B	monthly monitoring (key) LTCP consideration	Was evaluated under the Citywide / Open Water LTCP
5	OH	07	003		C	C	C	C	C	C	C	LTCP consideration	Was evaluated under the Citywide / Open Water LTCP
6	OH	10			A	C	C	C	C	C	C	LTCP consideration	
7	OH	11			A	B	B	B	B	B	B	no further monitoring	Non-key regulator that averaged one or fewer events per month
8	OH	7D	004		B	B	B	B	B	B	B	no further monitoring	Non-key regulator that averaged one or fewer events per month
9	OH	9A	015		A	B	B	B	B	B	B	no further monitoring	Non-key regulator that averaged one or fewer events per month
10	OH	9B	015		B	B	B	B	B	B	B	no further monitoring	Non-key regulator that averaged one or fewer events per month
1	PR	R-13E	031	Key	C	C	C	C	C	C	C	monthly monitoring (key) LTCP consideration	Was evaluated under the Citywide / Open Water LTCP
2	PR	R-35W	035		B	B	B	B	B	B	B	no further monitoring	Non-key regulator that averaged one or fewer events per month
3	PR	R-06W	029	Key	C	C	C	C	C	C	C	monthly monitoring (key) LTCP consideration	Was evaluated under the Citywide / Open Water LTCP
1	RH	R-02	018	Key	B	B	B	B	B	B	B	monthly monitoring (key)	Key regulator that averaged one or fewer events per month
2	RH	R-20	004	Key	B	B	B	B	B	B	B	monthly monitoring (key)	Key regulator that averaged one or fewer events per month
3	RH	R-21	003		B	B	B	B	B	B	B	no further monitoring	Non-key regulator that averaged one or fewer events per month

Status of All Telemetered Regulators with Potential CSO Discharges Outside of a Critical Wet Weather Event

No.	WWTP	Reg No.	Outfall SPDES No.	Key Regulator	2015 BMP Report Original Category	2016 BMP Report Updated Category	2017 BMP Report Updated Category	2018 BMP Report Updated Category	2019 BMP Report Updated Category	2020 BMP Report Updated Category	2021 BMP Report Updated Category (Current)	Monitoring Status in 2021 BMP Report	Additional Notes
1	RK	01	029		B	B	B	B	B	B	B	no further monitoring	Non-key regulator that averaged one or fewer events per month
1	TI	09	011	Key	A	C	B / C	C	C	C	C	monthly monitoring (key) LTCP consideration	Flushing Creek LTCP recommends floatables control and disinfection of outfalls TI-010 & TI-011
2	TI	10A	003	Key	B	B	B	B	B	B	B	monthly monitoring (key)	Key regulator that averaged one or fewer events per month
3	TI	13	023		C	C	C	C	C	C	C	LTCP consideration	Was evaluated under the Citywide / Open Water LTCP
4	TI	30	010		E	E	E	E	E	E	E	no further monitoring	Does not directly discharge to a waterbody
5	TI	40	010		E	E	E	E	E	E	E	no further monitoring	Does not directly discharge to a waterbody
6	TI	46	008		E	E	E	E	E	E	E	no further monitoring	Does not directly discharge to a waterbody
7	TI	47	008		E	E	E	E	E	E	E	no further monitoring	Does not directly discharge to a waterbody
8	TI	49	008		E	E	E	E	E	E	E	no further monitoring	Does not directly discharge to a waterbody
1	WI(M)	02B	003		A	A	A	A	A	A	*	LTCP consideration (*CY2021 sensor malfunction)	Was evaluated under the Citywide / Open Waters LTCP
2	WI(M)	07	008		A	A	A	A	A	A	*	LTCP consideration (*CY2021 sensor malfunction)	Was evaluated under the Citywide / Open Waters LTCP
3	WI(M)	23	023	Key	A	A	A	A	A	B	B	monthly monitoring (key)	Was evaluated under the Citywide / Open Waters LTCP
4	WI(M)	24	024		A	A	A	A	A	A	B	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
5	WI(M)	38	038		A	A	A	A	A	A	B	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
6	WI(M)	45	045		A	A	A	A	A	A	*	LTCP consideration (*CY2021 sensor malfunction)	Was evaluated under the Citywide / Open Waters LTCP
7	WI(M)	46	046		A	A	A	A	A	A	B	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
8	WI(M)	51	051		A	A	A	A	A	A	B	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
9	WI(M)	52	052		A	A	A	A	A	A	C	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
10	WI(B)	53	068	Key	A	A	A	A	A	B	B	monthly monitoring (key)	Was evaluated under the Citywide / Open Waters LTCP
11	WI(B)	58	075		A	A	A	A	A	A	C	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
12	WI(B)	60	062		A	A	A	A	A	A	B	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
13	WI(B)	62	060		A	A	A	A	A	A	C	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP
14	WI(B)	66	057		E	N/A	N/A	N/A	N/A	N/A	N/A	N/A	removed from list of telemetered regulators
15	WI(B)	67	056	Key	A	A	A	A	A	B	B	monthly monitoring (key)	Was evaluated under the Citywide / Open Waters LTCP
16	WI(B)	68	072		A	A	A	A	A	B	B	LTCP consideration	Was evaluated under the Citywide / Open Waters LTCP

Category	Definition
A	Current or future capital improvements potentially render collected data unrepresentative of future conditions
B	Averaged one or fewer potential discharges outside the period of a critical wet weather event per month
C	Averaged two or more potential discharges outside the period of a critical wet weather event per month
D	Data collection issue / data not reported
E	Telemetered regulator that does not directly discharge to a waterbody