UNITED STATES DISTRICT COURT
for the
DISTRICT OF MASSACHUSETTS

UNITED STATES OF AMERICA, Plaintiff, v. METROPOLITAN DISTRICT COMMISSION, et al., Defendants.	CIVIL ACTION No. 85-0489-RGS
CONSERVATION LAW FOUNDATION OF NEW ENGLAND, INC., Plaintiff, v. METROPOLITAN DISTRICT COMMISSION, Defendants.	CIVIL ACTION No. 83-1614-RGS

MWRA BIANNUAL COMPLIANCE AND
PROGRESS REPORT AS OF JUNE 15, 2018

The Massachusetts Water Resources Authority (the "Authority") submits the following biannual compliance report for the period from December 15, 2017 to June 15, 2018 and supplementary compliance information in accordance with the Court's order of December 23, 1985 and subsequent orders of the Court.

I. Schedule Seven.

Schedule Seven activity for the month of January 2018 on the Court's Schedule Seven, certified by Frederick A. Laskey, Executive Director of the Authority, is attached hereto as "Exhibit A."

A. Activities Completed.

1. Commencement of Three-Year Performance Assessment of Long-Term CSO Control Plan.

As previously reported, the Authority issued the Notice to Proceed with the consultant contract for the three-year combined sewer overflow (CSO) post-construction monitoring and performance assessment on November 8, 2017, in advance of and in compliance with the January 2018 milestone in Schedule Seven. The contract includes CSO inspections, wastewater system and CSO metering, hydraulic modeling, CSO performance assessments and water quality assessments. With the assistance of the contract services, the Authority plans to complete the performance assessment and submit the results to the United States Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP) in December 2020, in compliance with the last milestone in Schedule Seven.

The goal of the Authority's three-year CSO post-construction monitoring and performance assessment is to demonstrate that the Authority has achieved compliance with the levels of control (including as to frequency of CSO activation and as to volume of discharge) specified in its Long-Term CSO

Control Plan (LTCP) and mandated by the Court by reference in the March 15, 2006, Second Stipulation of the United States and the Massachusetts Water Resources Authority on Responsibility and Legal Liability for Combined Sewer Overflows, as amended by the Court on May 7, 2008.

B. Progress Report.

1. Combined Sewer Overflow Program.

a. CSO Post-Construction Monitoring.

In the first few months of this year, the Authority's consultant completed physical inspections of more than 200 overflow regulator structures associated with the 84 CSO outfalls addressed in the LTCP that have been permanently closed or are intended to remain active at greatly reduced discharge levels in the long-term. The detailed inspection records support the verification that CSO discharges are permanently eliminated at the closed outfalls and have supported the preparation of detailed plans for overflow metering at the remaining active regulators.

Following the inspections, the consultant completed detailed flow and overflow metering plans and installed temporary meters at 58 CSO regulators. While the contract included an original metering plan calling for meters at 33 active regulators, the Authority decided to meter 25 additional regulators, even those the Authority has long believed, based on years of model predictions, to rarely activate. Overflow meters at the 58 regulators have been in place and operational since April 15, 2018, and the Authority's consultant has collected

and recorded the data from the meters in every storm since. The consultant and the Authority regularly review the meter data to ensure that the meters are operating effectively and reliably. At each of these regulators, the meter(s) will remain in place under established protocols intended to gather as much data as possible and as needed to help validate overflow activity predicted by the Authority's hydraulic model across a range of storms or to confirm that certain regulators rarely activate.

The CSO post-construction monitoring work includes reconciling variances between the CSO discharges produced from verified meter data and the discharges predicted by the hydraulic model by correlating the measured and modeled discharges with rainfall characteristics and wastewater system hydraulic conditions. The Authority's consultant will also use verified field data to recalibrate the model or portions of the model, as needed.

The Authority and its consultant also regularly collect and record data from existing permanent meters in the Authority's wastewater system, including pumping stations and CSO treatment facilities and from existing CSO regulator meters maintained by its member communities with permitted CSO outfalls. At many of the regulators metered by the communities, the Authority's consultant has installed temporary meters to supplement the data collected by the community. The Authority and its consultant will continue to work closely with the four CSO communities (the cities of Boston, Cambridge, Chelsea, and Somerville) in reviewing meter data and system performance conditions and factors. The Authority will use the full complement of collected

and verified meter data and the model predictions to update and confirm CSO discharge estimates, which the Authority will present in semiannual reports to EPA and DEP, with the first scheduled to be issued this September.

The consultant also regularly collects rainfall data from a network of permanent gauges the Authority has utilized for its hydraulic model simulations for many years, as well as temporary gauges the consultant recently added to improve coverage. The rainfall data will be used as input to hydraulic model simulations and as a means to correlate and validate both the measured and the model-predicted CSO discharges.

As part of the CSO performance assessment and in compliance with the CSO variances to Water Quality Standards issued by DEP for the Lower Charles River/Charles Basin and the Alewife Brook/Upper Mystic River, the Authority is continuing to conduct water quality monitoring in these receiving waters.[1] The Authority modified its monitoring program in 2017 at DEP's request in order to expand the amount of storm related monitoring in the Charles River and the Alewife Brook.

The Authority intends to utilize the data from the ongoing monitoring program to update receiving water quality conditions following the December 2015 completion of the last of the 35 LTCP projects and to determine remaining

[1] In compliance with the CSO variances and variance extensions, the Authority has, since 2005, submitted an annual report to DEP by July 15 summarizing the receiving water quality data collected in the Authority's monitoring program during the previous calendar year.

CSO and non-CSO (e.g., separate stormwater) impacts and the level of attainment of water quality standards through statistical analyses of the receiving water quality data. In support of these objectives, the Authority is developing a detailed analytical approach for the analysis of receiving water quality data, which the Authority plans to submit in draft form to DEP next month.

The Authority met with DEP as recently as June 4, 2018, to update DEP on the progress of work for the court-ordered CSO performance assessment and to discuss the scope of information DEP is seeking from the Authority to support its own long-term water quality standards determinations for the variance waters of Lower Charles River/Charles Basin and the Alewife Brook/Upper Mystic River. The Authority and DEP plan to continue these discussions, and the Authority will update the status in its December 2018 filing.

b. Annual CSO Discharge Report.

On April 30, 2018, the Authority submitted to EPA and DEP its seventeenth annual report estimating CSO discharge frequencies, durations, and volumes in 2017 pursuant to annual tracking and reporting requirements in the Authority's and CSO communities' NPDES permits and in the CSO variances for the Lower Charles River/Charles Basin and Alewife Brook/Upper Mystic River.

The 2017 report, like the earlier annual reports, includes descriptions of system changes or new system information that had the potential for affecting CSO discharges. The report presents modeled or metered estimates of the number of activations and the total discharge duration and volume at each CSO outfall during the year. The Authority modeled each of the approximately 100 rainfall events in 2017, as recorded at area rainfall gauges. The CSO discharge estimates in the report are from model predictions, except at CSO treatment or storage facilities where the Authority measures discharges.

In addition to modeling all of the actual rainfall events in 2017, the Authority modeled the "Typical Year" rainfall with updated end-of-year 2017 system conditions and compared the results to the LTCP discharge levels.[2] To be able to understand and explain the estimated discharges for each calendar year, which can vary greatly from Typical Year predictions, the Authority performs a detailed review and comparison of the characteristics of the year's actual storms to the characteristics of the storms in the Typical Year.

In 2017, Metropolitan Boston saw an end to the drought conditions of the previous few years. Generally, comparison of the metered and modeled discharge estimates for 2017 rainfall and the model-predicted discharges for the Typical Year suggest that 2017 rainfall was close to the Typical Year.

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[2] "Typical Year" rainfall was developed by the Authority and approved by EPA and DEP in 1993 and has been the basis for development, recommendation and approval of the Authority's LTCP, establishment of the federal court mandated levels of control, and assessment of CSO performance.

Model-predicted CSO discharge volume was slightly greater for the storms of 2017 (399 MG) than for the Typical Year (379 MG). Measured or modeled CSO discharge frequencies in 2017 were similar to the model predictions of discharge frequencies for the Typical Year, suggesting closeness of the number of storms large enough to cause CSO activation. This is supported by the rainfall analyses the Authority included in the report.

c. CSO Memoranda of Understanding and Financial Assistance Agreements.

The Authority recently completed its final eligibility reviews of construction related contracts which the City of Cambridge undertook with funding from the Authority to implement several of the CSO projects in the Authority's LTCP. The CSO Memorandum of Understanding and Financial Assistance Agreement between Cambridge and the Authority is scheduled to end on June 30, 2018. Pursuant to the terms of these agreements, the Authority provided more than $100 million in eligible CSO funding to the City of Cambridge, and the City successfully designed and constructed the Alewife Wetland, sewer separation and hydraulic relief projects that greatly reduced the frequency and volume of CSO discharges to the Alewife Brook, and improvements that control floatable materials in remaining CSO discharges to the Brook and the Charles River.

Similar CSO memoranda of understanding and financial assistance agreements with the Boston Water and Sewer Commission (BWSC) and the Town of Brookline ended in 2017 and 2014, respectively. The Authority

provided a total of $428 million (of its $910 million CSO Control Program capital budget) to BWSC, Brookline and Cambridge, and these communities successfully designed and constructed 16 of the 35 projects in the LTCP. The community-implemented CSO projects included the construction of nearly 100 miles of new storm drain and sewer pipe as part of sewer separation projects that greatly reduced CSO discharges to the Charles River, Alewife Brook, Reserved Channel and Fort Point Channel and eliminated CSO discharges to the Neponset River, South Dorchester Bay and Constitution Beach.

d. Save the Harbor/Save the Bay's Annual Beach Water Quality Report Card for 2017.

On May 27, 2018, the environmental advocacy organization Save the Harbor/Save the Bay ("SH/SB") released its Beach Water Quality Report Card on the Metropolitan Region's public beaches for the 2017 beach season. The report card is based on daily or weekly water quality data collected during the 2017 beach season at 15 public beaches in 10 communities, including Lynn, Swampscott, Nahant, Revere, Winthrop, East Boston, South Boston, Dorchester, Quincy and Hull.

The report card's water quality ratings are based on the percentage of test samples at or below the state swimming standard (*Enterococcus* bacteria concentration of 104 colonies per 100 ml). According to the report, the 15 metropolitan Boston beaches were deemed safe for swimming 94 percent of the time in 2017, on average, which was a reduction from 96 percent measured in

the 2016 beach season. SH/SB attributes the reduction to much greater rainfall during the 2017 beach season (12.1 inches) compared to the 2016 beach season (5.3 inches). In calendar year 2017, rainfall amounts returned to near normal levels after a few years of drought conditions.

The 2017 report card shows that 100 percent of the samples were at or below the bacteria swimming standard at M Street, Carson and Pleasure Bay beaches in South Boston, 95 percent at Constitution Beach in East Boston, 94 percent at City Point Beach in South Boston, and 94 percent and 91 percent, respectively, at Savin Hill Beach and Malibu Beach along South Dorchester Bay. Compliance remained at a lower level at Tenean Beach (81 percent). The Authority's Long-Term CSO Control Plan eliminated CSO discharges at Constitution Beach and at Malibu, Savin Hill and Tenean beaches. The Authority's CSO storage tunnel has prevented any CSO discharge to the South Boston beaches since the tunnel was brought on-line in May 2011.

e. EPA Charles River Water Quality Report Card.

On June 1, 2018, the United States Environmental Protection Agency ("EPA") issued its 23rd annual Charles River Water Quality Report Card, giving a grade of "A-" for water quality in the river during 2017. The water quality of lower Charles River has improved dramatically from the commencement of EPA's Charles River Initiative in 1995, when the river received a grade of "D." The EPA grade is based on monthly bacterial sampling conducted by the

Charles River Watershed Association at 10 monitoring sites from the Watertown Dam to Boston Harbor over calendar year 2017. The data show that the lower Charles River met the state's bacterial water quality standards for boating 95 percent of the time and for swimming 72 percent of the time, compared to only 39 percent of the time and 19 percent of the time, respectively, in 1995. EPA reports that the improved water quality was measured in 2017 even with a majority of sampling events occurring during or soon after wet weather.

EPA's Report Card attributes the water quality improvement to "significant reductions in the amount of Combined Sewer Overflow discharges to the river over the past 24 years, as well as enforcement of water quality standards and removal of illicit discharges." Average annual CSO discharge to the Charles River has been reduced 99 percent, from 1.74 billion gallons in the late 1980's to 13.5 million gallons today, with approximately 78 percent of the remaining annual discharge being treated at the Authority's Cottage Farm CSO Facility.[3]

Respectfully submitted,

/s/ Jonathan M. Ettinger

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[3] From the Authority's "CSO Discharge Estimates and Rainfall Analyses for Calendar Year 2017," April 30, 2018.

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CERTIFICATE OF SERVICE

I hereby certify that a true and accurate copy of this document, which was filed via the Court's ECF system, will be sent electronically by the ECF system to the registered participants as identified on the Notice of Electronic Filing (NEF) and paper copies will be sent to those indicated as non-registered participants on June 15, 2018.

/s/ Jonathan M. Ettinger
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Dated: June 15, 2018

EXHIBIT A

SCHEDULE SEVEN

MWRA BIANNUAL COMPLIANCE REPORT
Schedule Seven Milestones for January 2018

EXHIBIT "A"

NEW BOSTON HARBOR SECONDARY TREATMENT PLANT

LONG-TERM SLUDGE MANAGEMENT

MONTH/YEAR	**CSO CONTROL**
January 2018	MWRA to commence performance assessment of its Long-Term CSO Control Plan.[38] The assessment shall include post-construction monitoring in accordance with EPA's Combined Sewer overflow (CSO) Policy, 59 Fed. Reg. 18688 (April 19, 1994).

Certification of Completed Activities

By: _____
Frederick A. Laskey
Executive Director, MWRA

Date: June 15, 2018

[38] The documents that comprise the Authority's Long-Term CSO Control Plan are identified in the March 15, 2006, Second Stipulation of the United States and the Massachusetts Water Resources Authority on Responsibility and Legal Liability for Combined Sewer Overflow Control.