

MASSACHUSETTS WATER RESOURCES AUTHORITY

Board of Directors Report

on

Key Indicators of MWRA Performance

First Quarter FY2024

Q1	Q2	Q3	Q4



Frederick A. Laskey, Executive Director
David Coppes, Chief Operating Officer
November 15, 2023

Board of Directors Report on Key Indicators of MWRA Performance

1st Quarter - FY24

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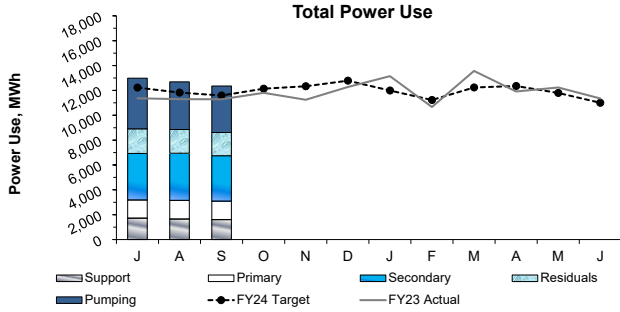
This quarterly report is prepared by MWRA staff to track a variety of MWRA performance measures for routine review by MWRA's board of directors. The content and format of this report is expected to develop as time passes. Information is reported on a preliminary basis as appropriate and available for internal management use and is subject to correction and clarification.

Frederick A. Laskey, Executive Director
David Coppes, Chief Operating Officer
November 15, 2023

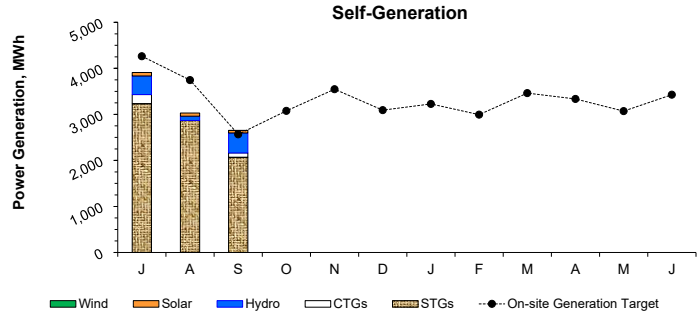
OPERATIONS AND MAINTENANCE

Deer Island Operations

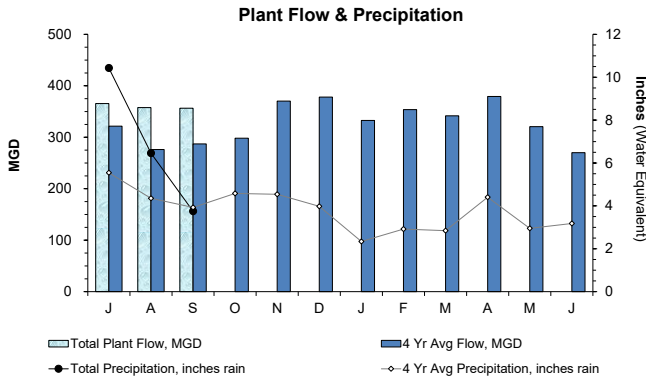
1st Quarter - FY24



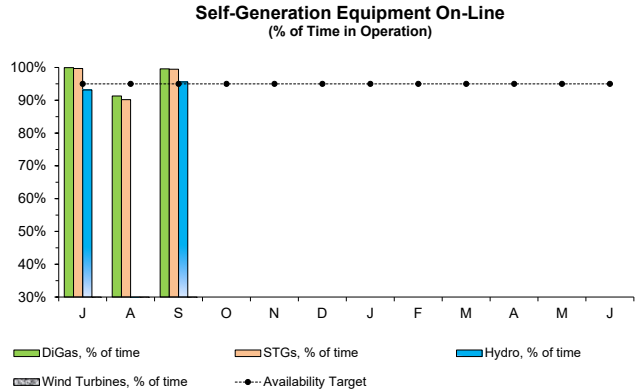
Total power usage in the 1st Quarter was 6.7% above target as plant flow for this period was 22.0% above target with historical (4 year average) data used to generate the electricity model. Power used in most areas and major treatment processes was within 5% of target, except for power used for raw wastewater pumping which was 22.1% above target due to the higher plant flows.



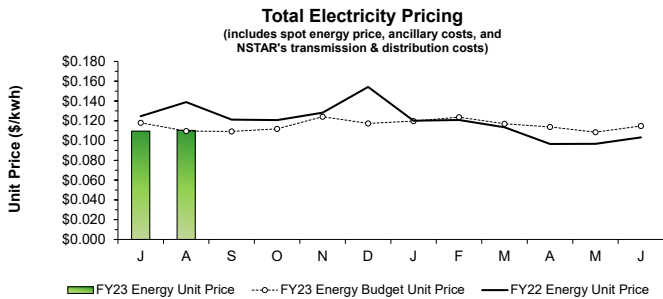
Power generated on-site during the 1st Quarter was 9.3% below the target. The CTDs operated mainly for peak shaving this quarter on seven (7) days for a total of 25 hours and briefly for routine maintenance/checkout purposes. STGs generation was within 2.5% of target as digester gas production was similar to target. Hydro Turbine generation was 6.0% below target as both turbines were out of service from August 6 to August 30 pending maintenance repairs. Solar Panel generation was 23.9% below target as the rooftop array on the Residuals Odor Control Facility remains out of service due to a failed inverter. Wind Turbine generation has been minimal this quarter as Turbine #1 remains out of service indefinitely and Turbine #2 was out of service for nearly the entire quarter, only returning to operation on September 22 after a faulty bearing was replaced.



Total Plant Flow for the 1st Quarter was 22.0% above target with the budgeted 4 year average plant flow (359.9 MGD actual vs 295.0 MGD expected) as precipitation was 49.3% above target this quarter (20.64 inches actual vs 13.83 inches expected).

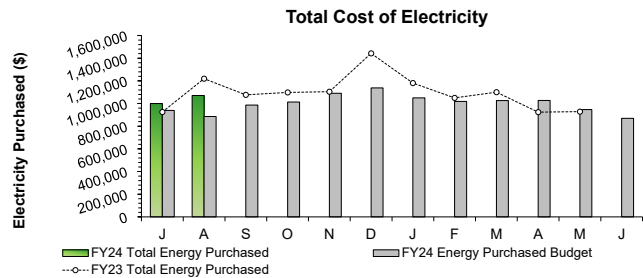


The DiGas System and STGs availability exceeded the 95% availability target in the 1st Quarter. Hydro Turbine availability was 70.0% as both turbines were out of service from August 6 to August 30 pending maintenance repairs. Hydro Turbine #1 remains out of service pending replacement of the gearbox and bearings and Turbine #2 was returned to service after broken shear pins were replaced. Wind Turbine availability was well below target as Turbine #1 remains out of service indefinitely and Turbine #2 was out of service for nearly the entire quarter, only returning to availability on September 22 after a faulty bearing was replaced.



Under the current energy supply contract, a block portion of DI's energy is a fixed rate and the variable load above the block is purchased in real time. The actual Total Energy Unit Price for July through August (the latest available unit price) was 3.4% lower than the budgetary estimate. The Total Energy Unit Price includes a fixed block price, spot energy price, transmission & distribution charges, and ancillary charges.

Note: Only the actual energy prices are reported. Therefore, the dataset lags by one (1) month due to the timing of invoice receipt and review.

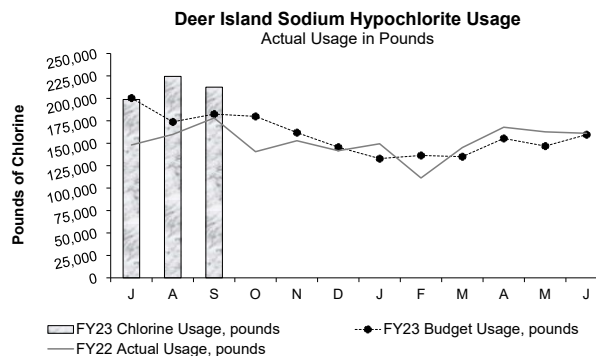
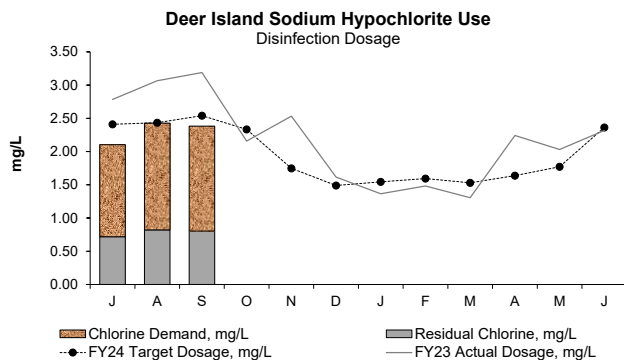


Year-to-date Total Cost of Electricity is \$245,491 (13.4%) higher than budgeted through August, even though the Total Energy Unit Price was 3.4% lower than target, as the Total Electricity Purchased was 17.4% above target.

Note: Only months with complete Electricity Purchased data are reported. Therefore, the dataset lags by one (1) month due to the timing of invoice receipt and review.

Deer Island Operations

1st Quarter - FY24



The disinfection dosing rate in the 1st Quarter was 6.0% below target with budgetary estimates while the sodium hypochlorite usage in pounds of chlorine was 14.2% above target as plant flows were 22.0% above target. To provide a proper pathogen kill, sodium hypochlorite is added to meet a chlorine demand then regulated by maintaining a chlorine residual. On March 29, 2023, the disinfection basin effluent total residual chlorine target was increased from 0.30 mg/L to greater than or equal to 0.50 mg/L, and was increased again to greater than or equal to 0.70 mg/L on July 22. The higher chlorine residual target was adjusted to develop operating strategies for the future more stringent seasonal NPDES permit limits for the indicator bacteria prior to the limits coming into effect. Deer Island maintained an average disinfection chlorine residual of 0.78 mg/L in the 1st Quarter with an average dosing rate of 2.30 mg/L as chlorine demand was 1.52 mg/L with the higher target.

The overall disinfection dosing rate (target and actual) is dependent on plant flow, target effluent total chlorine residual levels, effluent quality and NPDES permit levels for fecal coliform.

Secondary Blending Events

Month	Count of Blending Events	Count of Blending Events Due to Rain	Count of Blending Events Due to Non-Rain-Related Events	Secondary, as a Percent of Total Plant Flow	Total Hours Blended During Month
July	8	8	0	98.4%	27.30
August	3	3	0	99.1%	13.32
September	2	2	0	99.4%	12.36
October					
November					
December					
January					
February					
March					
April					
May					
June					
Total	13	13	0	99.0%	52.98

99.0% of all flows were treated at full secondary during the 1st Quarter. There were a total of 13 secondary blending events due to high plant flows from heavy precipitation. These blending events resulted in 52.98 hours of blending and a total of 347.87 MGal of primary-only treated effluent blended with secondary effluent. The Maximum Secondary Capacity during the entire quarter was 700 MGD.

Secondary permit limits were met at all times during the 1st Quarter.

Environmental/Pumping:

Deer Island Operations & Maintenance Report

The plant achieved an instantaneous peak flow rate of 1,148.1 MGD during the late evening of July 29. This peak flow occurred during a storm event that brought 3.07 inches of precipitation to the metropolitan Boston area within a single day, which was the 5th wettest day in history during the month of July as recorded at the Boston Logan Airport station by the National Weather Service. The record wettest day in July is 6.04 inches of rainfall recorded on July 9, 1921. The 10.43 inches of rainfall for the entire month is the highest recorded rainfall for the month of July since the startup of the DITP (July 1998). The previous record was 10.07 inches from July 2021. The Total Plant Flow in Quarter 1 was 22.0% above the 4 year average plant flow target for the quarter.

Additionally, the monthly total plant influent flow in August of 357.64 MGD set a new monthly high flow record for August, beating the previous record of 354.18 MGD from August 2011. Also, the average daily South System influent flow of 120.63 MGD was higher than the previous record of 113.55 MGD from August 2021. These new high flow records for August are shown in the table below and are highlighted in yellow.

August High Plant Flow Records

	Previous or Current August High Flow Records (since plant startup July 1998)	New August High Flow Records (set 2023 highlighted in yellow)	Current All-time Monthly High Flow Records (since plant startup July 1998)
Total Plant Influent Flow	354.18 MGD (2011)	357.64 MGD	725.65 MGD (March 2010)
North System Influent Flow	249.31 MGD (2011)	No new record set (237.01 MGD)	460.80 MGD (March 2010)
South System Influent Flow	113.55 MGD (2021)	120.63 MGD	264.84 MGD (March 2010)
Precipitation	7.74 inches (2011)	No new record set (6.46 inches)	14.87 inches (March 2010)

Deer Island Operations

1st Quarter - FY24

Deer Island Operations & Maintenance Report (continued)

Disinfection:

DITP uses sodium hypochlorite to destroy pathogens in the plant effluent. To provide a proper pathogen inactivation, sodium hypochlorite, is added to meet a chlorine demand then regulated by maintaining a chlorine residual. The disinfection basin effluent total residual chlorine target was increased from 0.30 mg/L to greater than or equal to 0.50 mg/L from March 29 through July 21, then increased again to greater than or equal to 0.70 mg/L on July 22. The higher chlorine residual target was changed to develop operating strategies for the future more stringent seasonal NPDES permit limits for indicator bacteria prior to the limits coming into effect. Once staff have finalized the operating strategy to ensure future compliance with the new limits, staff will return disinfection dosing and chlorine residual targets back to current permit conditions until the new NPDES permit is in effect.

Energy and Thermal Power Plant:

Overall, total power generated on-site accounted for 25.2% of Deer Island's total power use for the 1st Quarter. Renewable power generated on-site (by Solar, Wind, STGs, and Hydro Turbines) accounted for 24.4% of Deer Island's total electrical power use for the quarter.

Wind Turbine #1 remains out of service following a main shaft bearing failure on April 11, 2022 and subsequent braking and blade failures on May 29, 2023. Inspections and repair evaluations are ongoing. After being out of service since May 29, 2023, a faulty bearing on Wind Turbine #2 was replaced and the turbine was returned to service on September 22.

This summer, DITP is enrolled in an Eversource Connected Solutions Curtailment (Demand Response) program to reduce a portion of DITP's load from the regional electrical grid during peak energy usage periods. As such, cryogenic oxygen production was taken offline for three (3) hours from 4pm to 7pm on five (5) days this quarter due to Eversource demand response events, curtailing approximately 2 megawatts of demand from the electrical grid. Oxygen continued to be fed to the secondary activated sludge treatment process during these periods using stored liquid oxygen that was previously produced and stored in the Liquid Oxygen (LOX) tank.

Annual maintenance at the Thermal Power Plant (TPP) began on August 21 and continued through September 6. Various maintenance activities on the STG, BP-STG, the two (2) Zurn boilers, and the common systems included maintenance on various pumps, valves, and instrumentation throughout the TPP and the DITP heat loop system. On August 27, the main STG, and the BP-STG were taken out of service to allow for maintenance to proceed on these units, as well as maintenance on the common systems, Boiler 101, and the DITP heat loop system. Boiler 201 was also taken out of service due to the common system maintenance. The boiler common system and the BP-STG maintenance was completed by mid-day on August 29 allowing Boiler 201 to be returned to service by evening. The BP-STG was placed into operation on August 30 and the STG was returned to service on August 31. All digester gas produced was flared from August 27 to August 30 during the full TPP shutdown and there were no negative impacts caused by this annual maintenance shutdown.

The emissions compliance Annual Relative Accuracy Test Audit (RATA) was successfully completed by the contractor on September 19 for Boiler 101. During the light off of Boiler 201, a small steam leak on the main steam header was identified. The RATA test for Boiler 201 will be scheduled as soon as the leak is repaired and the contractor scheduled, likely sometime in October. A RATA is required to confirm that data from the boiler's Continuous Emissions Monitoring System is in agreement with corresponding EPA Reference Method test results.

Regulatory:

A secure landfill was constructed at the southern end of Deer Island in 1990 into 1991, during the construction of the new wastewater treatment plant, to permanently store grit and screenings materials, and a limited amount of scum mixed with on-site soil, that had been generated at DITP from when the facility was opened in the 1960's to December 1986. A total of approximately 85,000 cubic yards of material was placed in the landfill. Covering and capping the landfill was completed in September 1991. Since then, DITP have continued to follow landfill post-closure required monitoring activities. Recently, MWRA staff began initial discussions with the MADEP to request termination of the post-closure period which could potentially result in the stoppage or the reduction of existing landfill post-closure monitoring and maintenance activities. Per MADEP's request, MWRA staff provided a summary of the results from the routine landfill post-closure monitoring samples that have been collected for over the past 30 years. On August 28, several representatives from MADEP completed a site inspection of the landfill accompanied by staff from DITP and the Environmental & Regulatory Affairs Department. Staff are currently in the process of preparing a formal request for termination of the landfill post-closure period to be submitted to the MADEP. Following the landfill inspection, the MADEP representatives also conducted an annual audit of the Deer Island Treatment Plant. This was the first DITP audit by the MADEP since before the COVID-19 pandemic.

Clinton Operations & Maintenance Report

Dewatering Building

Operations staff and the Facilities Specialist hot water flushed the gravity thickener #2 beach plate hopper. The M&O's repacked the #2 Komline Sanderson piston pump and a contractor replaced the starter and transformer for this pump. Staff pressure washed the lower polymer pump area, cleaned out the plugged pipe on the # 3 polymer pump, and replaced the hydraulic oil.

Chemical Building

Maintenance staff and the Facilities Specialist disassembled and jetted clean both soda ash lines, A and B. They removed and replaced the soda ash bin monitor that failed and replaced an air hose on the soda ash filter bag system. M&O's also installed a new hypochlorite tank (# 2), completed piping on the tank, and replaced a level sensor. The contractor replaced a leaking backflow preventer in the chemical building. Deer Island staff installed an ultrasonic sensor on the lower soda ash mix tank.

Aeration Basins

Maintenance staff replaced the motor blower for aeration tank # 2 and the contractor replaced the control transformer for the same blower. Operations staff cleaned the pH and DO probes. The Facilities Specialist is repairing concrete and expansion joints.

Phosphorus Building

Operations staff hosed down floc train # 2 and switched over to # 3 train. Maintenance staff acid washed all three disk filters, cleaned troughs, and inspected all nozzles. Operations staff cleaned both CL17 chlorine analyzers. The electrical contractor replaced the VFD and fuse block for # 2 Disk Filter. Deer Island staff programmed the VFD.

Headwork's Building

The M&O's and the Facilities Specialist repaired #2 grit classifier by installing a large metal patch to keep it from leaking. They also replaced the seal in the Headwork's boiler room condensate pump. Maintenance staff cleaned influent and mechanical bar racks and greased both upper and lower pin racks. They also replaced scraper bar on the back side of bar rack. Contractor installed two out of three new screw pumps (#1 and #3 Screw pumps).

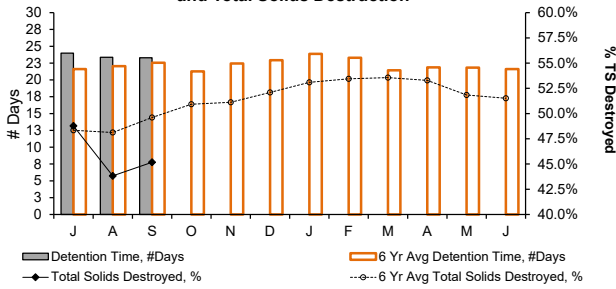
Digester Building

Operations staff changed from # 1 sludge heating boiler to # 2 for annual maintenance and inspection. The contractor cleaned both # 1 and # 2 sludge boilers and also replaced the temperature controller the on # 1 sludge boiler. The M&O's removed valves & flame arresters from the flare pit and also removed the gas regulators from the lower Digester building for jetting of gas lines. Maintenance staff checked all equipment for proper operation and greased the Ovivo mixer on the floating cover.

Deer Island Operations and Residuals

1st Quarter - FY24

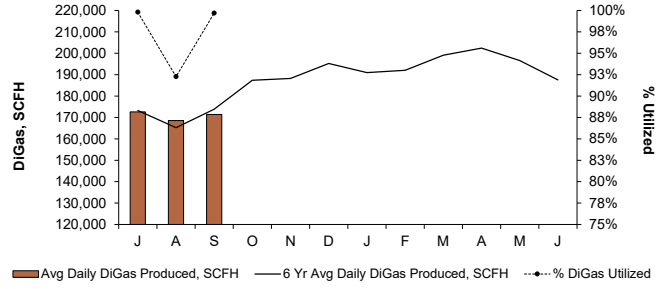
Sludge Detention Time in Digesters and Total Solids Destruction



Total solids (TS) destruction following anaerobic sludge digestion averaged 45.9% during the 1st Quarter, 5.6% below target with the 6 year average of 48.7%. Sludge detention time in the digesters was 23.5 days, 6.7% above the 22.1 days detention time target. 8 digesters were in operation, just over the projected target of 7.9 digesters.

Total solids (TS) destruction is dependent on sludge detention time which is determined by primary and secondary solids production, plant flow, and the number of active digesters in operation. Solids destruction is also significantly impacted by changes in the number of digesters and the resulting shifting around of sludge.

Digester Gas Production and % Utilized

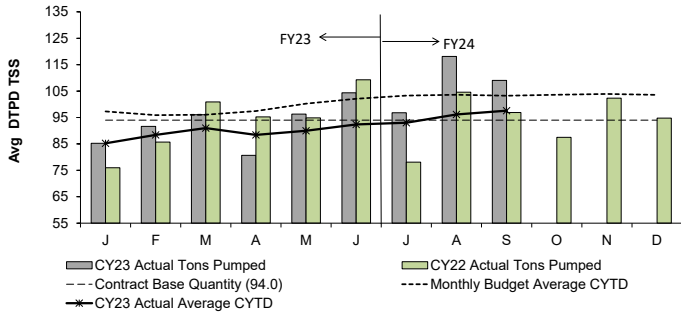


The Avg Daily DiGas Production in the 1st Quarter was on target with the 6 Year Avg Daily DiGas Production and 97.3% of the DiGas produced was utilized at the Thermal Power Plant. The lower digester gas utilization for August (92.3%) was due to the annual Thermal Power Plant maintenance outage.

Residuals Pellet Plant

New England Fertilizer Company (NEFCO) operates the MWRA Biosolids Processing Facility (BPF) in Quincy under contract. MWRA pays a fixed monthly amount for the calendar year to process up to 94.0 DTPD/TSS as an annual average (for the extended contract period of January 1, 2021 through December 31, 2023). The monthly invoice is based on 94.0 DTPD/TSS (Dry Tons Per Day/Total Suspended Solids) times 365 days divided by 12 months. At the end of the year, the actual totals are calculated and additional payments are made on any quantity above the base amount. On average, MWRA processes more than 94.0 DTPD/TSS each year (FY23's budget is 103.3 DTPD/TSS and the preliminary FY24's budget is 103.2 DTPD/TSS).

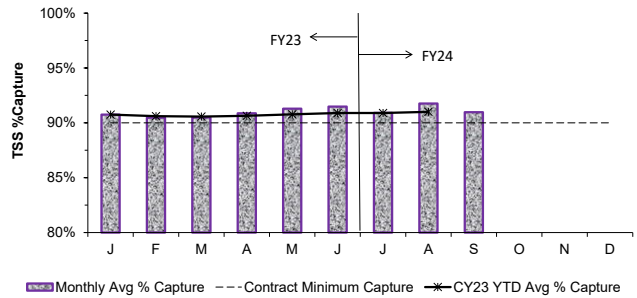
Sludge Pumped From Deer Island



The average quantity of sludge pumped to the Biosolids Processing Facility (BPF) in the 1st Quarter was 108.0 TSS Dry Tons Per Day (DTPD), within 2.3% of target with the FY24 budget of 105.6 TSS DTPD for the same period.

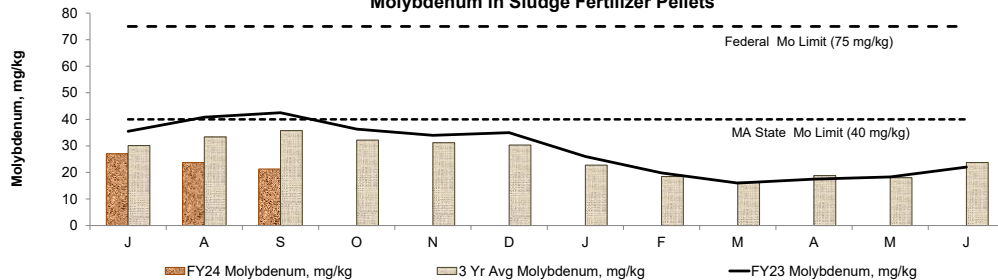
The CY23-to-date average quantity of sludge pumped is 97.6 DTPD, 5.5% below target compared to the CY23 average budget of 103.2 DTPD for the same period.

Monthly Average % Capture of Processed Sludge



The contract requires NEFCO to capture at least 90.0% of the solids delivered to the Biosolids Processing Facility. The average capture for the 1st Quarter was 91.21%.

Molybdenum in Sludge Fertilizer Pellets



Copper, lead, and molybdenum (Mo) are metals of concern for MWRA as their concentrations in its biosolids have, at times, exceeded regulatory standards for unrestricted use as fertilizer. Molybdenum-based cooling tower water is a significant source of Mo in the sludge fertilizer pellets. The Federal standard for Mo is 75 mg/kg. The Massachusetts Type I biosolids standard for molybdenum was changed from 25 mg/kg to 40 mg/kg in 2016, allowing MWRA to sell its pellets in-state for land application whereas the previous limits forced several months' worth of pellets to be shipped out of state.

Overall, the levels have been below the DEP Type 1 limit for all three (3) metals. For Mo, the level in the MWRA sludge fertilizer pellets during the 1st Quarter averaged 24.0 mg/kg, 27% below the 3 year average, 40% below target with the MA State Limit, and 68% below the Federal Limit.

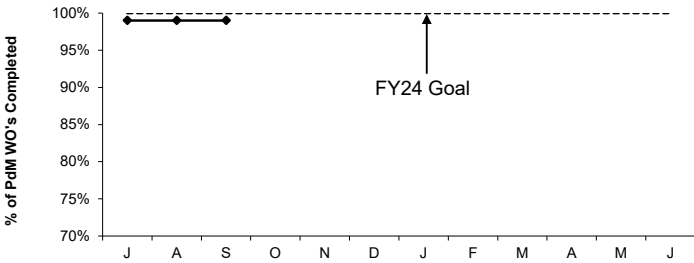
Deer Island Maintenance

1st Quarter - FY24

Productivity Initiatives

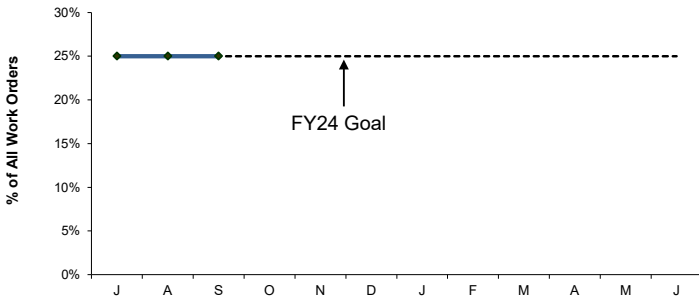
Productivity initiatives include increasing predictive maintenance compliance and increasing PdM work orders. Accomplishing these initiatives should result in a decrease in overall maintenance backlog.

Predictive Maintenance Compliance



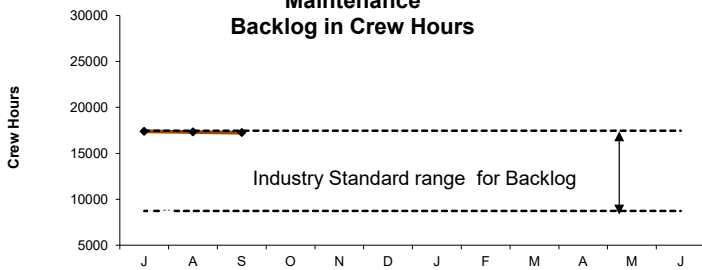
Deer Island's FY24 predictive maintenance goal is 100%. DITP completed 99% of all PdM work orders this quarter. DITP is continuing with an aggressive predictive maintenance program. Deer Island is slightly below our goal this quarter.

Predictive Maintenance



Deer Island's increased FY24 predictive maintenance goal is 25% of all work orders to be predictive. 25% of all work orders were predictive maintenance this quarter. The industry is moving toward increasing predictive maintenance work to reduce downtime and better predict when repairs are needed.

Maintenance Backlog in Crew Hours

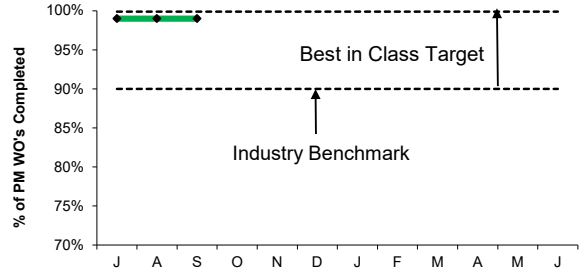


DITP's maintenance backlog at Deer Island is 17,237 hours this quarter. DITP is above the industry average for backlog. The industry Standard for maintenance backlog with 97 staff (currently planned staffing levels) is between 8,730 hours and 17,460 hours. Backlog is affected by (5) Vacancies; (1) Electrician, (1) Plumber, (1) HVAC Technician and (2) I&C Techicians. Management continues to monitor backlog and to ensure all critical systems and equipment are available.

Proactive Initiatives

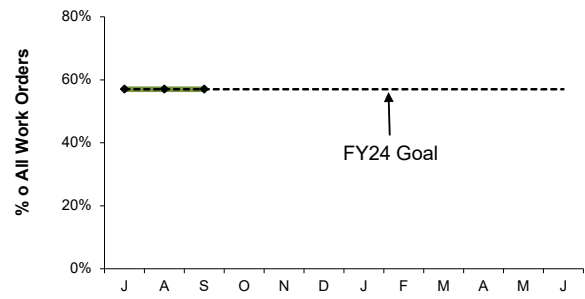
Proactive initiatives include completing 100% of all preventative maintenance tasks and increasing preventative maintenance kitting. These tasks should result in lower maintenance costs.

Preventive Maintenance Compliance



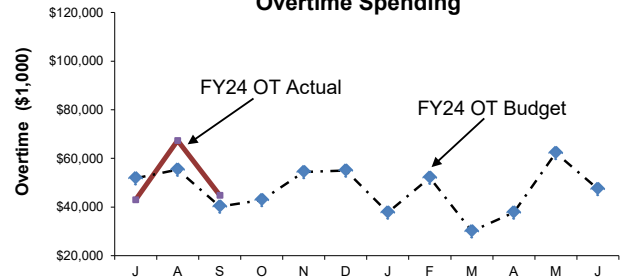
Deer Island's FY24 preventative maintenance goal is 100% completion of all work orders from Operations and Maintenance. DITP completed 99% of all PM work orders this quarter. Deer Island was slightly below our goal, but within Best in Class Target.

Maintenance Kitting



Deer Island's increased FY24 maintenance kitting goal is 57% of all work orders to be kitted. 57% of all work orders were kitted this quarter. Kitting is staging of parts or material necessary to complete maintenance work. This has resulted in more wrench time and increased productivity.

Overtime Spending



Maintenance overtime was over budget by \$8K this quarter and \$8k over for the year. Management continues to monitor backlog and to ensure all critical equipment and systems are available. This quarter's overtime was predominately used for Storm Coverage/High Flows, Pump Clogging Issues, Repair of Primary Operations Air Conditioning Unit, Repair Gravity Thickener Catwalk, MSA Gas Meter Replacement for NMPS, and Miscellaneous Tank Work.

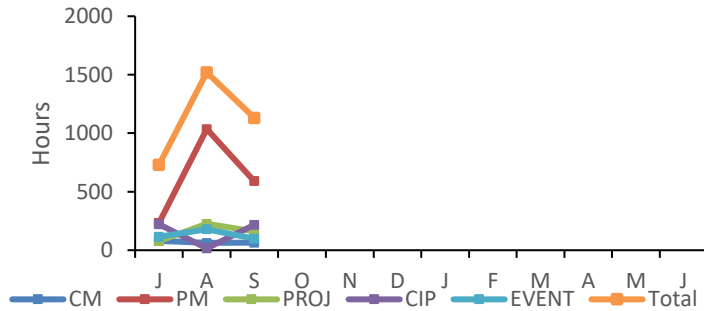
Water Distribution System Valves

1st Quarter - FY24

Background

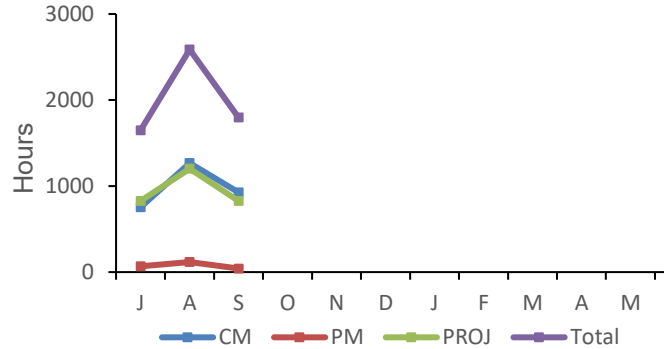
Valves are exercised, rehabilitated, or replaced in order to improve their operating condition. This work occurs year round. Valve replacements occur in locations during the normal construction season, and in off-road locations during the winter season. Valve exercising can occur year round but is often during the construction season. This is due to the fact that a large number of construction contracts involving rehabilitation, replacement, or new installation lines, requires valve staff to operate valves and assist with disinfection, dechlorination, pressure-testing, and final acceptance. Valve exercising can be impacted due to limited redundancy in the water system; valve exercising cannot be performed in areas where there is only one source of water to the consumers or flow disruptions will occur.

Water Valve Labor Hours



During 1st Quarter of FY24 there was a total of 3,381 hours worked. Percentage breakdown; Corrective Maintenance 6%, Preventative Maintenance 55%, Project 14%, Capital Improvement Project 13%, Event - Wtr Fountain 12%

Water Pipeline Labor Hours



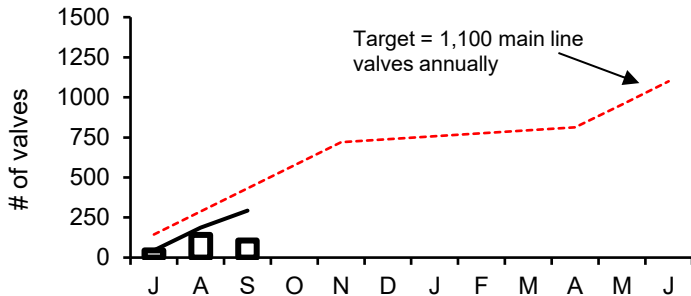
During 1st Quarter of FY24 there was a total of 6,031 hours worked. Percentage breakdown; Corrective Maintenance 49%, Preventative Maintenance 4%, Project 47%

Type of Valve	Inventory #	Operable Percentage	
		FY24 to Date	FY24 Targets
Main Line Valves	2,159	97.2%	95%
Blow-Off Valves	1,682	98.8%	95%
Air Release Valves	1,519	96.3%	95%
Control Valves	49	100.0%	95%

Key to Symbols:

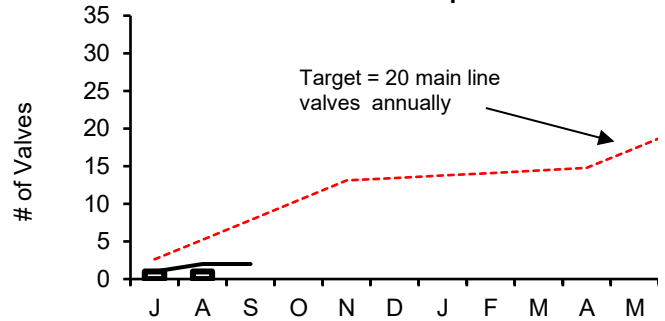
- FY24 Monthly Total
- FY24 Cumulative Total
- - - FY24 Target

Main Line Valves Exercised



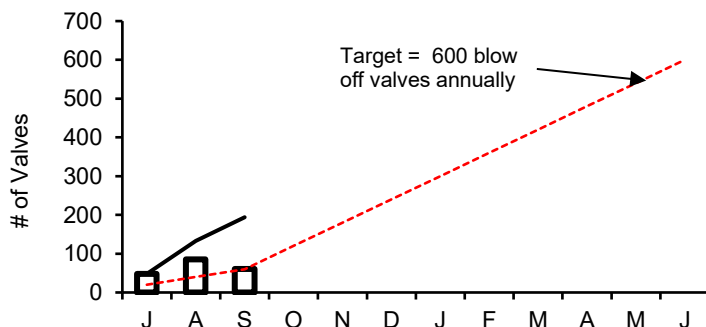
During 1st Quarter of FY24, 293 main line valves were exercised. The total exercised for the fiscal year to date is 293.

Main Line Valves Replaced



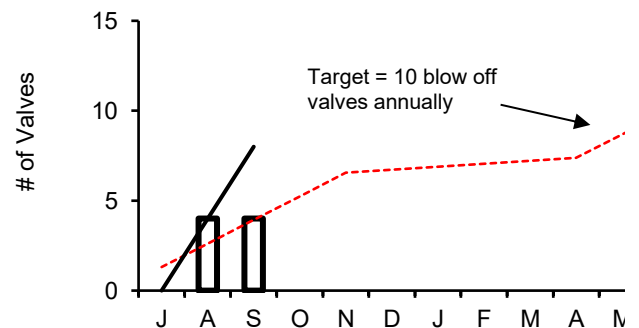
During 1st Quarter of FY24, there were two main line valves replaced. The total replaced for the fiscal year to date is two.

Blow-Off Valves Exercised



During 1st Quarter of FY24, 194 blow off valves were exercised. The total exercised for the fiscal year to date is 194.

Blow-Off Valves Replaced



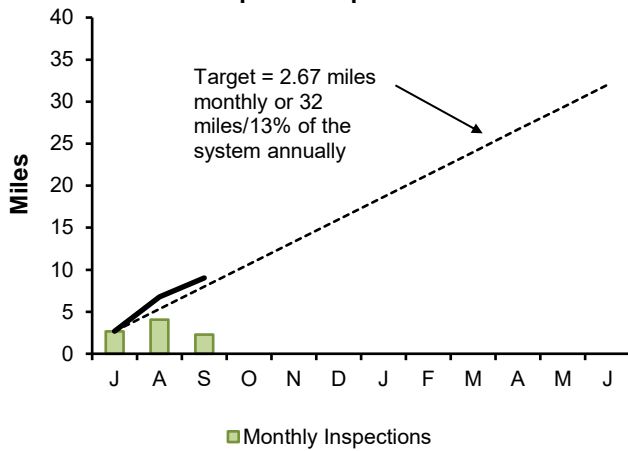
During 1st Quarter of FY24, there were eight blow valves replaced. The total replaced for the fiscal year to date is eight.

Wastewater Pipeline and Structure Inspections and Maintenance

1st Quarter - FY24

Inspections

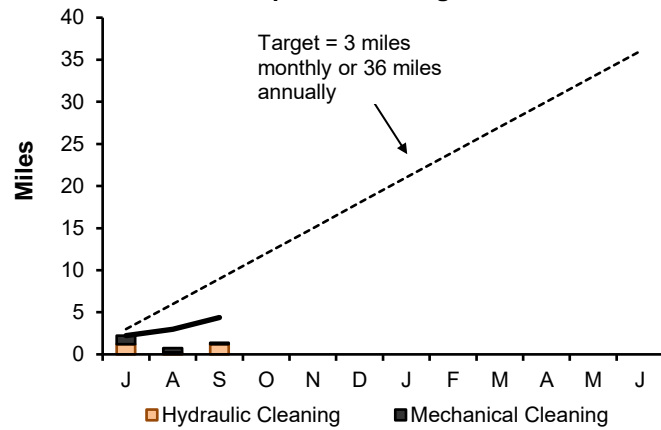
Pipeline Inspections



Staff internally inspected 9.02 miles of MWRA sewer pipe during this quarter. The year to date total is 9.02 miles. No Community Assistance was provided.

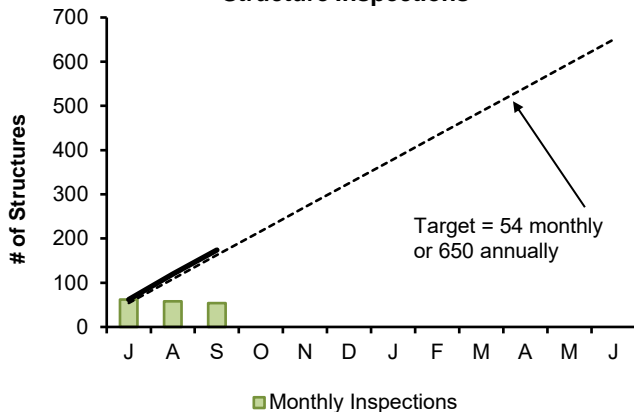
Maintenance

Pipeline Cleaning



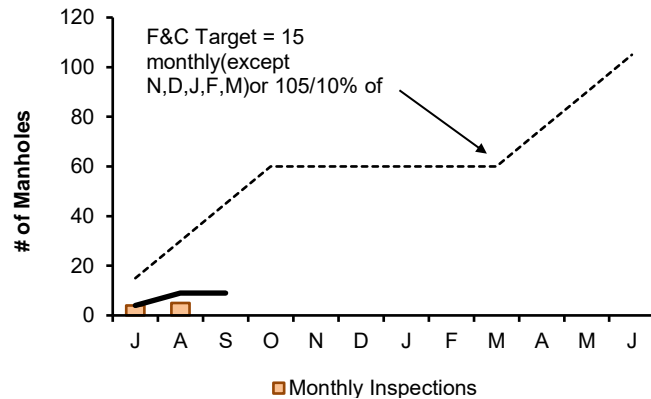
Staff cleaned 4.38 miles of MWRA sewer pipe, and removed 31 yards of grit. The year to date total is 4.38 miles. No Community Assistance was provided.

Structure Inspections



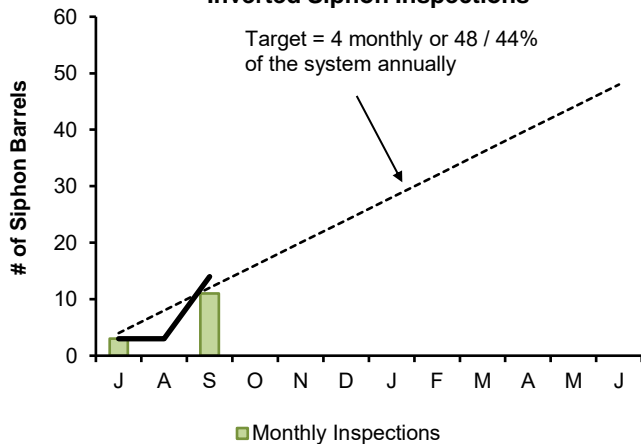
Staff inspected the 36 CSO structures and performed 138 other additional manhole/structure inspections during this quarter. The year to date total is 138 inspections.

Manhole Rehabilitation



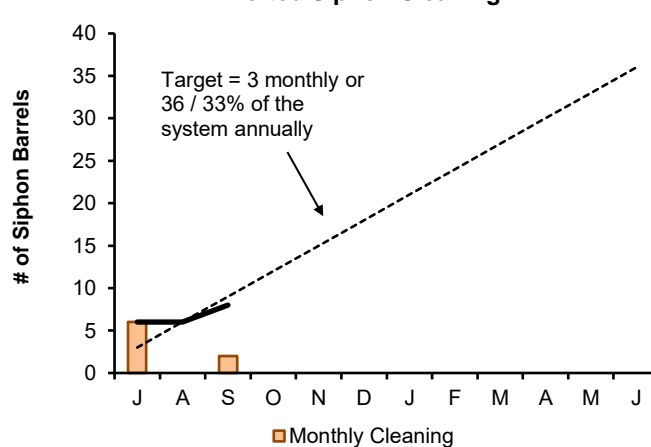
Staff replaced 9 frame and cover replacements this quarter. The year to date total is 9.

Inverted Siphon Inspections



Staff inspected 14 siphon barrels this quarter. The year total is 14 inspections.

Inverted Siphon Cleaning

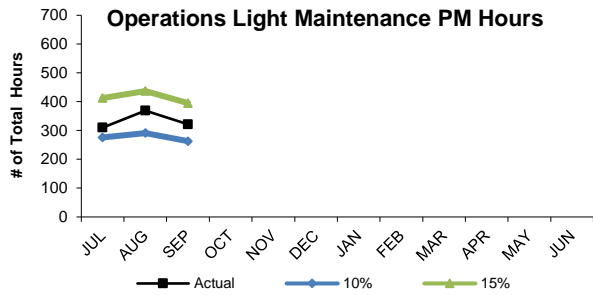


Staff cleaned 8 siphon barrels this quarter.

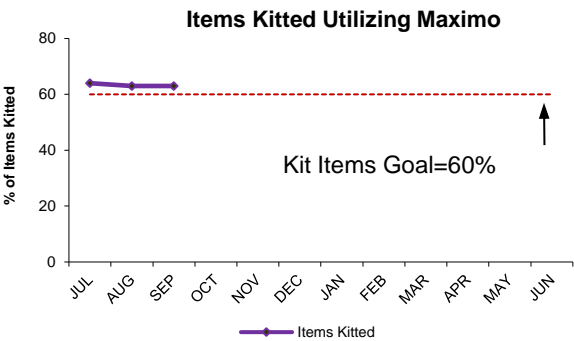
Field Operations' Metropolitan Equipment & Facility Maintenance

1st Quarter - FY24

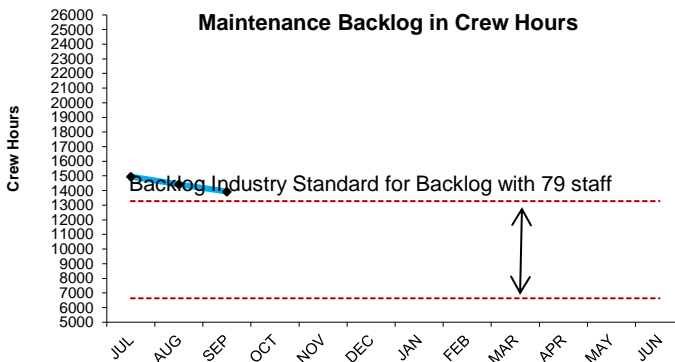
Several maintenance and productivity initiatives are in progress. The goal for the Overall PM completion and the Operator PM completion is 100%. The Operator PM and kitting initiatives frees up maintenance staff to perform corrective maintenance and project work, thus reducing maintenance spending. Backlog and overtime metrics monitor the success of these maintenance initiatives.



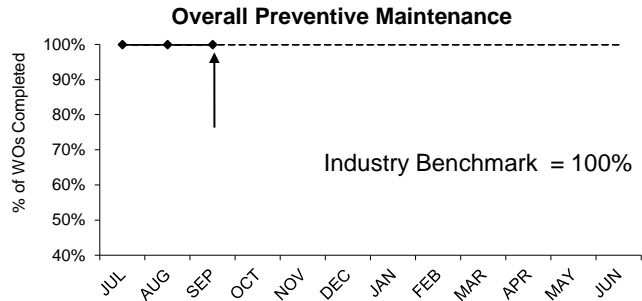
Operations staff averaged 334 hours per month of preventive maintenance during the 1st Quarter of FY24, an average of 12% of the total PM hours for the 1st Quarter, which is within the industry benchmark of 10% to 15%.



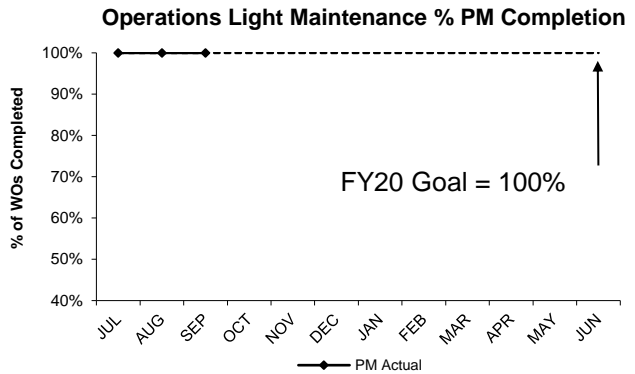
Operations' FY23 maintenance kitting goal has been set at 60% of all work orders to be kitted. Kitting is the staging of parts or material necessary to complete maintenance work. In the 1st Quarter of FY24, 63% of all applicable work orders were kitted. This resulted in more wrench time and increased productivity.



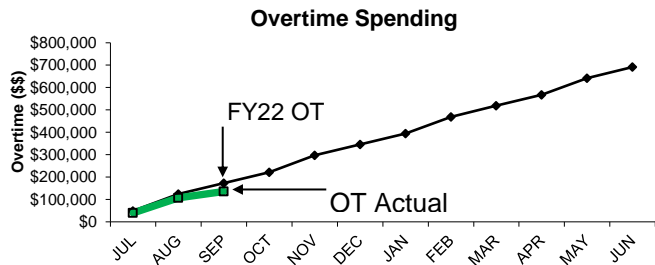
The 1st Quarter of FY24 backlog average is 14,429 hours. Management's goal is to continue to control overtime and try to get back within the industry benchmark of 6,636 to 13,275 hours. The current backlog is due to vacancies and several large maintenance projects.



The Field Operations Department (FOD) preventive maintenance goal for FY24 is 100% of all PM work orders. Staff completed 100% of all PM work orders in the 1st Quarter of FY24.



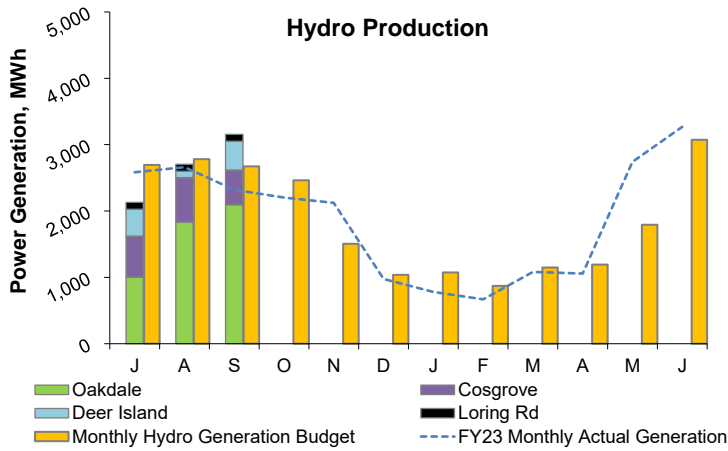
Wastewater Operations complete light maintenance PM's which frees up maintenance staff to perform corrective maintenance. Operations' FY24 PM goal is completion of 100% of all PM work orders assigned. Operations completed 100% of PM work orders in the 1st Quarter of FY24.



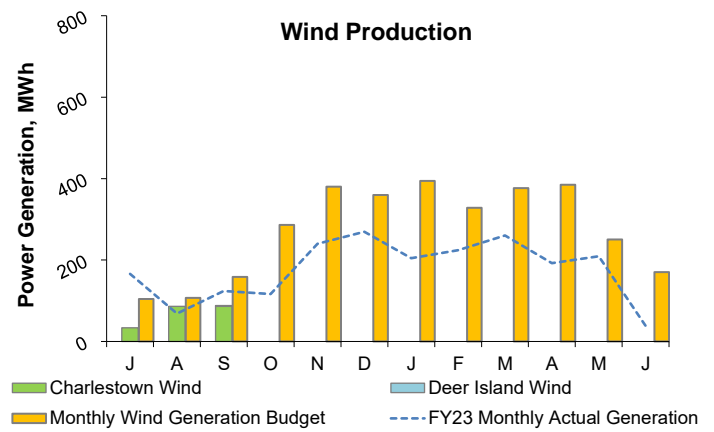
Maintenance overtime was \$12,455 under budget on average, per month, for the 1st Quarter of FY24. Overtime is used for critical maintenance repairs and wet weather events. The overtime budget through the 1st Quarter of FY24 is \$172,928. Overtime spending was \$135,562 which is \$37,366 under budget for the fiscal year.

Renewable Electricity Generation: Savings and Revenue

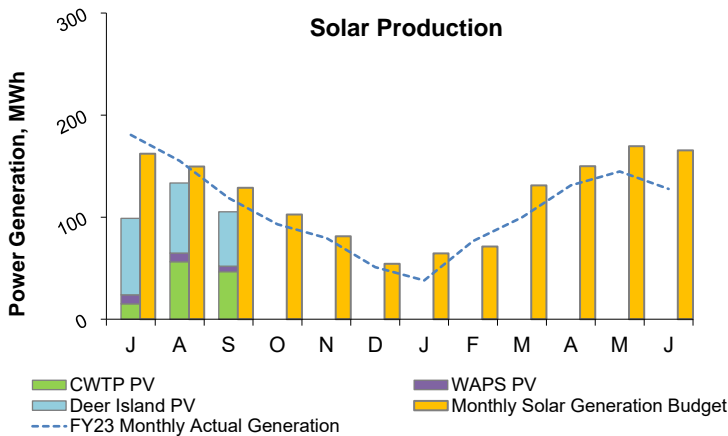
1st Quarter - FY24



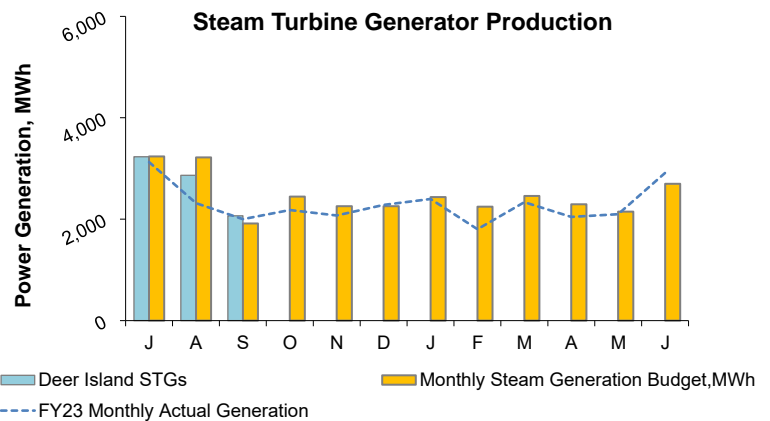
In Quarter 1, the renewable energy produced from all hydro turbines totaled 8,098 MWh; 1% below budget¹.



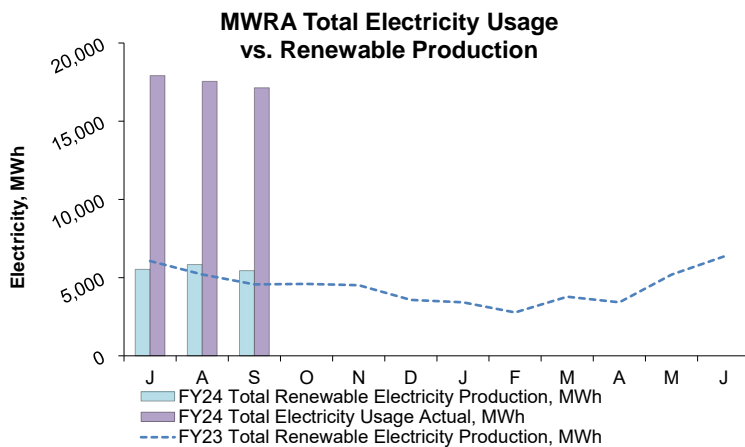
In Quarter 1, the renewable energy produced from all wind turbines totaled 208 MWh; 44% below budget¹. This shortfall is in large part due to Turbine #2 at Deer Island Treatment Plant being taken offline following the May 29 failure of Turbine #1 (which had been out of service since April 2022). Deer Island Turbine #2 was returned to service on September 22.



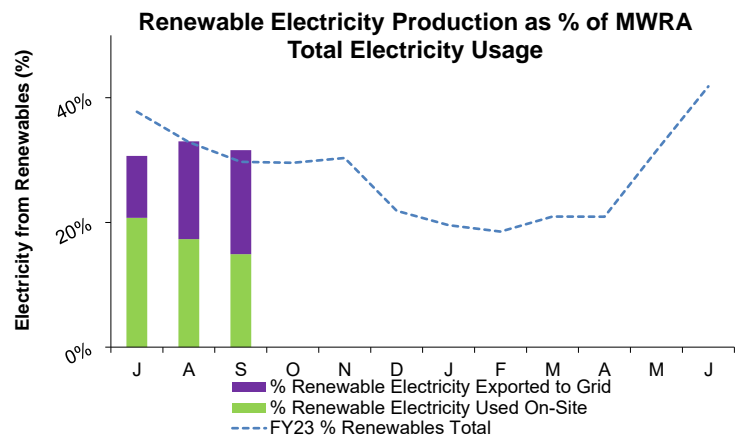
In Quarter 1, the renewable energy produced from all solar PV systems totaled 338 MWh; 23% below budget¹. The Deer Island Residuals Odor Control roof mounted array has been offline since September 11, 2022 while awaiting replacement parts.



In Quarter 1, the renewable energy produced from all steam turbine generators totaled 8,164 MWh; 2% below budget¹.



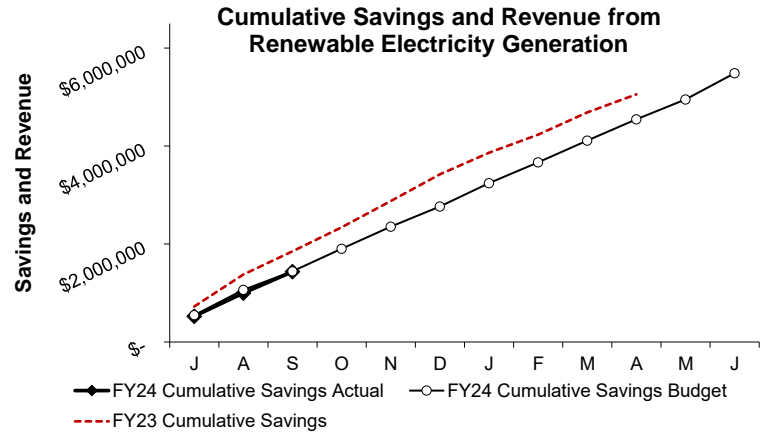
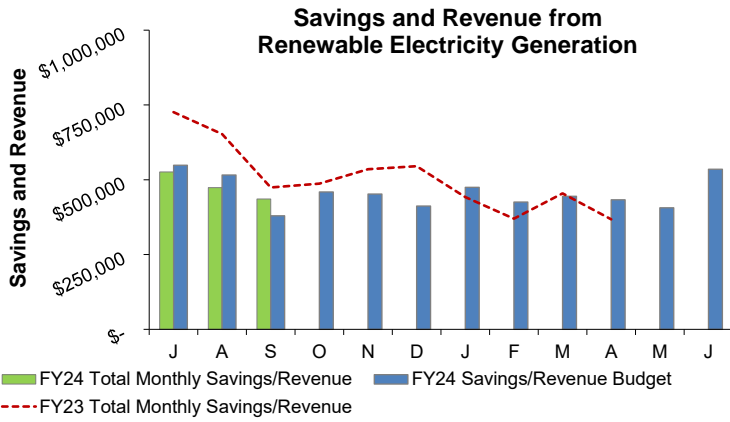
In Quarter 1, MWRA's electricity generation by renewable resources totaled 16,808 MWh, 3% below budget. MWRA's total electricity usage was approximately 52,600 MWh in Quarter 1. Renewable resources were 32% of total usage. The MWRA total electricity usage is the sum of all electricity purchased for Deer Island and FOD plus electricity produced and used on-site at these facilities. Approximately 99% of FOD electrical accounts are accounted for by actual billing statements; minor accounts that are not tracked on a monthly basis such as meters and cathodic protection systems are estimated based on this year's budget. All renewable electricity generated on DI is used on-site (this accounts for more than 50% of MWRA renewable generation). Almost all renewable electricity generated off-DI is exported to the grid.



Notes: 1. Budget values are based on historical averages for each facility and include operational impacts due to maintenance work.

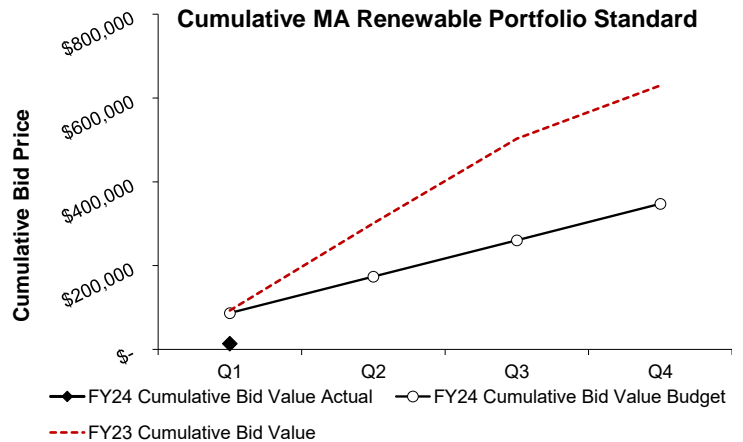
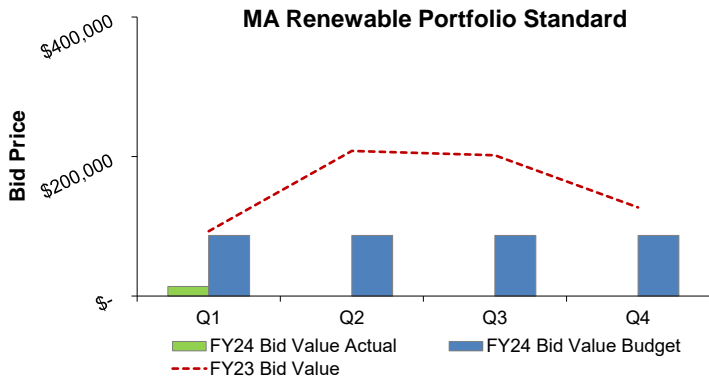
Renewable Electricity Generation: Savings and Revenue

1st Quarter - FY24

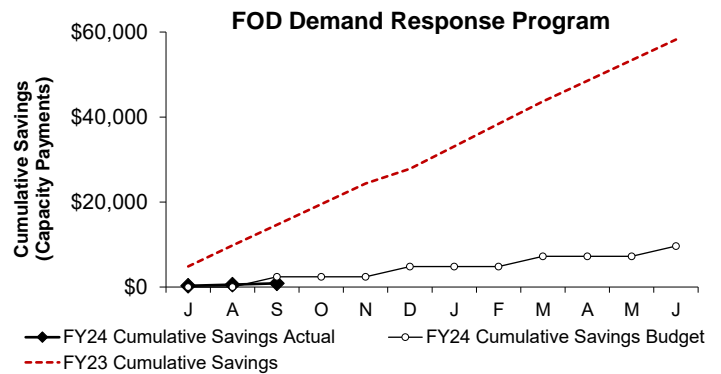
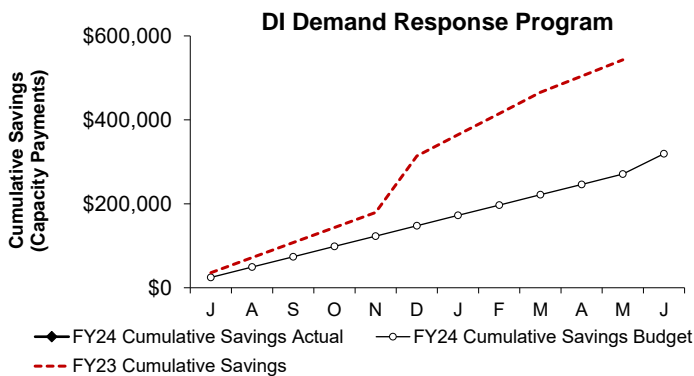


Savings and Revenue for Quarter 1 are estimated at \$1,435,298; 1% below budget.³ No invoice has been received for Oakdale Hydro in July; an average of July values for FY20-22 is used to estimate. Savings and revenue invoices for Oakdale Hydro have also not yet been received for May and June FY23.

Savings and revenue¹ from all renewable energy sources include wind turbines, hydroelectric generators, solar panels, and steam turbines (DI). This includes savings and revenue due to electricity generation (does not include avoided fuel costs and RPS RECs). The use of DITP digester gas as a fuel source provides the benefit of both electricity generation from the steam turbine generators, and provides thermal value for heating the plant, equivalent to approximately 5 million gallons of fuel oil per year (not included in charts above).



Bids were awarded during the 1st Quarter² from MWRA's renewable energy assets; 385 Q1 FY23 Class I Renewable Energy Certificates (RECs) were sold for a total value of \$13,659 RPS revenue, which is 84% below budget³ for the Quarter. Multiple factors contributed to this shortfall. The quantity of RECs MWRA is obligated to provide electricity suppliers has increased per state regulations and contract structures, reducing the number of RECs available for sale. There were also fewer RECs produced due to reduced wind power production at Deer Island, which will likely persist through the fiscal year (see previous page). REC values reflect the bid value on the date that bids are accepted. Cumulative bid values reflects the total value of bids received to date.

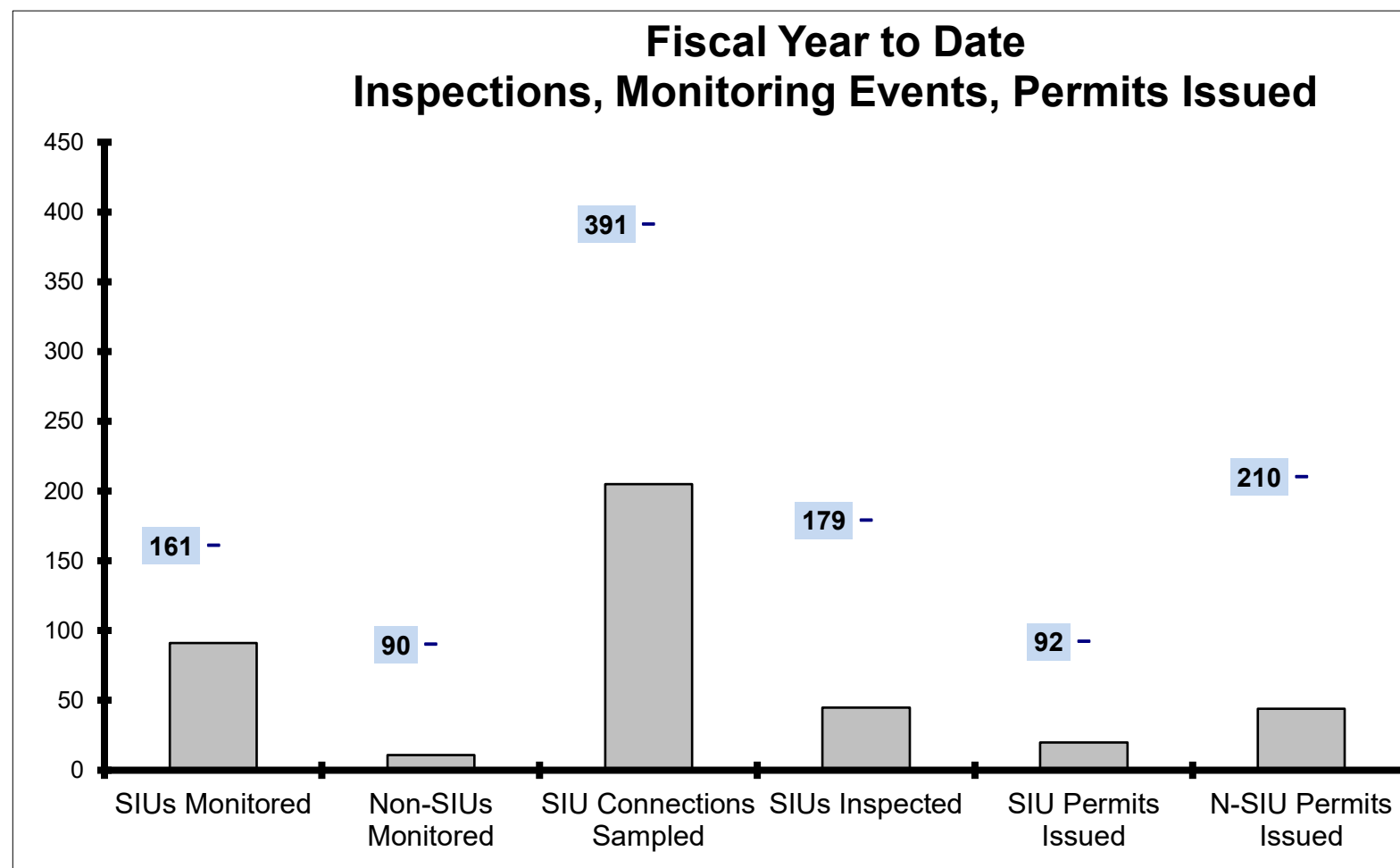


Currently Deer Island, Loring Rd, and Brutch Hydro participate in the ISO-New England Demand Response Programs⁴. By agreeing to reduce demand and operate the facility generators to help reduce the ISO New England grid demand during periods of high energy demand, MWRA receives monthly Capacity Payments from ISO-NE. When MWRA operates the generators during an ISO-NE called event, MWRA also receives energy payments from ISO-NE. No Capacity Payments have been received for Deer Island yet in FY24, and payments for FOD total \$876 through September². FOD Capacity Payments are much lower in FY24 than FY23 because the JCWTP is no longer enrolled in the Demand Response Program.

- Notes:
1. Savings and Revenue: Savings refers to any/all renewable energy produced that is used on-site therefore saving the cost of purchasing that electricity, and revenue refers to any value of renewable energy produced that is sold to the grid.
 2. Only the actual energy prices are being reported. Therefore, some of the data lags up to 3 months due to timing of invoice receipt.
 3. Budget values are based on historical averages for each facility and include operational impacts due to maintenance work.
 4. Chelsea Creek, Columbus Park, Ward St., and Nut Island participated in the ISO Demand Response Program through May 2016, until an emissions related EPA regulatory change resulted in the disqualification of these emergency generators beginning in June 2016.

Toxic Reduction and Control

1st Quarter - FY24



EPA Required SIU Monitoring Events
for FY24: 161
YTD : **91**

Required Non-SIU Monitoring Events
for FY24: 90
YTD : **11**

SIU Connections to be Sampled
For FY24: 391
YTD: **205**

EPA Required SIU Inspections
for FY24: 179
YTD: **45**

SIU Permits due to Expire
In FY24: 92
YTD: **20**

Non-SIU Permits due to Expire
in FY24: 210
YTD: **44**

Significant Industrial Users (SIUs) are MWRA's highest priority industries due to their flow, type of industry, and/or their potential to violate limits. SIUs are defined by EPA and require a greater amount of oversight. EPA requires that all SIUs *with flow* be monitored at least once during the fiscal year.

The "SIU Monitored" data above, reflects the number of industries monitored; however, many of these industries have more than one sampling point and the "SIU Connections Sampled" data reflect samples taken from multiple sampling locations at these industries.

EPA requires MWRA to issue or renew 90 percent of SIU permits within 120 days of receipt of the application or the permit expiration date - whichever is later. EPA also requires the remaining 10 percent of SIU permits to be issued within 180 days.

	Number of Days to Issue a Permit						Permits Issued	
	0 to 120		121 to 180		181 or more		SIU	Non-SIU
	SIU	Non-SIU	SIU	Non-SIU	SIU	Non-SIU		
Jul	1	3	0	1	0	0	1	4
Aug	5	7	0	1	0	1	5	9
Sep	14	28	0	3	0	0	14	31
Oct								
Nov								
Dec								
Jan								
Feb								
Mar								
Apr								
May								
Jun								
% YTD	100%	86%	0%	11%	0%	2%	20	44

TRAC's annual monitoring and inspection goals are set at the beginning of each fiscal year but they can fluctuate due to the actual number of SIUs.

In addition to the Annual SIU inspections required under TRAC's EPA approved Industrial Pretreatment Program, other inspections are usually undertaken, including for enforcement, permit renewal, follow up, temporary construction dewatering sites, group/combined permit audits, spot, sampling locations, visit only and out of business facility.

Monitoring of SIUs and Non-SIUs is dynamic for several reasons, including: newly permitted facilities; sample site changes requiring a permit change; changes in operations necessitating a change in SIU designation; non-discharging industries; a partial sample event is counted as an event even though not enough sample was taken due to the discharge rate at the time; and sometimes increased/decreased inspections lead to permit category changes requiring additional monitoring

This is the first quarter of the MWRA fiscal year, FY24.

In this quarter, 64 permits issued.

There were 20 SIUs, all of which were issued on time.

There were 44 non-SIUs of which 38 were issued on time, with one late beyond 180 days.

In FY24, there have been 12 completely new permits issued: 3-DEW, 6-LFLP, 2-02 N-SIUs, 1-Dental

For the Clinton Sewer Service area, there were no SIU permits issued during the FY24 fiscal year.

Field Operations Highlights

1st Quarter – FY24

Metro Water Operations and Maintenance

- Valve Program: Valve operations continued to support in-house work including providing isolations on: Section 94 (Blow Off Replacement), Section 73 (Blow off Replacement), Section 56 (Main Line Valve Installation). CIP Contractors were supported by isolation and dewatering of portions of Section 29 and 89 (Contract 7117), Section 63 (Contract 6522), Section 23, 24 & 47 (Contract 6392) and inspection of Section 53 & 84 (Contract 7485). Other work included the replacement of a valve operator on WASM 8, Shaft 7 and 7B inspections, CWTP 120" valve inspection and mainline valve exercising of 20 water main sections.
- Water Pipeline Program: Staff completed Blow-Off replacements in Arlington (Section 60) and Mattapan (Sections 94 and 73). Main line valves were installed in Lynn (Section 56) and at the Quincy Pump Station. Test pits were completed at Shaft 7C to determine pipe diameters for future valve replacements. Additional work during the quarter included leak repairs on the Section 58 (36-inch main) in Mattapan and Quincy Pump Station (12-inch line). Leak detection was performed on over 32 miles of MWRA water main and assistance was provided to four customer communities.

Operations Engineering

- Staff continued to provide technical support for Design and Construction Contracts including; Low System PRV Upgrades, Columbus Park and Ward St Headworks, Upgrades, Nut Island Odor Control Improvements, Hayes Pump Station Upgrades, NEH improvements, WASM3 CP1 and CP2, Section 101, Storage Tank Improvements, Sections 23, 24 and 47 Rehabilitation, Shaft Improvements, IHS Improvements CP1 and 2, Hydraulic Model upgrades, BWRPS Upgrades and Section 89 Replacement.
- Staff continued to monitor the wet scrubber system and continued supporting the development of the facility manual and training.
- Hydraulic Model Upgrades: Staff continued to provide an in-depth review of the draft model and review of calibrations.

- Staff continued to support Pipeline and Valve Programs with some of the following activities: Operation Shutdown Plans, Exercise Schedule Packages and Disinfection Plans and Permitting;
- Staff provided support for system expansion to the north and south and to the Metro communities.
- Provide daily facility flow data to support Biobot Study.
- Staff continued to support the lead loop study at CWTP.
- Staff assisted in several wet weather storm events, compiled and finalized storm reports, monitored and reported on CSO activation durations and volumes and provided follow up on operational and SCADA issues.

SCADA

- Water System: Continued technical support for JCWTP PLC replacement project; configured and hardened SCADA Operating system; continued work on network management improvements in the JCWTP water system; Continued on support for the PRV improvement project; Continued support for the Wachusett Lower Gate House Project and Steel Tank Project; supported Soda Ash Dry Feed Upgrade project; improved communication alarming throughout SCADA west.
- Wastewater System: continued work on Ward/Columbus, Hayes P.S. Improvements, Braintree/Weymouth Pump Station Improvements Project, and Fuel Tank Replacement Project; made improvements to WR03 HMI; revised control calculations at South Boston CSO. Worked with Verizon to update communication lines at various facilities.

TRAC

Compliance and Enforcement

- TRAC issued 33 Notices of Noncompliance, 66 Notices of Violation, 3 Return to Permit Letters, 1 Ruling, and 1 Administrative Settlement.

Inspections and Permitting

- TRAC issued a total of 96 MWRA 8(m) Permits allowing companies to work within an easement or

Field Operations Highlights

1st Quarter – FY24

other property interest held by the Authority. The total number includes 53 permits issued for work within water infrastructure easements and 43 permits issued for work within sewer infrastructure easements. Permits issued this quarter were issued in an average of 85 days from the date the application for 8(m) permit was received by the MWRA.

- TRAC monitored the septage receiving sites a total of 30 times. Staff conducted inspection at 69 new construction gasoline/oil separators and 108 existing gasoline/oil separators.
- TRAC staff conducted 45 Annual SIU Inspections and 217 other inspections.
- 64 MWRA Sewer Use Discharge Permits (Permits) were issued and/or renewed to its sewer users. One permit was issued and/or renewed in the Clinton Service Area.

Environmental Quality-Water

Algae: DCR and MWRA staff continued to collect algae samples at Wachusett and Quabbin Reservoirs. Low levels of nuisance algae were identified, but all were below levels of concern.

Community & In-House Support

- Community Support: This quarter, staff assisted two communities with repeat coliform sampling due to a single *E. coli* result at a monitoring site. Water quality managers also assisted with planning for a Boil Water order, yet one was never required. Staff assisted Lynnfield, BWSC (Boston), Medford and Everett with repeat or other water quality investigative sampling.
- Projects: Staff continued to sample at the CWTP lead pipe-rig. In preparation for the Norumbega Cell 3 Cleaning Project, staff sampled the dewatering line. All samples were acceptable and staff commenced the dewatering of cell 3 into cells 1 & 2.

Data Management

- Staff submitted monthly DEP and DPH reports on schedule and fulfilled eleven data requests this quarter. The group has completed several applications (nutrient reporting, chlorine dosing, and buoy application reconfiguration) and are currently

being updated per user feedback. Group also performed maintenance on all current applications & the internal website. Group also successfully launched container (Docker) based applications, the first of which is Superset.

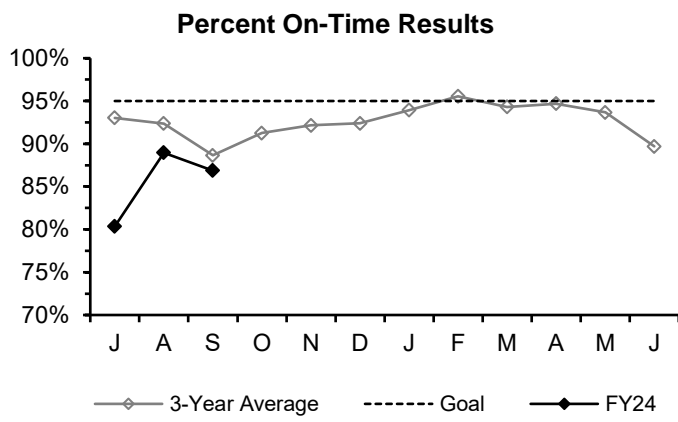
Environmental Quality-Wastewater

- Ambient Monitoring: Massachusetts Bay water column surveys completed each month. Sampling of the seafloor (benthic) sediments near the outfall and in Boston Harbor was done in August. The consultant also completed the triennial video survey of benthic habitats near the outfall.
- Harbor/CSO Receiving Water Monitoring: Biweekly harbor monitoring continues, along with seasonal CSO receiving water sampling.
- Permitting and Compliance Reporting: Submitted monthly and quarterly discharge monitoring reports, and as-needed notifications of CSOs and blending. Submitted annual reports on Demand Management and Infiltration/Inflow as required by the Deer Island permit. Continued preparing comments to EPA on draft permit for Deer Island Treatment Plant and CSOs. Received reauthorization to discharge cooling water from the hydroelectric power stations. Provided data appendices for pretreatment annual report. The NPDES Steering Committee met in August. Reported Contingency Plan exceedances for Stellwagen Basin bottom water dissolved oxygen to EPA, DEP, OMSAP, and others. These were observed on July and September Massachusetts Bay monitoring surveys.
- Cooperation with other agencies: Continued follow up communication with metro Boston CSO permittees and with Boards of Health about the new sewage notification regulation. Assisted City of Chelsea with near-real-time notifications of CSO activations from CHE008. Staff attended EPA briefing/hearing and OMSAP listening session on the draft NPDES permit, and met with Mass. DMF and with other wastewater agencies, Wastewater Advisory Committee, and with metro Boston CSO communities about relevant issues in the draft permit. Discussed data sharing opportunities with NERACOOS for studies of zooplankton in the Gulf of Maine and the extraordinary algae bloom in the region this summer. Shared insights on rapid response environmental monitoring with the Northeast Coastal Acidification Network.

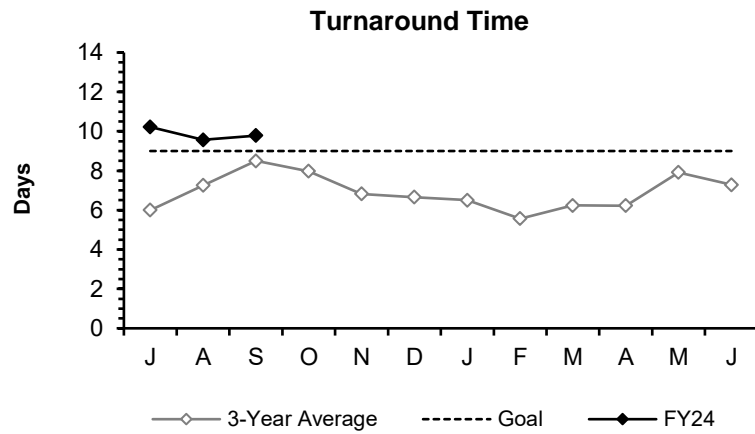
Laboratory Services

1st Quarter - FY24

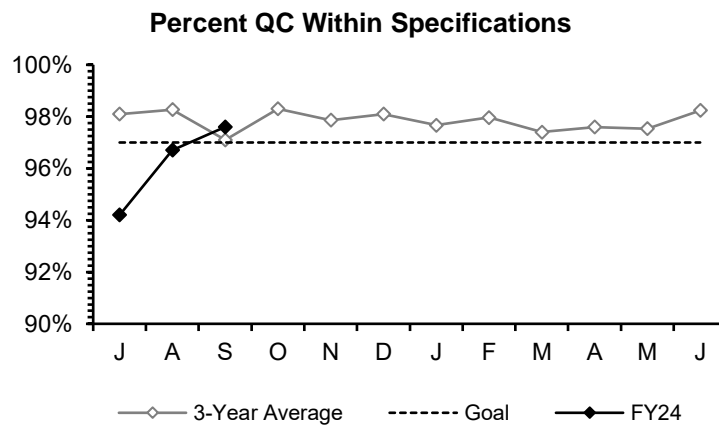
Laboratory Services supports the laboratory sampling, testing, and consulting needs of various client groups primarily in the Operations Division. This includes drinking water transmission and treatment, wastewater collection and treatment, wastewater residuals management, industrial-pretreatment monitoring, and environmental quality.



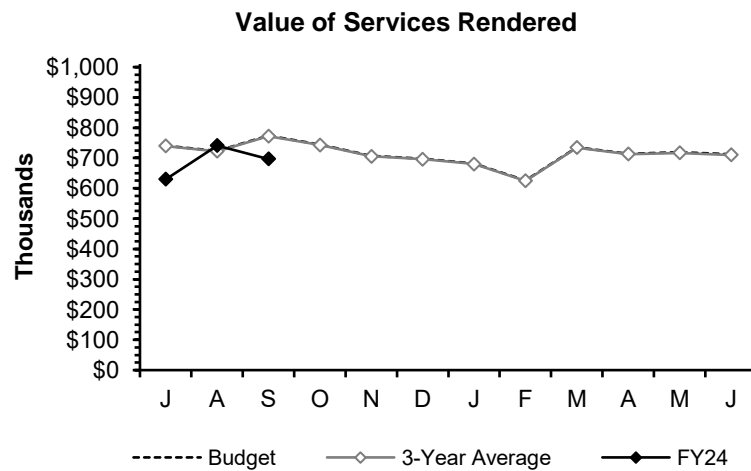
The Percent On-Time measurement assesses performance against internal client due dates. These due dates are shorter than the compliance reporting requirements to allow for internal review of the data.



Turnaround Time measures the average time from sample receipt to sample completion.



Percent QC Within Specifications measures the fraction of Quality Control tests that met required limits during the month.



Value of Services Rendered models the true cost of the lab work performed, including fringe benefits that are not a part of the Laboratory Services budget.

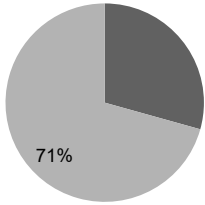
Performance Summary: All metrics fell below the monthly goals. Department staffing was at ~80% of budgeted level.

School Lead Program: During the 1st quarter of FY24, MWRA's lab completed 186 tests from 48 schools and childcare facilities in 23 communities. Since 2016, MWRA's Laboratory has conducted over 40,000 tests from 571 schools and daycares in 44 communities. We have also completed 899 home lead tests under the DPH sampling program since 2017.

CONSTRUCTION PROGRAMS

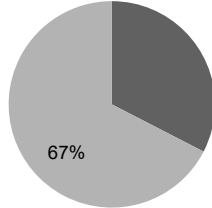
Engineering & Construction Projects In Construction 1st Quarter – FY24

Cost



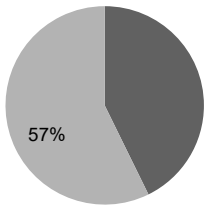
■ Amount Remaining
■ Billed to Date

Time



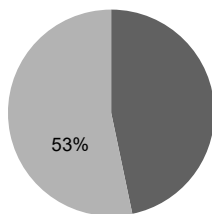
■ Time Remaining
■ Time Expended

Cost



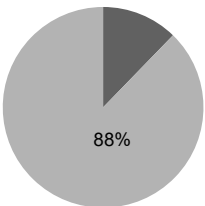
■ Amount Remaining
■ Billed to Date

Time



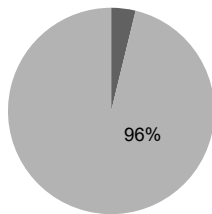
■ Time Remaining
■ Time Expended

Cost



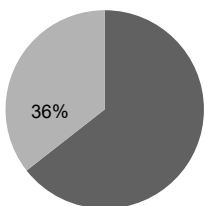
■ Amount Remaining
■ Billed to Date

Time



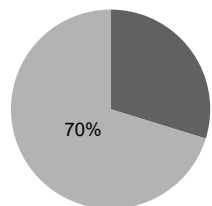
■ Time Remaining
■ Time Expended

Cost



■ Amount Remaining
■ Billed to Date

Time



■ Time Remaining
■ Time Expended

Carroll Water Treatment Plant SCADA Improvements

Project Summary: The current SCADA control equipment has reached the end of its useful life, and future vendor support for the installed PLC base is no longer guaranteed. This contract includes the supply and installation of replacement instrumentation panels, PLC's, UPS backup power, fiber-optic communication network, wiring between the existing panels, and new equipment and refurbishment of the operator control room. In addition, a new server room equipped with HVAC and fire suppression is being constructed to house redundant computer hardware supporting active and backup SCADA systems.

Contract Amount: \$13,187,618.29

Contract Duration: 1,127 Days

Notice to Proceed: 1-Sep-21

Contract Completion: 2-Oct-24

Section 89 Replacement Pipeline

Project Summary: This project will include replacement of a 10,500-foot portion of PCCP with class IV reinforcing wire, line valves and appurtenances, and abandonment of the 118-year old, 24-inch diameter cast iron Section 29 pipeline.

Contract Amount: \$33,309,138.83

Contract Duration: 1,475 Days

Notice to Proceed: 5-Aug-21

Contract Completion: 19-Aug-25

Low Service PRV Improvements

Project Summary: This project will demolish the existing Nonantum Road and Mystic Valley Parkway PRV vault structures, including four 24-inch PRVs and appurtenances, and construct new, larger cast-in-place vaults. At Mystic Valley Parkway, two 42-inch PRVs and at Nonantum Road two 30-inch PRVs, isolation valves, piping, and other appurtenances will be installed. Additionally, a new master meter will be constructed at the Mystic Valley Parkway pressure reducing valves and the existing master meter located near the Nonantum Road pressure reducing valves will be upgraded to accommodate the increased flow.

Contract Amount: \$12,149,099

Contract Duration: 840 Days

Notice to Proceed: 14-Jul-21

Contract Completion: 1-Nov-23

Construction of Water Mains – Section 101

Project Summary: This construction contract consists of a new 36-inch diameter water main and appurtenances extending from MWRA's Meter 182 at the Waltham/Lexington town line down Lexington Street to Totten Pond Road, where it will connect to Waltham's water system. This new water main will provide sufficient capacity to maintain water service to Waltham during the anticipated shutdown of MWRA's WASM 3 pipeline and the Lexington Street Pumping Station for future rehabilitation.

Contract Amount: \$32,400,000

Contract Duration: 635 Days

Notice to Proceed: 12-Jul-22

Contract Completion: 7-Apr-24

CSO CONTROL PROGRAM

1st Quarter – FY24

Overview

In compliance with milestones in the Federal District Court Order, all 35 projects in the CSO Long-Term Control Plan (LTCP) were complete as of December 2015. Subsequently, MWRA completed a multi-year CSO post-construction monitoring program and performance assessment, filing the Final CSO Post Construction Monitoring Program and Performance Assessment Report with the Court and submitted copies to EPA and DEP in December 2021. April 2023 Annual report shows an 88% reduction in CSO in a typical year, from 3.3 billion gallons to 396 million gallons, with 72 of 86 outfalls meeting the LTCP goals for CSO activation frequency and volume. MWRA and its member CSO communities are moving forward with plans to bring 8 of the 16 CSOs in line with the LTCP goals. With respect to the remaining 6 challenging CSO outfalls, MWRA and its CSO Consultant (AECOM) continue to investigate alternative to move closer to LTCP goals.

MWRA CSO Performance Assessment

- In November 2017, MWRA signed a contract for CSO Post-Construction Monitoring and Performance Assessment with AECOM Technical Services, Inc. The contract includes CSO inspections, overflow metering, hydraulic modeling, system performance assessments and water quality impact assessments, culminating in the submission of a report to EPA and MassDEP in December 2021 verifying whether the LTCP goals are attained.
- AECOM continues to support efforts to advance project identified to meet performance goals at 8 of the 16 CSOs that didn't meet LTCP goals, evaluate alternatives for the remaining 6 challenging sites, and predict and report on annual CSO discharges. Two of those 16 outfalls are now meeting LTCP goals (BOS014 and BOS003) and the post construction performance of CHE008 will be evaluated until the end of the year.

Court Ordered Levels of CSO Control

Progress on the work to comply with the court ordered levels of CSO control is discussed with the EPA/MassDEP at progress meetings held quarterly. Most recent quarterly meeting was on **9/28/23** and the next meeting is scheduled for **12/28/23**

Ongoing Projects as of November 15, 2023

- *East Boston CSO Control*: As part of the East Boston CSO a FAA/MOU was executed in June 2021 for \$2.1M, BWSC design and construction. Work at BOS014, BOS003 is complete and are now meeting LTCP goals. Sewer separations is expected to be completed in fall 2023. Plans for Phase 4 sewer separation with five new contracts starting in 2023 (through 2028) will result in most of East Boston being separated.
Somerville Marginal New Pipe Connection came out of the variance optimization study that recommended adding a new pipe from the facility's CSO influent conduit to the interceptor with an added control gate. The \$1.2M (est.) construction project is expected to be completed by December 2024.
- *Fort Point Channel and Mystic Confluence* - BOS062, BOS065, BOS070 DBC and BOS017: FAA/MOU established to design and

construct improvement at these 4 CSOs. 90% design submitted August with an updated cost estimate of \$7.2M including a 5% contingency. Anticipate completion of construction by December 2024.

- **CAM005 weir raising and lengthening for reducing CSO activation and frequency volume.** Cost estimate \$250,000. Anticipated completion of construction by December 2024.

CSO variances

As part of MWRA's CSO Control Program, MassDEP has issued a series of multi-year CSO variances that allow MWRA, Cambridge, and Somerville to continue to have limited CSO discharges to Alewife Brook and the Upper Mystic River, as well as the Charles River lower basin. The most recent variances, issued in 2019, require the development of Updated LTCPs for the CSO outfalls that each entity owns and operates that may discharge to the corresponding waterbody. The Updated LTCPs must include a description of the existing level of CSO control, an evaluation of the costs and the performance and water quality improvements achieved by additional CSO control alternatives, a public participation plan, and an affordability analysis.

- o MassDEP and EPA conditionally approved MWRA's Updated CSO Control Plan Scope of Work on **5/11/2022**.
- o Schedule extension request for deliverables associated with Updated CSO Control Plan was submitted 9/22/22. In May 2023 EPA/DEP advised that MWRA, Cambridge and Somerville proceed according to our revise extended schedule.
- o As identified in the variance the progress is reported at monthly meetings with EPA/MassDEP. The last meeting was on **10/11/23** and the next meeting is scheduled for **11/8/23**. Key elements of the Updated CSO Control Plan are discussed including the development of an Updated Typical year which includes climate change and the development of a Unified Hydraulic Model.
- o The 2nd of 8 planned meetings was held on 12/15/22. The next Public Meeting is scheduled for late fall of 2023.
- o Development and Submittal of Studies as required under variance included the following:
 - Alewife PS Optimization Evaluation was submitted on 4/27/2021
 - Somerville Marginal CSO Reduction, Study and Preliminary Design was submitted on 12/27/2021
 - Alewife Brook and Charles River System Optimization Evaluation was submitted on 12/28/2022
 - MWRA CSO Variances Additional System Optimization Measures Report was submitted on 1/31/2023.
- o Bi-annual meeting with CLF/Watershed groups held on 7/12/2023 providing an update on the 16 sites not currently meeting the LTCP.
- o **Watershed Association meeting held on 10/24/2023 providing an update on the Updated CSO Control Plan development.**

CIP Expenditures

1st Quarter – FY24

FY24 Capital Improvement Program Expenditure Variances through September by Program - (\$ in thousands)				
Program	FY24 Budget Through September	FY24 Actual Through September	Variance Amount	Variance Percent
Wastewater	\$19,102	\$9,198	(\$9,904)	-52%
Waterworks	\$35,454	\$31,156	(\$4,298)	-12%
Business and Operations Support	\$3,091	\$797	(\$2,295)	-74%
Total	\$57,648	\$41,151	(\$16,497)	-29%

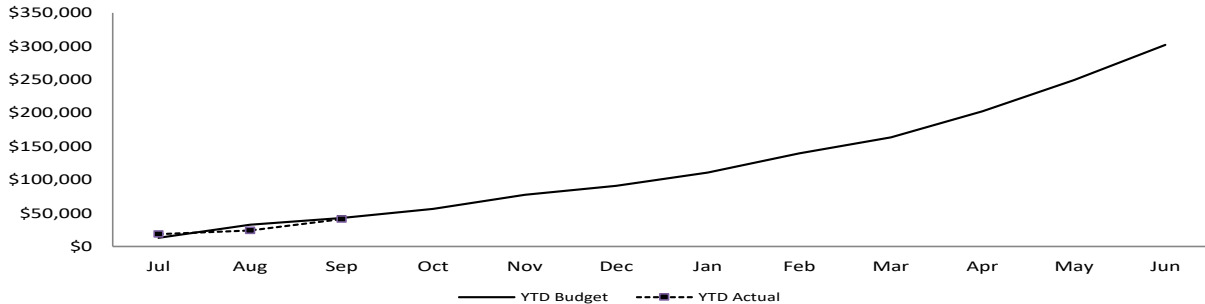
Wastewater:

- Spending was less than planned in Wastewater due to timing of community loans and distributions for the I/I Local Financial Assistance program, timing of work and long lead time for equipment for Braintree/Weymouth Improvements – Construction, timing of work for Primary & Secondary Clarifier Rehab Phase 2 Construction, and work scheduled for FY24 that was completed in FY23 for Chelsea 008 Pipe Replacement construction.
- This less than planned spending was partially offset by timing of work for Clinton Screw Pumps Replacement Phase 1, and planned FY23 work completed in FY24 for Nut Island Odor Control & HVAC Improvements Phase 2 – Construction.

Water:

- Spending was less than planned in Waterworks due to timing of contractor work for Section 89/29 Replacement, CP-1 NEH Improvements and CP3-Sections 23, 24, 47 Rehabilitation, timing of consultant work for Metropolitan Tunnel Redundancy Preliminary Design & Massachusetts Environmental Policy Act Review, previous permit issues for Waltham Water Pipeline, timing of consultant services for Geotechnical Support Services and WASM 3 MEPA/Design/CA/RI, and lower than projected task order work for CWTP Technical Assistance.
- This less than planned spending was partially offset by timing of community distributions for the Water Loan program, and planned FY23 work completed in FY24 for Wachusett Lower Gatehouse Pipe & Boiler Replacement, and timing of work for CWTP Chemical Feed System Improvements.

Budget vs. Actual CIP Expenditures (\$ in thousands)
Total FY24 CIP Budget of \$302,200



Construction Fund Management

All payments to support the capital program are made from the Construction Fund. Sources of fund in-flows include bond proceeds, commercial paper, SRF reimbursements, loan repayments by municipalities, and current revenue. Accurate estimates of cash withdrawals and grant payments (both of which are derived from CIP spending projections) facilitate planning for future borrowings and maintaining an appropriate construction fund balance.

Cash Balance as of 9/23/23	\$126.0 million
Unused capacity under the debt cap:	\$2.4 billion
Estimated date for exhausting construction fund without new borrowing:	December 2023
Estimated date for debt cap increase to support new borrowing:	Not anticipated at this time
Commercial paper/Revolving loan outstanding:	\$55 million
Commercial paper capacity / Revolving Loan	\$195 million
Budgeted FY24 Cash Flow Expectancy*:	\$246 million

* Cash based spending is discounted for construction retainage.

DRINKING WATER QUALITY AND SUPPLY

Source Water – Microbial Results and UV Absorbance

1st Quarter – FY24

Source Water – Microbial Results

Total coliform bacteria are monitored in both source and treated water to provide an indication of overall bacteriological activity. Most coliforms are harmless. However, fecal coliforms, a subclass of the coliform group, are identified by their growth at temperatures comparable to those in the intestinal tract of mammals. They act as indicators of possible fecal contamination. The Surface Water Treatment Rule for unfiltered water supplies allows for no more than 10% of source water samples prior to disinfection over any six-month period to have more than 20 fecal coliforms per 100mL.

Sample Site: Quabbin Reservoir

Quabbin Reservoir water is sampled at the William A. Brutsch Water Treatment Facility raw water tap before being treated and entering the CVA system.

All samples collected during the quarter were below 20 cfu/100mL. **For the current six-month period, 0.0% of the samples have exceeded a count of 20 cfu/100mL.**

Sample Site: Wachusett Reservoir

Wachusett Reservoir water is sampled at the CWTP raw water tap in Marlborough before being treated and entering the MetroWest/Metropolitan Boston systems.

In the wintertime when smaller water bodies near Wachusett Reservoir freeze up, many waterfowl will roost in the main body of the reservoir - which freezes later. This increased bird activity tends to increase fecal coliform counts. DCR has an active bird harassment program to move the birds away from the intake area.

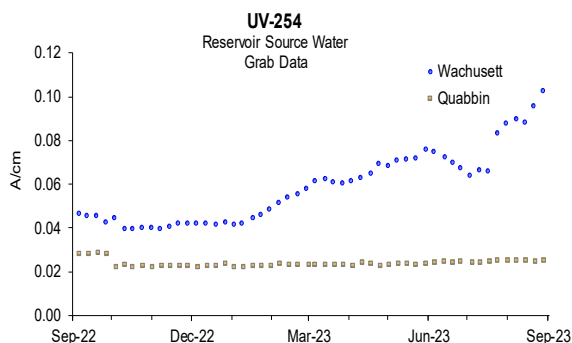
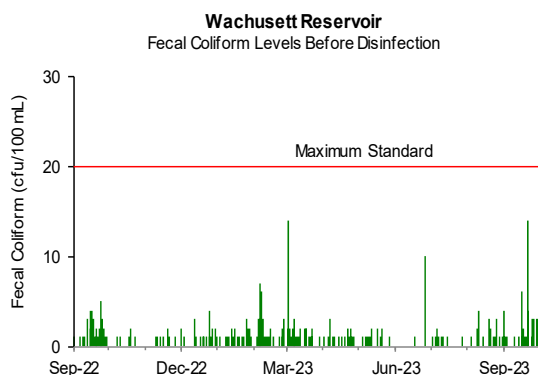
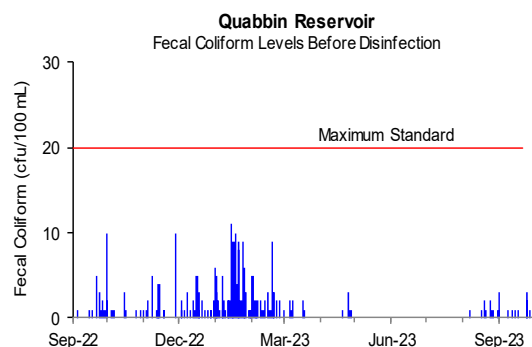
All samples collected during the 1st Quarter were below 20 cfu/100mL. **For the current six-month period, 0.0% of the samples exceeded a count of 20 cfu/100mL.**

Source Water – UV Absorbance

UV Absorbance at 254nm wavelength (UV-254), is a measure of the amount and reactivity of natural organic material in source water. Higher UV-254 levels cause increased ozone and chlorine demand resulting in the need for higher ozone and chlorine doses, and can increase the level of disinfection by-products. UV-254 is impacted by tributary flows, water age, sunlight and other factors.

Quabbin Reservoir UV-254 levels averaged 0.024 A/cm for the quarter.

Wachusett Reservoir UV-254 levels averaged 0.084 A/cm for the quarter.



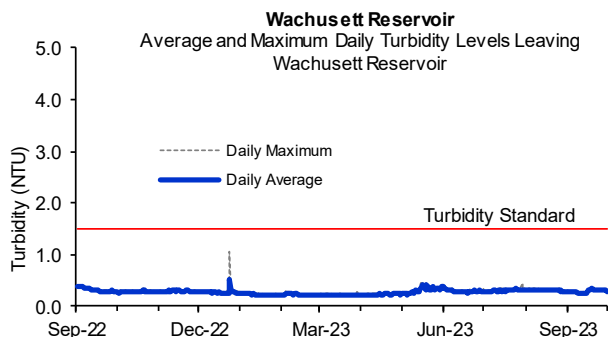
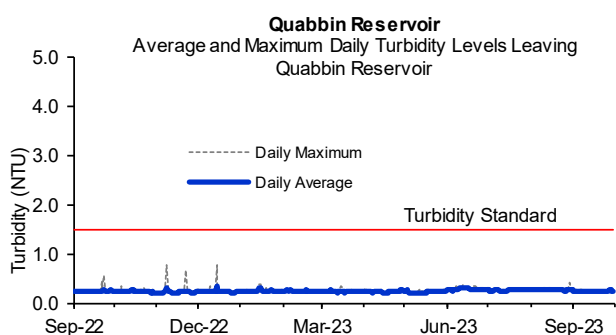
Source Water – Turbidity

1st Quarter – FY24

Turbidity is a measure of suspended and colloidal particles including clay, silt, organic and inorganic matter, algae and microorganisms. The effects of turbidity depend on the nature of the matter that causes the turbidity. High levels of particulate matter may have a higher disinfectant demand or may protect bacteria from disinfection effects, thereby interfering with the disinfectant residual throughout the distribution system.

There are two standards for turbidity: all water must be below five NTU (Nephelometric Turbidity Units), and water only can be above one NTU if it does not interfere with effective disinfection.

Turbidity of Quabbin Reservoir water is monitored continuously at the Brutsch Water Treatment Facility (BWTF) before UV and chlorine disinfection. Turbidity of Wachusett Reservoir is monitored continuously at the Carroll Water Treatment Plant (CWTP) before ozonation and UV disinfection. Maximum turbidity results at Quabbin and Wachusett were within DEP standards for the quarter.

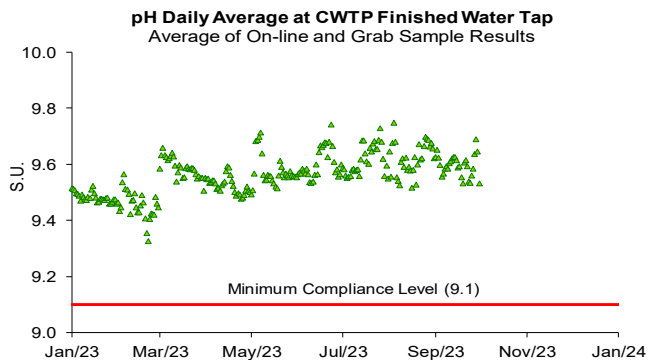
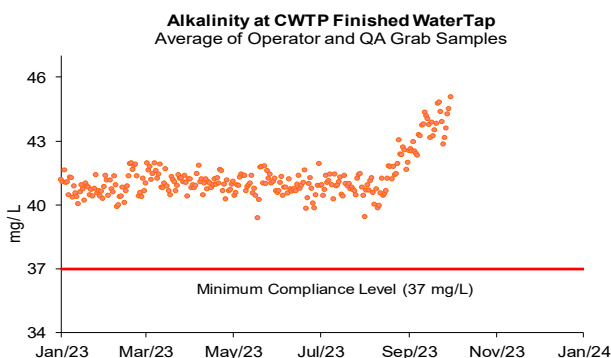


Treated Water – pH and Alkalinity Compliance

MWRA adjusts the alkalinity and pH of Wachusett water at CWTP to reduce its corrosivity, which minimizes the leaching of lead and copper from service lines and home plumbing systems into the water. MWRA tests finished water pH and alkalinity daily at the CWTP's Fin B sampling tap. MWRA's target for distribution system pH is 9.3; the target for alkalinity is 40 mg/l. Per DEP requirements, CWTP finished water samples have a minimum compliance level of 9.1 for pH and 37 mg/L for alkalinity. Samples from 27 distribution system locations have a minimum compliance level of 9.0 for pH and 37 mg/L for alkalinity. Results must not be below these levels for more than nine days in a six month period. Distribution system samples are collected in March, June, September, and December.

Each CVA community provides its own corrosion control treatment. See the CVA report: www.mwra.com/water/html/awqr.htm.

Quarterly distribution system samples were collected over a course of two weeks in September. Distribution system sample pH ranged from 9.4 to 9.5 and alkalinity ranged from 43 to 44 mg/L. No sample results were below DEP limits for this quarter.



Treated Water – Disinfection Effectiveness

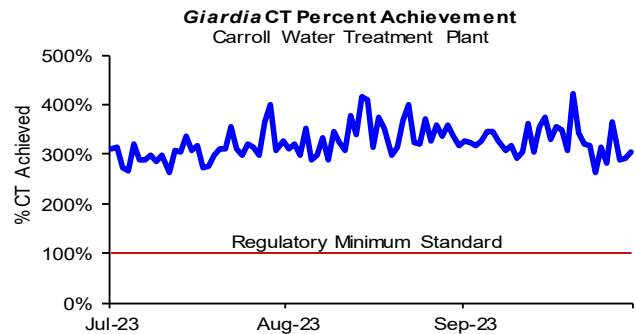
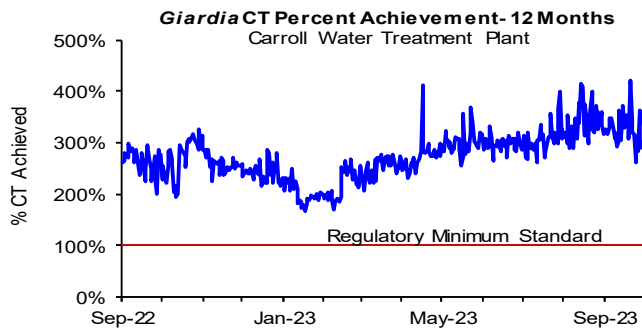
1st Quarter – FY24

At the Carroll Water Treatment Plant (CWTP), MWRA meets the required 99.9% (3-log) inactivation of *Giardia* using ozone (reported as CT: concentration of disinfectant x contact time) and the required 99% (2-log) inactivation of *Cryptosporidium* using UV (reported as IT: intensity of UV x time). MWRA calculates inactivation rates hourly and reports *Giardia* inactivation at maximum flow and *Cryptosporidium* inactivation at minimum UV dose. MWRA must meet 100% of required CT and IT.

CT achievement for *Giardia* assures CT achievement for viruses, which have a lower CT requirement. For *Cryptosporidium*, there is also an "off-spec" requirement. Off-spec water is water that has not reached the full required UV dose or if the UV reactor is operated outside its validated ranges. No more than 5% off-spec water is allowed in a month.

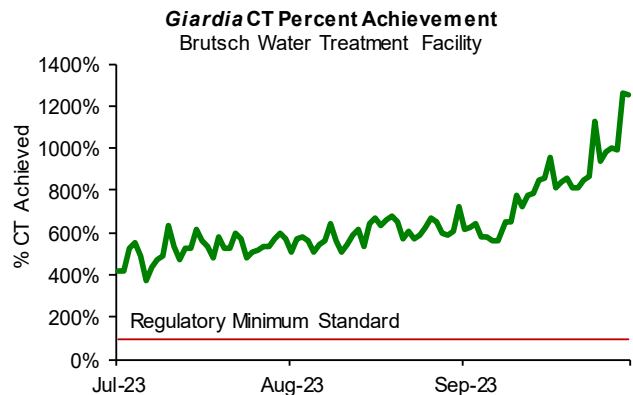
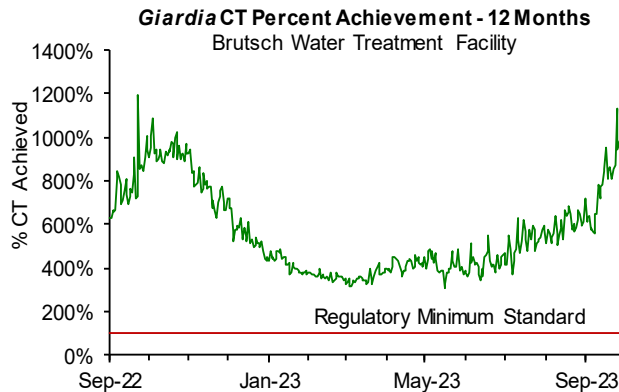
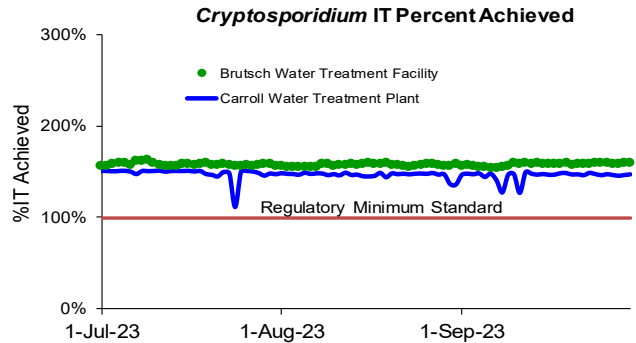
Wachusett Reservoir – MetroWest/Metro Boston Supply:

- The chlorine dose at the CWTP varied between 3.9 and 4.7 mg/L for the quarter.
- Ozone dose at the CWTP varied between 2.2 to 4.3 mg/L for the quarter.
- *Giardia* CT was maintained above 100% at all times the plant was providing water into the distribution system this quarter, as well as every day for the last fiscal year.
- *Cryptosporidium* IT was maintained above 100% for the quarter. Off-spec water was less than 5%.



Quabbin Reservoir (CVA Supply) at: Brutsch Water Treatment Facility

- The chlorine dose at BWTF is adjusted in order to achieve MWRA's seasonal target of 0.75 - 0.85 mg/L (November 1 – May 31) and 0.85 - 1.05 mg/L (June 1 – October 31) at Ludlow Monitoring Station.
- The chlorine dose at BWTF varied between 1.55 to 1.80 mg/L for the quarter.
- *Giardia* CT was maintained above 100% at all times the plant was providing water into the distribution system for the quarter.
- *Cryptosporidium* IT was maintained above 100% for the quarter. Off-spec water was less than 5%.



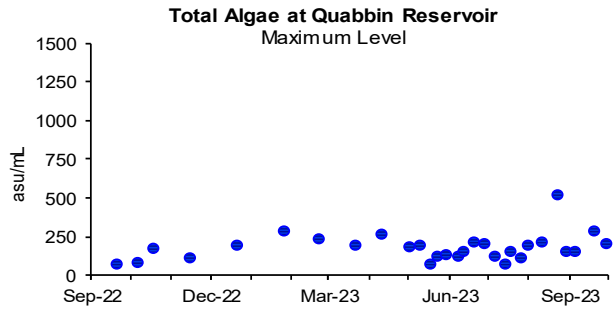
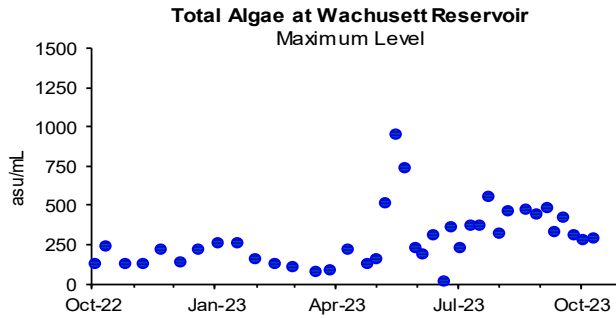
Source Water - Algae

1st Quarter – FY24

Algae levels in the Wachusett and Quabbin Reservoir are monitored by DCR and MWRA. These results, along with taste and odor complaints, are used to make decisions on source water treatment for algae control.

Taste and odor complaints at the tap may be due to algae, which originate in source reservoirs, typically in trace amounts. Occasionally, a particular species grows rapidly, increasing its concentration in water. When *Synura*, *Anabaena*, or other nuisance algae bloom, MWRA may treat the reservoirs with copper sulfate, an algaecide. During the winter and spring, diatom numbers may increase. While not a taste and odor concern, consumers that use filters may notice a more frequent need to change their filters.

In the 1st quarter, there were no complaints which may be related to algae reported from the local water departments.



Drinking Water Quality Customer Complaints: Taste, Odor, or Appearance

MWRA collects information on water quality complaints that typically fall into four categories: 1) discoloration due to MWRA or local pipeline work; 2) taste and odor due to algae blooms in reservoirs or chlorine in the water; 3) white water caused by changes in pressure or temperature that traps air bubbles in the water; or 4) “other” complaints including no water, clogged filters or other issues.

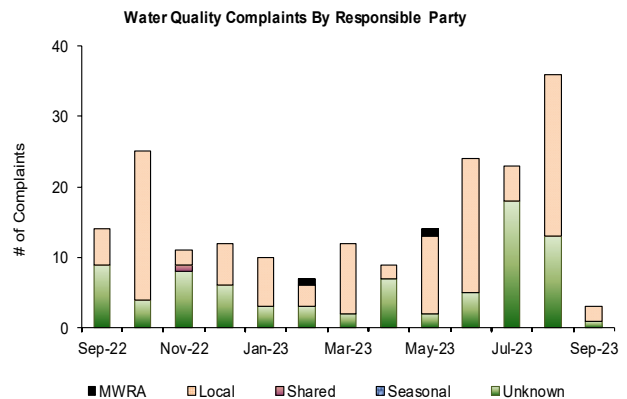
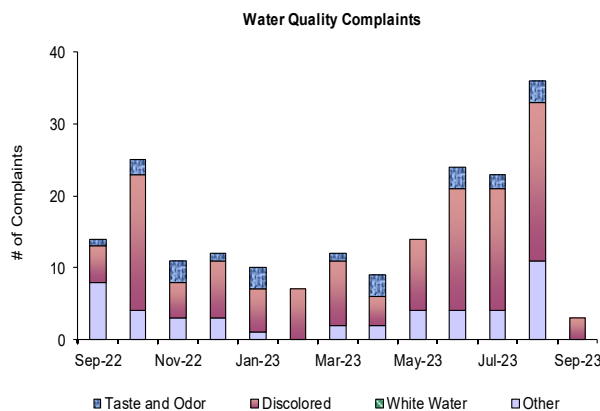
MWRA routinely contacts communities to classify and tabulate water complaints from customers. This count, reflecting only telephone calls to towns, probably captures only a fraction of the total number of customer complaints. Field Operations staff have improved data collection and reporting by keeping track of more kinds of complaints, tracking complaints to street addresses and circulating results internally on a daily basis.

Communities reported 62 complaints during the quarter compared to 68 complaints from 1st Quarter of FY23. Of these complaints, 42 were for “discolored water”, 5 were for “taste and odor”, and 15 were for “other”. Of these complaints, 30 were local community issues and 32 were unknown in origin.

Communities with discolored water (DW) complaints due to hydrant flushing performed during the quarter:

(July – Northborough(1DW), Lynnfield(1DW), Somerville(1DW); August – Arlington(6DW), Somerville(15DW); September – Somerville(2DW).

In July, Arlington reported eleven discolored water complaints due to a water main break.



Bacteria & Chlorine Residual Results for Communities in MWRA Testing Program

1st Quarter – FY24

While all communities collect bacteria samples and chlorine residual data for the Total Coliform Rule (TCR), data from the 44 systems that use MWRA's Laboratory are reported below.

The MWRA TCR program has 144 sampling locations. These locations include sites along MWRA's transmission system, water storage tanks and pumping stations, as well as a subset of the community TCR locations.

Samples are tested for total coliform and *Escherichia coli* (*E.coli*). *E.coli* is a specific coliform species whose presence likely indicates potential contamination of fecal origin.

If *E.coli* are detected in a drinking water sample, this is considered evidence of a potential public health concern. Public notification is required if repeat tests confirm the presence of *E.coli* or total coliform.

Total coliform provide a general indication of the sanitary condition of a water supply. If total coliform are detected in more than 5% of samples in a month (or if more than one sample is positive when less than 40 samples are collected), the water system is required to investigate the possible source/cause with a Level 1 or 2 Assessment, and fix any identified problems.

A disinfectant residual is intended to maintain the sanitary integrity of the water; MWRA considers a residual of 0.2 mg/L a minimum target level at all points in the distribution system.

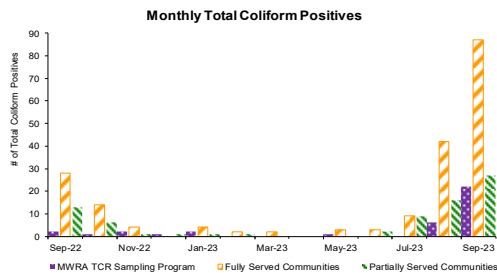
Highlights

In the 1st Quarter, 190 of the 6646 fully and partially served samples (2.9%) submitted to MWRA labs for analysis tested positive for total coliform. 28 of the 1905 Shared Community/MWRA samples (1.5%) tested positive for total coliform. 2 of the 398 CVA/MWRA community samples (0.5%) tested positive for total coliform.

Community breakdown by month: in July: Bedford, Boston, Framingham, Marblehead, Newton, Peabody, Reading, Somerville, Wakefield, Wellesley, Winthrop; in August: Bedford, Boston, Burlington, Everett, Lexington, Lynnfield, Marblehead, Marlborough, Medford, Newton, Peabody, Quincy, Waltham, Wakefield, Wellesley, Winthrop; in September: Bedford, Boston, Brookline, Burlington, Chelsea, Everett, Framingham, Ludlow MS, Lynnfield, Malden, Medford, Melrose, Newton, Peabody, Revere, Somerville, Stoneham, Wakefield, Waltham, Watertown, Winthrop. Chelsea, Newton, Revere, Somerville, and Wellesley are required to conduct a Level 1 Assessment since this their first occurrence within a rolling 12-month period. Bedford, Everett, Lynnfield, Medford, Wakefield, and Winthrop are required to conduct a Level 2 Assessment since this is their second occurrence within a rolling 12-month period. One sample in each community (Newton, July 19; Quincy, August 8), tested positive for *E.coli*. Repeat samples did not confirm for total coliform or *E.coli*, thus, no Level Assessment or Boil Water Order was required. MWRA was required to conduct a Level 1 Assessment for the CVA system based on two positive total coliform samples at Ludlow Monitoring Station. For the quarter, 0.7% of the Fully Served community samples had chlorine residuals lower than 0.2 mg/L for the quarter.

NOTES:

- MWRA total coliform and chlorine residual results include data from community locations. In most cases these community results are indicative of MWRA water as it enters the community system; however, some are strongly influenced by local pipe conditions. Residuals in the MWRA system are typically between 1.0 and 2.8 mg/L.
- The number of samples collected depends on the population served and the number of repeat samples required.
- These communities are partially supplied, and may mix their chlorinated supply with MWRA chloraminated supply.
- Part of the Chicopee Valley Aqueduct System. Free chlorine system.



		Total Coliform		E.coli Positive	# Assessment Required
		# Samples (b)	# (%) Positive		
MWRA	MWRA Locations	404	1 (0.3%)	0	
	Shared Community/MWRA sites	1501	27 (1.8%)	0	
	Total: MWRA	1905	28 (1.5%)	0	No
Fully Served	ARLINGTON	169	0 (0%)	0	
	BELMONT	104	0 (0%)	0	
	BOSTON	834	19 (2.3%)	0	No
	BROOKLINE	240	1 (0.4%)	0	No
	CHELSEA	187	9 (4.8%)	0	Yes
	DEER ISLAND	52	0 (0%)	0	
	EVERETT	201	16 (8.0%)	0	Yes
	FRAMINGHAM	243	2 (0.8%)	0	No
	LEXINGTON	123	1 (0.8%)	0	No
	LYNNFIELD	30	7 (23.3%)	0	Yes
	MALDEN	240	2 (0.8%)	0	No
	MARBLEHEAD	78	2 (2.6%)	0	No
	MARLBOROUGH	129	1 (0.8%)	0	No
	MEDFORD	237	12 (5.1%)	0	Yes
	MELROSE	120	1 (0.8%)	0	No
	MILTON	102	0 (0%)	0	
	NAHANT	30	0 (0%)	0	
	NEWTON	308	12 (3.9%)	1	Yes
	NORTHBOROUGH	48	0 (0%)	0	
	NORWOOD	99	0 (0%)	0	
	QUINCY	325	1 (0.3%)	1	No
	READING	133	1 (0.8%)	0	No
	REVERE	210	7 (3.3%)	0	Yes
	SAUGUS	104	0 (0%)	0	
	SOMERVILLE	270	10 (3.7%)	0	Yes
	SOUTHBOROUGH	30	0 (0%)	0	
	STONEHAM	94	1 (1.06%)	0	No
	SWAMPSCOTT	57	0 (0%)	0	
	WALTHAM	222	2 (0.9%)	0	No
	WATERTOWN	146	1 (0.7%)	0	No
	WESTON	45	0 (0%)	0	
	WINTHROP	93	30 (32.3%)	0	Yes
	Total: Fully Served		5303	138 (2.6%)	
Partially Served	BEDFORD	93	29 (31.2%)	0	Yes
	BURLINGTON	143	3 (2.1%)	0	No
	CANTON	90	0 (0%)	0	
	NEEDHAM	123	0 (0%)	0	
	PEABODY	232	5 (2.2%)	0	No
	WAKEFIELD	148	11 (7.4%)	0	Yes
	WELLESLEY	125	4 (3.2%)	0	Yes
	WILMINGTON	87	0 (0%)	0	
	WINCHESTER	94	0 (0%)	0	
	WOBURN	208	0 (0%)	0	
Total: Partially Served		1343	52 (3.9%)		
Total: Community Samples No CVA		6646	190 (2.9%)		
CVA	MWRA CVA Locations	107	2 (1.9%)	0	Yes
	CHICOPEE	186	0 (0%)	0	
	SOUTH HADLEY FD1	60	0 (0%)	0	
	WILBRAHAM	45	0 (0%)	0	
	Total: CVA	398	2 (0.5%)		

Chlorine Residuals in Fully Served Communities

	2022				2023								
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
% < 0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
% < 0.2	0.4	0.5	0.8	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.3	1.8
% < 0.5	1.8	2.1	2.4	1.5	1.2	0.7	0.5	0.3	0.3	1.0	1.2	3.1	6.2
% < 1.0	6.5	5.8	5.7	3.9	2.4	1.8	1.3	1.4	1.9	3.4	4.8	12.5	16.0
% > 1.0	93.5	94.2	94.4	96.2	97.7	98.2	98.7	98.6	98.1	96.6	95.2	87.5	84.0

Treated Water Quality: Disinfection By-Product (DBP) Levels in Communities

1st Quarter – FY24

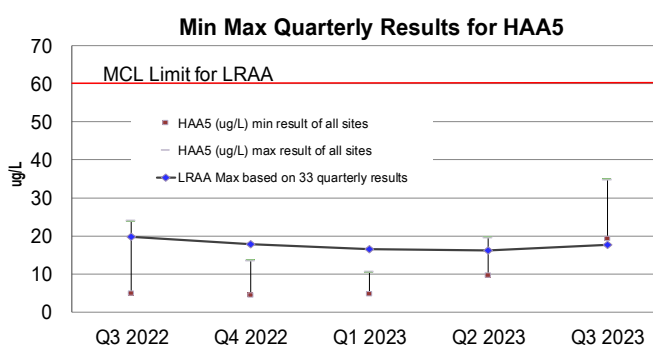
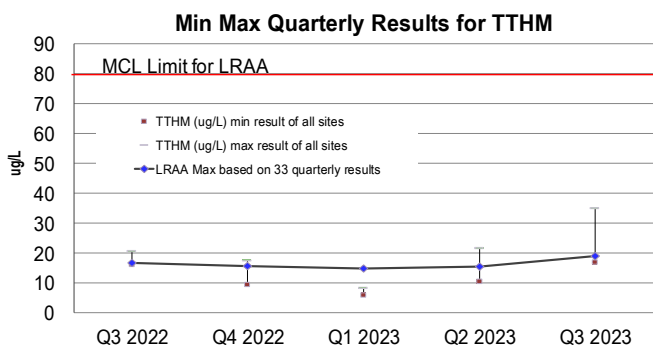
Total Trihalomethanes (TTHMs) and Haloacetic Acids (HAA5s) are by-products of disinfection treatment with chlorine. They are of concern due to their potential adverse health effects at high levels. EPA’s locational running annual average (LRAA) standard, using the most recent four quarterly results, is 80 µg/L for TTHMs and 60 µg/L for HAA5s. The locational running annual average at each individual sampling location must be below the standard.

Bromate is tested monthly as required for water systems, like CWTP, that treat with ozone. EPA’s RAA Maximum Contaminant Level (MCL) standard for bromate is 10 µg/L. The current RAA for Bromate at the CWTP finished water tap is 0.0 µg/L.

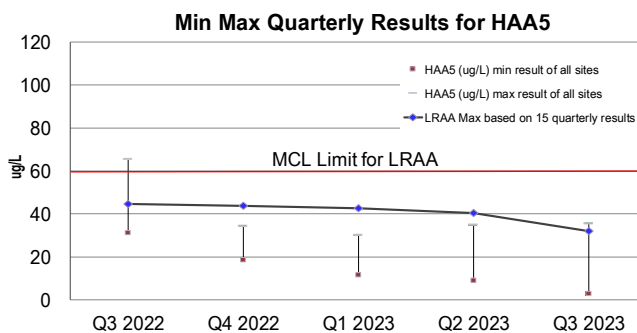
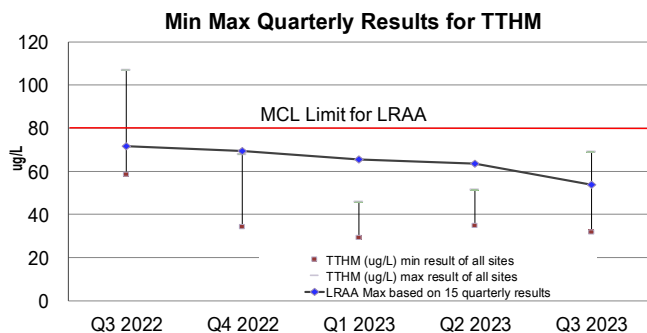
MWRA’s TTHM and HAA5 sampling program includes sampling at 33 MetroWest and Metro Boston communities sites. Partially served and CVA communities are responsible for their own compliance monitoring and are regulated individually.

The LRAA for TTHMs and HAA5s for MWRA’s Compliance Program (represented as the line in the top two graphs below) remains below current standards. The Max LRAA in the quarter for TTHMs = 19.0 µg/L; HAA5s = 17.7 µg/L. No LRAA exceedances or violations occurred this quarter for MetroBoston and for any of the CVA communities.

MetroBoston Disinfection By-Products



CVA Disinfection By-Products (Combined Results Chicopee, Wilbraham, & South Hadley FD1)



Water Supply and Source Water Management

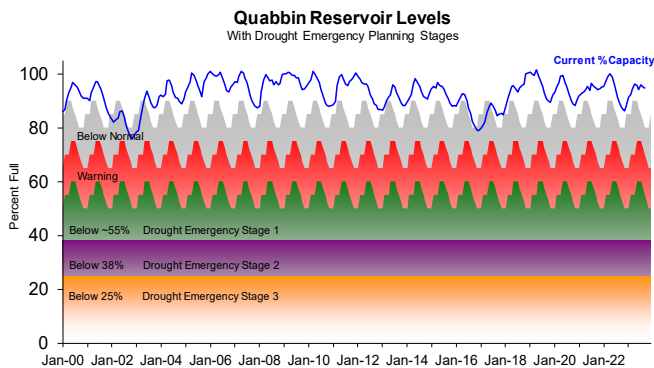
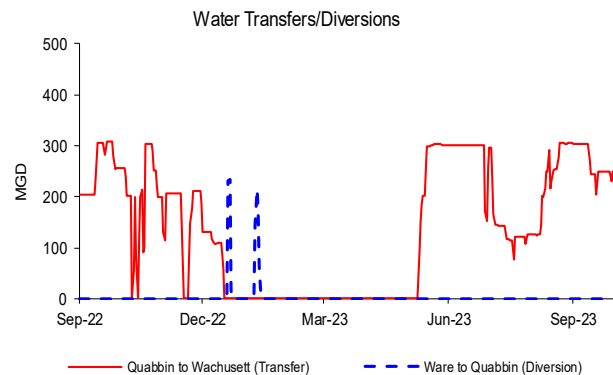
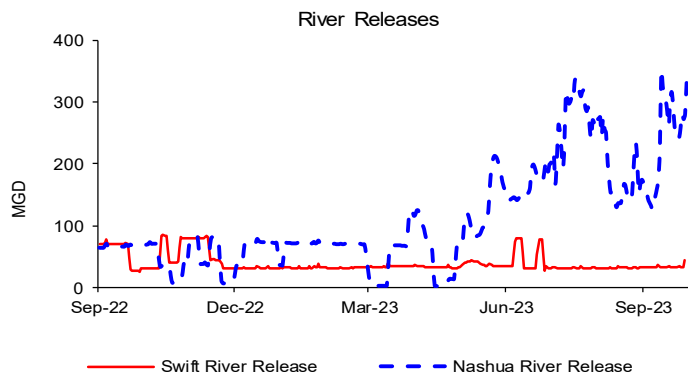
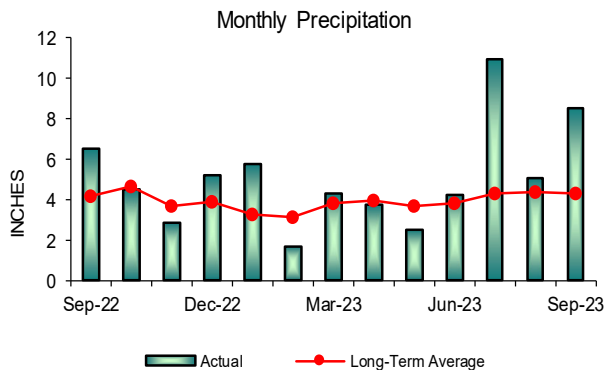
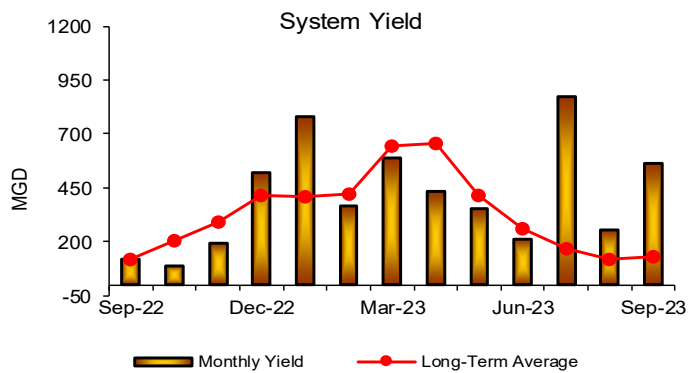
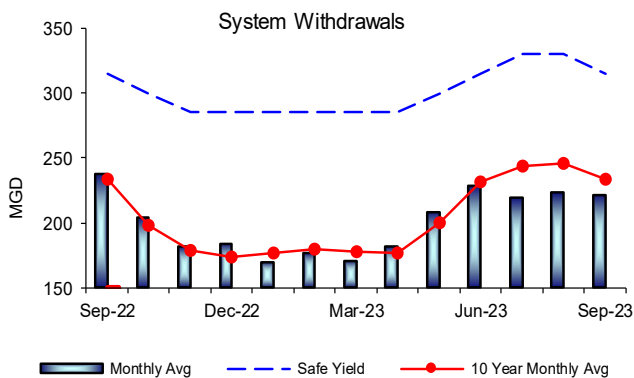
1st Quarter – FY24

Background

A reliable supply of water in MWRA's reservoirs depends on adequate precipitation during the year and seasonal hydrologic inputs from watersheds that surround the reservoirs. Demand for water typically increases with higher summer temperatures and then decreases as temperatures decline. Quabbin Reservoir was designed to effectively supply water to the service areas under a range of climatic conditions and has the ability to endure a range of fluctuations. Wachusett Reservoir serves as a terminal reservoir to meet the daily demands of the Greater Boston area. A key component to this reservoir's operation is the seasonal transfer of Quabbin Reservoir water to enhance water quality during high demand periods. On an annual basis, Quabbin Reservoir accounts for nearly 50% of the water supplied to Greater Boston. The water quality of both reservoirs (as well as the Ware River, which is also part of the System Safe Yield) depend upon implementation of DCR's DEP-approved Watershed Protection Plans. System Yield is defined as the water produced by its sources, and is reported as the net change in water available for water supply and operating requirements.

Outcome

The volume of the Quabbin Reservoir was at 94.8% as of September 30, 2023; a 1.0 % decrease for the quarter, which represents a loss of more than 3.8 billion gallons of storage and a decrease in elevation of 0.51'. System withdrawal was below its long term quarterly average. Precipitation and Yield quarterly averages were above their respective long term quarterly averages. Quabbin is in Normal Operating Range for this time of year.



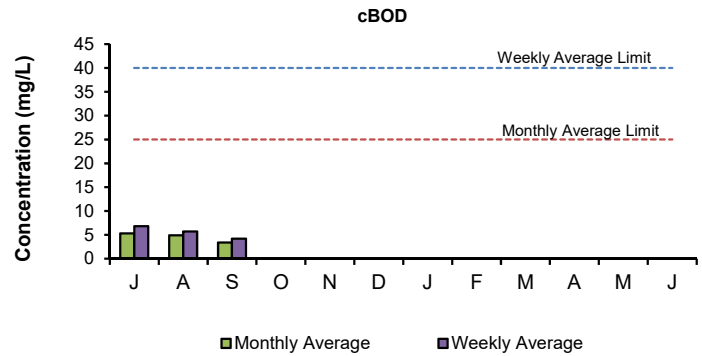
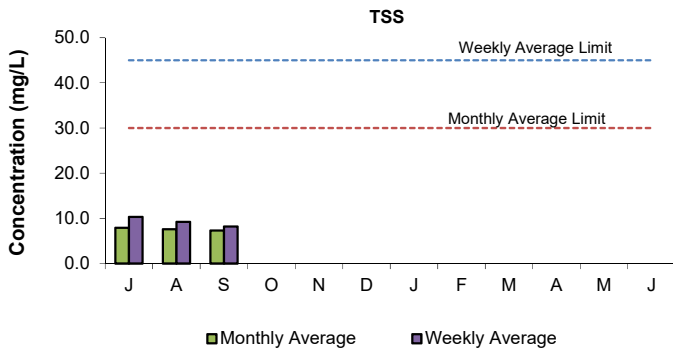
WASTEWATER QUALITY

NPDES Permit Compliance: Deer Island Treatment Plant 1st Quarter - FY24

NPDES Permit Limits

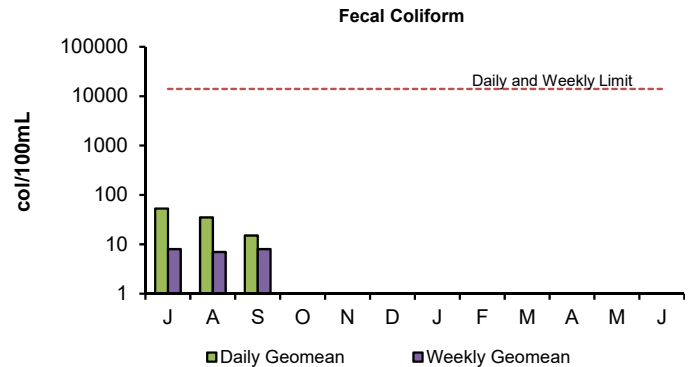
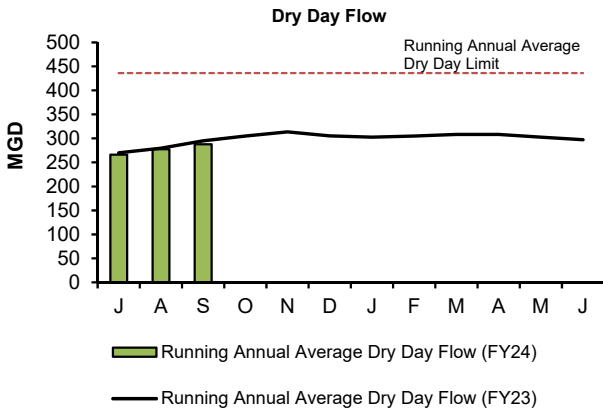
Effluent Characteristics	Units	Limits	July	August	September	1st Quarter Violations	FY24 YTD Violations
Dry Day Flow (365 Day Average):	mgd	436	266.3	277.5	287.8	0	0
cBOD:	Monthly Average	mg/L	5.3	4.9	3.4	0	0
	Weekly Average	mg/L	6.8	5.7	4.2	0	0
TSS:	Monthly Average	mg/L	7.9	7.6	7.3	0	0
	Weekly Average	mg/L	10.3	9.2	8.2	0	0
TCR:	Monthly Average	ug/L	456	0.0	0.0	0	0
	Daily Maximum	ug/L	631	0.0	0.0	0	0
Fecal Coliform:	Daily Geometric Mean	col/100mL	14000	53	35	15	0
	Weekly Geometric Mean	col/100mL	14000	8	7	8	0
	% of Samples >14000	%	10	0	0	0	0
	Consecutive Samples >14000	#	3	0	0	0	0
pH:	SU	6.0-9.0	6.4-6.8	6.5-6.8	6.5-6.8	0	0
PCB, Aroclors:	Monthly Average	ug/L	0.000045	UNDETECTED		0	0
Acute Toxicity:	Inland Silverside	%	≥50	>100	>100	>100	0
	Mysid Shrimp	%	≥50	>100	>100	>100	0
Chronic Toxicity:	Inland Silverside	%	≥1.5	6	50	25	0
	Sea Urchin	%	≥1.5	100	100	100	0

There have been no permit violations in FY24 to date at the Deer Island Treatment Plant (DITP).



Total Suspended Solids (TSS) in the effluent is a measure of the amount of solids that remain suspended after treatment. All TSS measurements for the 1st Quarter were within permit limits.

Carbonaceous Biochemical Oxygen Demand (cBOD) is a measure of the amount of dissolved oxygen required for the decomposition of organic materials in the environment. All cBOD measurements for the 1st Quarter were within permit limits.



Running Annual Average Dry Day Flow is the average of all dry weather influent flows over the previous 365 days. The Dry Day Flow for the 1st Quarter was well below the permit limit of 436 MGD.

Fecal Coliform is an indicator for the possible presence of pathogens. The levels of these bacteria after disinfection show how effectively the plant is inactivating many forms of disease-causing microorganisms. In the 1st Quarter, all permit conditions for fecal coliform were met.

NPDES Permit Compliance: Clinton Wastewater Treatment Plant

1st Quarter - FY24

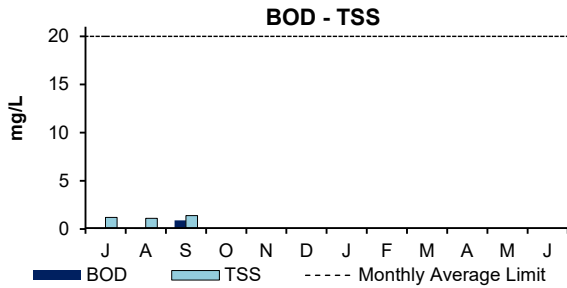
NPDES Permit Limits

Effluent Characteristics		Units	Limits	July	August	September	1st Quarter Violations	FY24 YTD Violations
Flow:	12-month Rolling Average:	mgd	3.01	2.71	2.86	3.01	0	0
BOD:	Monthly Average:	mg/L	20	<1.7	<1.7	0.9	0	0
	Weekly Average:	mg/L	20	<1.9	<1.8	2.1	0	0
TSS:	Monthly Average:	mg/L	20	1.2	1.1	1.4	0	0
	Weekly Average:	mg/L	20	1.9	1.5	1.7	0	0
pH:		SU	6.5-8.3	7.1-7.6	7.4-7.8	7.3-7.7	0	0
Dissolved Oxygen:	Daily Average Minimum:	mg/L	6	7.8	8.6	8.4	0	0
E. Coli:	Monthly Geometric Mean:	cfu/100mL	126	6	10	6	0	0
	Daily Geometric Mean:	cfu/100mL	409	12	46	18	0	0
TCR:	Monthly Average:	ug/L	20	<20	0.13	<20	0	0
	Daily Maximum:	ug/L	30.4	<20	4.00	<20	0	0
Copper:	Monthly Average:	ug/L	11.6	6.34	7.76	8.68	0	0
	Daily Maximum:	ug/L	14.0	7.04	7.76	8.68	0	0
Total Ammonia Nitrogen: June 1st - October 31st	Monthly Average:	mg/L	2.0	0.02	<0.1	<0.1	0	0
	Daily Maximum:	mg/L	3.0	0.05	<0.1	<0.1	0	0
Total Phosphorus: April 1st - October 31st	Monthly Average:	mg/L	0.15	0.07	0.05	0.03	0	0
	Daily Maximum:	mg/L	RPT	0.12	0.06	0.04	0	0
Acute Toxicity ⁺ :	Daily Minimum:	%	≥100	>100	N/A	N/A	0	0
Chronic Toxicity ⁺ :	Daily Minimum:	%	≥62.5	100.0	N/A	N/A	0	0

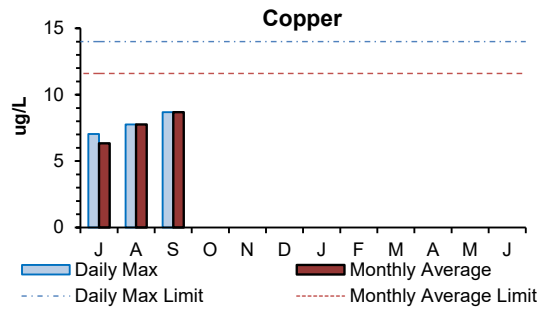
There have been no permit violations in FY24 at the Clinton Treatment Plant.

1st Quarter: There were no permit violations in the first quarter.

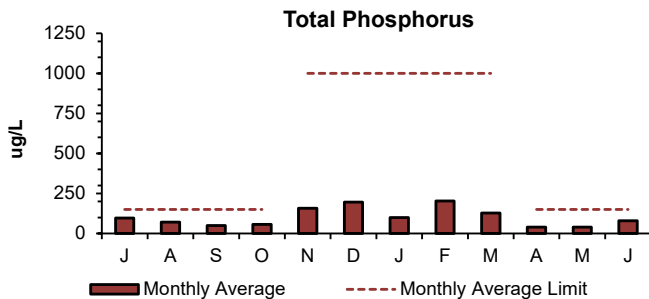
+ Toxicity testing at the Clinton Treatment Plant is conducted on a quarterly basis.



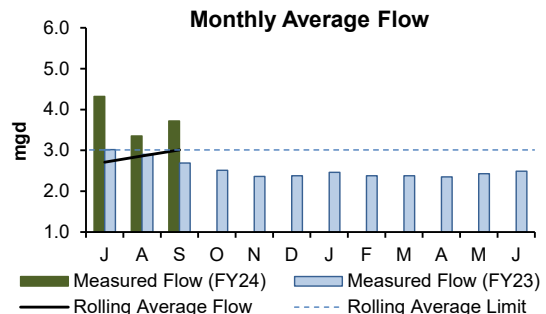
Monthly average concentrations of BOD and TSS were below permit limits in the 1st Quarter. The permit monthly limit for both parameters is 20 mg/L.



Daily maximum and monthly average concentrations of copper were below permit limits in the 1st Quarter. Permit daily and monthly limits are 14.0 ug/L and 11.6 ug/L respectively.



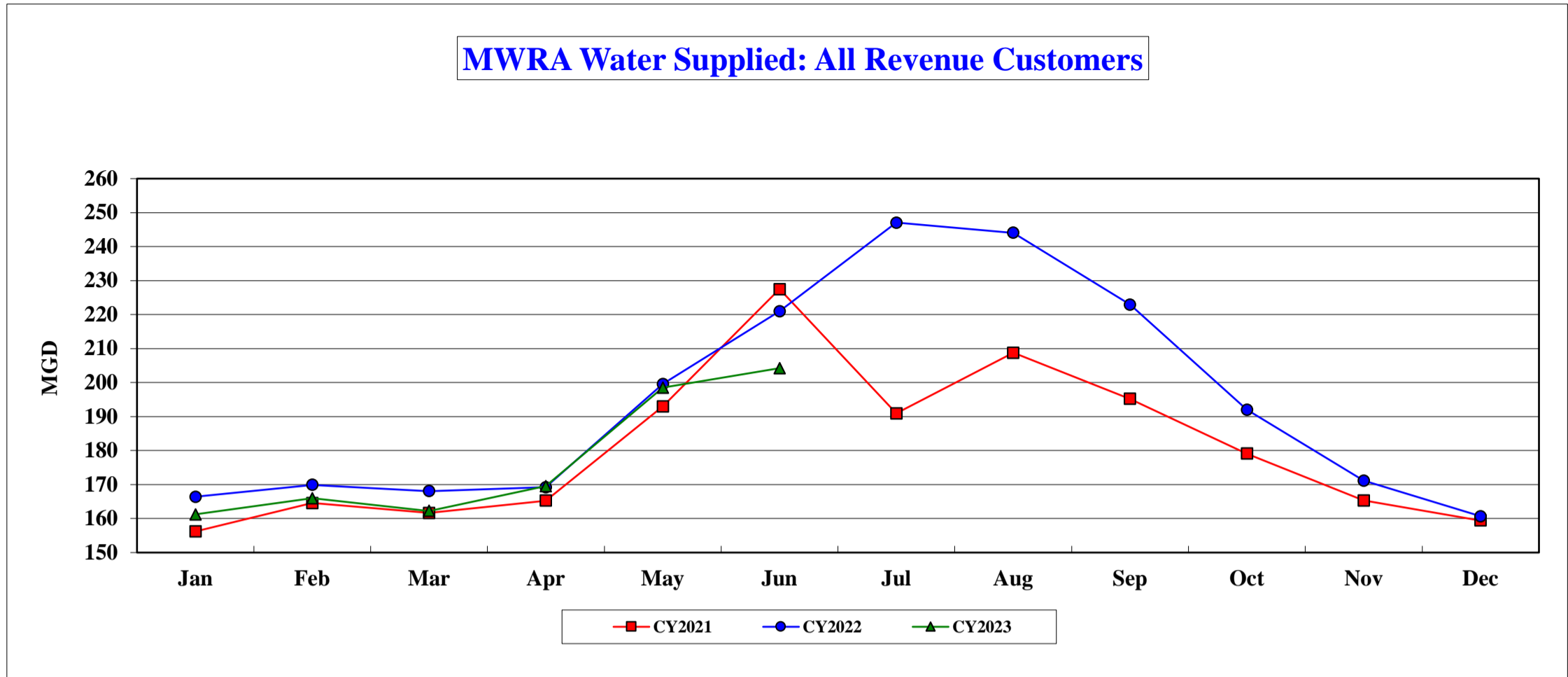
Total phosphorus limits are most stringent during the growing season from April to October. The 1st Quarter's monthly average concentrations for total phosphorus were below permit limits.



The graph depicts the rolling annual average monthly flow, measured in million gallons per day, exiting the plant. The 12-month rolling average flows during the 1st Quarter were below or at the permit limit.

COMMUNITY FLOWS AND PROGRAMS

Customer Water Use 1st Quarter - FY24



Water Use (million gallons per day)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD Average	Annual Average
CY2021	156.213	164.567	161.697	165.284	192.998	227.522	190.945	208.810	195.229	179.116	165.302	159.442	178.067	180.641
CY2022	166.445	169.923	168.101	169.253	199.626	221.002	247.075	244.069	222.906	192.000	171.170	160.697	182.457	194.537
CY2023	161.248	165.963	162.266	169.566	198.489	204.245	-	-	-	-	-	-	177.035	177.035

The June 2023 Community Water Use Report was recently distributed to communities and customers served by the MWRA's Metropolitan and Chicopee Valley waterworks systems. Each community's annual water use relative to the system as a whole is the primary factor in allocating the annual water rate revenue requirement to MWRA water communities. Calendar year 2023 water use will be used to allocate the FY2025 water utility rate revenue requirement.

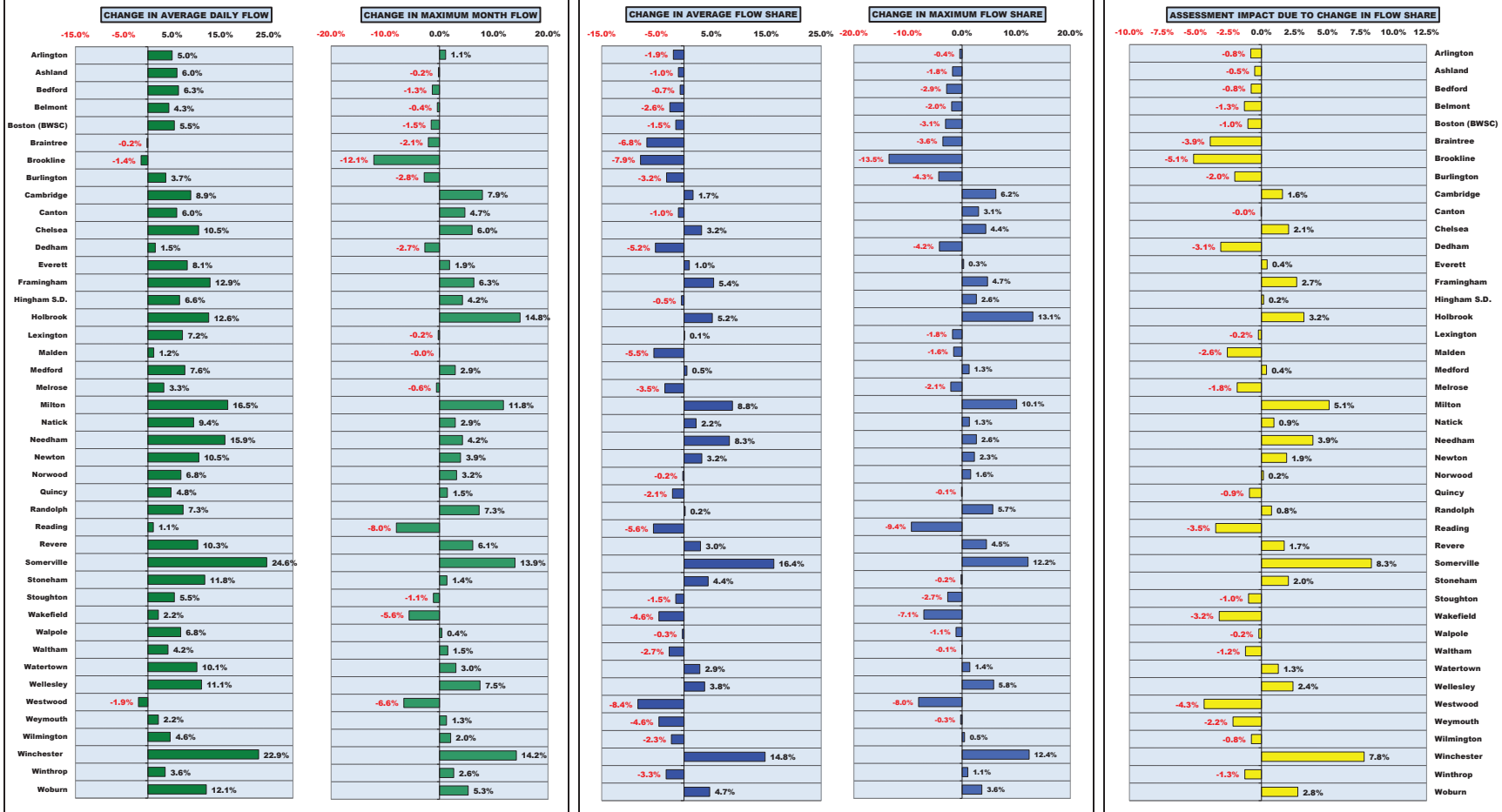
MWRA customers used an average of 196.7 mgd in the 4th quarter (Apr-Jun 2023) of FY2023. This is a decrease of 5.8 mgd or 3.0% compared to the 4th quarter of FY2022.

How CY2021-23 Community Wastewater Flows Could Effect FY2025 Sewer Assessments ^{1,2,3}

The flow components of FY2025 sewer assessments will be calculated using a 3-year average of CY2021 to CY2023 wastewater flows compared to FY2024 assessments that will use a 3-year average of CY2020 to CY2022 wastewater flows.

But as MWRA's sewer assessments are a ZERO-SUM calculation, a community's assessment is strongly influenced by the **RELATIVE** change in CY2021 to CY2023 flow share compared to CY2020 to CY2022 flow share, compared to all other communities in the system.

The chart below illustrates the change in the **TOTAL BASE** assessment due to **FLOW SHARE CHANGES**. ⁴



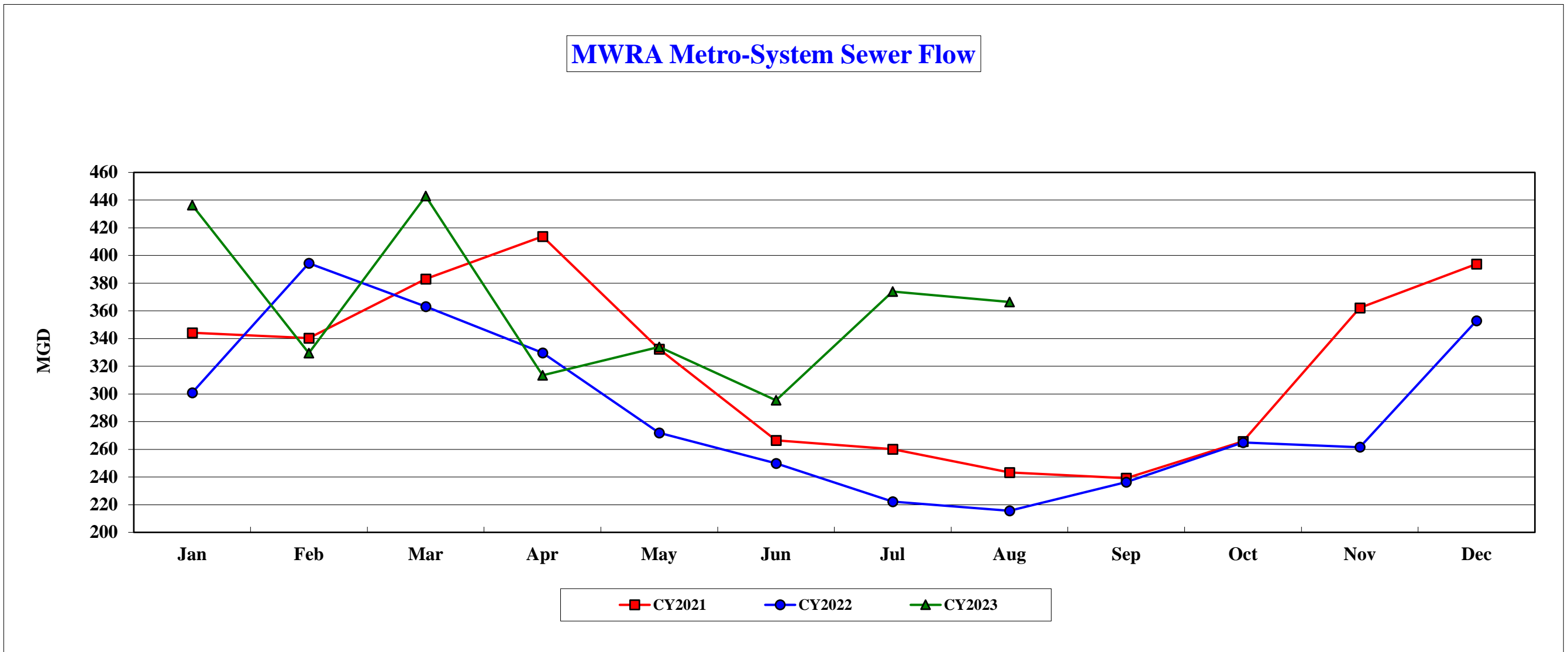
¹ MWRA uses a 3-year flow average to calculate sewer assessments. Three-year averaging smoothes the impact of year-to-year changes in community flow share, but does not eliminate the long-term impact of changes in each community's relative contribution to the total flow.

² Based on actual flows for 2022 and 2023 (through August), and January to March, and June to December 2020. April & May 2020 based on the average of 3 prior years, adjusted for 2020 water use. January to December 2021 estimated based on the average of the 3 prior years.

³ Flow data is preliminary and subject to change pending additional MWRA and community review.

⁴ Represents **ONLY** the impact on the total **BASE** assessment resulting from the changes in average and maximum wastewater **FLOW SHARES**.

Community Sewer Flow YTD - FY24



Sewer Flow (million gallons per day)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD Average	Annual Average
CY2021	344.203	340.320	383.107	413.769	332.385	266.443	260.030	243.310	239.147	265.670	362.143	393.833	322.590	320.199
CY2022	300.930	394.400	363.110	329.710	271.890	249.840	222.280	215.600	236.380	264.960	261.560	352.870	292.254	287.969
CY2023	436.460	329.510	442.870	313.530	333.930	295.380	373.960	366.470	-	-	-	-	362.378	338.212

The 2023 8-Month Community Sewer Flow Report was recently distributed to the 43 communities served by the MWRA's Metropolitan sewer system. Each community's share of sewer flow relative to the system as a whole is used to allocate the annual sewer rate revenue requirement to MWRA sewer communities. The average of calendar year 2021-2023 sewer flow will be used to allocate the FY2025 sewer utility rate revenue requirement.

MWRA customer sewer flow averaged 362.4 mgd in the first eight months of CY2023. This is an increase of 70.1 mgd or 24.0% compared to the first eight months of CY2022.

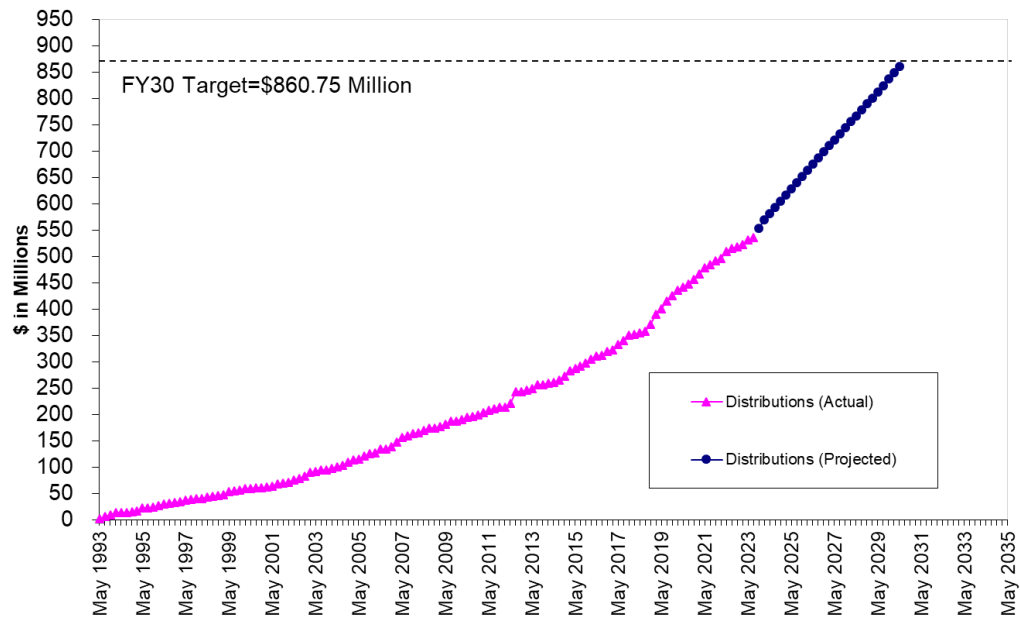
Community Support Programs

1st Quarter – FY24

Infiltration/Inflow Local Financial Assistance Program

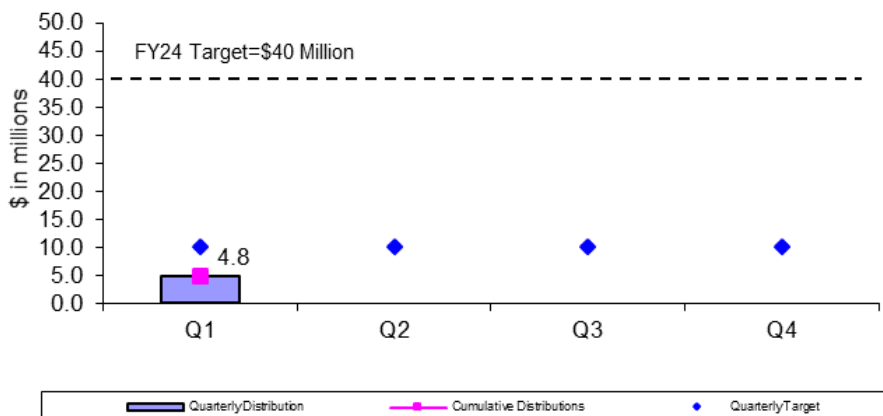
MWRA's Infiltration/Inflow (I/I) Local Financial Assistance Program provides \$860.75 million in grants and interest-free loans (average of about \$22 million per year from FY93 through FY30) to member sewer communities to perform I/I reduction and sewer system rehabilitation projects within their locally-owned collection systems. Eligible project costs include: sewer rehabilitation construction, pipeline replacement, removal of public and private inflow sources, I/I reduction planning, engineering design, engineering services during construction, etc. I/I Local Financial Assistance Program funds are allocated to member sewer communities based on their percent share of MWRA's wholesale sewer charge. Phase 1-8 funds (total \$300.75 million) were distributed as 45% grants and 55% loans with interest-free loans repaid to MWRA over a five-year period. Phase 9 through 12 funds (total \$360 million) are distributed as 75% grants and 25% loans with interest-free loans repaid to MWRA over a ten-year period. Phase 13 provides an additional \$100 million in ten-year loan-only funds. Phase 14 funds (total \$100 million) are distributed as 75% grants and 25% loans with interest-free loans repaid to MWRA over a ten-year period.

I/I Local Financial Assistance Program Distribution FY93-FY30



During the 1st Quarter of FY24, \$4.8 million in financial assistance (grants and interest-free loans) was distributed to fund local sewer rehabilitation projects in Hingham, Lexington, Milton and Woburn. Total grant/loan distribution to date for FY24 is \$4.8 million. From FY93 through the 1st Quarter of FY24, all 43 member sewer communities have participated in the program and \$536 million has been distributed to fund 668 local I/I reduction and sewer system rehabilitation projects. Distribution of the remaining funds has been approved through FY30 and community loan repayments will be made through FY40. All scheduled community loan repayments have been made.

FY24 Quarterly Distributions of Sewer Grant/Loans



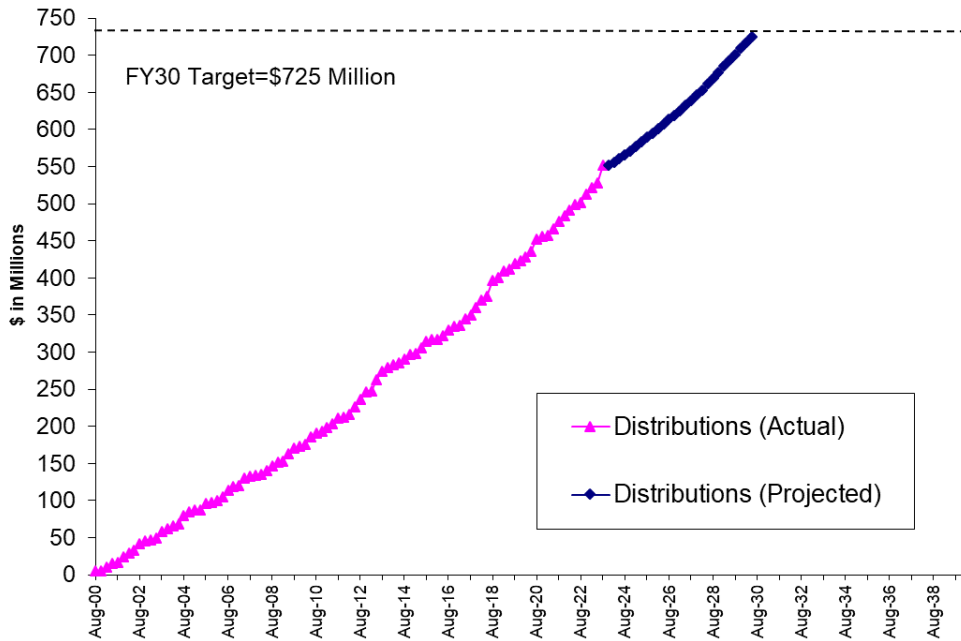
Community Support Programs

1st Quarter – FY24

Local Water System Assistance Program

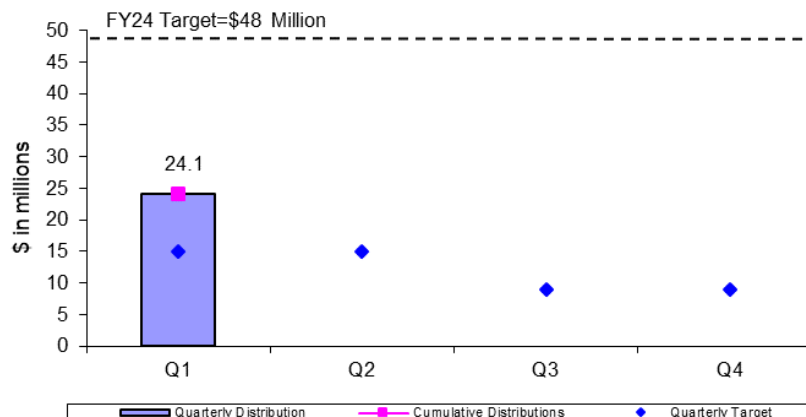
MWRA's Local Water System Assistance Programs (LWSAP) provides \$725 million in interest-free loans (an average of about \$24 million per year from FY01 through FY30) to member water communities to perform water main rehabilitation projects within their locally-owned water distribution systems. There have been three (3) funding phases: Phase 1 at \$222 Million, Phase 2 at \$210 Million, and Phase 3 at \$293 Million. Eligible project costs include: water main cleaning/lining, replacement of unlined water mains, lead service replacements, valve, hydrant, water meter, tank work, engineering design, engineering services during construction, etc. MWRA partially-supplied communities receive pro-rated funding allocations based on their percentage use of MWRA water. Interest-free loans are repaid to MWRA over a ten-year period beginning one year after distribution of the funds. The Phase 1 water loan program concluded in FY13 with \$222 million in loan distributions. The Phase 2 - LWSAP continues distributions through FY25. The Phase 3 Water Loan Program is authorized for distributions from FY18 through FY30.

Local Water System Assistance Program Distribution FY01-FY30



During the 1st Quarter of FY24, \$24.1 million in interest-free loans was distributed to fund local water projects in Belmont, Chicopee, Malden, Norwood, Quincy, Saugus, Somerville, and Woburn. Total loan distribution to date for FY24 is \$24.1 million. From FY01 through the 1st Quarter of FY23, \$552 million has been distributed to fund 526 local water system rehabilitation projects in 43 MWRA member water communities. Distribution of the remaining funds has been approved through FY30 and community loan repayments will be made through FY40. All scheduled community loan repayments have been made.

FY24 Quarterly Distributions of Water Loans



Community Support Programs

1st Quarter – FY24

Lead Service Line Replacement Loan Program

By its vote on March 16, 2016, the Board approved an enhancement to the Local Water System Assistance Program to provide up to \$100 million in 10-year zero-interest loans to communities solely for efforts to fully replace lead service lines. The Lead Service Line Replacement Loan Program is also referenced as the Lead Loan Program or LLP. Each community can develop its own program, tailored to their local circumstances. MWRA's goal in providing financial assistance to member communities is to improve local water systems so that the high quality water MWRA delivers can make it all the way to the consumer's tap. The presence of a lead service line connecting a home to the main in the street can lead to elevated lead levels in tap water, especially if that water sits stagnant for an extended period. MWRA's stable water quality and effective corrosion control treatment reduce the risk that a lead service line will cause elevated lead levels, and measured lead levels in high risk homes have decreased by 90 percent since corrosion control was brought on-line in 1996. However, the risk of elevated levels remains as long as lead service lines are in use. To date, \$36.3 million dollars have been distributed to 15 communities.

FY17 was the first year of the Lead Service Line Replacement Loan Program - MWRA made three Lead Loans.

FY18 was the second year of the Lead Loan Program - MWRA made five Lead Loans.

FY19 was the third year of the Lead Loan Program - MWRA made four Lead Loans.

FY20 was the fourth year of the Lead Loan Program - MWRA made eight Lead Loans.

FY21 is the fifth year of the Lead Loan Program - MWRA made seven Lead Loans.

FY22 is the sixth year of the Lead Loan Program - MWRA made six Lead Loans.

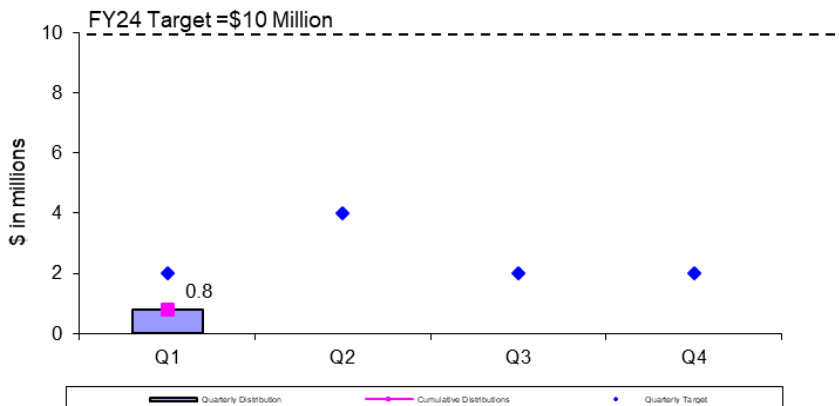
FY23 is the seventh year in the Lead Loan Program - MWRA has made six Lead Loans.

FY24 is the eighth year in the Lead Loan Program - MWRA has made two Lead Loans in the first quarter.

Summary of Lead Loans:

Watertown in FY24	\$0.3 Million	Winthrop in FY20	\$0.7 Million
Malden in FY24	\$0.5 Million	Weston in FY20	\$0.2 Million
Chelsea in FY23	\$0.5 Million	Everett in FY20	\$1.0 Million
Watertown in FY23	\$0.3 Million	Somerville in FY20	\$0.9 Million
Winthrop in FY23	\$0.7 Million	Chelsea in FY20	\$0.3 Million
Reading in FY23	\$1.5 Million	Marlborough in FY19	\$1.0 Million
Watertown in FY23	\$0.3 Million	Winthrop in FY19	\$0.5 Million
Winchester in FY23	\$0.6 Million	Chelsea in FY19	\$0.1 Million
Everett in FY22	\$1.5 Million	Everett in FY19	\$1.0 Million
Boston in FY22	\$0.9 Million	Needham in FY18	\$1.0 Million
Winthrop in FY22	\$0.8 Million	Winchester in FY18	\$0.5 Million
Somerville in FY22	\$1.6 Million	Revere in FY18	\$0.2 Million
Revere in FY22	\$1.3 Million	Winthrop in FY18	\$0.3 Million
Chelsea in FY22	\$0.3 Million	Marlborough in FY18	\$1.0 Million
Watertown in FY21	\$0.6 Million	Newton in FY17	\$4.0 Million
Marlborough in FY21	\$2.0 Million	Quincy in FY17	\$1.5 Million
Everett in FY21	\$1.5 Million	<u>Winchester in FY17</u>	<u>\$0.5 Million</u>
Boston in FY21	\$2.6 Million	TOTAL	\$36.3 Million
Winthrop in FY21	\$0.8 Million		
Chelsea in FY21	\$0.3 Million		
Winchester in FY21	\$0.6 Million		
Everett in FY20	\$0.5 Million		
Marlborough in FY20	\$1.0 Million		
Winchester in FY20	\$0.6 Million		

FY24 Quarterly Distributions of Lead Service Line Replacement Loans

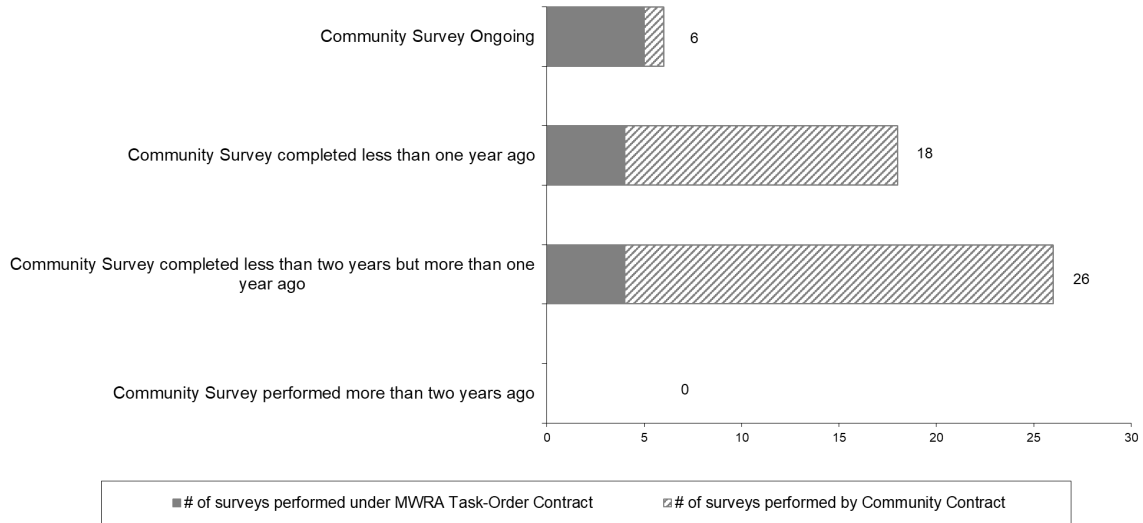


Community Support Programs

1st Quarter – FY24

Community Water System Leak Detection

To ensure member water communities identify and repair leaks in locally-owned distribution systems, MWRA developed leak detection regulations that went into effect in July 1991. Communities purchasing water from MWRA are required to complete a leak detection survey of their entire distribution system at least once every two years. Communities can accomplish the survey using their own contractors or municipal crews; or alternatively, using MWRA’s task order leak detection contract. MWRA’s task order contract provides leak detection services at a reasonable cost that has been competitively procured (3-year, low-bid contract) taking advantage of the large volume of work anticipated throughout the regional system. Leak detection services performed under the task order contract are paid for by MWRA and the costs are billed to the community the following year. During the 1st Quarter of FY24, all member water communities were in compliance with MWRA’s Leak Detection Regulation.



Community Water Conservation Outreach

MWRA’s Community Water Conservation Program helps to maintain average water demand below the regional water system’s safe yield of 300 mgd. Current 5-year average water demand is less than 200 mgd. The local Water Conservation Program includes distribution of water conservation education brochures (indoor - outdoor bill-stuffers) and low-flow water fixtures and related materials (shower heads, faucet aerators, and toilet leak detection dye tabs), all at no cost to member communities or individual customers. The Program’s annual budget is \$25,000 for printing and purchase of materials. Annual distribution targets and totals are provided in the table below. Distributions of water conservation materials are made based on requests from member communities and individual customers.

	Annual Target	Q1	Q2	Q3	Q4	Annual Total
Educational Brochures	100,000	357				357
Low-Flow Fixtures (showerheads and faucet aerators)	10,000	1,175				1,175
Toilet Leak Detection Dye Tablets	—	1,065				1,065

BUSINESS SERVICES

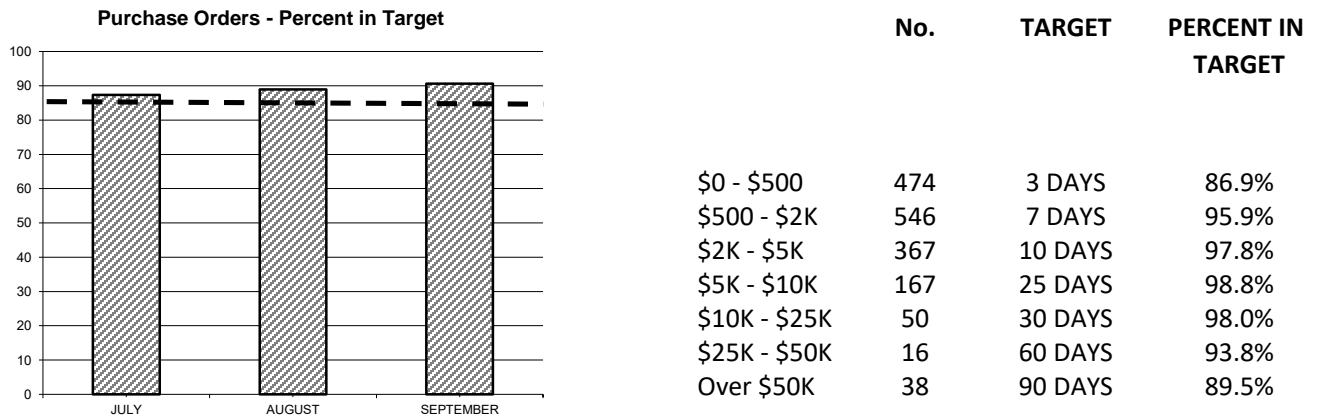
Procurement: Purchasing and Contracts

1st Quarter - FY24

Background: Goal is to process 85% of Purchase Orders and 80% of Contracts within Target timeframes.

Highlights: Processed 94% of purchase orders within target; Average Processing Time was 5.05 days vs. 5.66 days in Qtr 1 of FY23. Processed 70% (7 of 10) of contracts within target timeframes; Average Processing Time was 149 days vs. 264 days in Qtr 1 of FY23.

Purchasing



The Purchasing Unit processed 1658 purchase orders, 4 less than the 1662 processed in Qtr 1 of FY23 for a total value of \$25,743,025 versus a dollar value of \$23,371,557 in Qtr 1 of FY23.

The purchase order processing target was met for all categories.

Contracts, Change Orders and Amendments

Procurement executed ten contracts with a value of \$25,743,025 and five amendments with a value of \$1,154,643. Three contracts were not executed within the target timeframe. One contract was delayed due to discussions between the MWRA and the consultant regarding contract terms. Another contract was delayed due to the need for several addendas. Also, the staff summary required additional background information. The final contract was not executed within the target time frame due to additional procurement requirements necessary for insurance services. Insurance for all categories of coverage was obtained timely and according to schedule.

Staff reviewed 60 proposed change orders and 26 draft change orders.

Twenty six change orders were executed during the period. The dollar value of all non-credit change orders during Qtr 1 of FY24 was \$929,819 and the value of credit change orders was (\$1,028,430).

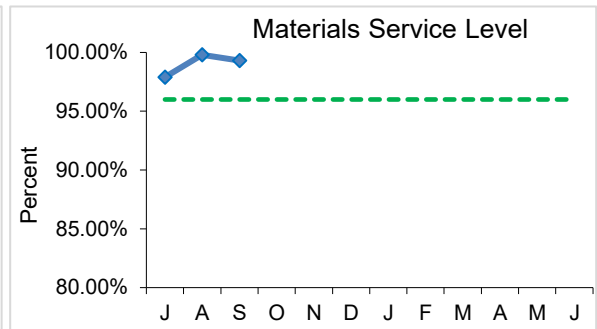
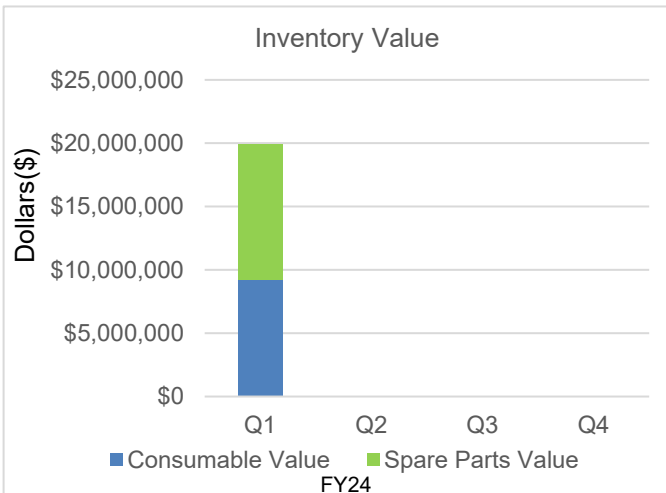
Materials Management

1st Quarter - FY24

The Materials Management department manages the three regional warehouses (Chelsea, Deer Island and Southboro). This includes the replenishment and receipt of both consumable and spare parts items to meet the needs of the MWRA. Additionally, MWRA tools and equipment are safeguarded through the Property Pass unit within the Materials Management department.

Inventory goals focus on:

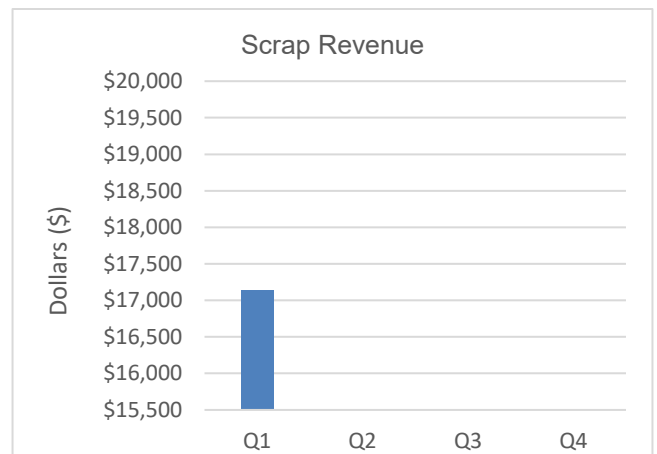
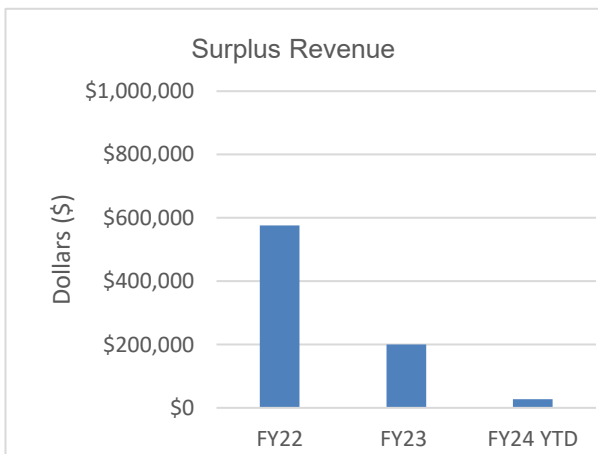
- Maintaining optimum levels of consumables inventory (office supplies, electrical, safety, etc.) and spare parts inventory (critical items such as actuators, motors, muffin monsters, etc.) necessary to support MWRA Operations and Maintenance. Typically spare parts carry longer lead times.
- Adding new items to inventory to meet changing business needs.
- Reviewing consumables and spare parts for obsolescence.
- Managing and controlling valuable equipment and tools via the Property Pass Program.



The service level is the percentage of stock requests filled. The goal is to maintain a service level of 96%. Staff issued 6,957 (99.2%) of the 7,015 items requested in Q1 from the inventory locations for a total dollar value of \$528,871.

Property Pass Program:

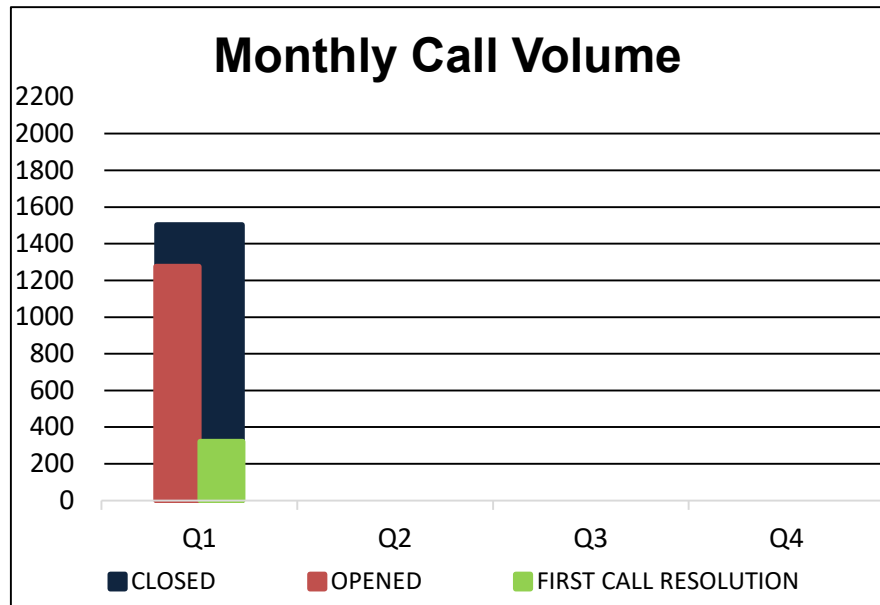
- Conducts audits of tools and equipment to ensure the safeguarding of MWRA assets.
- Manages the disposition and sale of surplus tools and equipment through GovDeals, an online auction site.
- Manages the surplusing of scrap metals and materials generating revenue to the MWRA staff.



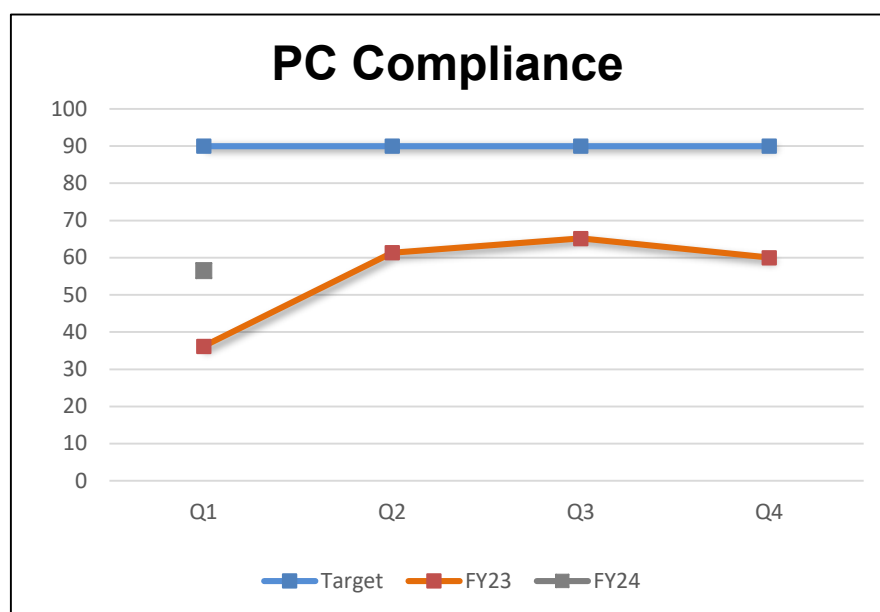
MIS Program

1st Quarter – FY24

Numbers & Statistics



Summary of calls managed by the Helpline.



Percentage of user endpoints that are in compliance with system updates. These numbers are a direct reflection of accessibility to these systems. Daytime patching began in January for mobile devices.

Project Updates

Infrastructure & Security

Office Space Planning: Continued identification and reporting of the new cabling issues at Chelsea and DI. Configured, and installed Switches at RT building. Addressed printer and configured ports for printer new locations.

Network Resiliency Improvements: Added new internet circuits and firewalls to improve the access for remote sites and enhance resiliency to network services such as phone services, Webex and internet access. Cosgrove completed in August.

VMWare Workspace ONE: Smartphone users migrated to the new solution for email access on mobile devices.

Conference Room Media Upgrades: Moving all conference rooms to new MWRA meeting standard. 13 of 16 conference rooms have been upgraded across the Authority. The remaining rooms are awaiting procurement of additional media kits.

Distributed Antenna System: The vendor completed the installation of the 4 new casa efemtos at Deer Island and integrated into the Mobile Access DAS.

Security Awareness Training: Curriculum for next round of annual training being developed.

PICS PI Virtualization: Completed the update to the PI DITP System. This update virtualized the server and streamlined backups

Library, Record Center, & Training

Library: Undertook 18 research requests, supplied books and reports for circulation, provided access to 57 new books/reports and 17 new standards (aside from subscriptions), The MWRA Library Portal supported 470 end user searches. Research topics included: floatables control, national cso data, and historic data on Alewife brook.

Record Center (RC): The Record Center added 47 new boxes and handled a total of 230 boxes during the first quarter of the FY. It shredded eight, 65-gallon and four, 96-gallon bins of confidential documentation onsite and researched 84 topics for various departments. Research included database and physical box searches and was looking for topics related to administrative information, staff summaries, Law research and project related information.

MIS Training: In Q1, 5 online IT lessons were taken by 62 employees.

Applications

ECM/Electronic Document Management: Successfully migrated all of DITP base drawings into the staging environment in preparation for User Acceptance Testing. Began User Acceptance Testing for all Engineering and Construction workflows. Go-live planned for mid November.

MWRA Website Refresh: Met, finalized, and signed off on the design proposal for the new website. Vendor has been working to build out the new website based on that approved design. Will meet in October to begin the process of migrating the information on our current website into our new website.

Infor Upgrade/Migration: A contractor was selected for the Infor application upgrade and migration project. The contract was signed and MIS staff is working with RPI to finalize the project details and timeline, with an anticipated October start.

Maximo/Lawson Interface: MIS and the contractor completed requirements discussions for the MIS Storeroom and the Service Contracts. Currently unit testing the development work that the vendor completed on the interface touchpoints. User Acceptance Testing is planned to start in October with a production implementation to follow.

Discoverer to Business Objects Enterprise (BOE) Migration: The largest phase of the project (report conversions) is complete. Currently verifying the converted reports and migrating them into production. Training is currently being planned for November.

Trimble Unity: MIS and the Metering department configured and tested the Trimble Unity remote monitoring application for external user access.

Maximo Version Upgrade: MIS continues with upgrade activities. The Development environment is complete and currently working to upgrade the Test environment with Production to follow.

Legal Matters
1st Quarter - FY24

PROJECT ASSISTANCE - 1st Quarter FY 2024

Real Estate, Contract, Energy, Environmental and Other Support:

- **8(m) Permits and License Agreements:** Reviewed one hundred nine (109) 8(m) permits, including any related MEPA Section 61 Findings. Drafted license for antenna and related equipment at the Chelsea Creek Headworks facility for emergency management services. Finalized public access 8(m) permit.
- **Real Property:** Drafted thirteen (13) notice of offer letters, revised three based on new information from property owners, and drafted seven (7) licenses for the acquisition of certain property rights to support MWRA's Siphon Junction Rehabilitation Project. Drafted three (3) notice of offer letters related to the acquisition of certain property rights for MWRA's Northern Intermediate High Section 89 Pipeline. Reviewed property rights for WASM 3. Reviewed and authorized a watershed real property acquisition project by the Department of Conservation and Recreation. Researched property rights for Metropolitan Water Tunnel Program and prepared license and access letters for survey and boring work. Researched MetroWest Water Supply Tunnel Project's special legislation, appraisal methodology, property acquisitions and compensation process. Finalizing conveyancing documents for 12 Cleverly Court, Quincy in accordance with Section 88 of Chapter 28 of the Acts of 2023.
- **Energy:** Provided ongoing counsel and support for energy team and other MWRA divisions regarding energy related issues, including electric vehicle infrastructure charging equipment and a potential solar canopy array.
- **Environmental/NPDES:** Provided ongoing counsel and support to ENQUAL and other MWRA divisions regarding NPDES and other environmental related issues, including: preparation of comments regarding U.S. Senate Environment and Public Works Committee Draft PFAS Legislation; memorandum of agreement regarding Quinapoxet Dam project; preparation of Cottage Farm Facility Second Interim Measure Status Report for filing with EPA; solicitation and draft contractor agreement for Pellet Plant; and closeout documents associated with a Combined Sewer Overflow Control Program memorandum of understanding and financial assistance agreement with a member community.
- **Miscellaneous:** Researched Public Lands Preservation Act for disposition of property interests for Metropolitan Water Tunnel Program. Provided guidance on MWRA's acceptance of a new 71 foot tower, generator and related equipment at Nash Hill Reservoir site, along with the Town of Ludlow's 8(m) application for operation and maintenance of its antenna and radio equipment on the new tower. Prepared correspondence in connection with the procurement of a disparity study. Finalized revisions to renewable energy supply contract concerning parental guarantee and release agreement. Finalized MWRA policies for Physical and Environmental Security, and Visitor Management. Finalized settlement documents relating to claims on a construction project.

- **Public Records Requests:** MWRA received and responded to one hundred sixty five (165) public records requests. Provided counsel and support to various MWRA divisions and records access officers regarding the Public Records Law and Massachusetts Statewide Records Retention Schedule. Reviewed MWRA's electronic content management system. Approved documents for submission to Records Conservation Board for disposition.

LITIGATION/CLAIMS - 1st Quarter FY 2024

New Lawsuits

- In re: Yellow Corporation, et al.; United States Bankruptcy Court (Delaware), Case No. 23:11069-CTG. Law Division received a Notice of Deadlines for filing proof of claim in a Ch. 11 bankruptcy matter.

New Claims:

- Massachusetts Natural Fertilizer Company et. al., – Notice of Potential Liability. In July, 2023, the Authority received a Notice of Potential Liability pursuant to M.G.L. c. 21E from Massachusetts Natural Fertilizer Co., Inc., ("Mass Natural"), Otter Farm, Inc. and The Newark Group (collectively, "Claimants"). The notice asserts there was a release of certain per- and polyfluoroalkyl substances (generally, "PFAS") in the vicinity of Bean Porridge Hill Road, Westminster, Massachusetts, identified by MassDEP Tracking Number 2-21866, and that MassDEP issued notices of responsibility to, among others, the Claimants. The notice alleges that testing of nearby private wells has identified PFAS at levels that exceed the drinking water Maximum Contaminant Level for PFAS and the Applicable Imminent Hazard Levels for PFAS as established by the Massachusetts Contingency Plan. The notice alleges that the Authority is a source of the release. The notice alleges that materials originating at MWRA's Deer Island facility and processed into biosolids at MWRA's Fore River Pelletizing Plant by the plant operator, New England Fertilizer Company ("NEFCO"), were delivered to Mass Natural and that the biosolids were determined to contain PFAS. In addition to an indemnity for future claims, the Claimants are seeking reimbursement from the Authority for forty percent of their past and future response costs and any other liability under Chapter 21E and all real and personal property damage suffered as a result of the release of PFAS. As of the date of the notice, the Claimants allege that they had incurred in excess of \$3.5 million in costs and damages. In addition, they maintain that they are not in a position to provide a firm estimate of the total anticipated remedial costs, but those costs "may be in the range of \$30-50 million" according to the notice. The Authority responded to the notice, contesting liability. Although the Authority asserted that it is not liable, it indicated in its response that it would participate in good faith in Chapter 21E's required negotiation process and requested certain information necessary to further inform the process. NEFCO has confirmed that, under its contract with the Authority, it is required to defend and indemnify the Authority against the claims.

Significant Developments:

- (Current employee) v. MWRA, et al.; Suffolk Superior Court C.A. No. 284CV01434. Mediation was held on July 11, 2023. Mediation did not result in settlement and discovery will continue.
- Unified Contracting, Inc. v. MWRA, Suffolk Superior Court, 2384CV00927. This action, filed on April 18, 2023, arises out of MWRA Contract No. 7198, Quabbin Aqueduct Shaft 2 Repairs. The Plaintiff alleges

it is entitled to payment for additional time and materials furnished for the project. The Plaintiff alleges damages of over \$1.3 million. MWRA was served with the Complaint on July 11 and MWRA's Answer was filed and served on July 31, 2023. In September, this matter was transferred to the Business Litigation Section of the Suffolk Superior Court.

- MWRA v. Department of Unemployment Assistance and (former MWRA employee), Chelsea District Court, 2314CV180. The Court allowed MWRA's Motion for Judgment on the Pleadings and reversed the DUA's decision, ordering the entry of a finding of ineligibility. The DUA has 60 days to appeal, which expires on October 10, 2023.

Closed Lawsuits:

- There are no Closed lawsuits to report.

Closed Claims:

- Jorge Amaya MVA claim: settled for \$7,950, the release is signed and the matter is closed.

Subpoenas:

- There are no new subpoenas received and no subpoenas that closed in 1st Quarter FY 2024.

Wage Garnishments

- There is one wage garnishment matter that is active and monitored by Law Division

SUMMARY OF PENDING LITIGATION MATTERS

TYPE OF CASE/MATTER	As of Sept 2023
Construction/Contract/Bid Protest	1
Tort/Labor/Employment	4
Environmental/Regulatory/Other	2
Eminent Domain/Real Estate	0
TOTAL	7
Other Litigation matters (restraining orders, etc.) - Class Action suit	1
TOTAL – all pending lawsuits	8
Claims not in suit	1
Bankruptcy	3
Wage Garnishment	1
TRAC/Adjudicatory Appeals	2
Subpoenas	0
TOTAL – ALL LITIGATION MATTERS	15

TRAC Appeals/MISC.

Pending Appeals: There are two pending Administrative Appeals:

- 1058 Beacon Street; MWRA Docket No. 22-10
- Tri-Town Regional Water District; MWRA Docket No. 23-03

Settlement by Agreement of Parties

There were two Settlements by Agreement of Parties in 1st Quarter FY 2024.

- Indigo Hotel Boston Garden; MWRA Docket No. 23-02
- Tradebe Treatment and Recycling of Stoughton, LLC; MWRA Docket No. 23-01

Stipulation of Dismissal

There were no Stipulations of Dismissal in 1st Quarter FY 2024.

Notice of Dismissal Fine paid in full

No Notices of Dismissal, Fines Paid in Full in 1st Quarter FY 2024.

Tentative

No Decisions were issued in 1st Quarter FY 2024.

Final Decisions

No Final Decisions were issued in 1st Quarter FY 2024.

LABOR AND EMPLOYMENT – 1st Quarter FY 2024

New Matters

- A Union filed a request for arbitration after the MWRA denied a grievance alleging that MWRA filled shift vacancies with staff out of classification and out of the bargaining unit before members of the bargaining unit in the same classification.
- A Union filed a request for arbitration after the MWRA denied a grievance asserting that the MWRA should have offered the Grievant an overtime shift on a Saturday.
- A Union filed a charge of prohibited practice at the Department of Labor Relations, alleging that the MWRA unilaterally altered working conditions when it filled an open position with an employee in an acting roll.

Significant Developments

- An arbitrator dismissed a grievance in which a Union asserted that the grievant worked out of grade, performing the duties of a position covered by a different collective bargaining unit, without appropriate compensation, allowing the Union to re-file the grievance. The Union sought clarification of the arbitrator's decision under M.G.L. c. 150C, § 8.

Matters Concluded

- An arbitrator sustained a grievance in which a Union asserted that the MWRA should have paid grievants 4 hours of call back pay, rather than overtime for hours actually worked, when the MWRA scheduled an early start time due to expected inclement weather during the grievants' commutes to work.
- The District Court allowed MWRA's Motion for Judgment on the Pleadings, reversing the Department of Unemployment Assistance's Board of Review's earlier decision granting unemployment benefits to a former employee and finding that the former employee is ineligible for benefits.
- The Department of Labor Relations dismissed a union's charge of prohibited practice that alleged that MWRA violated the state labor relations law M.G.L. c. 150E, when it posted a position at Grade 19 rather than Grade 21.
- The Department of Unemployment Assistance modified its prior decision granting unemployment benefits to a former employee, determining that the former employee is not entitled to unemployment benefits.
- The Massachusetts Commission Against Discrimination dismissed a charge filed against MWRA alleging discrimination based upon age, sexual orientation, race and color.

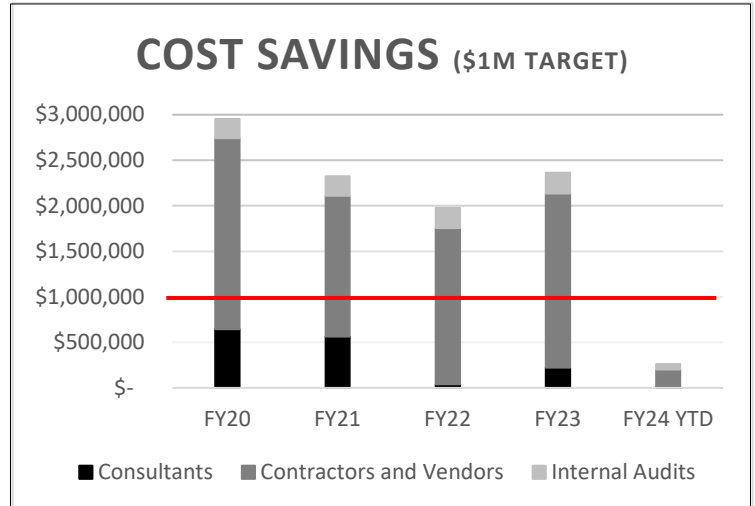
INTERNAL AUDIT AND CONTRACT AUDIT ACTIVITIES

1st Quarter - FY24

Purpose

Internal Audit evaluates the effectiveness of internal controls and procedures and monitors the quality, efficiency and integrity of the Authority's operating and capital programs. Through our audits and reviews, we assess whether internal controls are functioning as intended and that only reasonable, allowable and allocable costs are paid to consultants, contractors and vendors.

Cost Savings	FY24 YTD
Consultants	\$8,050
Contractors and Vendors	\$194,181
Internal Audits	\$58,555
Total	\$260,786



Highlights

During the 1st quarter FY24, Internal Audit (IA) progressed on an audit of Accounts Payable Process controls and procedures and an audit of Payroll Process controls and procedures. A review of travel reimbursement (employee owned car usage) and an internal review of MIS assets is progressing.

In addition, IA completed 3 incurred cost audits, 3 labor burden reviews, and 3 consultant preliminary reviews. There are 2 incurred cost audits, 3 labor burden reviews, and 1 consultant review in process. IA also issued 23 indirect cost rate letters to consultants following a review of their consultant disclosure statements.

Status of Recommendations

During FY24, 2 recommendations were closed.

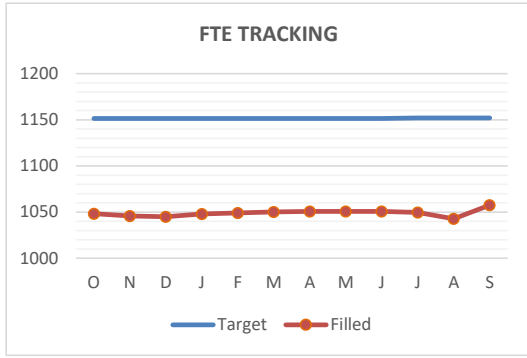
IA follows-up on open recommendations on a continuous basis. All open recommendations have target dates for implementation and are generally targeted to be closed within 12 months of the audit report issue date.

Report Title (issue date)	Audit Recommendations		
	Open	Closed	Total
Fleet Services Non-Plated Equipment Inspections (3/30/20)	0	15	15
Compliance Status of Employees' Mandatory Confined Space Entry Training (2/24/23)	0	4	4
Water and Wastewater Licenses and Certifications (3/31/23)	2	1	3
Total Recommendations	2	20	22

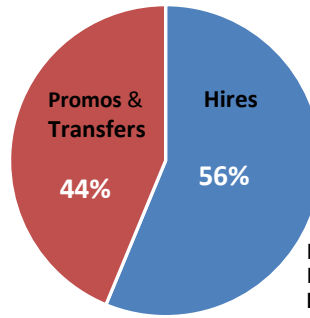
OTHER MANAGEMENT

Workforce Management

1st Quarter - FY24



Position Filled by Hires/Promos & Transfer for YTD



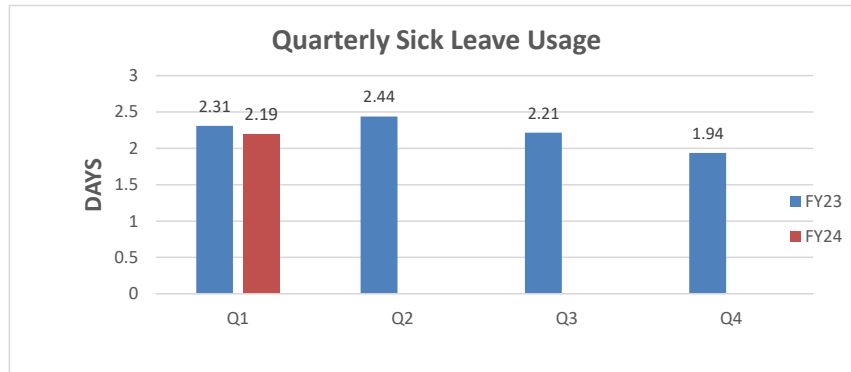
	<u>Pr/Trns</u>	<u>Hires</u>	<u>Total</u>
FY22	138 (68%)	65 (32%)	203
FY23	133 (59%)	91(41%)	224
FY24	28 (44%)	36 (56%)	64

FY24 Budget for FTEs = 1152
 FTEs as of Sept = 1057.5
 Tunnel Redundancy as of Sept 2023 = 9

POSITION CHANGE by FY

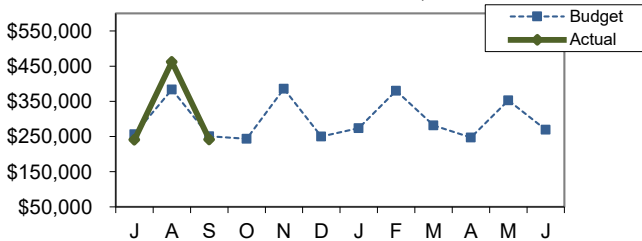
FY	HIRES	PROMOS	TRANSFER	RETIRE	RESIGN	DISMISS	DECEASED
FY20	58	70	14	38	23	2	1
FY21	64	66	15	58	15	2	2
FY22	65	108	30	82	45	2	3
FY23	91	118	15	46	31	5	5
FY24*	36	25	3	20	9	2	1

* as of 9/30/2023

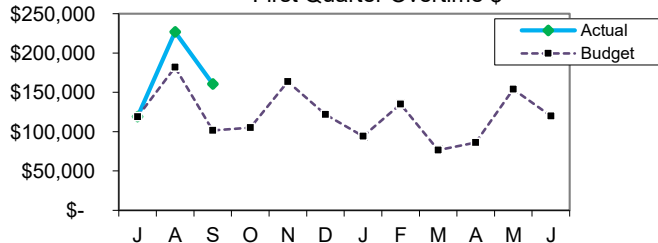


Average quarterly sick leave for the 1st Quarter of FY24 has decreased as compared to the 1st Quarter of FY23. (2.19 from 2.31)

Field Operations First Qtr Overtime \$



Deer Island Treatment Plant First Quarter Overtime \$



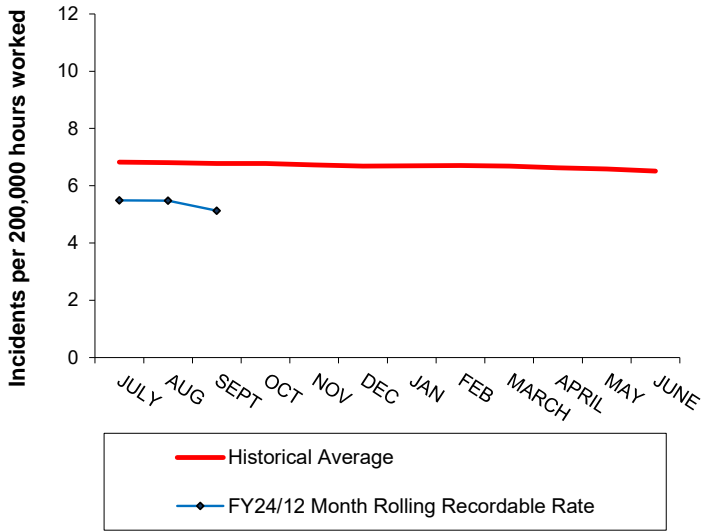
Total Overtime for FOD for 1st Quarter FY24 was \$945k which is \$54k over budget, or 6.1%. Emergency overtime was \$412k, or 43.5% of expended OT, primarily due to excessive rain events. Rain events totaled \$340k and Emergency Maintenance was \$74k. Coverage overtime was \$257k, which is 27% of the 1st Qtr OT, primarily due to vacant shift coverage requirements. Planned overtime was \$276k.

Deer Island's total overtime expenditure first quarter was \$507K, which is \$104K or 25.9% over budget due to higher than anticipated shift coverage of \$140K. This is offset by lower than anticipated planned/unplanned overtime of (\$19K) and storm coverage of (\$16K).

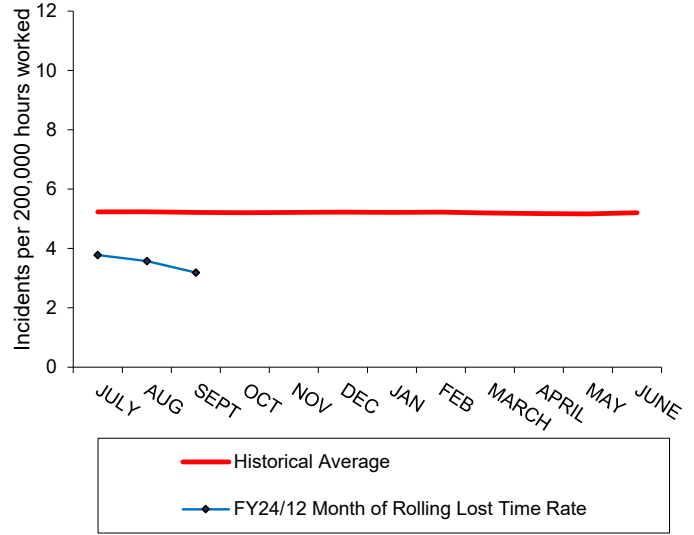
Workplace Safety

1st Quarter - FY24

Recordable Injury & Illness Rates



Lost Time Injury & Illness Rates

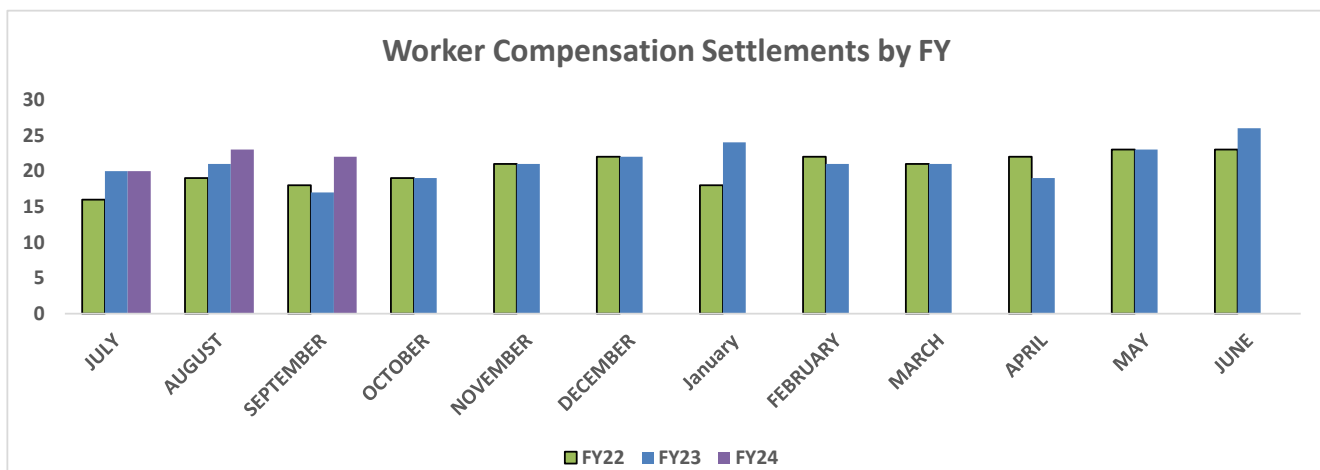


- 1 "Recordable" incidents are all work-related injuries and illnesses which result in death, loss of consciousness, restriction of work or motion, transfer to another job, or require medical treatment beyond first aid. Each month this rate is calculated using the previous 12 months of injury data.
- 2 "Lost-time" incidents, a subset of the recordable incidents, are only those incidents resulting in any days away from work, days of restricted work activity or both - beyond the first day of injury or onset of illness. Each month this rate is calculated using the previous 12 months of injury data.
- 3 The "Historical Average" is computed using the actual MWRA monthly incident rates for FY03 through FY24

WORKERS COMPENSATION HIGHLIGHTS

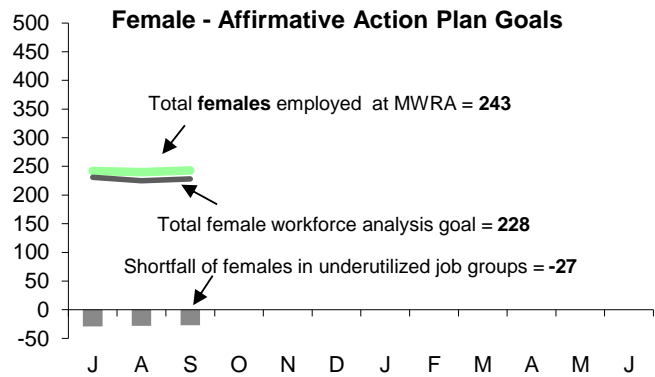
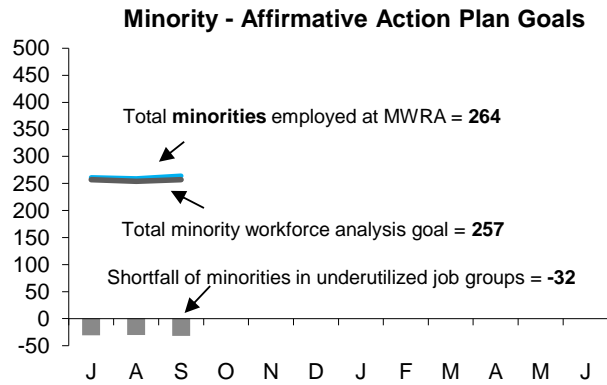
	1st Quarter Information		Open Claims
	New	Closed	
Lost Time	3	14	35
Medical Only	12	13	111
Report Only	15	17	
	QYTD		FYTD
Regular Duty Returns	3		3
Light Duty Returns	0		0
Indemnity payments as of October 2023 included in open claims listed			22

Worker Compensation Settlements by FY



MWRA Job Group Representation

1st Quarter - FY24



Highlights:

At the end of Q1 FY24, 7 job groups or a total of 32 positions are underutilized by minorities as compared to 4 job groups for a total of 20 positions at the end of Q1 FY23; for females 6 job groups or a total of 27 positions are underutilized by females as compared to 8 job groups or a total of 29 positions at the end of Q1 FY23. During Q1, 9 minorities and 9 females were hired. During this same period 4 minorities and 9 females were terminated.

Underutilized Job Groups - Workforce Representation

Job Group	Employees as of 9/30/2023	Minorities as of 9/30/2023	Achievement Level	Minority Over or Underutilized	Females As of 9/30/2023	Achievement Level	Female Over or Underutilized
Administrator A	25	4	2	2	11	6	5
Administrator B	24	3	5	-2	7	7	0
Clerical A	22	7	4	3	18	16	2
Clerical B	22	6	5	1	3	11	-8
Engineer A	81	18	21	-3	22	21	1
Engineer B	59	21	17	4	15	14	1
Craft A	111	18	25	-7	0	6	-6
Craft B	125	25	27	-2	1	5	-4
Laborer	61	15	17	-2	5	3	2
Management A	88	19	22	-3	32	25	7
Management B	37	11	10	1	5	9	-4
Operator A	64	3	16	-13	4	7	-3
Operator B	59	20	9	11	3	2	1
Professional A	28	8	7	1	15	13	2
Professional B	160	48	47	1	71	51	20
Para Professional	48	18	11	7	24	23	1
Technical A	51	17	11	6	7	9	-2
Technical B	4	3	1	2	0	0	0
Total	1069	264	257	39/-32	243	228	42/-27

AACU Candidate Referrals for Underutilized Positions

Job Group	Job Title	# of Vacancies	Requisition Internal/ External	Promotions/ Transfers	AACU Referral External	Position Status = New Hire/Promotion
Administrative B	Deputy Dir, Procurement	1	Int.	1	0	PROMO = AF
Engineer A	Sr Engineer	1	Ext.	0	0	NH = WM
Engineer A	Program Manager, Electrical	1	Ext.	0	0	NH = WM
Craft A	M & O Specialist	3	Int./Ext.	2	0	NH=WM,PROMO=2WM
Craft A	OMC Laborer in Training	1	Ext.	0	0	NH = HM
Craft A	Sr WDS Foreman	1	Int.	1	0	PROMO = BM
Craft B	Master Welder I	1	Ext.	0	0	NH = WM
Craft B	Electrician	2	Ext.	0	0	NH = 1WM, 1HM
Craft B	Facilities Specialist	2	Ext.	0	0	NH = 2WM
Craft B	Junior Instrument Technician	2	Ext.	0	0	NH=WM,PROMO=WM
Laborer	OMC Laborer	7	Ext.	0	0	NH=5WM, 1WF, 1HM
Laborer	Building/Grounds Worker	3	Ext.	0	0	NH=1WM, 1WF, 1HM
Management A	Warehouse Manager	1	Int.	1	0	PROMO = WF
Management B	Area Manager	1	Int.	1	0	PROMO = WM
Operator A	Area Supervisor	2	Ext.	0	0	NH = 1WM, 1WF
Operator A	Transmission & Treatment Opera	1	Int.	1	0	PROMO= WM
Technical A	Data Analyst	46	Ext.	0	0	NH = WF

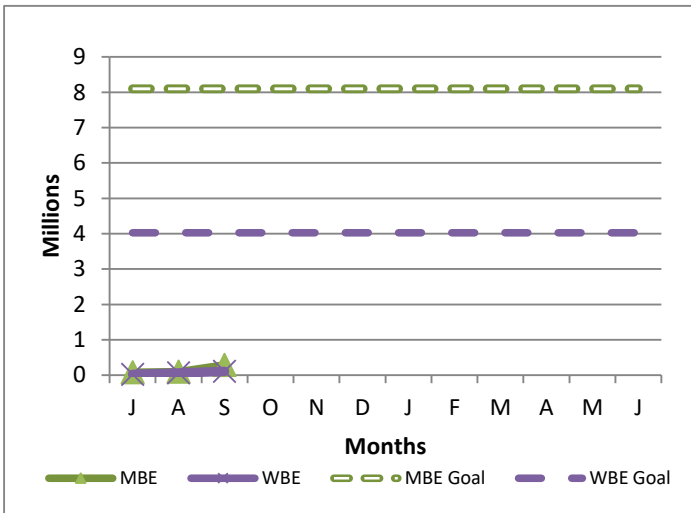
MBE/WBE Expenditures

1st Quarter - FY24

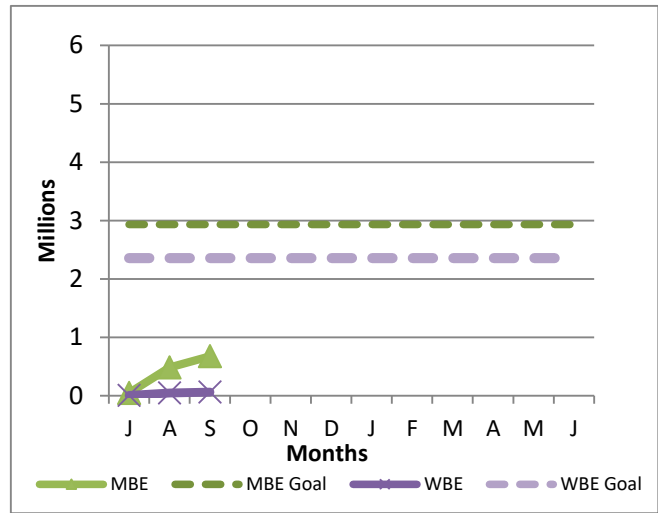
MBE/WBE targets are determined based on annual MWRA expenditure forecasts in the procurement categories noted below. The goals for FY24 are based on 85% of the total construction and 75% of the total professional projected spending for the year. Certain projects have been excluded from the goals as they have no MBE/WBE spending goals.

MBE/WBE percentages are the results from a 2002 Availability Analysis, and MassDEP's Availability Analysis. As a result of the Availability Analyses, the category of Non-Professional Services is included in Goods/Services. Consistent with contractor reporting requirements, MBE/WBE expenditure data is available through September.

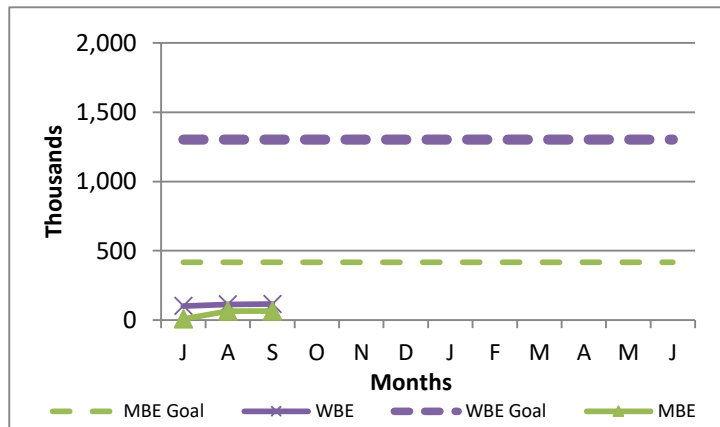
Construction



Professional Services



Goods/Services



FY24 spending and percentage of goals achieved, as well as FY23 performance are as follows:

MBE			
FY24 YTD		FY23	
Amount	Percent	Amount	Percent
290,286	3.8%	2,808,124	34.7%
674,210	14.7%	2,794,126	95.3%
65,616	16.1%	69,250	16.6%
1,030,112	8.1%	5,671,500	49.6%

WBE			
FY24 YTD		FY23	
Amount	Percent	Amount	Percent
106,025	2.8%	4,927,964	95.3%
61,424	1.7%	1,220,172	51.8%
115,082	8.4%	174,521	13.4%
282,531	3.2%	6,322,657	82.3%

Construction
Prof Svcs
Goods/Svcs
Totals

FY24 MBE/WBE dollar totals do not include MBE and WBE payments to prime contractors and consultants.

MWRA FY24 CEB Expenses

1st Quarter – FY24

As of September 2023, total expenses are \$200.9 million, \$6.9 million or 3.3% lower than budget, and total revenue is \$218.9 million, \$1.4 million or 0.7% over the estimate, for a net variance of \$8.3 million.

Expenses –

Direct Expenses are \$67.7 million, \$5.8 million or 7.9% under budget.

- **Wages & Salaries** are \$3.3 million under budget or 11.6%. Regular pay is \$3.3 million under budget, due to lower head count, and timing of backfilling positions. YTD through September, the average Full Time Equivalent (FTE) positions was 1,059, 109 below the 1,168 FTE's budgeted.
- **Ongoing Maintenance** expenses are \$1.5 million under budget or 12.5% due to the actual timing of projects.
- **Fringe Benefits** expenses are \$761k under budget or 12.0%, primarily due to under spending for Healthcare Insurance of \$634k, reflecting the lower than budget head count. As of September, FTEs were 109 below budget.
- **Professional Services** expenses are \$723k under budget or 28.9%, primarily due to lower Other Professional Services of \$307k, lower Legal expense of \$148k, and Computer Consultant of \$129k.
- **Utilities** expenses are over budget by \$550k or 8.5%. This reflects higher spending on Electricity of \$483k, 8.3% over budget. Spending at Deer Island Treatment Plant (DITP) was \$339k above budget due to higher demand usage charges due to the many rain events and higher real time pricing on the supply contract. Electricity in Field Operations was greater than budget by \$97k due to higher use than budget.
- **Other Materials** are \$540k over budget or 47.0%, due to overspending for computer hardware \$304K and vehicle expense of \$165k primarily due to timing of installation of electrical vehicle chargers.
- **Chemicals** are \$486k under budget or 7.3% due to lower spending for Sodium Hypochlorite of \$336k under budget due to lower contract pricing for Water Operations of \$572k, partially offset by DITP of \$262k due to additional usage for disinfection and odor control given higher flows. In addition, spending for Carbon Dioxide was under budget by \$137k due to lower deliveries. Overspending on Ferric Chloride of \$178k was driven by DITP to keep the orthophosphate levels in the digesters at the desired level. DITP flows are 21.4% greater than the budget and CWTP flows are 6.2% less than the budget through September.

Indirect Expenses are \$25.2 million, \$447k or 1.7% under budget due primarily to lower Watershed Reimbursement of \$497k.

Capital Finance Expenses totaled \$108.0 million, \$644k under budget or 0.6%. The positive variance was a result of lower than budget variable interest expense of \$644k due to lower interest rates.

Revenue and Income –

Total Revenue and Income is \$218.9 million, \$1.4 million or 0.7% over the estimate. The favorable variance was driven by Investment Income of \$6.7 million, \$1.6 million or 30.2% over the budget due to higher than budget interest rates.

	Sep 2023 Year-to-Date			
	Period 3 YTD Budget	Period 3 YTD Actual	Period 3 YTD Variance	%
EXPENSES				
WAGES AND SALARIES	\$ 28,098,801	\$ 24,837,402	\$ (3,261,399)	-11.6%
OVERTIME	1,459,281	1,586,433	127,152	8.7%
FRINGE BENEFITS	6,341,629	5,580,480	(761,149)	-12.0%
WORKERS' COMPENSATION	536,099	542,695	6,596	1.2%
CHEMICALS	6,696,321	6,210,059	(486,262)	-7.3%
ENERGY AND UTILITIES	6,511,238	7,061,712	550,474	8.5%
MAINTENANCE	11,809,266	10,331,150	(1,478,116)	-12.5%
TRAINING AND MEETINGS	123,660	33,455	(90,205)	-72.9%
PROFESSIONAL SERVICES	2,505,416	1,782,356	(723,060)	-28.9%
OTHER MATERIALS	1,149,343	1,689,490	540,147	47.0%
OTHER SERVICES	8,260,673	8,061,236	(199,437)	-2.4%
TOTAL DIRECT EXPENSES	\$ 73,491,727	\$ 67,716,468	\$ (5,775,262)	-7.9%
INSURANCE	\$ 1,016,345	\$ 1,066,446	\$ 50,101	4.9%
WATERSHED/PILOT	4,518,943	4,021,583	(497,360)	-11.0%
HEEC PAYMENT	1,699,632	1,699,632	-	0.0%
MITIGATION	444,772	444,772	-	0.0%
ADDITIONS TO RESERVES	1,965,259	1,965,259	-	0.0%
RETIREMENT FUND	15,972,804	15,972,804	-	0.0%
POST EMPLOYEE BENEFITS	-	-	-	---
TOTAL INDIRECT EXPENSES	\$ 25,617,755	\$ 25,170,495	\$ (447,258)	-1.7%
STATE REVOLVING FUND	\$ 20,460,231	\$ 20,460,231	\$ -	0.0%
SENIOR DEBT	71,273,286	71,273,286	-	0.0%
DEBT SERVICE ASSISTANCE	(1,187,297)	(1,187,297)	-	0.0%
CURRENT REVENUE/CAPITAL	-	-	-	---
SUBORDINATE MWRA DEBT	17,257,308	17,257,308	-	0.0%
LOCAL WATER PIPELINE CP	-	-	-	---
CAPITAL LEASE	804,265	804,265	-	0.0%
VARIABLE DEBT	-	(655,369)	(655,369)	---
DEFEASANCE ACCOUNT	-	-	-	---
DEBT PREPAYMENT	-	-	-	---
TOTAL CAPITAL FINANCE EXPENSE	\$ 108,607,793	\$ 107,952,424	\$ (655,369)	-0.6%
TOTAL EXPENSES	\$ 207,717,275	\$ 200,839,387	\$ (6,877,889)	-3.3%
REVENUE & INCOME				
RATE REVENUE	\$ 208,567,000	\$ 208,567,000	\$ -	0.0%
OTHER USER CHARGES	2,952,059	2,925,466	(26,593)	-0.9%
OTHER REVENUE	727,035	614,627	(112,408)	-15.5%
RATE STABILIZATION	76,371	76,371	-	0.0%
INVESTMENT INCOME	5,172,290	6,732,860	1,560,570	30.2%
TOTAL REVENUE & INCOME	\$ 217,494,755	\$ 218,916,324	\$ 1,421,569	0.7%

Cost of Debt

1st Quarter – FY24

MWRA borrowing costs are a function of the fixed and variable tax exempt interest rate environment, the level of MWRA's variable interest rate exposure and the perceived creditworthiness of MWRA. Each of these factors has contributed to decreased MWRA borrowing costs since 1990.

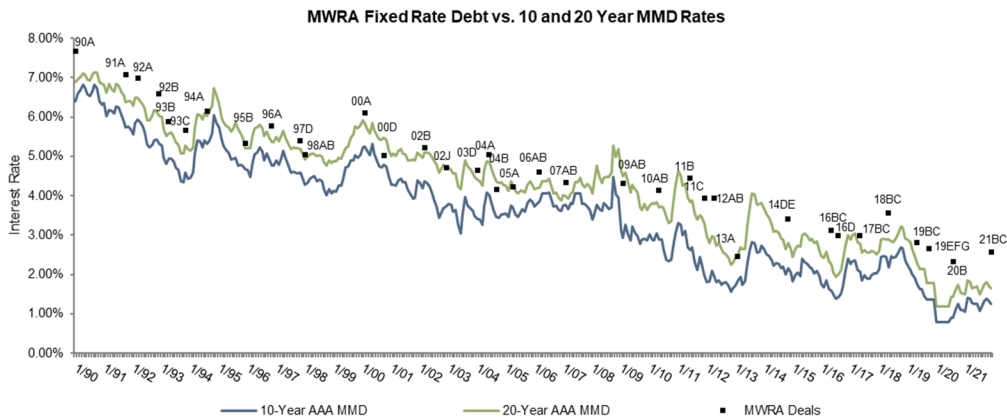
Average Cost of MWRA Debt FYTD

Fixed Debt (\$3.07 billion)	3.30%
Variable Debt (\$231.20 million)	2.77%
SRF Debt (\$808.83 million)	1.70%

Weighted Average Debt Cost (\$4.11 billion) 2.96%

Most Recent Senior Fixed Debt Issue April 2023

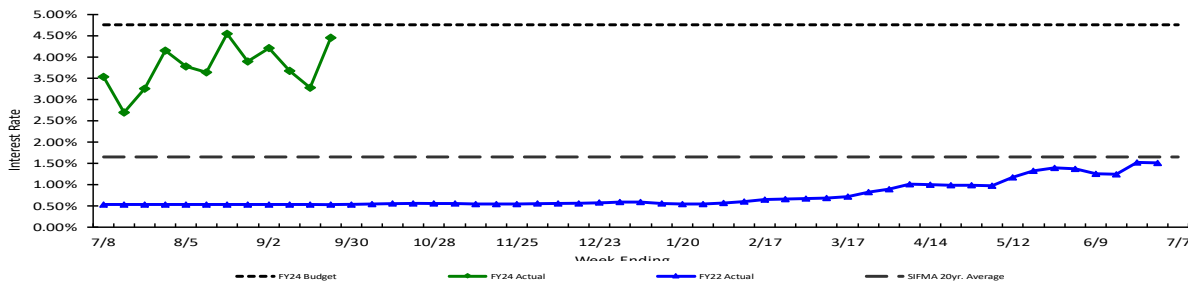
2023 Series B and C (\$234.3 million) 3.35%



Bond Deal	1997D	1998AB	2000A	2000D	2002B	2002J	2003D	2004A	2004B	2005A	2006AB	2007AB	2009AB	2010AB
Rate	5.40%	5.04%	6.11%	5.03%	5.23%	4.71%	4.64%	5.05%	4.17%	4.22%	4.61%	4.34%	4.32%	4.14%
Avg Life	21.6 yrs	24.4 yrs	26.3 yrs	9.8 yrs	19.9 yrs	19.6 yrs	18.4 yrs	19.6 yrs	13.5 yrs	18.4 yrs	25.9 yrs	24.4 yrs	15.4 yrs	16.4 yrs
Bond Deal	2011B	2011C	2012AB	2013A	2014D	2016BC	2016D	2017BC	2018BC	2019BC	2019EFG	2020B	2021BC	2023BC
Rate	4.45%	3.95%	3.93%	2.45%	3.41%	3.12%	2.99%	2.98%	3.56%	2.82%	2.66%	2.33%	2.56%	3.35%
Avg Life	18.8 yrs	16.5 yrs	17.9 yrs	9.9 yrs	15.1 yrs	17.4 yrs	18.8 yrs	11.2 yrs	11.7 yrs	11.9 yrs	9.73 yrs	15.6 yrs	12.2 yrs	10.45 yrs

Weekly Average Variable Interest Rates vs. Budget

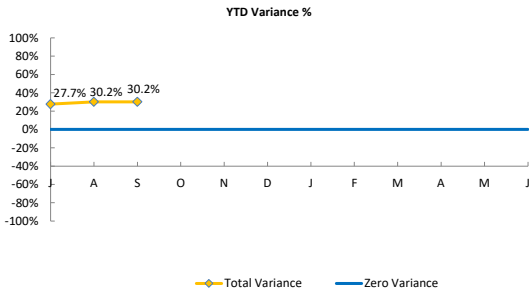
MWRA currently has eight variable rate debt issues with \$391.0 million outstanding, excluding commercial paper. Of the eight outstanding series, three have portions which have been swapped to fixed rate. Variable rate debt has been less expensive than fixed rate debt in recent years as short-term rates have remained lower than long-term rates on MWRA debt issues. In September, the Securities Industry and Financial Markets Association rate ranged from a high of 4.30% to a low of 2.97% for the month. MWRA's issuance of variable rate debt, although consistently less expensive in recent years, results in exposure to additional interest rate rise as compared to fixed rate debt.



Investment Income

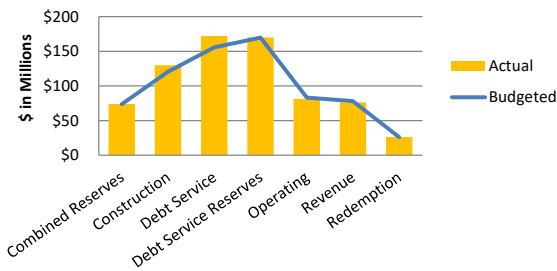
1st Quarter – FY24

➤ YTD variance is 30.2%, \$1.56 million, over budget due higher than budgeted interest rates.



	YTD BUDGET VARIANCE			
	(\$'000)			
	BALANCES IMPACT	RATES IMPACT	TOTAL	%
Combined Reserves	\$0	\$445	\$445	166.8%
Construction	\$95	-\$64	\$31	2.6%
Debt Service	\$162	\$477	\$639	41.5%
Debt Service Reserves	\$0	\$61	\$62	9.7%
Operating	-\$15	\$220	\$205	26.2%
Revenue	-\$15	\$193	\$178	25.6%
Redemption	\$0	\$0	\$0	-0.7%
Total Variance	\$228	\$1,333	\$1,561	30.2%

YTD Average Balances Budgeted vs. Actual

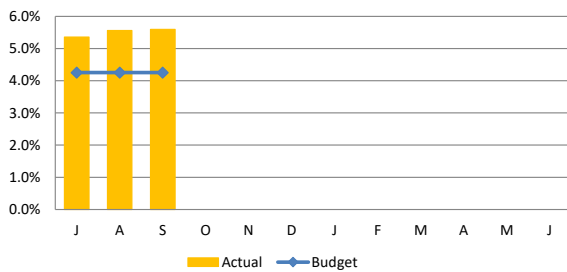


YTD Average Interest Rate Budgeted vs. Actual

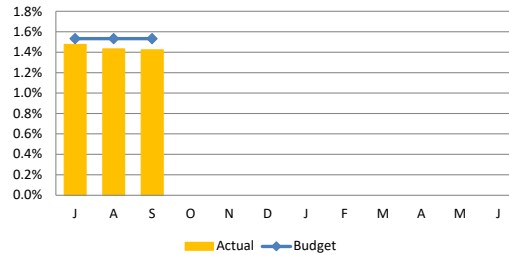


Monthly

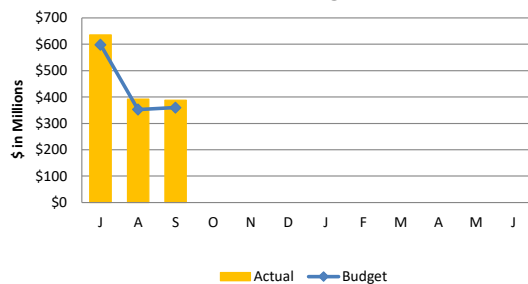
Short -Term Interest Rates



Long -Term Interest Rates



Short-Term Average Balances



Long-Term Average Balances

