MASSACHUSETTS **W**ATER **R**ESOURCES **A**UTHORITY

Board of Directors Report

On

Key Indicators of MWRA Performance

For

First Quarter FY2016

Q1	Q2	Q3	Q4
■			

Frederick A. Laskey, Executive Director
Michael J. Hornbrook, Chief Operating Officer
November 18, 2015

Board of Directors Report on Key Indicators of MWRA Performance

First Quarter FY16

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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.

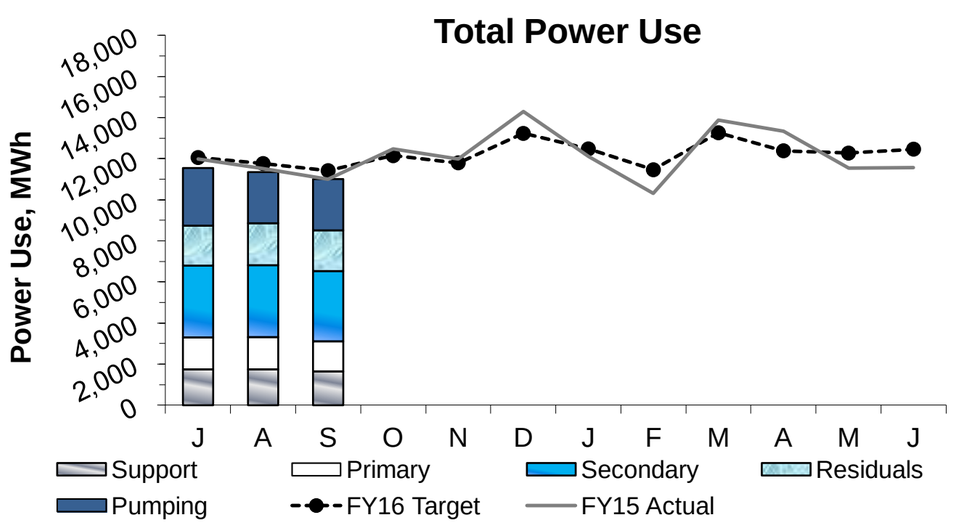
Frederick A. Laskey, Executive Director
Michael J. Hornbrook, Chief Operating Officer

November 18, 2015

OPERATIONS AND MAINTENANCE

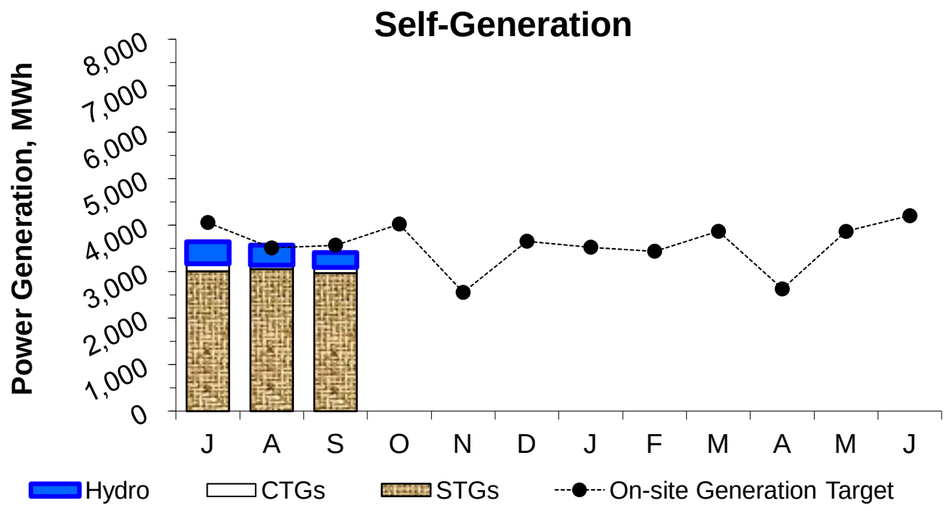
Deer Island Operations

1st Quarter - FY16



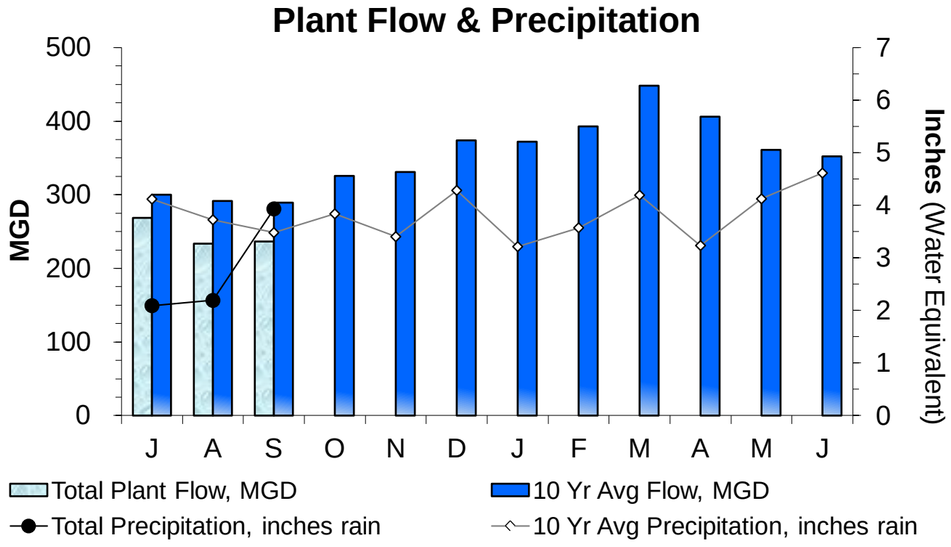
Total Power Use in the 1st Quarter was 3.8% below target as Total Plant Flow for the quarter was 13.6% below the 3 year average plant flow for the same period. Total Power Use for wastewater pumping operations was 8.6% below target due to the lower plant flow.

Note: Power usage projections are based on 3 year averages.

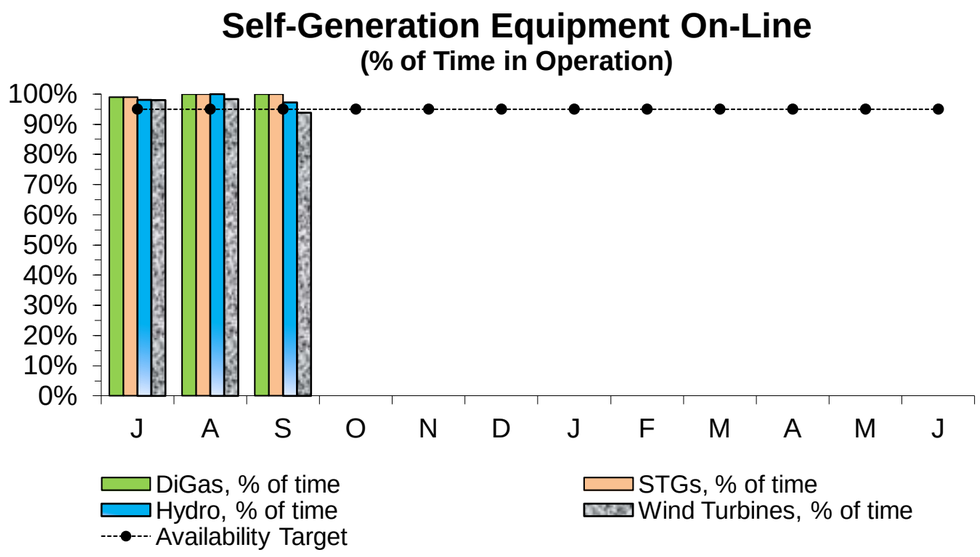


Power generated on-site during the 1st Quarter met target. While generation by the Hydro Turbines, STGs, and Solar Panels met or exceeded their targets, generation by the CTGs and Wind Turbines were below target. The CTGs generated 72.3% less power than expected during the quarter as the target assumed the CTGs would be operated for several wet weather events, but CTG operation during storms was not needed. The CTGs were however operated for nearly a total of 30 hours this quarter for peak shaving. Steam turbine generators operated in Back Pressure summer mode, produced 12.8% more than budget.

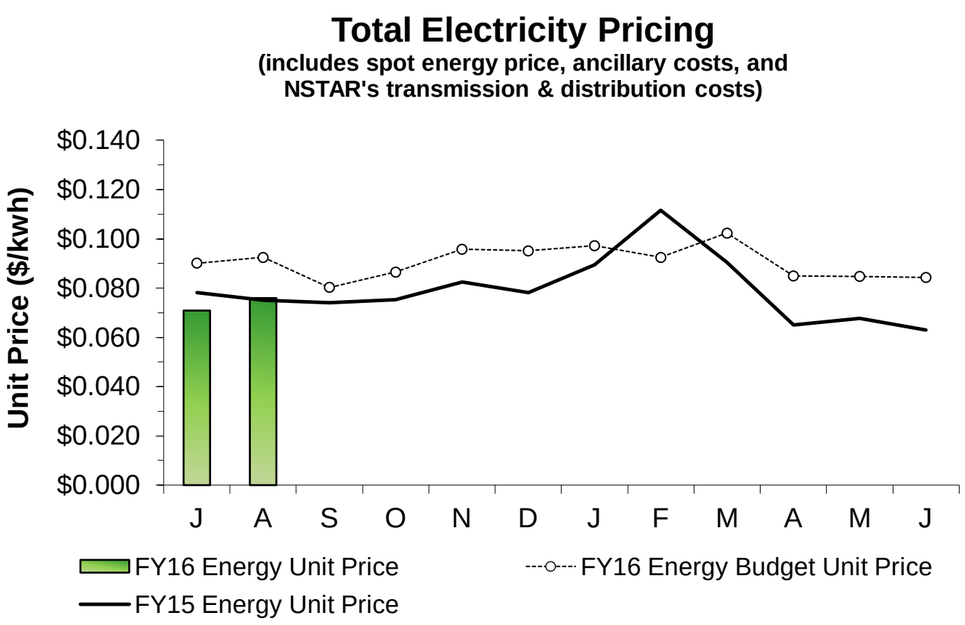
Note:
Power generation by the Solar Panels and the Wind Turbines are not included in the graph (as the amounts generated cannot be seen within the current scale of this graph); a total of 294.6 MWh was generated by the Solar Panels and 206.7 MWh was generated by the Wind Turbines in the 1st Quarter. Wind turbine production was down due to less wind.



Total Plant Flow for the 1st Quarter was 16.1% below target with the 10 year average plant flow (246.2 MGD actual vs. 293.6 MGD expected) as precipitation for the was 27% lower than target (8.21 inches actual vs.11.32 inches expected).

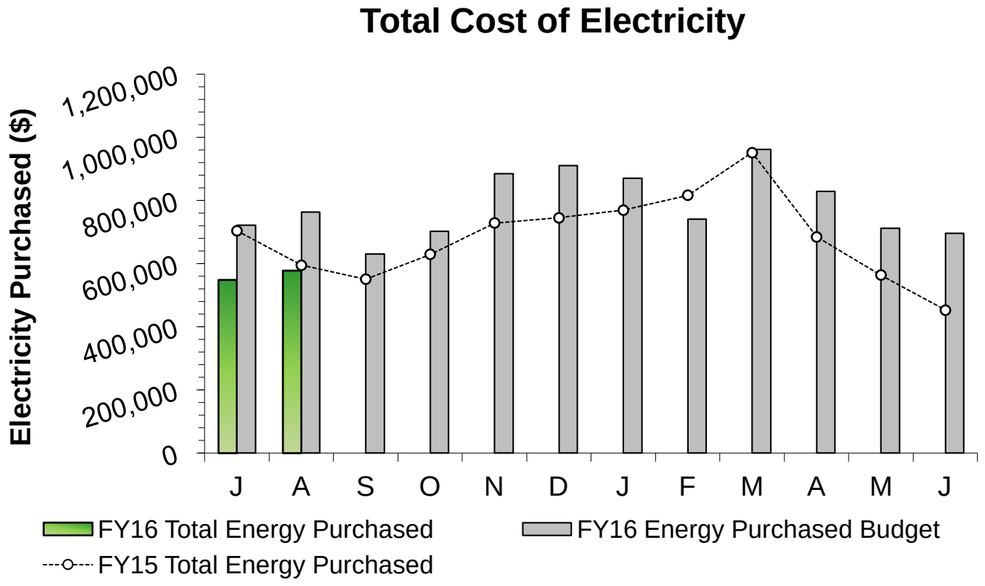


The DiGas, STGs, Wind Turbines, and Hydro Turbines, all exceeded the 95% availability target for the 1st Quarter.



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 in the 1st Quarter (actuals for July and August only) was 19.6% lower than the FY16 budget estimate for the same period. The Total Energy Unit Price for September is not yet available as the complete invoice for this month is still pending receipt as of reporting time. 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 being reported. Therefore, the data lags by one (1) month due to the timing of invoice receipt.

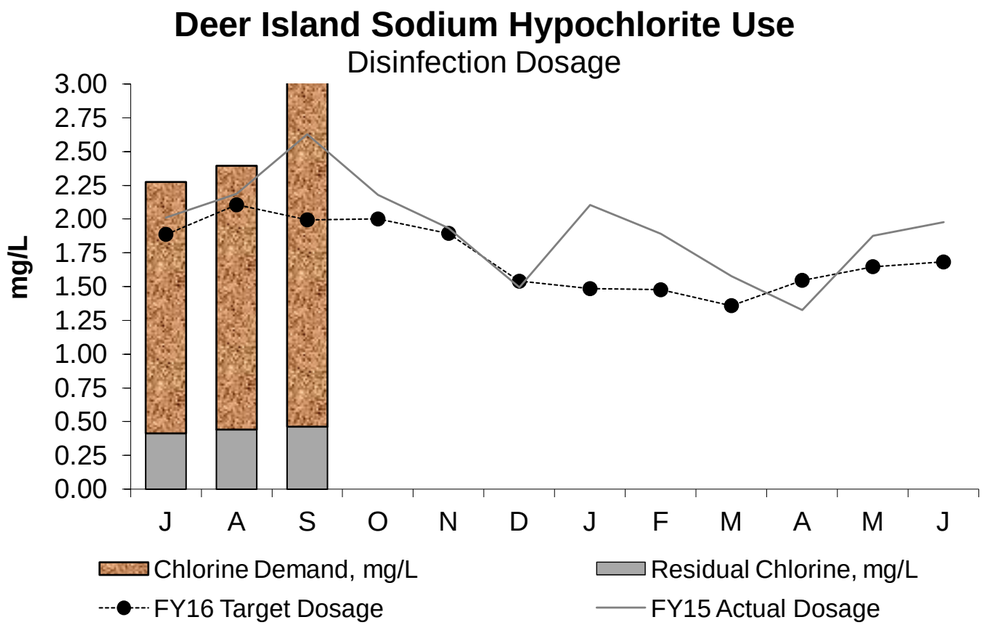


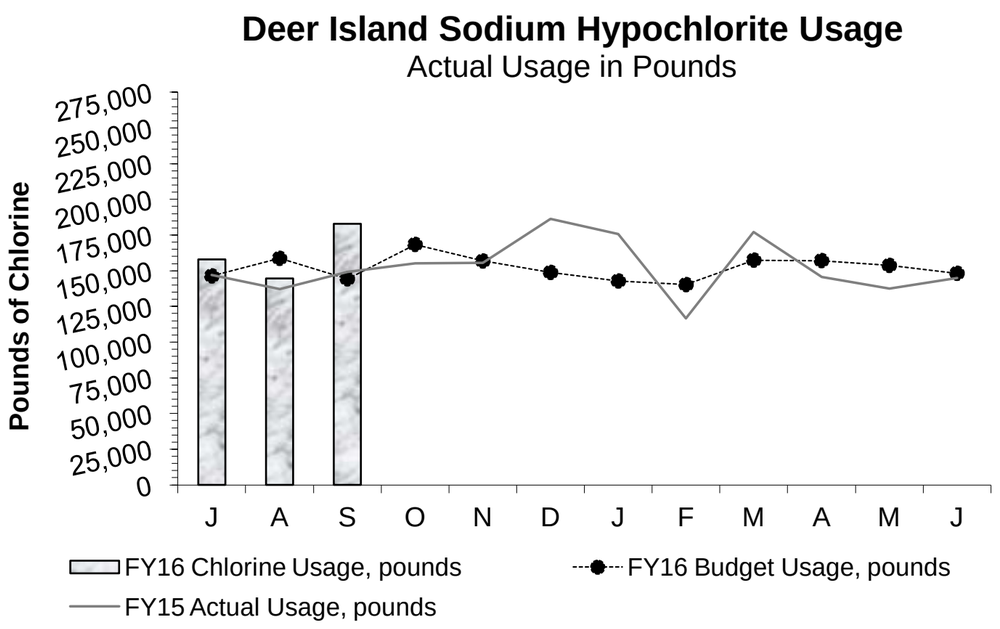
The total cost of electricity Purchased during the 1st Quarter (actuals for July and August only) was 24.1% lower than budgeted due to both lower than expected power usage and to lower than expected energy prices in the quarter. Year-to-date costs are $357,718 lower than budgeted through August (actuals only) as the year-to-date Total Energy Unit Price and the Total Power Purchased are both lower than budgeted by 19.6% and 5.6% through August.

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

Deer Island Operations

1st Quarter - FY16





The disinfection dosing rate in the 1st Quarter was 30% higher than the target and the usage in pounds of chlorine was 8.0% higher than the target. DITP maintained an average disinfection chlorine residual of 0.44 mg/L this quarter with an average dosing rate of 2.59 mg/L (as chlorine demand was 2.15 mg/L). Chlorine dosing and usage in pounds was higher than expected due to much lower than expected plant flow resulting in a stronger wastewater with a higher chlorine demand.

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
J	1	1	0	99.8%	3.97
A	0	0	0	100.0%	0.00
S	1	1	0	98.5%	10.63
O					
N					
D					
J					
F					
M					
A					
M					
J					
Total	2	2	0	99.4%	14.60

99.4% of all flows were treated at full secondary in the 1st Quarter. There were a total of two (2) separate secondary blending events in the quarter; both due to high plant flows resulting from heavy rain. The two (2) secondary blending events combined produced a total of 14.6 hours of blending and 123.96 Mgal of flow blended with secondary effluent. The Maximum Secondary Capacity for the quarter was 700 MGD.

Secondary permit limits were met at all times during the 1st Quarter of FY16.

Deer Island Operations & Maintenance Report

Environmental/Pumping:

The plant achieved a maximum average hourly flow rate of 1,050.6 MGD during the afternoon of September 30 as a result of a rain event that dropped a total of 2.5 inches of rain over a two (2) period. The Total Plant Flow in the 1st Quarter was 16.1% below the 10 year average precipitation for the quarter.

Additionally, several low flow records were broken this quarter:

- Monthly Average Plant Flow for August – 233.57 MGD set August 2015 (previous August record was 241.97 MGD in 2007),
- Monthly Average North System Flow for August – 159.98 MGD set August 2015 (previous August record was 168.45 MGD in 2007),
- Daily Average Plant Flow - 199.06 MGD set on September 6, 2015 (previous record of 200.70 MGD set back on August 21, 2010),
- Daily Average North System Flow - 121.9 MGD set on July 22, 2015. The daily North System Flow of 136.47 MGD on September 6, 2015 ranks #2 and 138.92 MGD on September 5, 2015 ranks #4 in the top 10 list of lowest flow.

While no South System low flow records were broken in the 1st Quarter, the daily South System Flow of 62.61 MGD on September 6, 2015 ranks #4 in the top 10 list of lowest flow. The current daily South System low flow record set on November 25, 2001 currently stands at 58.67 MGD.

MWRA will be performing essential maintenance and rehabilitation activities at DITP. A large number of isolation valves in the North Main Pump Station (NMPS) and Winthrop Terminal Headworks (HW) Facility are included in this work, and as a result it will be necessary to stop all flow to the North System on DITP (and dewater much of the piping) for the contractors to

Deer Island Operations & Maintenance Report (continued)

Environmental/Pumping (continued):
The replacement of these critical valves will occur at various times over the next two years. MWRA projects upwards of 54 shutdowns.

The fourth and last trial shutdown, to compare the behavior of the sewer system to hydraulic modeling results prior to construction activites, took place this quarter starting on the evening of July 22. This shutdown involved stopping all flow from the North Influent System at all the upstream headworks facilities. Wastewater flow was stopped at approximately 10:50 p.m. and wastewater pumping to DITP was restarted approximately eight (8) hours later between 7:00 and 7:22 a.m. South System influent wastewater flows to DITP remained under normal operation. No major issues were encountered at DITP during the shutdown or during the activities to restart the North System wastewater pumping to DITP.

The first shutdown of the NMPS for construction activities took place starting on the evening of September 1 to allow contractors to install a temporary dewatering system outside the lower grit chamber to dewater the tunnels between the North Main Pump Station and the Grit Facility. This shutdown involved stopping all flow from the North Influent System for approximately 5 hours. South System influent wastewater flows to DITP remained under normal operation. No major issues were encountered at DITP during the shutdown or during the activities to restart the North System wastewater pumping to DITP.

Primary and Secondary Treatment:
Progress on the major Primary and Secondary Scum Tip Tube Replacement Project continues. The primary scope of this project is to replace 88 of the 96 primary treatment tip tubes, 72 treatment tip tubes in Secondary Batteries A and B, and modification of 36 secondary tip tubes in Secondary Battery C. The contractor is limited by the construction documents to working in no more than four (4) primary clarifiers (preferably limited to one battery) and three (3) secondary clarifiers (one or two per battery to minimize capacity constraints so as to not reduce the overall secondary capacity. Construction related to the physical replacement of the tip tubes was approximately 88.8% complete by the end of September. Progress on the electrical, instrumentation, and miscellaneous metals framing work associated with this replacement project continues.

Residuals Treatment:
Scheduled maintenance to replace the viewing port and the expansion joints in the digester gas line in each of the four (4) digesters in Module #2 was completed during the 1st Quarter. One (1) digester was taken out of operation at a time in order to complete this work with minimal interruption to the sludge digestion process.
All three (3) digester gas flares were taken out of service in August, one flare at a time, in order to perform scheduled maintenance including replacement of critical gas valves. Each flare was offline for a week and the maintenance was completed as scheduled. No digester gas venting occurred as a result of a flare being out of service during this maintenance work. DEP was provided with prior notification of the impending work.

Odor Control:
Activated carbon media was changed out on carbon adsorber (CAD) units #1, #2, and #4 in the East Odor Control (EOC) and #4 in the North Pumping Odor Control (NPOC) Facilities during the 1st Quarter as part of routine practice to replace spent activated carbon before the carbon becomes ineffective.

Energy and Thermal Power Plant:
Solar power generation accounted for 2.65% (294.6 MWh) and Wind Turbine generation accounted for 1.86% (206.7 MWh) of the total power generated on-site in the 1st Quarter. Overall, total power generated on-site accounted for 32.8% of Deer Island's total power use for the quarter. Renewable power generated on-site (by Solar, Wind, STGs, and Hydro Turbines) accounted for 31.7% of Deer Island's total electrical power use for the quarter.

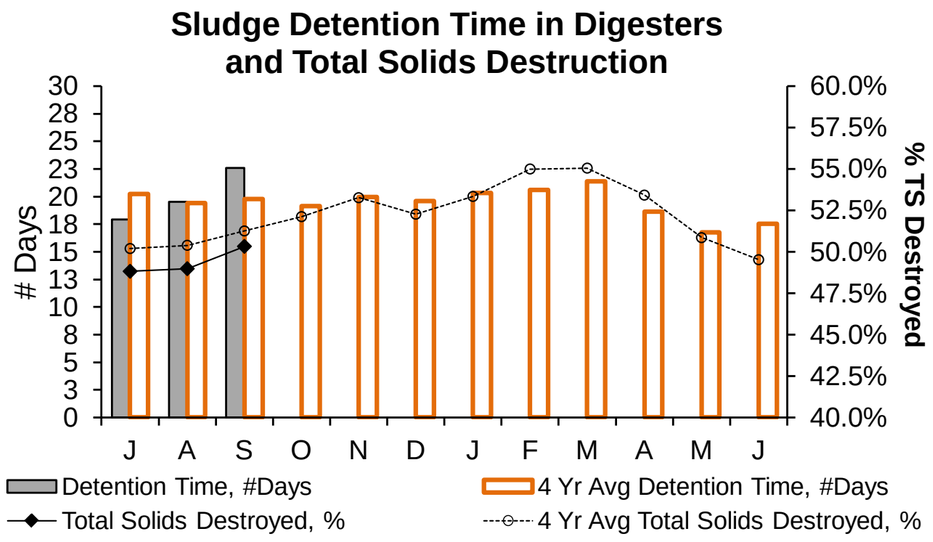
Regulatory:
Emissions compliance testing on the North Pumping Odor Control (NPOC) treatment system on DITP was conducted by consultants during the week of August 24. The NPOC treatment system treats combined process air from the Winthrop Terminal Headworks Facility and the North Main Pump Station. The DITP Air Quality Operating Permit issued by the MA DEP requires that DITP conduct emissions compliance testing for the various emission units once every five (5) years to demonstrate compliance with applicable total reduced sulfur (TRS) and non-methane hydrocarbons (NMHC) emissions limits. This testing requires the continuous emissions monitoring of the inlet and outlet of the odor control system over a 24-hour period for TRS at the outlet (stack) of the odor control system and for NMHC at the inlet. Even though it is not required by the operating permit, NMHC were also tested at the stack, and the inlet was sampled for target Volatile Organic Compounds (VOCs). All the test results show that DITP was in compliance. The draft report summarizing the test results has been reviewed by DITP staff. The final report from the consultants is pending completion at this time.

The annual RATA (Relative Accuracy Test Audit) of the boiler Continuous Emissions Monitoring System (CEMS) and the quarterly emissions Opacity audit for each boiler were successfuly completed by a certified consultant on September 16 and 17. The RATA validates the CEMS data generated by the individual boilers against the data generated by the consultant's CEMS which was located in a test trailer at the base of the emissions stack for the purpose of conducting this audit test. These tests are requirements of DITP's Air Quality Operating Permit issued by the DEP.
Representatives from the MA DEP were on site at DITP on September 17 for an unannounced (annual) site visit of the treatment plant to review and inspect the plant's wastewater treatment operations and practices. They were given a comprehensive plant tour covering the entire wastewater and residuals treatment facilities and process areas. Initial communications indicate the inspection had gone well.

Clinton AWWTP:
Startup of the secondary digester by introducing sludge and bringing up to temperature. Monitored performance before taking primary digester off line. Degased primary digester for 30 days. Purged gas lines with nitrogen before isolating. “We Care Organics” set up a portable press to start cleaning of the primary digester. Removed railings and all mechanical components from the primary clarifiers. Cut the top 2 feet off primary tanks 1 &2. Formed and poured new concrete. Cleaned and sandblasted the inside of primary clarifiers in preparation for Tnemec coatings. Plant wide painting of all interior and exterior doors and trim. Painted Soda Ash silo and all influent and intermediate lift pumps.

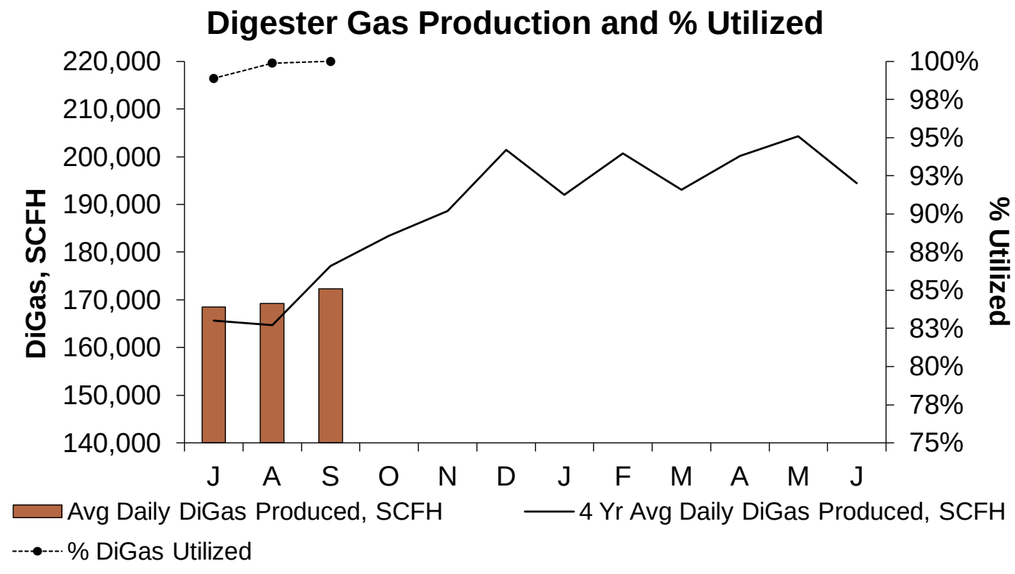
Deer Island Operations and Residuals

1st Quarter - FY16



Total solids (TS) destruction following anaerobic sludge digestion averaged 49.4% during the 1st Quarter, similar to the 4 year average of 50.6% for the same period. The sludge detention time in the digesters of 20.0 days was similar to the 4 year average of 19.8 days as DI operated with an average of 7.4 digesters during the 1st Quarter compared to the 4 year average of 7.0 digesters. Scheduled maintenance on the Module #2 digesters resulted in less than 8 digesters in operation for much of the 1st Quarter.

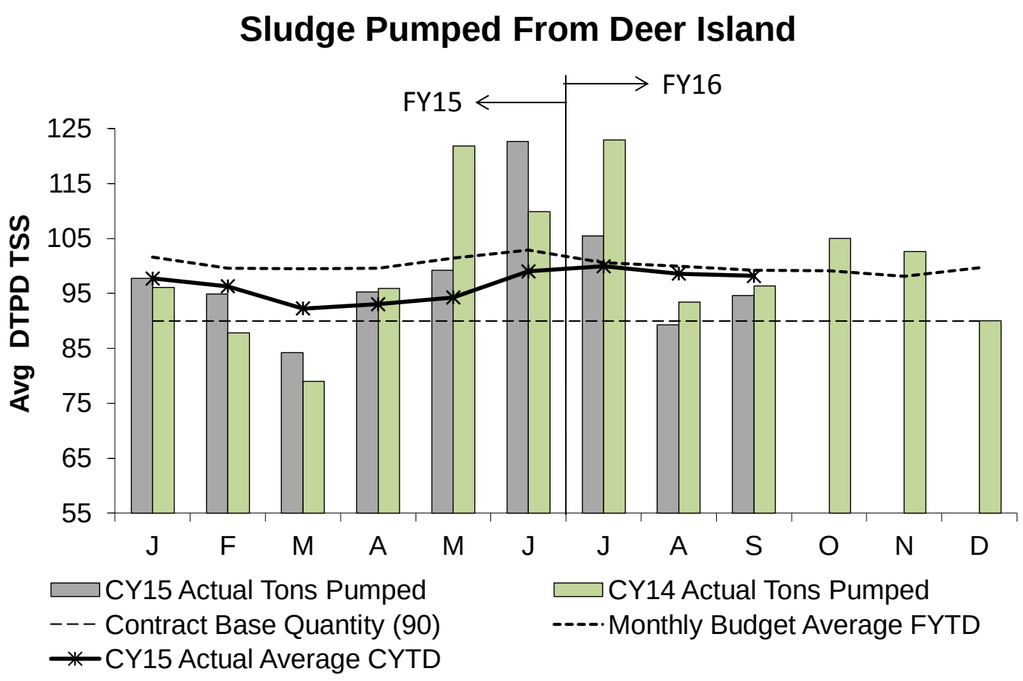
Total solids (TS) destruction is dependent on sludge detention time which is determined by primary and secondary solids production, plant flow, and the number of active digesters in operation. Solids destruction is also significanty impacted by changes in the number of digesters and the resulting shifting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



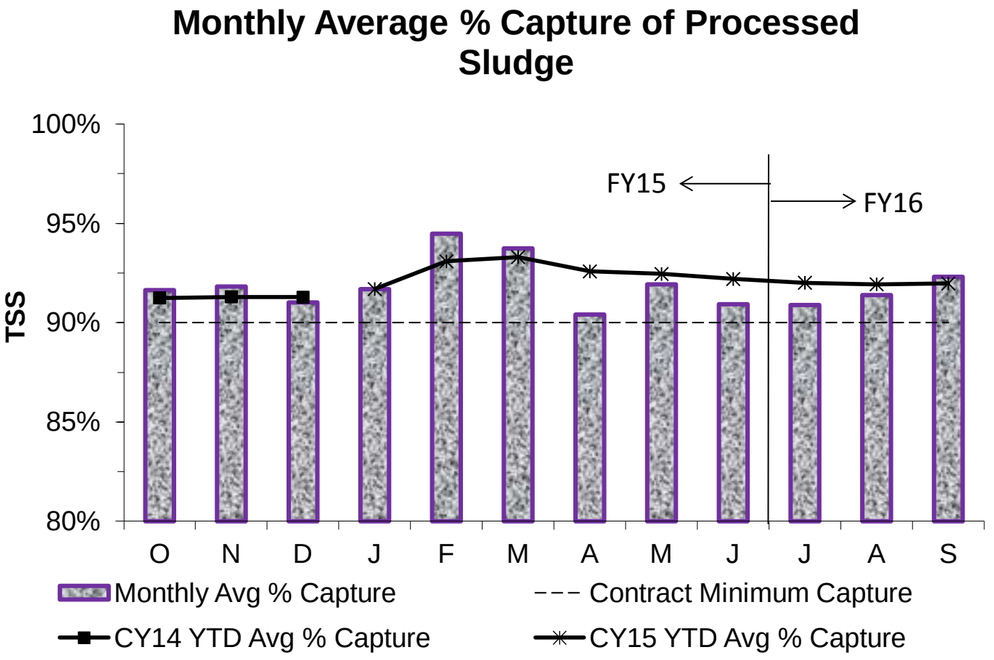
The Avg Daily DiGas Production in the 1st Quarter was on target with the 4 Year Avg Daily DiGas Production for the same period. On average, 99.6% of all the DiGas produced in the quarter was utilized at the Thermal Power Plant.

Residuals Pellet Plant

MWRA pays a fixed monthly amount for the calendar year to process up to 90 DTPD/TSS as an annual average. The monthly invoice is based on 90 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. The base quantity of 90 DTPD/TSS was set for the 15-year term of the contract, even though, on average, MWRA processes more than 90 DTPD/TSS each year (FY15's budget is 102.9 DTPD/TSS and FY16's budget is 100.2 DTPD/TSS)).



The average total quantity of sludge pumped in the 1st Quarter of FY16 was 96.5 DTPD - lower than FY16's average budget of 100.2 DTPD. The lower amount is due to lower sludge production in August and September as a result of much lower than expected plant flow.



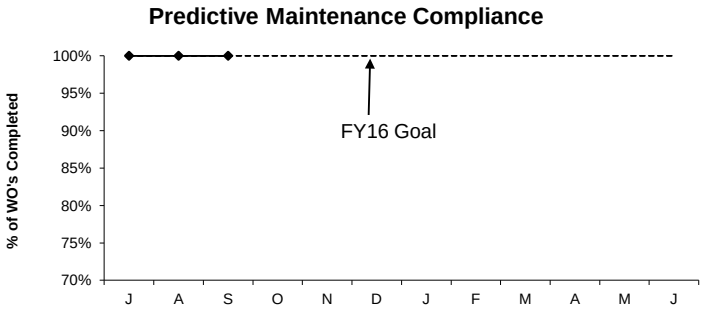
The contract requires NEFCo to capture at least 90% of the solids delivered to the Biosolids Processing Facility in Quincy. The CY15 YTD average capture is 92.36%.

Deer Island Maintenance

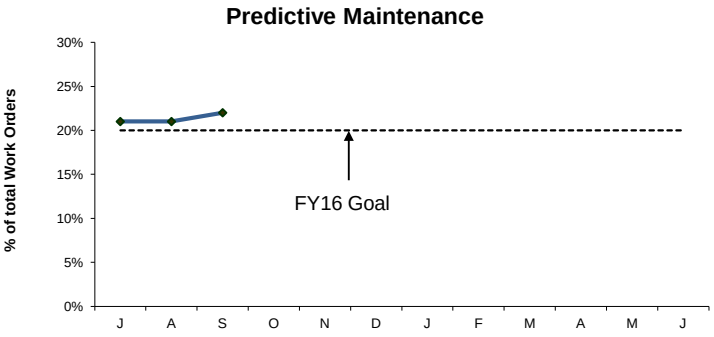
1st Quarter FY16

Productivity Initiatives

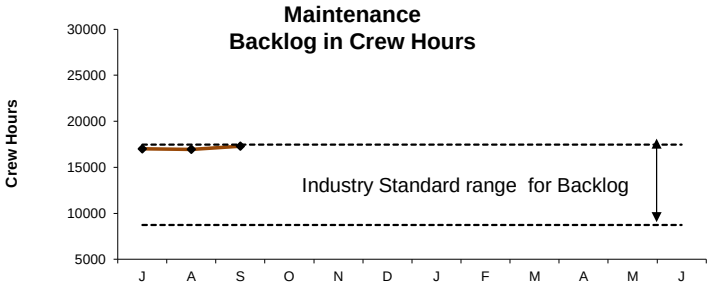
Productivity initiatives include increasing predictive maintenance compliance and increasing PdM work orders. Accomplishing these initiatives should result in a decrease in overall maintenance backlog.



Deer Island's FY16 predictive maintenance goal is 100%. DITP completed 100% of all PdM work orders this quarter. DITP is continuing with an aggressive predictive maintenance program.



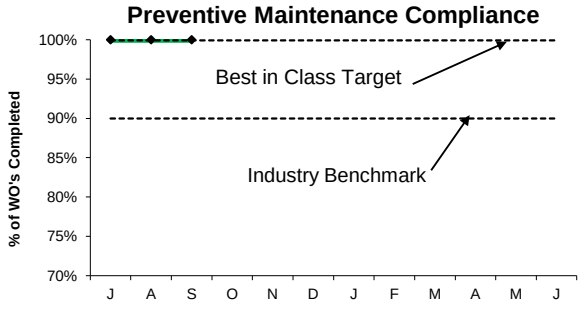
Deer Island's FY16 predictive maintenance goal is 20% of all work orders to be predictive. 21% of all work orders were predictive maintenance this quarter. The industry is moving toward increasing predictive maintenance work to reduce downtime and better predict when repairs are needed.



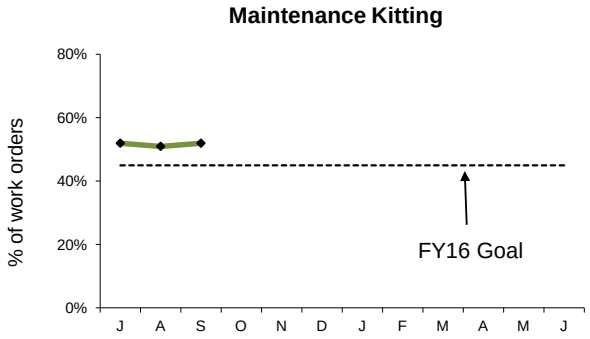
DITP's maintenance backlog at Deer Island is 17,083 hours this quarter. DITP is within the industry average for backlog. The industry Standard for maintenance backlog with 97 staff (currently planned staffing levels) is between 8,730 hours and 17,460 hours. Backlog is affected by five vacancies, an HVAC Technician, a Welder/Fabricator, a Facilities Specialist and two Operations and Maintenance Specialists. Management continues to monitor backlog and to ensure all critical systems and equipment are available.

Proactive Initiatives

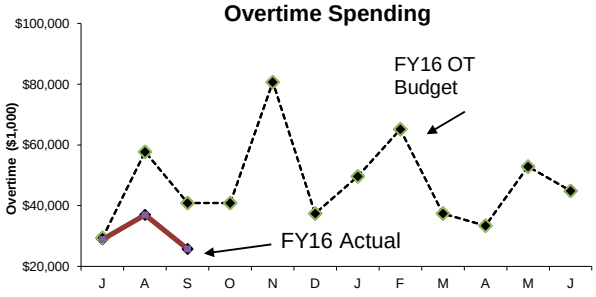
Proactive initiatives include completing 100% of all preventative maintenance tasks and increasing preventative maintenance kitting. These tasks should result in lower maintenance costs.



Deer Island's FY16 preventative maintenance goal is 100% completion of all work orders from Operations and Maintenance. DITP completed 100% of all PM work orders this quarter.



Deer Island's FY16 maintenance kitting goal is 45% of all work orders to be kitted. 52% 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.

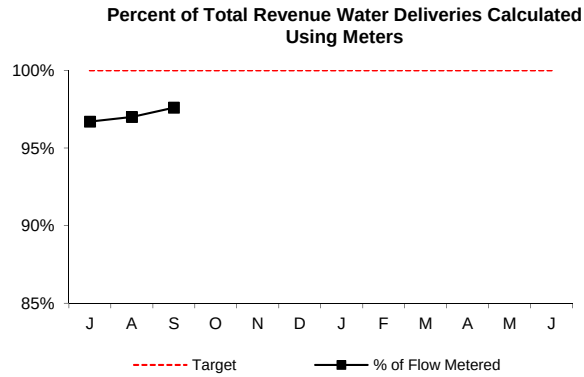


Maintenance overtime was under budget by $37K this quarter and $37k under for the year. Management continues to monitor backlog and to ensure all critical equipment and systems are available. This quarters overtime overtime was predominately used for Storm Coverage, North Main Pump Station Valve Replacement Project, Liquid Train RSL Actuator Replacement Project, Facilities supporting Clinton Treatment Plant, and the installation of Thickener Condenser Unit #9.

Operations Division Metering

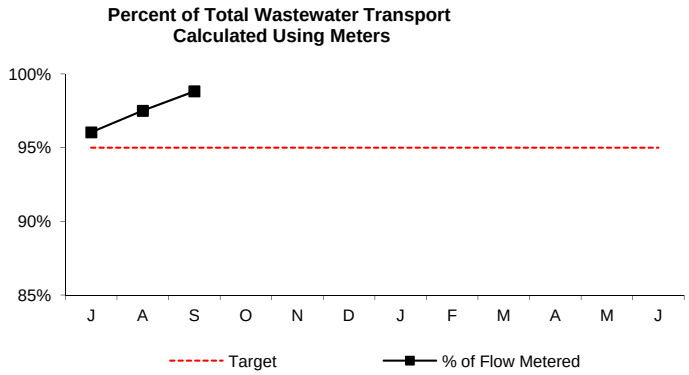
1st Quarter - FY16

WATER METERS



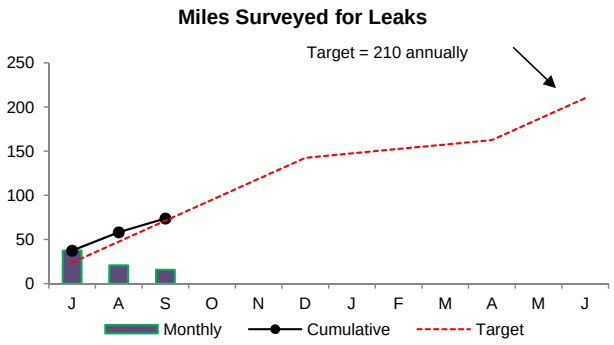
The target for revenue water deliveries calculated using meters is 100%. Estimates are generated for meters that are out of service due to instrumentation problems or in-house and capital construction projects. During the 1st Quarter of FY16, meter actuals accounted for 97.10% of flow; only 2.9% of total revenue water deliveries were estimated. The following is the breakdown of reasons for estimations:
In-house and Capital Construction Projects - 2.43%
Instrumentation Failure - 0.47%

WASTEWATER METERS



The target for revenue wastewater transport calculated using meters is 95%. Estimates are generated for meters missing data due to instrument failure and/or erratic meter behavior. Estimates are produced using data from previous time periods under similar flow conditions. During the 1st Quarter of FY16, meter actuals accounted for 97.45% of flow, 2.55% of wastewater transport was estimated.

WATER DISTRIBUTION SYSTEM PIPELINES



During the month of September, 15.59 miles of water mains were inspected. The total inspected for the fiscal year to date is 73.76 miles.

Leak Backlog Summary

Month	J	A	S	O	N	D	J	F	M	A	M	J
Leaks Detected	3	3	1	0	0	0	0	0	0	0	0	0
Leaks Repaired	1	4	1	0	0	0	0	0	0	0	0	0
Backlog	10	9	9	0	0	0	0	0	0	0	0	0
Avg. Lag Time	25.7	44.1	59.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

During the 1st Quarter of FY16, 7 leaks were detected, and 6 repaired. Nine leaks remain unrepaired, of which, six are carried over from FY15. Refer to FY16 Leak Report below.

During the quarter, MWRA staff provided leak detection assistance to Lynn, Somerville, Newton, Lexington, Malden, Arlington, and Revere.

FY16 Leak Report - 1st Quarter

Date Detected	Location of Leaks	Repaired
5/9/2014	General Edward Bridge, Revere/Lynn	8/31/2015
5/7/2015	West Street, Hyde Park Boston Proper	7/8/2015
7/1/2015	Fellsway East Ext @ Pond Street, Stoneham	9/2/2015
7/21/2015	Broad Street @ Union Street, Lynn	8/20/2015
8/7/2015	DCR Foss Park Broadway, Somerville	8/7/2015
8/11/2015	Broadway @ Mt Pleasant, Somerville	8/18/2015

Date Detected	Location of Leaks/Unrepaired
1/6/2015	Washington St. @ Arborway, West Roxbury - Delayed due ot MDOT bridge demo work.
1/11/2015	Arborway @ St Joseph St., West Roxbury - Delayed due ot MDOT bridge demo work.
5/12/2015	West Street, Hyde Park - Scheduled for Nov 2,2015
6/8/2015	Allandale Rd. @ Grove St., Brookline - Requires a shutdown
6/17/2015	Washington St @ Lower E. Street, Dedham -Requires Night Shutdown
6/22/2015	University Ave., Norwood - Repaired October 5,2015
7/16/2015	#56 Captain Robert Cook Drive, Needham - Can't isolate until Winter
8/3/2015	Squire Rd., Revere - Can not isolate this section due to Lynn taking Water
9/28/2015	Winthrop Ave. @ Summer St., Revere - Scheduled for Nov 9,2015

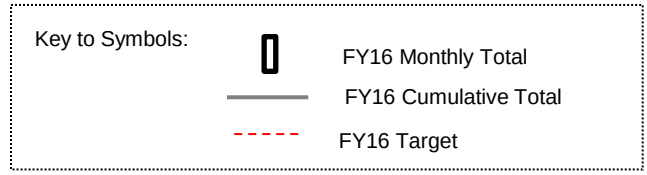
Water Distribution System Valves

1st Quarter - FY 16

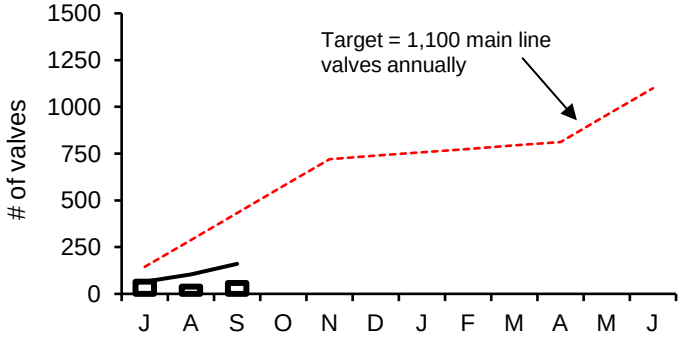
Background

Valves are exercised, rehabilitated, or replaced in order to improve their operating condition. This work occurs year round. Valve replacements occur in roadway locations during the normal construction season, and in off-road locations during the winter season. Valve exercising can occur year round but is often displaced during the construction season. This is due to the fact that a large number of construction contracts involving rehabilitation, replacement, or new installation of water lines, requires valve staff to operate valves and assist with disinfection, dechlorination, pressure-testing, and final acceptance. Valve exercising can also 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 community meters or flow disruptions will occur.

Type of Valve	Inventory #	Operable Percentage	
		FY16 to Date	FY16 Targets
Main Line Valves	2,159	96.0%	95%
Blow-Off Valves	1,317	92.3%	95%
Air Release Valves	1,380	91.8%	95%
Control Valves	49	100.0%	95%



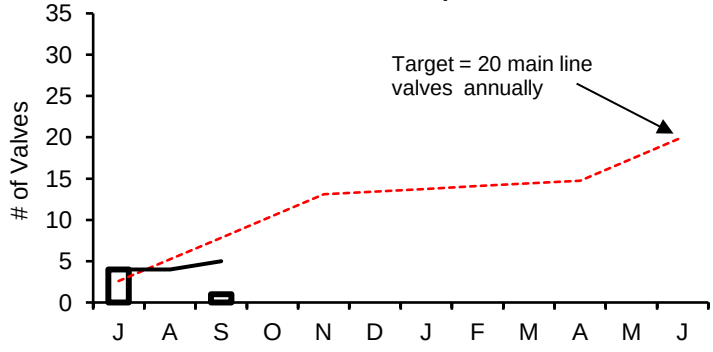
Main Line Valves Exercised



During the 1st Q of FY16, staff exercised 161 main line valves.

Valve Crews provided substantial support to capital projects, Lynn Water and Sewer Commission transfer and MWRA and community leak repairs.

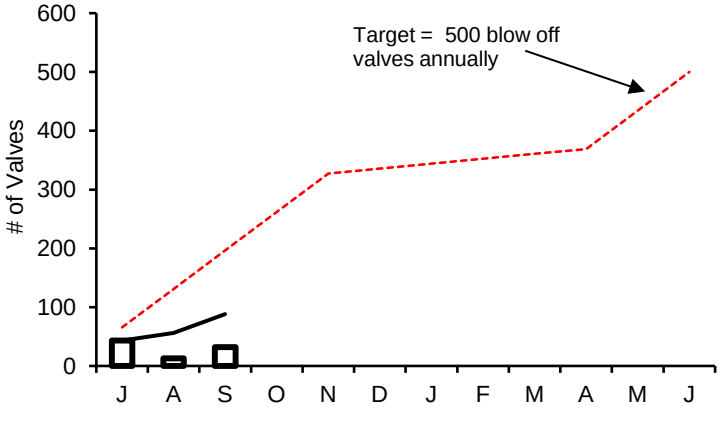
Main Line Valves Replaced



During the 1st Q of FY16, staff replaced five main line valves.

Water pipeline crews were involved in a number of pipeline construction and repair projects this quarter, limiting resources devoted to valve replacement (see p13).

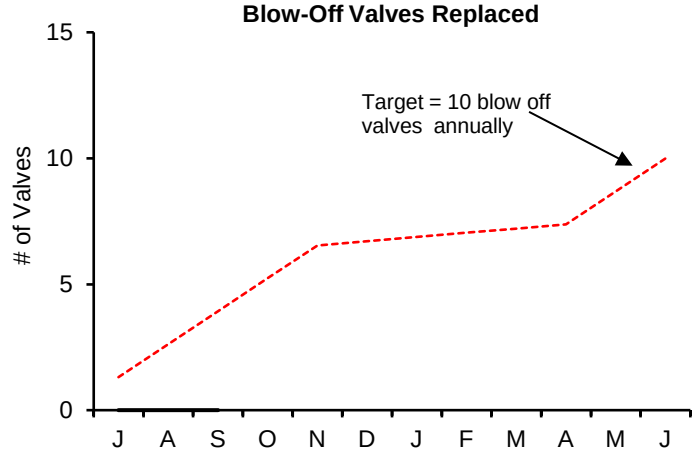
Blow-Off Valves Exercised



During the 1st Q of FY16, staff exercised 88 blow off valves.

Valve Crews provided substantial support to capital projects, Lynn Water and Sewer Commission transfer and MWRA and community leak repairs.

Blow-Off Valves Replaced



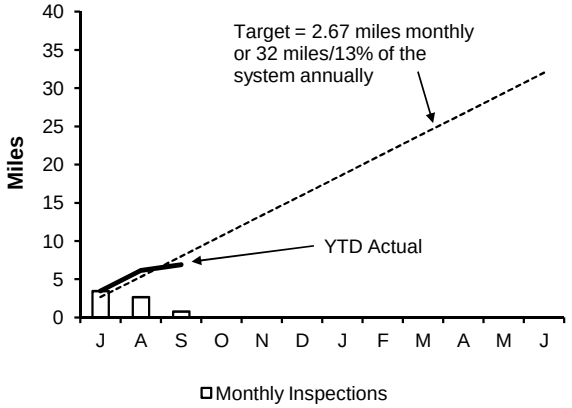
During the 1st Q of FY16, staff did not replace any blow off valves.

Water pipeline crews were involved in a number of pipeline construction and repair projects this quarter, limiting resources devoted to valve replacement (see p13).

Wastewater Pipeline and Structure Inspections and Maintenance
1st Quarter - FY 16

Inspections

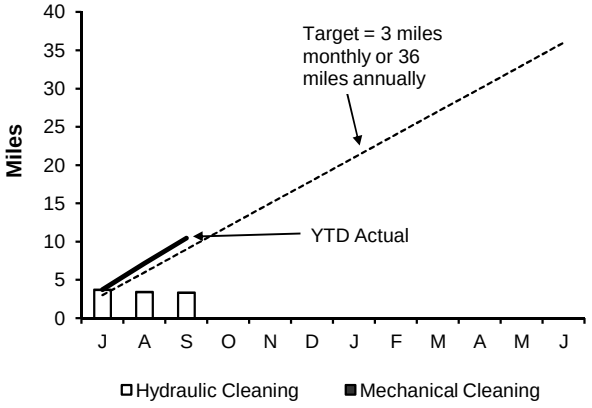
Pipeline Inspections



Staff internally inspected 6.92 miles of MWRA sewer pipeline during this quarter. The year to date total is 6.92 miles. No Community Assistance was provided this quarter.

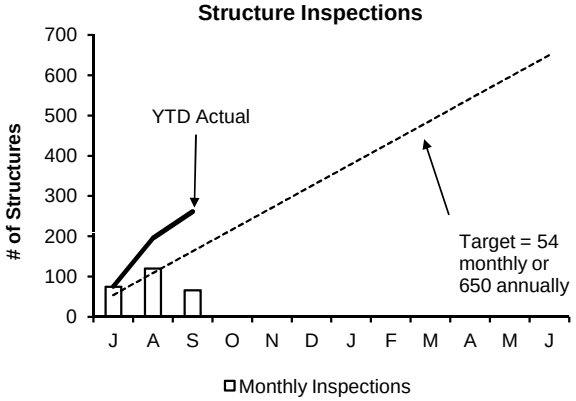
Maintenance

Pipeline Cleaning



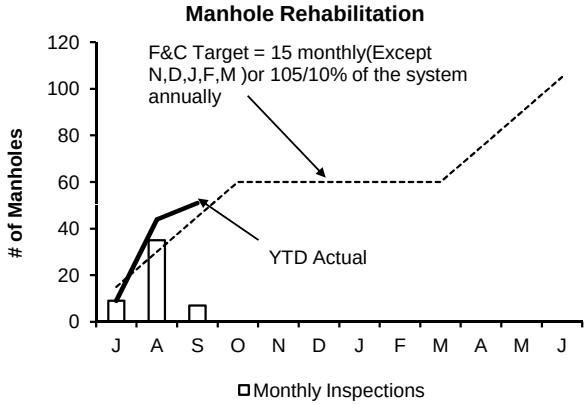
Staff cleaned 10.46 miles of MWRA's sewer system and removed 107 yards of grit and debris during this quarter. The year to date total is 10.46 miles. Community Assistance was provided to the city of Somerville. Staff cleaned 3,000 linear feet of 8" sewer to clear a grease blockage.

Structure Inspections



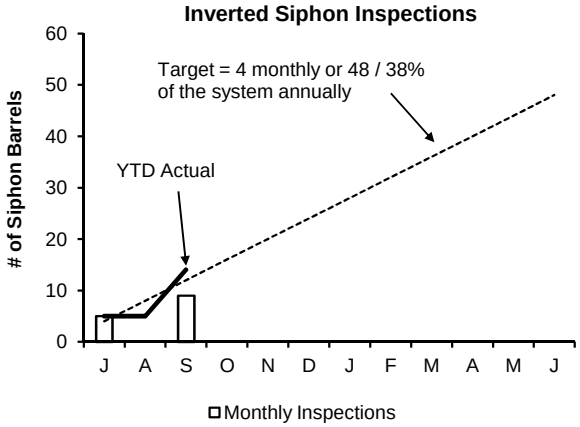
Staff inspected the 36 CSO structures and performed 225 additional manhole/structure inspections during this quarter. The year to date total is 261 inspections.

Manhole Rehabilitation



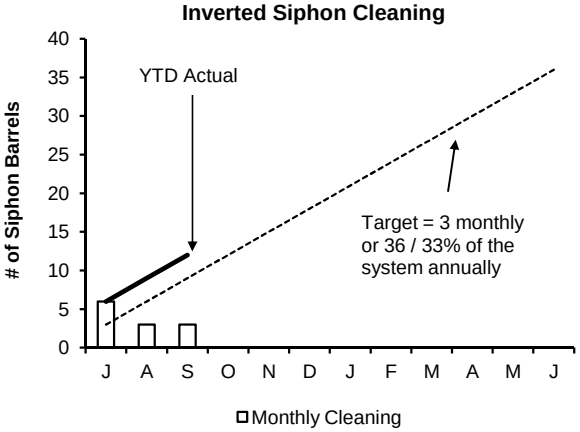
Staff replaced 51 frames & covers during this quarter.The year to date total is 51.

Inverted Siphon Inspections



Staff inspected 14 siphon barrels during this quarter.Year to date total is 14 inspections.

Inverted Siphon Cleaning



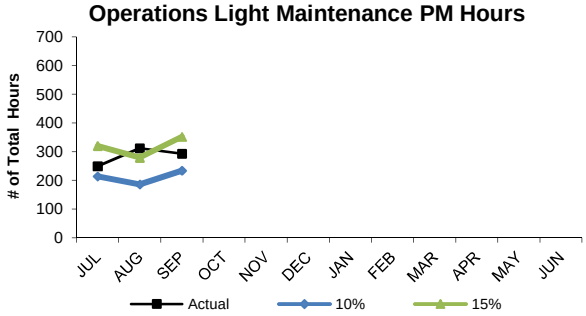
Staff cleaned 12 siphon barrels during this quarter.The year to date total is 12 barrels.

Field Operations' Metropolitan Equipment & Facility Maintenance

1st Quarter, FY16

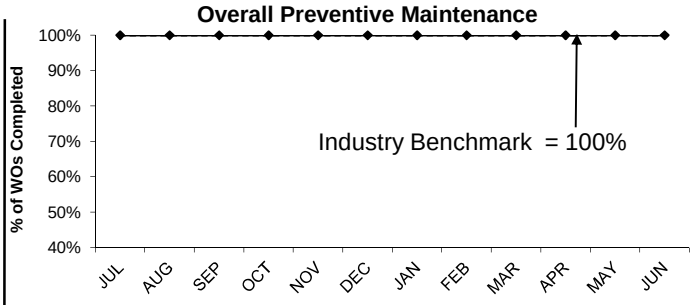
Several maintenance and productivity initiatives are in progress. The goal for the Overall PM completion and the Operator PM completion was raised to 100% for Fiscal Year 2010. The Operator PM and kitting initiatives frees up maintenance staff to perform corrective maintenance and project work, thus reducing maintenance spending. Backlog and overtime metrics monitor the success of these maintenance initiatives.

Operations Light Maintenance PM Hours



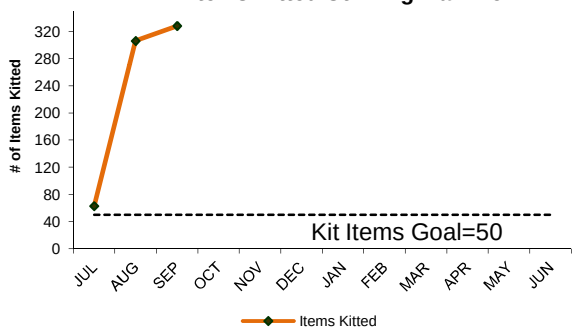
Operations staff averaged 285 hours of preventive maintenance during the 1st Quarter, an average of 13% of the total PM hours for the 1st Quarter, which is within the industry benchmark of 10% to 15%.

Overall Preventive Maintenance



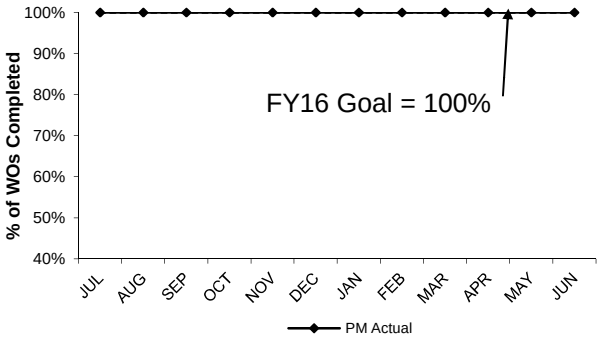
The Field Operations Department (FOD) preventive maintenance goal for FY16 is 100% of all PM work orders. Staff completed an average of 100% of all PM work orders in the 1st Quarter.

Items Kitted Utilizing Maximo



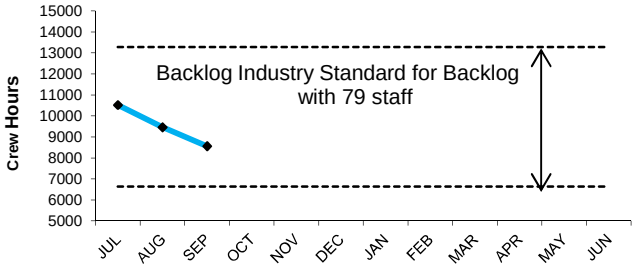
In an effort to more efficiently complete work, maintenance staff and work coordination staff have utilized the Lawson/Maximo interface to better kit stock and non stock material. The goal for FY16 is to "kit" 50 stock and non stock items total per month. An average of 232 items were kitted during the 1st Quarter

Operations Light Maintenance % PM Completion



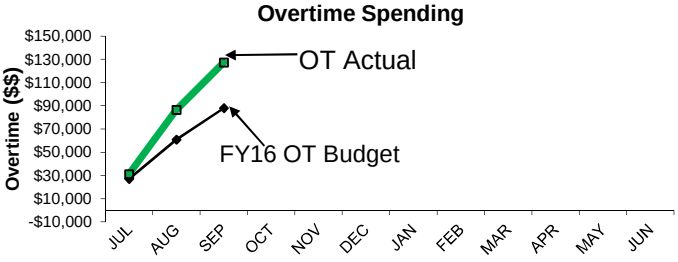
Wastewater Operators complete light maintenance PM's which frees up maintenance staff to perform corrective maintenance. Operations' FY16 PM goal is completion of 100% of all PM work orders assigned. Operations completed an average of 100% of PM work orders in the 1st Quarter.

Maintenance Backlog in Crew Hours



The 1st Quarter backlog average is 9515 hours. Management's goal is to continue to control overtime and still stay within the industry benchmark of 6450 to 12,940 hours.

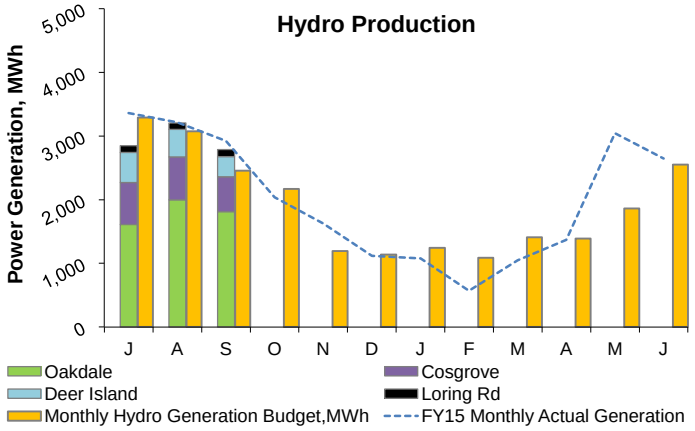
Overtime Spending



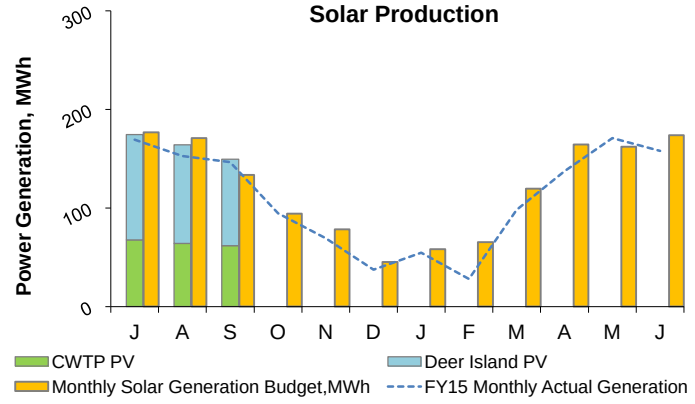
Maintenance overtime was $39k over budget for the 1st Quarter. Overtime was used for staging for weather events, critical maintenance repairs, and shutdown support for the Deer Island Treatment Plant North System valve replacement project.

Renewable Electricity Generation: Savings and Revenue

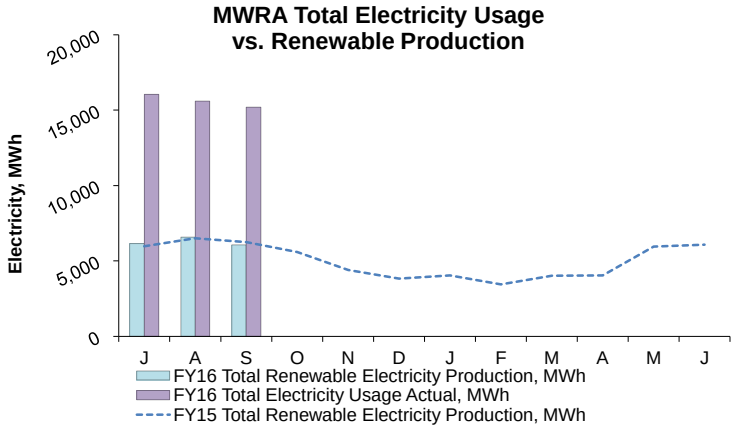
1st Quarter - FY16

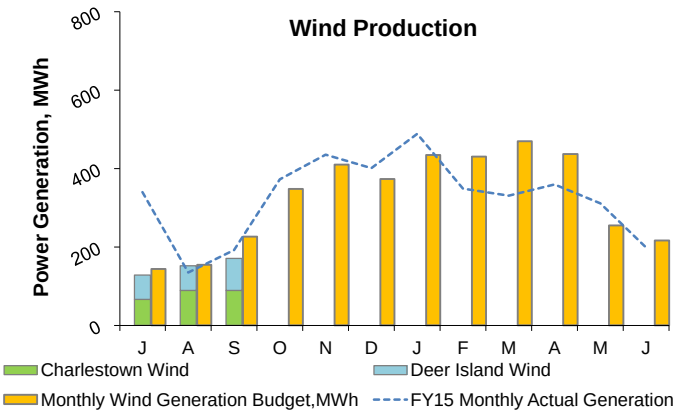


In the 1st Quarter, the renewable energy produced from all hydroelectric facilities totaled 8,846 MWh; equal to budget[3]. The total savings and revenue[2] to date in FY16 (actuals through August[1]) is $227,278; 33% below budget, partly due to the fact that the actual electricity unit price for Deer Island has been 20% below the budgeted[3] estimate for the same period, and due to Oakdale receiving a 55% lower than budget price/kWh for the month of July. Oakdale budget is based on a 3-year revenue average (FY12-FY14). The savings and revenue value does not include RPS REC revenue (see next page).

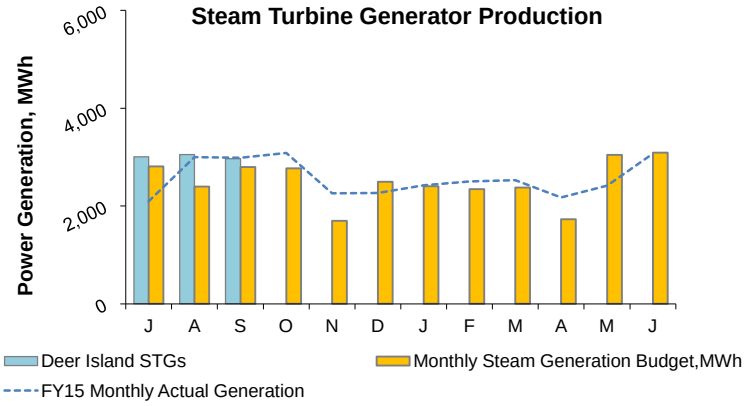


In the 1st Quarter, the renewable energy produced from all solar PV systems totaled 488 MWh; 1% above budget[3]. The total savings and revenue[2] to date in FY16 (actuals through August[1]) is $37,043; 6% below budget. The savings and revenue value does not include RPS REC revenue (see next page).

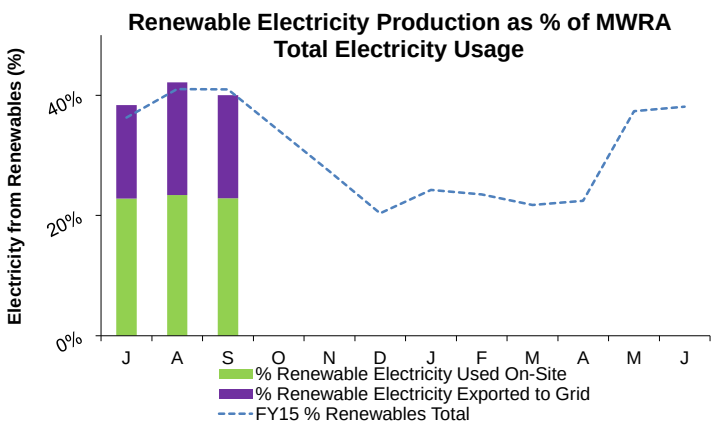




In the 1st Quarter, the renewable energy produced from all wind turbines totaled 451 MWh; 14% below budget[3], partly due to Deer Island Wind Turbines being off-line intermittently for scheduled preventive maintenance work. The total savings and revenue[2] to date in FY16 (actuals through August[1]) is $42,070; 18% above budget. The savings and revenue value does not include RPS REC revenue (see next page).



In the 1st Quarter, the renewable energy produced from all steam turbine generators totaled 9,029 MWh; 13% above budget[3]. The total savings and revenue[2] to date in FY16 (actuals through August[1]) is $445,157; 6% below budget. The savings and revenue value does not include RPS REC revenue (see next page).

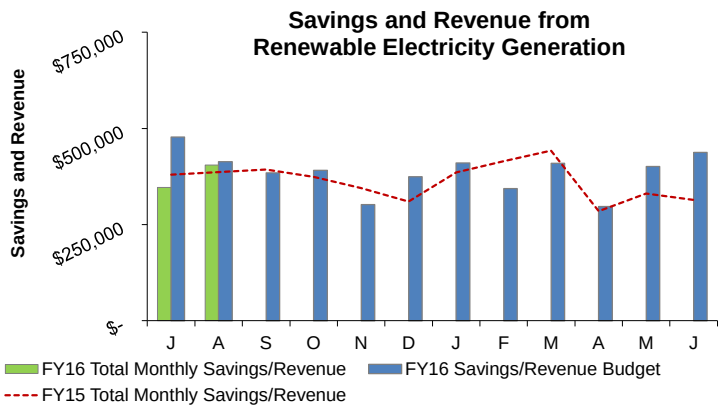


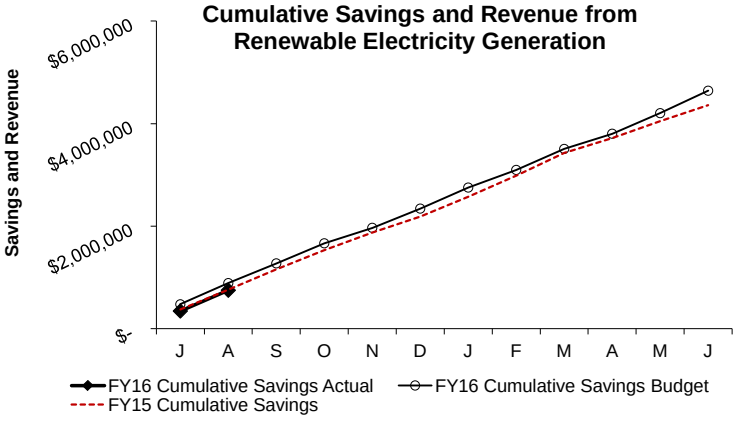
In the 1st Quarter of FY16, MWRA's electricity generation by renewable resources totaled 18,815 MWh. MWRA's total electricity usage was approximately 46,854 MWh. The MWRA total electricity usage is the sum of all electricity purchased for Deer Island and FOD plus electricity produced and used on-site at these facilities. Approximately 97% 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.
In the 1st Quarter of FY16, green power generation represented approximately 40% of total electricity usage. 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. Only the actual energy prices are being reported. Therefore, some of the data lags up to (2) months due to timing of invoice receipt.
2. 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.
3. Budget values are based on historical averages for each facility and include operational impacts due to maintenance work.

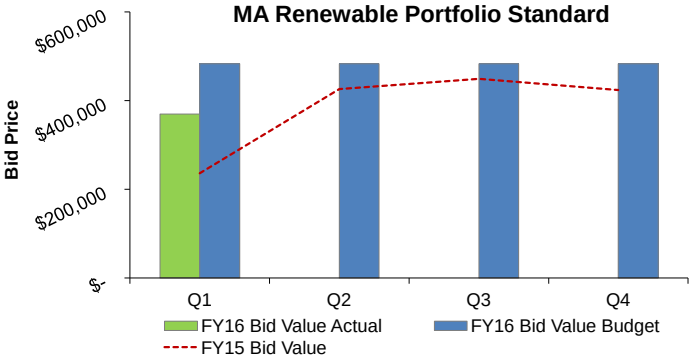
Renewable Electricity Generation: Savings and Revenue

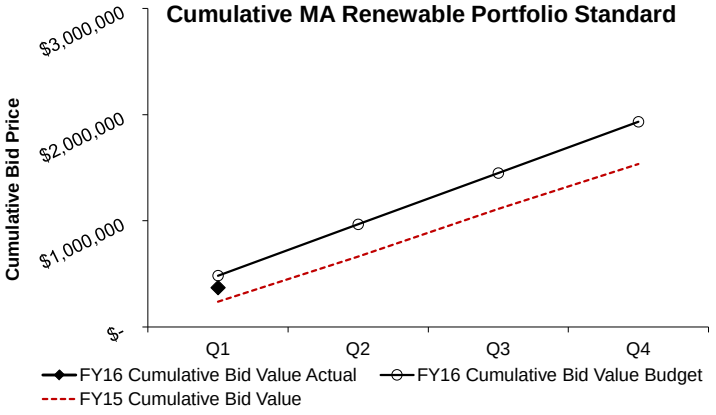
1st Quarter - FY16



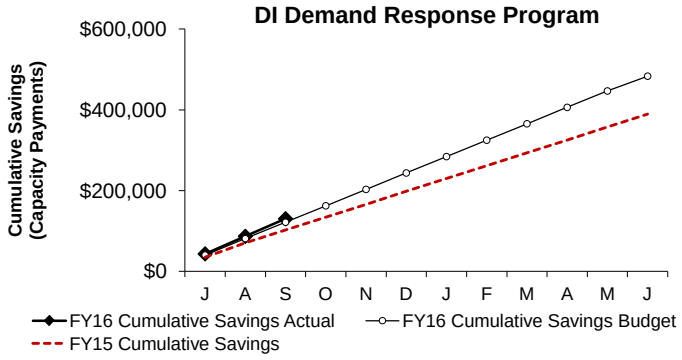


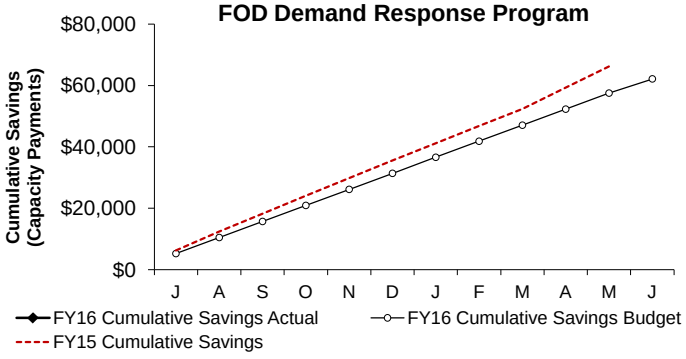
Savings and revenue from MWRA renewable electricity generation in the first 2 months of FY16 (actuals only through August[1]) is $751,548; which is 16% below the budget[3], partly due to the fact that the actual electricity unit price for Deer Island has been 20% below the budgeted[3] estimate for the same period. Savings and revenue[2] 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 Quarter[1] from MWRA's renewable energy assets; 6,715 Q1 CY2015 Class I Renewable Energy Certificates (RECs), 1,297 Q1 CY2015 Class II RECs and 53 Q1 CY2015 Solar RECs were sold for a total value of $369,753 RPS revenue; which is 23% below the budget[3].
REC values reflect the bid value on the date that bids are accepted, even though the RECs were produced during Q1 of CY2015. Cumulative bid values reflects the total value of bids received to date.



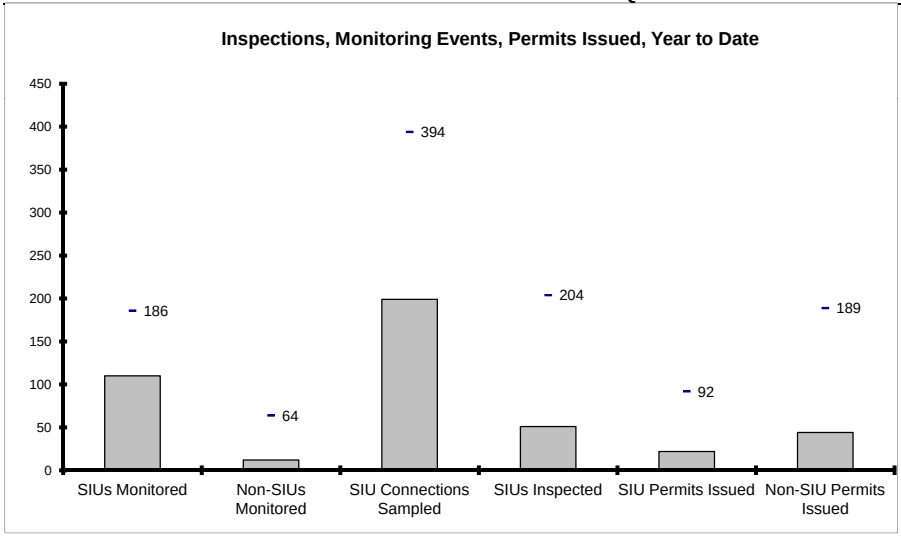


Deer Island, 2 Water, and 4 Wastewater facilites[4] participate in the ISO-New England Demand Response Programs. By agreeing to have its generators available to run and thus relieve the New England energy grid of some of MWRA's load during times of high energy demand, MWRA receives monthly Capacity Payments from ISO-NE. When MWRA operates back-up generators during an ISO-NE called event, MWRA also receives energy payments from ISO-NE. FY16 Cumulative savings (Capacity Payments only) through September[1] total $130,357 for DI. Capacity Payments for FOD in FY16 have not yet been received for this reporting period.

Notes:
1. Only the actual energy prices are being reported. Therefore, some of the data lags up to (2) months due to timing of invoice receipt.
2. 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.
3. Budget values are based on historical averages for each facility and include operational impacts due to maintenance work.
4. FOD Facilites include: CWTP, Loring Road, Chelsea Creek, Columbus Park, Ward St., and Nut Island.

Toxic Reduction and Control

1st Quarter - FY16



EPA Required SIU Monitoring Events
for FY15: 186
YTD : **110**

Required Non-SIU Monitoring Events
for FY15: 64
YTD : **12**

SIU Connections to be Sampled
For FY15: 394
YTD: **199**

EPA Required SIU Inspections
for FY15: 204
YTD: **51**

SIU Permits due to Expire
In FY15: 92
YTD: **22**

Non-SIU Permits due to Expire
for FY15: 189
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 in the month. However, many of these industries have more than one sampling point and the "SIU Connections Sampled" data reflect

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 at any given time. During the course of the year, some SIUs do not discharge and cannot be monitored. TRAC also monitors one-third of the non-SIUs each year.

SIU and Non-SIU permits are issued with durations of two to five years, depending on the category of industry, varying the number of permits that expire in a given year.

Number of Days to Issue a Permit

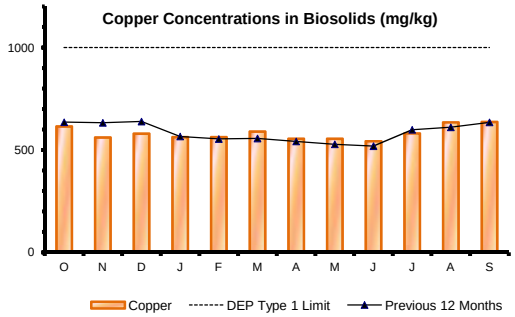
	0 to 120		121 to 180		181 or more		Total Permits Issued	
	SIU	Non-SIU	SIU	Non-SIU	SIU	Non-SIU	SIU	Non-SIU
Jul	4	20	1	3	0	0	5	23
Aug	10	11	0	1	0	0	10	12
Sep	7	9	0	0	0	0	7	9
Oct							0	0
Nov							0	0
Dec							0	0
Jan							0	0
Feb							0	0
Mar							0	0
Apr							0	0
May							0	0
Jun							0	0
% YTD	95%	91%	5%	9%	0%	0%	22	44

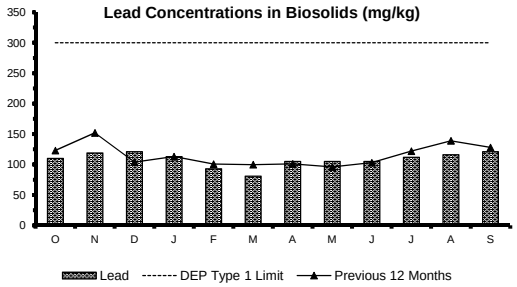
EPA requires MWRA to issue or renew 90% of SIU permits within 120 days of receipt of the application or the permit expiration date - whichever is later. EPA also requires the remaining 10% of SIU permits to be issued within 180 days.

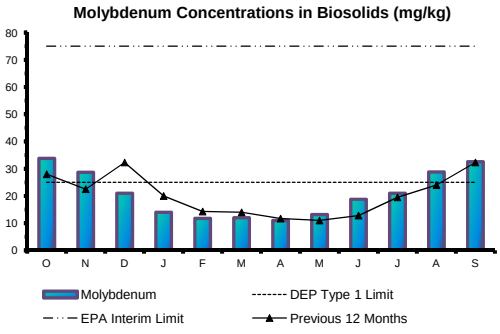
In this the 1st Quarter of FY16, sixty-six permits were issued, twenty-two of which were SIUs. Twenty-one SIU and forty non-SIU permits were issued in the 120-day timeframe while one SIU and four non-SIU permits were issued in the 120-day to 180-day timeframe. Late issuing of permits continue due to late payment of permit fees or having to wait for additional information from the industry in order to determine the appropriate category for the permit.

Copper, lead, and molybdenum are metals of concern for MWRA as their concentrations in its biosolids have, at times, exceeded regulatory standards for unrestricted use as fertilizer. Cooling tower usage typically causes a seasonal spike in molybdenum concentrations due to the blowdown on large AC systems that use corrosion inhibitors containing molybdenum. Levels drop again following the end of the cooling season, although this is delayed due to biosolids processing time. The hotter the season, the higher the spike. TRAC has an ongoing program to persuade cooling tower operators to switch to phosphate-based corrosion inhibitors, but increases this year indicate that additional regulatory options must be considered.

During this first quarter of FY16, the level of molybdenum has been above the DEP type 1 Limit the last two summer months. MWRA and its contractor (NEFCO) generally do not distribute product in Massachusetts between July and January under its approval of suitability.







Field Operations Highlights –
1st Quarter – FY16

Western Water Operations and Maintenance

- Clinton Wastewater Treatment Facility: Maintenance Staff completed exterior repairs to the Historic Pump Station, including stabilizing the front entryway, exterior paint, replacing the gutters, and repairing portions of the slate roof.

- ICCF Marlboro: Staff from multiple work groups and multiple locations completed the modifications of the old Interim Corrosion Control Facility to accommodate the Laboratory and Quality Assurance Staff during the upcoming CP-7 Facility Work.

- Oakdale Power Station: The power station was taken offline to troubleshoot a connection on the high voltage side of the turbine. Staff located a short in a control power wire, replaced the wire, and the power station was restored to normal operation. During this shutdown, Engineering Staff coordinated electrical testing of the hydropower generator for the potential future efficiency upgrade.

- Portable Pump Training was held for staff that would be potentially involved with deploying mobile pumping capacity in a future emergency. Similar training was held for Metro staff.

Metro Water Operations and Maintenance

- Water Pipeline Program Highlights: Work was completed on Fisher Avenue in Brookline on the Meter 98 Project. Staff assisted Deer Island with the replacement of hydrants, repair of a leak on a service main, work on the roadway and curbing at the public access parking, and other site work. Staff accessed the substructure of the General Edwards Bridge over the Saugus River, between Revere and Lynn, in attempt to repair leaks on Section 56. The main is beyond repair. A study is about to begin to determine the best option to replace the river crossing.

- Cambridge Leak: On September 3, Cambridge experienced a major water main break, just outside of Harvard Square. While excavating to repair the main, the Cambridge Water Department exposed the side of MWRA Water Section 11, supplying the Northern Low Service (NLS) System and the Spot Pond Storage Tank. The decision was made to reconfigure the NLS System to isolate Section 11 while Cambridge had it exposed. MWRA Staff remained at the site around the clock. Cambridge completed the repair September 5th, and the NLS was reconfigured to its normal supply. MWRA service remained normal throughout the event.

- Activation of Water Supply to Lynn: On September 9, the MWRA connections to the Lynn Water System were opened. No water quality issues were reported. MWRA and LWSC Staff performed many water quality tests to track the path of the MWRA water as it moved into the LWSC System. The transition to the LWSC Low Service System went well. Due to local issues in the Lynn High Service system, LWSC decided to supply their high service area and a portion of their low service area with their own treatment plant. Work on the cover for their low service reservoir is expected to continue into early November.

Operations Engineering

- Spot Pond Storage: Assisted in completing the disinfection and activation of Cell One of the Spot Pond Tank. Coordination continues for pump testing, pipe leakage testing and disinfection, instrumentation and other issues. Prior to activating Cell One, operational changes were made to the Low Service System in three steps; 1.) Increasing grade line at Shaft 9A 10 feet to fill and test the tank overflow; 2.) The Nonantum Road Pressure Reducing Valves (PRV) and Shaft 9 PRV Systems were brought together and the grade line at Nonantum Road was increased 5 feet; and 3.) The Northern Low Service System was unified and the primary source of water is now through the Nonantum Road PRV with Shaft 9 and Shaft 9a in a lag mode and ready to automatically activate, only if needed.

- GPS Collection Project: This summer interns collected GPS coordinates for 3,652 points, including about 2,020 valves with photos of each site. Data collection is 100% complete in the west with 649 points collected; Metropolitan Boston is about 45% complete.

- Community Support: Assisted Milton with the isolation and bypassing of Meter 55 on Summit Ave at Metropolitan Ave. to allow installation of a PRV which will help cycle their storage tanks and improve water quality; and assisted Revere with a main break on the Revere Beach Park Way on a 14-inch cast iron main. The main was contaminated by sewage and MWRA disinfect the main.

Wastewater Operations & Maintenance

- North Main Pump Station Shutdowns: Operations Staff continues to assist with the North Main Pump Station upgrade project. Operations Staff was onsite to ensure the proper operation of all wastewater facilities during trial shutdowns. Staff provided wastewater system operating conditions, developed operational control strategies for the shutdowns, and assisted in developing contingency plans. The fourth shutdown was conducted on July 22th. This 8-hour trial included the shutdown of Chelsea Creek, Columbus Park, Ward Street Headworks and the Winthrop Terminal. The fifth trial shutdown was conducted on September 2nd.

- Wastewater Operator Licenses: Operations Management worked with 22 Wastewater Operations Staff to upgrade their Wastewater Licenses from "Operator in Training" to "full" status. All applications were approved by NEWIPCC.

- Chemical Receiving Training: Staff attended Chemical Receiving Training focused on the proper procedures for receiving chemicals and fuel oil, including ensuring adequate capacity in receiving tanks, testing chemicals and reviewing paperwork.

- ISO New England Peak Demand: Wastewater Operations went on generator power at the four (4) headworks facilities during electrical peak demand days on September 8th and September 9th to ensure uninterrupted wastewater operations at these facilities. All four headworks facilities (Nut Island, Chelsea Creek, Ward Street and Columbus Park) were placed on and off facility generator power with no operational impact. These facilities also successfully took part in the ISO NE Demand Response Audit on July 14th and August 19th.

- Carbon Replacement: Operations Staff assisted Process Control Staff with the replacement of the carbon in the Odor Control System at the Nut Island Headworks Facility, Hough's Neck Pump Station, and Braintree/Weymouth Pump Station.

- Wastewater Operator Training Program: In September, the next phase of the Operator Training Program began, where in-house staff is trained to become Wastewater Operators. Trainees shadow Wastewater Operations Staff one day a week at field facilities (pumping stations, headworks and CSOs) and/or at Deer Island, and attend wastewater exam training once per week. The program will culminate with the Grade 2 Wastewater Operator's License Exam. The goal is an adequate pool of internal Operator candidates.

- Planned Utility Power Outages: Eversource had to perform maintenance on their Distribution System, so the Ward Street Headworks (on July 14th) and Prison Point CSO Facility (on August 15th and 16th) were placed on generator power. A portable generator was brought on site for back-up as a precaution. Staff were onsite for the duration of the outages. There was no operational impact.

Metering

- Meter Systems: Staff continues to work with Telog and MIS to improve functionality of the new web module. Notified Arlington, Chelsea, Milton, Somerville, and Waltham of higher demands. Notified the Everett that a boundary valve between their high and low service systems was open allowing 900,000 gpd to flow from their high to their low service system. Staff converted 94 water meters to wireless communication and installed the new real time web module in both Water and Wastewater Operations Control Centers.

Environmental Quality—*Water*

- Algae monitoring activity continued for nuisance taste and odor algae by both MWRA and DCR. New algae trigger levels for five nuisance algae have been adopted which reflect CWTP's odor reduction capability and our ability to perform other actions before copper sulfate treatment. Nuisance algae levels continued to be at low densities throughout the quarter. Algae sampling ended on 9/21 and will resume in the spring of 2016.

- Research sampling of taste and odor and algal toxin compounds was performed In July, August and September at Cosgrove Intake. All samples, but two, showed no presence of either. One sample had low levels of Geosmin, a typical taste and odor compound, and another had low but detectable levels of two algal toxins. Ozone treatment is effective at destroying both types of compounds, and follow-up sampling at Cosgrove Intake and at CWTP's finished water tap did not detect them.

- In September, staff performed reservoir sampling and testing at various locations on Wachusett Reservoir. Staff purchased additional equipment and made further preparations for the multi-agency contamination drill that will be held on 10/15.
- During the quarter, staff conducted several training sessions for Wastewater Operator Staff assigned to receive bulk chemical and fuel deliveries. Training included a review of the program, delivery and security requirements, standard operating procedures, and testing.

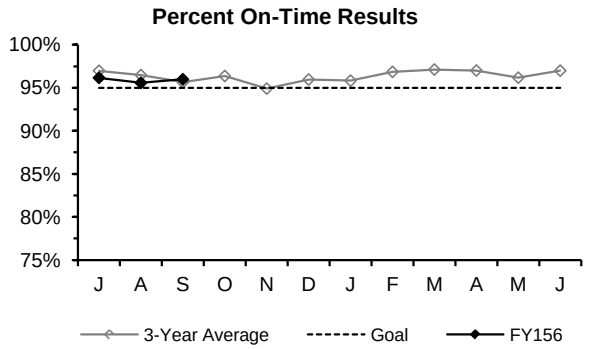
Environmental Quality—*Wastewater*

- Ambient Monitoring: Conducted three water column surveys. Blue mussels from clean waters in eastern Maine were deployed in the outfall mixing zone and in reference locations and were recovered after two months, for a study of the bioaccumulation of contaminants. The collection of lobsters near the outfall site and in reference areas began in July and will be completed in October. Mussel and lobster tissues will be analyzed by DLS for contaminant concentrations. Sediment surveys were conducted in both Boston Harbor and in the vicinity of the outfall to determine outfall impacts and harbor recovery. Began planning a workshop to review the current monitoring plan with DEP and EPA and their outfall Monitoring Science Advisory Panel.

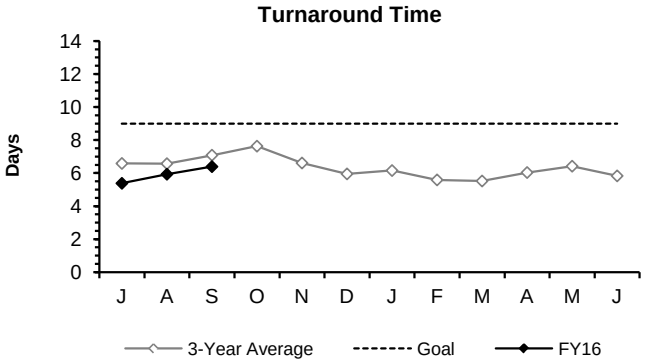
- Harbor/Beach Monitoring: Throughout the summer swimming season, posted beach monitoring results on the web site daily, along with "fact sheets" for each location providing context for interpreting water quality data. Summer monitoring of the tributary rivers and harbor embayments is ongoing, three days per week into October. Initiated project to study microbial source tracking at Tenean Beach. Completed and published reports on 2014 harbor water quality monitoring for nutrients and algae, and a report on CSO receiving water monitoring required by the Charles River and Mystic River water quality standards variances.

Laboratory Services

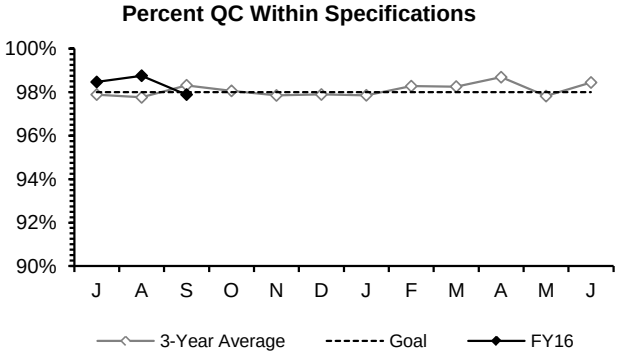
1st Quarter - FY16



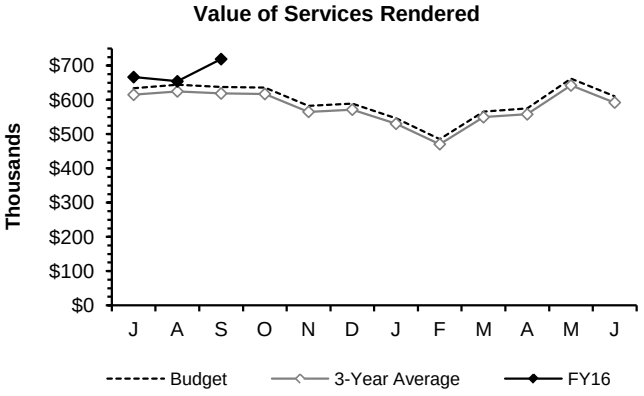
The Percent On-Time measurement was above the 95% goal each month of the quarter.



Turnaround Time was faster than the 9-day goal each month of the quarter.



Percent of QC tests meeting specifications was slightly below the 98% in-house goal for one month of the quarter.



Value of Services Rendered was above the seasonally adjusted budget projection each month of the quarter.

Highlights:
Lab Services has met or exceeded its on-time results and turnaround time goals each month for the past 21 months.

Quality Assurance:
The every other year DEP certification audit of the Chelsea Laboratory found only one minor deficiency.

Delaney presented a paper entitled, "Reliable Determination of Cyanide in Water--a Modest Proposal" at the National Environmental Monitoring Conference in Chicago and participated in the EPA Environmental Laboratory Advisory Board meeting.

Rhode started a two year rotation on the Association of Public Health Laboratories (APHL) Environmental Laboratory Sciences Committee (ELSC). The ELSC advises APHL about ways to shape government policy, provides technical assistance for, and enhance awareness of environmental laboratories.

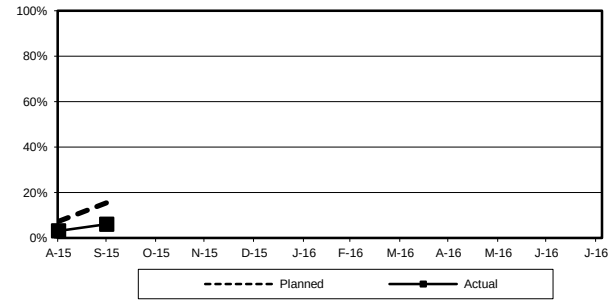
CONSTRUCTION PROGRAMS

Projects In Construction

1st Quarter FY16

(Progress Percentages based on Construction Expenditures)

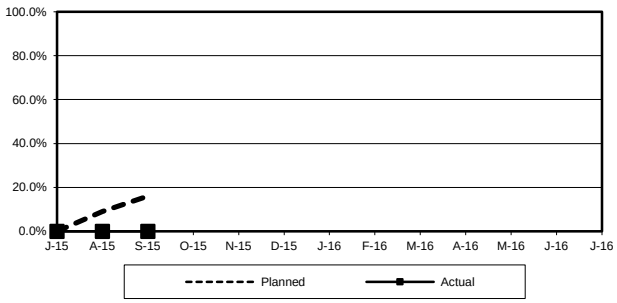
Southborough Water Quality Lab
Progress – September 2015



Project Summary: This project involves the rehabilitation of the Southborough Water Quality Laboratory. The work includes replacement of the roof , windows, doors and flooring, as well as modifications to the electrical, HVAC and fire protection systems.

Status and Issues: Through September, the Contractor completed the installation of the construction site field trailers; they began the investigation of the building electrical system and submitted the job hazard analysis. Asbestos containing material (ACM) was identified in the vinyl floor tile mastic, window glazing compound and panels behind the lab fume hood.

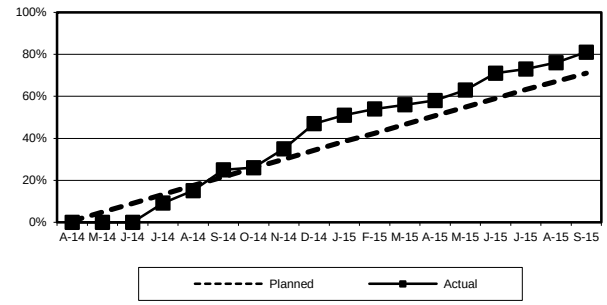
Upgrades to Chelsea Screen House
Progress – September 2015



Project Summary: This project involves the replacement of two dry side screens, seven gates and the rehabilitation of two wet side screens. Also, a SCADA system will be added to the wet side to allow for remote wet weather operation.

Status and Issues: As of September, the Contractor will resubmit the Schedule of Values and has provided an initial submittal schedule. The issue of lead paint on equipment was identified by MWRA and will be investigated internally by the MWRA's Environmental Department.

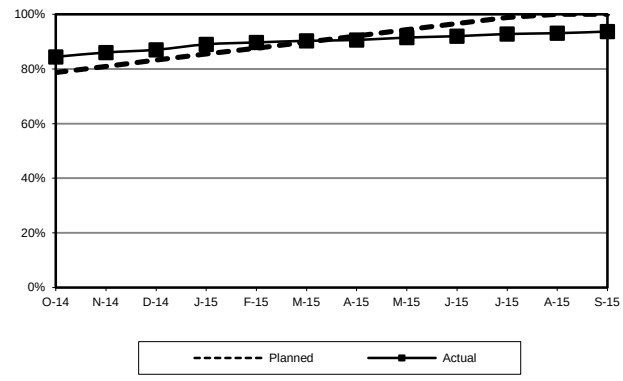
Clinton Digester and Primary Clarifier Rehab
Progress – September 2015



Project Summary: This project involves the rehabilitation of the Plant's two digesters, as well as the replacement of the gas compressors, sludge collection equipment, isolation gates and repairs to the concrete.

Status and Issues: As of September, the forms for Clarifier's 1 & 2 were removed and the application of the base coat of the liner began on the walls. The majority of the backfilling around Clarifier's 1 & 2 was completed and the paving of the center walkway was started.

Spot Pond Water Storage Facility
Progress – September 2015



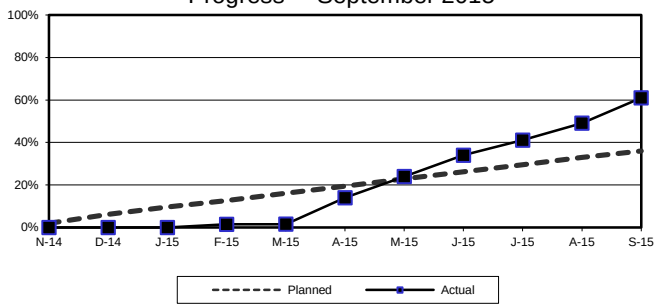
Project Summary: This is a design/build project for the construction of two, 10 million-gallon covered concrete storage tanks and a buried pump station, which will provide back-up redundancy for the Northern High and Northern Intermediate High distribution service areas.

Status and Issues: As of September, all tank work and LS, HS and NIH piping was 100% complete. Work continued on the plumbing, electrical and HVAC installations in the pump station. The contractor continued final grading in front of the pump station and installed the binder course of pavement.

Projects In Construction

(Progress Percentages based on Construction Expenditures)

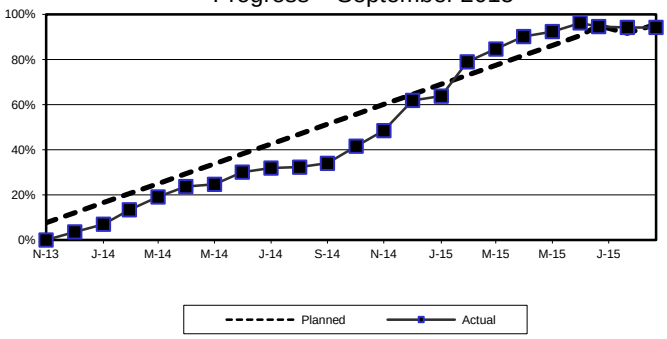
Water Mains: Section 36, W11C and S9-A
Progress – September 2015



Project Summary: This project includes the replacement of Section 36 in Arlington; the installation of a new water main (Section W11C); and the replacement of an inoperable 48-inch butterfly valve on Shaft 9-A pipeline in Medford.

Status and Issues: As of September, the Section 36 24" water main to the tank property on Park Ave was completed. Work continued on the Meter 86 vault and the Section's 36, 81 & 82 interconnections at Park Circle.

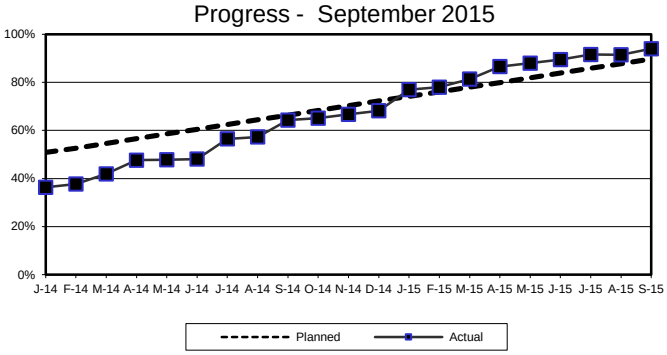
Pump, Gear Box and Diesel Engine Upgrade Prison Point and Cottage Farm CSO Facilities
Progress - September 2015



Project Summary: This project involves the rebuilding of pumps right angle gear drives and engines as well as the installation of diesel oxidation catalysts at the Prison Point and Cottage Farm CSO facilities.

Status and Issues: During September, the performance test of PP.RWW.P-3 was completed, as well as the vibration and noise monitoring of RAD #1 and #2. RAD #2 failed the vibration limits test and will require retesting. The retest of PP.RWW.P-4 was also completed during the month.

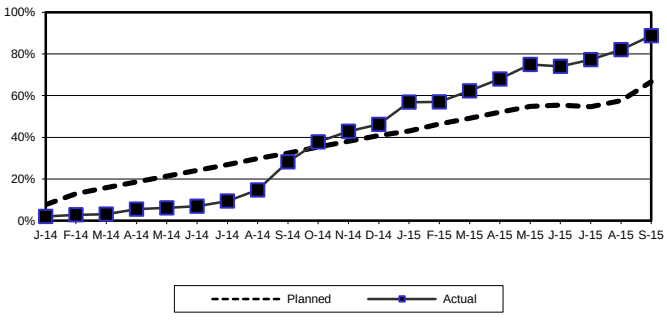
North Main Pump Station VFDs & Motors
Progress - September 2015



Project Summary: This project involves the replacement of the existing 3500 HP variable frequency drives and synchronous motors for the RWW pumps at the North Main Pump Station.

Status and Issues: During September, the existing Motor/VFD #9 was removed and the new motor/VFD was installed. By the end of the month, the new motor/VFD was ready for the inspection by the factory service technician. Startup/testing of this unit is anticipated to start at the beginning of October.

Primary and Secondary Clarifier Scum Tip Tubes
Progress - September 2015



Project Summary: This project involves the replacement of the existing carbon steel tip tubes with 316 stainless steel in 48 primary and 54 secondary clarifiers to improve reliability and increase longevity.

Status and Issues: Through September, approximately 174 of 188 scum skimmers or 92.6% have been completed.

CSO CONTROL PROGRAM

1st Quarter - FY16

As of September 30, 2015, MWRA and the CSO communities had completed 32 of the 35 projects in the Long-Term CSO Control Plan. The three remaining CSO projects are in construction: Reserved Channel Sewer Separation by BWSC, CAM004 Sewer Separation by City of Cambridge, and Automated Gate/Floatables Control at Outfall MWR003 and Rindge Ave. Siphon Relief by MWRA, the last of which is scheduled for substantial completion by October 28, 2015. The following table reports on the progress of the three CSO projects not yet complete, as well as BWSC's inflow removal work associated with the completed South Dorchester Bay Sewer Separation project.

Project		Court Milestones in Schedule Seven (Shaded milestones are complete.)			Status as of September 30, 2015
		Commence Design	Commence Construction	Complete Construction	
Reserved Channel Sewer Separation		Jul 06	May 09	Dec 15	BWSC continues to make progress with the nine planned contracts for the Reserved Channel Sewer Separation project. Contract 1 CSO outfall rehab $ 3.9 M Complete Contract 2 Sewer separation $ 5.9 M Complete Contract 3A Sewer separation $11.8 M Complete Contract 3B Sewer separation $13.6 M Complete Contract 4 Sewer separation $13.8 M Subst. complete Contract 5 Cleaning & Lining Ineligible Underway Contract 6 Downspout Disconnect $ 0.2 M 75% complete Contract 7 Pavement restoration $ 1.3 M Complete Contract 8 Pavement restoration $ 4.8 M Underway BWSC expects to complete all eligible work for the Reserved Channel sewer separation project by December 2015, in compliance with Schedule Seven.
Cambridge/ Alewife Brook Sewer Separation	CAM004 Sewer Separation	Jan 97	Jul 98 Sep 12	Dec 15	Cambridge completed four initial construction contracts for this project more than a decade ago and is presently managing four additional sewer separation contracts (contracts 8A, 8B, 9 and Concord Lane) to complete the project. Progress noted below is for the court-ordered CSO related work of each contract. Contract 8A Sewer separation $17.8 M Subst. complete Contract 8B Sewer separation $18.2 M 95% complete Contract 9 Sewer separation $ 6.7 M 95% complete Concord Lane Sewer separation $1.8 M 40% complete On September 16, 2015, the Board of Directors authorized Amendment 12 to the Cambridge CSO MOU/FAA increasing the total award amount by $5.3 M, from $93.4 M to $98.7 M. Cambridge expects to complete all work for the CAM004 sewer separation project by December 2015, in compliance with Schedule Seven.
	MWR003 Gate and Rindge Ave. Siphon Relief	Apr 12	Aug 14	Oct 15	The contract was 95% complete as of September 30, 2015, and staff expect the contractor to attain substantial completion by October 28, 2015, in compliance with Schedule Seven. All major elements of work are complete, tested and in operating condition.
South Dorchester Bay Sewer Separation Post-Construction Inflow Removal		N/A	N/A	N/A	As previously reported, BWSC has completed its investigation of alternatives for removing additional stormwater inflow from its Dorchester Interceptor. Meanwhile, BWSC continues with a construction contract to remove some of the remaining inflow sources from its sewer system. The contract amount is $562,261, of which $204,000 is eligible for MWRA funding under the BWSC CSO MOU and FAA. MWRA's CIP includes $5.4 million for the inflow removal effort, of which approximately $2.7 million is allocated to awarded design and construction contracts.

CIP Expenditures

1st Quarter FY16

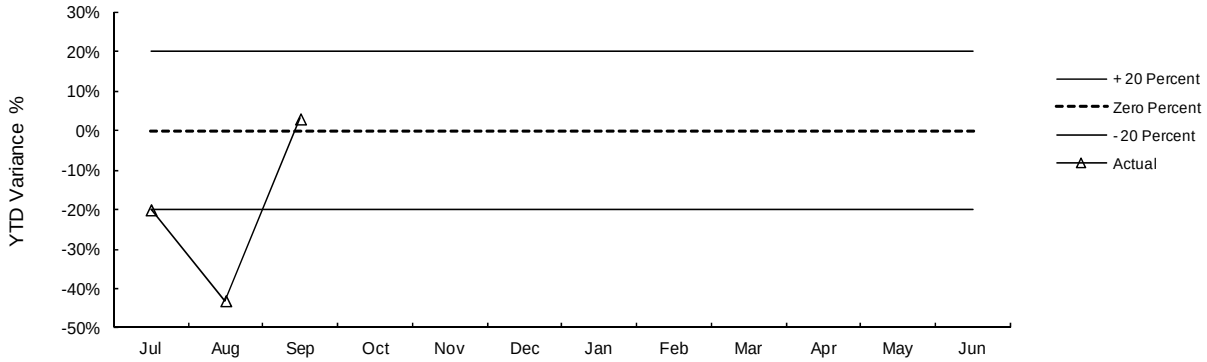
The Year-To-Date variances are highlighted below:

FY16 Capital Improvement Program Expenditure Variances through September by Program ($000)				
Program	FY16 Budget Through September	FY16 Actual Through September	Variance Amount	Variance Percent
Wastewater	17,799	20,627	2,828	16%
Waterworks	8,644	7,988	(656)	-8%
Business and Operations Support	2,317	889	(1,428)	-62%
Total	$28,760	$29,504	744	3%

Overspending within Wastewater is primarily due to water use charges and updated cost estimates due to unforeseen conditions for Cambridge Sewer Separation, and contractor progress on the Scum Skimmer Replacement project. This was partially offset by less than anticipated community requests for grants and loans, timing of work for Butterfly Valve Replacements, Electrical Equipment Upgrade Construction 4, Clinton Digester Rehabilitation, MWR003 Gate & Siphon, and Chelsea Screenhouse Upgrades contracts. Underspending in Waterworks is primarily due timing of work for the Spot Pond Storage Facility Design/Build contract and Watershed Land purchases. This was partially offset by contractor progress on the Section 4 Webster Ave Pipe Rehabilitation, Section 36 W11/S9-A11 Valve, and amended community repayment schedule for the Local Water System Assistance Program.

CIP Expenditure Variance

Total FY16 CIP Budget of $140,498,000.



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 9/26/2015	$52 million
Unused capacity under the debt cap:	$1.088 billion
Estimated date for exhausting construction fund without new borrowing:	Nov-15
Estimated date for debt cap increase to support new borrowing:	Not anticipated at this time
Commercial paper outstanding: Commercial paper capacity:	$130 million $350 million
Budgeted FY16 capital spending*:	$155 million

* Cash based spending is discounted for construction retainage.

DRINKING WATER QUALITY AND SUPPLY

Source Water – Microbial Results and UV Absorbance

1st Quarter – FY16

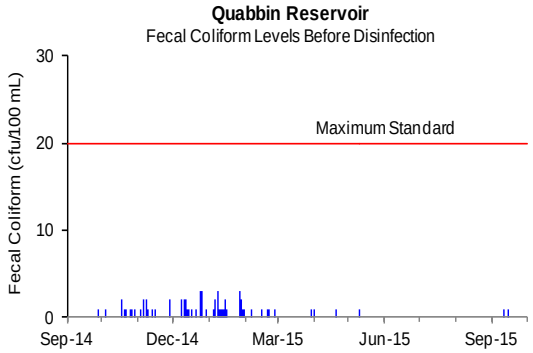
Source Water – Microbial Results

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 coliform, 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 (formerly Ware Disinfection Facility) raw water tap before being treated and entering the CVA system.

All samples collected during the 1st 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.**

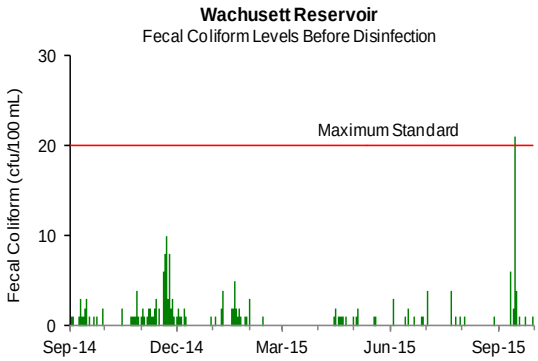


Sample Site: Wachusett Reservoir

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.

On September 14, one of the samples exceeded a count of 20 cfu/100mL. **For the current six-month period, 0.6% of the samples exceeded a count of 20 cfu/100mL, compared to allowable 10%.**

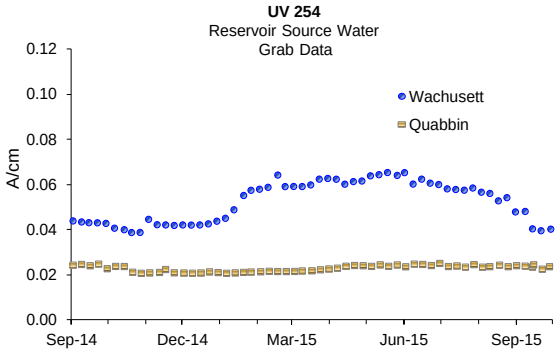


Source Water – UV Absorbance

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 are currently around 0.024 A/cm.

Wachusett Reservoir UV-254 levels are currently around 0.040 A/cm.



Source Water – Turbidity

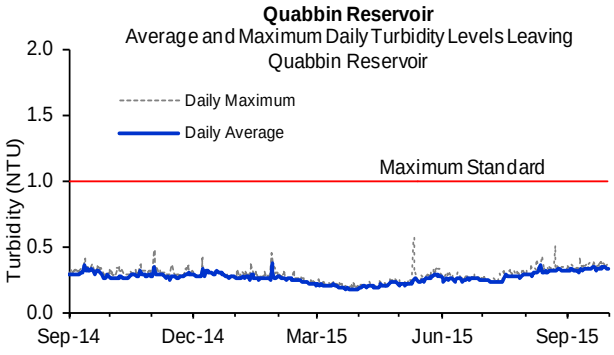
1st Quarter – FY16

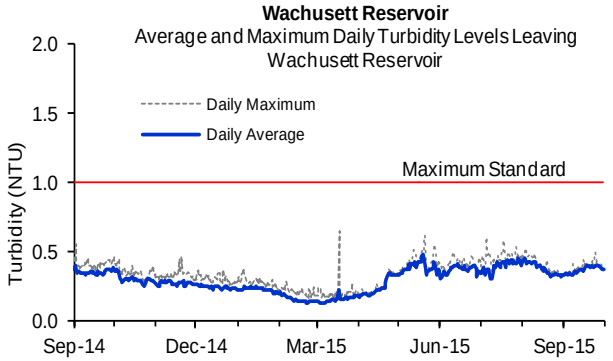
Turbidity is a measure of suspended and colloidal particles including clay, silt, organic and inorganic matter, algae and microorganisms. The effects of turbidity depend on the nature of the matter that causes the turbidity. High levels of particulate matter may have a higher disinfectant demand or may 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 5 NTU (Nephelometric Turbidity Units), and water only can be above 1 NTU if it does not interfere with effective disinfection.

Turbidity of Quabbin Reservoir water is monitored continuously at the William A. Brutsch Water Treatment Facility before chlorination. Turbidity of Wachusett Reservoir is monitored continuously at the Carroll Water Treatment Plant before ozonation.

Maximum turbidity results at Quabbin and Wachusett were within DEP standards for the quarter



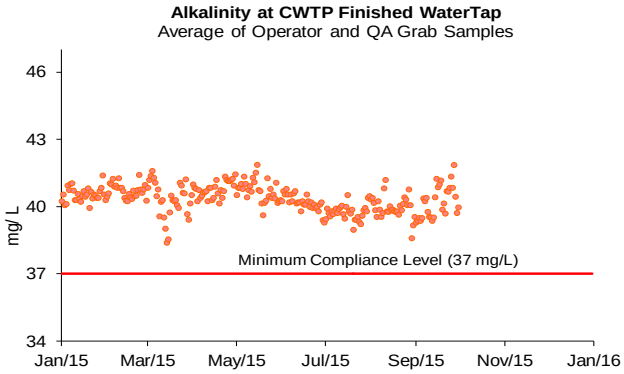


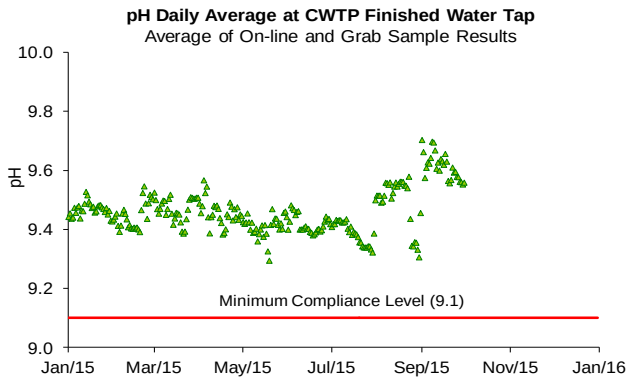
Treated Water – pH and Alkalinity Compliance

MWRA adjusts the alkalinity and pH of Wachusett water 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 samples have a minimum compliance level of 9.1 for pH and 37 mg/L for alkalinity. Samples from 27 distribution system taps 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.

Distribution system samples were collected on September 9 and 10, 2015. Distribution system sample pH ranged from 9.2 to 9.6 and alkalinity ranged from 38 to 40 mg/L. No sample results were below DEP limits for this quarter.





Treated Water – Disinfection Effectiveness

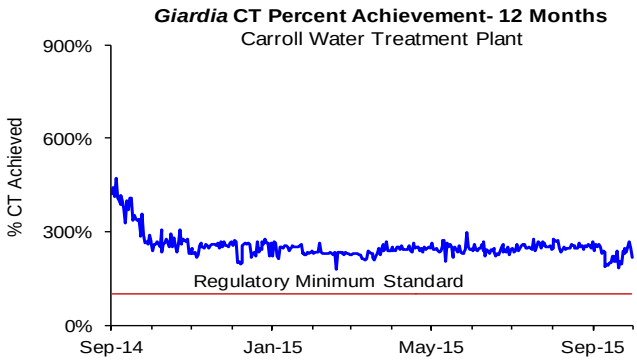
1st Quarter – FY16

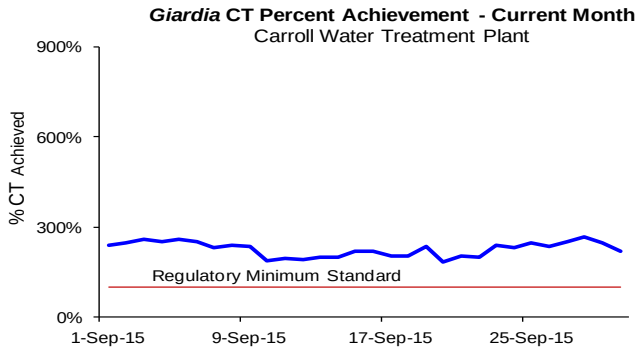
At the Carroll Water Treatment Plant (CWTP), MWRA meets the required 99.9% (3-log) inactivation of *Giardia* using ozone (reported as CT: concentration of disinfectant x contact time) and the required 99% (2-log) inactivation of *Cryptosporidium* using UV (reported as IT: intensity of UV x time). MWRA 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:

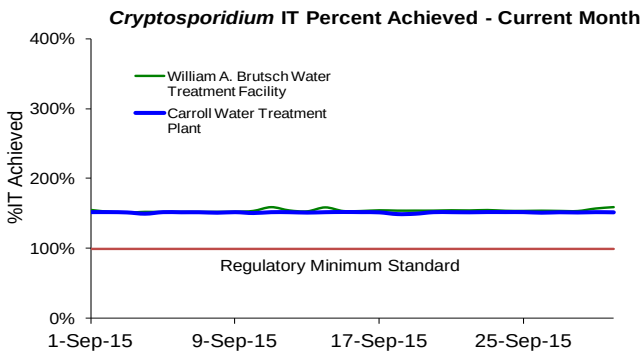
- Ozone dose at the CWTP varied between 1.2 to 1.8 mg/L for the quarter.
- *Giardia* CT was maintained above 100% at all times the plant was providing water into the distribution system this quarter, as well as every day for the last fiscal year.
- *Cryptosporidium* IT was maintained above 100% during the month. Off-spec water was less than 5%.

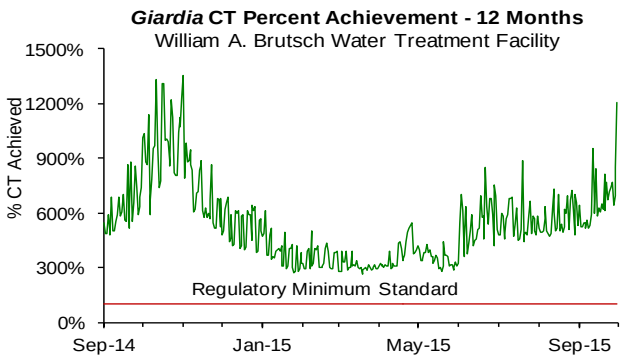


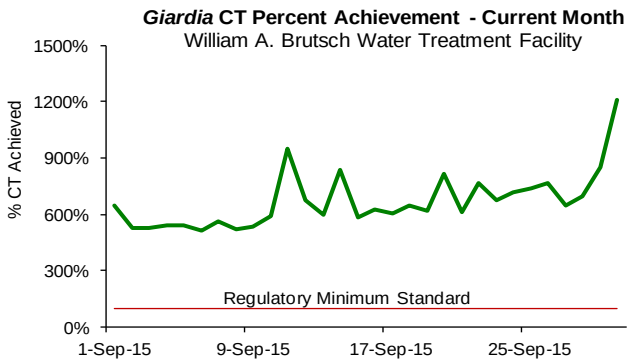


Quabbin Reservoir (CVA Supply) at: William A. Brutsch Water Treatment Facility

- The chlorine dose at WABWTF is adjusted in order to achieve MWRA's seasonal (June 1 – October 31) target of ≥1.0 mg/L at Ludlow Monitoring Station.
- The chlorine dose at WABWTF was1.7 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% during the month. Off-spec water was less than 5%.







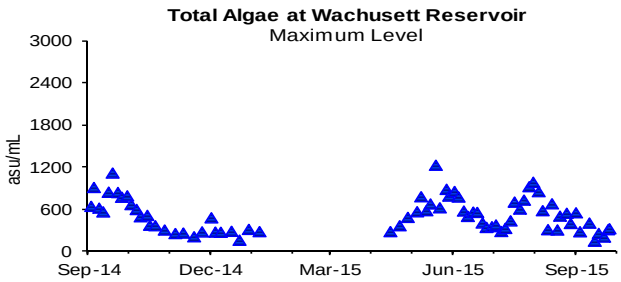
Source Water - Algae

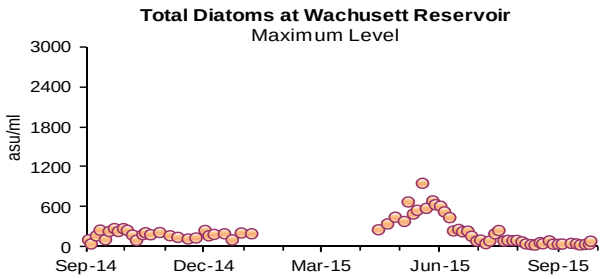
1st Quarter – FY16

Algae levels in Wachusett 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 reservoir 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, no complaints which may be related to algae were reported from local water departments.





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

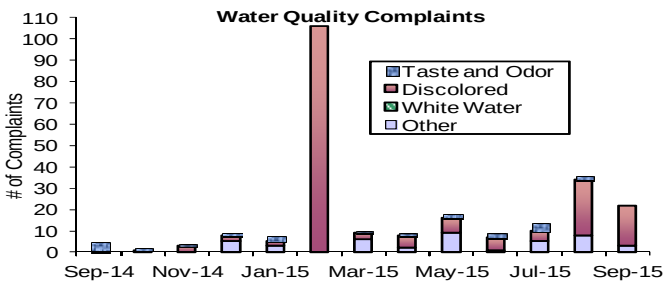
MWRA collects information on water quality complaints that typically fall into four categories: 1.) discoloration due to MWRA or local pipeline work; 2.) taste and odor due to algae blooms in reservoirs or chlorine in the water; 3.) white water caused by changes in pressure or temperature that traps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

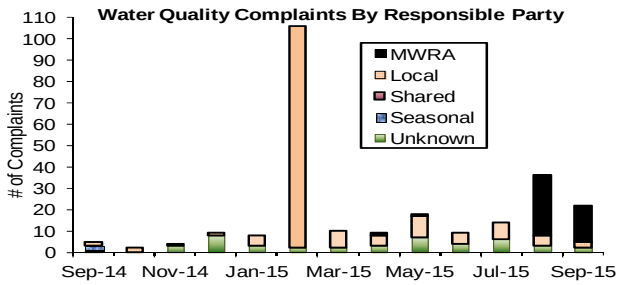
MWRA routinely contacts communities to classify and tabulate water complaints from customers. This count, reflecting only telephone calls to towns, probably captures only a fraction of the total number of customer complaints. Field Operations staff have improved data collection and reporting by keeping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

Communities reported 72 complaints during the quarter compared to 15 complaints for 1st Quarter of FY15. Of these complaints, 50 were for “discolored water”, 6 were for “taste and odor”, and 16 were for “other”. Of these complaints, 16 were local community issues, 45 were MWRA related and 11 were unknown in origin.

•On August 20, 2015, Brookline reported twenty discolored water complaints. The discolored water was the result of the reactivation of the Fisher Hill Line. The local DPW provided support to MWRA staff during the flushing of the line to reduce the discolored water.

•Between September 9 and 10, 2015, Stoneham reported sixteen discolored water complaints. The discolored water was the result of MWRA staff performing pump testing at Spot Pond.





Bacteria & Chlorine Residual Results for Communities in MWRA Testing Program

1st Quarter – FY16

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 142 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.

The TCR requires that no more than 5% of all samples in a month may be total coliform positive (or that no more than one sample be positive when less than 40 samples are collected each month). Public notification is required if this standard is exceeded.

Escherichia 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 critical public health concern. Public notification is required if follow-up tests confirm the presence of *E.coli* or total coliform.

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, 20 of the 6,347 community samples (0.32% system-wide) submitted to MWRA labs for analysis tested positive for coliform (Canton, Milton, Needham, Quincy, Wakefield, Waltham, and Westboro Hospital - July; Bedford, Hanscom AFB, and Needham - August; Bedford, Needham, South Hadley and Waltham - September). Westboro Hospital violated the TCR in July. Bedford and Hanscom AFB violated the TCR In August. Eleven of the 1,998 MWRA samples (0.55%) tested positive for total coliform. Needham had a single for *E.coli* positive in August, but repeat samples did not confirm for total coliform or *E.coli*. Only 4.6% of the samples had any chlorine residuals lower than 0.2 mg/L for the quarter.

		# Coliform Samples (a)	Total Coliform # (%) Positive	E.coli # Positive	Public Notification Required?	Minimum Chlorine Residual (mg/L)	Average Chlorine Residual (mg/L)
MWRA	MWRA Locations	376	8 (2.13%)	0	No	1.46	2.40
MWRA d	Shared Community/MWRA sites	1622	3 (0.18%)	0	No	0.04	1.92
MWRA	*Total: MWRA*	1998	11 (0.55%)	0	No	0.04	2.01
Fully Served	ARLINGTON	169	0 (0%)	0		0.16	1.61
Fully Served	BELMONT	104	0 (0%)	0		0.04	1.53
Fully Served	BOSTON	795	0 (0%)	0		0.58	2.02
Fully Served	BROOKLINE	221	0 (0%)	0		0.37	1.97
Fully Served	CHELSEA	169	0 (0%)	0		0.97	1.86
Fully Served	DEER ISLAND	53	0 (0%)	0		1.21	1.83
Fully Served	EVERETT	169	0 (0%)	0		0.86	1.19
Fully Served	FRAMINGHAM	230	0 (0%)	0		0.49	2.00
Fully Served	LEXINGTON	117	0 (0%)	0		0.21	2.17
Fully Served	LYNNFIELD	18	0 (0%)	0		0.26	1.05
Fully Served	MALDEN	235	0 (0%)	0		0.06	1.84
Fully Served	MARBLEHEAD	72	0 (0%)	0		0.27	1.73
Fully Served	MEDFORD	206	0 (0%)	0		0.19	1.85
Fully Served	MELROSE	118	0 (0%)	0		0.07	1.55
Fully Served	MILTON	105	1 (0.95%)	0	No	0.03	1.41
Fully Served	NAHANT	35	0 (0%)	0		0.87	1.70
Fully Served	NEWTON	277	0 (0%)	0		0.10	1.81
Fully Served	NORTHBOROUGH	48	0 (0%)	0		0.05	1.58
Fully Served	NORWOOD	99	0 (0%)	0		0.03	1.36
Fully Served	QUINCY	327	2 (0.61%)	0	No	0.07	1.56
Fully Served	READING	140	0 (0%)	0		0.04	1.19
Fully Served	REVERE	211	0 (0%)	0		1.07	1.97
Fully Served	SAUGUS	104	0 (0%)	0		1.31	1.83
Fully Served	SOMERVILLE	273	0 (0%)	0		0.82	1.78
Fully Served	SOUTHBOROUGH	30	0 (0%)	0		0.36	1.71
Fully Served	STONEHAM	91	0 (0%)	0		1.30	1.98
Fully Served	SWAMPSCOTT	54	0 (0%)	0		0.32	1.56
Fully Served	WALTHAM	222	2 (0.90%)	0	No	0.73	1.97
Fully Served	WATERTOWN	130	0 (0%)	0		0.50	1.81
Fully Served	WESTBORO HOSPITAL	24	4 (16.67%)	0	Yes	0.06	0.39
Fully Served	WESTON	48	0 (0%)	0		1.28	2.28
Fully Served	WINTHROP	72	0 (0%)	0		0.11	1.38
Fully Served	*Total: Fully Served*	*4966*	*9 (0.18%)*				
CVA & Partially Served b	BEDFORD	62	3 (4.84%)	0	Yes	0.81	1.54
CVA & Partially Served b	CANTON	90	1 (1.11%)	0	No	0.03	0.83
CVA & Partially Served b	HANSCOM AFB	31	2 (6.45%)	0	Yes	0.18	1.47
CVA & Partially Served b	MARLBOROUGH	131	0 (0%)	0		0.56	2.17
CVA & Partially Served b	NEEDHAM	132	3 (2.27%)	1	No	0.07	1.06
CVA & Partially Served b	PEABODY	235	0 (0%)	0		0.04	1.03
CVA & Partially Served b	WAKEFIELD	154	1 (0.65%)	0	No	0.54	1.43
CVA & Partially Served b	WELLESLEY	106	0 (0%)	0		0.04	0.90
CVA & Partially Served b	WILMINGTON	88	0 (0%)	0		0.13	1.64
CVA & Partially Served b	WINCHESTER	91	0 (0%)	0		0.10	1.54
CVA & Partially Served b	WOBURN	210	0 (0%)	0		0.03	1.22
CVA & Partially Served c	SOUTH HADLEY FD1	51	1 (1.96%)	0	No	0.08	0.66
CVA & Partially Served	*Total: CVA & Partially Served*	*1381*	*11 (0.80%)*				
	Total: Community Samples	*6347*	*20 (0.32%)*				

(a) The number of samples collected depends on the population served and the number of repeat samples required.
(b) These communities are partially supplied, and may mix their chlorinated supply with MWRA chloraminated supply.
(c) Part of the Chicopee Valley Aqueduct System. Free chlorine system.
(d) MWRA total coliform and chlorine residual results include data from 125 community pipe locations as described above. In most cases these community results are accurately indicative of MWRA water as it enters the community system; however, some are clearly strongly influenced by local pipe conditions. Residuals in the MWRA system are typically between 1.0 and 2.8 mg/L.

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

1st Quarter – FY16

Total Trihalomethanes (TTHMs) and Haloacetic Acids (HAA5s) are by-products of disinfection treatment with chlorine. TTHMs and HAA5s are of concern due to their potential adverse health effects at high levels. EPA's running annual average (RAA) standard is 80 µg/L for TTHMs and 60 µg/L for HAA5s. For the MetroBoston system, effective Q2 2013, under the Stage 2 DBP Rule, compliance is based on locational running annual averages (LRAA). Sampling locations have increased from 16 to 32 each quarter.

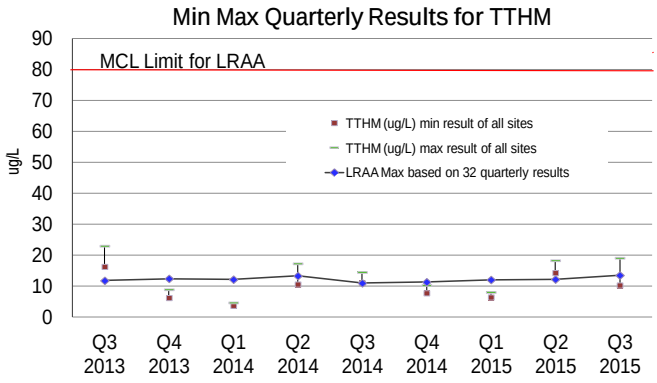
For the CVA communities, effective Q3 2013, under the Stage 2 DBP Rule, compliance is based on a LRAA for each community. Sampling locations have increased from 12 to 14 each quarter. The chart below combines all three CVA communities data.

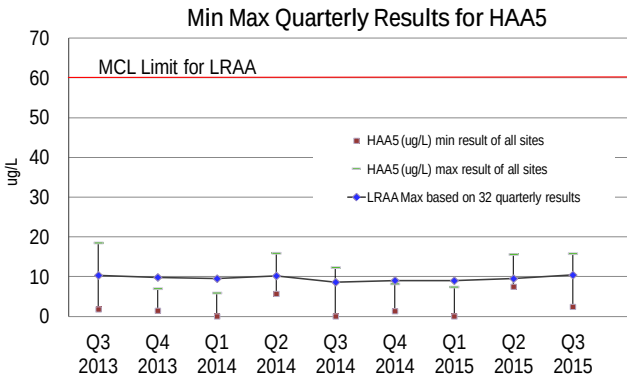
Partially served and CVA communities are responsible for their own compliance monitoring and reporting, and must be contacted directly for their individual results.

Bromate is tested monthly per DEP requirements for water systems that treat with ozone. Bromide in the raw water may be converted into bromate following ozonation. EPA's RAA MCL standard for bromate is 10 ug/L.

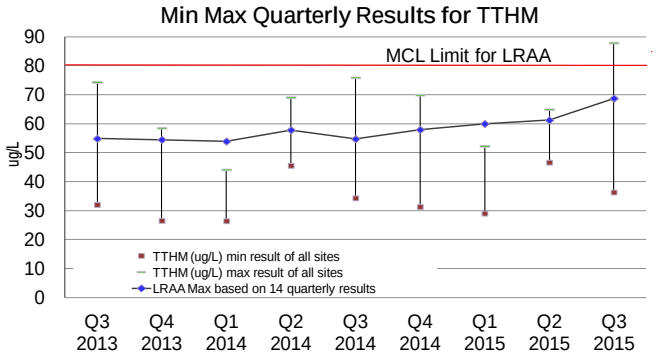
The RAA for TTHMs and HAA5s for MWRA's Compliance Program (represented as the line in the top two graphs below) remain below current standards. The LRAA for TTHMs = 13.5 ug/L; HAA5s = 10.4 ug/L. The current RAA for Bromate = 0.0 ug/L. CVA's DBP levels continue to be below current standards.

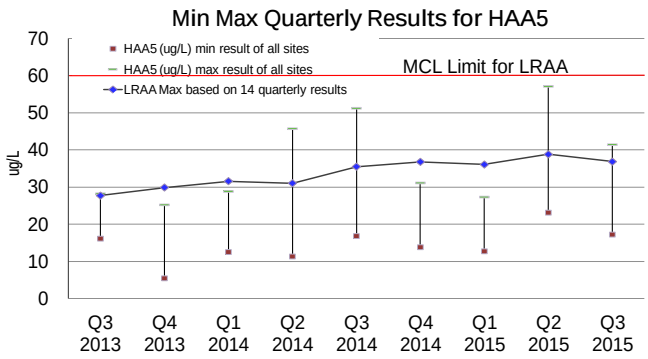
MetroBoston Disinfection By-Products





CVA Disinfection By-Products (Combined Results)





Water Supply and Source Water Management

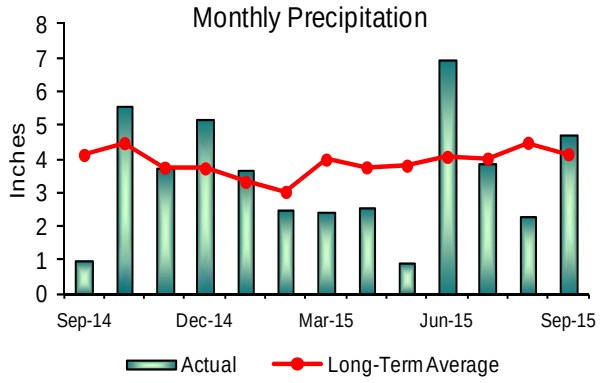
1st Quarter – FY16

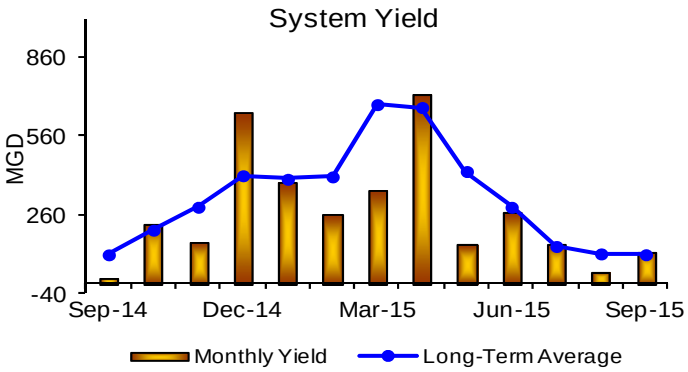
Background

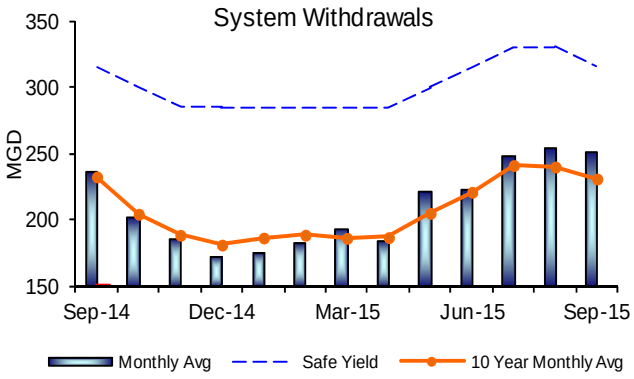
A reliable supply of water in MWRA's reservoirs depends on adequate precipitation during the year and seasonal hydrologic inputs from watersheds that surround the reservoirs. Demand for water typically increases with higher summer temperatures and then decreases as temperatures decline. Quabbin Reservoir 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.

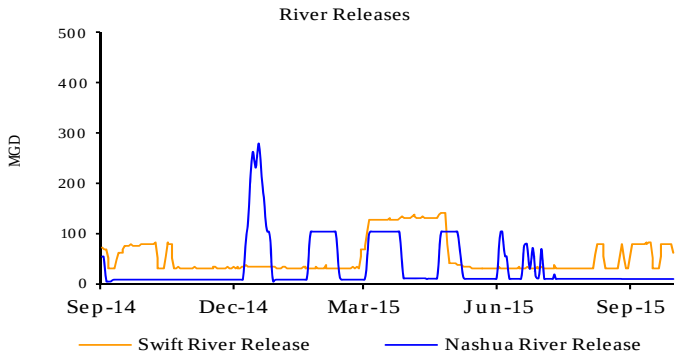
Outcome

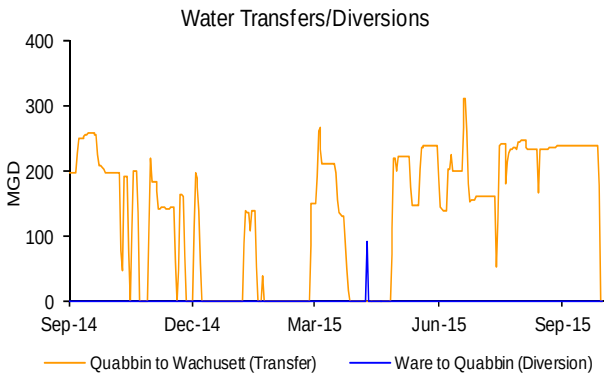
Quabbin Reservoir level remains within the normal operating range for this period of the year. The volume of the Quabbin Reservoir was at 90.8% as of September 30, 2015; a 4.70% decrease for the quarter, which represents a decrease of 19.5 billion gallons of storage. Yield and precipitation for the quarter were below their respective quarterly long term averages. System withdrawal continues to be below its long-term average.

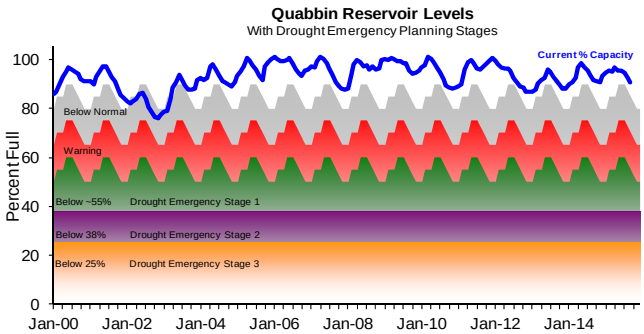












WASTEWATER QUALITY

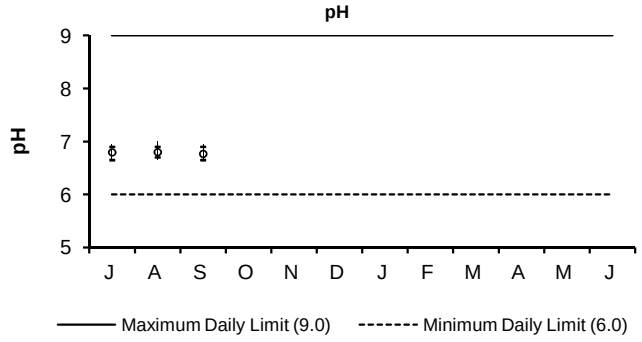
NPDES Permit Compliance: Deer Island Treatment Plant

1st Quarter - FY16

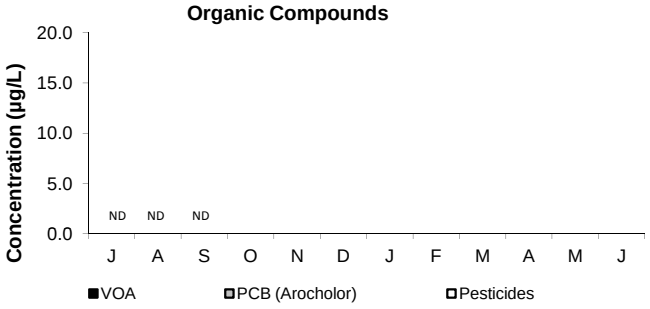
NPDES Permit Limits

Effluent Characteristics		*Units*	*Limits*	*July*	*August*	*September*	*1st Quarter Violations*	*FY16 YTD Violations*
Dry Day Flow:		mgd	436	254.4	272.8	272.4	0	0
cBOD:	Monthly Average	mg/L	25	4.5	4.9	5.6	0	0
	Weekly Average	mg/L	40	6.2	5.9	5.8	0	0
TSS:	Monthly Average	mg/L	30	6.5	7.5	7.1	0	0
	Weekly Average	mg/L	45	9.4	9.0	7.5	0	0
TCR:	Monthly Average	ug/L	456	<40	<40	<40	0	0
	Daily Maximum	ug/L	631	<40	<40	<40	0	0
Fecal Coliform:	Daily Geometric Mean	col/100mL	14000	16	10	106	0	0
	Weekly Geometric Mean	col/100mL	14000	8	6	8	0	0
	% of Samples >14000	%	10	0	0	1	0	0
	Consecutive Samples >14000	#	3	0	0	0	0	0
pH:		SU	6.0-9.0	6.7-7.0	6.7-7.0	6.7-7.0	0	0
PCB, Aroclors:	Monthly Average	ug/L	0.000045	UNDETECTED			0	0
Acute Toxicity:	Mysid Shrimp	%	≥50	>100	>100	>100	0	0
	Inland Silverside	%	≥50	>100	>100	>100	0	0
Chronic Toxicity:	Sea Urchin	%	≥1.5	100	100	100	0	0
	Inland Silverside	%	≥1.5	100	100	100	0	0

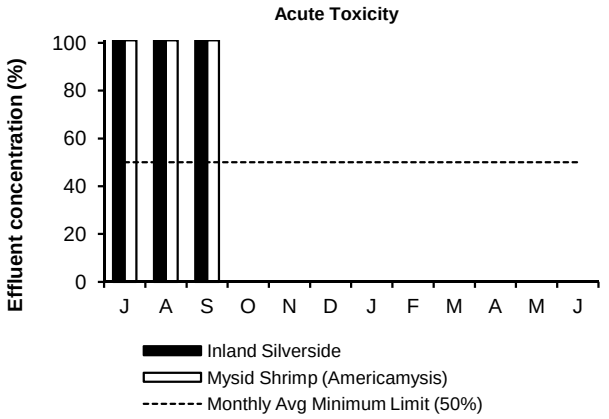
There have been no permit violations in FY16 to date at the Deer Island Treatment Plant.



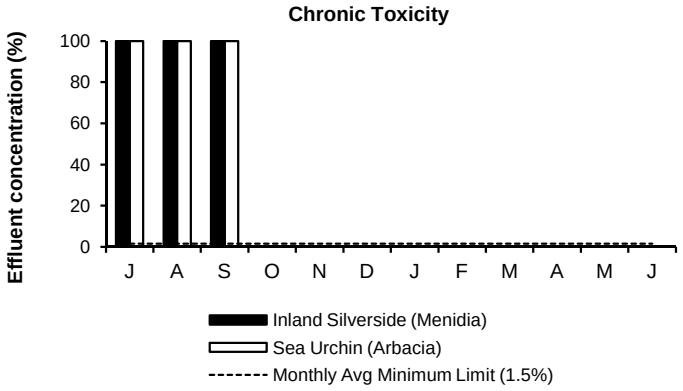
pH is a measure of alkalinity or acidity. Fluctuations in effluent pH are unlikely to impact on marine environments, which have significant buffering capacity. Because of the pure oxygen used in the activated sludge process, effluent pH tends to be at the lower end of the permit-required range. All pH measurements for the 1st Quarter were within the daily permit limits.



An important wastewater component monitored in the effluent is organic compounds, such as volatile organic acids, pesticides, and polychlorinated biphenyls, which are all sampled monthly. The secondary treatment process significantly reduces organic compounds in the effluent stream. In the 1st Quarter, no organic compounds were detected in the effluent .



The acute toxicity test simulates the short-term toxic effects of chemicals in wastewater effluent on marine animals. The test measures the concentration (percent) of effluent that kills half the test organisms within four days. The higher the concentration of effluent required, the less toxic the effluent. For permit compliance, the effluent concentration that causes mortality to mysid shrimp and inland silverside must be at least 50%. Acute toxicity permit limits were met for the 1st Quarter for both the inland silverside and mysid shrimp.



Typically, effects of chronic exposures differ from those of acute exposures. Because of this, chronic toxicity responses are not necessarily related to acute toxicity. The chronic toxicity test simulates the long-term toxic effects of chemicals in wastewater effluent on marine animals. To meet permit limits, a solution of 1.5% effluent and 98.5% dillution water must show no observed effect on the growth and reproduction of the test species. Chronic toxicity permit limits were met for the 1st Quarter for both the inland silverside and sea urchin.

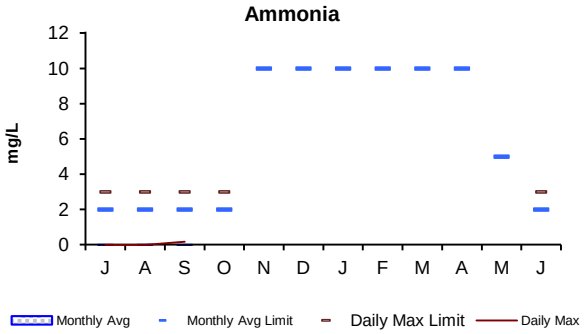
NPDES Permit Compliance: Clinton Wastewater Treatment Plant

1st Quarter - FY16

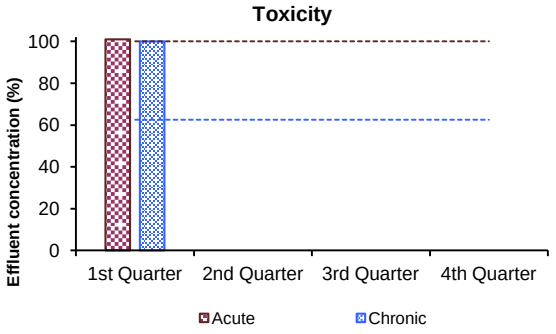
NPDES Permit Limits

Effluent Characteristics		*Units*	*Limits*	*July*	*August*	*September*	*1st Quarter Violations*	*FY16 YTD Violations*
Flow:		mgd	3.01	2.63	2.66	2.70	0	0
BOD:	Monthly Average:	mg/L	20	2.4	2.6	2.2	0	0
	Weekly Average:	mg/L	20	4.5	3.5	2.4	0	0
TSS:	Monthly Average:	mg/L	20	3.5	3.8	3.7	0	0
	Weekly Average:	mg/L	20	3.9	6.1	4.2	0	0
pH:		SU	6.5-8.3	7.3-7.7	7.3-7.6	7.2-7.8	0	0
Dissolved Oxygen:	Daily Minimum:	mg/L	6	6.5	6.7	7.4	0	0
Fecal Coliform:	Daily Geometric Mean:	col/100mL	400	5	156	7	0	0
	Monthly Geometric Mean:	col/100mL	200	3	6	4	0	0
TCR:	Monthly Average:	ug/L	50	0	0.9	0.9	0	0
	Daily Maximum:	ug/L	50	6.7	13.3	6.7	0	0
Total Ammonia Nitrogen:	June 1 - October 31							
	Monthly Average:	mg/L	2.0	0.00	0.00	0.02	0	0
	Daily Maximum:	mg/L	3.0	0.00	0.00	0.18	0	0
Copper:	Monthly Average:	ug/L	20	4.0	4.4	5.5	0	0
Phosphorus:	May 1 - Oct 31							
	Monthly Average:	mg/L	1.0	--	0.00	0.00	0	0
Acute Toxicity:	Daily Minimum:	%	≥100	*N/A	*N/A	> 100	0	0
Chronic Toxicity:	Daily Minimum:	%	≥62.5	*N/A	*N/A	100	0	0

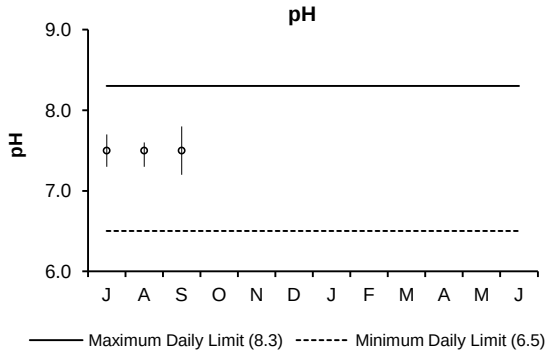
There have been no permit violations in FY16 at the Clinton Treatment Plant.
1st Quarter: There have been no permit violations in the first quarter.
*Toxicity testing at the Clinton Treatment Plant is conducted on a quarterly basis.



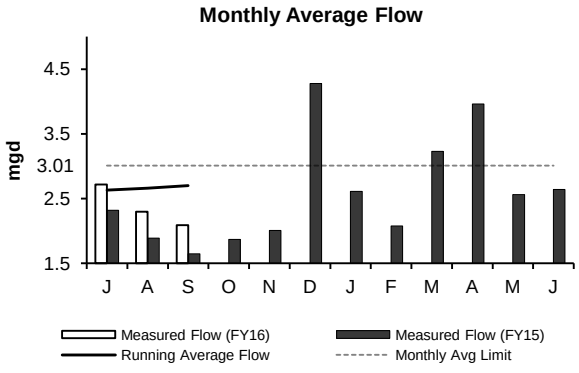
The 1st Quarter's monthly average and daily maximum concentrations were below the permit limits. The monthly average and daily maximum limits for the 1st Quarter are 2 mg/L and 3 mg/L, respectively. The permit limits are most stringent from June to October when warm weather conditions are most conducive to potential eutrophication.



Acute and chronic toxicity testing simulates the short- and long-term toxic effects of chemicals in wastewater effluent on aquatic animals. For permit compliance, the effluent concentration that causes mortality to the daphnid in acute and chronic testing must be at least >100% and 62.5%, respectively. Toxicity limits were met during the 1st Quarter.



pH is a measure of the alkalinity or acidity of the effluent. All daily pH results for the 1st Quarter were within the range set by the permit.



The graph depicts the running annual average monthly flow, measured in million gallons per day, exiting the plant. The average monthly flows during the 1st Quarter were below the NPDES permit limit.

COMMUNITY FLOWS AND PROGRAMS

Total Water Use: MWRA Core Customers
1st Quarter FY16

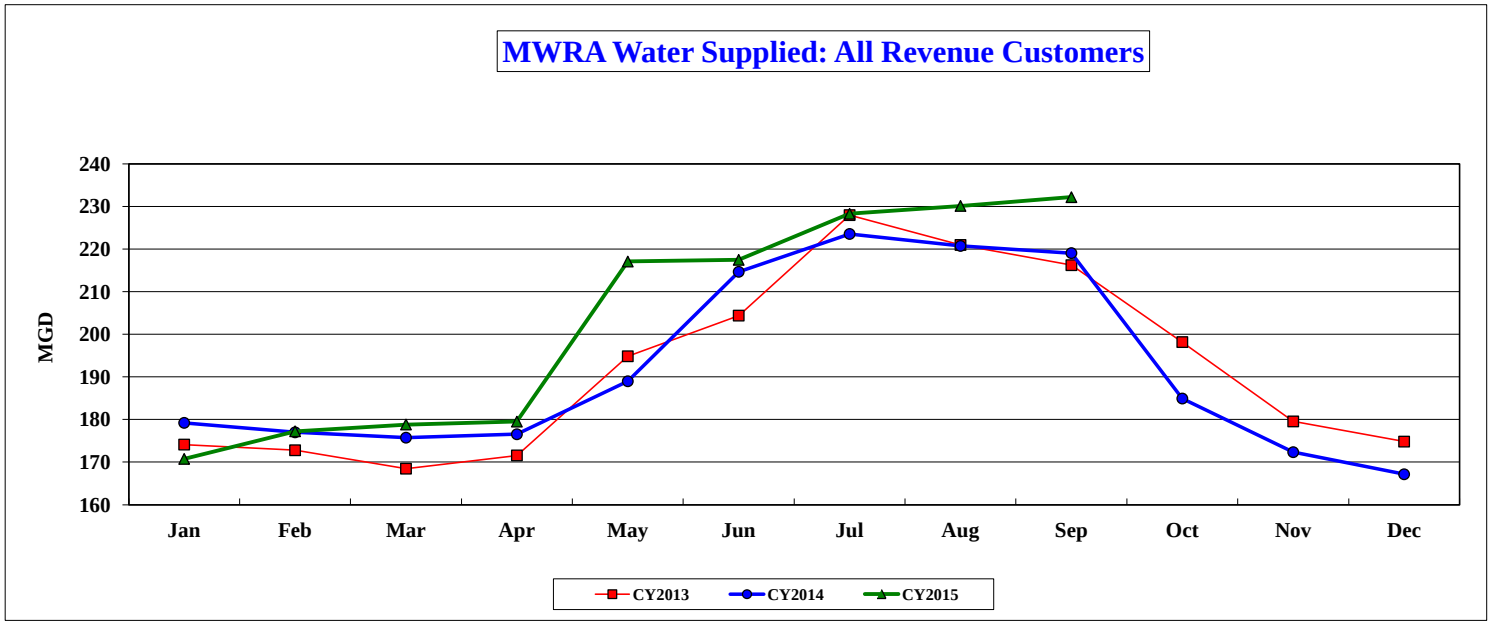
Massachusetts Water Resources Authority

Water Supplied: All Revenue Customers

YTD CHANGES (CY15 vs. CY14)
Water Supplied
3.2%

MGD	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD Average	Annual Average
CY2013	174.117	172.782	168.462	171.569	194.838	204.384	227.963	220.962	216.216	198.168	179.548	174.814	194.797	192.133
CY2014	179.212	176.987	175.736	176.536	188.974	214.660	223.544	220.734	219.049	184.918	172.333	167.145	197.425	191.729
CY2015	170.753	177.236	178.825	179.503	217.071	217.469	228.283	230.121	232.172	0.000	0.000	0.000	203.713	203.713

MG	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD Total	Annual Total
CY2013	5,397.612	4,837.906	5,222.328	5,147.061	6,039.966	6,131.507	7,066.855	6,849.826	6,486.467	6,143.217	5,386.450	5,419.236	53,179.527	70,128.430
CY2014	5,555.575	4,955.629	5,447.807	5,296.068	5,858.182	6,439.790	6,929.849	6,842.752	6,571.479	5,732.472	5,169.979	5,181.506	53,897.131	69,981.088
CY2015	5,293.339	4,962.601	5,543.566	5,385.096	6,729.192	6,524.059	7,076.766	7,133.739	6,965.160	0.000	0.000	0.000	55,613.518	55,613.518



The Community Water Use Report recently distributed to communities served by the MWRA 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 2015 water use will be used to allocate the FY17 water utility rate revenue requirement.

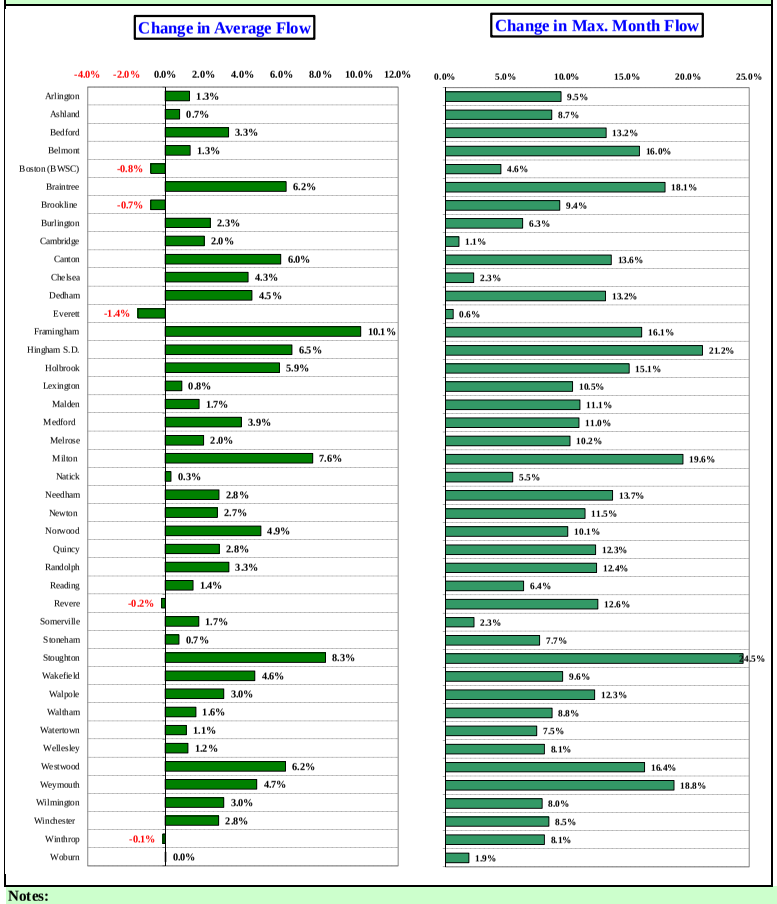
September 2015 water supplied of 232.2 mgd (for revenue generating users) is up 13.1 mgd or 6.0% compared to September 2014. System-wide year to date consumption for CY15 remains higher than CY14 with 203.7 mgd being supplied to MWRA customers **through September**.

This is 6.3 mgd higher than CY14, and is an increase of 3.2%.

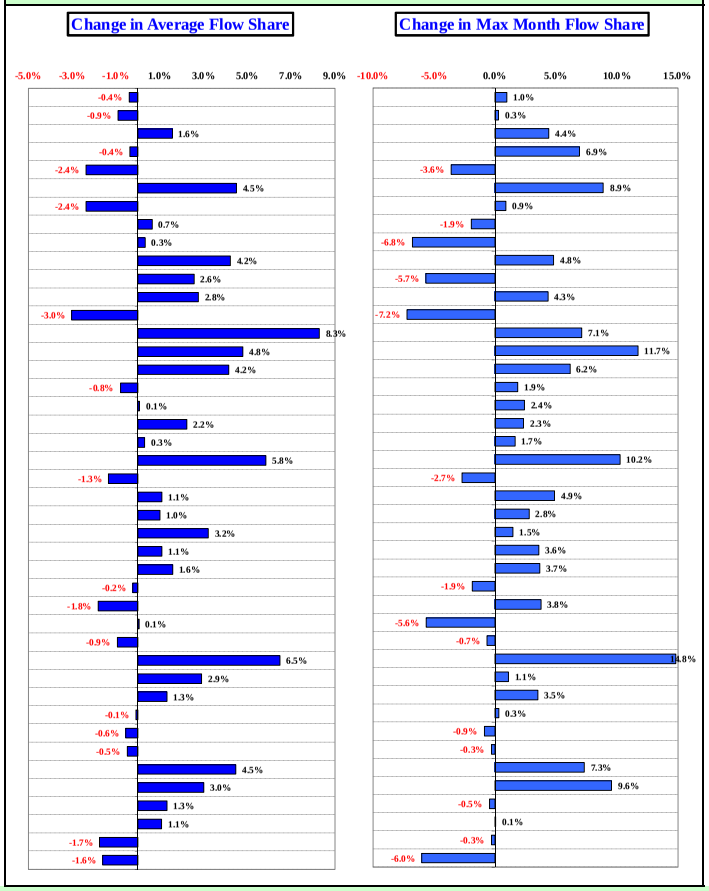
The above figures include water in excess of what is usually supplied to the cities of Lynn and Cambridge.

How Projected CY2015 Community Wastewater Flows Could Effect FY2017 Sewer Assessments [1,2,3]

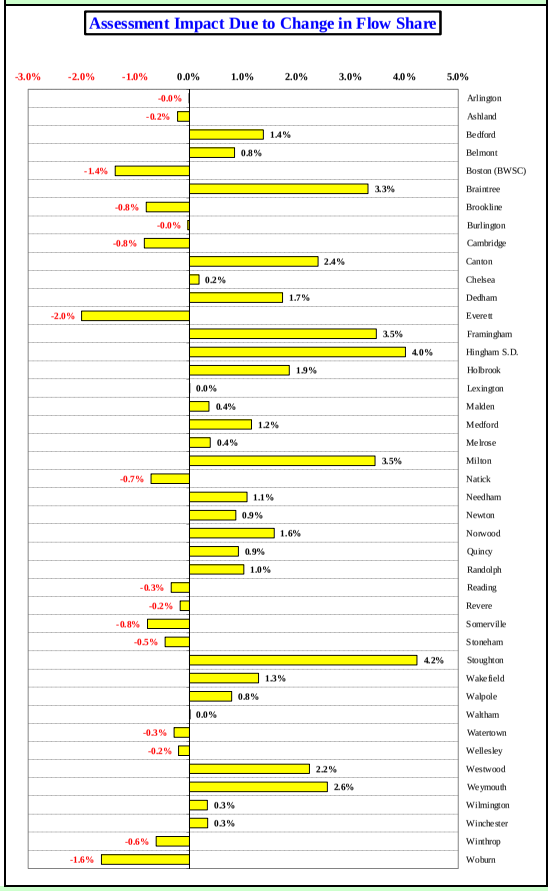
The flow components of FY2017 sewer assessments will be calculated using a 3-year average of CY2013 to CY2015 wastewater flows compared to FY2016 assessments that will use a 3-year average of CY2012 to CY2014 wastewater flows.



But as MWRA's sewer assessments are a ZERO-SUM calculation, a community's assessment is strongly influenced by the RELATIVE change in CY2013 to CY2015 flow share compared to CY2012 to CY2014 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]



Notes:

[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 CY2012 to CY2015 average wastewater flows as of 09/30/15. Flow data is preliminary and subject to change pending additional MWRA and community review.**

[3] **CY2012 to CY2014 wastewater flows based on actual meter data. CY2015 flows based on actual meter data for January to June and projected flows for July to December.**

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

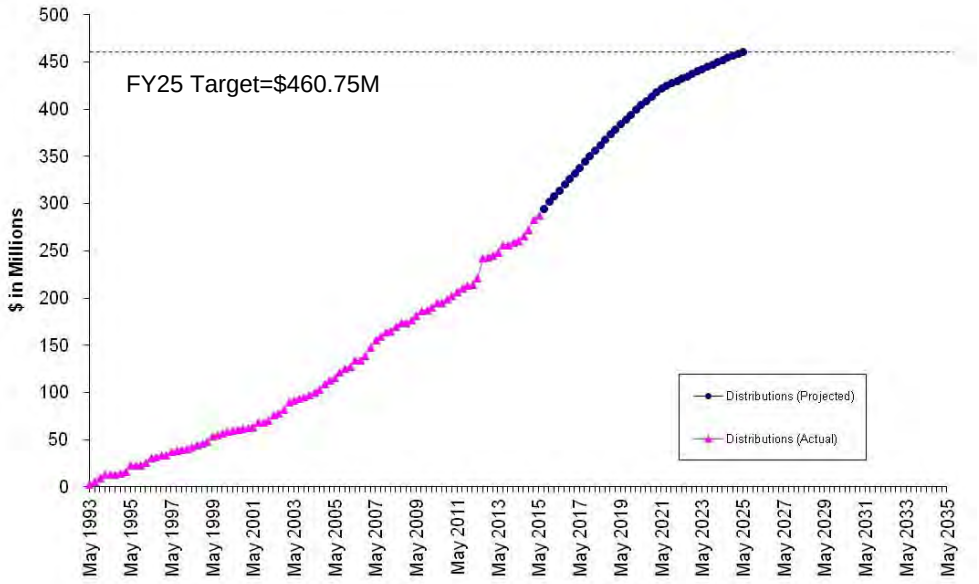
Community Support Programs

1st Quarter – FY16

Infiltration/Inflow Local Financial Assistance Program

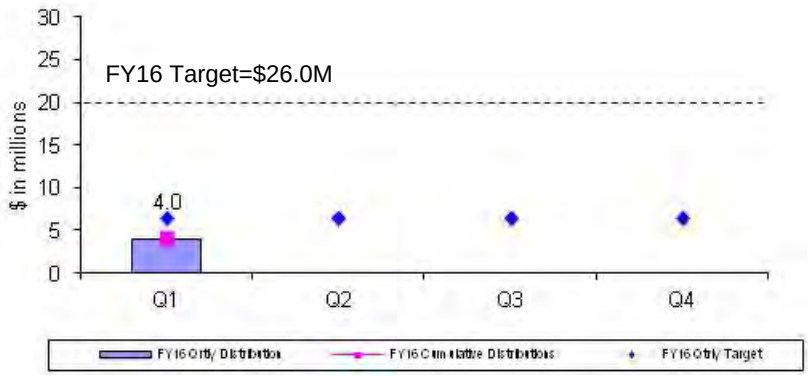
MWRA's Infiltration/Inflow (I/I) Local Financial Assistance Program provides $460.75 million in grants and interest-free loans (average of about $14 million per year from FY93 through FY25) to member sewer communities to perform I/I reduction and sewer system rehabilitation projects within their locally-owned 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/55% loans with interest-free loans repaid to MWRA over a five-year period. Phase 9 and 10 funds (total $160 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-FY25



During the 1st Quarter of FY16, $4.0 million in financial assistance (grants and interest-free loans) was distributed to fund local sewer rehabilitation projects in Bedford, Lexington, Medford, Wakefield, and Winthrop. Total grant/loan distribution for FY16 is $4.0 million. From FY93 through the 1st Quarter of FY16, all 43 member sewer communities have participated in the program and more than $292 million has been distributed to fund 486 local I/I reduction and sewer system rehabilitation projects. Distribution of the remaining funds has been approved through FY25 and community loan repayments will be made through FY36. All scheduled community loan repayments have been made.

FY16 Quarterly Distributions of Sewer Grant/Loans



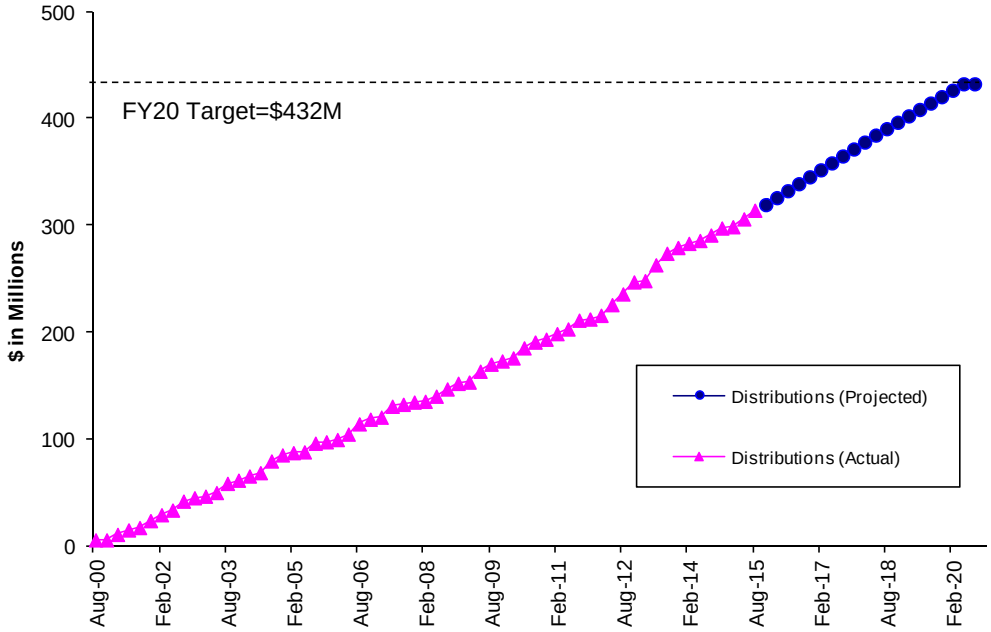
Community Support Programs

1st Quarter – FY16

Water Local Pipeline and Water System Assistance Programs

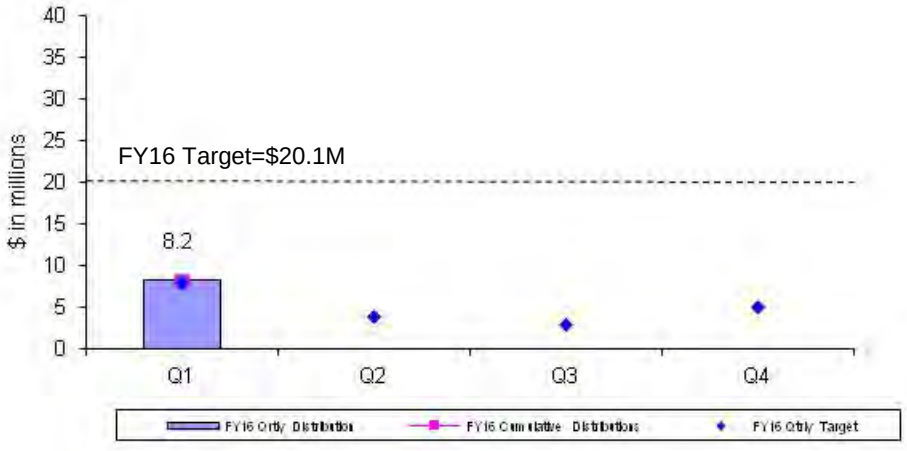
MWRA's Local Pipeline and Water System Assistance Programs (LPAP and LWSAP) provide $432 million in interest-free loans (an average of about $22 million per year from FY01 through FY20) to member water communities to perform water main rehabilitation projects within their locally-owned water distribution systems. 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 - LPAP concluded in FY13 with $222 million in loan distributions. The Phase 2 - LWSAP continues through FY20.

Local Pipeline and Water System Assistance Programs Distribution FY01-FY20



During the 1st Quarter of FY16, $8.2 million in interest-free loans was distributed to fund local water projects in Boston, Melrose, Norwood, Saugus, Stoughton, Watertown and Weston. Total loan distribution for FY16 is $8.2 million. From FY01 through the 1st Quarter of FY16, more than $314 million has been distributed to fund 356 local water system rehabilitation projects in 38 MWRA member water communities. Distribution of the remaining funds has been approved through FY20 and community loan repayments will be made through FY30. All scheduled community loan repayments have been made.

FY16 Quarterly Distributions of Water Loans

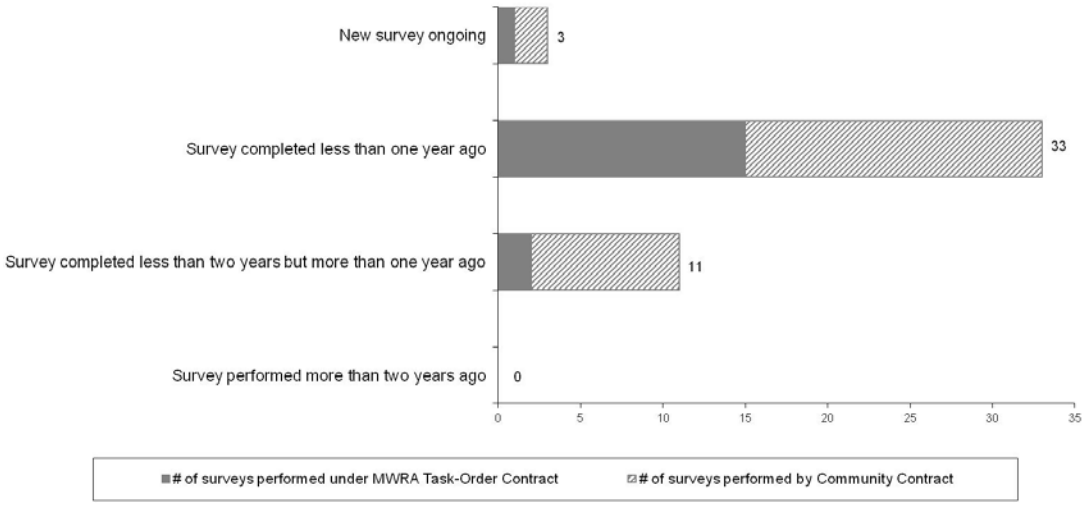


Community Support Programs

1st Quarter – FY16

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 FY16, 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 210 mgd. The local Water Conservation Program includes distribution of water conservation education brochures (indoor and outdoor bill-stuffers) and low-flow water fixtures and related materials (shower heads, faucet aerators, toilet leak detection dye tabs, and instructions), 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	1,066				1,066
Low-Flow Fixtures (showerheads and faucet aerators)	10,000	2,924				2,924
Toilet Leak Detection Dye Tablets	------	1,688				1,688

BUSINESS SERVICES

Procurement: Purchasing and Contracts

1st Quarter, FY16

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

Outcome: Processed 83% of purchase orders within target; Average Processing Time was 5.92 days vs. 6.71 days in Qtr 1 of FY15. Processed 92% (23 of 25) of contracts within target timeframes; Average Processing Time was 100 days vs. 118 days in Qtr 1 of FY15.

Purchasing

	No.	TARGET	PERCENT IN TARGET
$0 - $500	302	3 DAYS	72.5%
$500 - $2K	280	7 DAYS	92.5%
$2K - $5K	101	10 DAYS	91.0%
$5K - $10K	24	25 DAYS	75.0%
$10K - $25K	16	30 DAYS	68.7%
$25K - $50K	7	60 DAYS	42.8%
Over $50K	10	90 DAYS	100.0%

The Purchasing Unit processed 2225 purchase orders, 146 less than the 2371 processed in Qtr 1 of FY15 for a total value of $9,316,838 versus a dollar value of $8,165,078 in Qtr 1 of FY15.

The purchase order processing target was not met for the $0 - $500 due to vendor sourcing; the $5k - $10k due to vendor sourcing and insurance approval requirements; the $10k - $25k due to end user evaluations and staff summary requirements; and the $25k - $50k due to end user evaluations and sole source confirmations.

Contracts, Change Orders and Amendments

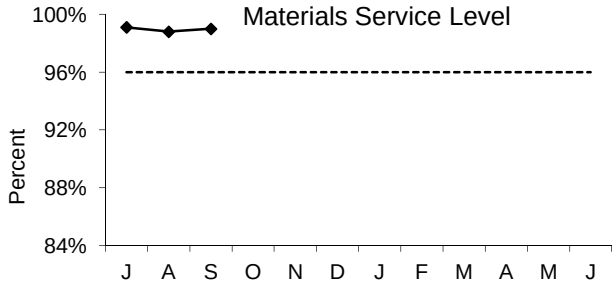
Two contracts were not processed within the target timeframes. One due to delays in receipt of required documents from the consultant. Another, under the 30 day Professional Services target, was revenue generating and required a selection committee process.

Procurement processed twenty five contracts with a value of $28,033,744 and eight amendments with a value of $2,237,944.

Fifteen change orders were executed during the period. The dollar value of all non-credit change orders during Q1 FY15 was $63,264,583 and the value of credit change orders was ($45,913).

Staff reviewed 25 proposed change orders and 18 draft change orders.

Materials Management
1st Quarter, FY16



The service level is the percentage of stock requests filled. The goal is to maintain a service level of 96%. Staff issued 7,696 (99.0%) of the 7,777 items requested in Q1 from the inventory locations for a total dollar value of $1,137,350.

Inventory goals focus on:

- Maintaining optimum levels of consumables and spare parts inventory
- 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 FY16 goal is to reduce consumable inventory from the July '15 base level ($7.6 million) by 2.0% (approximately $154,371), to $7.5 million by June 30, 2016 (see chart below).

Items added to inventory this quarter include:

- Deer Island – wear rings, gaskets, deflectors, seals and isolator modules for Core; converters, LCD panel for soda control and assembly switch for I&C; heater coil units for HVAC; pinch valve sleeves and elbows for Residuals.
- Chelsea – fuel pump, wheel bearings, plow pivot pin, plow shoe kit, mini jump starter, fuel filter, transmission cooler, brake pad kit, brake rotors, toggle switch, tire gauges, power steering hoses, air filter and air flow sensor for Fleet Services; wire guard, LED fixture, motor, motor fan blade, cooling fan and switches for Work Order Coordination Group.
- Southboro – sanding belts, anti spatter spray, aerosol paint, saw blades, valve key and couplers for Maintenance; dehumidifier, flow cell, ribbon cable and transmitter for Carroll Water Treatment Plant; toners and badge holders for Administration.

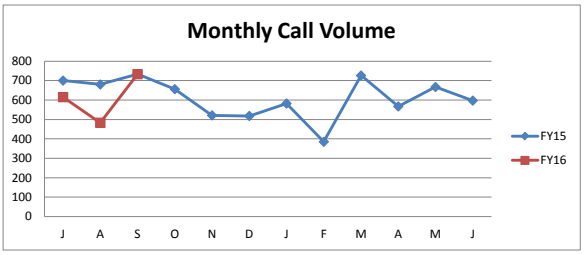
Property Pass Program:

- No audits were conducted during Q1.
- Numerous obsolete battery jumpers, monitors, computers, printers, power supplies, fax machines, air cards and tape drives have been received into Property Pass as surplus. Disposition is being handled as part of our ongoing recycling efforts.
- Scrap revenue received for Q1 amounted to $9,433. Year to date revenue received amounted to $9,433.
- Revenue received from online auctions held during Q1 amounted to $112,139. Year to date revenue received amounted to $112,139.

Items	Base Value July-15	Current Value w/o Cumulative New Adds	Reduction / Increase To Base
Consumable Inventory Value	7,663,973	7,697,859	-20,693
Spare Parts Inventory Value	8,263,059	8,304,317	-61,229
Total Inventory Value	15,927,032	16,002,176	-81,922

Note:
New adds are items added at an inventory location for the first time for the purpose of servicing a group/department to meet their business needs/objectives.

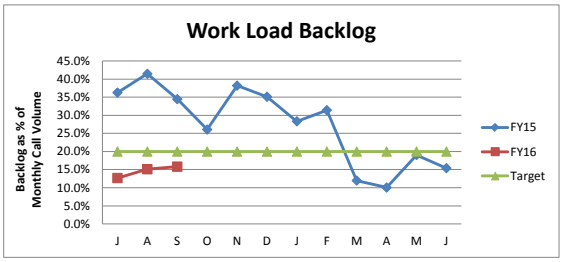
MIS Program
1st Quarter FY16

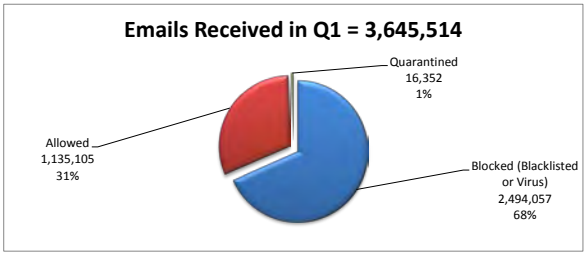


Performance and Backlog

Call Volume: Peaked in September. FY16-Q1 call volume decreased by 13% from FY15-Q1 last year.

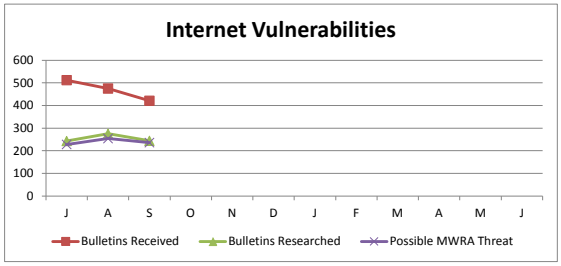
Call Backlog: Peaked in September. FY16-Q1 backlog average is 5.4% below the targeted benchmark of 20%.





Information Security

During Q1, pushed security fixes/updates to desktops/ servers to protect against 234 vulnerabilities. LANDesk Antivirus quarantined 21 distinct viruses from 22 PCs. PCs are current with anti-virus providers' signatures for all known malware.



Infrastructure:

Citrix Mobile Application Design and Development: SDX units were installed and configured. All of the Citrix environments were migrated to new hardware. XenMobile 10 and Sharefile 3.2 are being tested. Sharefile provides secure file sharing and collaboration needs from mobile devices and PCs. Citrix databases moved to production server providing High Availability. 14 business applications configured for mobile remote access.

Southborough Laboratory: Moved the Laboratory into the ICCF building/trailers located in Marlborough. This move required extending MIS voice and data network services for continued Laboratory operations.

Applications/Training/Records Center:

Strategic Sourcing and Contract Management: Conducted training for: a) contract invoice entry (non-retainage) for AP staff in anticipation of first live NPS invoice; b) subcontractor payments, supplier diversity, and view-only access to sourcing events for AACU staff. Coordinated the transition of bid bond functionality to Live status with Surety2000 to prepare for the first Chapter 30 (C30) and Chapter 149 (C149) Construction Contract Events. Procurement emailed UCANE members informing them of upcoming bid events and encouraged them to register for notifications and with Surety2000 bonding service. The first C30 and C149 (no sub-bidders) events were posted during the quarter and staff were trained on how to put the events online.

Miscellaneous Lawson Support: Changed the PCR report to reflect division changes. Loaded Unit 9 vacation forfeiture files and vacation milestone adjustment files for Units 2, 3, and 9. Uploaded files for all non-union employees who are due retroactive pay adjustments; five annual union mutual aid donation files; and the first sick buy back cycle file. Monitored/oversaw first succesful payroll of FY16 due to the benefit and organizational changes including pay raises and new sick time plan for temporary employees. Began designing a solution for new Federal Affordable Care Act (ACA), requiring IRS 1095c forms for all employees. Worked with the AACU vendor to produce a newly required Veterans' report and updated Lawson to produce the report. Performed a 'live' run of the AP checks/remittances to test our Disaster Recovery (DR) system. Installed two new scanners at the Chelsea warehouse for Lawson Mobile Supply Chain Management and implemented Window issuing at Chelsea and DI Warehouses. Began designing a new Purchase Card (P-Card) program to support the MWRA switch to Bank of America (BoA) and allow delivery of credit card invoices to the MWRA electronically.

Talent Acquisition Application: After reviewing Talent Acquisition products offered by 3rd party vendors, selected ApplicantPro for the vendor-hosted job applicant tracking application. Expect to go live in FY16 Q2.

Library Upgrade Project: The Inmagic Presto replaces several legacy MWRA Library applications with one commercial-off-the-shelf (COTS) application. Inmagic will support searching across internal and 3rd party information assets for managing, finding and sharing library resources. Began process of data migration and mapping of information from multiple databases into the new schema is required. Implementation starting in Q2.

Electronic Laboratory Notebook (ELN): Pilot logbook design utilizing Standards and Reagents Module accepted by DLS. Pending DLS SRM Requirements: 6. One log that was eliminated is now being developed.

Maximo Upgrade Project: Maximo is used to manage maintenance activities for Water and Wastewater assets. All quarter goals of the Maximo Upgrade have been met and the project is on schedule. Received several deliverables including project management documents and interface plans. Conducted 2 weekly workshops. Delivered initial draft of the Maximo/Lawson interface design document to MWRA. Conducted Maximo 7.6 Differences Training. Conducted a one week workshop between MWRA and project consultant, Total Resource Management (TRM), to gather core requirements for the Maximo upgrade. Finalized Maximo Best Practices document and released to upgrade team.

Telog Upgrade Project: Telog collects flows and pressures used for calculating MWRA community water and sewer flows. The project is in Phase 2 where water meters are being converted to wireless. PI system was updated to allow for data continuity of flow, gradient, and pressure from wireless meters. MIS and SCADA group added new PI interface node and tags to monitor the new Spot Pond Storage Tank.

Library & Records Center: The Library fulfilled 43 research requests, cataloged 112 books and reports, provided 242 periodicals, standards, books and reports, supported 212 staff online searches. Oversaw the scanning of City Tunnel and Extension and Dorchester Tunnel images from State Archives for shaft assessment redundancy project and eventually Digital Commonwealth (DigiComm). The Records Center added 101 boxes, conducted 3 training sessions, and attended 2 Records Conservation Board Meetings. Seven departments (Law, HR, TRAC, RP&EM, Enqual, Lab, Proc) were sent lists of their boxes eligible for disposal to review totaling 634 boxes.

IT Training: For the quarter, 241 staff attended 25 classes. 18% of the workforce has attended at least one class year-to-date. MAXIMO 7.6 Differences training was offered to the Maximo upgrade project team. Lawson Requisitioning and Lawson Receiving job-aids were developed for new hire and succession training purposes.

Legal Matters
1st Quarter - FY16

PROJECT ASSISTANCE

COURT AND ADMINISTRATIVE ORDER

- **NPDES:** Worked with group to complete National Association of Clean Water Agencies blending survey. Drafted memorandum relative to the new MA Department of Agriculture regulations at 330 CMR 31.00: "Plant Nutrient Application Requirements for Agricultural Land and Land Not Used for Agricultural" relative to the application of MWRA's Biosolids.

- **Boston Harbor Litigation and CSO:** Filed quarterly compliance and progress report with the Court on September 15, 2015.

REAL ESTATE, CONTRACT AND OTHER SUPPORT

- **Licenses:** Drafted a License with Volpe National Transportation Systems Center to site equipment at DITP in support of the FAA's Weather Observation Improvements Program; drafted a license for March Fourth relative to access of Building 11 in Fore River Shipyard; drafted licenses for use of Deer Island pier by Sea and Shore Contracting; drafted license for entry at Deer Island for 5th Annual Neil Shapiro memorial 5K Run/Walk; drafted a license for access to and the use of Leach Park in Reading for MWRA Contract 747; drafted a License for the use of Echo Bridge in Needham and Newton..

- **Watershed Acquisition:** Reviewed and approved the acquisition of the property of Dourdeville, Watershed W-001103, 001104.

- **Public Access:** Drafted public access 8(m) permits for Southborough, Wayland and Needham.

- **Order of Conditions:** Recorded extension permit for order of conditions DEP file 297-0353 related to Spot Pond water storage facility (MWRA contract 6457). Recorded certificate of compliance for order of conditions DEP file 212-1089 for Carroll Water Treatment Plant (MWRA contract 7085C).

- **Easements:** Recorded grant of permanent easements from the City of Marlborough to MWRA relative to the construction of a new entrance to the John J. Carroll Water Treatment Plant as part of MWRA Contract 7157 – Wachusett Aqueduct Pumping Station; Sent offer to purchase a temporary easement to owner of St. Martin Drive property in Marlborough needed for the construction of Contract 7157; Recorded grant of temporary easement from owner of St. Martin Drive property in Marlborough to MWRA relative to MWRA Contract 7157,Wachusett Aqueduct Pumping Station.

- **Contractor Claims:** Reviewed and made recommendations on two (2) construction contract claims.

- **MWRA Contract No. OP-158 - DPS fine:** Reached agreement with the contractor whereby the contractor will pay the fine levied by Department of Public Safety in the amount of $20,000 for failure to apply for a safety inspection of the elevator at MWRA's Ward Street facility in a timely manner.

- **Alewife Brook Pump Station Rehabilitation:** Responded to the bid protest of Fall River Electrical Associates Co., Inc. regarding the filed sub-bids and general bid of Waterline Industries Corporation for the Alewife Brook Pump Station Rehabilitation, Contract No. 6797. Response included drafting of opposition briefs and attendance at a hearing at the offices of the Attorney General; the Protester also filed suit in Superior Court for injunctive relief and expedited discovery; response and opposition briefs had to be prepared and argued before the court.

MISCELLANEOUS

- Reviewed and approved fifty-seven (57) Section 8(m) Permits.

LABOR, EMPLOYMENT AND ADMINISTRATIVE

New Matters

Three demands for arbitration were filed.

A Charge was filed at the Massachusetts Commission Against Discrimination alleging that the MWRA retaliated against an employee.

A Charge was filed at the Massachusetts Commission Against Discrimination alleging that the MWRA discriminated against an employee on the basis of disability.

Matters Concluded

Received a Department of Unemployment Assistance decision in favor of a claimant granting unemployment benefits.

LITIGATION/TRAC

New Matters

Fall River Electrical Associates Co., Inc., J.F. White Contracting Company, Barletta Engineering Corporation, Utility Contractors' Association of New England, Inc., Associated Subcontractors of Massachusetts, Inc. and Associated Builders & Contractors, Inc. v. Waterline Industries Corporation and Massachusetts Water Resources Authority: This action arises out of a bid protest filed with the Bid Protest Unit of the Attorney General's Office by Plaintiffs on July 14, 2015, in connection with Waterline Industries' low general bid ($11,947,677) for MWRA's rehabilitation of the Alewife Brook Pump Station, MWRA Contract No. 6797. Plaintiffs allege that Waterline violated the statutory bid laws, G.L. c. 149 §§ 44A-44F, by submitting sub bid prices which were neither bona fide nor for the complete work enabling Waterline to gain an unfair advantage over other filed sub bidders

Bay State Regional Specialties, Inc. v. MWRA: This action arises out of MWRA Contract No. 7260, Gillis Pump Station Short Term Improvements. Plaintiff alleges that deficiencies in the plans and specifications, and MWRA-issued proposal and construction change requests for the project substantially increased the scope of the work, the cost of the work and the necessary time to perform the work under the contract, resulting in a substantial deviation from the project plans and specifications, which changed the scope of the project. Plaintiff alleges that it sustained additional losses, costs and expenses in processing and administering the changes and modifications embodied in the change proposals and change orders.

Western Surety Company, as Assignee and Subrogee of Interstate Engineering Corp. v. MWRA; Western Surety v. MWRA: This action arises out of MWRA Contract No. 6966, Gravity Thickener improvements – Phase I Deer Island Treatment Plant. Plaintiff, as surety, executed and delivered payment bonds to MWRA in the sum of $538,940.00. Pursuant to the indemnity agreement and rights of equitable subrogation, Western alleges that it is entitled to pursue and collect any sums due to Interstate from MWRA under the Contract. Plaintiff further alleges that MWRA paid Interstate $82,555.00 and the remaining balance due on the Contract is $456,385.00. The contract contained a forum selection clause which required that Western file suit in a Massachusetts state court. MWRA was prepared to enforce the clause by way of a motion to dismiss but Western voluntarily dismissed the suit without prejudice and re-filed the suit in state court.

Significant Claim Not in Court

There are no New Significant Claims Not in Suit to report.

Significant Developments

Oscar Melara v. MWRA and Black & Veatch: The Court heard argument on Defendants' Motion for Summary Judgment on August 25, 2015. The Court granted defendants leave to file a supplemental memorandum to respond to questions raised by the Court, and has taken the motion under advisement.

Matters Concluded

Portfolio Recovery Associates, LLC v. (**Former Employee)**: On August 7, MWRA was served with a trustee summons in the above matter. The employee no longer works for MWRA. An Answer was filed providing that information, and requested that the action as to MWRA be withdrawn. On August 25, 2015, the creditor's attorney filed a Discharge of Trustee with the Court. The matter is now closed.

Agostinho Braiani claim: This claim is a former Risk Management matter. The claim arises out of a motor vehicle accident which occurred on May 19, 2013 in the Deer Island parking lot, where a current MWRA employee, driving an MWRA vehicle, struck a parked vehicle while backing up. Claimant Agostinho Braiani, an employee of SJ Services, cleaning contractor for DI, was standing beside the SJ Services vehicle when it was hit and he sustained injuries. MWRA settled this claim for $80,000 and the settlement was approved by the Massachusetts Division of Industrial Accidents.

(**Current Employee**): This is a wage garnishment matter involving a Chapter 13 Proceeding that was in the US Bankruptcy Court for the District of Rhode Island that is now concluded.

Subpoenas

During the First Quarter of FY 2016, one new subpoena was received and no subpoenas were pending at the end of the First Quarter FY 2016.

Public Records

During the First Quarter of FY 2016 three public records requests were received and two public records request were closed.

SUMMARY OF PENDING LITIGATION MATTERS

TYPE OF CASE/MATTER	As of Sept 2015	As of June 2015	As of Mar 2014
Construction/Contract/Bid Protest (other than BHP)	5	3	4
Tort/Labor/Employment	3	3	3
Environmental/Regulatory/Other	1	1	1
Eminent Domain/Real Estate	0	0	0
total – all defensive cases	**9**	**7**	**8**
Affirmative cases not in suit:	0	0	0
Other Litigation matters (restraining orders, etc.) MWRA v. Thomas Mercer	1	1	1
total – all pending lawsuits	**10**	**8**	**9**
Significant claims not in suit: Deer Island Submarine Power Cable Rosa, Antonio Gonzalez, Dora Poli, Mark	4	6	4
Bankruptcy	1	1	1
Wage Garnishment	13	15	15
TRAC/Adjudicatory Appeals	2	1	1
Subpoenas	0	0	0
TOTAL – ALL LITIGATION MATTERS	**30**	**31**	**30**

TRAC/MISC.

New Appeals There was one new TRAC appeal received in the 1st Quarter FY 2016.

School of the Museum of Fine Arts; MWRA Docket No. 15-01

Settlement by Agreement of Parties No cases were **s**ettled by Agreement of Parties in the 1st Quarter FY 2016.

Stipulation of Dismissal No cases were dismissed by Stipulation of Dismissal, fine waived.

Notice of Dismissal Fine paid in full No cases were dismissed by Joint Stipulation of Dismissal with Prejudice, fine paid in full.

Tentative Decisions No Tentative Decisions were issued in the 1st Quarter FY 2016.

Final Decisions No Final Decisions were issued during the 1st Quarter FY 2016.

INTERNAL AUDIT AND CONTRACT AUDIT PROGRAM
1st Quarter FY16

Highlights
Staff issued three labor burden reviews for new construction contracts and two consultant preliminary reviews on new professional services contracts. In progress are incurred cost audits of the three engineering firms with the largest billings to MWRA. Staff also commenced a new program of unannounced compliance reviews, with Halon fire suppression system Inspections at DITP being the first to be completed. Management advisory services performed this quarter included:

- Change order/amendment analysis
- Computation of overhead rates for MWRA and the Fore River Railroad Corporation
- Participated in meetings on solar power for various facilities
- Review of a proposed amendment for a professional services contract.

Status of Open Audit Recommendations (11 recommendations closed in the 1st quarter)
The Internal Audit Department follows up on open recommendations on a continuous basis. All pending recommendations have target implementation dates. When a recommendation has not been acted on in 48 months, the appropriateness of the recommendation is re-evaluated during a subsequent audit. On closed assignments, 98% of recommendations have been implemented.

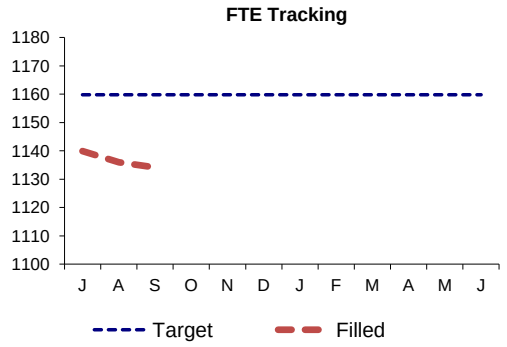
Report Title (date)	Recommendations Pending Implementation	Closed Recommendations
Physical Security at the Chelsea Facility (12/31/12)	2	30
Hardware Equipment Management (5/22/13)	9	27
Follow-Up Report on Fleet Services Activities (12/31/13)	4	13
MBE/WBE Program Contracting Goals (3/14/14)	2	8
Expanded Affirmative Action Requirements (9/30/14)	1	15
8(m) Permit Fee (11/17/14)	2	4
Records Management (12/5/14)	7	1
AVL Tracking System, Contract A586 (4/22/15)	4	1
Unmatched Receipts and Accruals (6/30/15)	5	5
Halon Inspections at DITP – Contract WRA3845Q (9/30/15)	1	8
Total Recommendations	**37**	**112**

Audit Savings
The Internal Audit Department's target is to achieve at least $1 million in cost savings each year. Cost savings vary each year based upon many factors. In some cases, cost savings for one year may be the result of work in prior years.

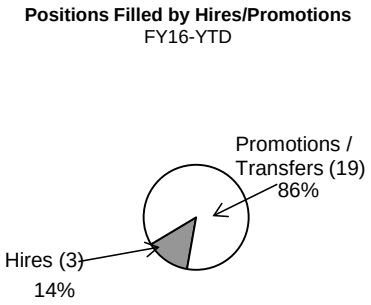
Savings	FY12	FY13	FY14	FY15	FY16 (1st Q)	TOTAL
Consultants	$259,245	$587,314	$294,225	$87,605	$21,330	$1,249,719
Contractors & Vendors	$435,760	$2,153,688	$415,931	$1,146,742	$162,957	$4,315,078
Internal Audits	$407,350	$391,083	$923,370	$543,471	$12,500	$2,277,774
Total	**$1,102,355**	**$3,132,085**	**$1,633,526**	**$1,777,818**	**$196,787**	**$7,842,571**

OTHER MANAGEMENT

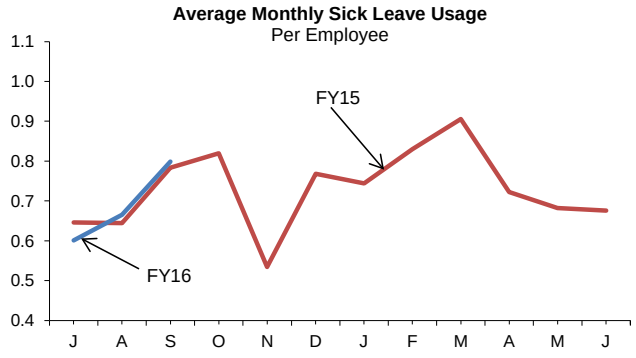
Workforce Management
1st Quarter FY16



FY16 Target for FTE's = 1159.8
FTE's as of Sept 2015 = 1134.2



		Pr/Trns	Hires	Total
	FY13	82 (64%)	47 (36%)	129
	FY14	111 (69%)	51 (31%)	162
	FY15	133 (67%)	65 (33%)	198
YTD	FY16	19 (86%)	3 (14%)	22

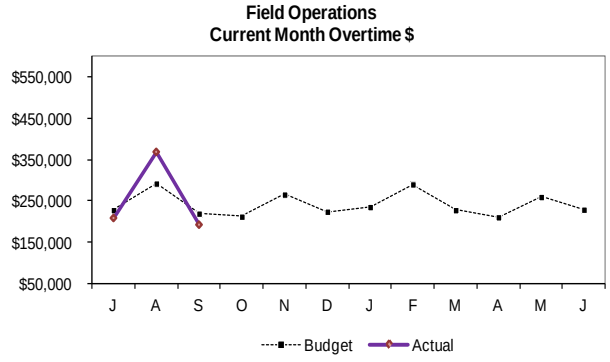


Average monthly sick leave for the 1st Quarter of FY16 decreased as compared to the 1st Quarter of FY15 (8.30 to 8.26 days)

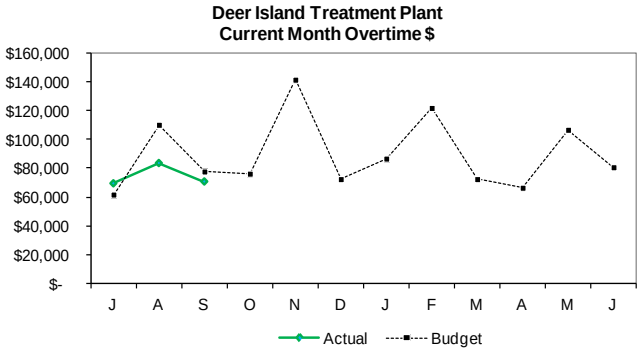
In Q1 of FY16, the average quarterly sick leave usage has decreased 0.5% from the same time last year.

	Number of Employees	YTD	Annualized Total	Annual FMLA %	FY15
Admin	139	2.03	8.10	20.6%	9.61
Aff. Action	5	1.09	4.35	0.0%	16.89
Executive	5	9.02	36.06	96.1%	7.20
Finance	36	2.64	5.47	38.3%	5.56
Int. Audit	7	1.37	5.47	38.3%	5.56
Law	16	2.27	9.09	34.7%	11.30
OEP	5	1.12	4.48	0.0%	13.28
Operations	929	2.03	8.12	14.2%	8.53
Pub. Affs.	14	1.35	5.40	0.0%	7.26
MWRA Avg	**1156**	**2.07**	**8.26**	**17.5%**	**8.75**

Percent of sick leave usage for FY16, attributable to Family and Medical Leave Act (FMLA) is 17.5% .



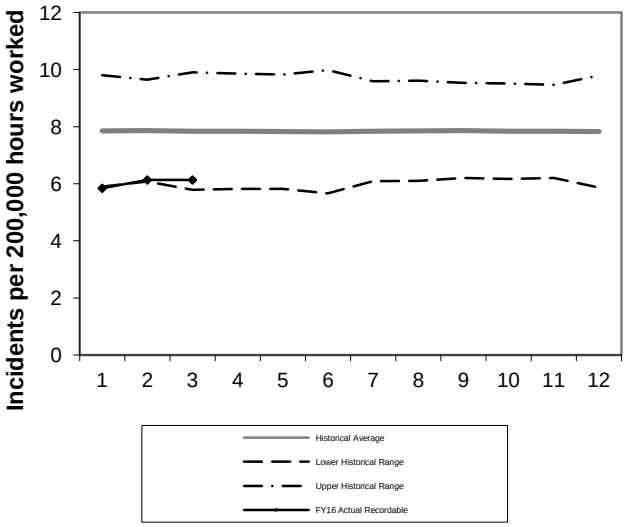
Total Overtime for Field Operations for for the first Quarter of FY16 was $770,282 which is $30k over budget. Emergency overtime was $302k, which was $11k over budget, mainly due to wet weather response, which totaled $199k for the quarter. Coverage overtime was $182k, which was less than $1k over budget, reflecting the month's shift coverage requirements. Planned overtime was $286k or $18k over budget, mainly for maintenance off-hours work at $80K, Planned operations at $77k, $47k of which was for the North Main Pump Station project, and maintenance work completion at $46k. YTD, Field Operations has spent $770,282 on overtime which is $30k over budget.



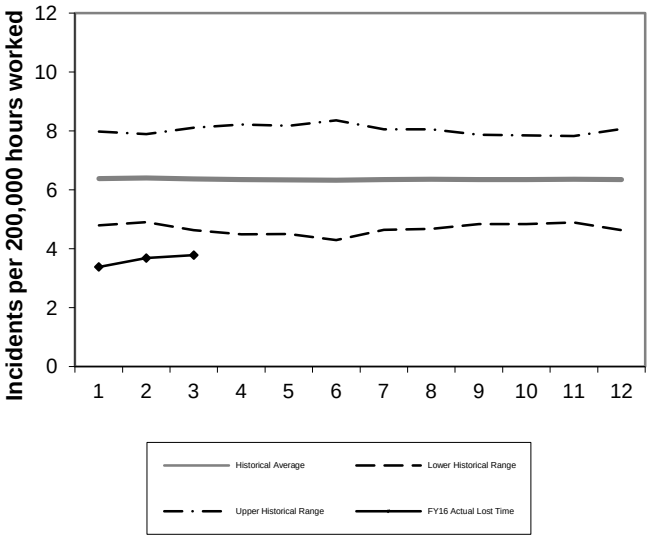
Total Overtime for Deer Island for the first Quarter of FY16 was $223,890, which is ($26k) under budget. Storm coverage overtime is ($39k) under budget due to less than anticipated wet weather/high flow events. Shift coverage overtime is $26k over budget mainly due to three vacant Operator positions. Planned and unplanned overtime is a combined $7k over budget mainly due to the valve replacement project.

Workplace Safety
1st Quarter FY16

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.

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.

3 The "Historical Average" is computed using the actual MWRA monthly incident rates for FY99 through FY14. The "Upper" and "Lower Historical Ranges" are computed using these same data – adding and subtracting two standard deviations respectively. FY15 actual incident rates can be expected to fall within this historical range.

Workers Compensation Claims Highlights - 1st Quarter FY16

	New	Closed	Open Claims
Lost Time	5	8	62
Medical Only	20	21	23
Report Only	20	20	
	New		**YTD Light Duty Returns**
Light Duty Returns	1		1

Highlights/Comments:

Light Duty Returns

July none
August none
Sept none

Regular Duty returns

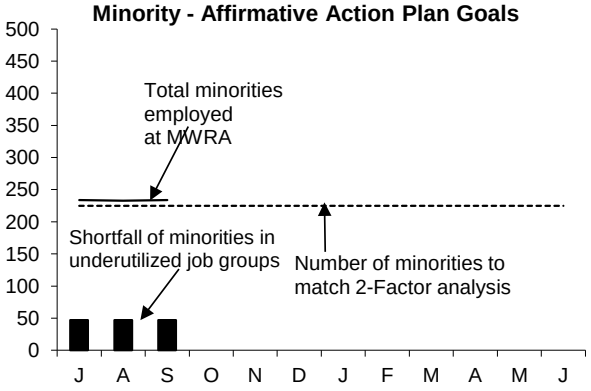
July 1 employee returned to full duty for one week (from workers' compensation then worked light duty 2 weeks and then returned to full duty.

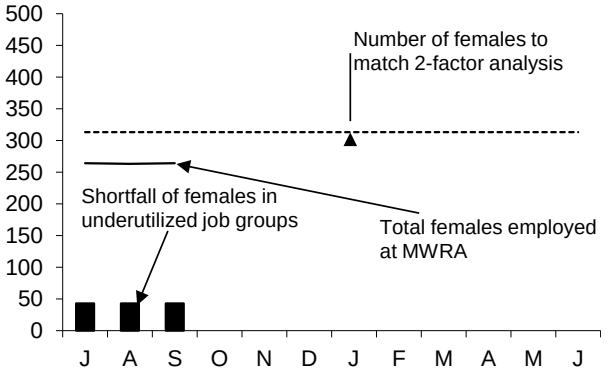
August 1 employee returned to full duty.
Sept none

Note: Claims may initially be counted in one category and changed to another category at a later date. Examples include a medical treatment only claim (no lost time from work) but the employee may require surgery at a later date resulting in the claim becoming a lost time claim. At that time we would only count the claim as opened but not as a new claim.
*Report only claims are closed the month they are filed.

MWRA Job Group Representation

1ST Quarter, FY16





Highlights:

At the end of Q1 FY16, 10 job groups or a total of 47 positions are underutilized by minorities as compared to 10 job groups or a total of 51 positions at the end of Q1 FY15; for females 11 job groups or a total of 43 positions are underutilized by females as compared to 12 job groups or a total of 58 positions at the end of Q1 FY15. During Q1, 1 minority and 2 female were hired. During this same period,3 minorities and 3 females terminated.

Underutilized Job Groups - Workforce Representation

Job Group	Employees as of 9/30/2015	Minorities as of 9/30/2015	Achievement Level	Minority Over or Under Underutilized	Females As of 9/30/2015	Achievement Level	Female Over or Under Underutilized
Administrator A	21	2	3	-1	6	7	-1
Administrator B	19	0	5	-5	1	3	-2
Clerical A	39	15	5	10	33	35	-2
Clerical B	32	8	8	0	13	14	-1
Engineer A	82	19	21	-2	12	33	-21
Engineer B	55	15	11	4	10	12	-2
Craft A	109	14	20	-6	0	5	-5
Craft B	148	30	36	-6	3	6	-3
Laborer	66	20	15	5	2	3	-1
Management A	101	14	23	-9	36	20	16
Management B	43	7	11	-4	10	6	4
Operator A	66	5	8	-3	1	5	-4
Operator B	66	10	18	-8	4	3	1
Para Professional	55	14	8	6	26	19	7
Professional A	34	4	7	-3	21	15	6
Professional B	161	41	36	5	80	68	12
Technical A	53	15	10	5	5	6	-1
Technical B	7	1	1	0	1	0	1
Total	**1157**	**234**	**246**	**35/-47**	**264**	**260**	**47/-43**

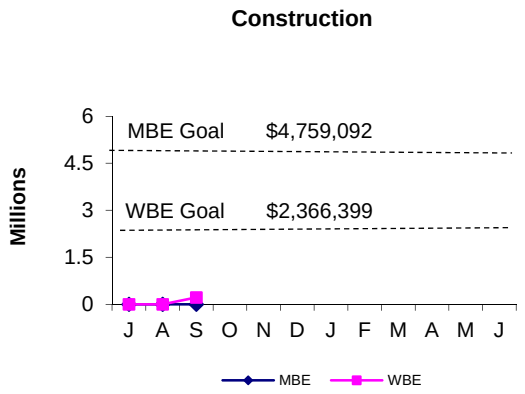
AACU Candidate Referrals for Underutilized Positions

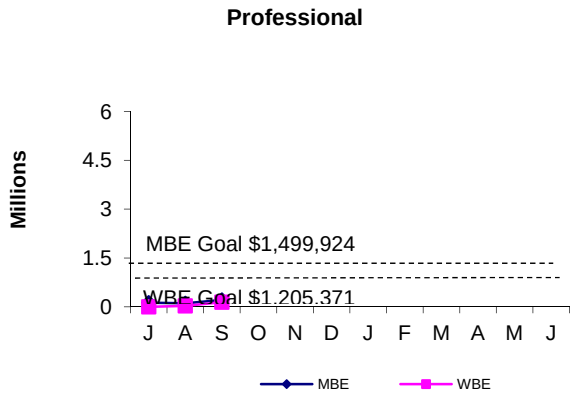
Job Group	Title	# of Vac	Requisition Int. / Ext.	Promotions/ Transfers	AACU Ref. External	Position Status
Craft A	Electrical Operations Supervisor	1	Int	1	0	Promo = WM
Craft A	M & O Specialist	2	Int/Ext	0	0	In Progress
Craft B	Metal Fabricator/Welder	1	Int/Ext	0	0	In Progress
Clerical A	Executive Secretary	1	Int/Ext	0	0	In Progress
Clerical A	Payables Coordinator	2	Int/Ext	0	0	NH = BF & HM
Clerical A	Payroll Specialist	1	Int	0	0	In Progress
Clerical A	Payroll Coordinator	1	Int	1	0	Promo = BF
Clerical B	Inventory Control Specialist	1	Int/Ext	1	0	Promo = WF
Engineer A	Sr. Civil Engineer	1	Int	1	0	Promo = BM
Engineer A	Sr. Monitoring and Controls Engineer	1	Int/Ext	0	0	In Progress
Engineer	Project Manager, Condition Monitoring	1	Int	1	0	NH = WM
Laborers	OMC Laborer	1	Int/Ext	0	0	NH = WM
Management A	Sr. Program Manager	1	Int/Ext	0	0	In Progress
Management A	Programmer Analyst II	1	Int/Ext	0	0	In Progress
Operator A	T & T Operator	1	Int/Ext	0	0	In Progress
Professional B	Security Services Administrator	1	Int/Ext	0	0	NH = WM
Professional B	Chemist I	1	Int	1	0	Promo = BF
Professional B	IT Financial Manager	1	Int	1	0	Promo = WF
Professional B	Senior Laboratory Technician	1	Int/Ext	0	1	In Progress
Professional B	Sampling Associate	1	Int	1	0	Promo = WF
Professional B	Microbiologist I	1	Int/Ext	0	0	NH = WF

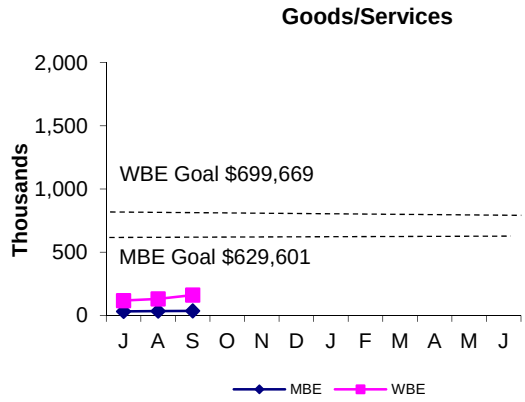
MBE/WBE Expenditures

1st Quarter FY16

Background: MBE/WBE targets are determined based on annual MWRA expenditure forecasts in the procurement categories noted below. MBE/WBE percentage goals are the results from a 2002 Availability Analysis, and MassDEP's 2010 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.







FY16 spending and percentage of goals achieved, as well as FY15 performance are as follows:

	MBE				WBE			
	FY16 Year-to-Date		FY15		FY16 Year-to-Date		FY15	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
Construction	0	0%	2,314,979	106.5%	216,827	9.2%	3,566,302	146.8%
Professional Svc.	209,830	14%	633,926	55.4%	142,286	11.8%	345,476	37.6%
Goods & Svcs.	35,115	5.6%	387,847	69.9%	160,055	22.9%	870,175	180.3%
Total	244,945	3.6%	3,336,752	86.2%	519,168	12.2%	4,781,953	124.8%

FY15 MBE/WBE dollar totals do not include MBE and WBE payments to prime contractors and consultants.

MWRA FY16 CEB Expenses
1st Quarter FY16

	September 2015 Year-to-Date					
	Period 3 YTD Budget	Period 3 YTD Actual	Period 3 YTD Variance	%	FY16 Approved	% Expended
EXPENSES						
WAGES AND SALARIES	$ 22,148,173	$ 21,544,753	$ (603,420)	-2.7%	$ 99,363,168	21.7%
OVERTIME	1,046,239	1,070,713	24,474	2.3%	4,219,293	25.4%
FRINGE BENEFITS	4,792,208	4,785,357	(6,851)	-0.1%	19,326,756	24.8%
WORKERS' COMPENSATION	585,750	283,322	(302,428)	-51.6%	2,343,000	12.1%
CHEMICALS	2,776,615	2,783,555	6,940	0.2%	9,790,848	28.4%
ENERGY AND UTILITIES	4,603,669	4,352,157	(251,512)	-5.5%	23,164,822	18.8%
MAINTENANCE	5,868,543	5,509,668	(358,875)	-6.1%	28,698,772	19.2%
TRAINING AND MEETINGS	36,191	66,142	29,951	82.8%	413,714	16.0%
PROFESSIONAL SERVICES	1,430,024	1,434,545	4,521	0.3%	5,819,611	24.7%
OTHER MATERIALS	913,836	934,099	20,263	2.2%	6,164,589	15.2%
OTHER SERVICES	6,258,818	6,116,303	(142,515)	-2.3%	23,529,902	26.0%
TOTAL DIRECT EXPENSES	**$ 50,460,066**	**$ 48,880,614**	**$ (1,579,452)**	**-3.1%**	**$ 222,834,475**	**21.9%**
INSURANCE	$ 540,199	$ 425,469	$ (114,730)	-21.2%	$ 2,160,797	19.7%
WATERSHED/PILOT	7,024,058	6,768,947	(255,111)	-3.6%	28,096,233	24.1%
BECo PAYMENT	567,034	559,811	(7,223)	-1.3%	1,946,157	28.8%
MITIGATION	350,000	380,000	30,000	8.6%	1,400,000	27.1%
ADDITIONS TO RESERVES	(8,732)	(8,732)	-	0.0%	(34,927)	25.0%
RETIREMENT FUND	8,159,521	8,159,521	-	0.0%	8,159,521	100.0%
POST EMPLOYEE BENEFITS	-	-	-	---	5,224,848	0.0%
TOTAL INDIRECT EXPENSES	**$ 16,632,080**	**$ 16,285,016**	**$ (347,064)**	**-2.1%**	**$ 46,952,629**	**34.7%**
STATE REVOLVING FUND	$ 19,108,254	$ 19,108,254	$ -	0.0%	$ 81,876,277	23.3%
SENIOR DEBT	68,679,857	67,656,199	(1,023,658)	-1.5%	283,024,431	23.9%
CORD FUND	-	-	-	---	-	---
DEBT SERVICE ASSISTANCE	-	-	-	---	-	---
CURRENT REVENUE/CAPITAL	2,800,000	2,800,000	-	0.0%	11,200,000	25.0%
SUBORDINATE MWRA DEBT	12,129,876	12,129,876	-	0.0%	49,222,442	24.6%
LOCAL WATER PIPELINE CP	1,037,310	1,037,310	-	0.0%	4,149,240	25.0%
CAPITAL LEASE	804,265	804,265	-	0.0%	3,217,060	25.0%
VARIABLE DEBT	-	(3,778,151)	(3,778,151)	---	-	0.0%
BOND REDEMPTION SAVINGS	-	-	-	---	-	---
DEFEASANCE ACCOUNT	-	-	-	---	-	---
TOTAL DEBT SERVICE	**$ 104,559,562**	**$ 99,757,753**	**$ (4,801,809)**	**-4.6%**	**$ 432,689,450**	**23.1%**
TOTAL EXPENSES	**$ 171,651,708**	**$ 164,923,383**	**$ (6,728,326)**	**-3.9%**	**$ 702,476,554**	**23.5%**
REVENUE & INCOME						
RATE REVENUE	$ 168,110,000	$ 168,110,000	$ -	0.0%	$ 672,440,000	25.0%
OTHER USER CHARGES	2,217,735	2,261,052	43,317	2.0%	8,683,898	26.0%
OTHER REVENUE	6,581,497	6,735,840	154,343	2.3%	12,000,066	56.1%
RATE STABILIZATION	-	-	-	---	-	---
INVESTMENT INCOME	2,218,385	2,465,783	247,398	11.2%	9,352,590	26.4%
TOTAL REVENUE & INCOME	**$ 179,127,617**	**$ 179,572,675**	**$ 445,058**	**0.2%**	**$ 702,476,554**	**25.6%**

As of September 2015, total expenses were $164.9 million, $6.7 million or 3.9% lower than budget and total revenue was $179.5 million, $0.5 million or 0.2% higher than budget, for a net variance of $7.2 million.

Direct Expenses are $48.8 million, $1.6 million or 3.1% lower than budget.

- **Wages & Salaries** are under budget by $603k or 2.7%. At the end of September the average Full Time Equivalent (FTE) positions were 1,137, 23 positions less than the 1,160 budgeted FTE's.
- **Maintenance** is under budget by $359k or 6.1%. Services are lower than budget by $780k due to some schedule shifts for some planned projects. Materials were overspent by $421k due to the purchase of unbudgeted items including the interior air monitoring system at Nut Island.
- **Workers' Compensation** is underspent by $302k or 51.6% due to lower Medical Payments of $158k and Compensation Payments of $143k.
- **Utilities** are underspent by $252k or 5.5% due to lower Electricity of $696k mainly due to over accrual in June 2015, lower transmission, distribution, and commodity costs at Deer Island offset by overspending for Diesel Fuel of $444k mainly due to accelerated purchase at Deer Island to take advantage of favorable pricing.
- **Other Services** is underspent by $142k or 2.3% mainly for Pellet Processing and Grit and Screenings due to lower quantities.
- **Training** is overspent by $30k or 82.8% due to the timing of some MIS specialized training.
- **Chemicals** are over budget by $7k or 0.3% mainly due to higher spending on Hydrogen Peroxide of $174k due to increased need for pretreatment of hydrogen sulfide gas due to lower flows offset by lower than budgeted Soda Ash usage $72k, sodium bisulfate $33k, and sodium hypochlorite $30k due to timing.

Indirect Expenses of $16.3 million $347k or 2.1% lower than budget mainly due lower Watershed reimbursement due to FY15 overaccrual and lower Insurance of $115k mainly due to lower claims of $99k.

Debt Service Expenses totaled $99.8 million, which was $4.8 million lower than budget mostly due to favorable variable interest rates and the favorable impact of defeasances related to reserve releases.

Revenue / Income for September is $179.6 million, $445k over budget mainly due to higher Investment Income of $247k and higher Non-Rate Revenue of $154k.

Cost of Debt
1ST Quarter, FY16

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.

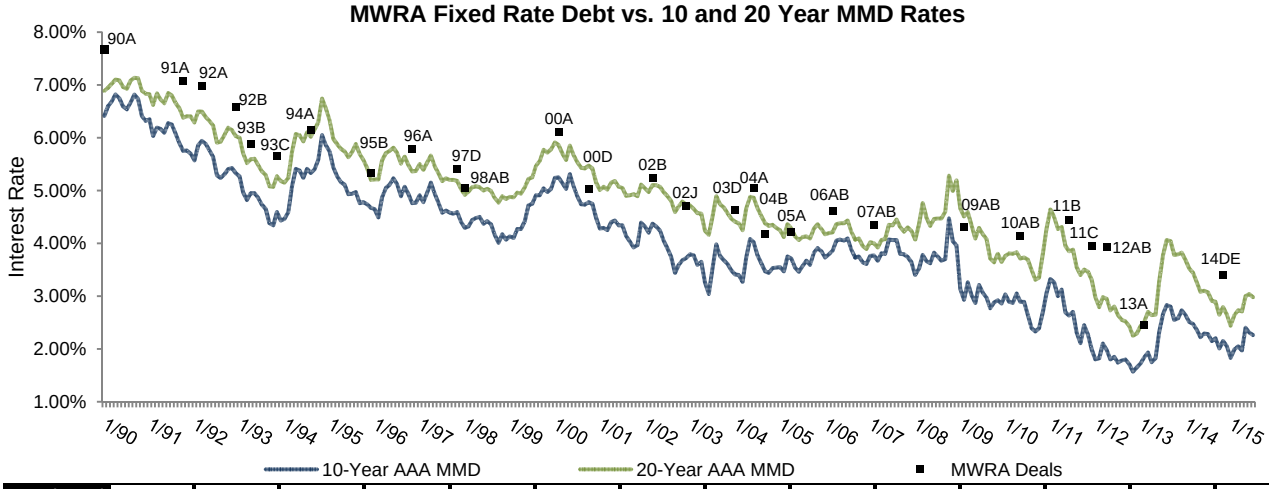
Average Cost of MWRA Debt

Fixed Debt ($3,771)	4.24%
Variable Debt ($484.2)	0.60%
SRF Debt ($987.7)	1.32%
Weighted Average Debt Cost ($5,243)	3.35%

Most Recent Senior Fixed Debt Issue
November 2014

2014 Series D-F ($243.9)	3.41%

MWRA Fixed Rate Debt vs. 10 and 20 Year MMD Rates

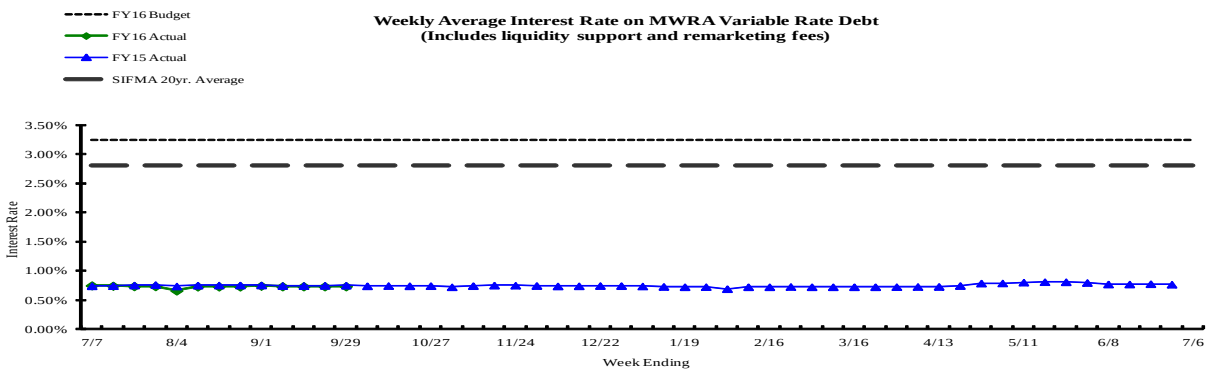


Bond Deal	1990A	1991A	1992A	1992B	1993B	1993C	1994A	1995B	1996A	1997D	1998AB	2000A	2000D	2002B
Rate	7.67%	7.08%	6.98%	6.58%	5.89%	5.66%	6.15%	5.34%	5.78%	5.40%	5.04%	6.11%	5.03%	5.23%
Avg Life	21.8 yrs	19.8 yrs	22.6 yrs	6.3 yrs	19.8 yrs	19.1 yrs	19.5 yrs	20.5 yrs	19.5 yrs	21.6 yrs	24.4 yrs	26.3 yrs	9.8 yrs	19.9 yrs

Bond Deal	2002J	2003D	2004A	2004B	2005A	2006AB	2007AB	2009AB	2010AB	2011B	2011C	2012AB	2013A	2014DE
Rate	4.71%	4.64%	5.05%	4.17%	4.22%	4.61%	4.34%	4.32%	4.14%	4.45%	3.95%	3.93%	2.45%	3.41%
Avg Life	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	18.8 yrs	16.5 yrs	17.9 yrs	9.9 yrs	15.1 yrs

Weekly Average variable Interest Rates vs. Budget

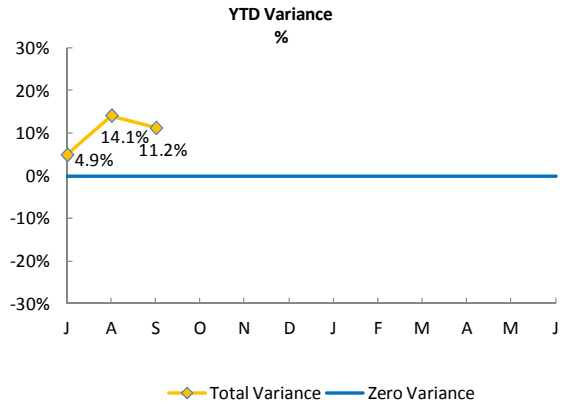
MWRA currently has ten variable rate debt issues with $1.0 billion outstanding, excluding commercial paper. Of the ten outstanding series, five have portions which have been swapped to fixed rate. Variable rate debt has been less expensive than fixed rate debt in recent years as short-term rates have remained lower than long-term rates on MWRA debt issues. In Septmeber, SIFMA rates set at 0.02% for the entire month. MWRA's issuance of variable rate debt, although consistently less expensive in recent years, results in exposure to additional interest rate risk as compared to fixed rate debt.



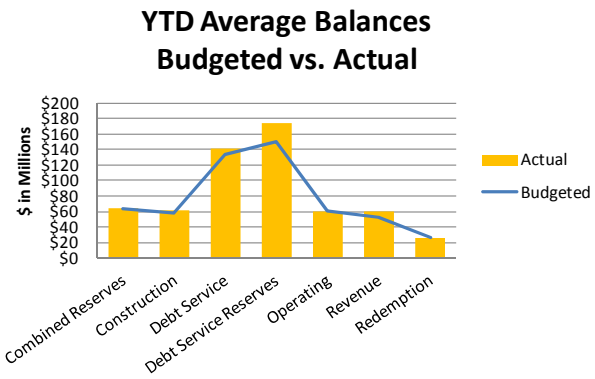
Investment Income

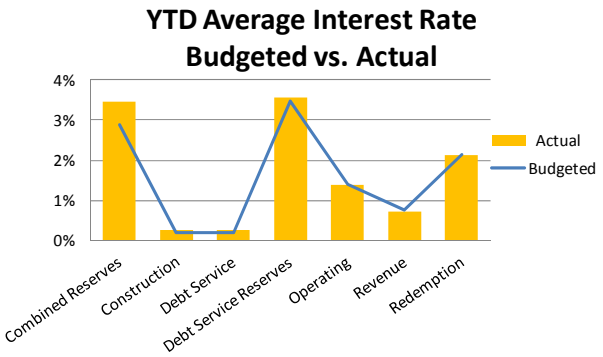
1st Quarter FY16

Year To Date



	YTD BUDGET VARIANCE ($000)			
	BALANCES IMPACT	RATES IMPACT	TOTAL	%
Combined Reserves	$2	$90	92	20.8%
Construction	$3	$9	12	41.3%
Debt Service	$4	$20	24	36.8%
Debt Service Reserves	$13	$111	124	9.9%
Operating	($5)	($4)	(8)	-4.1%
Revenue	$6	($1)	5	5.2%
Redemption	$1	($1)	(0)	-0.1%
Total Variance	$23	$225	$247	11.2%





Monthly