MASSACHUSETTS WATER RESOURCES AUTHORITY

# Board of Directors Report

On

# Key Indicators of MWRA Performance

For

## Second Quarter FY2015

| Q1 | Q2 | Q3 | Q4 |
|---|---|---|---|
| | ■ | | |

Frederick A. Laskey, Executive Director
Michael J. Hornbrook, Chief Operating Officer
February 11, 2015

# Board of Directors Report on Key Indicators of MWRA Performance
## Second Quarter FY15

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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

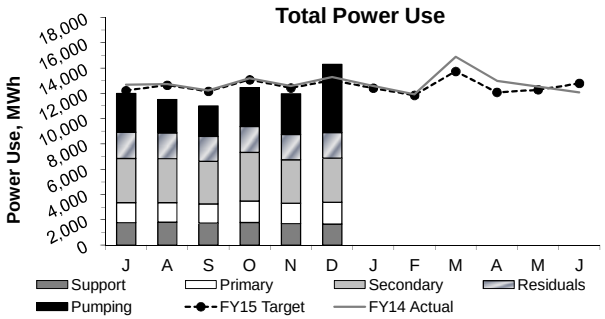
**February 11, 2015**

# OPERATIONS AND MAINTENANCE

# Deer Island Operations

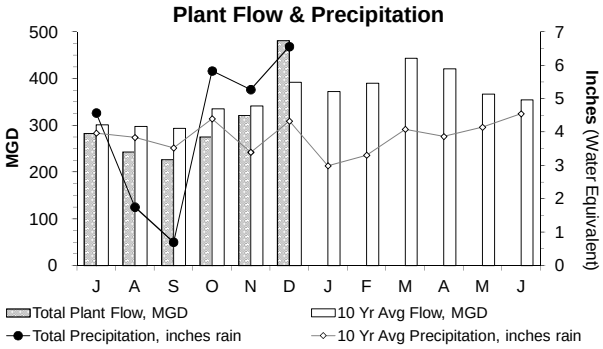
2nd Quarter - FY15





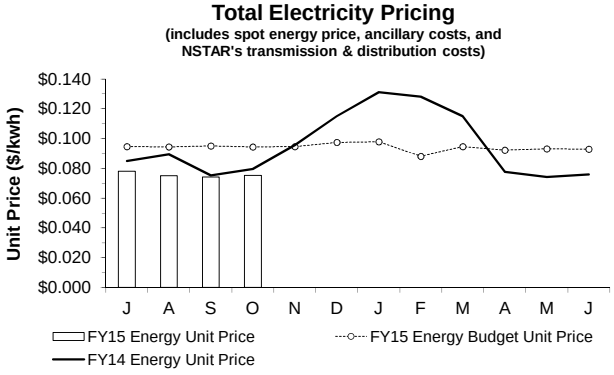

Total Power Use in the 2nd Quarter was on target (within 0.5%) as the 3 year average plant flow through the 2nd Quarter was also similar to projections (within 4.2%).

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



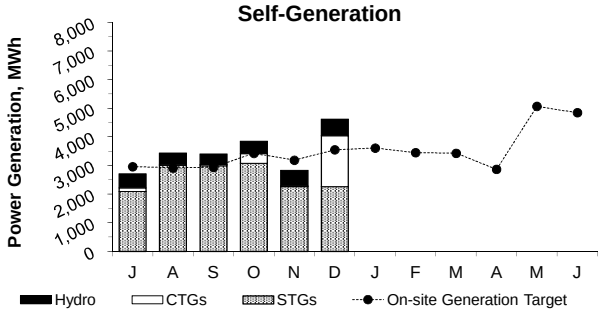

Total Plant Flow for the 2nd Quarter was on target with the 10 year average plant flow (359.4 MGD actual vs. 356.3 MGD expected) as precipitation for the 2nd Quarter was 46% higher than target (17.66 inches actual vs.12.12 inches expected) following many months of mostly lower-than-expected precipitation.

Total Plant Flow for the December was higher-than-expected following 17 consecutive months of lower-than-expected Total Plant Flow.



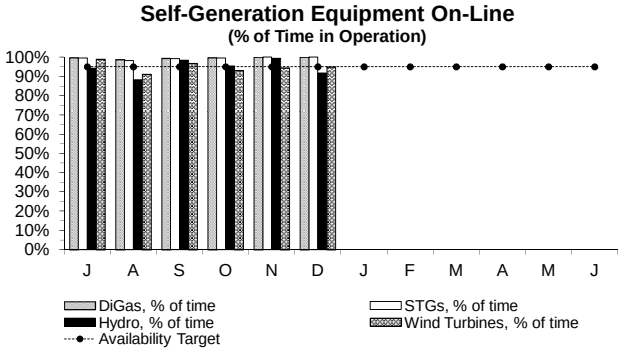

Under the current energy supply contract, a block portion of DI's energy is a fixed rate and the variable load above the block is purchased in real time. The actual Total Energy Unit Price in the 2nd Quarter (actual only through October) was 20.2% lower than the FY15 budget estimate for the same period. The Total Energy Unit Prices for November and December are not yet available as the complete invoices for these months are 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 two (2) months due to the timing of invoice receipt.

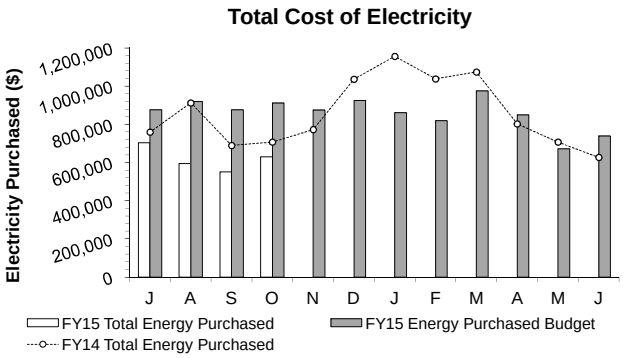



Power generated on-site during the 2nd Quarter was 18.3% higher than target as generation by the CTGs, STGs and the Hydro Turbines met or exceeded their targets. The CTGs generated over nine (9) times higher than their target due mainly to operation during two (2) severe weather events; one (1) in October and another in December for a total of 143.88 hours. The CTGs were operated in parallel with NSTAR during these storm events as a precautionary measure. DITP also successfully responded to the ISO-NE Demand Response audit event called on December 10. The Wind Turbines and Solar Panels generated slightly lower than their targets.

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 118.0 MWh was generated by the Solar Panels and 588.2 MWh was generated by the Wind Turbines in the 2nd Quarter .




The DiGas, STGs, Hydro Turbines, and Solar Panel systems all met or exceeded the 95% availability target for the 2nd Quarter. Wind Turbine availability fell slightly below target due mainly to downtime for scheduled maintenance.




The cost of electricity Purchased during the 2nd quarter (actuals through October) was 30.9% lower than budgeted. Year-to-date costs are $1,105,127 (30.8%) lower than budgeted through the 2nd Quarter (actuals only) as the Total Energy Unit Price and the Total Power Purchased were both lower than budgeted by 20.0% and 13.6%.

Note: Only months with complete Electricity Purchased data are being reported. Therefore, the data lags by two (2) months due to the timing of invoice receipt.

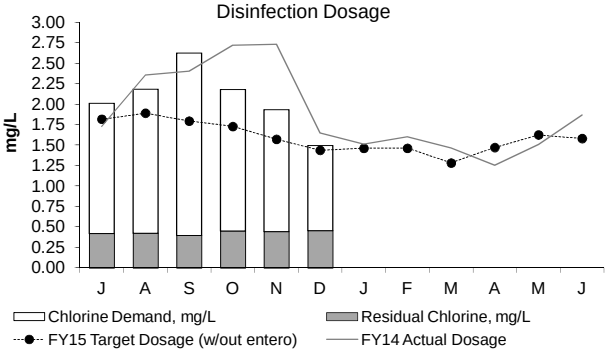
# Deer Island Operations

2nd Quarter - FY15



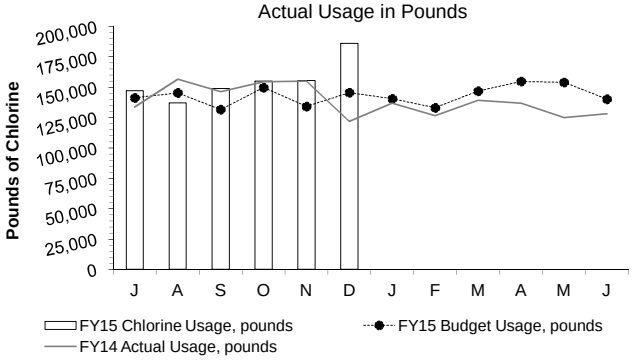
**Deer Island Sodium Hypochlorite Use**

Disinfection Dosage




**Deer Island Sodium Hypochlorite Usage**

Actual Usage in Pounds




Disinfection dosing rate in the 2nd Quarter was 18% higher than target, due to a higher chlorine demand as a result of stronger wastewater caused by the lower-than-expected plant flows in October and November, followed by much higher-than-expected plant flow in December as a result of several significant storm events. Hypochlorite usage in pounds of chlorine was15.7% higher than the target for the quarter.

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 | 2 | 2 | 0 | 99.4% | 8.50 |
| A | 1 | 1 | 0 | 99.95% | 1.90 |
| S | 0 | 0 | 0 | 100.0% | 0.00 |
| O | 1 | 1 | 0 | 98.5% | 11.82 |
| N | 4 | 4 | 0 | 99.5% | 9.99 |
| D | 5 | 5 | 0 | 94.5% | 72.22 |
| J | | | | | |
| F | | | | | |
| M | | | | | |
| A | | | | | |
| M | | | | | |
| J | | | | | |
| Total | 13 | 13 | 0 | 98.2% | 104.43 |

97.0% of all flows were treated at full secondary for the 2nd Quarter. There were a total of ten (10) separate secondary blending events in the quarter; all due to high plant flows resulting from heavy rain. The ten (10) blending events combined produced a total of 94.03 hours of blending and 992.78 Mgal of flow blended with secondary effluent. The Maximum Secondary Capacity for the entire quarter was 700 MGD.

**Permit limits were met at all times during the 2nd Quarter of FY15.**

## Deer Island Operations & Maintenance Report

**Environmental/Pumping:**

A maximum average hourly flow rate of 1,288.4 MGD was achieved on December 9 as a result of a record-breaking nor'easter storm. This storm event dropped a range of 3.8 to 4.5 inches of rain over a three (3) day period and triggered a single blending event lasting 65.11 hours from 10:10 AM on December 9 to 3:17 AM on December 12. Pumping and treatment at DITP continued without incident through this storm event, as well as throughout the entire quarter.

Batteries for the Programmable Logic Controllers (PLCs) for the wastewater pumps were successfully replaced at the South System Pump Station and the four (4) headworks facilities on November 19.

**Primary and Secondary Treatment:**

Progress on the major Primary and Secondary Scum Tip Tube Replacement Project continued through Q2 FY15. 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 and three (3) secondary clarifiers (one or two per battery to minimize capacity constraints so as to not reduce the overall secondary capacity). Construction was approximately 60.4% complete for the primary clarifiers and 35.2% complete for the secondary clarifiers by the end of the quarter. The contract is currently on schedule and functional testing is on-going.

## Deer Island Operations & Maintenance Report (continued)

**Primary and Secondary Treatment** (cont.)
Annual turnaround maintenance was performed on Train #1 at the Cryogenic Oxygen Facility in October. This turnaround maintenance is performed on roughly half of the components and systems in the Cryo Facility and allows the remaining half of the facility to continue to operate and produce oxygen uninterrupted. The same turnaround maintenance was completed on Train #2 in April.

The Cryogenic Oxygen facility on DITP transitioned to the winter mode of operation in mid-November. With the seasonal reduction in the oxygen demand in the secondary aeration process, the energy efficiency of the cryogenic operation can be optimized by reducing the operating demands of the plant (in comparison to the operating demand during the summer months) while still meeting the objectives of producing enough oxygen to meet the secondary aeration process needs, as well as producing enough liquid oxygen (LOX) to maintain a consistent inventory of 900 tons in the LOX storage tank.

**Energy and Thermal Power Plant:**
Solar power generation accounted for 0.98% (118.0 MWh) of the total power generated on-site in the 2nd Quarter while Wind Turbine generation accounted for 4.90% (588.2 MWh) of the total power generated on-site in the 2nd Quarter. Overall, total power generated on-site accounted for 31.0% of Deer Island's total power use for the quarter. Renewable power generated on-site (by Solar, Wind, STGs, and Hydro Turbines) accounted for 25.5% of Deer Island's total electrical power use for the quarter.

Scheduled annual overhaul maintenance of CTG-1A began on September 29 and was successfully completed and the unit returned to full operating availability on October 6.

Operation of the boiler and STG system in the Thermal Power Plant was switched over to "winter" mode on October 30. The boiler and STG system began operating in "summer" mode in August after the installation of a steam bypass valve. The addition of this steam bypass valve in conjunction with the operation of the back-pressure turbine (BP-STG) allows staff to operate the steam system at higher efficiencies by operating the main turbine in a vacuum, extracting the highest possible amount of electricity from the steam. This improves the overall efficiency of the steam to electricity conversion process. However, in "winter" mode (no vacuum), the primary concern is to meet the heat demands of DITP and the secondary benefit is power generation.

The fire system isolation valves on both CTG units were successfully replaced during the workday on November 4. This valve replacement took several hours to perform for each CTG unit and was performed on one (1) CTG unit at a time.

Routine scheduled preventative maintenance was performed on both Wind Turbine #1 and #2 at the beginning of December and required each unit to be taken out of service for several hours. The preventative maintenance was successfully completed and both units were tested without issue before being returned to operation.

**Residuals Treatment:**
An average of eight (8) active digesters remained in operation during the month of December as Module #3 digester operation was transitioned to Module #1 digester operation. Module #2 remained in operation for the entire month and all four (4) digesters in Module #1 were in operation by the end of month. All the digesters in Module #3 were offline by the end of the month.

**Other:**
The above-ground heating fuel tank at the Vehicle/Equipment Maintenance Building was successfully removed on October 31. The building was connected to the plant-wide hot water system, allowing removal o fthe potential environmental liability at Deer Island.

The DITP Machine shop and Maintenance staff completed fabrication and installation of a protective grating on Deer Island storm water outfall number 3. The original duckbill had been battered off by tidal action, and this grating will protect the outfall system from backfilling with large tidal debris.

Licensed contractors completed pump-out, cleaning, and interior inspection of the waste oil underground storage tank on November 3. The integrity of this tank was reaffirmed during the inspection.

**Clinton AWWTP:**

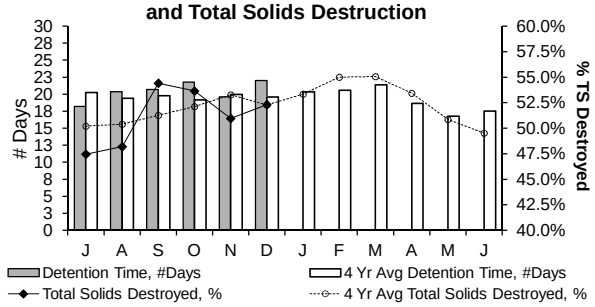
The rehabilitation of the primary clarifiers and anaerobic digesters which began on July 1 is moving forward.
The following items were started this quarter.
Primary Clarifiers 3&4:
Tnemec coating was applied to tanks. Railings were reinstalled around tanks and earth was backfilled around tanks to original grade level. Contractors have started installing gear drives and flights in tanks.
Secondary Digester:
Cover has been sandblasted and patching of corroded areas is continuing. Removal of the center column and support structure to accommodate the new Ovivo mixing system.
Electrical & Instrumentation:
New electrical duct banks and conduit have been installed to allow information to be sent from digester control panel to the scada system in the administration building.
Security and surveillance:
Contractors have started installing electrical conduits in all buildings to provide card access to buildings and camera surveillance of grounds.

# Deer Island Operations and Residuals

2nd Quarter - FY15



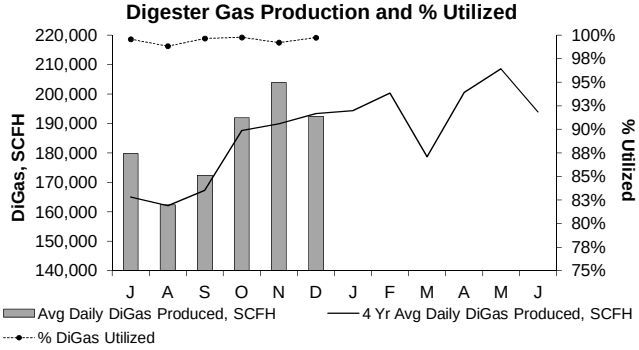
**Sludge Detention Time in Digesters and Total Solids Destruction**




Total solids (TS) destruction following anaerobic sludge digestion averaged 52.3% during the 2nd Quarter, similar to the 4 year average of 52.6%. The sludge detention time in the digesters of 21.1 days was slightly higher that the 4 year average of 19.6 days as DI operated with an average of 8.1 digesters during the 2nd 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.

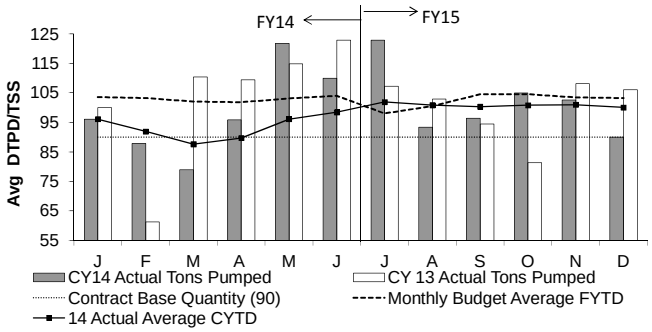
**Digester Gas Production and % Utilized**




The Average Daily DiGas Production in the 2nd Quarter was 3.1% higher than the target 4 Year Average 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.

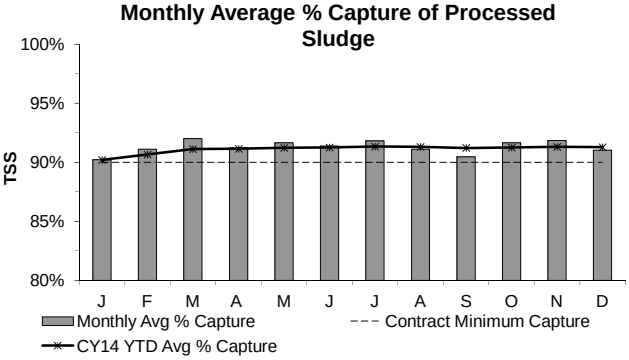
MWRA pays a fixed monthly amount for the calendar year to process up to 90 DTPD/TSS as an annual average. The monthly invoice is based on 90 DTPD/TSS (Dry Tons Per Day/Total Suspended Solids) times 365 days divided by 12 months. At the end of the year, the actual totals are calculated and additional 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. (FY15's budget is 102.9 DTPD/TSS).

**Sludge Pumped From Deer Island**




The average total quantity of sludge pumped in the 2nd Quarter was 99.2 DTPD - lower than FY15's budget of 102.9 DTPD. The lower amount is due to lower sludge production due to colder weather and inventory shifts. The YTD average tonnage is 100.1.

**Monthly Average % Capture of Processed Sludge**



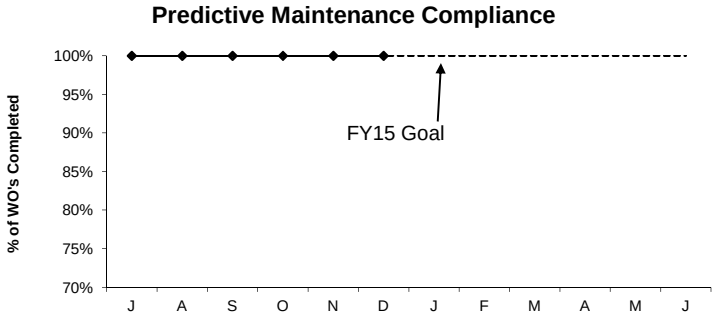

The contract requires NEFCo to capture at least 90% of the solids delivered to the Biosolids Processing Facility in Quincy. The YTD average capture is 91.28%

# Deer Island Maintenance

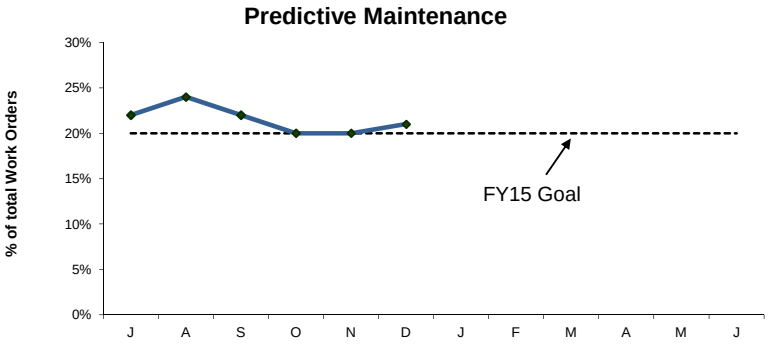
2nd Quarter - FY15

## Productivity Initiatives

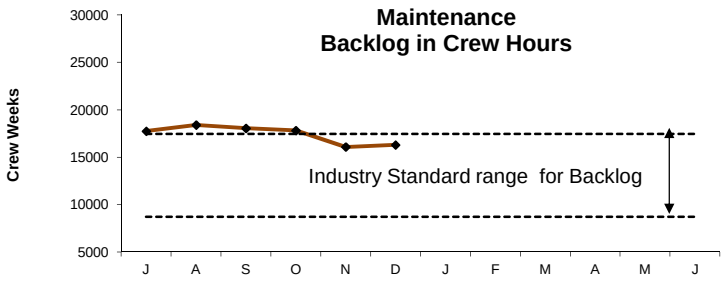
Productivity initiatives include increasing predictive maintenance compliance and increasing PdM work orders. Accomplishing these initiatives should result in a decrease in overall maintenance backlog.




Deer Island's FY15 predictive maintenance goal is 100%. DITP completed 100% of all PdM work orders this quarter. DITP is continuing with an aggressive predictive maintenance program.



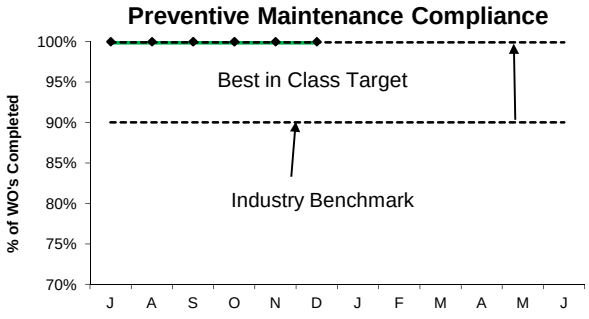

Deer Island's FY15 predictive maintenance goal is 20% of all work orders to be predictive. 20% of all work orders were predictive maintenance this quarter. The industry is moving toward increasing predictive maintenance work to reduce downtime and better predict when repairs are needed.



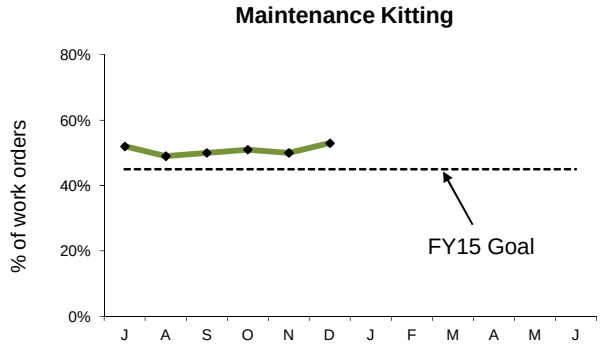

DITP's maintenance backlog at Deer Island is 16,737 hours this quarter. DITP is within the industry average for backlog. The industry standard for maintenance backlog with 99 staff (currently planned staffing levels) is between 8,730 hours and 17,460 hours. Backlog is affected by five vacancies, an Instrument Technician, a Building and Grounds worker, a Welder, a Machinist and an O&M Specialist.

## Proactive Initiatives

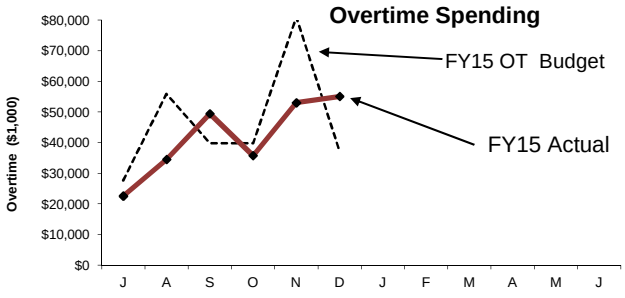
Proactive initiatives include completing 100% of all preventative maintenance tasks and increasing preventative maintenance kitting. These tasks should result in lower maintenance costs.




Deer Island's FY15 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 FY15 maintenance kitting goal is 45% of all work orders to be kitted. 51% 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.



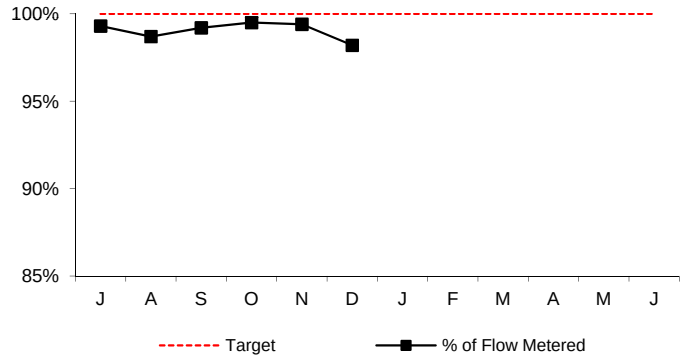

Maintenance overtime was under budget by $13K this quarter and $31k under for the year. Management continues to monitor backlog and to ensure all critical equipment and systems are available. This quarters overtime overtime was predominately used for installation of HVAC units (coils, condensers, evaporators, fabricating and installing filter racks) throughout Deer Island, installing view ports in Digester Complex Modules, high flows and storm coverage.

# Operations Division Metering

2nd Quarter - FY15

## WATER METERS

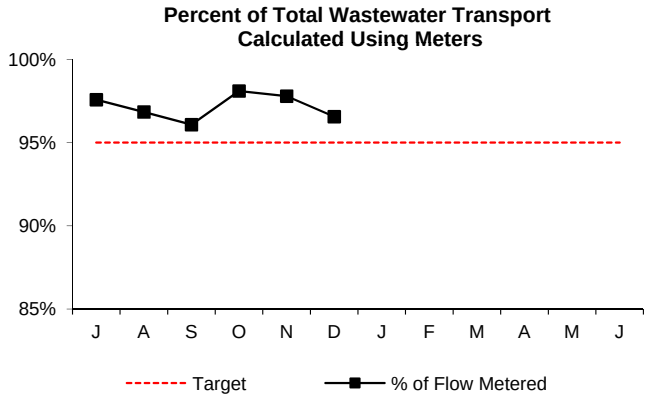
**Percent of Total Revenue Water Deliveries Calculated Using Meters**




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 2nd Quarter of FY15, meter actuals accounted for 99.03% of flow; only 0.97% of total revenue water deliveries were estimated. The following is the breakdown of estimations:
In-house and Capital Construction Projects - 0.60%
Instrumentation Failure - 0.37

## WASTEWATER METERS

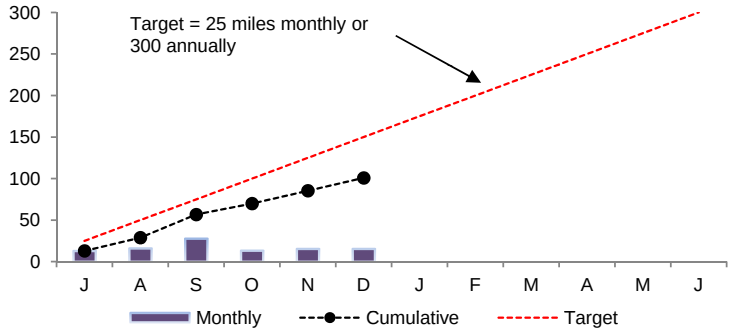
**Percent of Total Wastewater Transport Calculated Using Meters**




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 2nd Quarter of FY15, meter actuals accounted for 97.5% of flow; 2.5% of wastewater transport was estimated.

## WATER DISTRIBUTION SYSTEM PIPELINES

**Miles Surveyed for Leaks**

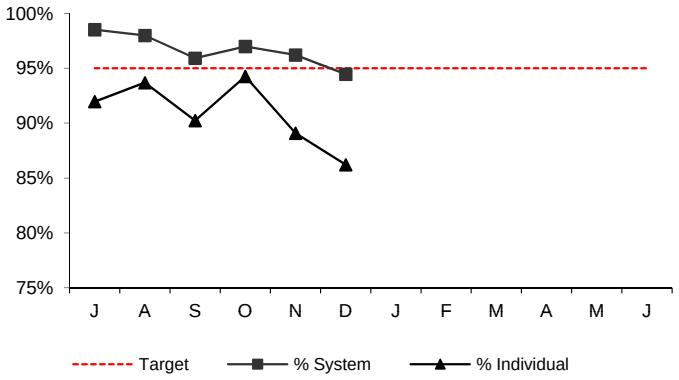



During the 2nd Quarter of FY15, 100.83 miles of water mains were inspected.

Water Distribution System

| Month | J | A | S | O | N | D | J | F | M | A | M | J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Leaks Detected | 6 | 1 | 7 | 5 | 2 | 1 | | | | | | |
| Leaks Repaired | 8 | 1 | 1 | 4 | 7 | 3 | | | | | | |
| Backlog | 4 | 4 | 10 | 11 | 6 | 4 | | | | | | |
| | | | | | | | | | | | | |
| Avg. Lag Time | 12.9 | 22.4 | 24.5 | 31.9 | 38.7 | 41.4 | | | | | | |

**% Wastewater Meter Uptime**




During the 2nd Quarter of FY15,out of a possible 1,536,768 data points, only 63,420 points were missed resulting in a system-wide up time of 95.9%. Of the 174 revenue meters installed, on average 18 experienced down time greater than the 5% target resulting in a 89.8% individual meter uptime. For the 2nd Quarter of FY15, down time for an individual meter is defined by any individual meter having less than 2,796.7 data points out of a potential 2,944 data points.

During the 2nd Quarter of FY15, eight (8) new leaks were detected and 14 were repaired. Of the fourteen repaired, six (6) were detected during the 2nd Quarter, six (6) during the 1st Quarter and two (2) that were carried over from FY14.
At the end of the 2nd Quarter there are four (4) leaks that need to be repaired: two (2) from the 2nd Quarter, one (1) from the 1st Quarter and one (1) from the 4th Quarter of FY14. The two leaks that remain from the 2nd Quarter of FY15 are located at Comm. Ave. at Mass Pike, Newton and Fairbanks Street, Brighton.
Comm. Ave., Newton remains unrepaired due to coordination of resources, including a police detailand Fairbanks Street,in Brighton remains unrepaired due to a moratorium on street openings for non-surfacing leaks.
The one (1) remaining leak originally detected during the 1st Quarter of FY15 is located on Reservoir Road, Weston. It is small in nature and non-surfacing so the pipe remains in service awaiting repair. Additionally, still remaining from FY14 is the second leak on the GE Bridge, Revere/Lynn line originally detected during the 4th Quarter of FY14. This leak remains unrepaired and the line out of service due to an extensive coordination of resources including the rental of a barge.

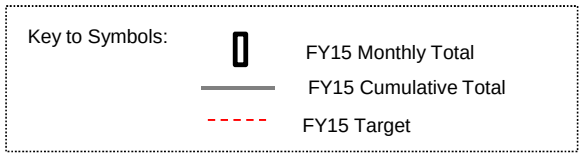
# Water Distribution System Valves

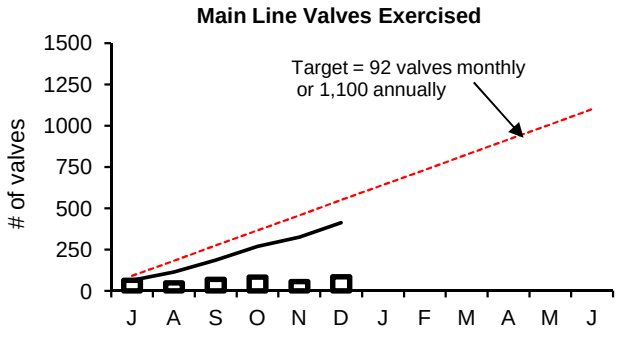
2nd Quarter - FY15

## Background

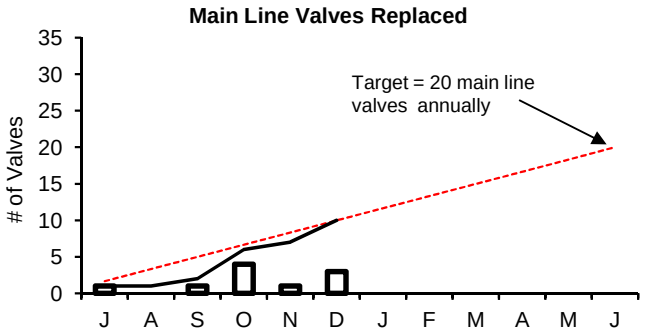
Valves are exercised, rehabilitated, or replaced in order to improve their operating condition. This work occurs year round. Valve replacements occur in roadway locations during the normal construction season, and in off-road locations during the winter season. Valve exercising can occur year round but 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 | |
|---|---|---|---|
| | | FY15 to Date | FY15 Targets |
| Main Line Valves | 2,092 | 96.2% | 95% |
| Blow-Off Valves | 1,206 | 91.8% | 95% |
| Air Release Valves | 1,335 | 91.5% | 95% |
| Control Valves | 48 | 100.0% | 95% |

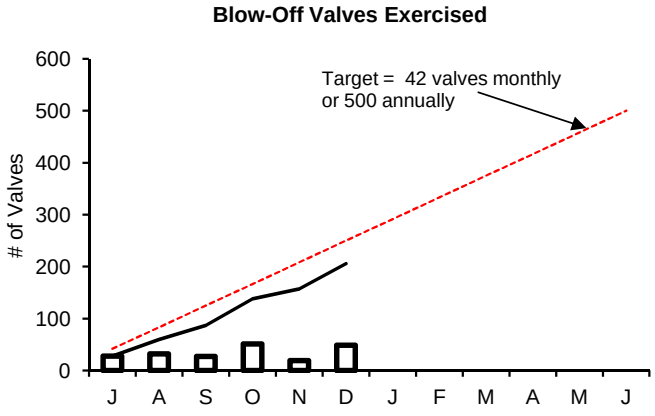


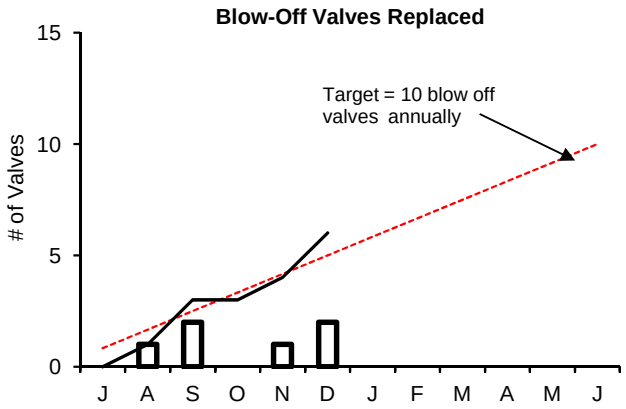

During the 2nd Q of FY15 staff exercised 228 main line valves. The total for the fiscal year to date is 414.




During the 2nd Q of FY15 staff replaced eight main line valves. The total for the fiscal year to date is ten.




During the 2nd Q of FY15 staff exercised 119 blow-off valves. The total for the fiscal year to date is 206.



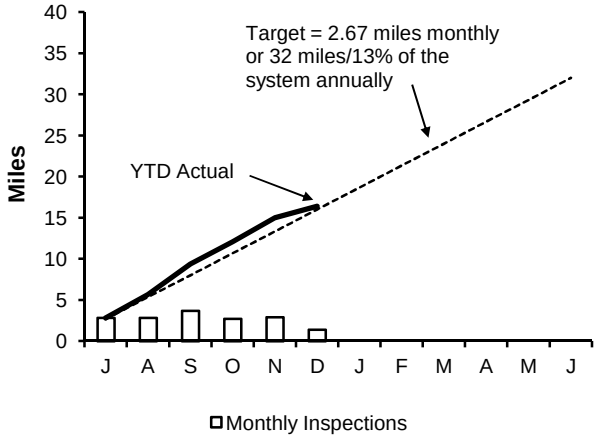

During the 2nd Q of FY15 staff replaced three blow-off valves. The total for the fiscal year to date is six.

# Wastewater Pipeline and Structure Inspections and Maintenance

ONB 2nd Quarter - FY 15

## Inspections

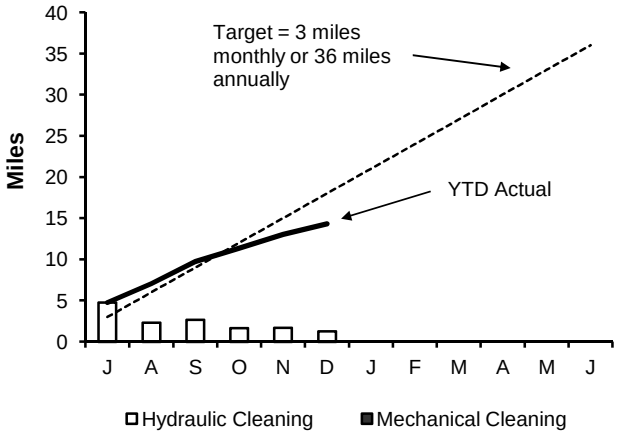
### Pipeline Inspections




7.06 miles of MWRA sewer pipeline were inspected during this quarter. The year to date total is 16.41 miles. Community Assistance was provided to Somerville, staff inspected 806 linear feet of various diameter sewer and drain lines this quarter.

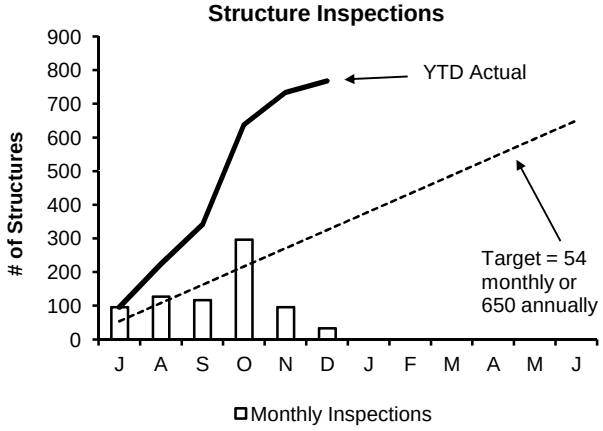
## Maintenance

### Pipeline Cleaning



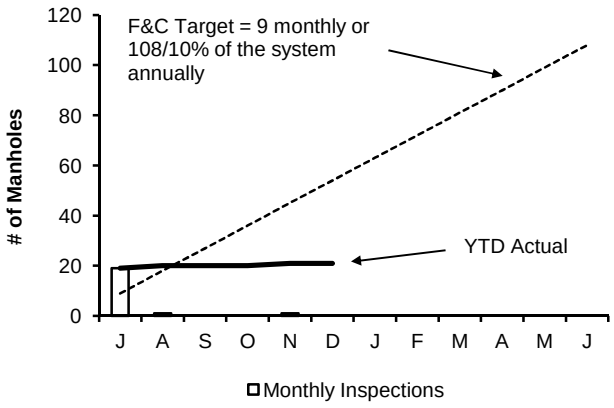

4.60 miles of MWRA's sewer system were cleaned and removed 30 yards of grit and debris removed during this quarter. The year to date total is 14.31 miles.Community Assistance was provided to Somerville. Staff cleaned 1,700 linear feet of 12" and 28" diameter sewer line this quarter.

### Structure Inspections



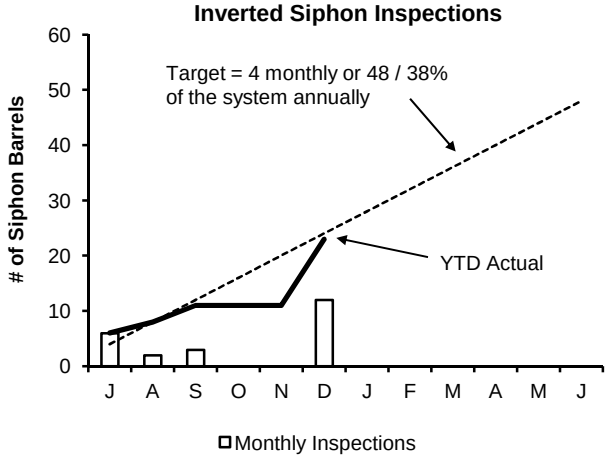

36 CSO structures and 427 additional manhole/structure were inspected during this quarter. The year to date total is 768

### Manhole Rehabilitation



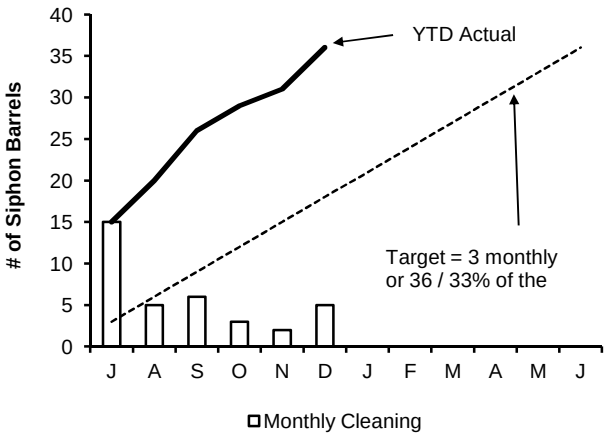

Staff replaced 1 frame & cover during this quarter. The year to date total is 21.

### Inverted Siphon Inspections




2 siphon barrels were inspected during this quarter. Year to date total is 23 inspections.

### Inverted Siphon Cleaning



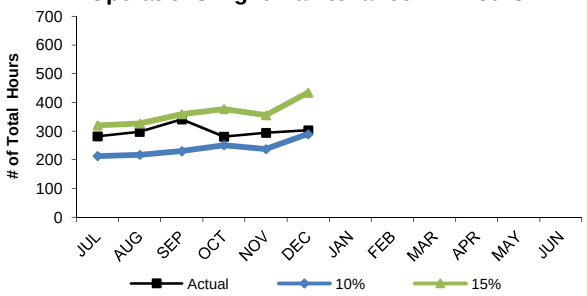

10 siphon barrels were cleaned during this quarter. The year to date total is 36 barrels.

# Field Operations' Metropolitan Equipment & Facility Maintenance

## 2nd Quarter, FY15

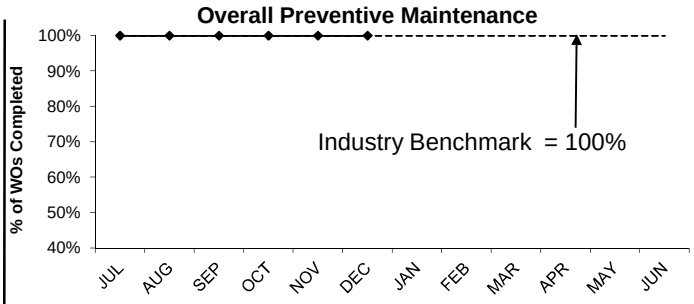
Several maintenance and productivity initiatives are in progress. The goal for the Overall PM completion and the Operator PM completion was raised to 100% for Fiscal Year 2010. The Operator PM and kitting initiatives frees up maintenance staff to perform corrective maintenance and project work, thus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

### Operations Light Maintenance PM Hours



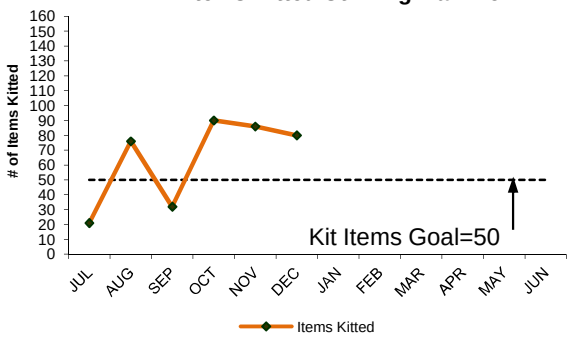

Operations staff averaged 293 hours of preventive maintenance during the 2nd Quarter, an average of 11% of the total PM *hours* for the 2nd Quarter, which is within the industry benchmark of 10% to 15%.

### Overall Preventive Maintenance



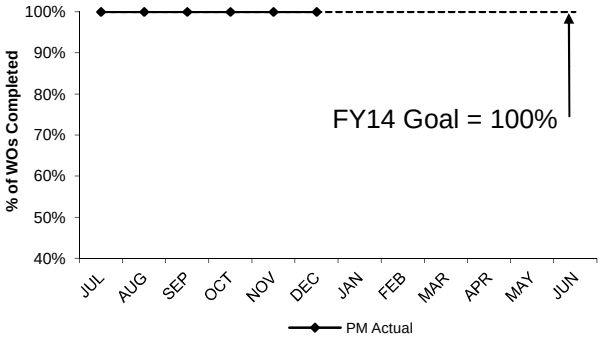

The Field Operations Department (FOD) preventive maintenance goal for FY15 is 100% of all PM work orders. Staff completed an average of 100% of all PM work orders in the 2nd Quarter.

### Items Kitted Utilizing Maximo



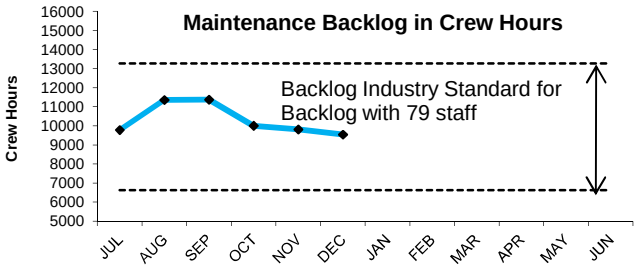

In an effort to more efficiently complete work, maintenance staff and work coordination staff have utilized the Lawson/Maximo interface to better kit stock and non stock material. The goal for FY15 is to "kit" 50 stock and non stock items total per month. An average of 85 items were kitted during the 2nd Quarter.

### Operations Light Maintenance % PM Completion



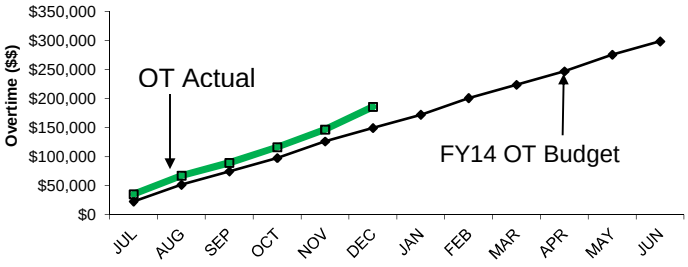

Wastewater Operators complete light maintenance PM's which frees up maintenance staff to perform corrective maintenance. Operations' FY15 PM goal is completion of 100% of all PM work orders assigned. Operations completed an average of 100% of PM work orders in the 2nd Quarter.

### Maintenance Backlog in Crew Hours




The 2nd Quarter backlog average is 9,790 hours. Management's goal is to continue to control overtime and still stay within the industry benchmark of 6450 to 12,940 hours. There are currently two vacant positions, one Facility Specialist and one Mechanic.

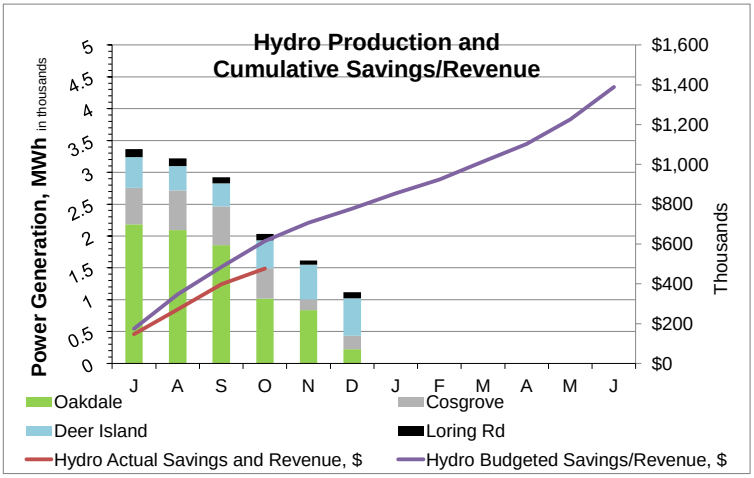
### Overtime Spending



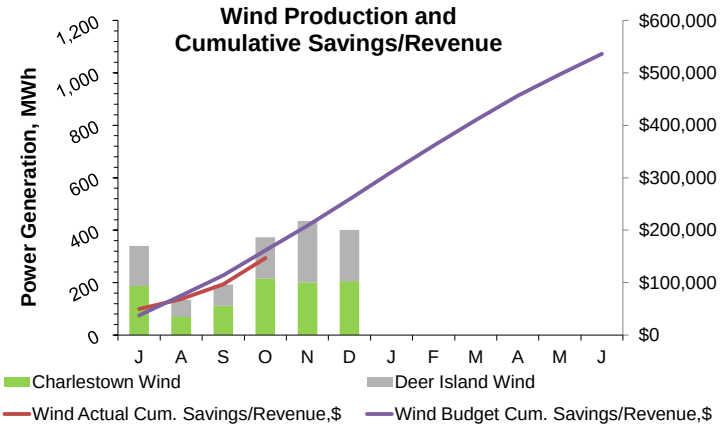

Maintenance overtime was $37k over budget for the 2nd Quarter. Overtime was used for staging for weather events, critical maintenance repairs, and upgrades to the Chelsea Administration Building.

# Renewable Electricity Generation: Savings and Revenue

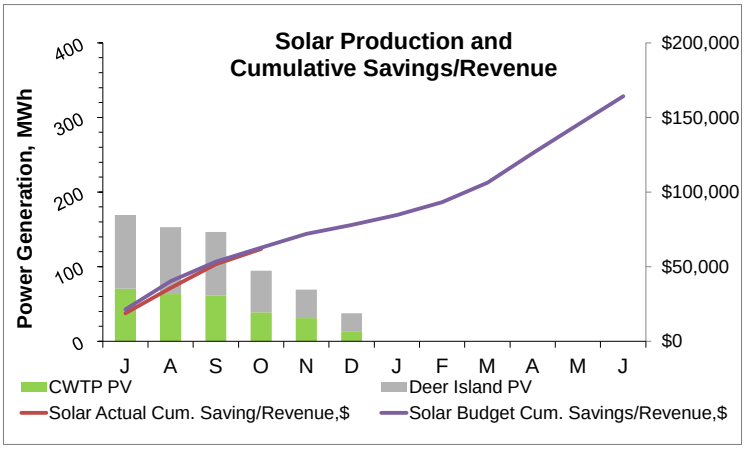
2nd Quarter - FY15



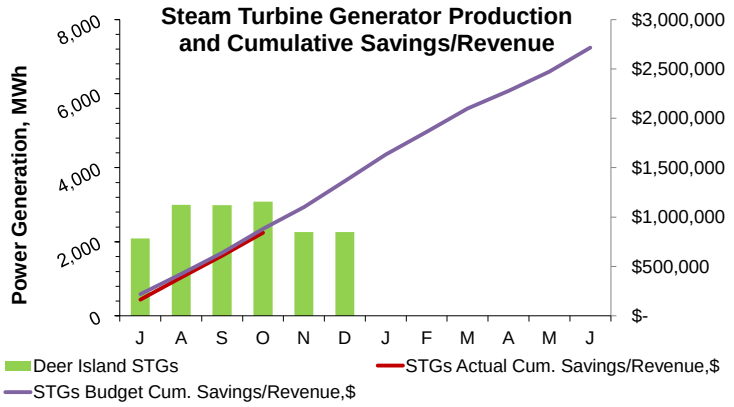

In the 2nd Quarter, the renewable energy produced from all hydroelectric facilities totaled 4,770 MWh; which is 15% higher than the budget for the quarter. The total energy produced to date in FY15 is 14,276 MWh. The total savings and revenue to date in FY15 (actual only through October*) is $476,964; which is 22% below budget, due to the fact that the actual electricity unit price for Deer Island has been 20% lower than the budgeted estimate for the same period.



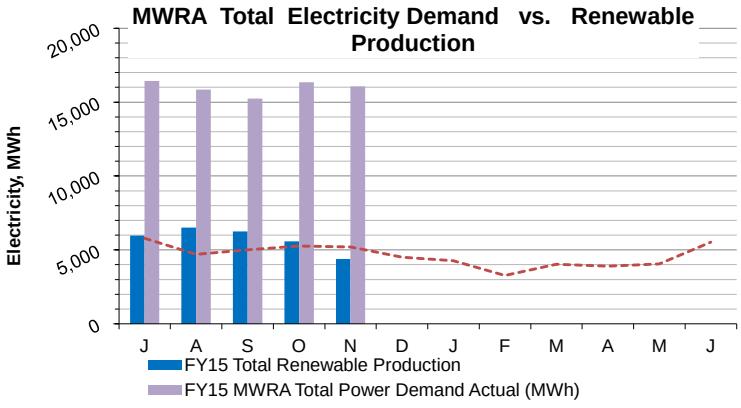

In the 2nd Quarter, the renewable energy produced from all wind turbines totaled 1,209 MWh; which met the budget for the quarter. The total energy produced to date in FY15 is 1,875 MWh. The total savings and revenue to date in FY15 (actual only through October*) is $146,553; which is 9% below budget, due to the fact that the actual electricity unit price for Deer Island has been 20% lower than the budgeted estimate for the same period.

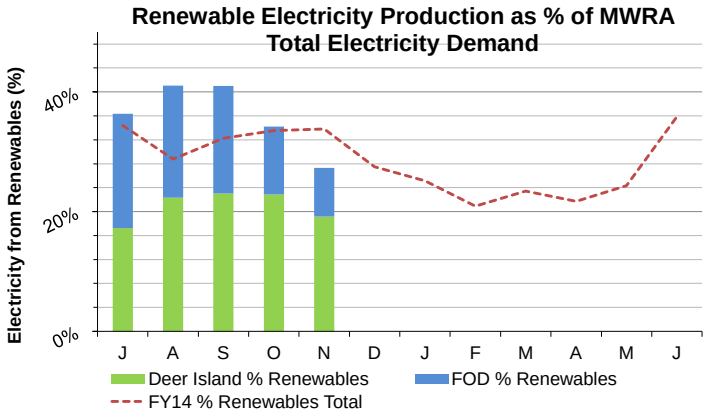



In the 2nd Quarter, the renewable energy produced from all solar PV systems totaled 201 MWh; 10% below budget for the quarter. The total energy produced to date in FY15 is 670 MWh. The total savings and revenue to date in FY15 (through October*) is $61,855.




In the 2nd Quarter, the renewable energy produced from all steam turbine generators totaled 7,611 MWh; which met the budget for the quarter. The total energy produced to date in FY15 is 15,693 MWh. The total savings to date in FY15 (through October*) is $842,442.



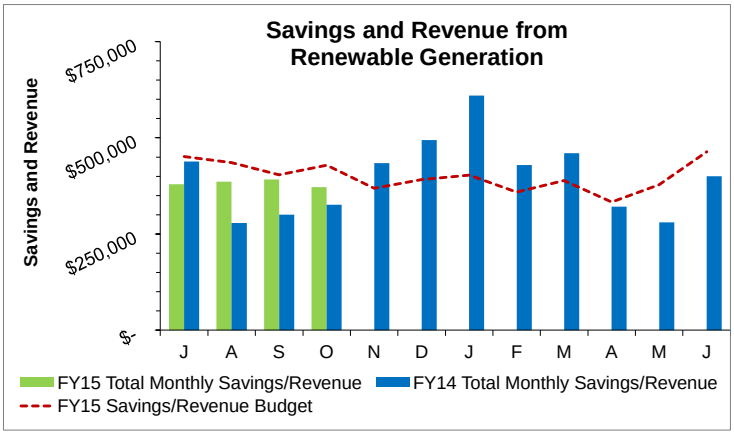



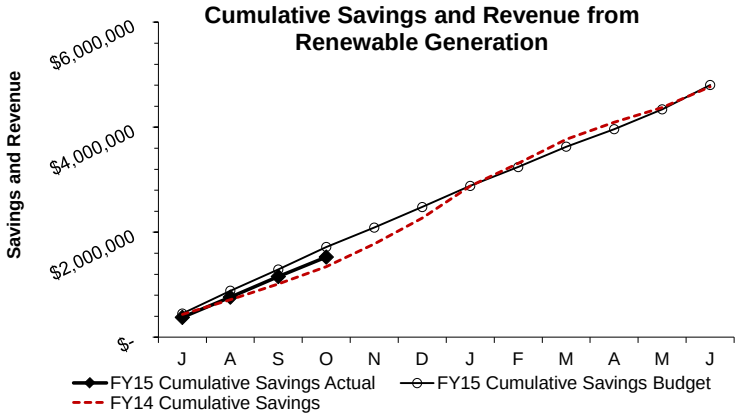

In the first 5 months of FY15, MWRA's electricity generation by renewable resources totaled 28,690 MWh. MWRA's total electrical demand was approximately 79,879 MWh. The MWRA total demand is the sum of all electricity purchased for Deer Island and FOD plus electricity produced and used on-site at these 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 first 5 months of FY15, green power generation represented approximately 36% of total electrical demand. With the exception of Deer Island, most of the electricity generated by MWRA's renewable sources is exported to the grid.

Note: *Only the actual energy prices are being reported. Therefore, some of the data lags up to (2) months due to timing of invoice receipt.
**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.

# Renewable Electricity Generation: Savings and Revenue

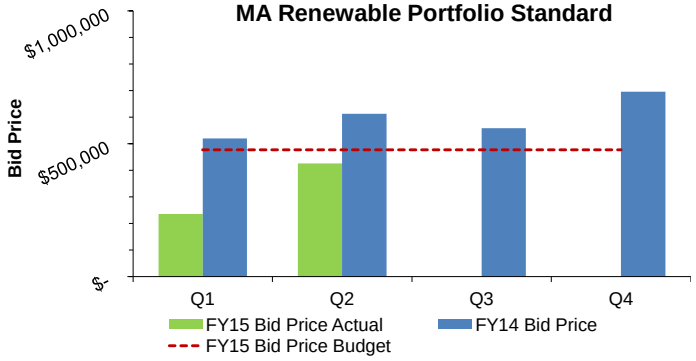
2nd Quarter - FY15

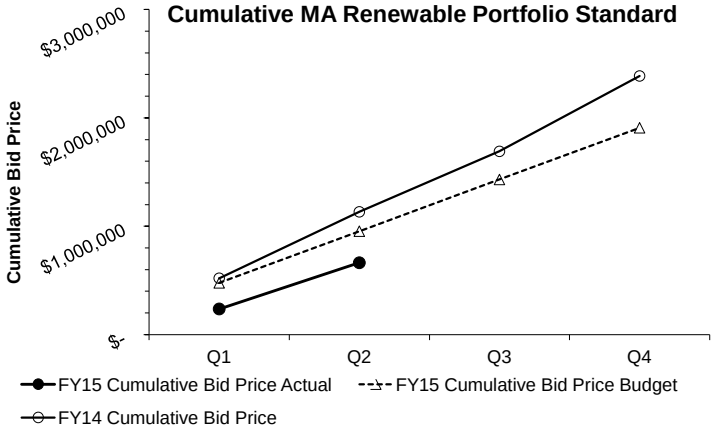



Savings and revenue from MWRA renewable generation in the 2nd Quarter (actual only through October) is $371,588; which is 13% below the budget. This is partly due to the fact that the actual electricity unit price for Deer Island has been 20% lower than the budgeted estimate for the same period. Savings and revenue 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).

**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.




Bids were awarded during the 2nd Quarter from MWRA's renewable energy assets; for the sale of 6,365 Class I Renewable Energy Certificates (RECs), 118 Solar RECs, and 2,869 Class II RECs for a total value of $426,511 RPS revenue; which is 11% below the budget.
REC prices reflect the bid prices on the date that bids are accepted. Cumulative bid price reflects the total value of bids received to date.

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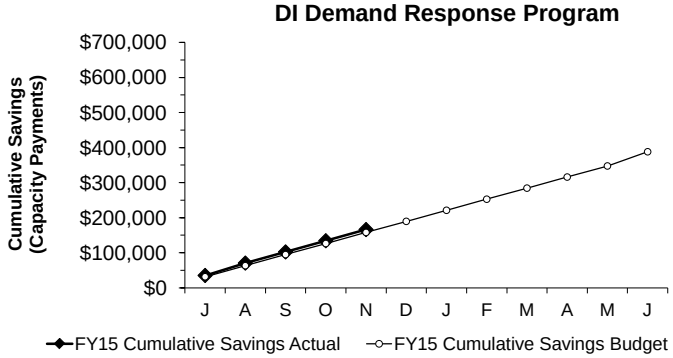
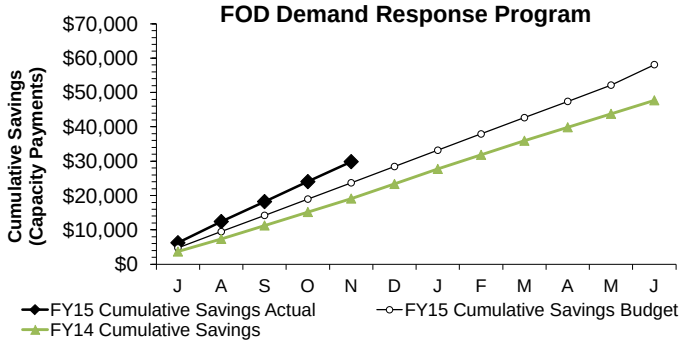


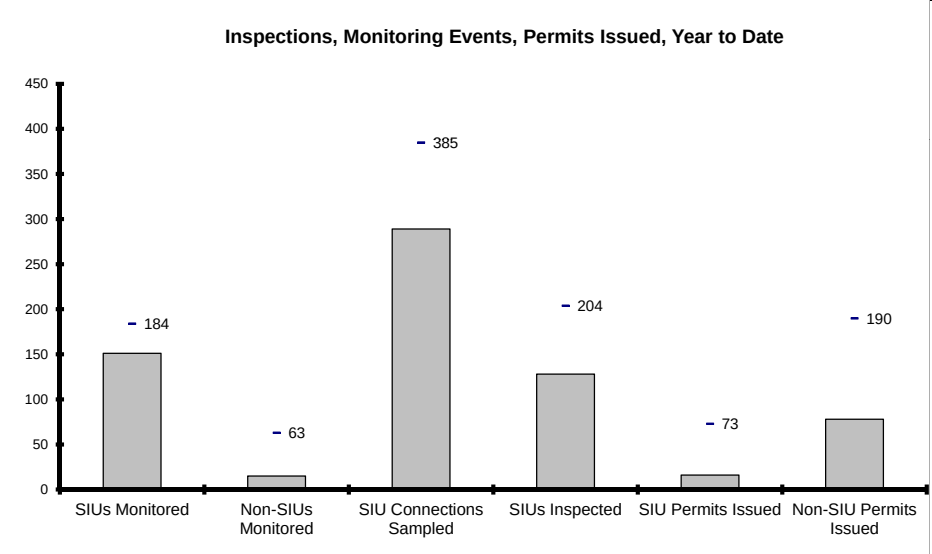

Deer Island, 2 Water, and 4 Wastewater facilites*** participate in the ISO-New England Demand Response Programs. By agreeing to have its generators available to run and thus relieve the New England energy grid of some of MWRA's load during times of high energy demand, MWRA receives monthly Capacity Payments from ISO-NE. When MWRA operates back-up generators during an ISO-NE called event, MWRA also receives energy payments from ISO-NE. Cumulative savings (Capacity Payments only) through November total $29,859 for FOD and $166,166 for DI.

Note: *Only the actual payments received are now being reported.

*** FOD Facilites include: CWTP, Loring Road, Chelsea Creek, Columbus Park, Ward St., and Nut Island.

# Toxic Reduction and Control

2nd Quarter - FY15




EPA Required SIU Monitoring Events
for FY15: 184
YTD : **151**

Required Non-SIU Monitoring Events
for FY15: 63
YTD : **15**

SIU Connections to be Sampled
For FY15: 385
YTD: **289**

EPA Required SIU Inspections
for FY15: 204
YTD: **128**

SIU Permits due to Expire
In FY15: 73
YTD: **16**

Non-SIU Permits due to Expire
for FY15: 190
YTD: **78**

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 samples taken from

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**

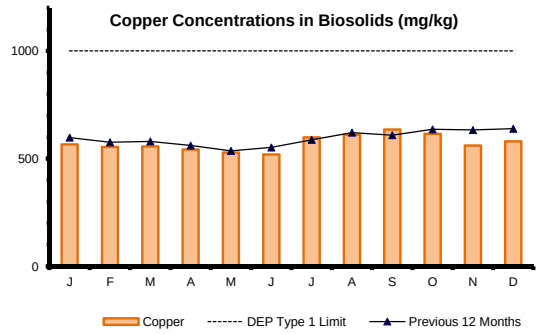
| | 0 to 120 | | 121 to 180 | | 181 or more | | Total Permits Issued | |
|---|---|---|---|---|---|---|---|---|
| | SIU | Non-SIU | SIU | Non-SIU | SIU | Non-SIU | SIU | Non-SIU |
| Jul | 0 | 10 | 0 | 1 | 0 | 1 | 0 | 12 |
| Aug | 2 | 9 | 0 | 1 | 0 | 2 | 2 | 12 |
| Sep | 5 | 19 | 0 | 2 | 0 | 0 | 5 | 21 |
| Oct | 3 | 6 | 0 | 1 | 1 | 2 | 4 | 9 |
| Nov | 2 | 6 | 0 | 0 | 0 | 2 | 2 | 8 |
| Dec | 2 | 15 | 1 | 1 | 0 | 0 | 3 | 16 |
| Jan | | | | | | | 0 | 0 |
| Feb | | | | | | | 0 | 0 |
| Mar | | | | | | | 0 | 0 |
| Apr | | | | | | | 0 | 0 |
| May | | | | | | | 0 | 0 |
| Jun | | | | | | | 0 | 0 |
| % YTD | 88% | 83% | 6% | 8% | 6% | 9% | 16 | 78 |

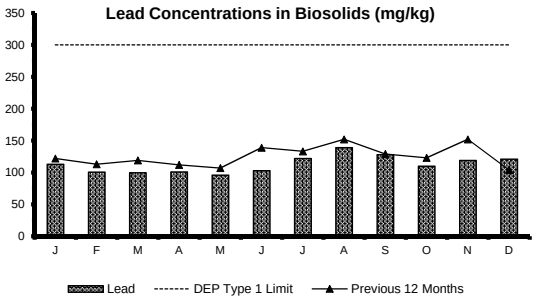
EPA requires MWRA to issue or renew 90% of SIU permits within 120 days of receipt of the application or the permit expiration date - whichever is later. EPA also requires the remaining 10% of SIU permits to be issued within 180 days.

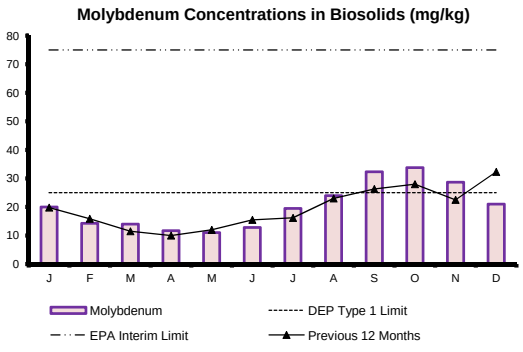
In the second quarter of FY15, forty-two permits were issued. Seven SIU permits and twenty-seven non-SIU permits were issued within 120 days. One SIU and two non-SIU permits were issued within the 120 to 180 day timeframe. One SIU and four non-SIU permits exceeded the 180 day period. Some delays continue: i) awaiting payment and ii) Industrial Coordinators' workload workload. Also this quarter, there was a delay while the permit holder decided whether their operations would continue and if the permit was needed.

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.

In October and November the level of molybdenum was above the DEP type 1 Limit; in December it was below. MWRA and its contractor (NEFCO) generally do not distribute product in Massachusetts between July and January under its approval of suitability.



# Field Operations Highlights – Yellow Notebook Bullets
## 2nd Quarter – FY15

### Western Water Operations and Maintenance

John J. Carroll Water Treatment Plant: "B" Side half plant shut down operations completed. Staff shut down and drained the B-side of the treatment plant and performed all critical annual maintenance tasks with the treatment system secure. These tasks include replacing the rupture discs on the primary contactors, tightening all of the connections on the Ozone delivery system, replacing the check valves in the chemical feed systems, cleaning the primary ozone contactors, cleaning the storage tank and post treatment sections of the process. The UV Contractor completed the removal process of temporary sluice gates and the installation of access ladders. At the completion of the maintenance and construction, staff refilled the treatment and storage tanks, flushed the Metrowest Tunnel and placed the system back in full plant operation with full redundancy on the treated water supply.

Lighting Upgrades: Staff replaced the exterior light fixtures at the Norumbega reservoir headquarters facility and the interior fixtures at the Hultman aqueduct shaft four with high efficiency LED fixtures that extend the operation life of the lights and decrease energy use.

William Brutsch Water Treatment Facility: Facility, Grounds and Aqueduct Maintenance Staff prepared the facility for the dedication ceremony that was held on November 12th 2014. These preparations included, installing new signage, preparing the grounds, painting and cleaning the areas that had been disturbed by the construction project and setting up tents, tables and chairs for the ceremony. The dedication was a successful event and the plant has been operating smoothly since going online.

### Metro Water Operations & Maintenance

Water Pipeline Program: Valve installations and/or replacements were completed in Chelsea on Section 15 (including emergency connection to the Chelsea system); on Section 33 in Everett; and on Section 70 in Saugus. Work began in Brookline on Fisher Ave to replace the existing piping, valves, and meter at Meter 98. A new emergency connection between MWRA and Brookline Water system was completed which will allow for the isolation of Meter 98 for its replacement, with no disruption of service. Major work on the piping and valve replacement will begin in January.

Repair work was undertaken on the Section 56 piping on the General Edwards Bridge (Route 1A) over the Saugus River. A barge was mobilized to provide access to the piping over the water. A second leak was repaired that had surfaced on the southbound roadway during the month. The line remains out of service, due to the condition of the pipe within the superstructure of the bridge. Replacement of short segments may be required in order to return the line to service. The blow off retrofit on Section 84 on Adams and Pearl Street in Malden was completed, utilizing Section 70 as an additional source of water to the NHS area for the duration of the isolation. Service remained normal thru the operation. The leaking blow off valve on Section 63 on Summer Street in Arlington was replaced. Two leaking joints on Section 62 at Forest St at Summer Street in Arlington were repaired. Both joints were re-caulked and bell joint clamps were installed.

Hydrant pressure data recorders were deployed on two fire hydrants in the Lynn Water and Sewer Commission (LWSC) water system as part of the data collection effort to support the LWSC Low Service Reservoir project.

Chestnut Hill Underground Pump Station: All four pumps were successfully run at the station during the quarter, however, some electrical issues occurred. There is an issue with water in the electrical conduits that are embedded in the concrete. Staff installed temporary wiring and ran the pumps successfully. A design will be completed to install surface mounted conduit to minimize the water intrusion issue. The current elevation of the reservoir, which is lower than normal due to the winter draw down, would need to be raised several feet with water from the Sudbury Aqueduct system if the pumps were needed until early spring when the reservoir level will be returned to its normal operating range.

### Operations Engineering: Community Support

Continued coordination with the City of Lynn regarding the city's potential temporary use of MWRA water, while replacing the cover to their low service finished water reservoir.

Along with Water Quality Assurance, assisted the Town of Wellesley to discover and resolve the water quality issues associated with their Pierce Hill Tanks. An access hatch to the larger tank was buried for years. The hatch was uncovered and was found to be corroding with several noticeable holes. This allowed contaminants to enter the tanks. They were isolated, dewatered and necessary repairs were made to the smaller tanks. The smaller tank was disinfected and activated. The larger tank repairs were finished in December and it is hoped to activate the tank in January.

Working with Reading and North Reading and other MWRA Staff on the possibility of MWRA supplying North Reading through Reading; and

Along with Water Quality Assurance, assisted the City of Quincy with a water quality issue with their Ricciuti Drive Tank, including changing tank operating levels and pumping cycles. Also assisted in locating a potential leak nearby.

**Wastewater Operations & Maintenance**

North Main Pump Station Shutdown: Wastewater Operations Staff continues to prepare for the North Main Pump Station Equipment Upgrade project. Staff is providing wastewater system operating conditions, monitoring points, system modeling information and regulatory notification comments.

**Metro Equipment and Facility Maintenance**

Caruso Pump Station and Prison Point Dry Weather Flow Pump #2 Variable Frequency Drive (VFD): VFDs at these two facilities failed. New VFDs were purchased and installed by MWRA Electrical Staff.

New Neponset Soft Starter: The Soft Starter for Pump #3 failed. A new soft starter was purchased and installed by MWRA Electricians.

Gillis Sewerage Pump Ejectors: The sewerage ejection pumps were worn and beyond useful life. New pumps were purchased and installed by MWRA Plumbers and Electricians.

**Metering**

Staff continues to work with Telog and MIS to improve functionality of the new web module. Staff continues to work on a new scope of services for the Wastewater Meter Replacement Contract. Staff notified Everett, Malden, Medford, Melrose, Newton, Norwood, Revere and Weston of increases in their flows indicating possible leaks. Staff worked with Malden to help identify valve closures necessary to divide their high service system into three separate districts to aid in identifying locations of leak potential.

**Environmental Quality**

UCMR3: Quarterly samples were collected as part of EPA's third Unregulated Contaminant Monitoring Rule (UCMR3) Program in October. This completes the set of samples for 2014. Staff finalized sample locations for the 2015 UCMR3 Sampling Program. In 2015, ENQUAL-Water MWRA will sample eight fully-served communities on a quarterly basis. Community samplers will be responsible for sampling at six partially-served communities and two CVA communities. Staff prepared a presentation of the UCMR3 Rule as well as sampling protocols and logistics that will be offered to partially-served communities in early January.

Community Support:

Staff provided sampling and testing support to Wellesley, Weston, and Quincy in October. Staff collected depth samples in Wellesley's Pierce Tank which has been cleaned and disinfected following the E. coli event in August, and the tank was reactivated with DEP approval. Complaint samples were collected and tested in Weston, and staff also identified problems with field testing equipment used by Weston Water Department. The issue has been resolved. Samples were collected at Riccutti Drive Water Storage Tank in Quincy to evaluate and respond to water quality concerns in that tank. Poor results led Quincy Water Department to drain, chlorinate and refill the tank and this greatly improved chlorine residuals.

Staff provided assistance to the Hanscom Air Force Base in November in response to a taste and odor complaint at a maintenance building located on base property. Field results showed a decrease in chlorine residual in two taps within the building. ENQUAL-Water Staff provided help with field testing and sampling and provided preliminary and final results to Hanscom Air Force Base Staff.

Staff provided assistance to the Boston Water & Sewer Commission, in November, in response to a complaint of accumulation on screens associated with in-line water meters. ENQUAL-Water Staff, in conjunction with a MWRA Valve Crew, sampled several air valves in close proximity to the complaint site. Results show that screens in large meters may disrupt flow resulting in biofilm accumulations, thus requiring periodic cleaning.

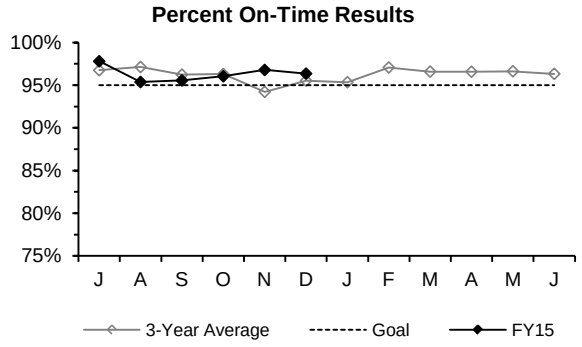
Staff provided assistance to the Chelsea Water Department, in November, in response to a water quality complaint originated by a business on Crescent Avenue. The tenant complained about discoloration and filter fouling. ENQUAL-Water Staff conducted testing on several samples and forwarded additional samples for metals testing to DLS. The final results show that samples leading to the building are within acceptable water quality regulatory and non-regulatory targets. A sample taken from the premise plumbing indicated a copper result close to the DEP secondary MCL for drinking water. The final report was provided to Chelsea Water Department Staff

Contaminant Monitoring:

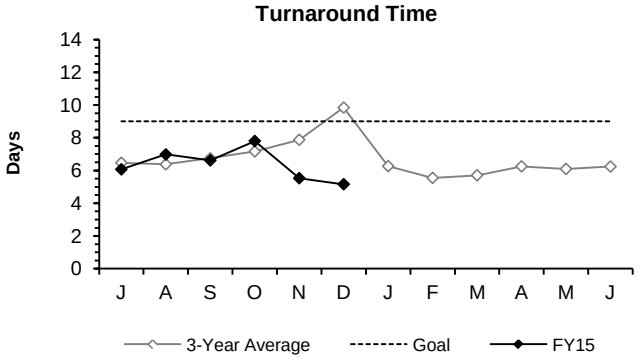
The Contaminant Monitoring Station at Arlington Covered Reservoir and Bellevue Standpipes are fully installed and providing continuous data.

# Laboratory Services

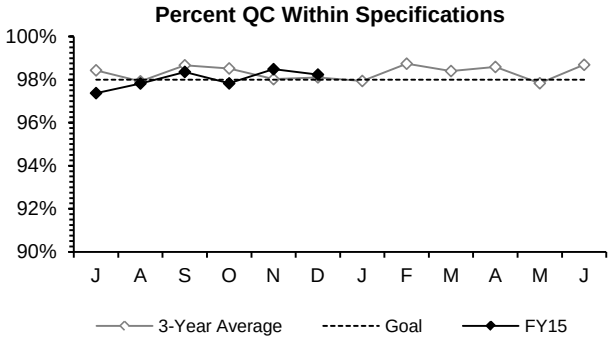
2nd Quarter - FY15



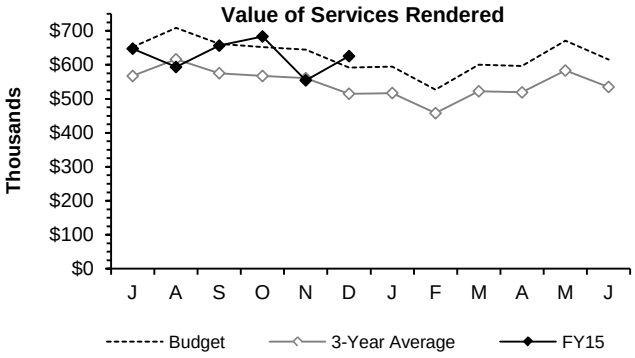

The Percent On-Time measurement was above the 95% goal each month of the quarter.




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




Percent of QC tests meeting specifications was above the 98% in-house goal two out of three months of the quarter.




Value of Services Rendered was above the seasonally adjusted budget projection two out of three months of the quarter. Year to date we are 4% below budget, while staffing has averaged 9% below budget

**Highlights:**
Dr. Delaney has been appointed by the EPA Administrator to a two year term on the EPA Environmental Laboratory Advisory Board (ELAB) a committee which advises EPA with regard to environmental laboratories. He also gave presentations on improving cyanide testing at three meetings: ELAB, DEP Laboratory Advisory Committee, and the Independent Testing Laboratory Association.

**Quality Assurance:**
The few corrective actions identified in the Internal Audit management advisory on Lab Quality Control have been completed. The quarterly internal audit on Sampling and Sample Custody found good compliance with requirements.

**Security/Mobile Lab:**
Continuing to monitor DPH weekly Ebola Prep conference calls. Provided information for Wachusetts spill response plan and CWS alarm response plan.

**DITP:**
The Lab collected random quality control samples during fuel delivery.

**Wastewater Operations:**
Preparations were made to process samples from the CSO Treatment Evaluation special study when they are collected during wet weather CSO activations.

**ENQUAL Clean Water:**
Working with ENQUAL on the impact of the EPA "Sufficiently Sensitive" rule to identify any contaminants that need to be monitored with more sensitive methods than we are currently using.

**ENQUAL Drinking Water:**
A new quarterly water sampling program focusing on nutrients was initiated at the Chestnut Emergency Distribution Reservoir in support of future efforts to reduce blue-green algae.

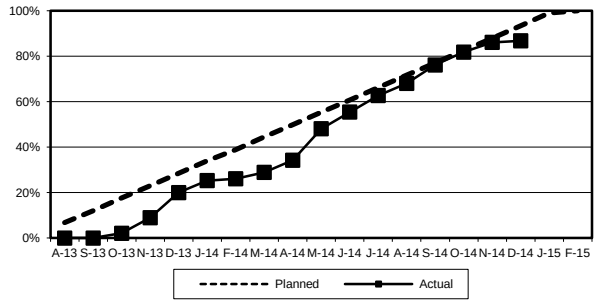
# CONSTRUCTION PROGRAMS

# Projects In Construction

Q2 – FY15

(Progress Percentages based on Construction Expenditures)

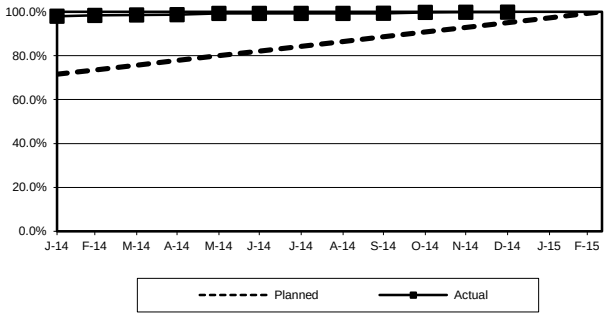
## Nut Island Headworks Electrical and Conveyor Improvements Progress – December 2014




*Project Summary:* This project will replace the floor-slab-embedded electrical conduits in the bottom level of the headworks, as well as improvements to the grit and screenings conveyors.

*Status and Issues:* As of December, the electrical contractor continued with the installation of conduit for existing equipment on the bottom level of the facility and power feed cut-overs to existing equipment in the pump, blower and odor control areas. In addition, they began the cut-over of the carbon beds and pneumatic dampers.

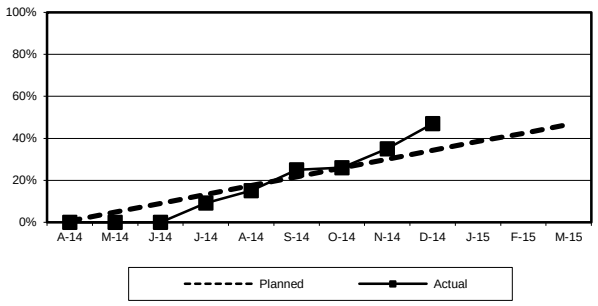
## UV Disinfection Facilities CWTP Progress – December 2014




*Project Summary:* In accordance with the EPA's requirement to have two primary methods of disinfection, the Authority will add an Ultraviolet (UV) light disinfection process at the Carroll Water Treatment Plant, which will render Cryptosporidium inactive.

*Status and Issues:* As of December, the electrical contractor mobilized back to the site to work on punchlist items generated by the State Electrical Inspector. Warrantee work was performed on the dehumidifier units and the flood alarm was activated and programmed for connection to SCADA. Contractor removed temporary sluice gates in B side of chlorine contact channel during half plant shutdown.

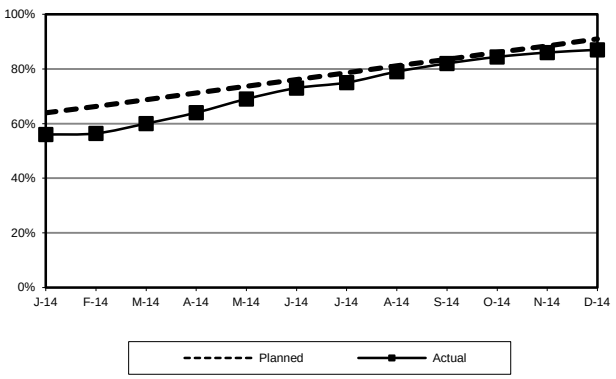
## Clinton Digester and Primary Clarifier Rehab Progress - December 2014




*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 December, Contractor continued with the sandblasting and painting of the digester floating cover. The coating of Primary Clarifiers 3&4 was completed, as well as the backfilling and railing installation.

## Spot Pond Water Storage Facility Progress – December 2014




*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.

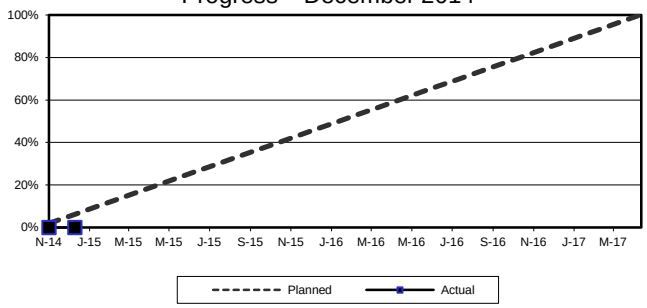
*Status and Issues:* As of December, the Contractor continued with the internal remedial work on Tank #2 walls and columns. They continued waterproofing the roof decks of both tanks. In addition, they worked on the mechanical piping, plumbing, electrical and HVAC installations in the pump station.

# Projects In Construction

Q2 – FY15

(Progress Percentages based on Construction Expenditures)

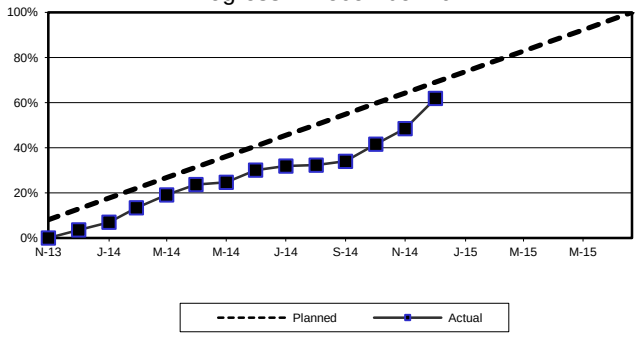
Water Mains: Section 36, W11C and S9-A
Progress – December 2014




*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:* This contract was awarded on 11/4/14 to RJV Construction. As of December, the preliminary schedule was under review and the Contractor has installed the construction trailers at the Brattle Court Pump Station lot.

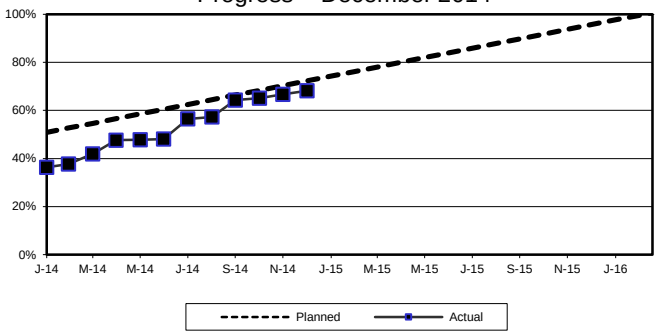
Pump, Gear Box and Diesel Engine Upgrade
Prison Point and Cottage Farm CSO Facilities
Progress - December 2014




*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 December, Philadelphia Gear performed factory testing of the Prison Point Right Angle Gear Drive #1 at their Delaware facility which was witnessed by FST. The new wear ring and pull out assembly inside Pump #1 was installed and factory testing of Pumps 1 – 4 at the Maryland facility was witnessed by FST.

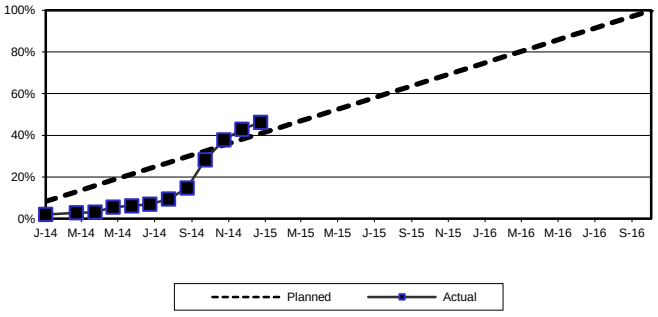
North Main Pump Station VFDs & Motors
Progress - December 2014




*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 December, VFD 2 4160V power on 12/11/14 and testing of systems started. Loop checks performed of field device wiring and VFD interface. Motor coupled and 4 hour run on 12/18/14. VFD 2 and Motor 2 started into the 48 hour IST on 12/18/14 and completed on 12/20/14. VFD 2 started 10 day OAD on 12/20/14 and ended on 12/30/14.

Primary and Secondary Clarifier Scum Tip Tubes
Progress - December 2014




*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 December the contractor, Walsh Construction, continued with the replacement of scum skimmers (Completed 88 of 196) and the installation of conduit and wiring in Secondary & Primary Areas from control panel to tube actuators.

# CSO CONTROL PROGRAM

2nd Quarter - FY15

MWRA and the CSO communities have 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. The following table reports on the progress of the three CSO projects not yet complete, as well as BWSC's continuing 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 December 31, 2014 |
|---|---|---|---|---|---|
| | | 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.<br>Contract 1 — CSO outfall rehab — $ 4.1 M — Complete<br>Contract 2 — Sewer separation — $ 5.9 M — Complete<br>Contract 3A — Sewer separation — $11.8 M — Complete<br>Contract 3B — Sewer separation — $14.8 M — Sub. Comp.<br>Contract 4 — Sewer separation — $13.9 M — 92% complete<br>Contract 5 — Cleaning & Lining — ineligible — Underway<br>Contract 6 — Downspout Disconnect — $ 0.2M — NTP 12/8/14<br>Contract 7 — Pavement restoration — $ 1.2 M — Complete<br>Contract 8 — Pavement restoration — $ 4.8 M — 50% complete<br>The MWRA Board approved Amendment 15 to the BWSC MOU/FAA on November 12, 2014, increasing the total award amount to $296.3 million. BWSC plans to complete all 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<br>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.<br>Contract 8A — Sewer separation — $10.6M — Subst. complete<br>Contract 8B — Sewer separation — $18.3M — 77% complete<br>Contract 9 — Sewer separation — $ 7.1M — 58% complete<br>Concord Lane — Sewer separation — $1.8M — Bids received<br>Cambridge recently received bids for Concord Lane and plans to meet with the property owner and contractor to finalize the last l right of entry for construction. Cambridge plans to commence construction in Concord Lane this spring and 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 | MWRA issued the notice to proceed with construction on August 28, 2014. The contractor is 31% complete and plans to complete all work by October 31, 2015, in compliance with Schedule Seven. |

| Other CSO Related Work | | | | |
|---|---|---|---|---|
| **Project** | **Court Milestones in Schedule Seven (Shaded milestones are complete.)** | | | **Status as of December 31, 2014** |
| | **Commence Design** | **Commence Construction** | **Complete Construction** | |
| South Dorchester Bay Sewer Separation Post-Construction Inflow Removal | N/A | N/A | N/A | BWSC has completed its investigation of alternatives for removing additional stormwater inflow from its Dorchester Interceptor or otherwise relieving hydraulic conditions in the interceptor during extreme storms following the closing of CSO regulators with completion of the South Dorchester Bay sewer separation project in 2007. The findings from the final report are under review. 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 FY15 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
2nd Quarter – FY15

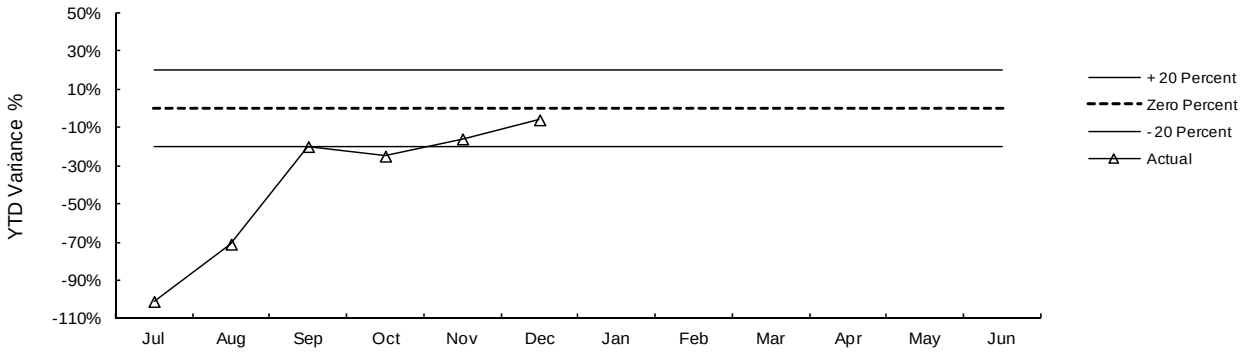
The Year-To-Date variances are highlighted below:

| FY15 Capital Improvement Program<br>Expenditure Variances through December by Program<br>($000) | | | | |
|---|---|---|---|---|
| Program | FY15 Budget Through December | FY15 Actual Through December | Variance Amount | Variance Percent |
| Wastewater | 31,350 | 33,265 | 1,915 | 6% |
| Waterworks | 17,536 | 14,020 | (3,516) | -20% |
| Business and Operations Support | 2,916 | 1,447 | (1,469) | -50% |
| Total | 51,801 | $48,731 | ($3,070) | -6% |

Overspending within Wastewater is primarily due contractor progress on Scum Skimmer and Clinton Digester Rehabilitation contracts, updated costs estimates due to increase scope for Reserved Channel Sewer Separation, and greater than anticipated community requests for grants and loans for the infiltration/inflow (I/I) Program. This was partially offset by timing of work for Electrical Equipment Upgrade Construction 4, Centrifuge Backdrive Replacement, Butterfly Valve Replacement, and North Main Pump Station (NMPS) Variable Frequency Drive Construction contracts. Underspending in Waterworks is primarily due to timing of work for the Spot Pond Storage Facility Design/Build contract and less than anticipated spending on WASM 3 Design and Southern Extra High Design contracts. This was partially offset by greater than anticipated community requests for loans, timing of Watershed Land purchases, and contractor progress for the Quabbin Ultraviolet Disinfection Construction contract.

## CIP Expenditure Variance

*Total FY15 CIP Budget of $137,600,000.*




## 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 12/27/2014 | $49 million |
| Unused capacity under the debt cap: | $853 million |
| Estimated date for exhausting construction fund without new borrowing: | Oct-15 |
| Estimated date for debt cap increase to support new borrowing: | Not anticipated at this time |
| Commercial paper outstanding:<br>Commercial paper capacity: | $130 million<br>$350 million |
| Budgeted FY15 capital spending:* | $125 million |

* Cash based spending is discounted for construction retainage.

# DRINKING WATER QUALITY AND SUPPLY

# Source Water – Microbial Results and UV Absorbance

2nd Quarter – FY15

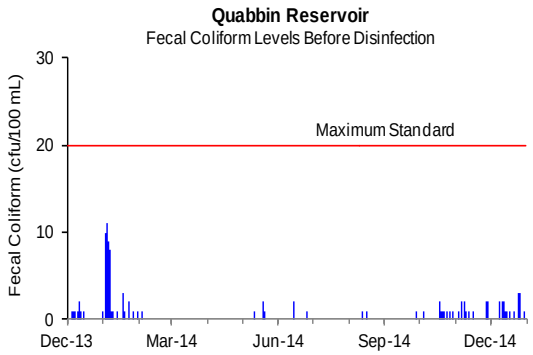
## Source Water – Microbial Results

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 2nd Quarter were below 20 cfu/100ml. **For the current six-month period, 0.0% of the samples have exceeded a count of 20 cfu/100mL.**

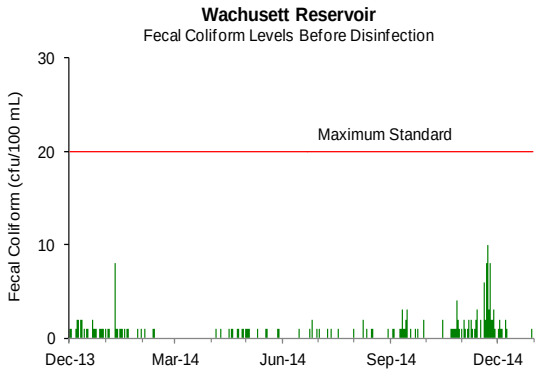



### Sample Site: Wachusett Reservoir

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

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

All samples collected during the 2nd Quarter were below 20 cfu/100mL. **For the current six-month period, 0% of the samples exceeded a count of 20 cfu/100mL.**

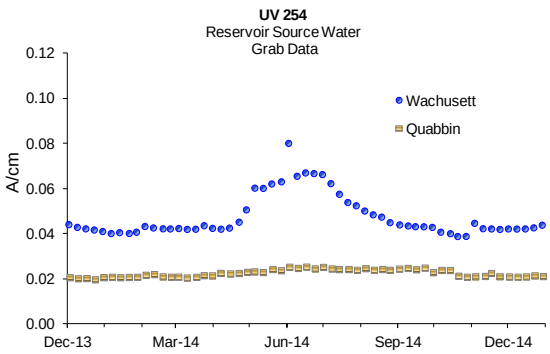



## Source Water – UV Absorbance

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

Quabbin Reservoir UV-254 levels are currently around 0.021 A/cm.

Wachusett Reservoir UV-254 levels are currently around 0.044 A/cm.



## Source Water – Turbidity

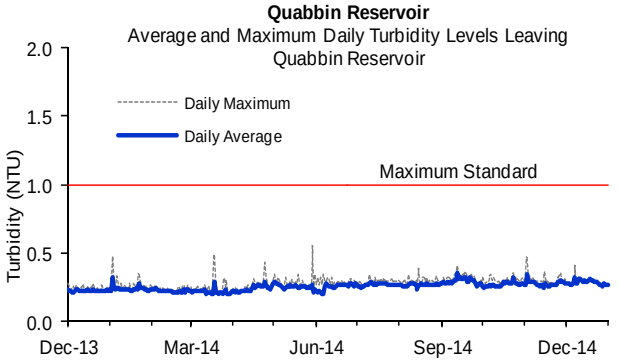
2nd Quarter – FY15

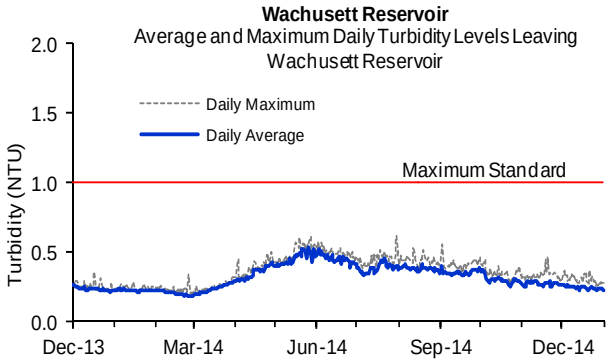
Turbidity is a measure of suspended and colloidal particles including clay, silt, organic and inorganic matter, algae and microorganisms. The effects of turbidity depend on the nature of the matter that causes the turbidity. High levels of particulate matter may have a higher disinfectant demand or may 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

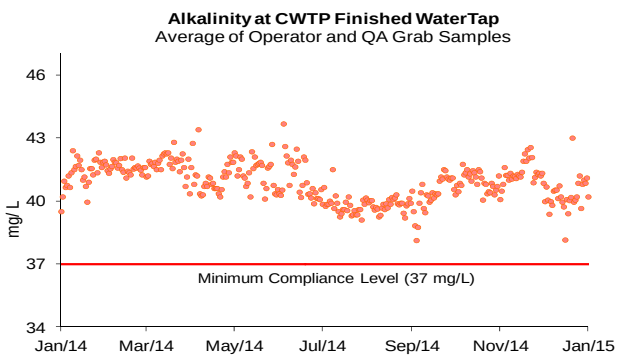


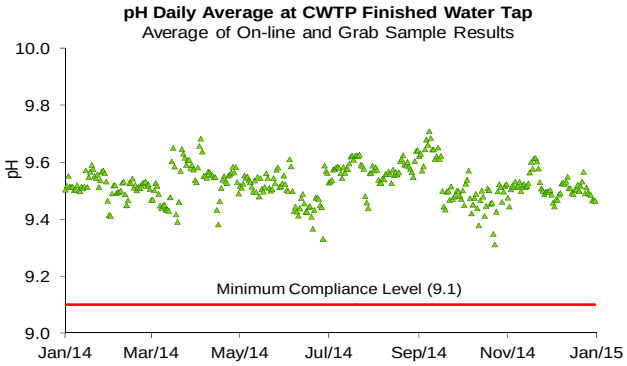




## Treated Water – pH and Alkalinity Compliance

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.

Distribution system samples were collected on December 10 and 11, 2014. Distribution system sample pH ranged from 9.4 to 9.6 and alkalinity ranged from 40 to 42 mg/L. No sample results were below DEP limits for this quarter.



# Treated Water – Disinfection Effectiveness

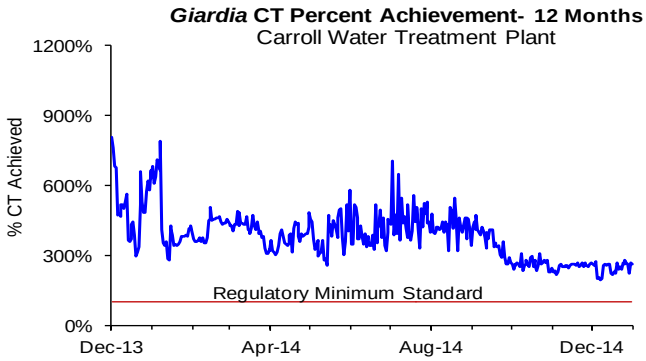
2nd Quarter – FY15

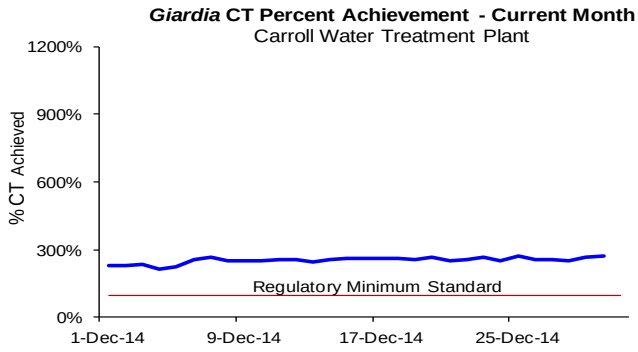
At the Carroll Water Treatment Plant (CWTP), MWRA meets the required 99.9% (3-log) inactivation of *Giardia* using ozone (reported as CT: concentration of disinfectant x contact time) and the required 99% (2-log) inactivation of *Cryptosporidium* using UV (reported as IT: intensity of UV x time). MWRA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

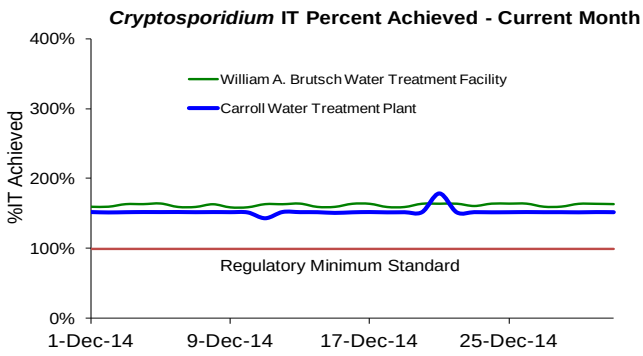
- Ozone dose at the CWTP varied between 1.1 to 1.6 mg/L for the quarter.
- *Giardia* CT was maintained above 100% at all times the plant was providing water into the distribution system this quarter, as well as every day for the last fiscal year.
- *Cryptosporidium* IT was maintained above 100% during the month. Off-spec water was less than 5%.

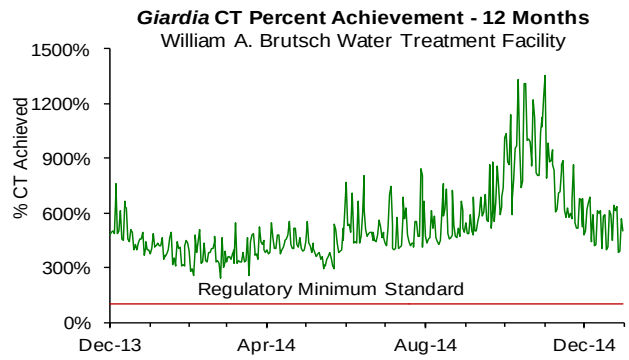


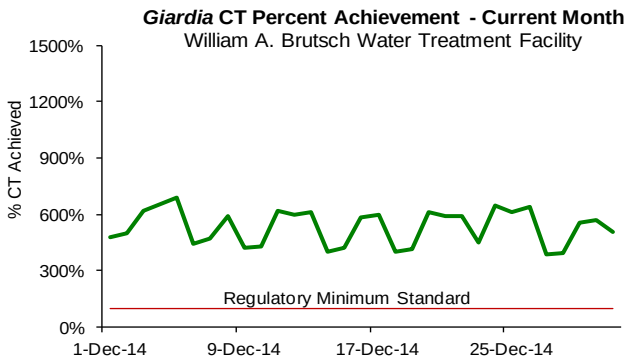




## Quabbin Reservoir (CVA Supply) at: William A. Brutsch Water Treatment Facility

- 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 varied between 1.3 to 1.6 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%.
- The WABWTF UV treatment process officially went on-line for regulatory compliance on October 1.



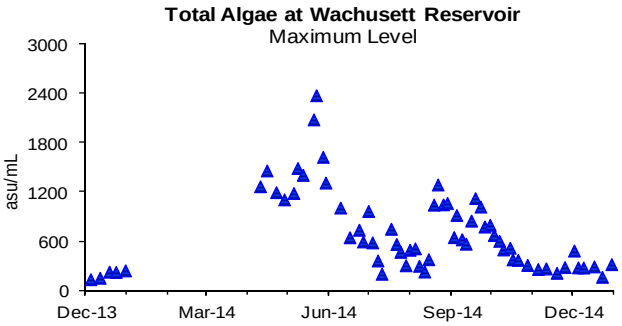
## Source Water - Algae

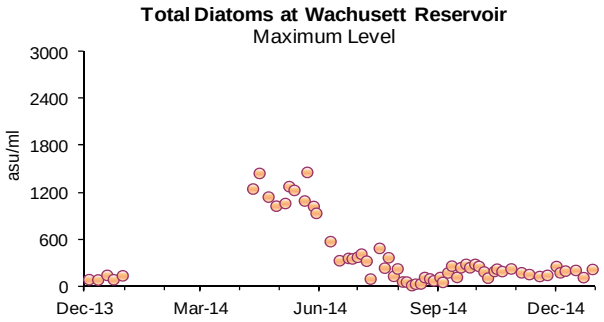
2nd Quarter – FY15

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 2nd Quarter, no complaints which may be related to algae were reported from local water departments.



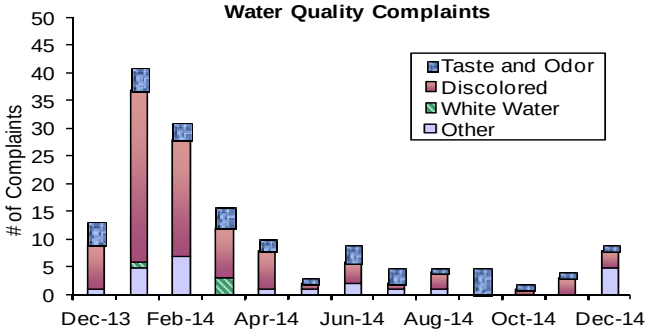



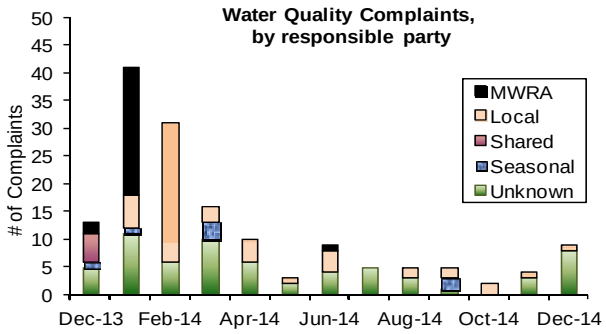

## Drinking Water Quality Customer Complaints: Taste, Odor, or Appearance

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 15 complaints during the quarter compared to 32 complaints for 2nd Quarter of FY14. Of these complaints, 7 were for "discolored water", 3 were for "taste and odor", and 5 were for "other". Of these complaints, 4 were local community issues and 11 were unknown in origin.



# Bacteria & Chlorine Residual Results for Communities in MWRA Testing Program

2nd Quarter – FY15

While all communities collect bacteria samples and chlorine residual data for the Total Coliform Rule (TCR), data from the 43 systems that use MWRA's Laboratory are reported below.

The MWRA TCR program has 141 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 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 2nd Quarter, 15 of the 6,401 community samples (0.2% system-wide) submitted to MWRA labs for analysis tested positive for coliform (Canton, South Hadley, Waltham, and Wellesley – in October; Bedford, Hanscom AFB, and Reading – in November; Bedford and Melrose– in December). Hanscom AFB violated the TCR for November. None of the 1,948 MWRA samples (0.0%) tested positive for total coliform. No community sample tested positive for *E.coli*. Only 6.6% 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 Locations | 320 | 0 (0%) | 0 | | 1.87 | 2.54 |
| d | Shared Community/MWRA sites | 1628 | 0 (0%) | 0 | | 0.02 | 2.08 |
| | *Total: MWRA* | 1948 | 0 (0%) | 0 | | 0.02 | 2.16 |
| | ARLINGTON | 188 | 0 (0%) | 0 | | 0.03 | 1.52 |
| | BELMONT | 104 | 0 (0%) | 0 | | 0.02 | 1.71 |
| | BOSTON | 795 | 0 (0%) | 0 | | 0.00 | 2.28 |
| | BROOKLINE | 221 | 0 (0%) | 0 | | 0.05 | 2.04 |
| | CHELSEA | 169 | 0 (0%) | 0 | | 1.20 | 1.94 |
| | DEER ISLAND | 52 | 0 (0%) | 0 | | 1.21 | 2.01 |
| | EVERETT | 169 | 0 (0%) | 0 | | 1.01 | 1.14 |
| | FRAMINGHAM | 216 | 0 (0%) | 0 | | 0.21 | 2.00 |
| | LEXINGTON | 126 | 0 (0%) | 0 | | 0.04 | 2.30 |
| | LYNNFIELD | 18 | 0 (0%) | 0 | | 0.07 | 0.92 |
| | MALDEN | 235 | 0 (0%) | 0 | | 0.06 | 2.12 |
| | MARBLEHEAD | 72 | 0 (0%) | 0 | | 0.16 | 1.83 |
| | MEDFORD | 205 | 4 (2.45%) | 0 | No | 0.06 | 1.95 |
| | MELROSE | 163 | 0 (0%) | 0 | | 0.02 | 1.34 |
| | MILTON | 96 | 0 (0%) | 0 | | 1.11 | 1.90 |
| | NAHANT | 30 | 0 (0%) | 0 | | 0.05 | 1.53 |
| | NEWTON | 276 | 0 (0%) | 0 | | 0.21 | 2.11 |
| | NORWOOD | 99 | 0 (0%) | 0 | | 0.03 | 1.67 |
| | QUINCY | 321 | 0 (0%) | 0 | | 0.07 | 1.68 |
| | READING | 144 | 1 (0.69%) | 0 | No | 0.02 | 1.08 |
| | REVERE | 210 | 0 (0%) | 0 | | 1.18 | 2.20 |
| | SAUGUS | 104 | 0 (0%) | 0 | | 1.31 | 1.84 |
| | SOMERVILLE | 272 | 0 (0%) | 0 | | 0.37 | 1.78 |
| | SOUTHBOROUGH | 30 | 0 (0%) | 0 | | 0.10 | 1.98 |
| | STONEHAM | 98 | 0 (0%) | 0 | | 0.12 | 2.00 |
| | SWAMPSCOTT | 54 | 0 (0%) | 0 | | 0.14 | 1.44 |
| | WALTHAM | 222 | 2 (0.90%) | 0 | No | 0.76 | 2.15 |
| | WATERTOWN | 140 | 0 (0%) | 0 | | 0.53 | 2.07 |
| | WESTBORO HOSPITAL | 15 | 0 (0%) | 0 | | 0.07 | 0.50 |
| | WESTON | 48 | 0 (0%) | 0 | | 1.10 | 2.29 |
| | WINTHROP | 72 | 0 (0%) | 0 | | 0.19 | 1.65 |
| | *Total: Fully Served* | *4964* | *7 (0.14%)* | | | | |
| | BEDFORD[e] | 63 | 2 (3.17%) | 0 | No | 0.11 | 1.28 |
| | CANTON | 89 | 1 (1.12%) | 0 | No | 0.01 | 0.97 |
| | HANSCOM AFB | 42 | 2 (4.76%) | 0 | Yes | 0.01 | 1.22 |
| | MARLBORO | 126 | 0 (0%) | 0 | | 0.28 | 2.30 |
| | NEEDHAM | 123 | 0 (0%) | 0 | | 0.05 | 1.29 |
| b | NORTHBORO | 48 | 0 (0%) | 0 | | 0.04 | 1.38 |
| | PEABODY | 234 | 0 (0%) | 0 | | 0.05 | 1.07 |
| | WAKEFIELD | 156 | 0 (0%) | 0 | | 0.30 | 1.56 |
| | WELLESLEY | 119 | 2 (1.68%) | 0 | No | 0.03 | 0.85 |
| | WILMINGTON | 85 | 0 (0%) | 0 | | 0.10 | 1.47 |
| | WINCHESTER | 91 | 0 (0%) | 0 | | 0.13 | 1.21 |
| | WOBURN | 210 | 0 (0%) | 0 | | 0.12 | 1.13 |
| c | SOUTH HADLEY FD1 | 51 | 1 (1.96%) | 0 | No | 0.08 | 0.45 |
| | *Total: CVA & Partially Served* | *1437* | *8 (0.56%)* | | | | |
| | *Total: Community Samples* | *6401* | *15 (0.23%)* | | | | |

(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.
(e) Sample collection period starts October 8, 2014 by DEP.

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

2nd Quarter – FY15

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. Data prior to Q1 2013 reports the running annual average, and since Q1 2013, the maximum LRAA is reported (in addition to min and max values).

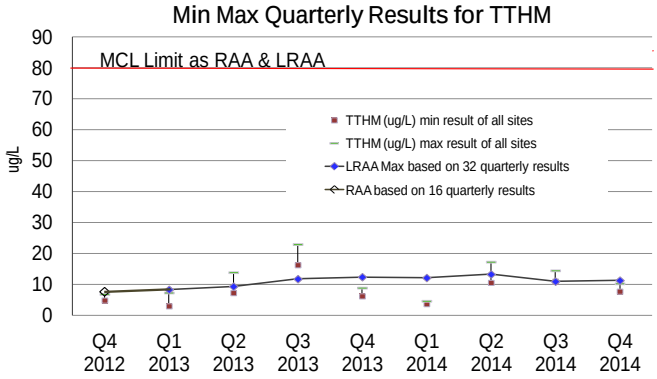
For the CVA communities, effective Q3 2013, under the Stage 2 DBP Rule, compliance is based on a LRAA for each community. Sampling locations have increased from 12 to 14 each quarter. Prior to Q3 2013, the running annual average is reported, and since Q3 2013, the maximum LRAA is reported (in addition to min and max values). The chart below combines all three CVA communities data.

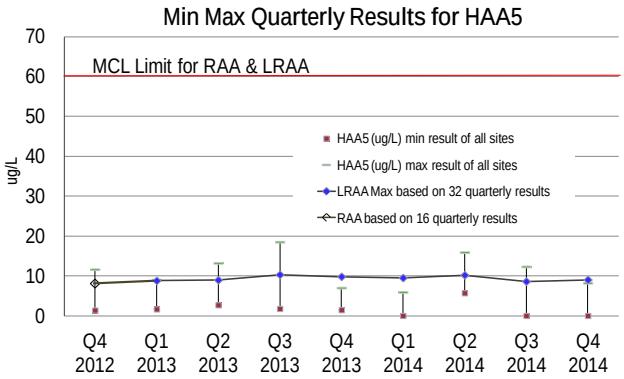
Partially served and CVA communities are responsible for their own compliance monitoring and reporting, and must be contacted directly for their individual results.

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.

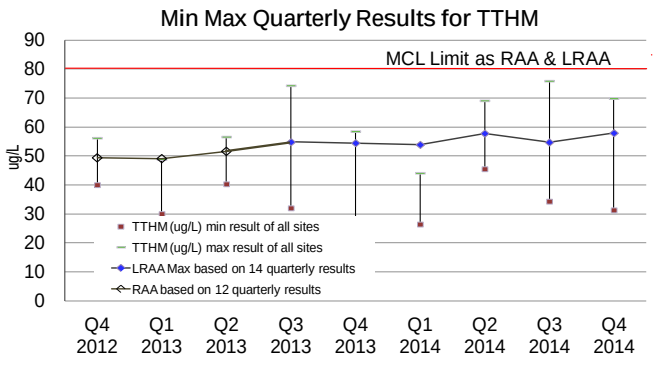
The RAA for TTHMs and HAA5s for MWRA's Compliance Program (represented as the line in the top two graphs below) remain below current standards. The LRAA for TTHMs = 11.3 ug/L; HAA5s = 9.0 ug/L. The current RAA for Bromate = 0.0 ug/L. CVA's DBP levels continue to be below current standards.

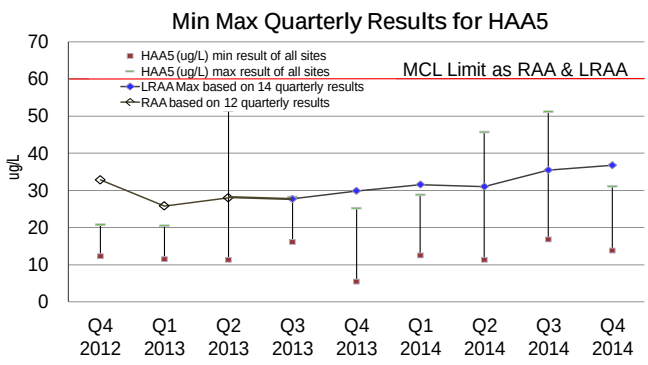
### MetroBoston Disinfection By-Products




### CVA Disinfection By-Products



# Water Supply and Source Water Management

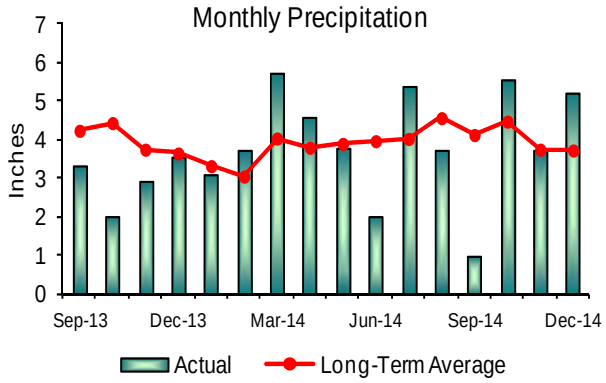
2nd Quarter – FY15

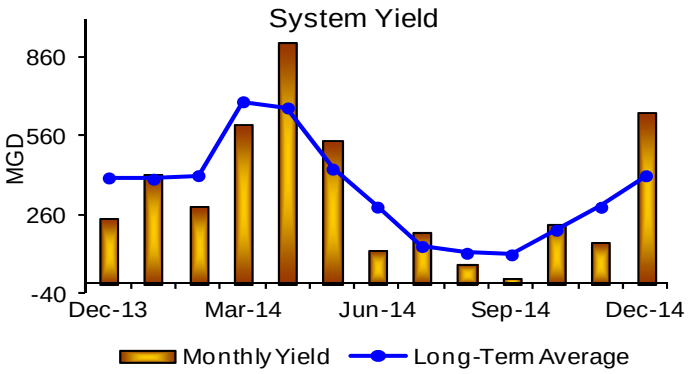
**Background**

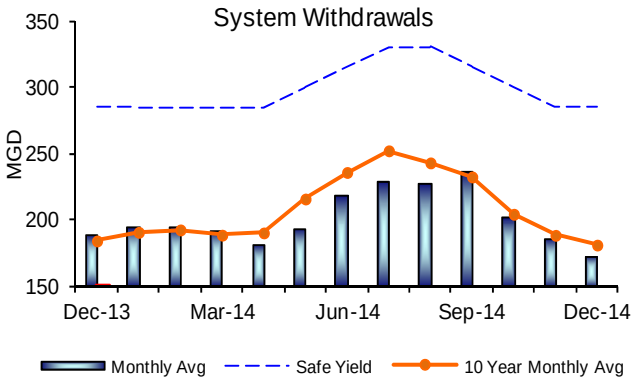
A reliable supply of water in MWRA's reservoirs depends on adequate precipitation during the year and seasonal hydrologic inputs from watersheds that surround the reservoirs. Demand for water typically increases with higher summer temperatures and then decreases as temperatures decline. Quabbin Reservoir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

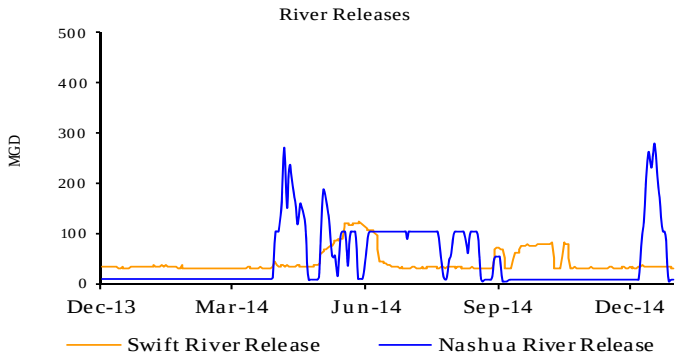
**Outcome**

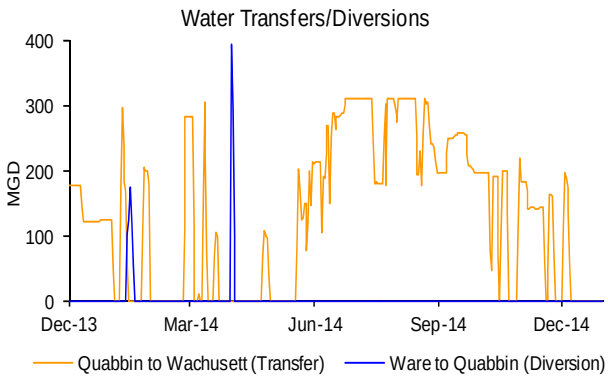
Quabbin Reservoir level remains within the normal operating range for this period of the year. The volume of the Quabbin Reservoir was at 93.3% as of December 31, 2014; a 1.8% increase for the quarter, which represents an increase of 7.8 billion gallons of storage. Yield and precipitation for the quarter were above their respective quarterly long term averages. Monthly withdrawal continues to be below its long-term average.

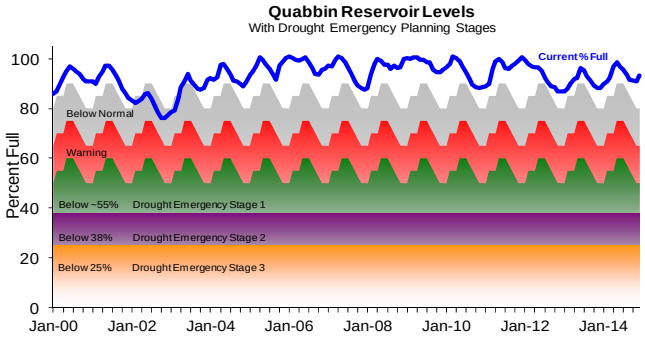


# WASTEWATER QUALITY

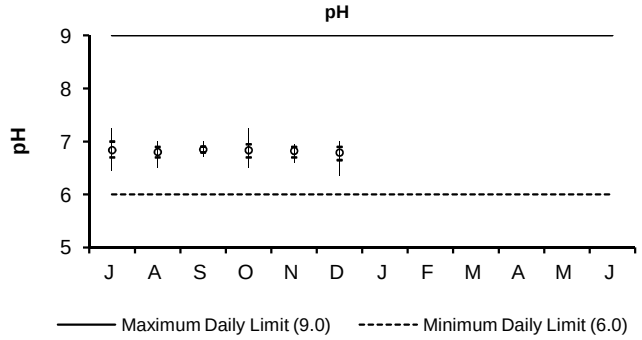
## NPDES Permit Compliance: Deer Island Treatment Plant

2nd Quarter - FY15

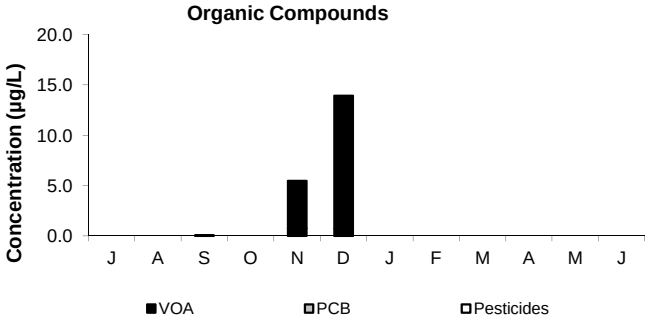
**NPDES Permit Limits**

| *Effluent Characteristics* | | *Units* | *Limits* | *October* | *November* | *December* | *1st Quarter Violations* | *FY15 YTD Violations* |
|---|---|---|---|---|---|---|---|---|
| Dry Day Flow: | | mgd | 436 | 266.6 | 273.7 | 283.9 | 0 | 0 |
| cBOD: | Monthly Average | mg/L | 25 | 5.8 | 5.5 | 5.7 | 0 | 0 |
| | Weekly Average | mg/L | 40 | 7.9 | 6.5 | 7.5 | 0 | 0 |
| TSS: | Monthly Average | mg/L | 30 | 7.0 | 6.5 | 9.1 | 0 | 0 |
| | Weekly Average | mg/L | 45 | 11.5 | 8.2 | 16.9 | 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 | 38 | 37 | 48 | 0 | 0 |
| | Weekly Geometric Mean | col/100mL | 14000 | 8 | 8 | 13 | 0 | 0 |
| | % of Samples >14000 | % | 10 | 0 | 0 | 0 | 0 | 0 |
| | Consecutive Samples >14000 | # | 3 | 0 | 0 | 0 | 0 | 0 |
| pH: | | SU | 6.0-9.0 | 6.5-7.3 | 6.6-7.0 | 6.4-7.0 | 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 | 50 | 50 | 25 | 0 | 0 |
| | Inland Silverside | % | ≥1.5 | 50 | 100 | 100 | 0 | 0 |

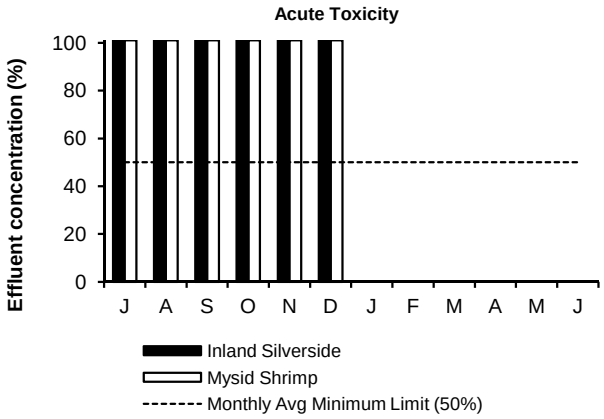
There have been no permit violations in FY15 to date at the Deer Island Treatment Plant.



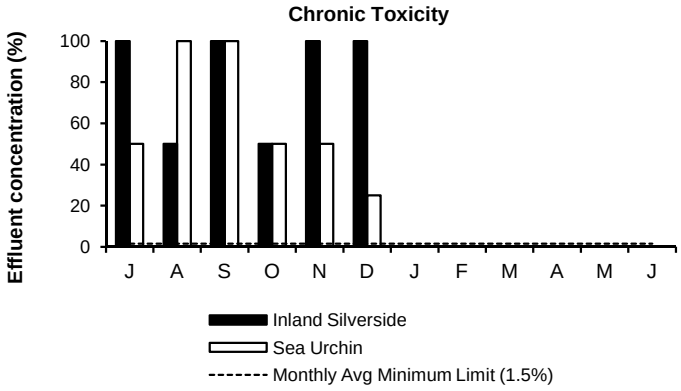

pH is a measure of the alkalinity or acidity of the effluent. Fluctuations in pH do not have an adverse effect on marine environments. Because of the pure oxygen used in the activated sludge reactor, the effluent pH tends to be at the lower pH range. pH measurements for the 2nd Quarter were within the 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 has significantly reduced organic compounds in the effluent stream. In the 2nd Quarter, some volatile organic compounds were detected in the effluent in November and December. These spikes happen occasionally; there are no permit limits on VOCs. All other organic compounds were below the detection limit for the quarter.




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 2nd 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 2nd Quarter for both the inland silverside and sea urchin.

## NPDES Permit Compliance: Clinton Wastewater Treatment Plant

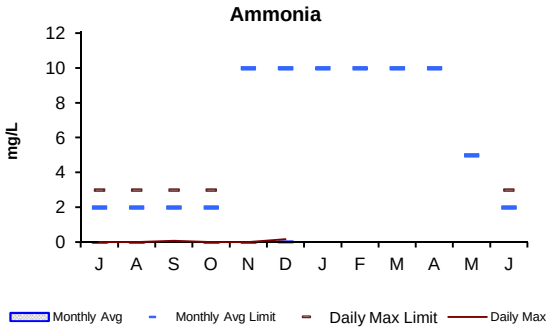
2nd Quarter - FY15

**NPDES Permit Limits**

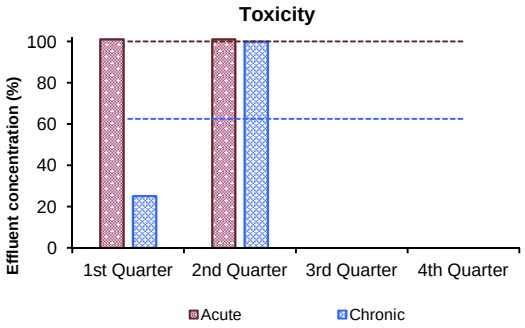
| *Effluent Characteristics* | | *Units* | *Limits* | *October* | *November* | *December* | *2nd Quarter Violations* | *FY15 YTD Violations* |
|---|---|---|---|---|---|---|---|---|
| Flow: | Running Average: | mgd | 3.01 | 2.31 | 2.34 | 2.55 | 0 | 0 |
| BOD: | Monthly Average: | mg/L | 20 | 2.0 | 2.4 | 3.7 | 0 | 0 |
| | Weekly Average: | mg/L | 20 | 2.4 | 2.7 | 4.4 | 0 | 0 |
| TSS: | Monthly Average: | mg/L | 20 | 2.9 | 3.6 | 3.7 | 0 | 0 |
| | Weekly Average: | mg/L | 20 | 3.3 | 4.7 | 5.5 | 0 | 0 |
| pH: | | SU | 6.5-8.3 | 7.1-7.6 | 7.3-7.5 | 6.9-7.4 | 0 | 0 |
| Dissolved Oxygen: | Daily Minimum: | mg/L | 6 | 6.9 | 8.4 | 9.3 | 0 | 0 |
| Fecal Coliform: | Daily Geometric Mean: | col/100mL | 400 | 4 | 5 | 12 | 0 | 0 |
| | Monthly Geometric Mean: | col/100mL | 200 | 3 | 3 | 4 | 0 | 0 |
| TCR: | Monthly Average: | ug/L | 50 | 0.22 | <20 | <20 | 0 | 0 |
| | Daily Maximum: | ug/L | 50 | 6.67 | <20 | <20 | 0 | 0 |
| Total Ammonia Nitrogen: | November 1 - March 31 | | | | | | | |
| | Monthly Average: | mg/L | 2.0 | <0.1 | <0.1 | 0.04 | 0 | 0 |
| | Daily Maximum: | mg/L | 3.0 | <0.1 | <0.1 | 0.18 | 0 | 0 |
| Copper: | Monthly Average: | ug/L | 20 | 5.2 | 5.7 | 6.1 | 0 | 0 |
| Phosphorus: | May 1 - Oct 31 | | | | | | | |
| | Monthly Average: | mg/L | 1.0 | 0.15 | -- | -- | 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 | 1 |

There has been one permit violation in FY15 at the Clinton Treatment Plant.
**1st Quarter:** There was one permit violation in the 1st Quarter of FY15. In September 2014, the chronic toxicity was 25%, which is below the permit minimum of 62.5%.
**2nd Quarter**: There were no permit violations in the second quarter of FY15.

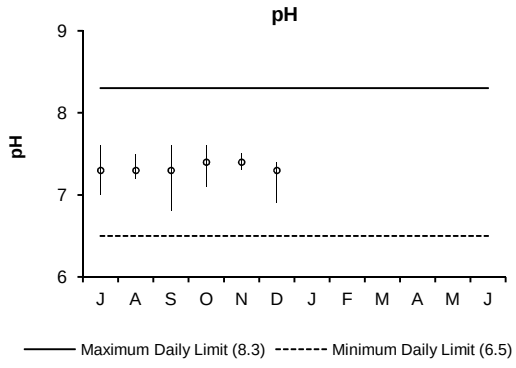
*Toxicity testing at the Clinton Treatment Plant is conducted on a quarterly basis.



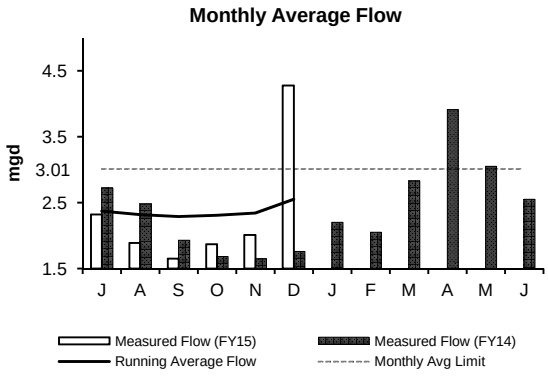

The 2nd Quarter's monthly average and daily maximum ammonia concentrations were below the permit limits. The monthly average and daily maximum limits for the 2nd Quarter are 2 mg/L and 3 mg/L (October) and 10.0 mg/L and 35.2 mg/L (November and December). The permit limits are most stringent from June 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. The chronic toxicity was below the permit minimum, possibly due to the river control samples performing better than is typical. Therefore there was a permit violation in September 2014.




pH is a measure of the alkalinity or acidity of the effluent. All daily pH results for the 2nd 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. December high flow did not cause the running annual average to exceed permit limits.

# COMMUNITY FLOWS AND PROGRAMS

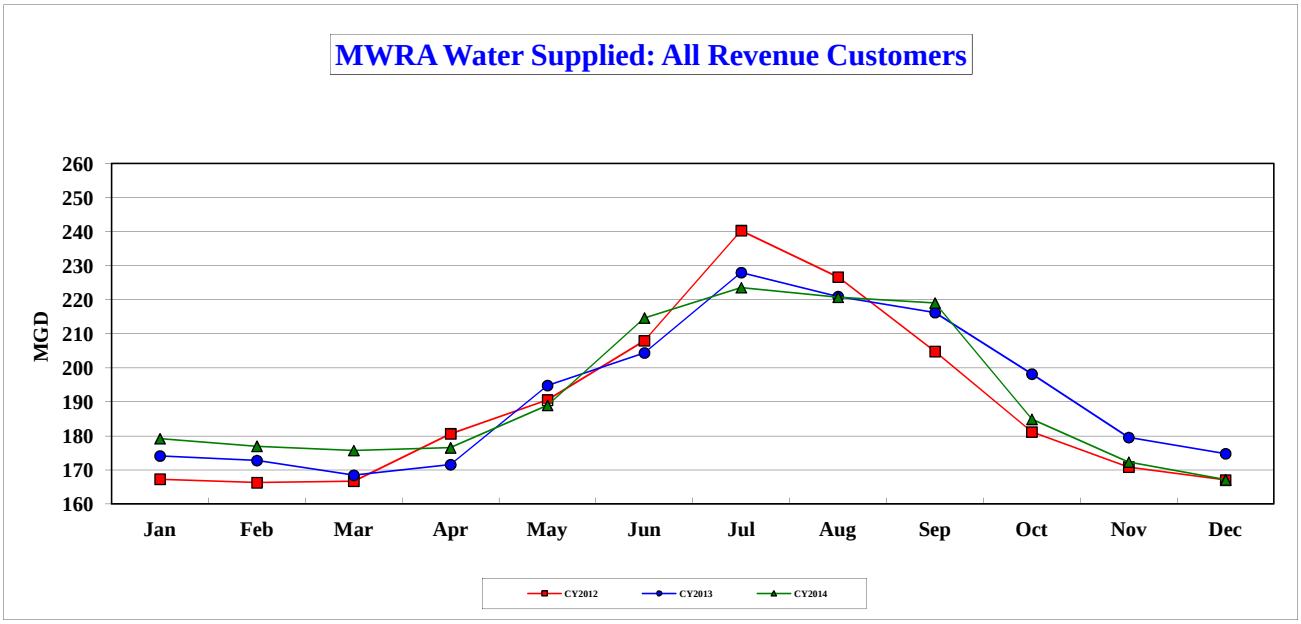
**Total Water Use :**
**MWRA Core Customers Water Supplied**
**2nd Quarter - FY15**

Massachusetts Water Resources Authority

**Water Supplied: All Revenue Customers**

| MGD | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CY2012 | 167.323 | 166.293 | 166.754 | 180.645 | 190.542 | 207.946 | 240.313 | 226.681 | 204.802 | 181.186 | 170.881 | 167.060 | 189.307 |
| 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 | 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 | 191.729 |

| MG | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CY2012 | 5,187.018 | 4,822.495 | 5,169.362 | 5,419.336 | 5,906.792 | 6,238.376 | 7,449.711 | 7,027.100 | 6,144.072 | 5,616.755 | 5,126.421 | 5,178.864 | 69,286.302 |
| 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 | 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 | 69,981.088 |



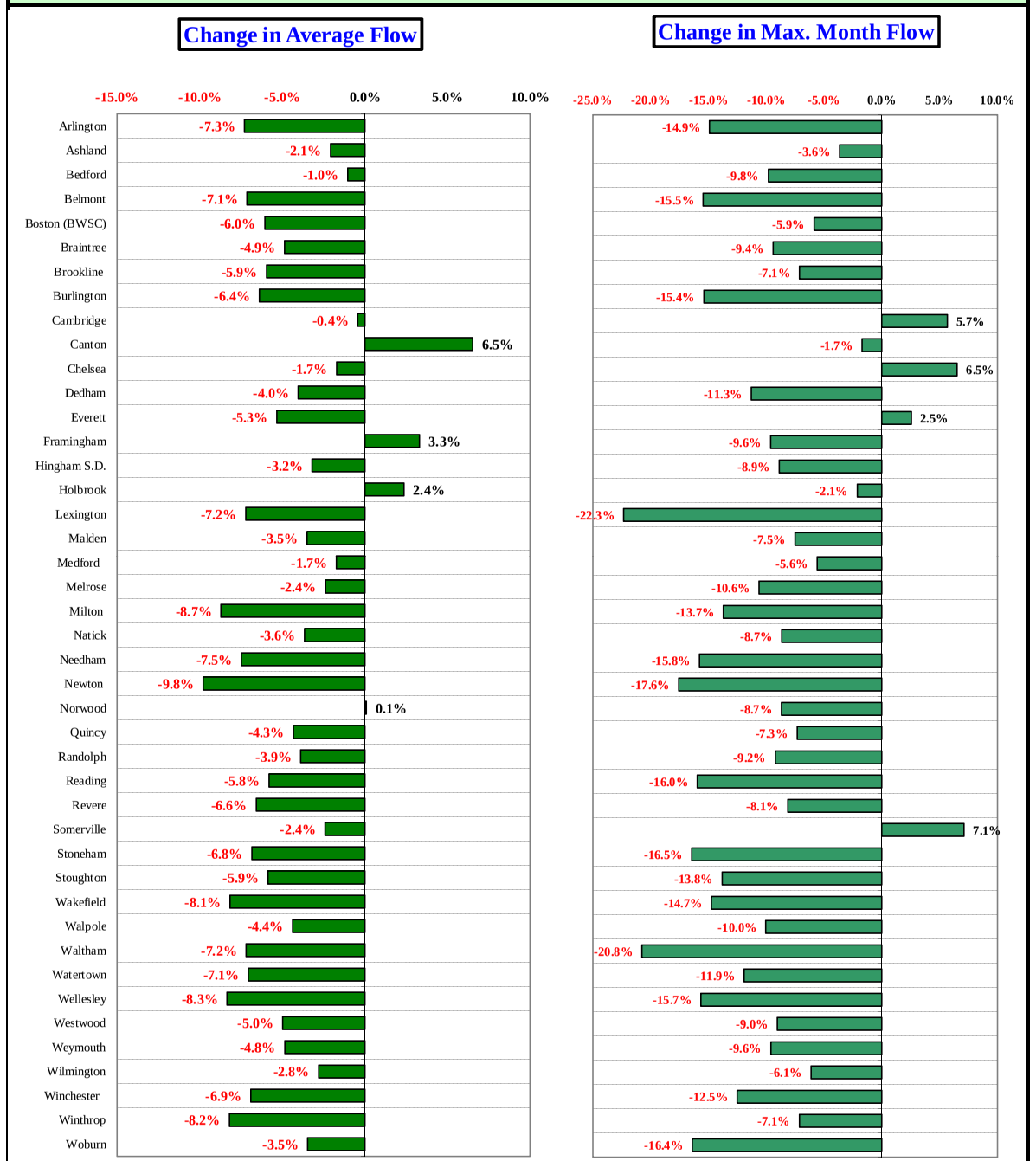

The December 2014 Community Water Use Report recently distributed to communities served by the MWRA waterworks systems. Each community's annual water use relative to the system as a whole is the primary factor in allocating the annual water rate revenue requirement to MWRA water communities. Calendar year 2014 water use will be used to allocate the FY16 water utility rate revenue requirement.

December 2014 water supplied of 167.1 mgd (for revenue generating users) is down 7.7 mgd or 4.4% compared to December 2013. The decrease includes the 9.0 mgd that the City of Cambridge used in December 2013. Cambridge stopped using MWRA water in June 2014.

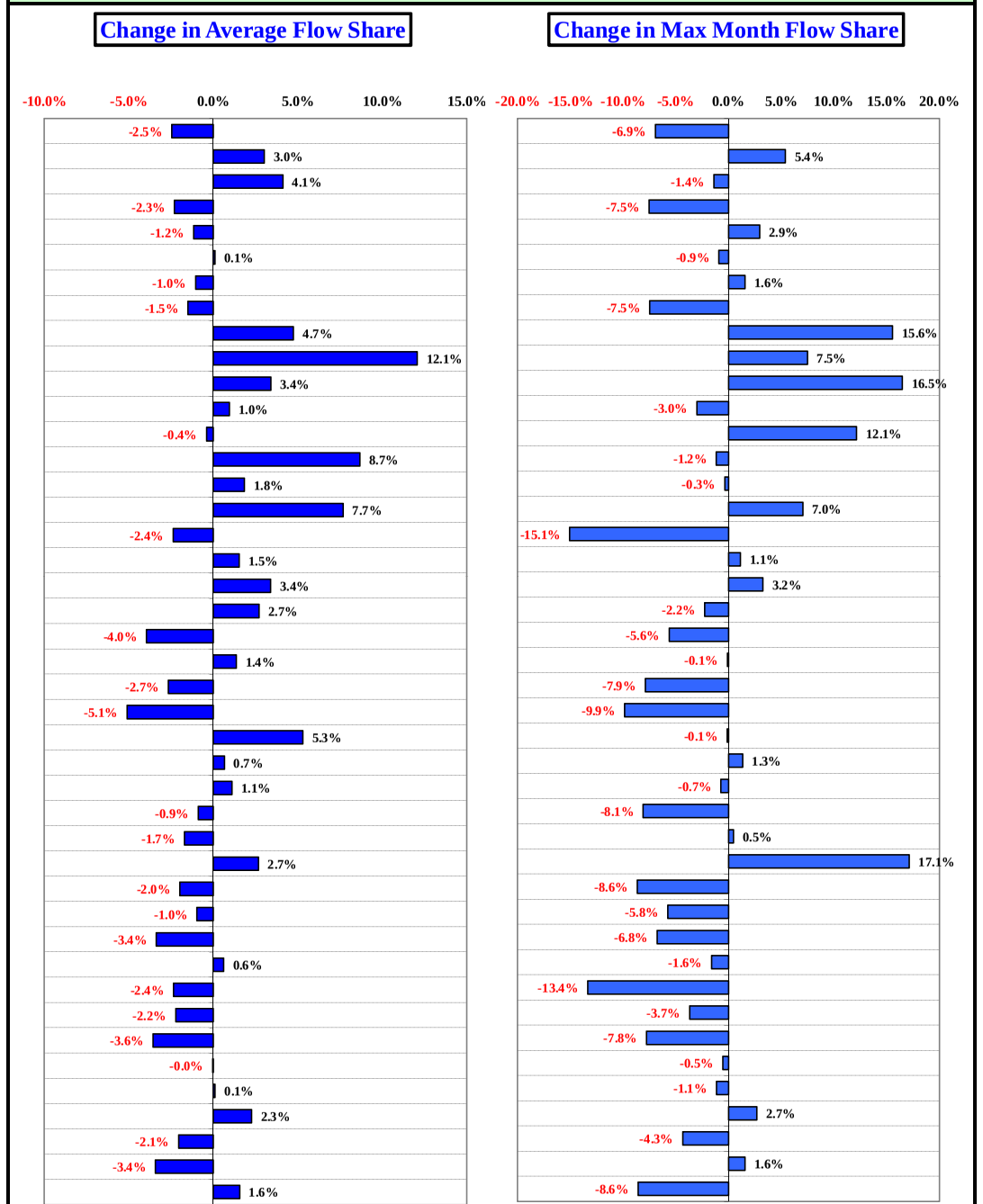
Annual system-wide consumption for CY14 ended up slightly lower than CY13 with 191.7 mgd being supplied to MWRA customers **through December**. This is 0.4 mgd lower than CY13, and is an decrease of 0.2%.

# How Projected CY2014 Community Wastewater Flows Could Effect FY2016 Sewer Assessments [1,2,3]

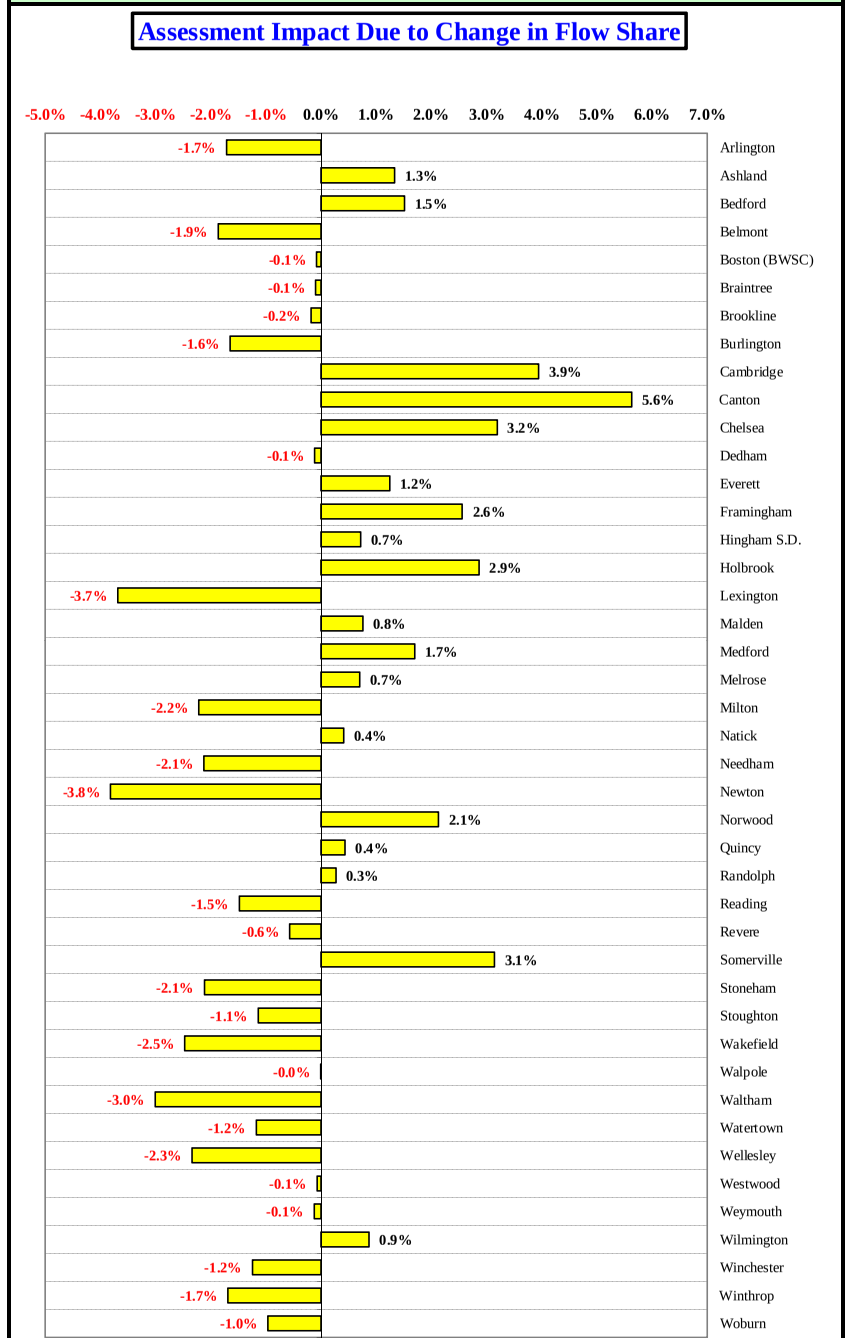
**The flow components of FY2016 sewer assessments will be calculated using a 3-year average of CY2012 to CY2014 wastewater flows compared to FY2015 assessments that used a 3-year average of CY2011 to CY2013 wastewater flows.**




**But as MWRA's sewer assessments are a ZERO-SUM calculation, a community's assessment is strongly influenced by the <u>RELATIVE</u> change in CY2012 to CY2014 flow share compared to CY2011 to CY2013 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 CY2011 to CY2014 average wastewater flows as of 01/30/15. Flow data is preliminary and subject to change pending additional MWRA and community review.**

**[3] CY2011 to CY2013 wastewater flows based on actual meter data. CY2014 flows based on actual meter data for January to December.**

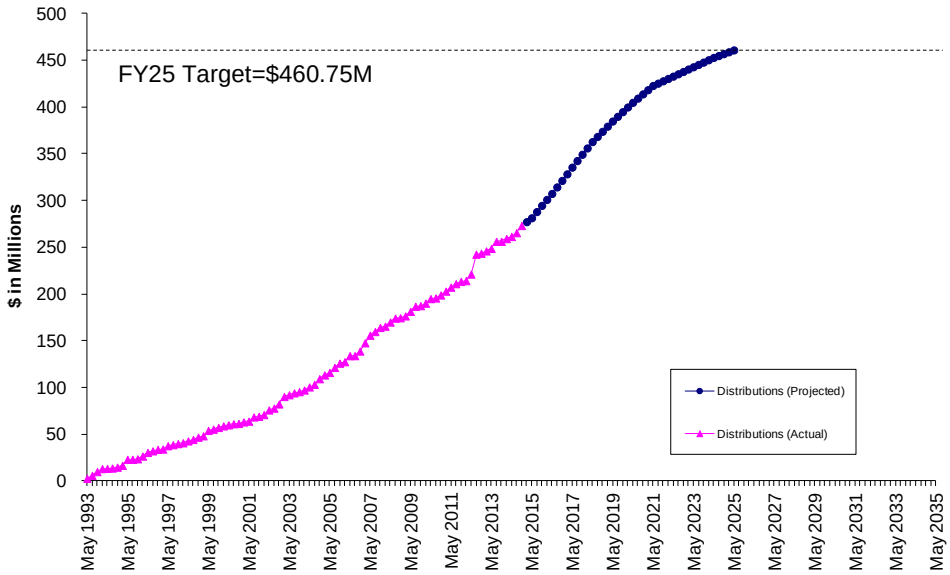
**[4] Represents <u>ONLY</u> the impact on the total BASE assessment resulting from the changes in average and maximum wastewater <u>FLOW SHARES</u>.**

# Community Support Programs
2nd Quarter – FY15

## Infiltration/Inflow Local Financial Assistance Program

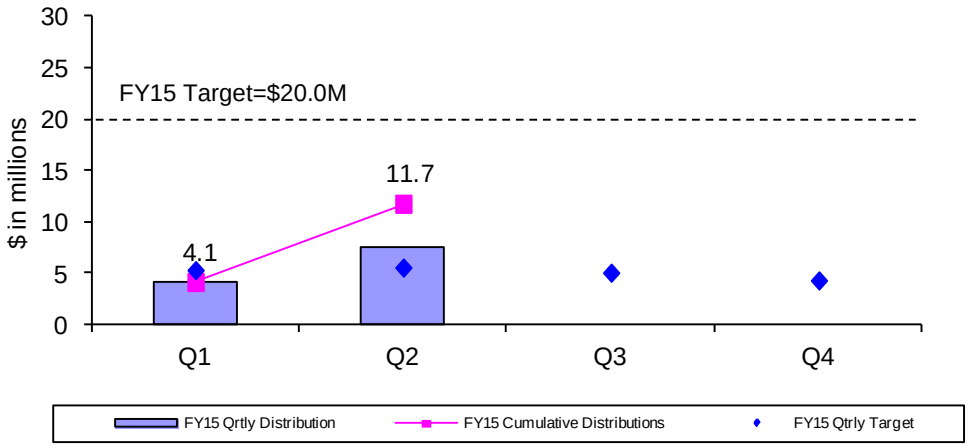
MWRA's Infiltration/Inflow (I/I) Local Financial Assistance Program provides $460.75 million in grants and interest-free loans (average of about $14 million per year from FY93 through FY25) to member sewer communities to perform I/I reduction and sewer system rehabilitation projects within their locally-owned 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 2nd Quarter of FY15, $7.6 million in financial assistance (45% grants and 55% interest-free loans) was distributed to fund local sewer rehabilitation projects in Brookline, Newton, Stoneham, Stoughton and Wakefield. Total grant/loan distribution for FY15 is $11.7 million. From FY93 through the 2nd Quarter of FY15, all 43 member sewer communities have participated in the program and more than $273 million has been distributed to fund 466 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.

### FY15 Quarterly Distributions of Sewer Grant/Loans

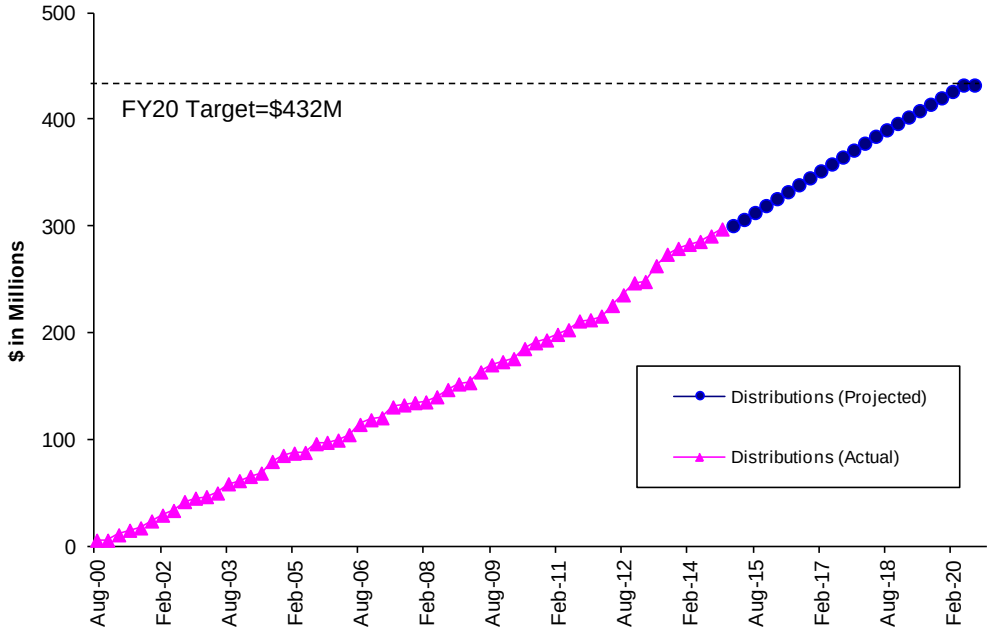


# Community Support Programs
2nd Quarter – FY15

## Water Local Pipeline and Water System Assistance Programs

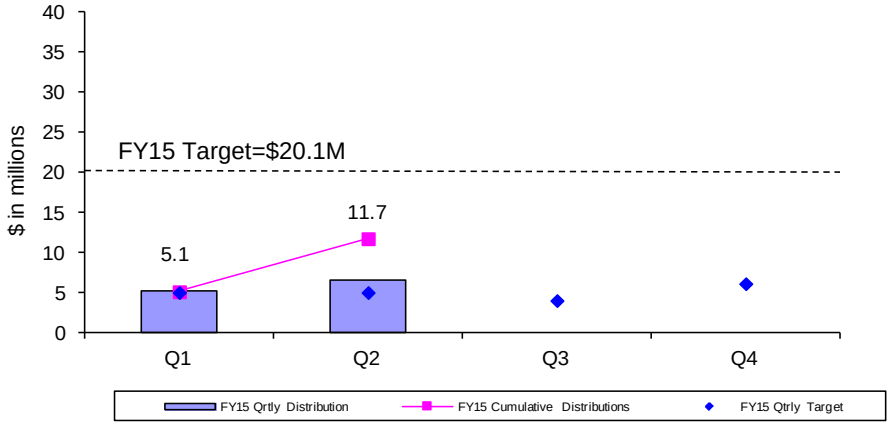
MWRA's Local Pipeline and Water System Assistance Programs (LPAP and LWSAP) provide $432 million in interest-free loans (an average of about $22 million per year from FY01 through FY20) to member water communities to perform water main rehabilitation projects within their locally-owned water distribution 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 2nd Quarter of FY15, $6.6 million in interest-free loans was distributed to fund local water projects in Boston, Everett and Newton. Total loan distribution for FY15 is $11.7 million. From FY01 through the 2nd Quarter of FY15, more than $297 million has been distributed to fund 340 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.

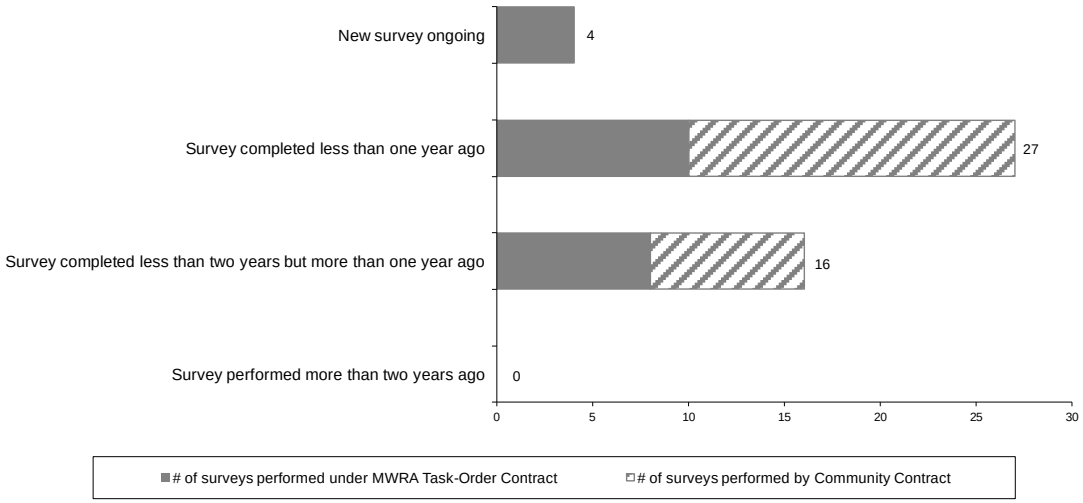
### FY15 Quarterly Distributions of Water Loans



# Community Support Programs
2nd Quarter – FY15

## 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 2nd Quarter of FY15, 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 | 18,484 | 806 | | | 19,290 |
| Low-Flow Fixtures (showerheads and faucet aerators) | 10,000 | 6,382 | 1,886 | | | 8,268 |
| Toilet Leak Detection Dye Tablets | ------ | 5,041 | 2,207 | | | 7,248 |

# BUSINESS SERVICES

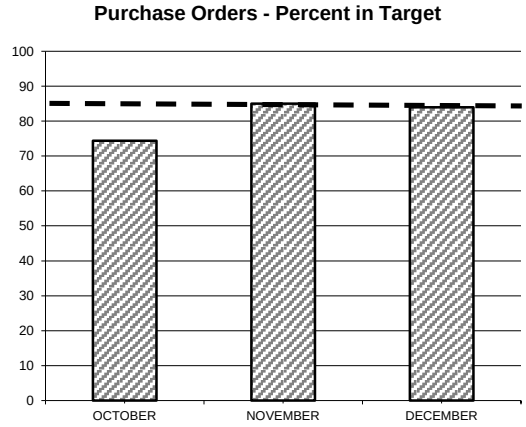
# Procurement: Purchasing and Contracts

2nd Quarter - FY15

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

**Outcome:** Processed 84% of purchase orders within target; Average Processing Time was 6.76 days vs. 7.94 days in Qtr 2 of FY14. Processed 72% (13 of 18) of contracts within target timeframes; Average Processing Time was 95 days vs. 84 days in Qtr 2 FY14.

## Purchasing




| | No. | TARGET | PERCENT IN TARGET |
|---|---|---|---|
| $0 - $500 | 1017 | 3 DAYS | 78.3% |
| $500 - $2K | 1069 | 7 DAYS | 92.4% |
| $2K - $5K | 167 | 10 DAYS | 69.3% |
| $5K - $10K | 85 | 25 DAYS | 79.4% |
| $10K - $25K | 72 | 30 DAYS | 84.0% |
| $25K - $50K | 25 | 60 DAYS | 72.7% |
| Over $50K | 23 | 90 DAYS | 80.0% |

The Purchasing Unit processed 2458 purchase orders, 27 less than the 2485 processed in Qtr 2 of FY14 for a total value of $11,705,441 versus a dollar value of $20,250,332 in Qtr 2 of FY14.

The purchase order processing target was not met for $0 - 500 due to vendor price confirmations; $2k - $5k due to end user confirmations and approvals; $5k - $10k due to end user confirmations and approvals; $25k - $50k due to sole source and staff summary requirements and over $50k due to end user approval and staff summary requirements.

## Contracts, Change Orders and Amendments

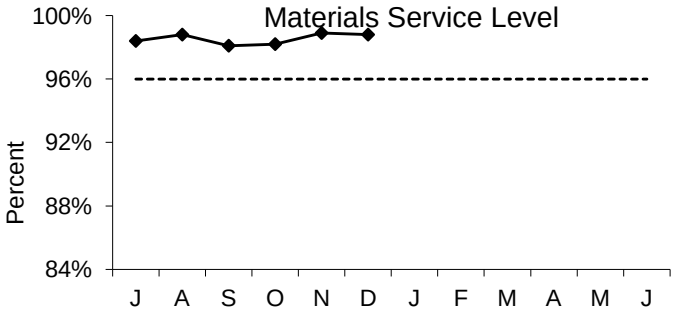
Five contracts were not processed within the target timeframes. Reasons included: an insurance program renewal required a multi-step process; approval required from the FRR board and constraints with regards to the board's meeting schedule; delays due to bidder questions and subsequent revisions to specifications; and need to obtain satisfactory backup information from the consultant.

Procurement processed eighteen contracts with a value of $5,113,375 and 10 amendments with a value of $1,463,033.

Twenty one change orders were executed during the period. The dollar value of all non-credit change orders during the 2nd quarter FY15 was $2,010,856 and the value of credit change orders was ($63,961).

# Materials Management

2nd Quarter - FY15




The service level is the percentage of stock requests filled. The goal is to maintain a service level of 96%. Staff issued 8,357 (98.8%) of the 8,494 items requested in Q2 from the inventory locations for a total dollar value of $1,402,120.

## Inventory Value - All Sites

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 FY15 goal is to reduce consumable inventory from the July '14 base level ($7.7 million) by 2.0% (approximately $154,987), to $7.5 million by June 30, 2015 (see chart below).

Items added to inventory this quarter include:

- Deer Island – flow control valve, pressure gauges, processors, and gas sensors for I&C; gate valves, dust filters, and pressure transmitters for HVAC; current switches, electrodes, electric motors, and relays for Electrical; epoxy for Facilities
- Chelsea – spark plugs, oil filters, thermostat housing, axle bearings, and brake hardware kit for Fleet Services; galvanized chain, impeller ring, submersible pump, actuator, variable frequency drive, sensors for Work Order Coordination Group; nuts, screws, and washers for Maintenance.
- Southboro – graffiti remover and epoxy coating for Maintenance; fuel sensor, air and oil filters for Fleet Services; dehumidifier for Carroll Water Treatment Plant.

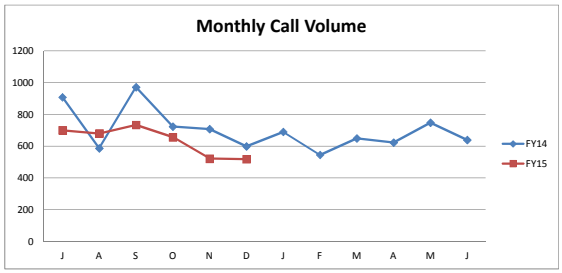
Property Pass Program:

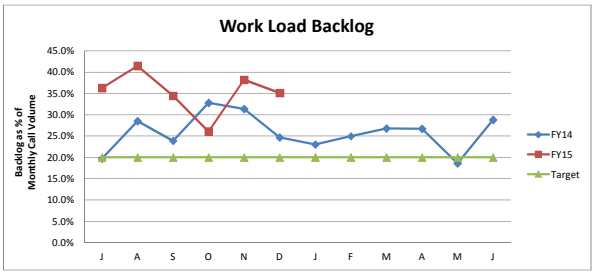
- Audits were conducted for Chelsea welder's tool boxes during Q2.
- Numerous obsolete monitors, computers, printers, scanners, keyboards, mice, fax machines, cell phones and tape drives have been received into Property Pass as surplus. Disposition is being handled as part of our ongoing recycling efforts.
- Scrap revenue received for Q2 amounted to $9,506. Year to date revenue received amounted to $39,317.
- Revenue received from online auctions held during Q2 amounted to $55,274. Year to date revenue received amounted to $73,173.

| **Items** | Base Value July-14 | Current Value w/o Cumulative New Adds | Reduction / Increase To Base |
|---|---|---|---|
| Consumable Inventory Value | 7,749,357 | 8,149,513 | 400,156 |
| Spare Parts Inventory Value | 7,358,692 | 7,950,190 | 591,498 |
| Total Inventory Value | 15,108,049 | 16,099,703 | 991,654 |

**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.

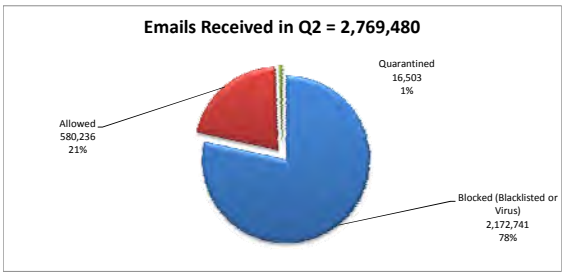
**MIS Program**
2nd Quarter FY15

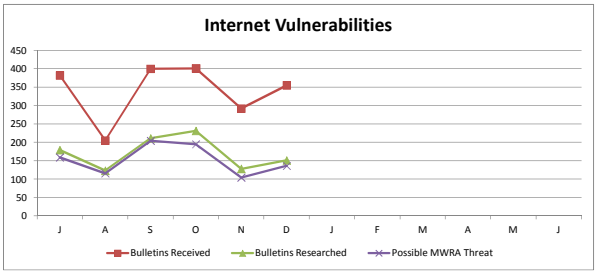



**Performance**:

Call Volume: Peaked in October. FY15-Q2 call volume decreased by 16% from FY14-Q2 last year. Call Backlog: Peaked in November. FY15-Q2 backlog average is 13% above the targeted benchmark of 20%.




**Information Security:**

During Q2, staff pushed security fixes and updates to desktops and servers throughout the quarter in order to protect against 237 vulnerabilities.

LANDesk Antivirus quarantined 39 distinct viruses from 21 MWRA PCs. PCs are current with anti-virus providers' signatures for all known malware.

**Infrastructure**:

Citrix Mobile Application Design and Development: The Citrix upgrade was completed to ensure compatibility with the new Apple iOS upgrade. Required XENDesktop hardware has been specified and is going through the procurement process. Custom vendor training curriculum was designed and training is scheduled for Q3. The Helpline is successfully scheduling and deploying iPhones (101 out of 154) to blackberry users daily. The Helpline is also wrapping deployed iPads with Citrix making the user experience more consistent across devices and more secure.

Connectivity: Within the Data Center, provided 10Gb/s connectivity to the Oracle Database Appliances by running new fiber cables and configuring the core appropriately for applications servers; testing and confirming connectivity.

Backup and Refresh Upgrade Project: Installed a dedicated server with the new backup software in the DMZ, providing a secure way of backing the servers on that segment. This work included installation of a new Fiber Channel switch and creating trunk between SAN switch and the FC switch.

Infrastructure Upgrade Project: A Blade-system chassis was installed, burned in, tested and configured in DI. A new 3-PAR SAN was installed in DI and the latest patch and service packs were applied.

Firmware Upgrade: Upgraded the Cisco Core switch in Chelsea. This Switch is the heart of the data center and provides connectivity to all MIS services and application, including connectivity to other sites and the Internet.

**Applications/Training/Records Center:**

Strategic Sourcing and Contract Management: Worked with an Infor technical consultant to apply Critical Update 4 (CU4) on the development Landmark Procurement. Continued working on developing contract language and configuring templates. Additional work focused on Affirmative Action processes for contract-subcontractor diversity tracking and AP contract invoice entry as well as Landmark security access requirements and custom development of workflows for approvals.

Miscellaneous Lawson Support: Supported retroactive pay and benefit changes associated with the contract settlements of Units 1, 3, and 6. Formatted and uploaded GIC files into Lawson; this information is needed for the W2s produced next month. Successfully ran 'live' AP checks on Deer Island as part of quarterly Disaster Recovery testing. Completed the production WebSphere Application Server (WAS) upgrade from 7.0.0.13 to 7.0.0.33. Upgraded the development and production Lawson System Foundation Core Technology (LSFCT) required for all Infor/Lawson core modules from version 9.0.1.9 to 9.0.1.13. The LSFCT upgrade included required enhancements for the BSI TaxFactory 8.0 upgrade.

Document Management Initiatives: (1) Physical Records Tracking Application: Conducted a kickoff meeting to evaluate a replacement application for the unsupported legacy application used to track physical records. Current functionality was reviewed and desired features and requirements were documented; several vendor demos were conducted. Evaluations will continue in Q3. (2) eDiscovery Archive and Purge**:** A project to implement Symantec Enterprise Vault file system archiving and Clearwell e-discovery software applications began. These applications will give MWRA the ability to better archive records electronically and automate purge and discovery processes to support records retention requirements and document search and legal discovery needs. The vendor will provide templates in January for hardware sizing and policy development as well as a project plan and draft kickoff meeting materials. An official kick off meeting is expected to occur in January once the preparation activities are completed.

Telog: Development of a new Web and SQL Server reporting interface to replace a custom user developed standalone MS Access reporting application is complete. This project will eliminate an unsupported legacy reporting tool and use current MWRA standard database programming tools allowing for efficient maintenance and support. The first reports will be published after the calendar year end.

Employee Tracking Application: Conducted a drill in October to ensure the application is properly functioning. The application allows staff centrally report absences and management to view what staff and skills are available by location. This drill was done in support of potential Ebola developments. In addition, Infor/Lawson safety training reports were modified to support Ebola related staff training.

# Legal Matters
2nd Quarter -FY15

## PROJECT ASSISTANCE

COURT AND ADMINISTRATIVE ORDER

- **Boston Harbor Litigation and CSO:** Reviewed Amendment 15 to memorandum of understanding and financial assistance agreement between MWRA and BWSC for implementation of CSO projects; submitted annual report to EPA and DEP providing updated information on the landfill sites that NEFCO identified as acceptable landfill sites for use as part its emergency residuals disposal back up plan; reviewed and filed Compliance and Progress Report with Federal District Court.

- **NPDES:** Reviewed and provided comments on CSO related signage developed in accordance with MWRA's CSO water quality variance for the Charles River. Reviewed and revised SOP for influent gates at Clinton Wastewater Treatment Plant.

- **Administrative Consent Order (DITP power outages):** Reviewed and submitted updated semi-annual *Consultant's Deer Island Energy Recommendations Tracking Sheet* to DEP and EPA.

REAL ESTATE, CONTRACT AND OTHER SUPPORT

- **Orders of Conditions:** Recorded Extension to Order of Conditions for DEP File 297-0353 for Spot Pond Water Storage Facility and Pump Station, Recorded Certificate of Compliance related to Order of conditions for DEP File 082-0109 for Winthrop water line project.

- **Waters of the U.S.:** Assisted in finalizing comments to EPA's proposed regulatory changes to federal regulations governing EPA jurisdiction.

- **Spot Pond:** Drafted notice of MWRA's intent to extend the License for Entry for an additional six (6) months.

- **Watershed Acquisition:** Reviewed and commented on materials for the acquisition of a parcel of land in Holden from the Grady Realty Trust, W-000083, a parcel of land in West Boylston from Pusateri, W-001141, a parcel in Holden from Grady Realty Trust, W-000083, and a parcel of land in West Boylston #W-000341 from CLT Park, LLC.

- **FRRC:** Drafted release of easement and grant of easement related to land swap needed to straighten the railroad tracks for FRRC's railcars.

- **Cross Harbor Cable:** Reviewed Army Corps of Engineers regulations relating to the question of who the Permittee should be on the permit(s) relating to NSTAR's project to protect the Cross Harbor Cable.

- **Water Continuation Contracts:** Reviewed contract language for nine (9) water supply contracts.

- **Public Access:** Drafted amendment to Framingham Weston Aq. Public Access Permit to include abutting open space to be used as a park. Finalized Weston's Public Access Permit.

- **Great Esker Park:** Assisted Operations with preparation of First Annual Compliance Report to DEP re: Great Esker Park project.

- **Miscellaneous Licenses:** Drafted license for access to NSTAR property related to MWRA's Section 4, Webster Avenue Pipe and Utility Bridge Replacement project (MWRA Contract No. 7335).

- **Construction Contractor Claim:** Reviewed and made a recommendation on one (1) construction contractor claim.

MISCELLANEOUS

- Reviewed and approved forty (40) Section 8(m) Permits.

## LABOR, EMPLOYMENT AND ADMINISTRATIVE

**New Matters**

Two demands for arbitration were filed.

**Matters Concluded**

Received a Department of Unemployment Assistance (DUA) decision in favor of the MWRA concerning an employee terminated for not having a valid CDL license, operating MWRA vehicles without a valid CDL license and a second positive drug test.

## LITIGATION/TRAC

**New Matters** — During the Second Quarter of FY 2015, no new lawsuits were received.

**Significant Developments** — The Dow Company v. MWRA: On November 24, 2014, the Court heard oral argument on the parties' Motions for Summary Judgment. MWRA moved for Summary Judgment on the ground that the Court should uphold the Engineers' Decisions denying Dow's claims, under the statutory standard of limited review. On December 18, 2014, the Superior Court issued a decision on the parties' Summary Judgment Motions. The Court granted the plaintiff Summary Judgment on its first claim, and granted MWRA summary judgment denying the plaintiff's second and third claims. Dow's first claim was for reimbursement of police detail costs. The Court awarded Dow $374,102.94 in reimbursement of its police detail expenses incurred in the course of the project. MWRA had argued that Dow improperly failed to include the costs in its winning bid. Dow argued that the Contract documents did not require it to do so. MWRA is considering filing an appeal of the judgment.

**Matters Concluded** — No cases closed during the Second Quarter FY 2015.

**Significant Claims Not in Suit:** — Dora Gonzalez – Personal Injury Claim: This former Risk Management matter arises out of a personal injury claim from a motor vehicle accident that occurred on February 19, 2014 at the intersection of Cary Avenue and Tudor Street in Chelsea, MA. An MWRA employee, operating an MWRA vehicle, slid on ice and struck the rear of Ms. Gonzalez's vehicle. The Claimant's vehicle sustained minor bumper damage but there was no damage to the MWRA vehicle. Ms. Gonzalez claims medical bills in excess of $14,000 and lost wages that exceed $4,000. Risk Management received a demand letter on September 10, 2014 for $50,000 for personal injuries and lost wages from Claimant's counsel, Joseph F. DeLeo, Esq. No litigation has been filed to date.

**Subpoenas** — During the Second Quarter of FY 2015, no new subpoenas were received and no subpoenas were pending at the end of the Second Quarter FY 2015.

**Public Records** — During the Second Quarter of FY 2015 six public records request were received and three public records requests were closed.

## TRAC/MISC.

**New Appeals** — There was one new TRAC appeal received in the 2nd Quarter FY 2015.

Leavitt Corporation; MWRA Docket No. 14-01

**Settlement by Agreement of Parties** — One case was **s**ettled by Agreement of Parties in the 2nd Quarter FY 2015.

Cookies By Design; MWRA Docket No. 13-17

**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 2nd Quarter FY 2015.

**Final Decisions** No Final Decisions were issued during the 2nd Quarter FY 2015.

## SUMMARY OF PENDING LITIGATION MATTERS

| TYPE OF CASE/MATTER | As of Dec 2014 | As of Sept 2014 | As of June 2014 |
|---|---|---|---|
| Construction/Contract/Bid Protest (other than BHP) | 4 | 4 | 4 |
| Tort/Labor/Employment | 5 | 5 | 5 |
| Environmental/Regulatory/Other | 1 | 1 | 1 |
| Eminent Domain/Real Estate | 0 | 0 | 0 |
| **total – all defensive cases** | **10** | **10** | **10** |
| Affirmative cases not in suit: | 0 | 0 | 0 |
| Other Litigation matters (restraining orders, etc.)<br>MWRA v. Thomas Mercer | 1 | 1 | 1 |
| **total – all pending lawsuits** | **11** | **11** | **11** |
| Significant claims not in suit:<br>Deer Island Submarine Power Cable<br>Braiani, Agostinho<br>Rosa, Antonio<br>Gonzalez, Dora | 4 | 3 | 0 |
| Bankruptcy | 1 | 1 | 0 |
| Wage Garnishment | 15 | 15 | 16 |
| TRAC/Adjudicatory Appeals | 1 | 1 | 1 |
| Subpoenas | 0 | 0 | 0 |
| **TOTAL – ALL LITIGATION MATTERS** | **32** | **31** | **28** |

# INTERNAL & CONTRACT AUDIT PROGRAM
2nd Quarter FY15

## Highlights

A final report was issued on Records Management practices across the MWRA. The areas reviewed included the training of Department Records Managers (DRMs) and Officers (DROs), the submission of active records filing schemes, the identification of vital records, the physical condition of the Records Center (RC), RC staff practices, and the storage of rock cores and soils. A number of recommendations were to improve records management procedures including;

- Conducting an inventory of all boxes stored at the RC and reconciling the results with the InfoSTAR inventory records
- Replacing the InfoSTAR system as soon as possible with a system that is compatible with bar coding and integration with Enterprise Content Management Systems (ECM)
- Installing permanent bay and shelf location signage at the RC
- Considering consolidation of the rock cores and soil collection in one location
- Continuing to provide DROs and DRMs training in records management practices

## Status of Open Audit Recommendations (14 recommendations closed in the 2nd 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 |
|---|---|---|
| DITP Data Center Access Controls (10/14/11) | 2 | 20 |
| Chelsea Facility Physical Security (12/31/12) | 3 | 29 |
| 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) | 5 | 5 |
| Bay State Fertilizer Follow-Up (9/30/14) | 1 | 4 |
| Expanded Affirmative Action Requirements (9/30/14) | 3 | 13 |
| 8(m) Permit Fee (11/17/14) | 2 | 4 |
| Records Management (12/5/14) | 8 | 8 |
| **Total Recommendations** | **37** | **123** |

## Audit Savings

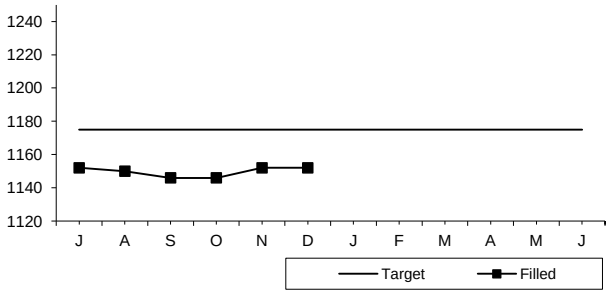
The Internal Audit Department's target is to achieve at least $1 million in cost savings each year. Cost savings vary each year based upon many factors. In some cases, cost savings for one year may be the result of work in prior years.

| Savings | FY11 | FY12 | FY13 | FY14 | FY15 (2Q) | TOTAL |
|---|---|---|---|---|---|---|
| Consultants | $520,176 | $259,245 | $587,314 | $294,225 | $68,741 | $1,729,701 |
| Contractors & Vendors | $3,129,538 | $435,760 | $2,153,688 | $415,931 | $727,992 | $6,862,909 |
| Internal Audits | $152,478 | $407,350 | $391,083 | $923,370 | $83,085 | $1,957,366 |
| **Total** | **$3,802,192** | **$1,102,355** | **$3,132,085** | **$1,633,526** | **$879,818** | **$10,549,976** |

# OTHER MANAGEMENT

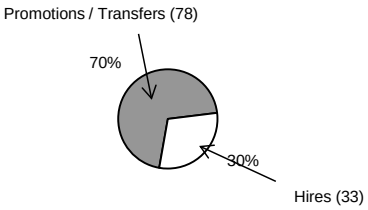
# Workforce Management
## 2nd Quarter FY15

**Filled Position Tracking**



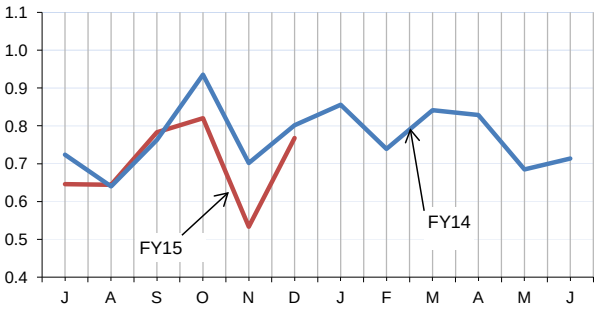

FY15 Target for Filled Positions = 1175
Filled Positions as of December 2014 =1152

**Positions Filled by Hires/Promotions**
FY15-YTD




| | Pr/Trns | Hires | Total | |
|---|---|---|---|---|
| FY12 | 42 (61%) | 27 (39%) | 69 | |
| FY13 | 82 (64%) | 47 (36%) | 129 | |
| FY14 | 111 (69%) | 51 (31%) | 162 | |
| FY15 | 78 (70%) | 33 (30%) | 111 | (To Date) |

**Average Monthly Sick Leave Usage**
Per Employee



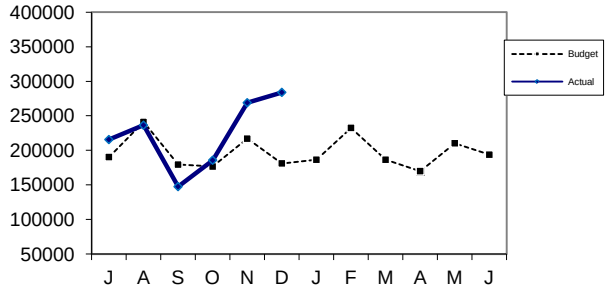

Average monthly sick leave for the 2nd Quarter of FY15 increased as compared to the 1st Quarter of FY15 (8.30 to 8.49 days).

In Q2 of FY15, the average quarterly sick leave usage has decreased 7.01% from the same quarter last year.

| | Number of Employees | YTD | Annualized Total | Annual FMLA % | FY14 |
|---|---|---|---|---|---|
| A&F | 177 | 4.53 | 9.06 | 32.9% | 10.18 |
| Aff. Action | 6 | 5.58 | 11.17 | 0.0% | 11.78 |
| Executive | 5 | 1.04 | 2.08 | 0.0% | 4.37 |
| Int. Audit | 8 | 3.27 | 6.54 | 0.0% | 7.46 |
| Law | 17 | 5.67 | 11.33 | 6.9% | 10.35 |
| OEP | 6 | 6.21 | 12.41 | 76.4% | 16.14 |
| Operations | 932 | 4.10 | 8.19 | 20.4% | 8.98 |
| Pub. Affs. | 13 | 4.91 | 9.81 | 10.8% | 12.21 |
| **MWRA Avg** | **1164** | **4.20** | **8.39** | **22.2%** | **9.23** |

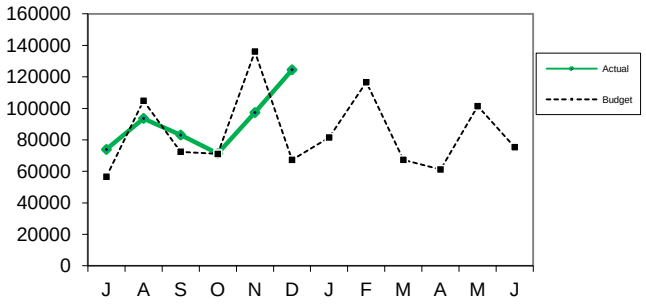
Percent of sick leave usage attributable to Family and Medical Leave Act (FMLA) leave is 22.2% for FY15.

**Field Operations**
**Current Quarter Overtime $**




Total Overtime for Field Operations for the second quarter of FY15 was $738,655 which is $164k over budget. Emergency overtime was $348k, which was $51k over budget mainly due to rain events, which totaled $220k for the quarter. Coverage overtime was $143k, which was $13k over budget, reflecting the month's shift coverage requirements. Planned overtime was $248k or $100k over budget, mainly for Half-Plant operations at Carroll - $38k, planned operations - $50k, and maintenance off hours work - $63k. YTD, Field Operations has spent $1,185,672 on overtime which is $153k over budget.

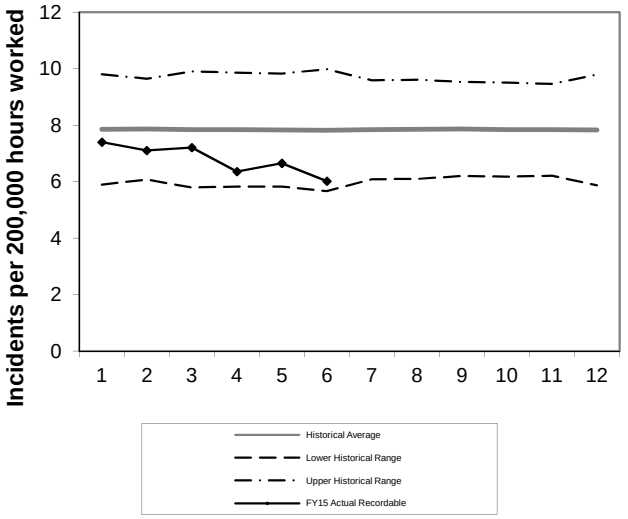
**Deer Island Treatment Plant**
**Current Quarter Overtime $**



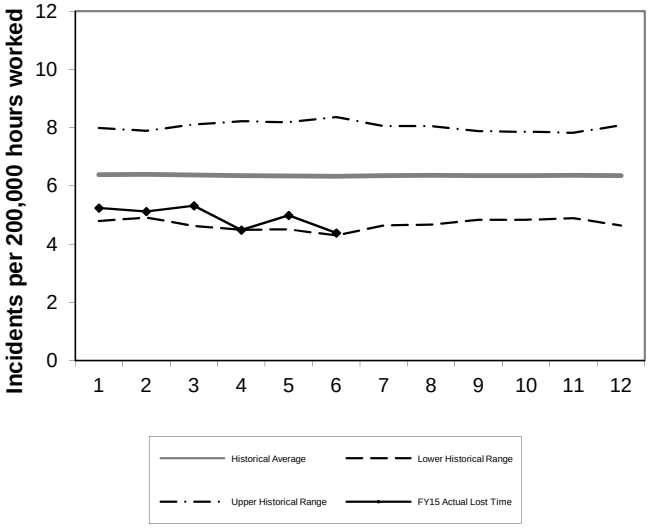

Total overtime for Deer Island for the second quarter of FY15 was $293,106, which is $18,645 or 6.8% over budget. The variance is primarily due to higher than budgeted planned/unplanned maintenance overtime due to repair of critical systems and equipment, $49K, higher shft coverage overtime requirements due to staffing vacancies, $13K, offset in part by less than budgeted storm coverage overtime, ($43K). YTD, Deer Island has spent $543,697 on overtime, which was $35K over budget.

# Workplace Safety
2nd Quarter - FY15

**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 - Second Quarter FY15**

| | New | Closed | Open Claims |
|---|---|---|---|
| Lost Time | 3 | 16 | 62 |
| Medical Only | 14 | 28 | 15 |
| Report Only | 17 | 17 | |
| | | | |
| | **New** | | **YTD Light Duty Returns** |
| Light Duty Returns | 1 | | 5 |

**Highlights/Comments:**

**Light Duty Returns**

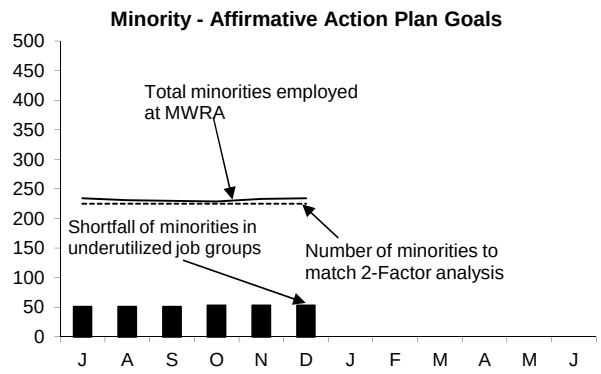
**Oct** none
**Nov** 1 employee returned to work light duty from workers' compensation
**Dec** none

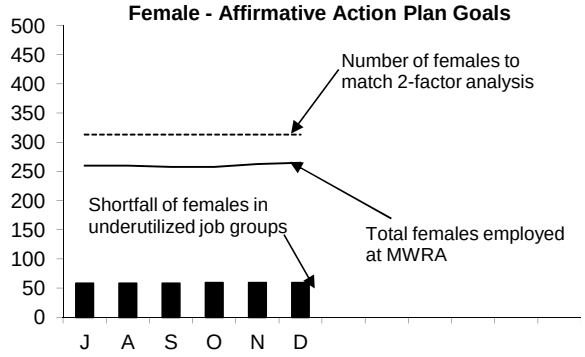
**Regular Duty Returns**

**Oct** 2 employees returned to work full duty from light duty
2 employees returned to work full duty from workers' compensation
**Nov** 2 employees returned to work full duty from light duty
2 employees returned to work full duty from workers' compensation
**Dec** 1 employee returned to work full duty from light duty
1 employee returned to work full duty from workers' compensation

# MWRA Job Group Representation

2nd Quarter - FY15




**Highlights:**

At the end of Q2 FY15, 11 job groups or a total of 53 positions are underutilized by minorities as compared to 9 job groups or a total of 38 positions at the end of Q2 FY14; for females 11 job groups or a total of 59 positions are underutilized by females as compared to 14 job groups or a total of 71 positions at the end of Q2 FY14. During Q2, 7 minorities and 10 females were hired. During this same period, 3 minorities and 3 females terminated.

## Underutilized Job Groups - Workforce Representation

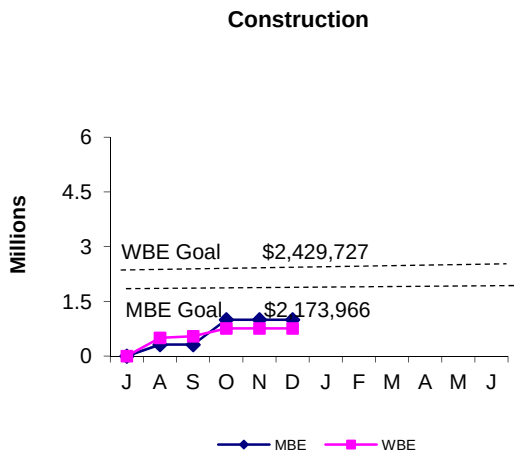
| Job Group | Employees as of 12/31/2014 | Minorities as of 12/31/2014 | Achievement Level | Minority Over or Under Under utilized | Females As of 12/31/2014 | Achievement Level | Female Over or Under Under utilized |
|---|---|---|---|---|---|---|---|
| Administrator A | 19 | 2 | 2 | 0 | 6 | 6 | 0 |
| Administrator B | 21 | 0 | 3 | -3 | 2 | 6 | -4 |
| Clerical A | 38 | 17 | 10 | 7 | 33 | 15 | 18 |
| Clerical B | 32 | 7 | 11 | -4 | 11 | 1 | 10 |
| Engineer A | 82 | 19 | 21 | -2 | 14 | 17 | -3 |
| Engineer B | 51 | 14 | 12 | 2 | 7 | 13 | -6 |
| Craft A | 115 | 14 | 22 | -8 | 0 | 3 | -3 |
| Craft B | 148 | 29 | 27 | 2 | 3 | 5 | -2 |
| Laborer | 65 | 23 | 15 | 8 | 3 | 3 | 0 |
| Management A | 104 | 15 | 24 | -9 | 36 | 47 | -11 |
| Management B | 43 | 6 | 11 | -5 | 11 | 18 | -7 |
| Operator A | 67 | 5 | 7 | -2 | 1 | 4 | -3 |
| Operator B | 65 | 7 | 17 | -10 | 3 | 2 | 1 |
| Para Professional | 56 | 12 | 17 | -5 | 26 | 39 | -13 |
| Professional A | 35 | 4 | 8 | -4 | 23 | 14 | 9 |
| Professional B | 167 | 43 | 44 | -1 | 81 | 76 | 5 |
| Technical A | 51 | 16 | 8 | 8 | 5 | 8 | -3 |
| Technical B | 5 | 1 | 1 | 0 | 0 | 2 | -2 |
| | | | | | | | |
| **Total** | **1164** | **234** | **260** | **27/-53** | **265** | **279** | **43/-59** |

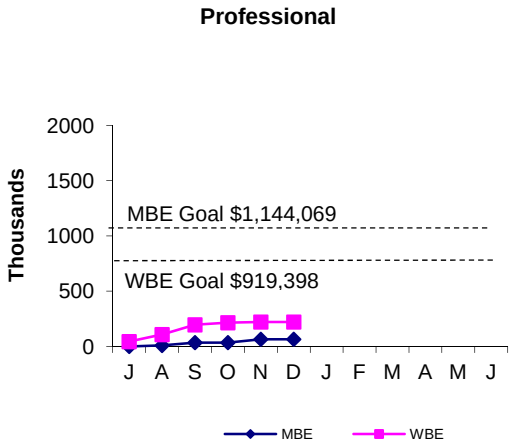
## AACU Candidate Referrals for Underutilized Positions

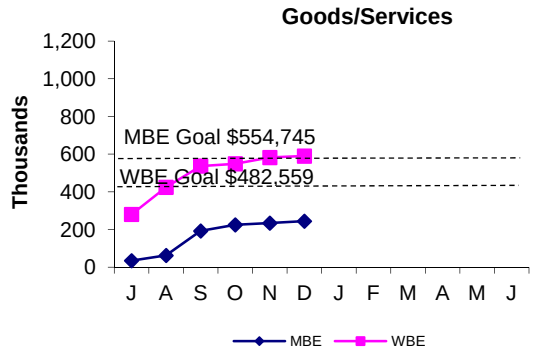
| Job Group | Title | # of Vac | Requisition Int. / Ext. | Promotions/ Transfers | AACU Ref. External | Position Status |
|---|---|---|---|---|---|---|
| **Administrative B** | Deputy Director, Maintenance | 1 | Int | 1 | 0 | P = WM |
| **Craft A** | M&O Specialist | 2 | Int | 1 | 0 | P = HM |
| **Craft B** | Toolmaker | 1 | Int | 1 | 0 | P = WM |
| **Clerical B** | Secrectary I | 1 | Int/Ext | 0 | 2 | In Progress |
| **Clerical B** | Head Clerk | 1 | Int/Ext | 0 | 2 | In Progress |
| **Clerical B** | Warehouse Materials Handler | 2 | Int/Ext | 1 | 1 | P=WM, NH=WF |
| **Engineer A** | Sr. Program Manager | 1 | Int | 1 | 0 | P = WM |
| **Engineer A** | Project Engineer | 1 | Int | 1 | 0 | P = BM |
| **Engineer A** | Project Engineer, Process Monitor | 1 | Int/Ext | 0 | 1 | In Progress |
| **Engineer B** | Project Manager, Process Monitor | 1 | Int | 1 | 0 | P = WF |
| **Engineer B** | Staff Engineer | 4 | Int/Ext | 0 | 0 | NH = HF and 3 WM |
| **Laborers** | OMC Laborer | 5 | Int/Ext | 0 | 2 | NH = BM,(2)WM |
| **Management A** | Program Manager | 3 | Int/Ext | 2 | 0 | P = WM, BF; NH = AF |
| **Management A** | Manager, Benefits & HRIS | 1 | Int | 0 | 0 | In Progress |
| **Management A** | Construction Coordinator | 0 | Int | 1 | 0 | P = WF |
| **Operator B** | Operator | 2 | Int/Ext | 0 | 0 | NH=WM, P=WM |
| **Operator A** | Transmission & Treatment Operat | 1 | Int/Ext | 1 | 0 | P = WM |
| **Professional A** | Assistant Manager, Labor Relation | 1 | Int/ Ext | 0 | 0 | NH = BF |
| **Professional B** | Sr. Laboratory Technician | 1 | Int/ Ext | 0 | 0 | Rehire = WF |
| **Professional B** | Regional Manager | 1 | Int/Ext | 1 | 0 | P = WF |
| **Professional B** | Biologist I | 1 | Int | 1 | 0 | P = BF |
| **Technical A** | Sr. Instrument Technician | 2 | Int/Ext | 1 | 0 | NH=WF; P=WM |
| **Technical A** | Systems Administrator III | 1 | Int/Ext | 1 | 0 | P = WM |
| **Technical B** | Water Quality Technician | 1 | Int/Ext | 0 | 2 | NH = WF |
| **ParaProfessional** | Special Projects Coordinator | 1 | Int/Ext | 0 | 0 | In Progress |

# MBE/WBE Expenditures
## 2nd Quarter - FY15

**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 December.




FY15 spending and percentage of goals achieved, as well as FY14 performance are as follows:

| | MBE | | | | WBE | | | |
|---|---|---|---|---|---|---|---|---|
| | FY15 Year-to-Date | | FY14 | | FY15 Year-to-Date | | FY14 | |
| | Amount | Percent | Amount | Percent | Amount | Percent | Amount | Percent |
| Construction | 997,485 | 45.9% | 1,053,966 | 25.5% | 760,440 | 31.3% | 3,407,380 | 165.9% |
| Professional Svc. | 65,303 | 5.7% | 584,242 | 44.5% | 221,262 | 24.1% | 457,558 | 43.4% |
| Goods & Svcs. | 244,022 | 44.0% | 359,270 | 45.8% | 590.005 | 122.3% | 966,425 | 141.6% |
| **Total** | 1,306,810 | 33.7% | 1,997,478 | 32.1% | 1,571,707 | 41.0% | 3,890,658 | 102.6% |

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

# MWRA FY15 CEB Expenses
## 2nd Quarter – FY15

| | December 2014 Year-to-Date ($000) | | | | | |
|---|---|---|---|---|---|---|
| | Budget | Actual | Variance | % | FY15 Budget | % |
| **EXPENSES** | | | | | | |
| WAGES AND SALARIES | $ 46,082 | $ 44,789 | $ (1,293) | -2.8% | $ 96,555 | 46.4% |
| OVERTIME | 1,810 | 2,064 | 253 | 14.0% | 3,621 | 57.0% |
| FRINGE BENEFITS | 9,195 | 9,014 | (182) | -2.0% | 18,299 | 49.3% |
| WORKERS' COMPENSATION | 1,100 | 1,420 | 320 | 29.1% | 2,200 | 64.5% |
| CHEMICALS | 5,239 | 5,228 | (10) | -0.2% | 10,220 | 51.2% |
| ENERGY AND UTILITIES | 10,624 | 9,631 | (993) | -9.3% | 23,472 | 41.0% |
| MAINTENANCE | 12,059 | 14,567 | 2,507 | 20.8% | 27,973 | 52.1% |
| TRAINING AND MEETINGS | 139 | 190 | 51 | 36.6% | 361 | 52.7% |
| PROFESSIONAL SERVICES | 2,724 | 2,546 | (179) | -6.6% | 5,957 | 42.7% |
| OTHER MATERIALS | 1,891 | 2,270 | 379 | 20.0% | 5,953 | 38.1% |
| OTHER SERVICES | 11,474 | 11,552 | 78 | 0.7% | 22,538 | 51.3% |
| **TOTAL DIRECT EXPENSES** | **$ 102,338** | **$ 103,270** | **$ 932** | **0.9%** | **$ 217,149** | **47.6%** |
| INSURANCE | $ 1,064 | $ 906 | $ (158) | -14.8% | $ 2,128 | 42.6% |
| WATERSHED/PILOT | 13,733 | 13,614 | (119) | -0.9% | 27,467 | 49.6% |
| BECo PAYMENT | 1,670 | 1,486 | (184) | -11.0% | 3,198 | 46.5% |
| MITIGATION | 803 | 730 | (73) | -9.1% | 1,606 | 45.5% |
| ADDITIONS TO RESERVES | 241 | 241 | - | 0.0% | 483 | 50.0% |
| RETIREMENT FUND | 12,629 | 12,645 | 16 | 0.1% | 12,629 | 100.1% |
| **TOTAL INDIRECT EXPENSES** | **$ 30,141** | **$ 29,623** | **$ (518)** | **-1.7%** | **$ 47,512** | **62.4%** |
| STATE REVOLVING FUND | $ 38,544 | $ 38,544 | $ - | 0.0% | $ 78,461 | 49.1% |
| SENIOR DEBT | 108,249 | 107,390 | (858) | -0.8% | 220,836 | 48.6% |
| CORD FUND | 438 | 438 | - | 0.0% | 877 | 50.0% |
| DEBT SERVICE ASSISTANCE | (854) | (854) | - | 0.0% | (854) | 100.0% |
| CURRENT REVENUE/CAPITAL | 5,100 | 5,100 | - | 0.0% | 10,200 | 50.0% |
| SUBORDINATE MWRA DEBT | 49,714 | 49,714 | - | 0.0% | 99,686 | 49.9% |
| LOCAL WATER PIPELINE CP | 2,074 | 2,074 | - | 0.0% | 4,148 | 50.0% |
| CAPITAL LEASE | 1,609 | 1,609 | - | 0.0% | 3,217 | 50.0% |
| VARIABLE DEBT | - | (6,239) | (6,239) | --- | - | 0.0% |
| BOND REDEMPTION SAVINGS | (3,373) | (3,373) | - | 0.0% | (6,746) | 50.0% |
| DEFEASANCE ACCOUNT | - | 7,097 | 7,097 | --- | - | 0.0% |
| **TOTAL DEBT SERVICE** | **$ 201,501** | **$ 201,501** | **$ -** | **0.0%** | **$ 409,825** | **49.2%** |
| **TOTAL EXPENSES** | **$ 333,981** | **$ 334,395** | **$ 414** | **0.1%** | **$ 674,485** | **49.6%** |
| **REVENUE & INCOME** | | | | | | |
| RATE REVENUE | $ 325,158 | $ 325,158 | $ - | 0.0% | $ 650,316 | 50.0% |
| OTHER USER CHARGES | 3,876 | 3,933 | 57 | 1.5% | 8,260 | 47.6% |
| OTHER REVENUE | 3,996 | 4,963 | 967 | 24.2% | 6,180 | 80.3% |
| RATE STABILIZATION | - | - | - | --- | - | --- |
| INVESTMENT INCOME | 4,844 | 4,722 | (122) | -2.5% | 9,729 | 48.5% |
| **TOTAL REVENUE & INCOME** | **$ 337,874** | **$ 338,776** | **$ 902** | **0.3%** | **$ 674,485** | **50.2%** |

As of December 2014, total expenses were $334.4 million, $414,000 or 0.1% higher than budget and total revenue was $338.8 million, $902,000 or 0.3% higher than budget, for a net variance of $488,000.

**Expenses –**

- **Direct Expenses** are $103.3 million, $932,000 or 0.9% higher than budget.
- **Maintenance** is $2.5 million or 20.8% higher than budget. Materials are overspent by $2.1 million and services are overspent by $432,000 mainly due to timing.
- **Wages & Salaries** are underspent by $1.3 million or 2.8% due to lower headcount and the salary mix differential between staff retiring at higher rates and new hires coming on board at lower rates.
- **Utilities** are underspent by $993,000 or 9.3% due to lower Electricity of $1.3 million mainly due to lower pricing and lower flows at Deer Island and Water use of $119,000 offset by higher Diesel of $415,000 due to the decision to purchase fuel in November vs. March 2015 at Deer Island in order to take advantage of favorable pricing.
- **Other Materials** are over budget by $379,000 or 20.0% mainly due to timing of Computer Hardware purchases, Clinton gravel purchases, Work Clothes, and Health and Safety Materials.
- **Workers Compensation** expenses are higher than budget by $320,000 or 29.1%, based on higher Compensation Payments of $247,000 and administrative and legal costs of $59,000.
- **Overtime** is overspent by $253,000 or 14.0% due to higher wet weather events and coverage requirements.
- **Fringe Benefits** are lower than budget by $182,000 or 2.0% mainly due to lower than budgeted health, unemployment insurance, and dental due to the lower headcount.
- **Professional Services** are lower than budget by $179,000 or 6.6% mainly due to the timing of initiatives such as the Mystic River Modeling project.
- **Other Services** are higher than budget by $78,000 or 0.7% mainly due to higher telecommunications expenses due to security data lines, Charlestown Navy Yard headquarters carpet and painting upgrades, and timing of Department of Conservation and Recreation (DCR) radio licensing fees which were paid in December and budgeted in June.
- **Indirect Expenses** of $29.6 million are $518,000 or 1.7% under budget mainly for lower Insurance expenses of $158,000 and lower Watershed Reimbursement expenses of $119,000 due to FY14 overaccrual.
- **Debt Service Expenses** totaled $201.5 million, which is at budgeted level after the transfer of $7.1 million of a favorable year-to-date variance to the Defeasance Account and $858,000 in year-to-date underspending that is the result of the recently completed debt refinancing on fixed rate bonds.

**Revenue and Income –**

- **Total Revenue / Income** for December is $338.8 million, $902,000 or 0.3% higher than budget due to Non-Rate Revenue of $1.0 million offset by lower Investment Income of $122,000 due to lower short-term rates. The higher Non-Rate Revenue is due to $425,000 for the sale of emergency water for the Town of Hudson, $372,000 payment received for the sale of the Fox Point CSO Facility, and $104,000 for higher permit, monitoring, and penalty fees, offset by lower Energy Revenue of $246,000 mainly due to the timing of Renewable Portfolio Standard (RPS) sales.

# Cost of Debt
## 2nd Quarter – FY15

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.

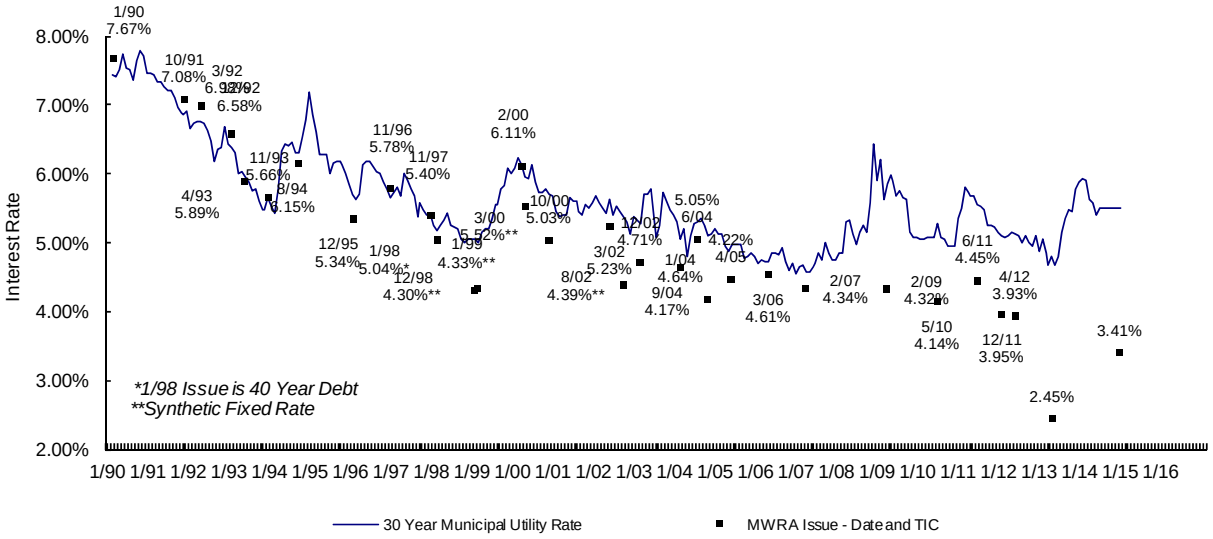
**Average Cost of MWRA Debt**

| | |
|---|---|
| Fixed Debt ($3,980) | 4.25% |
| Variable Debt ($484.2) | 0.63% |
| SRF Debt ($974.1) | 1.24% |
| Weighted Average Debt Cost ($5,439) | 3.39% |

**Most Recent Senior Fixed Debt Issue**
**November 2014**

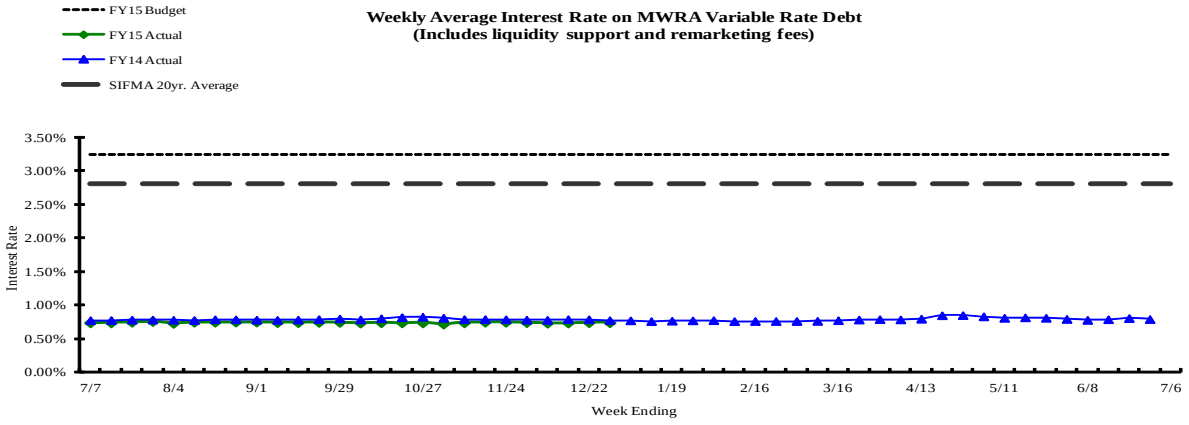
| | |
|---|---|
| 2014 Series D-F ($243.9) | 3.41% |

**MWRA Fixed Rate Debt vs. 30 Year Municipal Utility Interest Rate**




**Weekly Average variable Interest Rates vs. Budget**

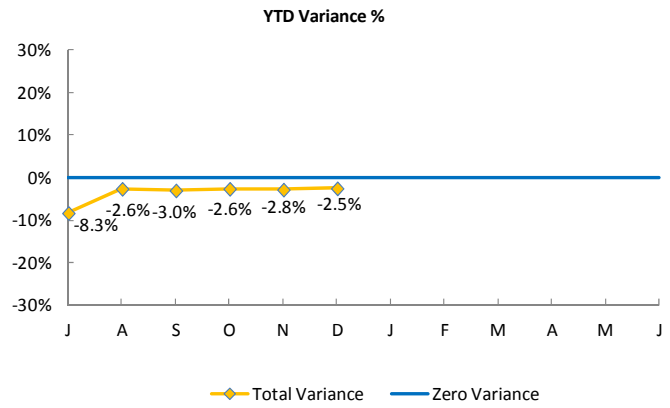
MWRA currently has ten variable rate debt issues with $1.0 billion outstanding, excluding commercial paper. Of the ten outstanding series, five have portions which have been swapped to fixed rate. Variable rate debt has been less expensive than fixed rate debt in recent years as short-term rates have remained lower than long-term rates on MWRA debt issues. In December, SIFMA rates fluctuated with a high of 0.04% and a low of 0.03%. 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.



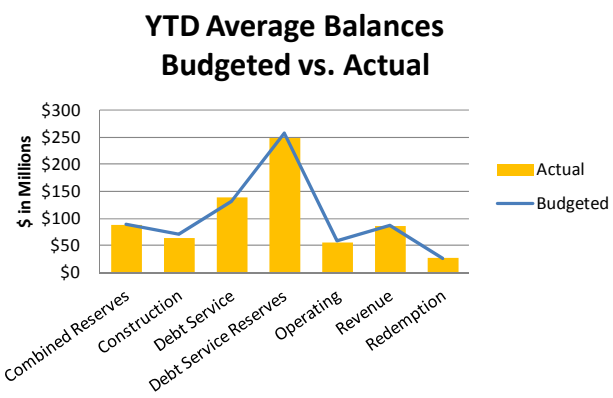
# Investment Income

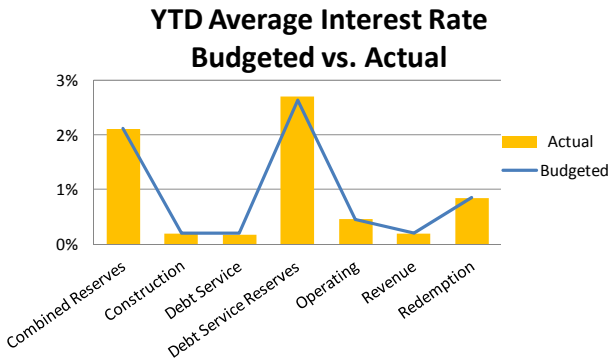
2nd Quarter – FY15

## Year To Date




| | YTD BUDGET VARIANCE ($000) | | | |
|---|---|---|---|---|
| | BALANCES IMPACT | RATES IMPACT | TOTAL | % |
| Combined Reserves | ($1) | ($16) | (17) | -1.9% |
| Construction | ($8) | ($6) | (14) | -20.0% |
| Debt Service | $5 | ($12) | (7) | -5.0% |
| Debt Service Reserves | ($110) | $38 | (72) | -2.1% |
| Operating | ($6) | $5 | (1) | -0.7% |
| Revenue | ($2) | ($7) | (9) | -10.0% |
| Redemption | ($1) | ($1) | (2) | -1.9% |
| Total Variance | ($122) | $0 | ($122) | -2.5% |




## Monthly