MASSACHUSETTS WATER RESOURCES AUTHORITY

Board of Directors Report

on

Key Indicators of MWRA Performance

for

Third Quarter FY2015

Q1	Q2	Q3	Q4
		■	

Frederick A. Laskey, Executive Director
Michael J. Hornbrook, Chief Operating Officer
May 13, 2015

Board of Directors Report on Key Indicators of MWRA Performance
Third Quarter FY15

Table of Contents

Operations and Maintenance

Construction Programs

Drinking Water Quality and Supply

Wastewater Quality

Community Flows and Programs

Business Services

Other Management

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

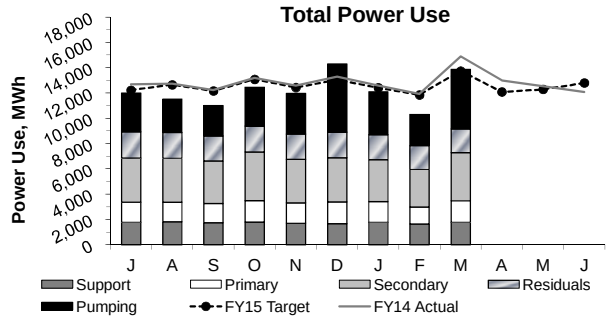
May 13, 2015

OPERATIONS AND MAINTENANCE

Deer Island Operations

3rd Quarter - FY15

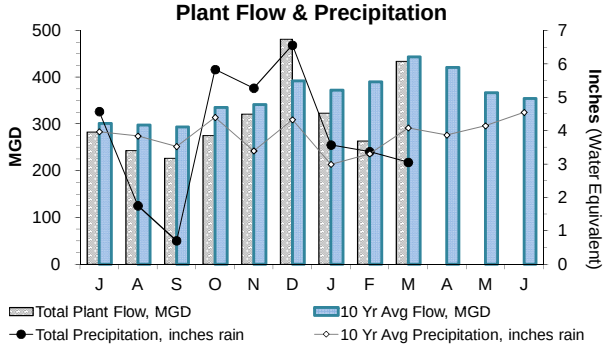
Total Power Use



Total Power Use in the 3rd Quarter was 4.5% below target as Total Plant Flow for the quarter was 7.6% below the 3 year average plant flow for the same period.

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

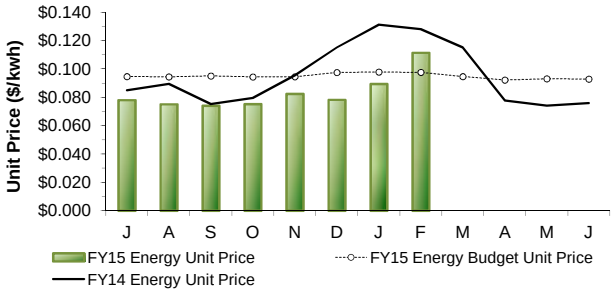
Plant Flow & Precipitation



Total Plant Flow for the 3rd Quarter was 15.2% below target with the 10 year average plant flow (340.5 MGD actual vs. 401.8 MGD expected) as precipitation for the 3rd Quarter was 4% lower than target (9.99 inches actual vs.10.38 inches expected). Nearly all the precipitation that fell in January through early March was in the form of snow which had little impact on plant flow. Significant rainfall and snowmelt due to rain and warmer temperatures did not impact plant flows until mid-March. Consequently, several new monthly low flow records were set in February.

Total Electricity Pricing

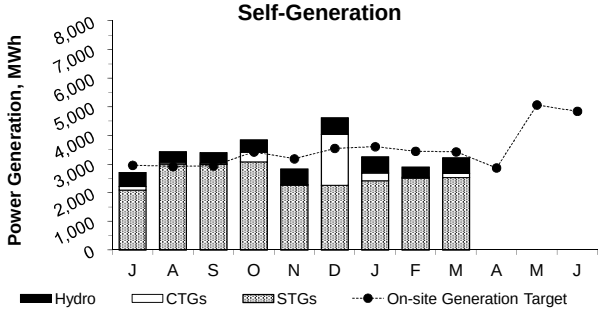
(includes spot energy price, ancillary costs, and NSTAR's transmission & distribution costs)



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 3rd Quarter (actual only through February) was 2.8% higher than the FY15 budget estimate for the same period. The Total Energy Unit Prices for March is not yet available as the complete invoice for this month is still pending receipt as of reporting time. The Total Energy Unit Price includes a fixed block price, spot energy price, transmission & distribution charges, and ancillary charges.

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

Self-Generation

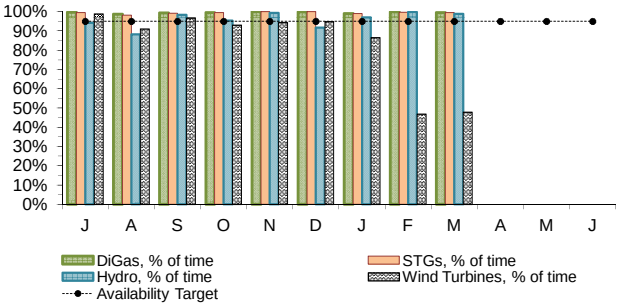


Power generated on-site during the 3rd Quarter was 4.5% lower than target. The STG power generation was 5% below target as the DiGas BTU content was slightly lower than expected in January possibly due to slightly lower solids destruction in the digesters for the month. The Hydro Turbines were also 5% lower than target as the 3-year average plant flow was 7.6% below target. The CTGs generated nearly twice as much power as expected this quarter mainly due to CTGs operation from January 26 -27 (during Blizzard Juno as a precautionary measure in case of power loss from high wind conditions) and in March for Opacity Testing and corrective maintenance on a water injection issue.

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 129.2 MWh was generated by the Solar Panels and 493.9 MWh was generated by the Wind Turbines in the 3rd Quarter .

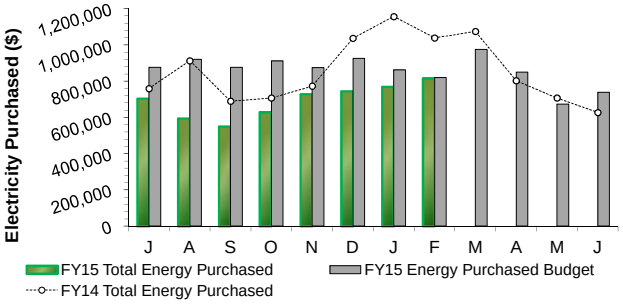
Self-Generation Equipment On-Line

(% of Time in Operation)



The DiGas, STGs, and Hydro Turbines, all met or exceeded the 95% availability target for the 3rd Quarter. Wind Turbine availability fell below target as Wind Turbine #2 has remained offline since January 25 pending repairs to the main power cable.

Total Cost of Electricity

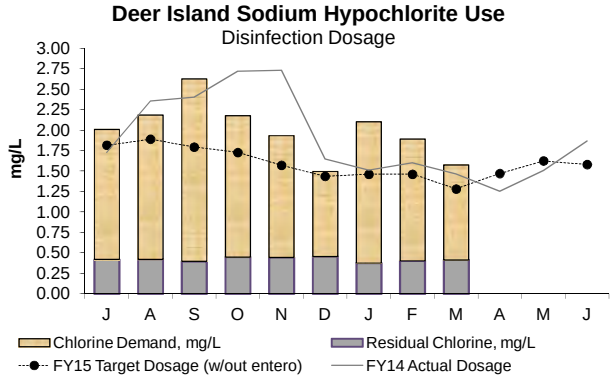


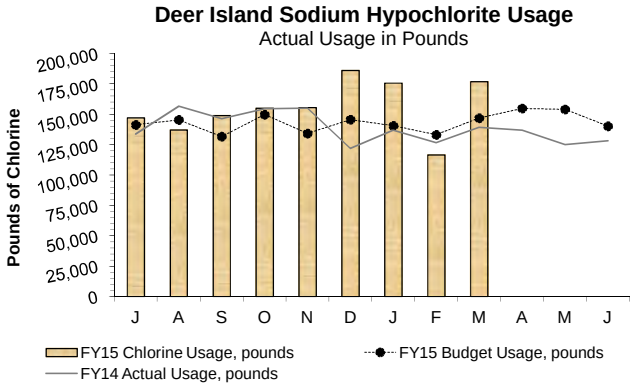
The cost of electricity Purchased during the 3rd quarter (actuals for January and February only) was 5.7% lower than budgeted due mainly to lower than expected power usage in the quarter. Year-to-date costs are $1,527,111 (27.6%) lower than budgeted (actuals only) as the year-to-date Total Energy Unit Price and Total Power Purchased are both lower than budgeted by 13.3% and 9.2%.

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

Deer Island Operations

3rd Quarter - FY15





The disinfection dosing rate in the 3rd Quarter was 33% higher than the target. DITP maintained an average disinfection chlorine residual of 0.40 mg/L this quarter with an average dosing rate of 1.86 mg/L (as chlorine demand was 1.46 mg/L). Dosing was higher-than-expected in January and February due to a higher chlorine demand as a result of stronger wastewater caused by the lower-than-expected plant flows during these months, followed by high dosing during several heavy rain events coupled with significant snow melt which contributed to the activation of several lengthy secondary blending events in March. As a result, the actual hypochlorite usage in pounds of chlorine was 11.6% 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	1	1	0	99.98%	1.73
F	0	0	0	100.0%	0.00
M	4	4	0	99.2%	36.05
A					
M					
J					
Total	18	18	0	98.7%	142.21

99.7% of all flows were treated at full secondary in the 3rd Quarter. There were a total of five (5) separate secondary blending events in the quarter; all due to high plant flows resulting from heavy rain, sometimes combined with significant snow melt. The five (5) blending events combined produced a total of 37.78 hours of blending and 106.70 Mgal of flow blended with secondary effluent. The Maximum Secondary Capacity for the quarter was 700 MGD.

Secondary permit limits were met at all times during the 3rd Quarter of FY15.

Deer Island Operations & Maintenance Report

Environmental/Pumping:

In the 3rd Quarter, the plant achieved a maximum average hourly flow rate of 922.7 MGD during the late evening of March 26. Plant flows were impacted by considerable snow melt during the rain event on this day. Pumping and treatment operations at DITP continued without incident throughout the entire quarter even as a record blizzard and several near-blizzards passed through the region in February.

Boston's total seasonal snowfall record was broken after 2.9 inches of snow fell on March 15. A total of 108.6 inches of snow fell at Boston's Logan Airport for the 2014-2015 season as of midnight on March 16 which broke the previous record of 107.6 inches set in the 1995-1996 season.

Even though a record breaking amount of snow fell, little to no snow melt occurred this quarter until mid-March due to below average cold temperatures. As a result, the monthly plant flows were not impacted by the near target amount of precipitation this quarter until mid-March and there were no significant spikes in the maximum daily plant flow this quarter except in early January (as a result of a rain event) and not again until mid-March (due to rain coupled with snow melt).

Deer Island Operations & Maintenance Report (continued)

Environmental/Pumping (continued):

Consequently, three (3) February low flow records were broken this quarter:

Total Plant Flow – 263.94 MGD in February (previous February record was 293.92 MGD in 2012)
North System Flow – 173.30 MGD in February (previous February record was 189.93 MGD in 2012)
South System Flow – 90.64 MGD in February (previous February record was 98.62 MGD in 2007)

Primary and Secondary Treatment:

Progress on the major Primary and Secondary Scum Tip Tube Replacement Project that began on June 2 continued through Q3. The primary scope of this project is to replace 88 of the 96 primary treatment tip tubes, 72 treatment tip tubes in Secondary Batteries A and B, and modification of 36 secondary tip tubes in Secondary Battery C. The contractor is limited by the construction documents to working in no more than four (4) primary clarifiers (preferably limited to one battery) and three (3) secondary clarifiers (one or two per battery to minimize capacity constraints so as to not reduce the overall secondary capacity). Construction was approximately 67.0% complete for the primary clarifiers and 39.0% complete for the secondary clarifiers by the end of the quarter. The contract is currently on schedule and functional testing is on-going. While the contract is currently on schedule, progress was limited, especially in January and February, due to the unprecedented winter conditions.

Energy and Thermal Power Plant:

Solar power generation accounted for 1.29% (129.2 MWh) and Wind Turbine generation accounted for 4.93% (493.9 MWh) of the total power generated on-site in the 3rd Quarter. Overall, total power generated on-site accounted for 27.6% of Deer Island's total power use for the quarter. Renewable power generated on-site (by Solar, Wind, STGs, and Hydro Turbines) accounted for 26.3% of Deer Island's total electrical power use for the quarter.

CTG-2B maintenance major audit began on January 12 and required the unit to be taken out of service through January 16 once all the major maintenance was completed. The contractor worked extended shifts to complete this major work in a compressed timeframe. Additional minor non-invasive work was performed on Saturday and Sunday (January 17-18). CTG-1A, which completed the same maintenance in October 2014, remained available for operation during the entire period of the CTG-2B maintenance work.

DITP experienced a sudden unanticipated power loss to the Bus B-side of the treatment plant electrical system at approximately 1:30 pm on Saturday, February 28 which resulted in the temporary shutdown of approximately half of the equipment in operation at the time, including several pumps, secondary mixers, the cryogenic oxygen plant, the Thermal Power Plant, the Hydro Turbine, and several odor control treatment systems. Power was restored to all operational equipment and areas that were impacted by this power loss by being placed on the Bus A-side of the electrical system (which remained operational through the entire event). Equipment around the plant was re-energized in order of operational priority and there were no negative impacts to the treatment process as a result of this power loss.

The power loss was determined to have occurred due to one of the main breakers tripping open to protect equipment from a perceived hazard. DITP staff and specialty contractors investigated the area around the tripped breaker to determine the cause of the trip. DITP's electrical contractor thoroughly tested the relays and meters around the breaker. All equipment successfully passed the testing and was found to be operating as designed. DITP electrical staff and speciality contractors found there were two (2) loose connections between the transformers (which measure voltage) and the main bus. Staff believe that these loose wires could have led to false signals being received at the breaker, which could have caused it to trip, stopping all power feed to the B side of the DITP electrical grid. Staff believe this is the most likely cause of the breaker trip. The connections were tightened and the system was put back in its normal operating mode.

As a follow up to the unanticipated power loss, staff and electrical contractors rigorously inspected and tested the PTs ("potential transformers") in the Main Switchgear for both the Bus B- and Bus A-sides of the electrical system in March. The inspection for Bus B took place on March 3 and on March 10 for Bus A. No interruption to plant process equipment occurred and at least one CTG unit was available during the inspection periods. All devices inspected were working properly and no additional loose connections were found.

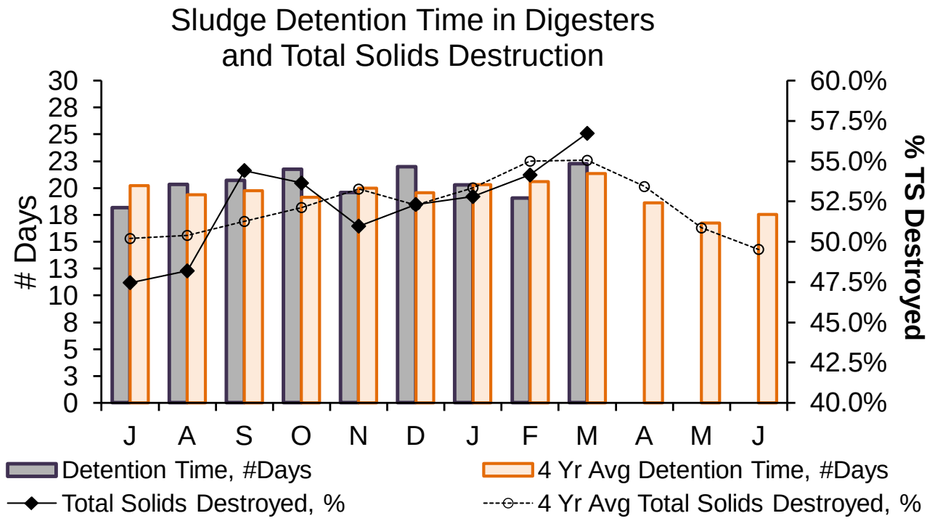
Opacity testing for each CTG unit was completed on March 11 as part of the annual regulatory requirements for emissions reporting on the CTGs and the results of this test demonstrated the units were in compliance. The test requires each CTG to be operated (one at a time) at full load for one hour. A water injection issue, however, did occur while CTG-1A was operating at full load which did not have any impact on the Opacity testing. Staff working with the assistance of the manufacturer was able to troubleshoot and affect the necessary repairs to the CTG by the next day. The CTG was operated at full load without issue, as a post-repair check, after the Water Injection Mod Valve was recalibrated.

Clinton AWWTP:

Construction of the primary tanks 3 and 4 which began July 1st 2014 continued with the installation of the mechanical components of the tanks. The tanks were put back in service on April 1, 2015 and have been running without incident. The basement of the digester building was waterproofed around perimeter. Electrical contractors started installation of security card readers on entry doors of all buildings and nine surveillance cameras have been installed at various locations around the plant.

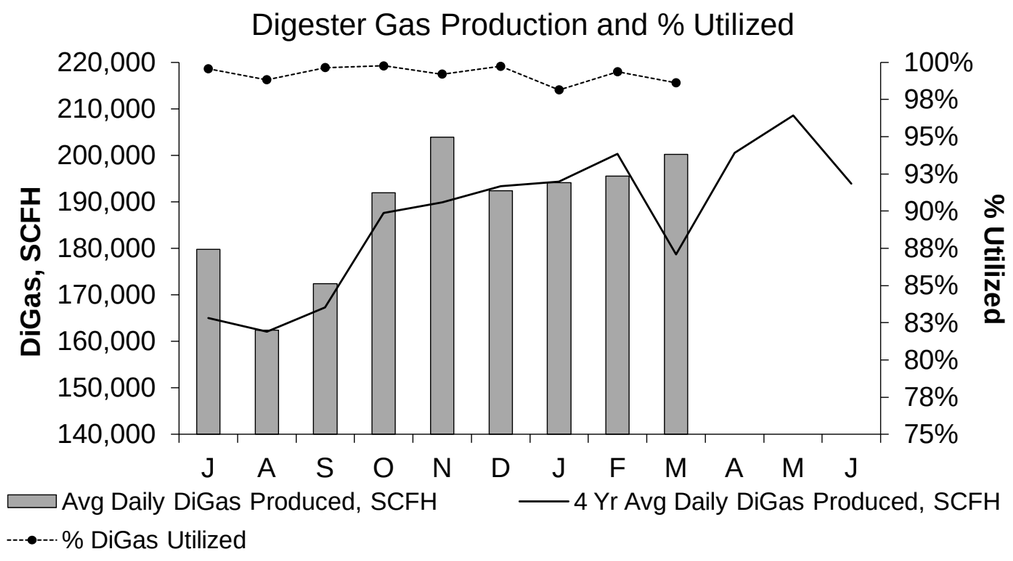
Deer Island Operations and Residuals

3rd Quarter - FY15



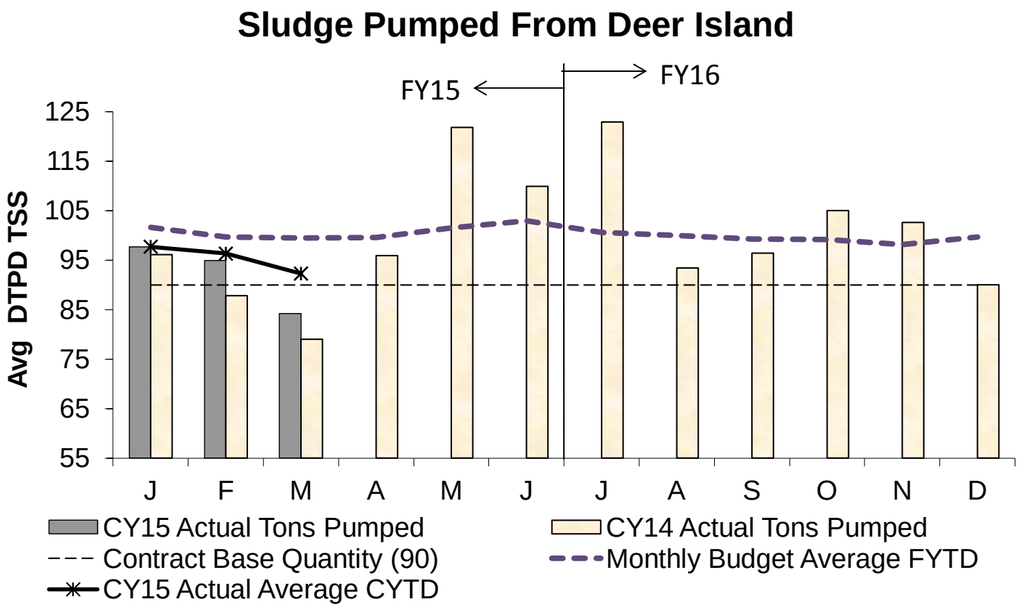
Total solids (TS) destruction following anaerobic sludge digestion averaged 54.6% during the 3rd Quarter, similar to the 4 year average of 54.5%. The sludge detention time in the digesters of 20.6 days was on target with the 4 year average of 20.8 days as DI operated with an average of 8.0 digesters during the 3rd Quarter.

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

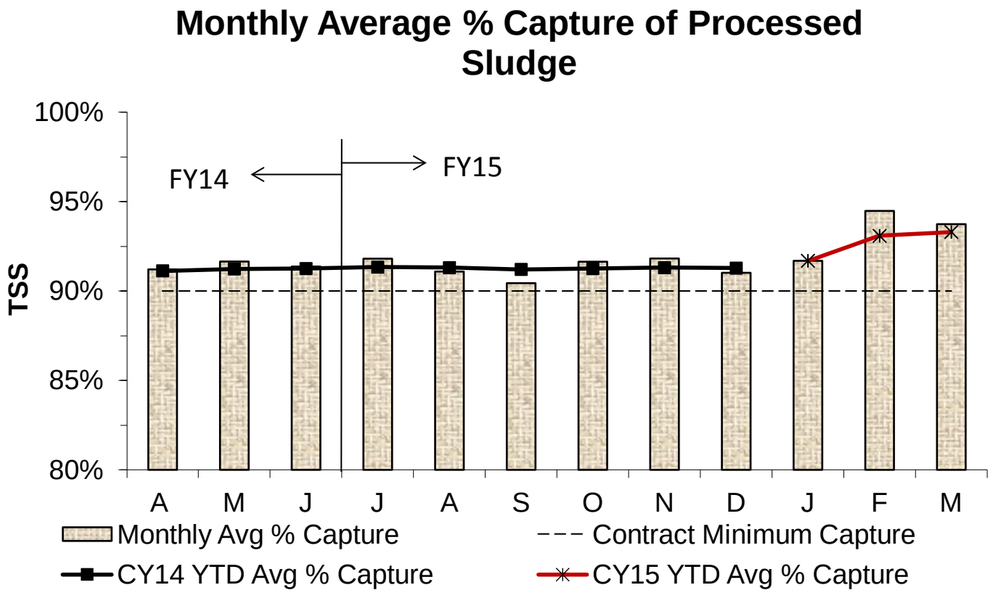


The Avg Daily DiGas Production in the 3rd Quarter was 2.9% higher than the target 4 Year Avg Daily DiGas Production for the same period. On average, 98.7% of all the DiGas produced in the quarter was utilized at the Thermal Power Plant.

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, even though, on average, MWRA processes more than 90 DTPD/TSS each year (FY15's budget is 102.9 DTPD/TSS).



The average total quantity of sludge pumped in the 3rd Quarter of FY15 was 95.4 DTPD - lower than FY15's average budget of 102.9 DTPD. The lower amount is due to lower sludge production as a result of colder weather and higher solids destruction.



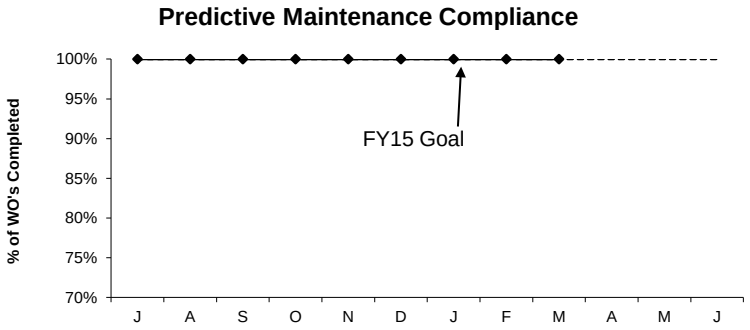
The contract requires NEFCo to capture at least 90% of the solids delivered to the Biosolids Processing Facility in Quincy. The CY15 YTD average capture is 92.69%

Deer Island Maintenance

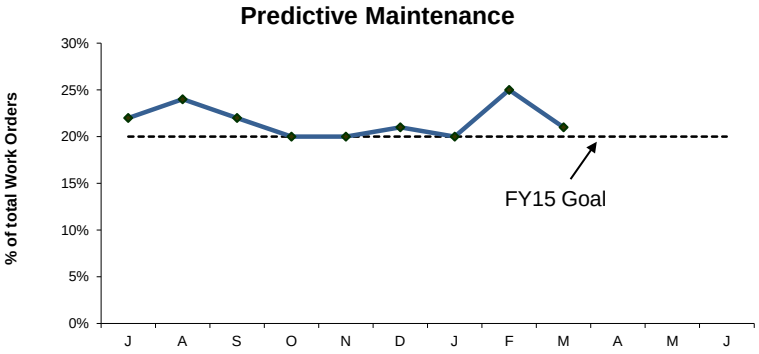
3rd Quarter FY 15

Productivity Initiatives

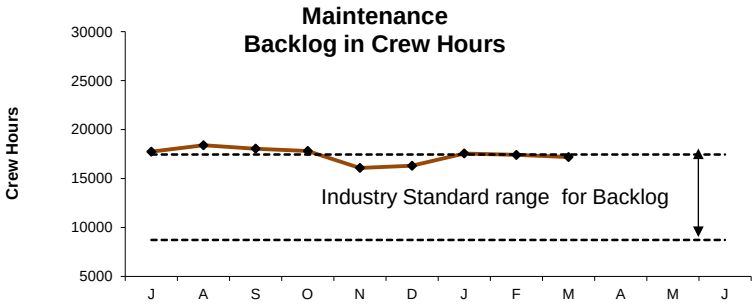
Productivity initiatives include increasing predictive maintenance compliance and increasing PdM work orders. Accomplishing these initiatives should result in a decrease in overall maintenance backlog.



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.



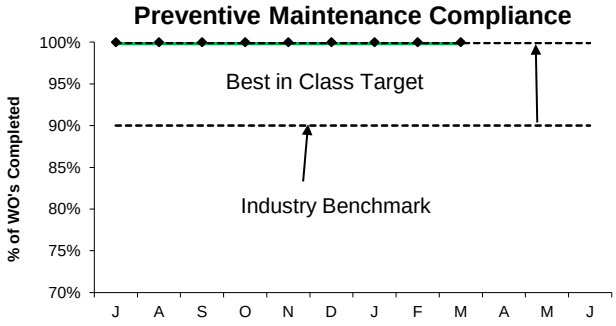
Deer Island's FY15 predictive maintenance goal is 20% of all work orders to be predictive. 22% of all work orders were predictive maintenance this quarter. The industry is moving toward increasing predictive maintenance work to reduce downtime and better predict when repairs are needed.



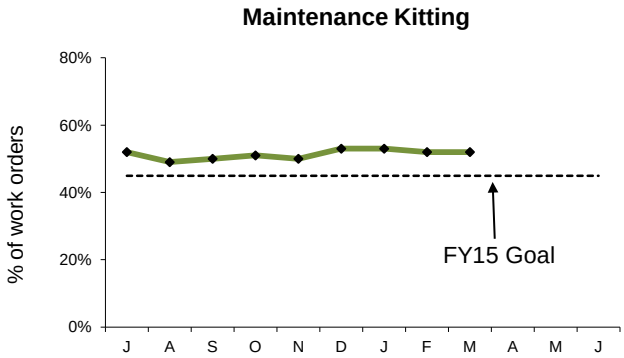
DITP's maintenance backlog at Deer Island is 17,398 hours this quarter. DITP is within the industry average for backlog. The industry Standard for maintenance backlog with 97 staff (currently planned staffing levels) is between 8,730 hours and 17,460 hours. Backlog is affected by three vacancies, an HVAC Technician, a Welder/Fabricator, and an M&O Specialist. Management continues to monitor backlog and to ensure all critical systems and equipment are available.

Proactive Initiatives

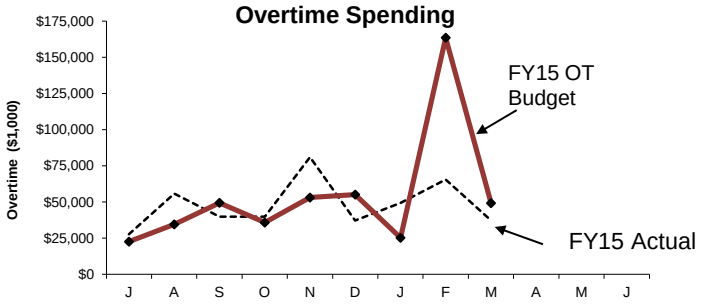
Proactive initiatives include completing 100% of all preventative maintenance tasks and increasing preventative maintenance kitting. These tasks should result in lower maintenance costs.



Deer Island's 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.



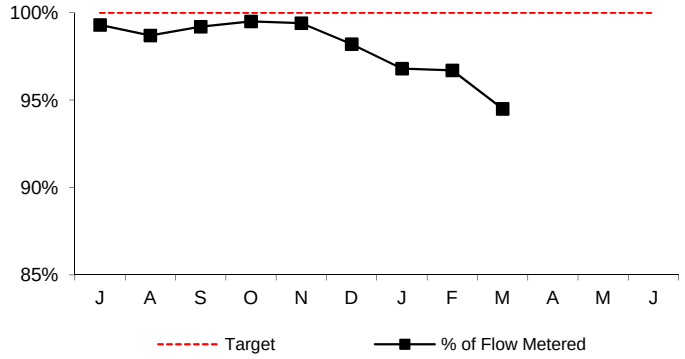
Maintenance overtime was over budget by $86K this quarter and $55k over for the year. Management continues to monitor backlog and to ensure all critical equipment and systems are available. This quarters overtime overtime was predominately used for installation of new HVAC units and coil replacements throughout Deer Island, the Blizzard of February 2015, numerous snow storms, and high flow coverage.

Operations Division Metering

3rd Quarter - FY15

WATER METERS

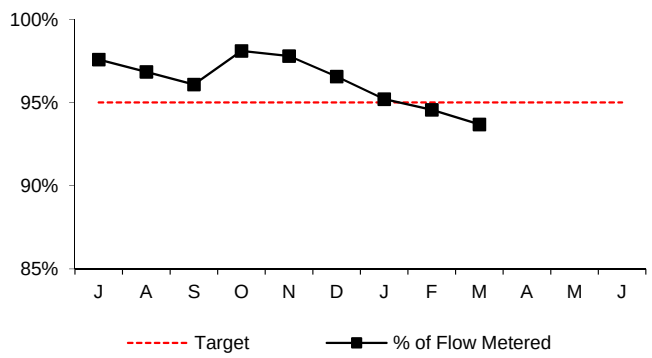
Percent of Total Revenue Water Deliveries Calculated Using Meters



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 3rd Quarter of FY15, meter actuals accounted for 96.90% of flow; only 3.10% of total revenue water deliveries were estimated. The following is the breakdown of reasons for estimations:
In-house and Capital Construction Projects - 2.37%
Instrumentation Failure - 0.73

WASTEWATER METERS

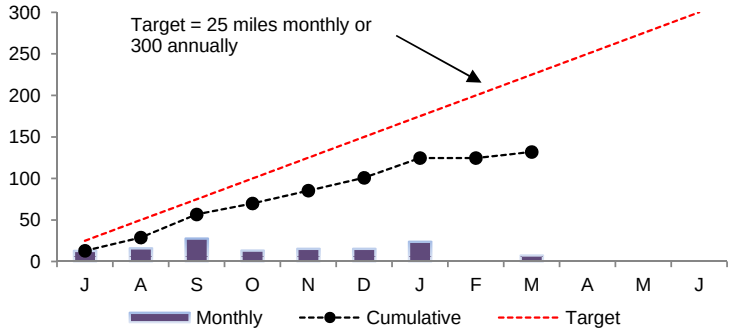
Percent of Total Wastewater Transport Calculated Using Meters



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 3rd Quarter of FY15, meter actuals accounted for 94.5% of flow; 5.5% of wastewater transport was estimated.

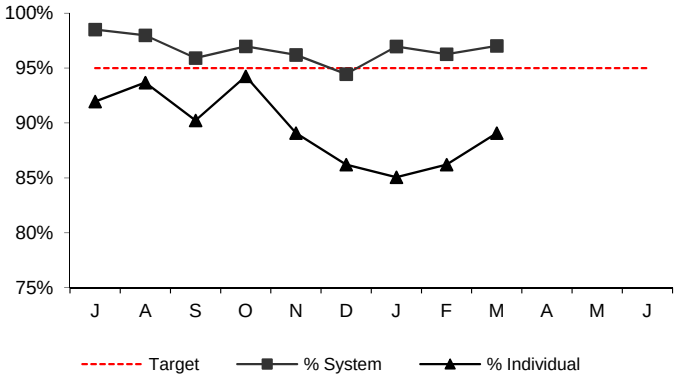
WATER DISTRIBUTION SYSTEM PIPELINES

Miles Surveyed for Leaks



Due to record breaking snowfall totals during the 3rd Q of FY15, only 31.10 miles of water mains were inspected. The total inspected for the fiscal year is 131.93

% Wastewater Meter Uptime



During the 3rd Quarter of FY15,out of a possible 1,503,360 data points, only 48,613 points were missed resulting in a system-wide up time of 96.8%. Of the 174 revenue meters installed, on average 23 experienced down time greater than the 5% target resulting in a 86.8% individual meter uptime. For the 3rd Quarter of FY15, down time for a individual meter is defined by any individual meter having less than 2,736 data points out of a potential 2,880 data points.

Water Distribution System

Month	J	A	S	O	N	D	J	F	M	A	M	J
Leaks Detected	6	1	7	5	2	1	4	0	1			
Leaks Repaired	8	1	1	4	7	3	1	0	1			
Backlog	4	4	10	11	6	4	7	7	7			
Avg. Lag Time	12.9	22.4	24.5	31.9	38.7	41.4	43.0	48.6	53.7			

During the 3rd Quarter of FY15, five (5) new leaks were detected : two in West Roxbury, two in Dorchester and one in Revere. The leak in Revere was detected on March 13th and repaired the same day. Additionally, Comm. Ave. @ Mass Pike, Newton was also repaired. The other four leaks detected during the 3rd Quarter of FY15 remain unrepaired.

At the end of the 3rd Quarter there are seven (7) leaks that need to be repaired: four (4) from the 3rd Quarter, one (1) from the 2nd Quarter, (1) one from the 1st Quarter and one (1) from the 4th Quarter of FY14. With the exception of the leak carried over from FY14, the remaining unrepaired leaks are due in large part to a Winter moratorium that is in effect until April 15th for all non-surfacing leaks. The remaining leak from FY14 is the second leak on the GE Bridge, Revere/Lynn line. This leak remains unrepaired due to an extensive coordination of resources including the rental of a barge.

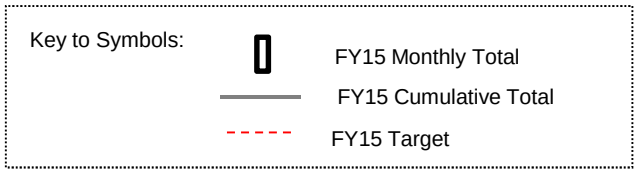
Water Distribution System Valves

3rd Quarter - FY15

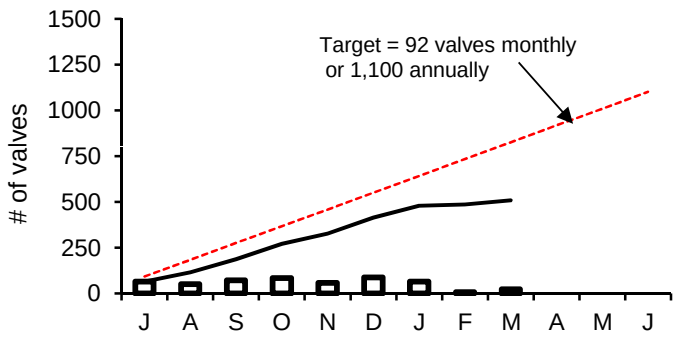
Background

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	2,159	96.1%	95%
Blow-Off Valves	1,317	91.9%	95%
Air Release Valves	1,380	91.6%	95%
Control Valves	49	100.0%	95%

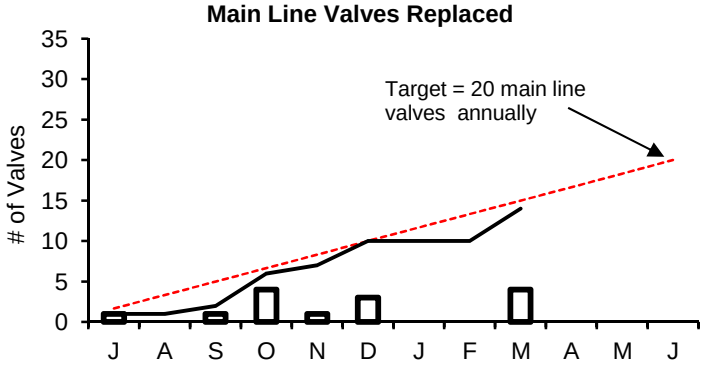


Main Line Valves Exercised



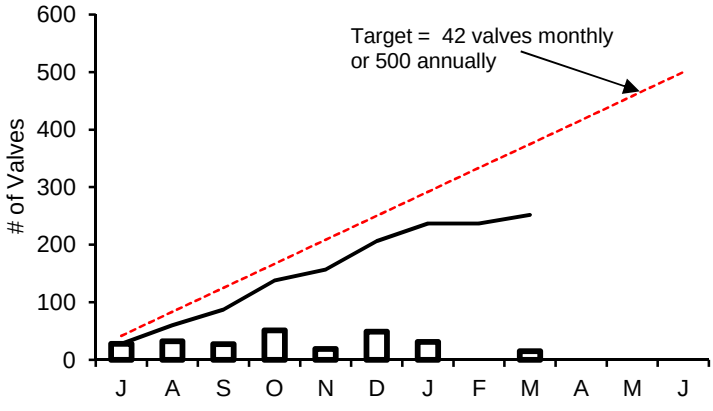
Due to record breaking snowfall totals during the 3rd Q of FY15, staff only exercised 94 main line valves. The total for the fiscal year to date is 508.

Main Line Valves Replaced



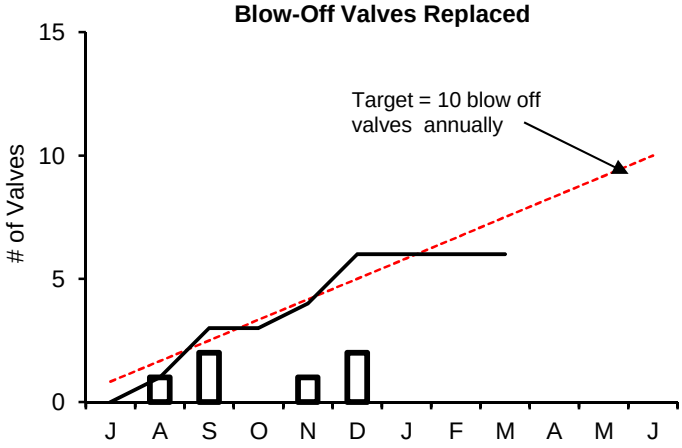
During the 3rd Q of FY15 staff replaced four main line valves. The total for the fiscal year to date is fourteen.

Blow-Off Valves Exercised



Due to record breaking snowfall totals during the 3rd Q of FY15, staff only exercised 46 blow-off valves. The total for the fiscal year to date is 252.

Blow-Off Valves Replaced



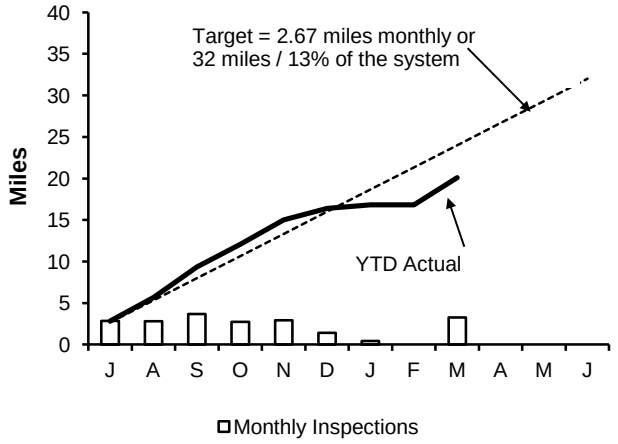
During the 3rd Q of FY15 no blow-off valves were replaced. The total for the fiscal year to date is six.

Wastewater Pipeline and Structure Inspections and Maintenance

3rd Quarter - FY 15

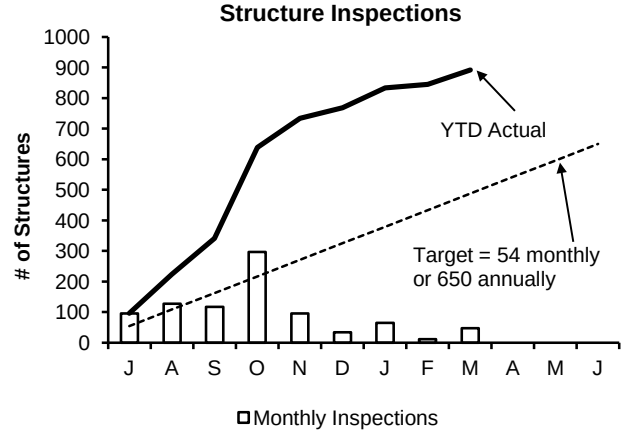
Inspections

Pipeline Inspections



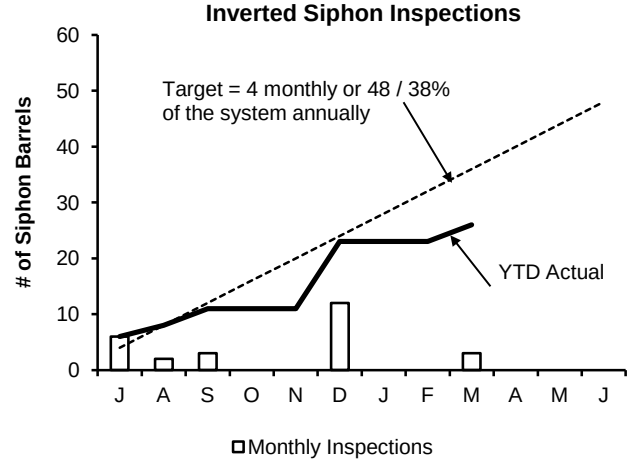
Staff internally inspected 3.68 miles of MWRA sewer pipeline during this quarter. The year to date total is 20.09 miles. Community Assistance was provided to the city of Somerville, and Reading this quarter. Staff inspected 6,087 linear feet of various diameter lines in Somerville and 1,448 linear feet of 12" diameter lines in Reading this quarter.

Structure Inspections



Staff inspected the 24 CSO structures and performed 88 additional manhole/structure inspections during this quarter. The year to date total is 892 inspections.

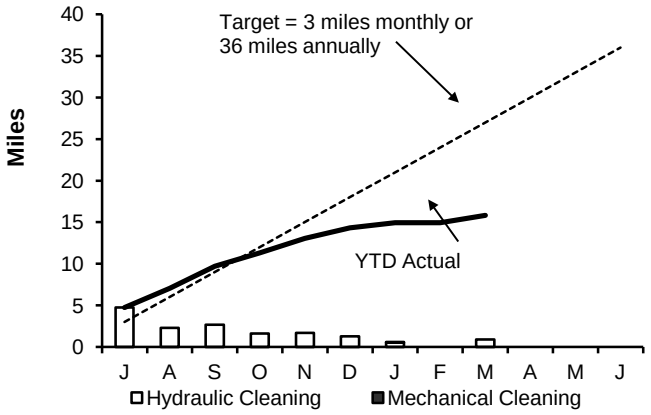
Inverted Siphon Inspections



Staff only inspected 3 siphon barrels during this quarter,due to winter weather conditions. Year to date total is 26 inspections.

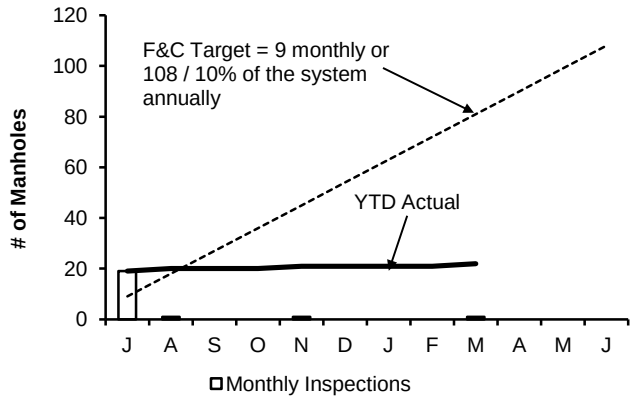
Maintenance

Pipeline Cleaning



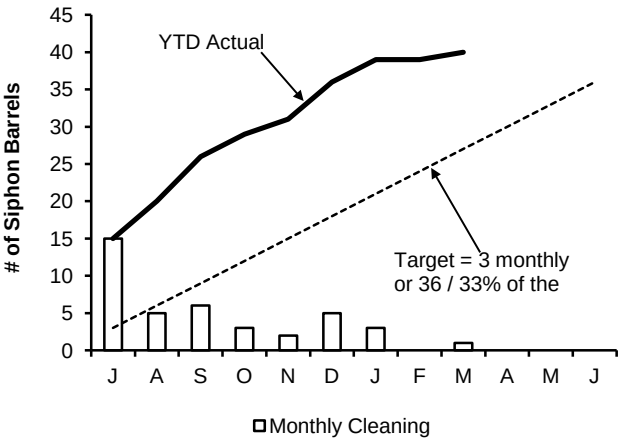
Staff only cleaned 1.44 miles of MWRA's sewer system and removed 20 yards of grit and debris during this quarter, due to winter weather conditions. The year to date total is 15.84 miles.Community Assistance was provided to the city of Somerville, Everett and Waltham. Staff cleaned 1,700 linear feet, 1,600 linear feet and 600 linear feet respectively this

Manhole Rehabilitation



Staff replaced 1 frames & cover during this quarter.The year to date total is 22. Staff are finishing up other critical work and will redirect their efforts on replacing Frames and Covers full time starting in May.

Inverted Siphon Cleaning



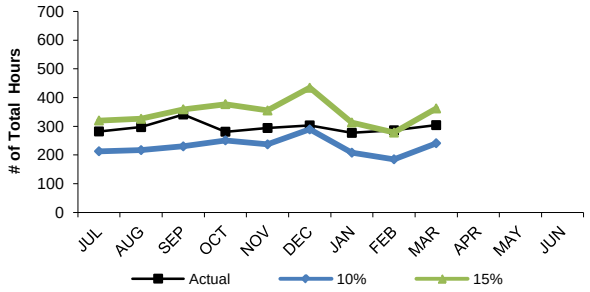
Staff cleaned 4 siphon barrels during this quarter. The year to date total is 40 barrels.

Field Operations' Metropolitan Equipment & Facility Maintenance

3rd Quarter, FY15

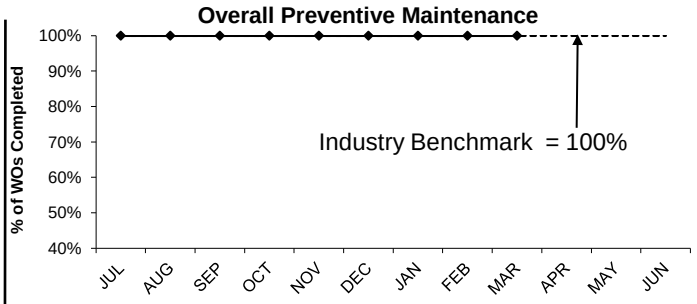
Several maintenance and productivity initiatives are in progress. The goal for the Overall PM completion and the Operator PM completion was raised to 100% for Fiscal Year 2010. The Operator PM and kitting initiatives frees up maintenance staff to perform corrective maintenance and project work, thus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

Operations Light Maintenance PM Hours



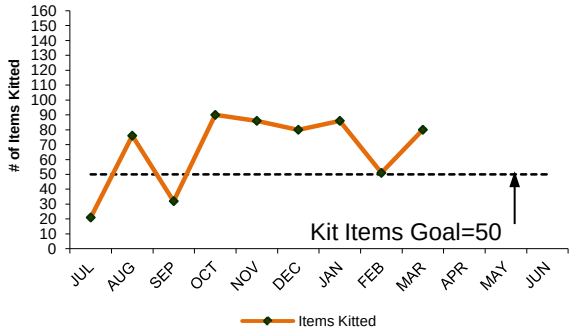
Operations staff averaged 289 hours of preventive maintenance during the 3rd Quarter, an average of 14% of the total PM *hours* for the 3rd Quarter, which is within the industry benchmark of 10% to 15%.

Overall Preventive Maintenance



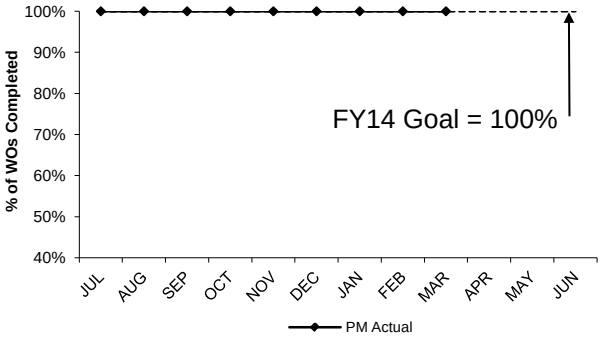
The Field Operations Department (FOD) preventive maintenance goal for FY15 is 100% of all PM work orders. Staff completed an average of 100% of all PM work orders in the 3rd Quarter.

Items Kitted Utilizing Maximo



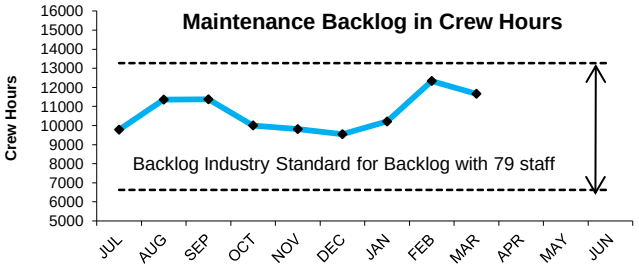
In an effort to more efficiently complete work, maintenance staff and work coordination staff have utilized the Lawson/Maximo interface to better kit stock and non stock material. The goal for FY15 is to "kit" 50 stock and non stock items total per month. An average of 72 items were kitted during the 3rd Quarter.

Operations Light Maintenance % PM Completion



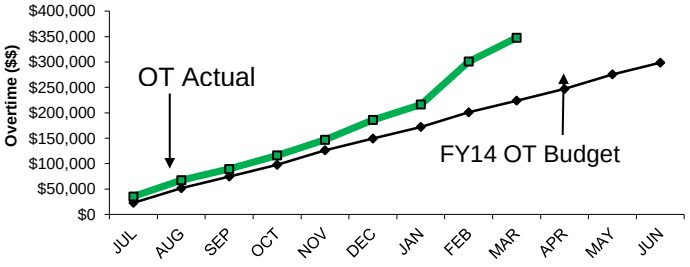
Wastewater Operators complete light maintenance PM's which frees up maintenance staff to perform corrective maintenance. Operations' FY15 PM goal is completion of 100% of all PM work orders assigned. Operations completed an average of 100% of PM work orders in the 3rd Quarter.

Maintenance Backlog in Crew Hours



The 3rd Quarter backlog average is 11,405 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.

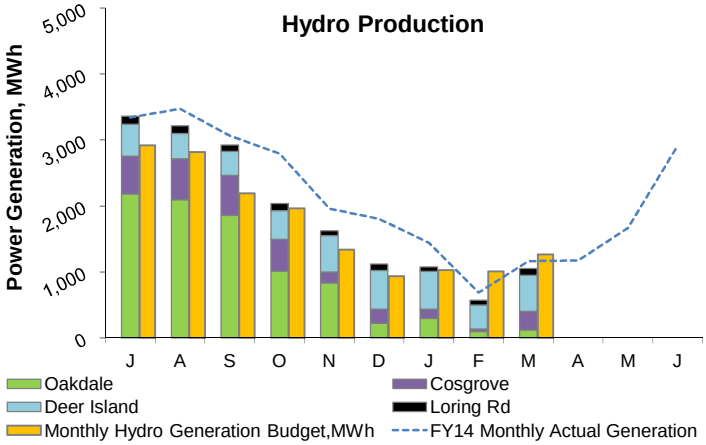
Overtime Spending



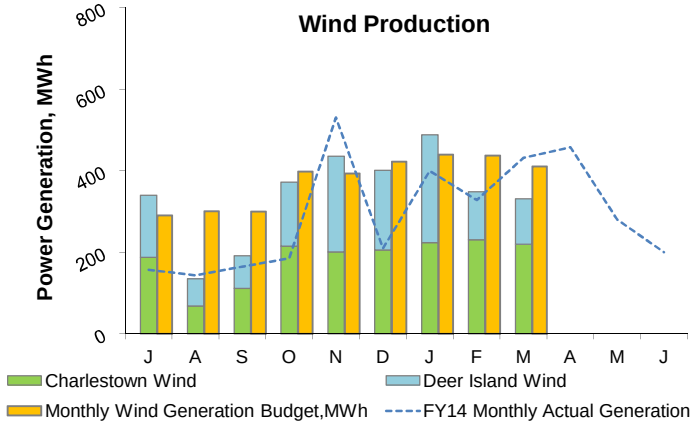
Maintenance overtime was $87k over budget for the 3rd Quarter. Overtime was used for weather events, critical maintenance repairs, and upgrades to the Chelsea Administration Building.

Renewable Electricity Generation: Savings and Revenue

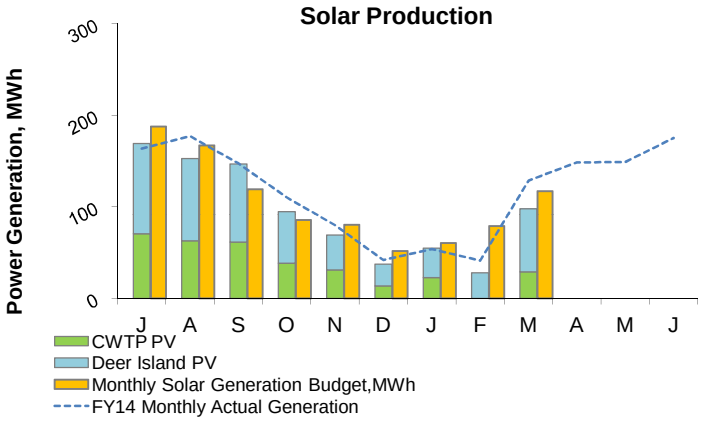
3rd Quarter - FY15



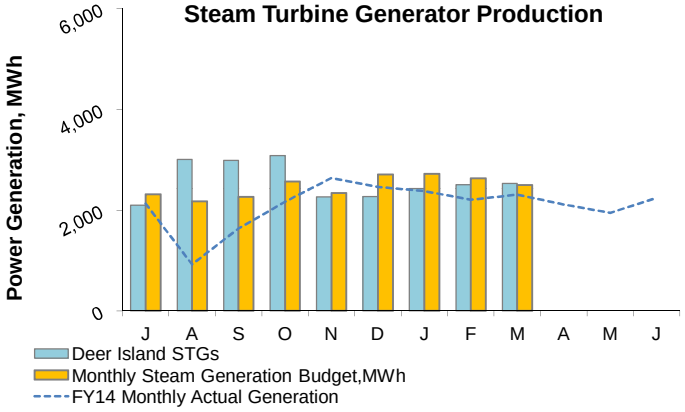
In the 3rd Quarter, the renewable energy produced from all hydroelectric facilities totaled 2,697 MWh. Cosgrove was taken off-line temporarily in February for maintenance work. The total energy produced to date in FY15 is 16,979 MWh. The total savings and revenue[2] to date in FY15 (actual only through February[1]) is $792,182; 14% below budget[3], partly due to the fact that the actual electricity unit price for Deer Island has been 12% below the budgeted[3] estimate for the same period. The savings and revenue value does not include RPS REC revenue (see next page).



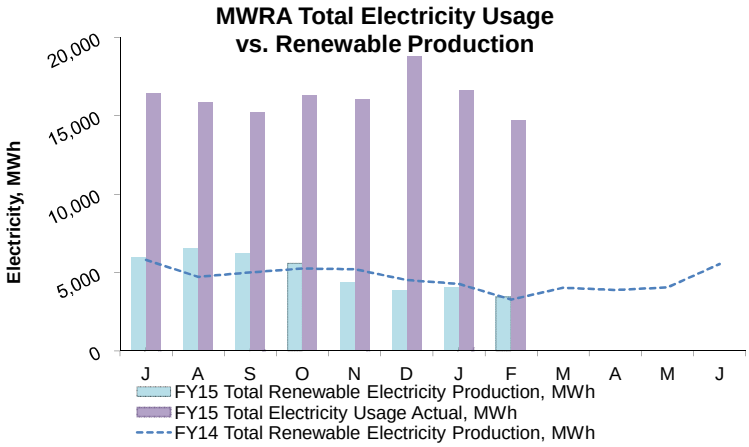
In the 3rd Quarter, the renewable energy produced from all wind turbines totaled 1,168 MWh. DI T2 wind turbine has been off-line since the end of January pending the repair of its main power cables. The total energy produced to date in FY15 is 3,044 MWh. The total savings and revenue[2] to date in FY15 (actual only through February[1]) is $390,342; which is 8% above budget[3]. The savings and revenue value does not include RPS REC revenue (see next page).

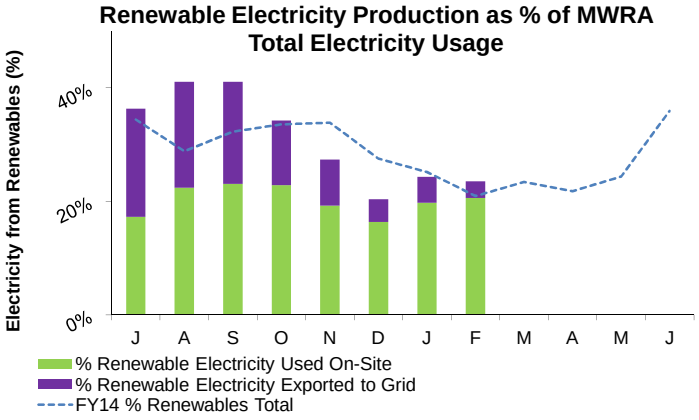


In the 3rd Quarter, the renewable energy produced from all solar PV systems totaled 181 MWh, 30% below budget, this is mostly due to snow covering solar panels in the winter months. The total energy produced to date in FY15 is 851 MWh. The total savings and revenue[2] to date in FY15 (through February[1]) is $87,671; 6% below budget[3]. The savings and revenue value does not include REC revenue (see next page).



In the 3rd Quarter, the renewable energy produced from all steam turbine generators totaled 7,456 MWh. The total energy produced to date in FY15 is 23,149 MWh. The total savings[2] to date in FY15 (through February[1]) is $1,702,484; 9% below budget[3]. Although total FY15 power generation remains above budget electricity savings is less due to lower electricity pricing. The savings and revenue value does not include RPS REC revenue (see next page).





In the first 8 months of FY15, MWRA's electricity generation by renewable resources totaled 40,014 MWh. MWRA's total electricity usage was approximately 130,012 MWh. The MWRA total electricity usage is the sum of all electricity purchased for Deer Island and FOD plus electricity produced and used on-site at these facilities. Approximately 97% of FOD electrical accounts are accounted for by actual billing statements; minor accounts that are not tracked on a monthly basis such as meters and cathodic protection systems are estimated based on this year's budget.

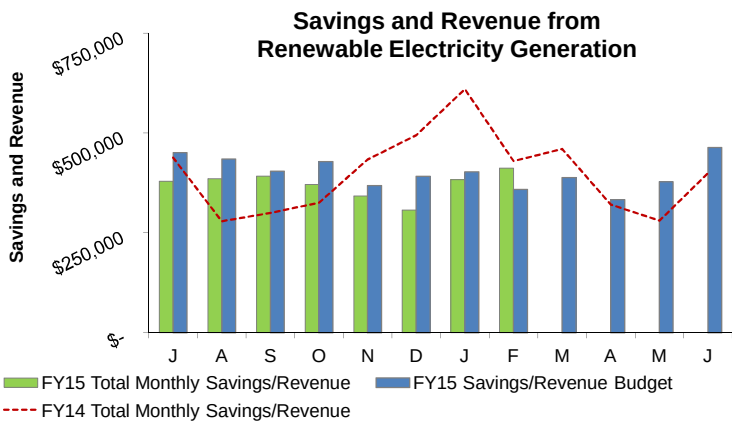
In the first 8 months of FY15, green power generation represented approximately 31% of total electricity usage. All renewable electricity generated on DI is used on-site (this accounts for more than 50% of MWRA renewable generation). Almost all renewable electricity generated off-DI is exported to the grid.

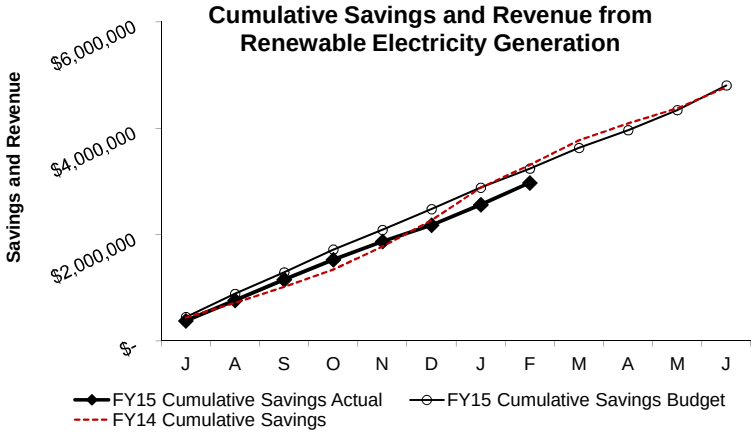
Notes:

1. Only the actual energy prices are being reported. Therefore, some of the data lags up to (2) months due to timing of invoice receipt.
2. Savings and Revenue: Savings refers to any/all renewable energy produced that is used on-site therefore saving the cost of purchasing that electricity, and revenue refers to any value of renewable energy produced that is sold to the grid.
3. Budget values are based on historical averages for each facility and include operational impacts due to maintenance work.

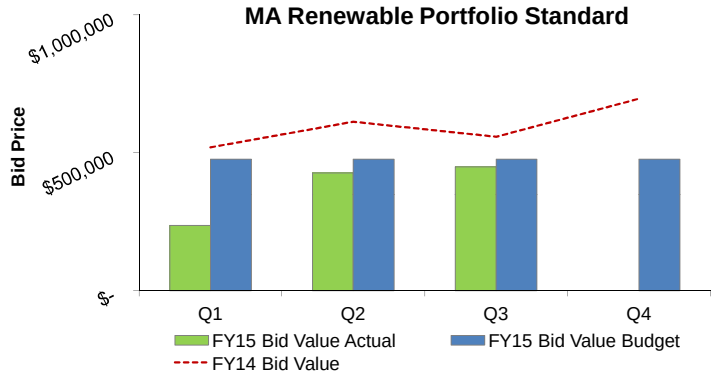
Renewable Electricity Generation: Savings and Revenue

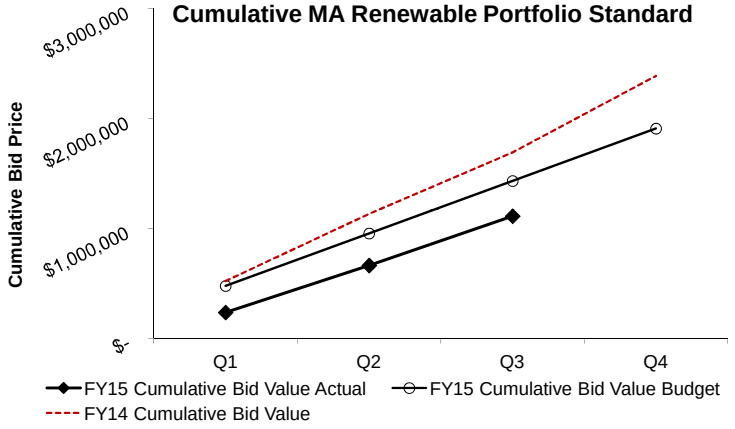
3rd Quarter - FY15



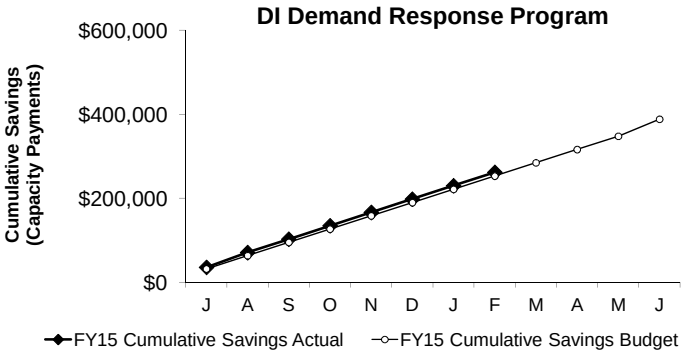


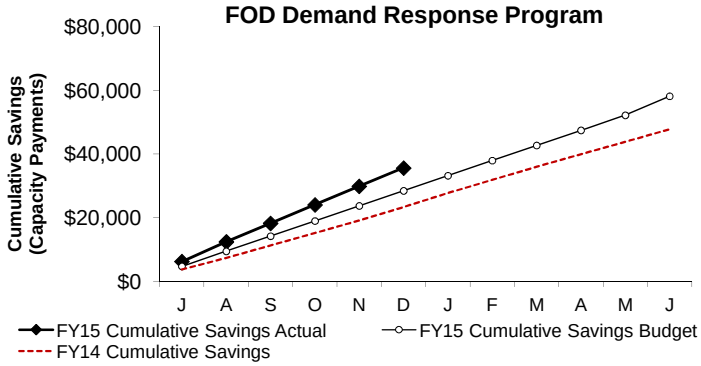
Savings and revenue from MWRA renewable electricity generation in the first 8 months of FY15 (actual only through February[1]) is $2,972,678; which is 8% below the budget[3]. This is partly due to the fact that the actual electricity unit price for Deer Island has been 12% lower on average than the budgeted[3] estimate for the same period. Savings and revenue[2] from all renewable energy sources include wind turbines, hydroelectric generators, solar panels, and steam turbines (DI). This includes savings and revenue due to electricity generation (does not include avoided fuel costs and RPS RECs).
The use of DITP digester gas as a fuel source provides the benefit of both electricity generation from the steam turbine generators, and provides thermal value for heating the plant, equivalent to approximately 5 million gallons of fuel oil per year (not included in charts above).





Bids were awarded during the 3rd Quarter[1] from MWRA's renewable energy assets; 7,593 Class I Renewable Energy Certificates (RECs) and 115 Solar RECs were sold for a total value of $449,031 RPS revenue; which is 6% below the budget[3].
REC values reflect the bid value on the date that bids are accepted. Cumulative bid values reflects the total value of bids received to date.

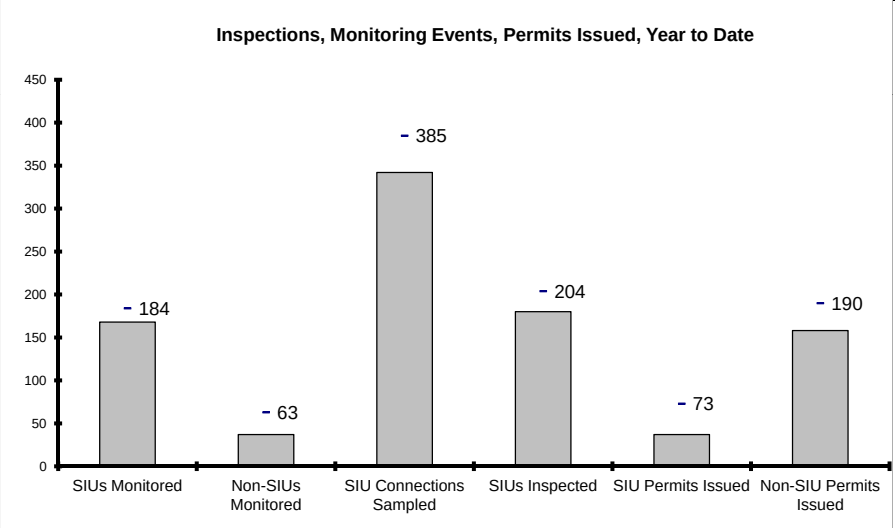




Deer Island, 2 Water, and 4 Wastewater facilites[4] participate in the ISO-New England Demand Response Programs. By agreeing to have its generators available to run and thus relieve the New England energy grid of some of MWRA's load during times of high energy demand, MWRA receives monthly Capacity Payments from ISO-NE. When MWRA operates back-up generators during an ISO-NE called event, MWRA also receives energy payments from ISO-NE. Cumulative savings (Capacity Payments only) through December[1] for FOD total $35,584 and $261,755 for DI through February[1].

Notes:
1. Only the actual energy prices are being reported. Therefore, some of the data lags up to (2) months due to timing of invoice receipt.
2. Savings and Revenue: Savings refers to any/all renewable energy produced that is used on-site therefore saving the cost of purchasing that electricity, and revenue refers to any value of renewable energy produced that is sold to the grid.
3. Budget values are based on historical averages for each facility and include operational impacts due to maintenance work.
4. FOD Facilites include: CWTP, Loring Road, Chelsea Creek, Columbus Park, Ward St., and Nut Island.

Toxic Reduction and Control
3rd Quarter, FY15



EPA Required SIU Monitoring Events
for FY15: 184
YTD : **168**

Required Non-SIU Monitoring Events
for FY15: 63
YTD : **37**

SIU Connections to be Sampled
For FY15: 385
YTD: **342**

EPA Required SIU Inspections
for FY15: 204
YTD: **180**

SIU Permits due to Expire
In FY15: 73
YTD: **37**

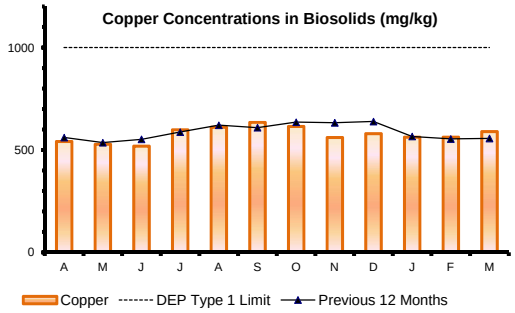
Non-SIU Permits due to Expire
for FY15: 190
YTD: **158**

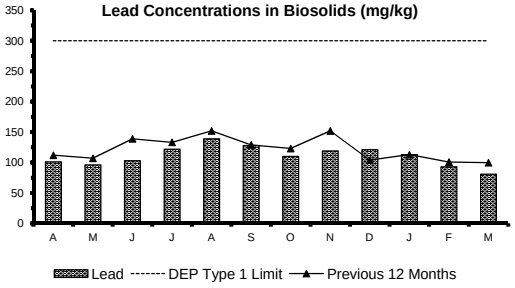
Significant Industrial Users (SIUs) are MWRA's highest priority industries due to their flow, type of industry, and/or their potential to violate limits. SIUs are defined by EPA and require a greater amount of oversight. EPA requires that all SIUs *with flow* be monitored at least once during the fiscal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

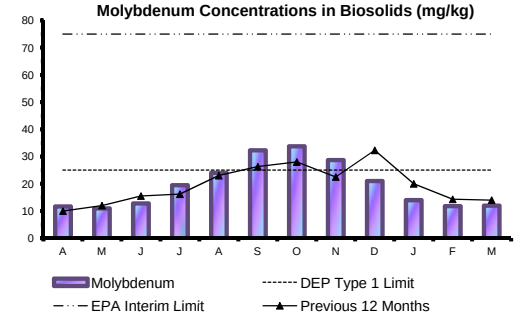
TRAC's annual monitoring and inspection goals are set at the beginning of each fiscal year but they can fluctuate due to the actual number of SIUs at any given time. During the course of the year, some SIUs do not discharge and cannot be monitored. TRAC also monitors one-third of the non-SIUs each year. 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	3	43	0	1	0	2	3	46
Feb	0	6	0	0	0	0	0	6
Mar	16	22	2	3	0	3	18	28
Apr							0	0
May							0	0
Jun							0	0
% YTD	89%	86%	8%	6%	3%	8%	37	158







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

In this the 3rd Quarter of FY15, one hundred and one permits were issued, twenty one of which were SIUs. Nineteen SIU and seventy-one non-SIU permits were issued in the 120-day timeframe while two SIU and four non-SIU permits were issued in the 120-day to 180-day timeframe. The remaining five non-SIU permits were in the over 180-day timeframe mainly because of late payment of permit fees and delays while the adequate permit category was being determined.

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.

Throughout this quarter, the level of molybdenum was below the DEP type 1 Limit. MWRA and its contractor (NEFCO) generally do not distribute product in Massachusetts between July and January under its approval of suitability.

Field Operations Highlights
3rd Quarter – FY15

Western Water Operations and Maintenance

John J. Carroll Water Treatment Plant:

Staff completed the half plant shutdown of both sides of the treatment process including all annual maintenance tasks associated with the shutdown. Contractor staff were able to remove the temporary sluice gates that were installed to facilitate the construction of the UV treatment process. Maintenance tasks for the Ultra Violet system were completed including cleaning of Quartz sleeves and replacement of lamps that had reached their normal service life.

Hultman /Metro West Tunnel: The operability of the critical mainline valves along the Hultman Aqueduct and the Metro West Tunnel were tested for remote and local operation.

Metro Water Operations & Maintenance

Incidents and Leaks:

Late January, most of February, and early March were dominated by the record winter weather. Snow removal operations were required at the Chelsea facility, all Metro water facilities, tunnel shafts, meter sites, and pressure reducing valve sites. Staff worked around the clock for many days dealing with the storms and post-storm clean up. Snow removal operations hampered many of the normal maintenance activities. Revere experienced several water main breaks in the first week of the February; MWRA water pipeline staff repaired two of the breaks to augment the city's staff. Lynn experienced several leaks during the early part of the February, including on the Lynnway and the MBTA (T) bus facility on Western Ave. In all cases, our staff responded to assist the city with any field issues, including leak detection assistance.

Water Pipeline Program:

Work continued at Fisher Ave in Brookline on the Meter 98 reconstruction. In mid January, the road was initially to be closed for a two week period of time to allow for the deep excavation required to make a new connection and remove the existing connection to the MWRA 42" main. The road closure and work schedule were greatly impacted due to the severe winter weather that occurred during the quarter. Work did continue at the site, including snow removal efforts after every storm to continue progress. New tees were cut into the existing 42" and 30" mains during February for the new connections to what will be the new Meter 98. Work resumed in earnest in March, with the advent of better weather. The last of the snow was removed from the work area, to allow for the installation of piping and valves preparing for the installation of the meter chamber, and re-opening of Fisher Ave to thru traffic. Three new valves were installed during March for the work – one each on the 42" and 30" branch piping, and one on the meter bypass piping. Work was restarted at the Section 80 valve replacement site on Quinobequin Road in Newton. A second crew began work on a leak on Section 80, which is also at the site of a blow off retrofit project. Isolation of Section 80 to perform the work was coordinated with Needham and Wellesley. The valve replacement was completed and pressure tested during March, and the site work will be completed early next month; the leak repair and blow off retrofit will take until early May.

SCADA & Process Control

SCADA**:**

The Department of Homeland Security & Idaho National Labs performed a SCADA network cyber security assessment. Completed programming for upgrade of Bellevue tanks including new Contaminate Monitoring System. Performed SCADA network upgrades Upgraded WABWTF SCADA nodes to full redundant configuration.

Wastewater Operations & Maintenance

North Main Pump Station Shutdown Planning Meetings: Staff continue to prepare for the North Main Pump Station contract equipment upgrades and modifications, providing wastewater system operating conditions, monitoring points, system modeling information and regulatory notification comments, and developing operational control strategies for the shutdowns.

Wastewater Operator Training Program: Wastewater Operations has implemented an in house Operator Training program. Trainees shadow Wastewater Operators one day a week at field facilities (pumping stations, headworks and CSOs) and/or at the Deer Island Treatment Plant. Trainees also attend wastewater exam training once per week. The program culminated with the trainees taking the grade 2 wastewater operator's license examination in January 2015. The goal of the program is to have an adequate pool of internal candidates for future wastewater operator positions and in case of extreme emergencies.

TRAC

Enforcement: TRAC continues to pursue several enforcement cases. We are in negotiations with two of the industries.

Metering and Monitoring

Meter Systems: Staff are working 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. Notified Arlington, BWSC, Chicopee, Everett, Framingham, Lexington, Malden, Melrose, Milton, Newton, Norwood, Revere, Saugus, Somerville, Waltham, Westborough State Hospital (RH White), Weston, Winchester and Winthrop of higher demands and potential leaks. Staff converted four (4) water meters to wireless communication.

Environmental Quality -- *Water Supply*

Community Support: In conjunction with Laboratory and Training staff advertised training dates for seven half-day drinking water sampler training sessions in April and May. Training will review how to sample drinking water and perform a chlorine residual field test. Other topics of interest include Total Coliform Rule sampling plans, the Revised Total Coliform Rule, and how to address water quality complaints.

Staff provided assistance to the Wellesley Water Department by conducting water storage tank depth sampling associated with a storage tank reactivation. Notified all fully served and partially served Water Superintendents regarding important sampling issues associated with Total Coliform Rule sampling programs. Winter storms in January and February limited the ability for some communities to collect their required number of samples per month. The email provided some guidance for the future.

Contaminant Monitoring System: The Contaminant Monitoring stations at Arlington Covered Reservoir and Bellevue Standpipes are fully installed and providing continuous data through both the SCADA and Verizon networks.

Environmental Quality -- *Wastewater*

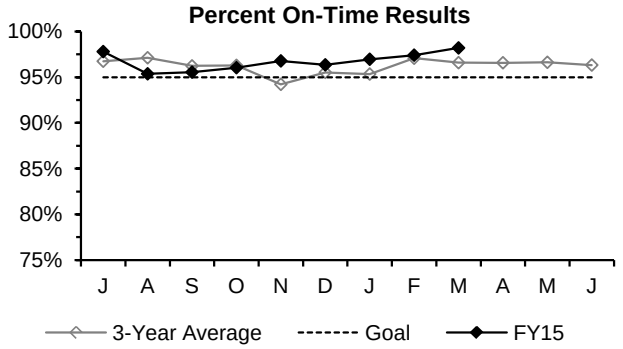
Contingency Plan: Staff performed threshold tests on Ambient Monitoring data as they were received, as required by Deer Island's NPDES permit. Staff prepared and posted Quarterly Report required by permit-attached Contingency Plan.

Ambient Monitoring: Conducted first and second annual water column surveys in the face of unprecedented amounts and duration of sea ice in Boston Harbor and regionally. Staff and consultants began the analysis and interpretation of 2014 monitoring results in preparation for an annual monitoring review meeting to be held in early April. Completed preparation of 2014 data sets for annual meeting/annual reports. Completed report on computer modeling of Massachusetts Bay for calendar year 2013.

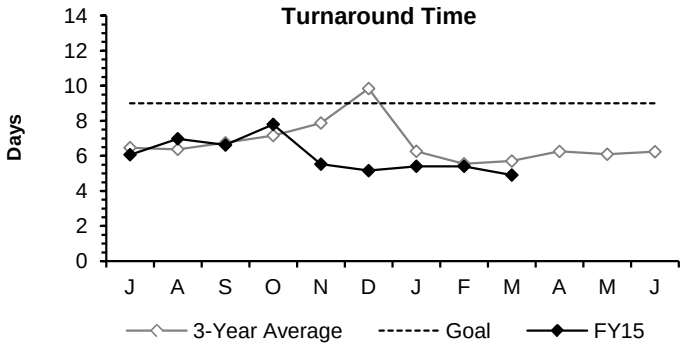
Clinton Influent Gates: Received approval of permit application from DEP.

Laboratory Services

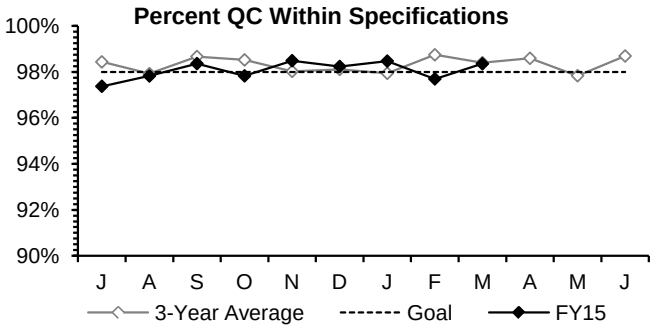
3rd Quarter - FY15



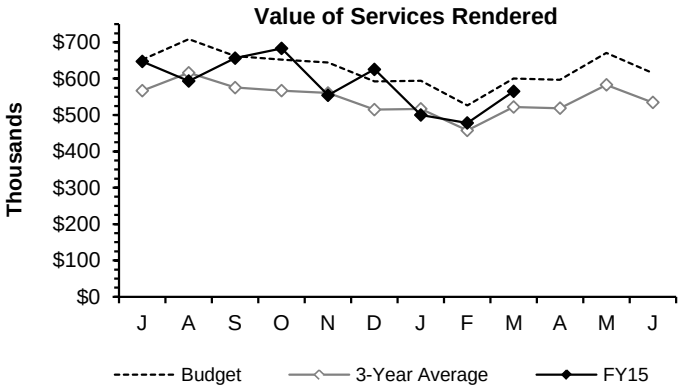
The Percent On-Time measurement was above the 95% goal



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 each month of the quarter. Year to date we are 4% below budget, while staffing has averaged 8% below budget.

Highlights:

Security/Mobile Lab:
The annual testing of cyanide samples at CWTP was completed using on-site sample processing in the Mobile Lab. Staff attended a training course on solid phase micro-extraction (SPME) SPME is a technique that allows us to extract and concentrate chemical from water in the field without the need to transport and use large amounts of hazardous solvents.

DITP:
Took DITP methane/non-methane hydrocarbon air monitoring testing back in house after replacing the instrument. Testing splits samples with the Pellet Plant lab for total solids and total suspended solids to gauge the comparability of these lab tests on the sludge pumped from Deer Island.

ENQUAL Clean Water:
Obtained good results on two sets of voluntary proficiency test samples for harbor and outfall monitoring parameters.

Budgeting:
Started testing the new time tracking "self entry" utility that MIS created. DLS has collected data on time spent on a test by test basis to allow us to better understand our costs since 1994 . This new utility will allow that system to become paperless and improve the usability of this data.

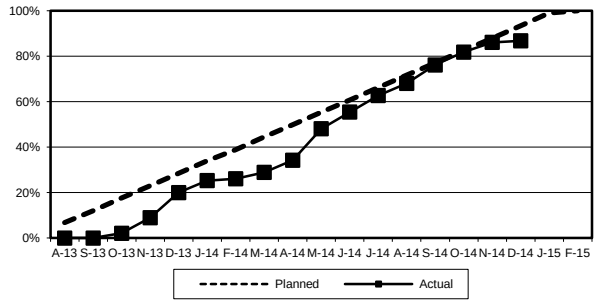
CONSTRUCTION PROGRAMS

Projects In Construction

Q2 – FY15

(Progress Percentages based on Construction Expenditures)

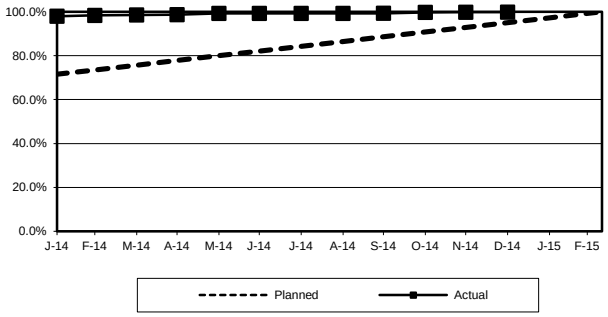
Nut Island Headworks Electrical and Conveyor Improvements Progress – December 2014



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.

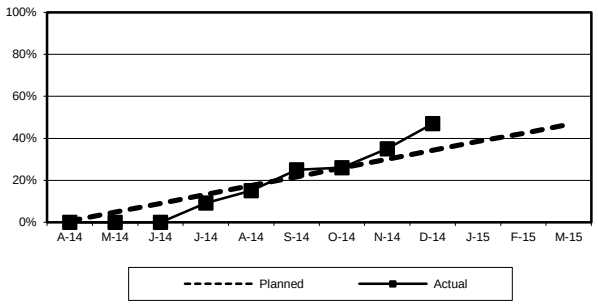
UV Disinfection Facilities CWTP Progress – December 2014



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.

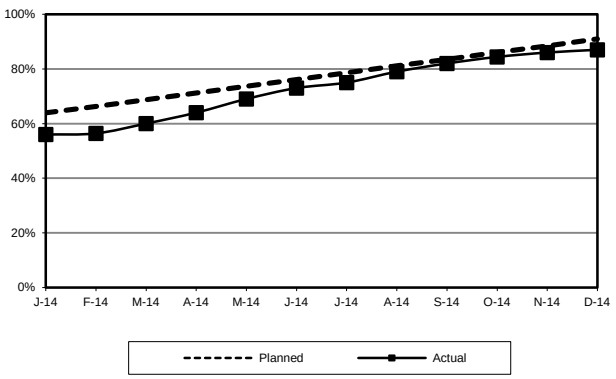
Clinton Digester and Primary Clarifier Rehab Progress - December 2014



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.

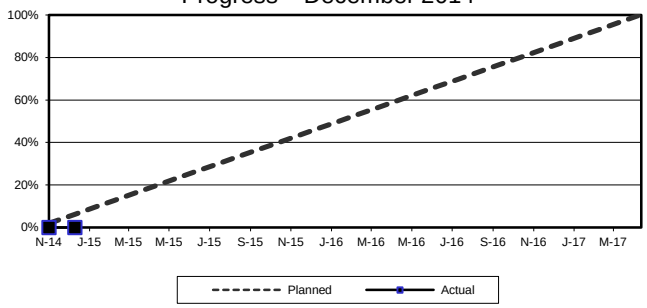
Status and Issues: As of December, the Contractor continued with the internal remedial work on Tank #2 walls and columns. They continued waterproofing the roof decks of both tanks. In addition, they worked on the mechanical piping, plumbing, electrical and HVAC installations in the pump station.

Projects In Construction

Q2 – FY15

(Progress Percentages based on Construction Expenditures)

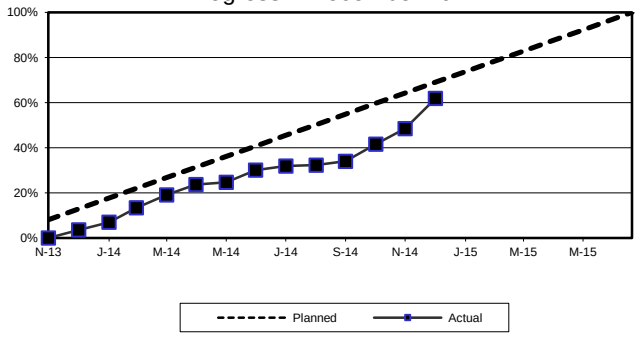
Water Mains: Section 36, W11C and S9-A
Progress – December 2014



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.

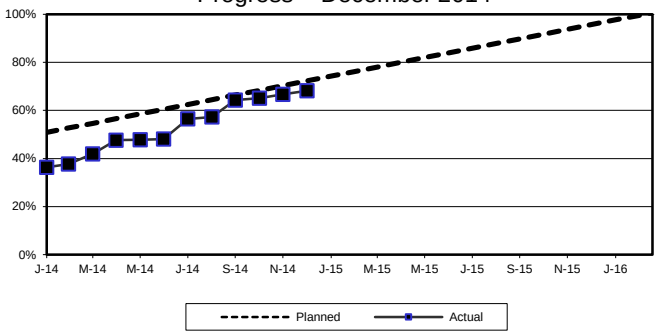
Pump, Gear Box and Diesel Engine Upgrade
Prison Point and Cottage Farm CSO Facilities
Progress - December 2014



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.

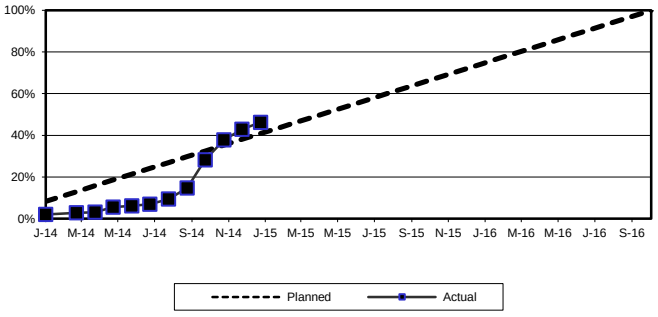
North Main Pump Station VFDs & Motors
Progress - December 2014



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

3rd 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 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 March 31, 2015
		Commence Design	Commence Construction	Complete Construction	
Reserved Channel Sewer Separation		Jul 06	May 09	Dec 15	BWSC continues to make progress with the nine planned contracts for the Reserved Channel Sewer Separation project. Contract 1 CSO outfall rehab $ 4.1 M Complete Contract 2 Sewer separation $ 5.9 M Complete Contract 3A Sewer separation $11.8 M Complete Contract 3B Sewer separation $14.8 M Complete Contract 4 Sewer separation $13.9 M 92% complete Contract 5 Cleaning & Lining Ineligible Underway Contract 6 Downspout Disconnect $ 0.2M Underway Contract 7 Pavement restoration $ 1.2 M Complete Contract 8 Pavement restoration $ 4.8 M 50% complete BWSC construction was shut down for most of the quarter due to snow. Work recently resumed, and BWSC expects 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 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. Contract 8A Sewer separation $10.6M Subst. complete Contract 8B Sewer separation $18.3M 77% complete Contract 9 Sewer separation $ 7.1M 58% complete Concord Lane Sewer separation $1.8M NTP 3/27/15 Cambridge recently received the final right of entry permit #3 for Concord Lane (private way) and issued the notice to proceed with construction on March 27th. Cambridge expects to complete all work for the CAM004 sewer separation project by December 2015, in compliance with Schedule Seven.
	MWR003 Gate and Rindge Ave. Siphon Relief	Apr 12	Aug 14	Oct 15	MWRA issued the notice to proceed with construction on August 28, 2014. The contractor is 60% complete and plans to complete all work by October 31, 2015, in compliance with Schedule Seven.
South Dorchester Bay Sewer Separation Post-Construction Inflow Removal		N/A	N/A	N/A	As previously reported, BWSC has completed its investigation of alternatives for removing additional stormwater inflow from its Dorchester Interceptor. Meanwhile, BWSC continues with a construction contract to remove some of the remaining inflow sources from its sewer system. The contract amount is $562,261, of which $204,000 is eligible for MWRA funding under the BWSC CSO MOU and FAA. MWRA's 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.

Page Left

BLANK

CIP Expenditures
3rd Quarter - FY15

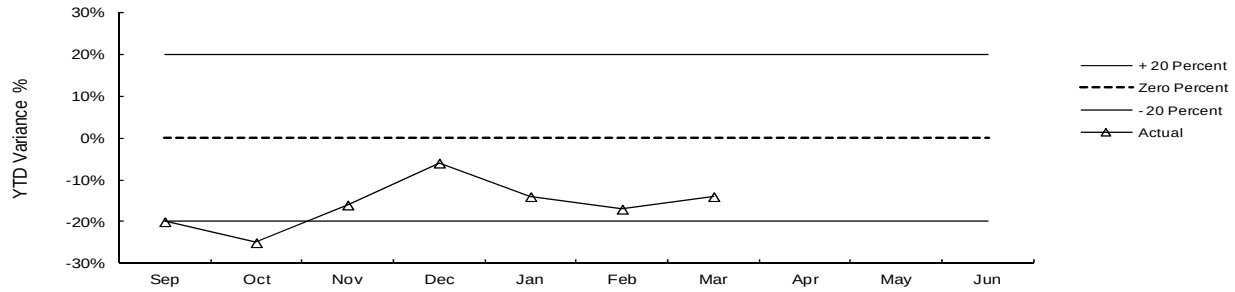
The Year-To-Date variances are highlighted below:

FY15 Capital Improvement Program Expenditure Variances through March by Program ($000)				
Program	FY15 Budget Through March	FY15 Actual Through March	Variance Amount	Variance Percent
Wastewater	57,098	60,137	3,040	5%
Waterworks	29,100	14,997	(14,103)	-48%
Business and Operations Support	5,555	3,500	(2,056)	-37%
Total	91,753	$78,634	(13,119)	-14%

Overspending within Wastewater is primarily due greater than anticipated community requests for grants and loans for the infiltration/inflow (I/I) Program, updated cost estimates as a result of increase in scope for Reserved Channel Sewer Separation, contractor progress on Scum Skimmer Replacement, and updated cost estimates for the Cambridge Sewer Separation, and award greater than budget for the MWR003 Gate & Siphon Construction 2 contract. This was offset by timing of work for Electrical Equipment Upgrade Construction 4, Butterfly Valve Replacement, Chelsea Headworks Design, North Main Pump Station VFD, and Nut Island Grit and Screenings Conveyance Construction contracts. Underspending in Waterworks is primarily due to timing of work and weather delays for the Spot Pond Storage Facility Design/Build contract, less than anticipated community requests for loans, less than anticipated spending on Section 36/C/S9-A11 Valve, design for the Southern Extra High and WASM 3 contracts, and timing of Watershed Land purchases, and Carroll Treatment Plant CP-7 Existing Facilities Modifications contract. This was partially offset by 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 3/28/2015	$74 million
Unused capacity under the debt cap:	$792 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: Commercial paper capacity:	$130 million $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

3rd Quarter – FY15

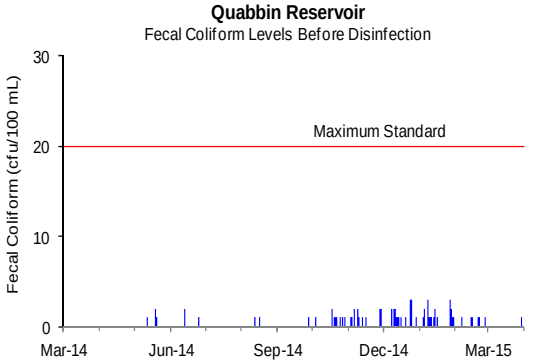
Source Water – Microbial Results

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 3rd 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.**

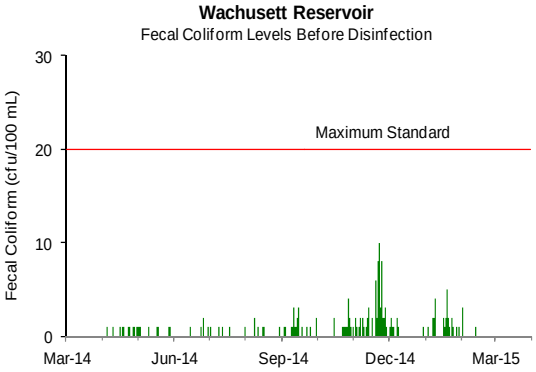


Sample Site: Wachusett Reservoir

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 3rd Quarter were below 20 cfu/100mL. **For the current six-month period, 0% of the samples exceeded a count of 20 cfu/100mL.**

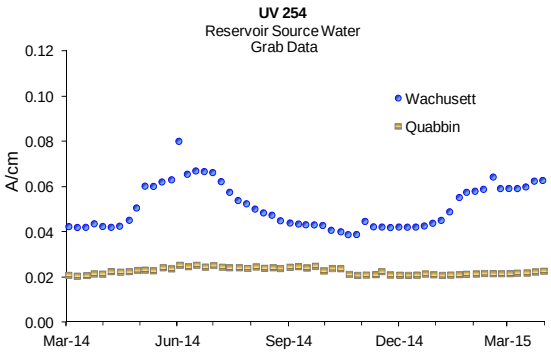


Source Water – UV Absorbance

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 0.023 A/cm.

Wachusett Reservoir UV-254 levels are currently around 0.063 A/cm.



Source Water – Turbidity

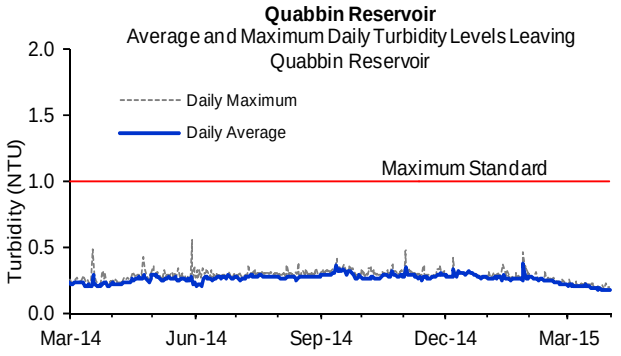
3rd Quarter – FY15

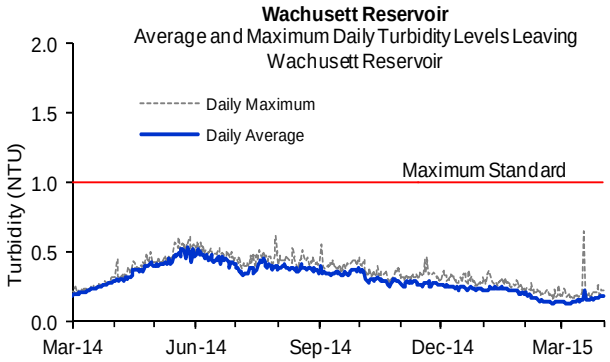
Turbidity is a measure of suspended and colloidal particles including clay, silt, organic and inorganic matter, algae and microorganisms. The effects of turbidity depend on the nature of the matter that causes the turbidity. High levels of particulate matter may have a higher disinfectant demand or may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

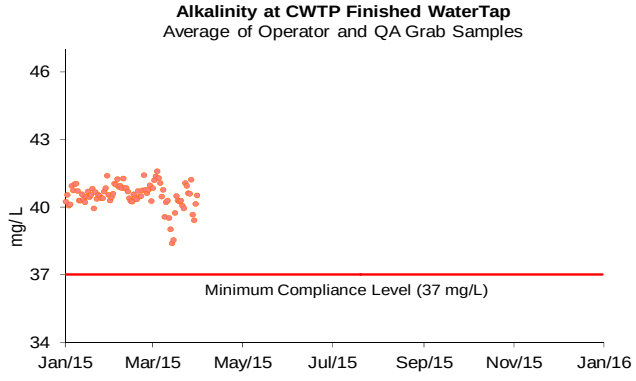


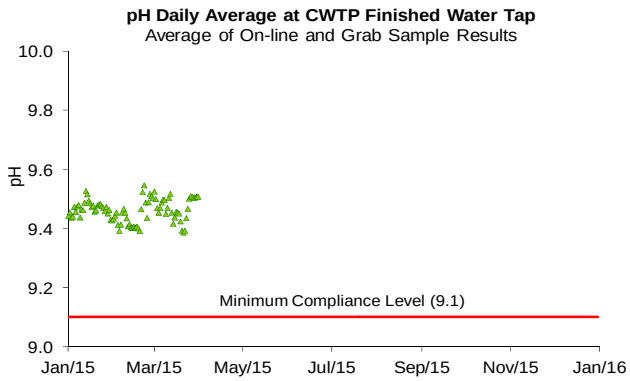


Treated Water – pH and Alkalinity Compliance

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 March 11 and 12, 2015. Distribution system sample pH ranged from 9.4 to 9.7 and alkalinity ranged from 30 to 43 mg/L. No sample results were below DEP limits for this quarter.





Treated Water – Disinfection Effectiveness

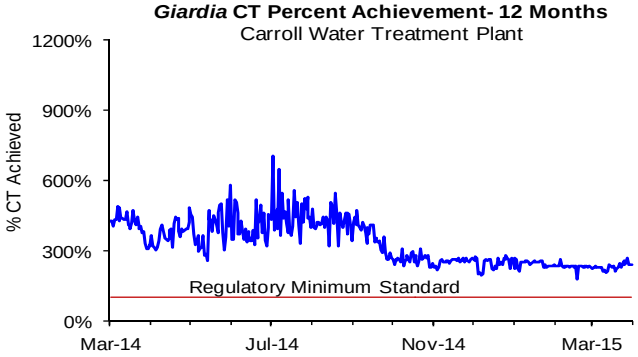
3rd Quarter – FY15

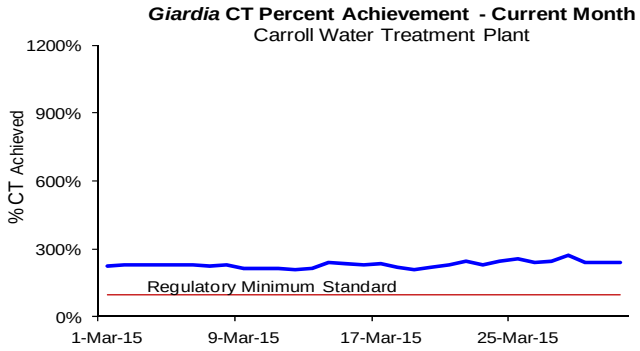
At the Carroll Water Treatment Plant (CWTP), MWRA meets the required 99.9% (3-log) inactivation of *Giardia* using ozone (reported as CT: concentration of disinfectant x contact time) and the required 99% (2-log) inactivation of *Cryptosporidium* using UV (reported as IT: intensity of UV x time). MWRA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

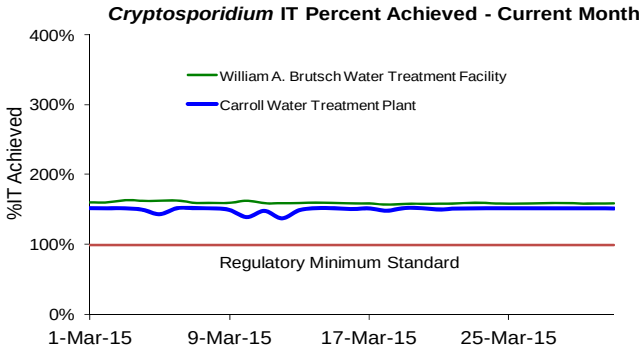
- Ozone dose at the CWTP varied between 1.5 to 1.8 mg/L for the quarter.
- *Giardia* CT was maintained above 100% at all times the plant was providing water into the distribution system this quarter, as well as every day for the last fiscal year.
- *Cryptosporidium* IT was maintained above 100% during the month. Off-spec water was less than 5%.

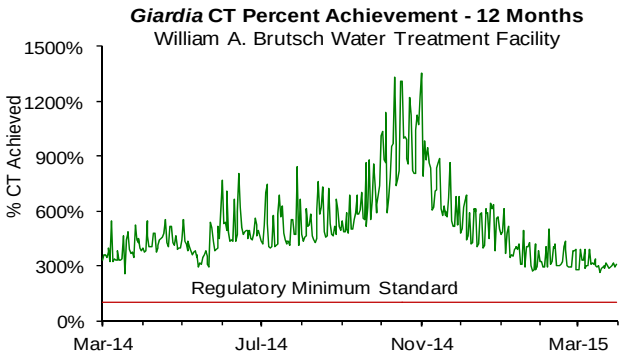


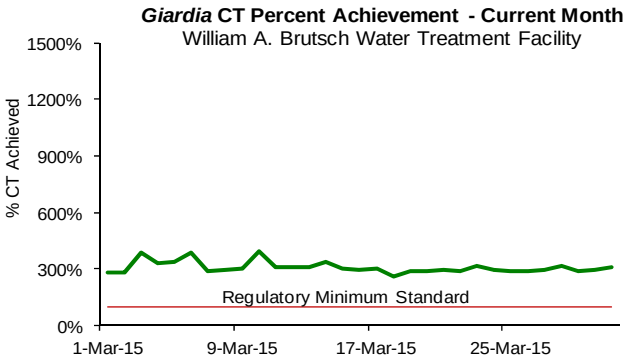


Quabbin Reservoir (CVA Supply) at: William A. Brutsch Water Treatment Facility

- The chlorine dose at WABWTF is adjusted in order to achieve MWRA's seasonal (June 1 – October 31) target of ≥1.0 mg/L at Ludlow Monitoring Station.
- The chlorine dose at WABWTF was steady at 1.3 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.







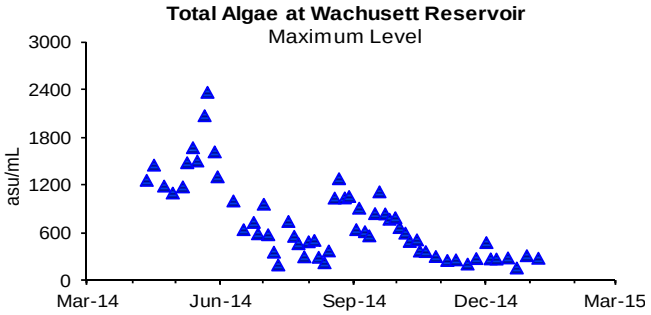
Source Water - Algae

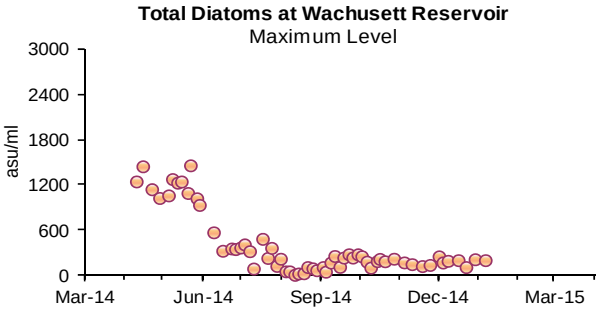
3rd Quarter – FY15

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 3rd Quarter, no complaints which may be related to algae were reported from local water departments. There have been no samples collected since January 6, 2015 as significant ice cover on the reservoir prevents safe algae sampling.



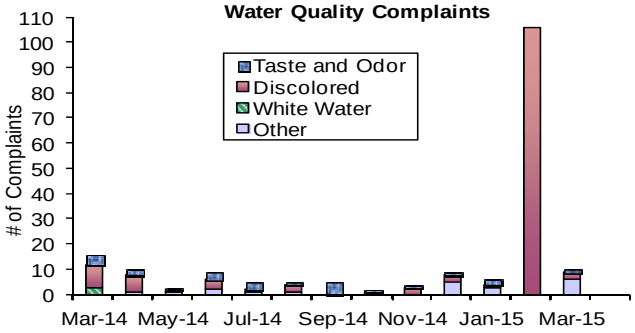


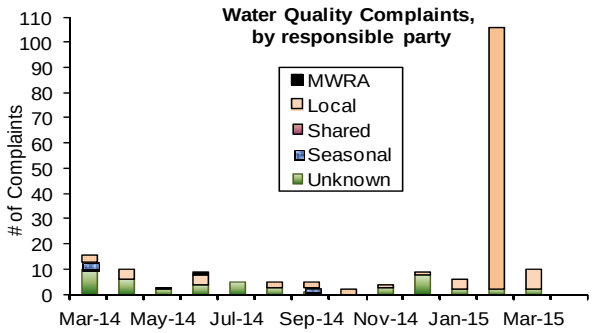
Drinking Water Quality Customer Complaints: Taste, Odor, or Appearance

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 122 complaints during the quarter compared to 88 complaints for 3rd Quarter of FY14. Of these complaints, 110 were for “discolored water”, 3 were for “taste and odor”, and 9 were for “other”. Of these complaints, 116 were local community issues and 6 were unknown in origin. In February, 101 discolored water complaints came from one community, due to a localized issue.





Bacteria & Chlorine Residual Results for Communities in MWRA Testing Program

3rd 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 3rd Quarter, four of the 6,091 community samples (0.07% system-wide) submitted to MWRA labs for analysis tested positive for coliform (South Hadley in January; Framingham, Waltham, and Hanscom AFB in February). No location violated the TCR during this time period. One of the 1,857 MWRA samples (0.05%) tested positive for total coliform. No community sample tested positive for *E.coli*. Only 3.5% 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	d	MWRA Locations	297	0 (0%)	0		1.80	2.19
	d	Shared Community/MWRA sites	1560	1 (0.06%)	0	No	0.06	1.96
		Total: MWRA	1857	1 (0.05%)	0	No	0.06	2.00
Fully Served		ARLINGTON	155	0 (0%)	0		0.07	1.67
		BELMONT	104	0 (0%)	0		1.29	2.00
		BOSTON	765	0 (0%)	0		1.64	2.09
		BROOKLINE	221	0 (0%)	0		0.06	1.92
		CHELSEA	169	0 (0%)	0		1.10	2.09
		DEER ISLAND	52	0 (0%)	0		1.43	1.86
		EVERETT	169	0 (0%)	0		0.86	1.11
		FRAMINGHAM	219	1 (0.46%)	0	No	0.21	2.05
		LEXINGTON	117	0 (0%)	0		1.51	2.18
		LYNNFIELD	18	0 (0%)	0		0.32	1.30
		MALDEN	233	0 (0%)	0		0.17	2.04
		MARBLEHEAD	72	0 (0%)	0		0.21	1.75
		MEDFORD	222	0 (0%)	0		1.14	1.87
		MELROSE	117	0 (0%)	0		0.09	1.62
		MILTON	98	0 (0%)	0		0.87	1.97
		NAHANT	30	0 (0%)	0		0.40	1.69
		NEWTON	274	0 (0%)	0		0.53	2.02
		NORTHBOROUGH	48	0 (0%)	0		0.20	1.83
		NORWOOD	99	0 (0%)	0		0.07	1.81
		QUINCY	276	0 (0%)	0		0.09	1.81
		READING	130	0 (0%)	0		0.57	1.61
		REVERE	180	0 (0%)	0		1.13	2.08
		SAUGUS	96	0 (0%)	0		1.41	1.84
		SOMERVILLE	270	0 (0%)	0		1.01	1.77
		SOUTHBOROUGH	30	0 (0%)	0		0.45	1.86
		STONEHAM	84	0 (0%)	0		1.13	1.86
		SWAMPSCOTT	54	0 (0%)	0		0.51	1.71
		WALTHAM	219	1 (0.46%)	0	No	1.44	2.08
		WATERTOWN	120	0 (0%)	0		0.95	2.04
		WESTBORO HOSPITAL	15	0 (0%)	0		0.04	0.60
		WESTON	48	0 (0%)	0		0.13	2.10
		WINTHROP	72	0 (0%)	0		0.22	1.89
		Total: Fully Served	*4776*	*2 (0.04%)*				
CVA&Partially Served	b	BEDFORD	57	0 (0%)	0		0.91	1.57
	b	CANTON	87	0 (0%)	0		0.02	0.99
	b	HANSCOM AFB	30	1 (3.33%)	0	No	0.52	1.57
	b	MARLBOROUGH	126	0 (0%)	0		0.61	1.98
	b	NEEDHAM	123	0 (0%)	0		0.10	0.64
	b	PEABODY	234	0 (0%)	0		0.09	1.13
	b	WAKEFIELD	136	0 (0%)	0		0.53	1.54
	b	WELLESLEY	113	0 (0%)	0		0.06	0.93
	b	WILMINGTON	87	0 (0%)	0		0.75	1.94
	b	WINCHESTER	91	0 (0%)	0		0.16	1.06
	b	WOBURN	180	0 (0%)	0		0.26	1.23
	c	SOUTH HADLEY FD1	51	1 (1.96%)	0	No	0.17	0.53
		Total: CVA & Partially Served	*1315*	*2 (0.15%)*				
		Total: Community Samples	*6091*	*4 (0.07%)*				

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

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

3rd 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).

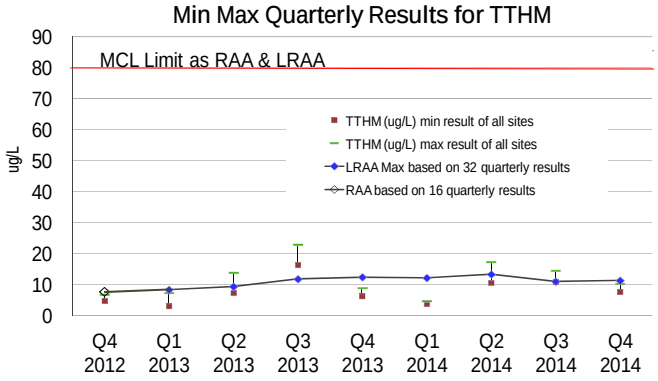
For the CVA communities, effective Q3 2013, under the Stage 2 DBP Rule, compliance is based on a LRAA for each community. Sampling locations have increased from 12 to 14 each quarter. Prior to Q3 2013, the running annual average is reported, and since Q3 2013, the maximum LRAA is reported (in addition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

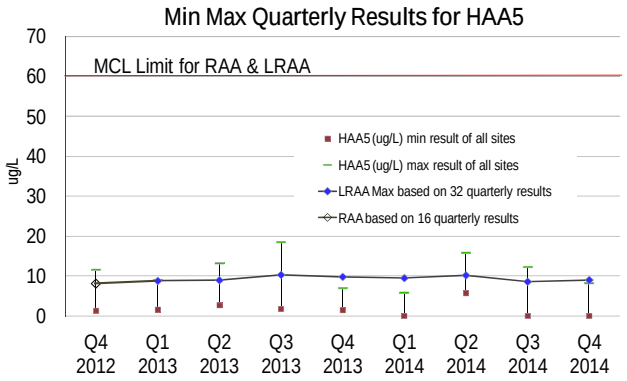
Partially served and CVA communities are responsible for their own compliance monitoring and reporting, and must be contacted directly for their individual results.

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.

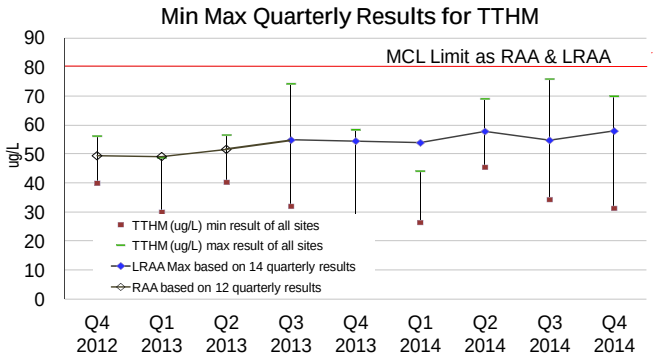
The RAA for TTHMs and HAA5s for MWRA's Compliance Program (represented as the line in the top two graphs below) remain below current standards. The LRAA for TTHMs = 12.1 ug/L; HAA5s = 9.0 ug/L. The current RAA for Bromate = 0.0 ug/L. CVA's DBP levels continue to be below current standards.

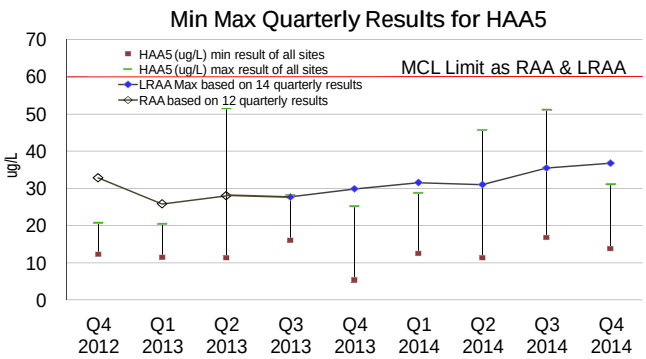
MetroBoston Disinfection By-Products





CVA Disinfection By-Products





Water Supply and Source Water Management

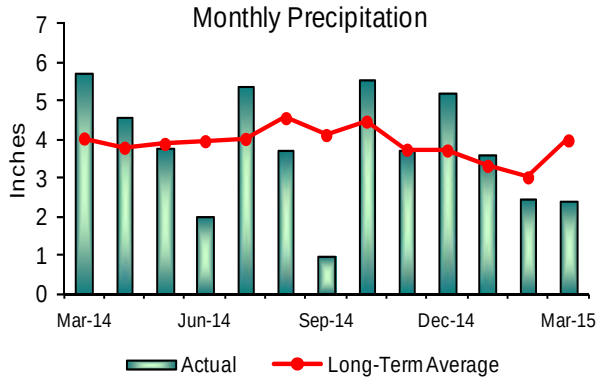
3rd Quarter – FY15

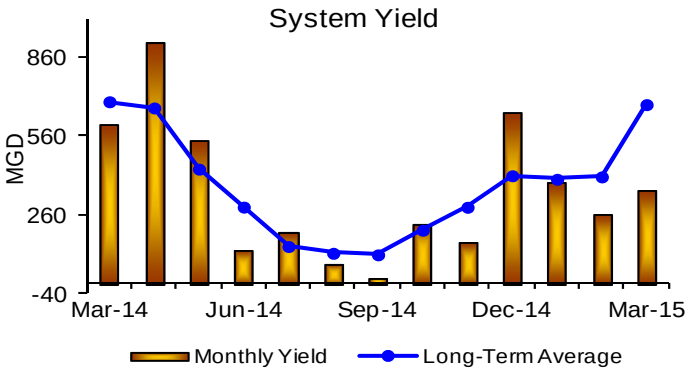
Background

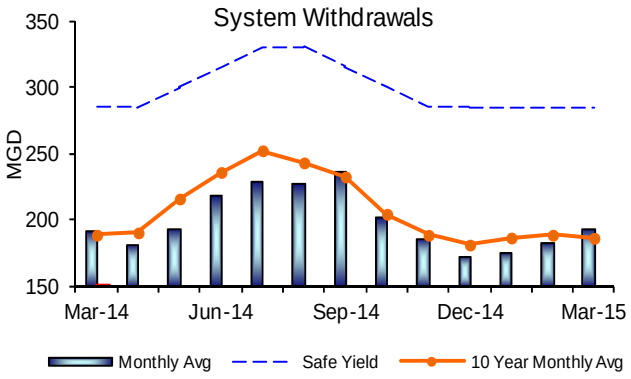
A reliable supply of water in MWRA's reservoirs depends on adequate precipitation during the year and seasonal hydrologic inputs from watersheds that surround the reservoirs. Demand for water typically increases with higher summer temperatures and then decreases as temperatures decline. Quabbin Reservoir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

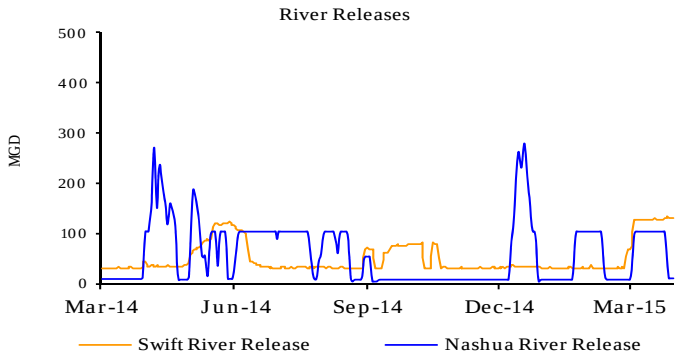
Outcome

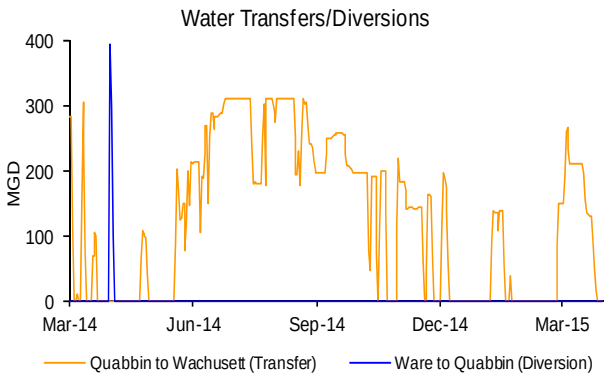
Quabbin Reservoir level remains within the normal operating range for this period of the year. The volume of the Quabbin Reservoir was at 94.9% as of March 31, 2015; a 1.6% increase for the quarter, which represents an increase of 6.5 billion gallons of storage. Yield and precipitation for the quarter were below their respective quarterly long term averages. Monthly withdrawal continues to be below its long-term average.

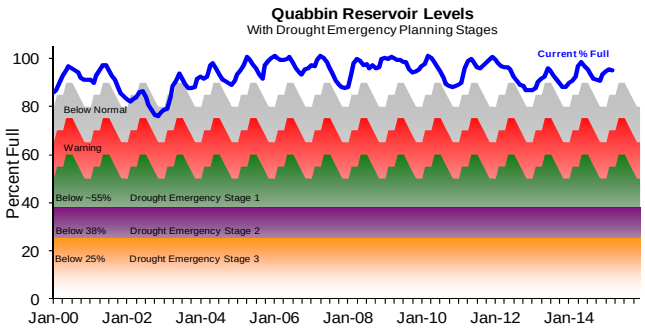












WASTEWATER QUALITY

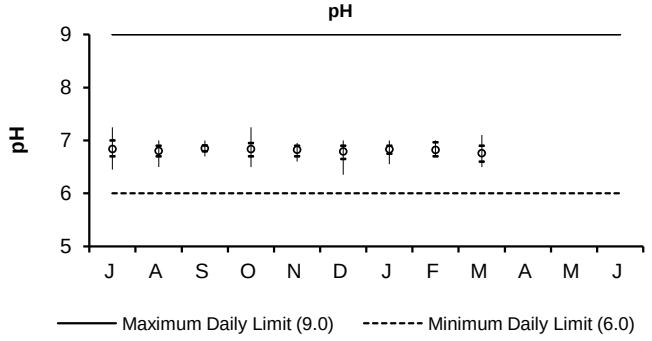
NPDES Permit Compliance: Deer Island Treatment Plant

3rd Quarter - FY15

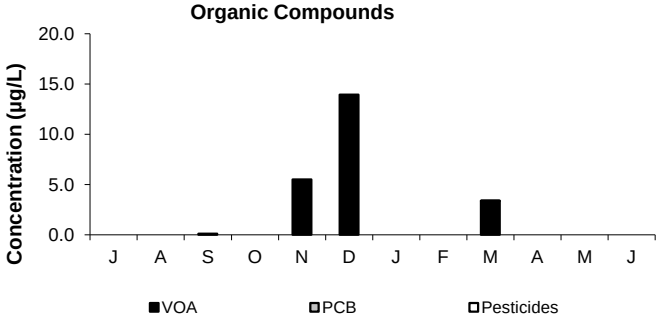
NPDES Permit Limits

Effluent Characteristics		*Units*	*Limits*	*January*	*February*	*March*	*3rd Quarter Violations*	*FY15 YTD Violations*
Dry Day Flow:		mgd	436	284.4	281.4	282.5	0	0
cBOD:	Monthly Average	mg/L	25	5.9	7.4	8.2	0	0
	Weekly Average	mg/L	40	7.7	8.3	9.8	0	0
TSS:	Monthly Average	mg/L	30	9.7	11.2	17.2	0	0
	Weekly Average	mg/L	45	12.8	12.0	22.8	0	0
TCR:	Monthly Average	ug/L	456	<40	<40	<40	0	0
	Daily Maximum	ug/L	631	<40	<40	<40	0	0
Fecal Coliform:	Daily Geometric Mean	col/100mL	14000	16	10	35	0	0
	Weekly Geometric Mean	col/100mL	14000	8	7	9	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	6.6-7.0	6.7-7.0	6.5-7.1	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	100	100	50	0	0

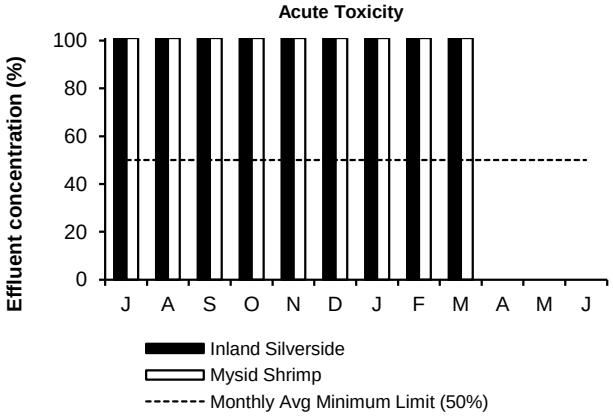
There have been no permit violations in FY15 to date at the Deer Island Treatment Plant.



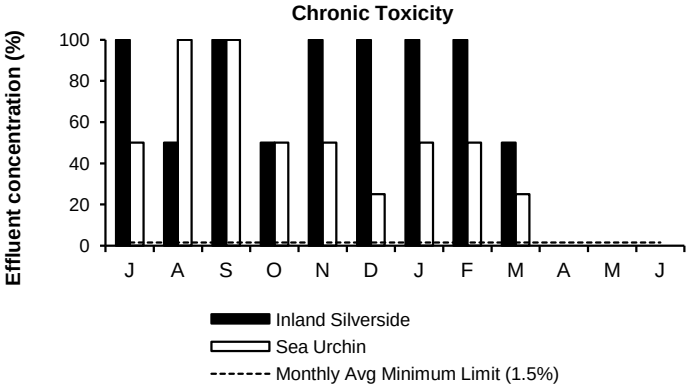
pH is a measure of alkalinity or acidity. Fluctuations in effluent pH are unlikely to impact on marine environments, which have significant buffering capacity. Because of the pure oxygen used in the activated sludge process, effluent pH tends to be at the lower end of the permit-required range. All pH measurements for the 3rd Quarter were within the daily permit limits.



An important wastewater component monitored in the effluent is organic compounds, such as volatile organic acids, pesticides, and polychlorinated biphenyls, which are all sampled monthly. The secondary treatment process significantly reduces organic compounds in the effluent stream. In the 3rd Quarter, some volatile organic compounds were detected in the effluent in March. 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 3rd 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 3rd Quarter for both the inland silverside and sea urchin.

NPDES Permit Compliance: Clinton Wastewater Treatment Plant

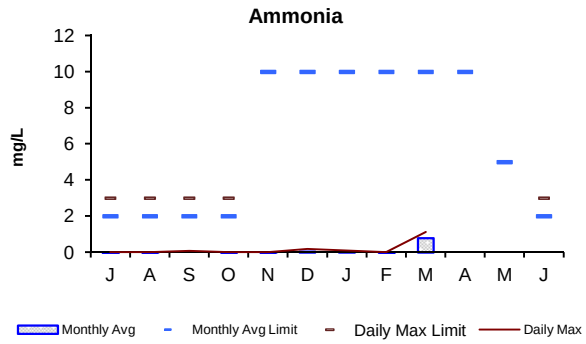
3rd Quarter - FY15

NPDES Permit Limits

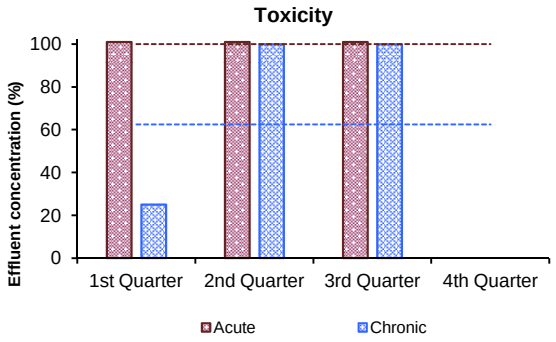
Effluent Characteristics		*Units*	*Limits*	*January*	*February*	*March*	*3rd Quarter Violations*	*FY15 YTD Violations*
Flow:	Running Average:	mgd	3.01	2.58	2.59	2.62	0	0
BOD:	Monthly Average:	mg/L	20	3.7	5.4	5.8	0	0
	Weekly Average:	mg/L	20	4.6	6.1	6.6	0	0
TSS:	Monthly Average:	mg/L	20	2.4	4.5	6.4	0	0
	Weekly Average:	mg/L	20	3.2	5.9	7.4	0	0
pH:		SU	6.5-8.3	7.1-7.6	7.0-7.4	6.9-7.4	0	0
Dissolved Oxygen:	Daily Minimum:	mg/L	6	9.7	9.2	9.8	0	0
Fecal Coliform:	Daily Geometric Mean:	col/100mL	400	9	6	3	0	0
	Monthly Geometric Mean:	col/100mL	200	7	3	4	0	0
TCR:	Monthly Average:	ug/L	50	0.22	<20	0.4	0	0
	Daily Maximum:	ug/L	50	6.67	<20	7.5	0	0
Total Ammonia Nitrogen:	November 1 - March 31							
	Monthly Average:	mg/L	2.0	<0.1	<0.1	0.79	0	0
	Daily Maximum:	mg/L	3.0	<0.1	<0.1	1.13	0	0
Copper:	Monthly Average:	ug/L	20	6.0	7.8	11.3	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.
3rd Quarter: There were no permit violations in the third quarter of FY15.

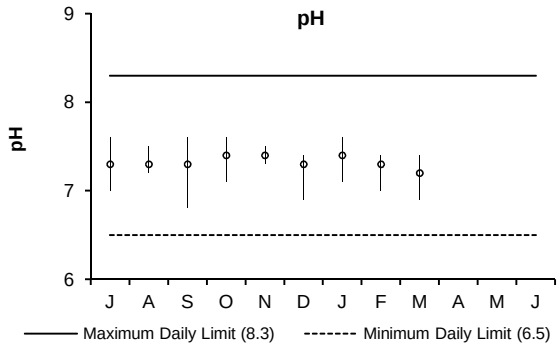
*Toxicity testing at the Clinton Treatment Plant is conducted on a quarterly basis.



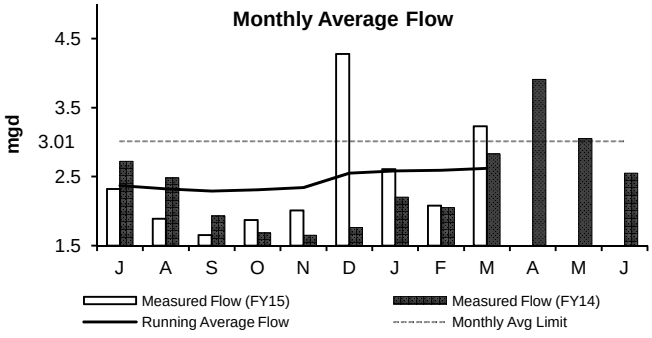
The 3rd Quarter's monthly average and daily maximum ammonia concentrations were below the permit limits. The monthly average and daily maximum limits for the 3rd Quarter are 10.0 mg/L and 35.2 mg/L. The permit limits are most stringent from June to October when warm weather conditions are most conducive to potential eutrophication.



Acute and chronic toxicity testing simulates the short- and long-term toxic effects of chemicals in wastewater effluent on aquatic animals. For permit compliance, the effluent concentration that causes mortality to the daphnid in acute and chronic testing must be at least >100% and 62.5%, respectively. Toxicity limits were met during the 3rd Quarter.



pH is a measure of the alkalinity or acidity of the effluent. All daily pH results for the 3rd 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. March high flow did not cause the running annual average to exceed permit limits.

COMMUNITY FLOWS AND PROGRAMS

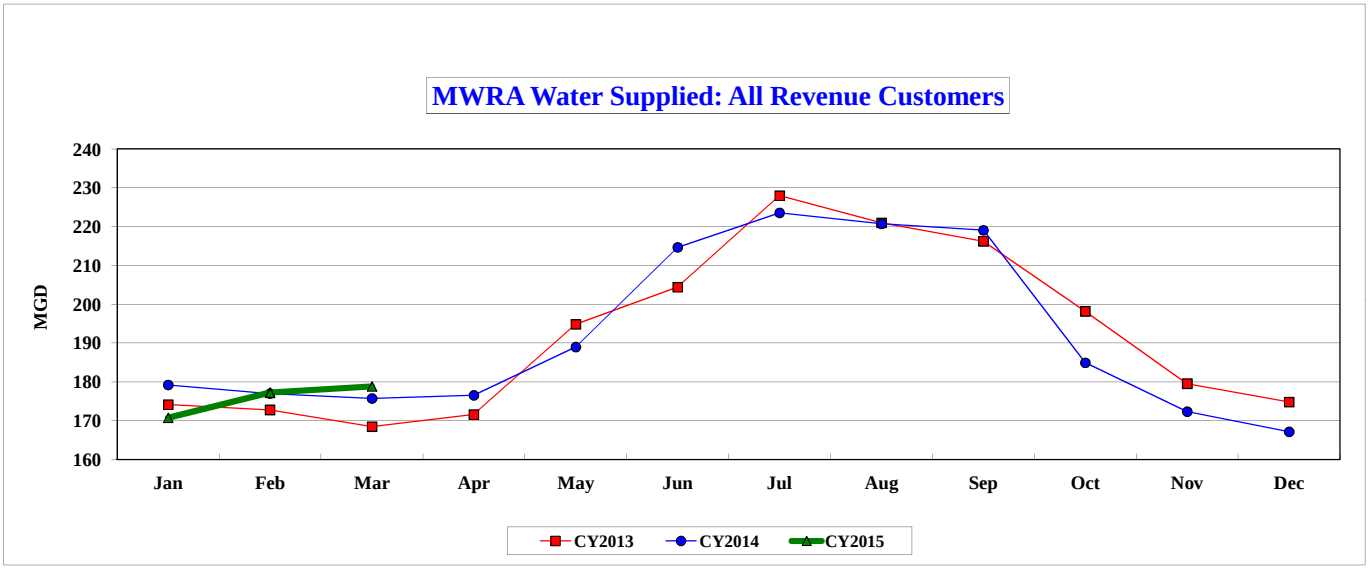
Total Water Use Report

MWRA Core Customers Water Supplied

3rd Quarter - FY15

MGD	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD Average	Annual Average
CY2013	174.12	172.78	168.46	171.57	194.84	204.38	227.96	220.96	216.22	198.17	179.55	174.81	171.75	192.13
CY2014	179.21	176.99	175.74	176.54	188.97	214.66	223.54	220.73	219.05	184.92	172.33	167.15	177.32	191.73
CY2015	170.75	177.24	178.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	175.55	175.55

MG	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD Total	Annual Total
CY2013	5397.61	4837.91	5222.33	5147.06	6039.97	6131.51	7066.85	6849.83	6486.47	6143.22	5386.45	5419.24	15457.85	70128.43
CY2014	5555.58	4955.63	5447.81	5296.07	5858.18	6439.79	6929.85	6842.75	6571.48	5732.47	5169.98	5181.51	15959.01	69981.09
CY2015	5293.17	4962.60	5543.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15799.42	15799.42



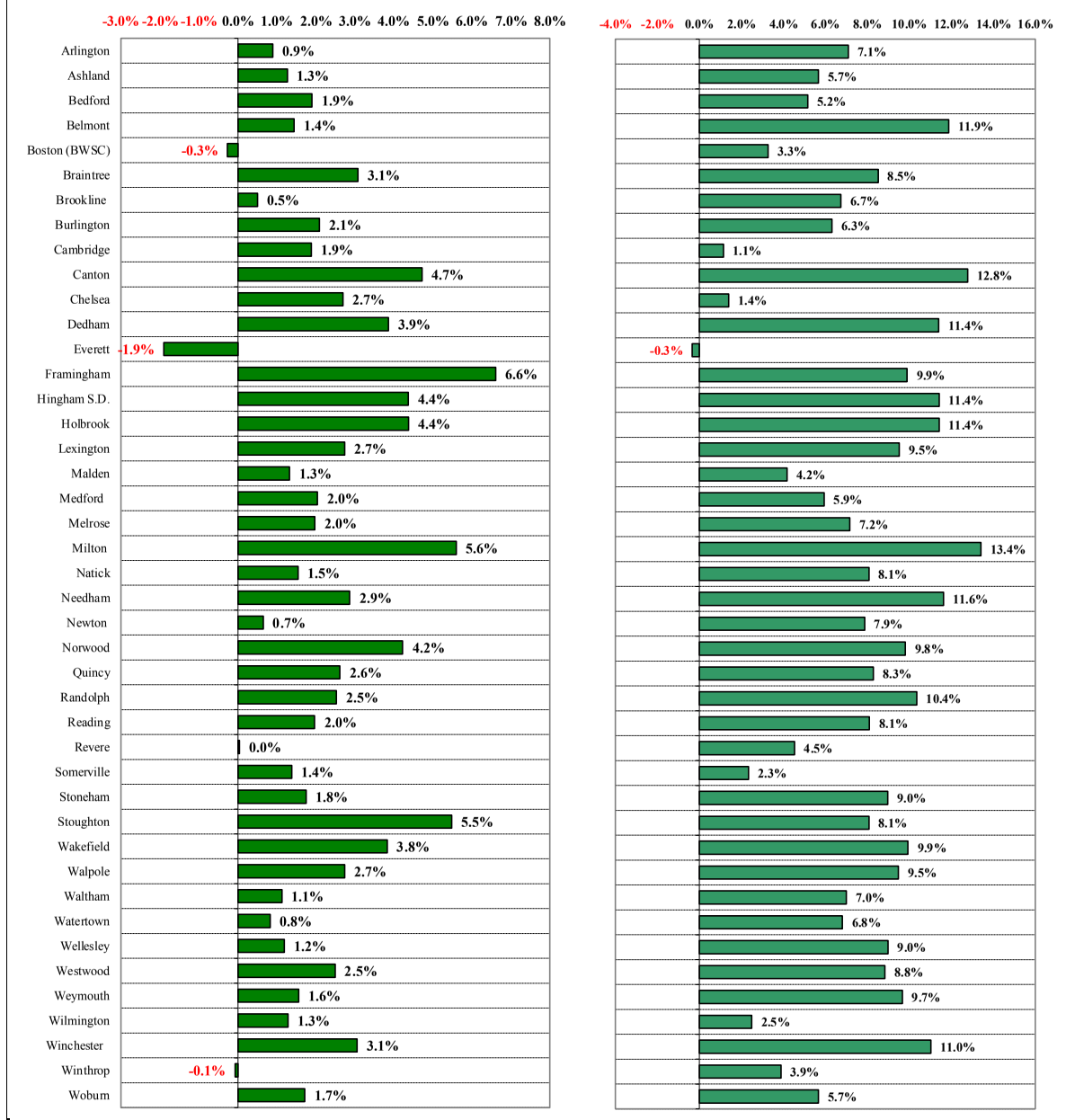
Attached for your information is the March 2015 Community Water Use Report recently distributed to communities served by the MWRA waterworks systems. Each community's annual water use relative to the system as a whole is the primary factor in allocating the annual water rate revenue requirement to MWRA water communities. Calendar year 2015 water use will be used to allocate the FY17 water utility rate revenue requirement.

March 2015 water supplied of 178.8 mgd (for revenue generating users) is up 3.1 mgd or 1.8% compared to March 2014. System-wide year to date consumption for CY15 is lower than CY14 with 175.5 mgd being supplied to MWRA customers **through March**. This is 1.8 mgd lower than CY14, and is a decrease of 1.0%.

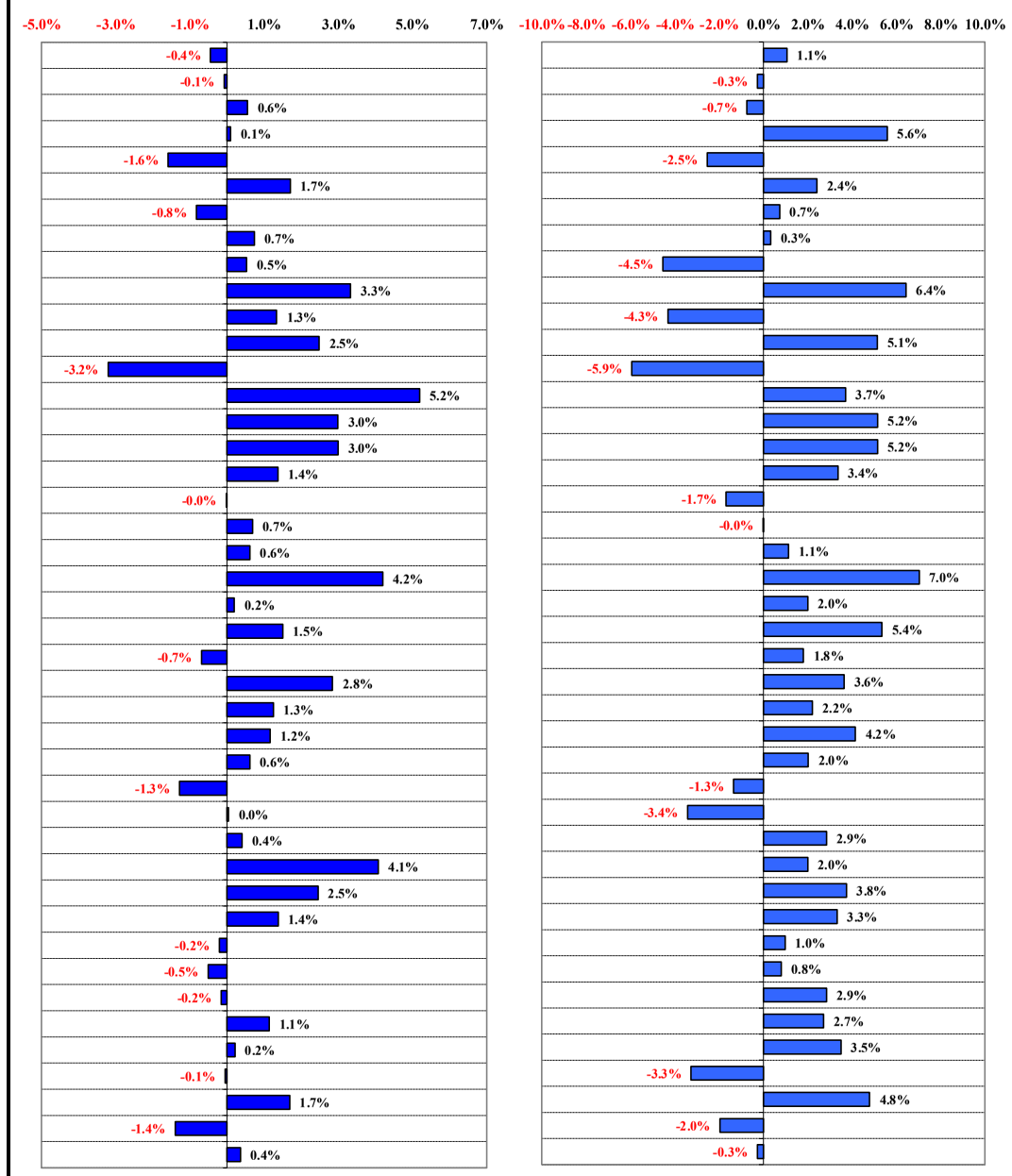
Community Wastewater Flows

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

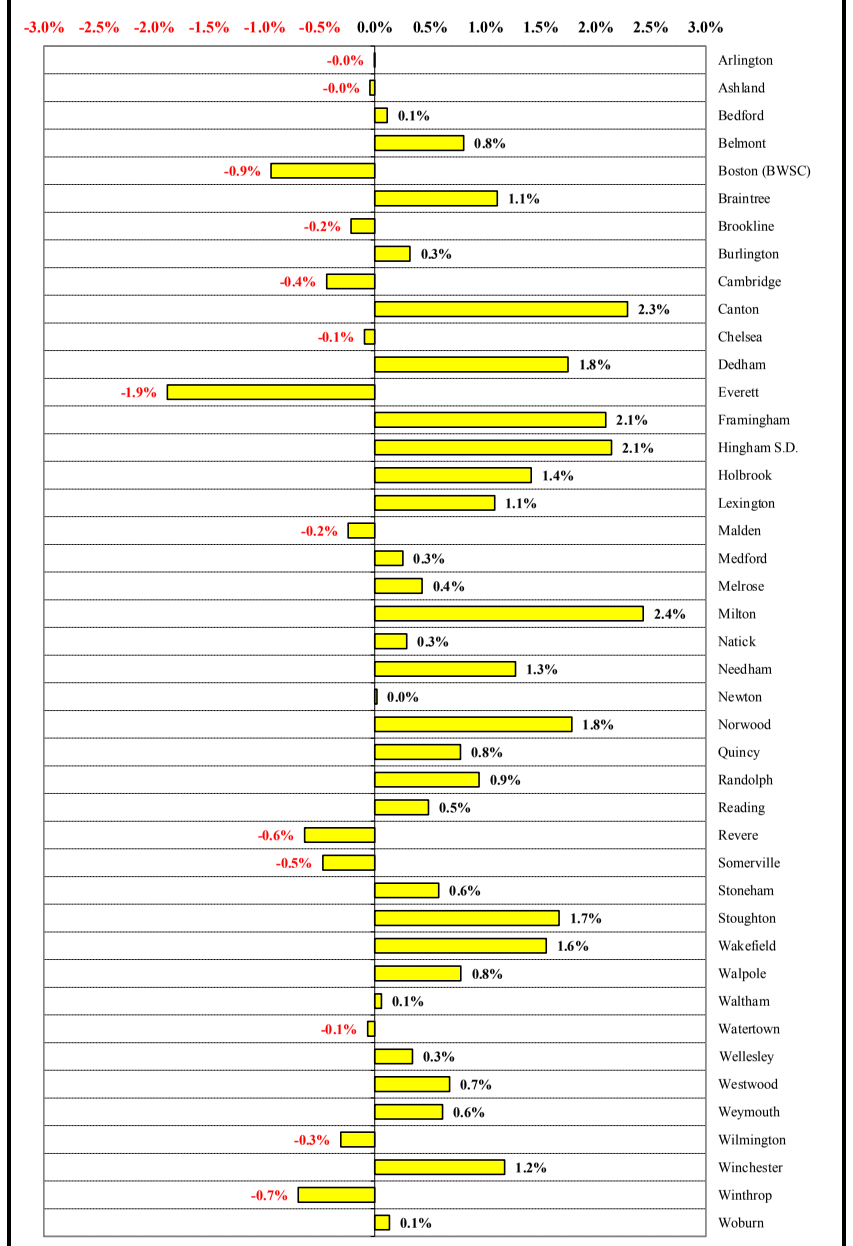
The flow components of FY2017 sewer assessments will be calculated using a 3-year average of CY2013 to CY2015 wastewater flows compared to FY2016 assessments that will use a 3-year average of CY2012 to CY2014 wastewater flows.



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



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



Notes:

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

[2] **Based on CY2012 to CY2015 average wastewater flows as of 03/24/15. Flow data is preliminary and subject to change pending additional MWRA and community review.**

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

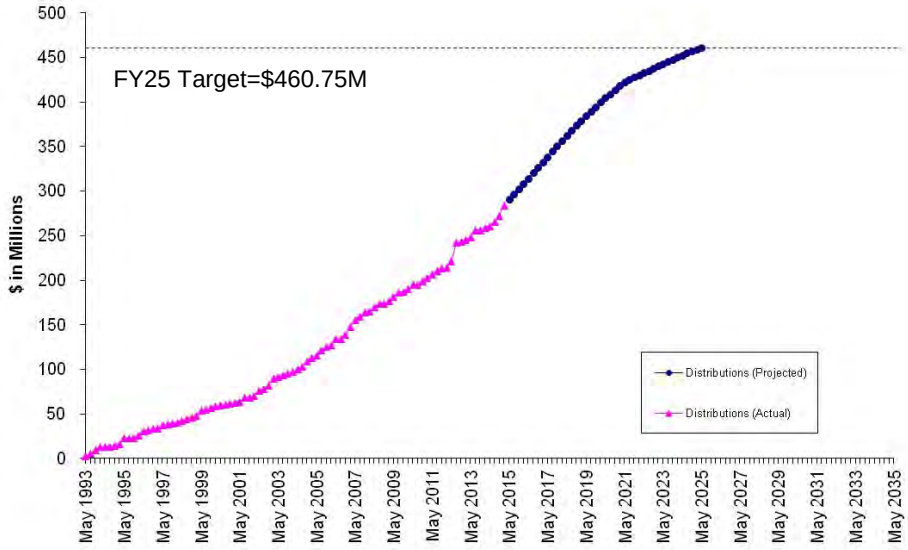
[4] **Represents ONLY the impact on the total BASE assessment resulting from the changes in average and maximum wastewater FLOW SHARES.**

Community Support Programs
3rd Quarter – FY15

Infiltration/Inflow Local Financial Assistance Program

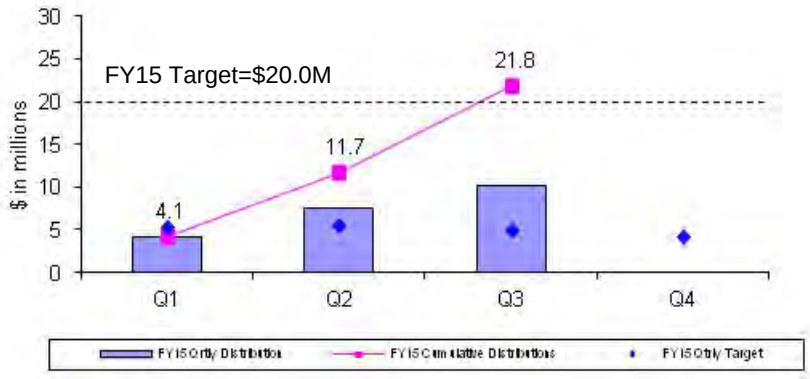
MWRA's Infiltration/Inflow (I/I) Local Financial Assistance Program provides $460.75 million in grants and interest-free loans (average of about $14 million per year from FY93 through FY25) to member sewer communities to perform I/I reduction and sewer system rehabilitation projects within their locally-owned 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 3rd Quarter of FY15, $10.1 million in financial assistance (grants and interest-free loans) was distributed to fund local sewer rehabilitation projects in Braintree, Dedham, Hingham, Natick, Norwood, Walpole, Waltham, Weymouth, and Winchester. Total grant/loan distribution for FY15 is $21.8 million. From FY93 through the 3rd Quarter of FY15, all 43 member sewer communities have participated in the program and more than $283 million has been distributed to fund 475 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

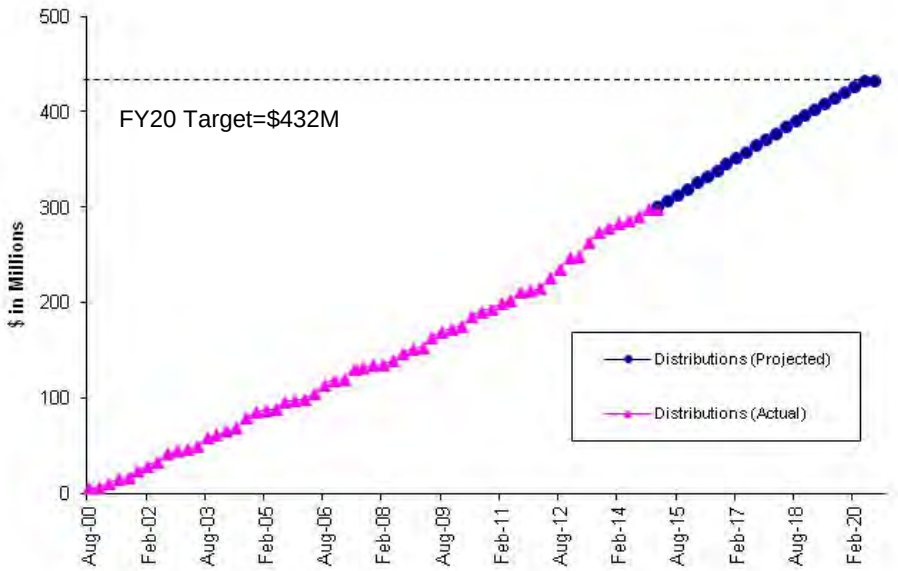


Community Support Programs
3rd Quarter – FY15

Water Local Pipeline and Water System Assistance Programs

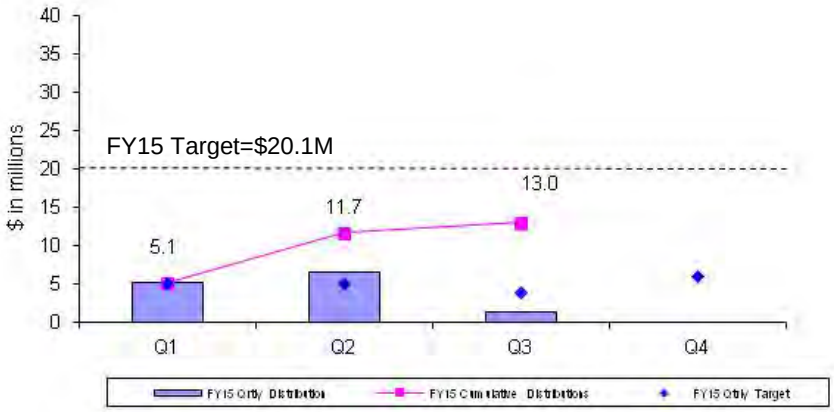
MWRA's Local Pipeline and Water System Assistance Programs (LPAP and LWSAP) provide $432 million in interest-free loans (an average of about $22 million per year from FY01 through FY20) to member water communities to perform water main rehabilitation projects within their locally-owned water distribution 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 3rd Quarter of FY15, $1.3 million in interest-free loans was distributed to fund local water projects in Arlington and Winchester. Total loan distribution for FY15 is $13.0 million. From FY01 through the 3rd Quarter of FY15, more than $298 million has been distributed to fund 342 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.

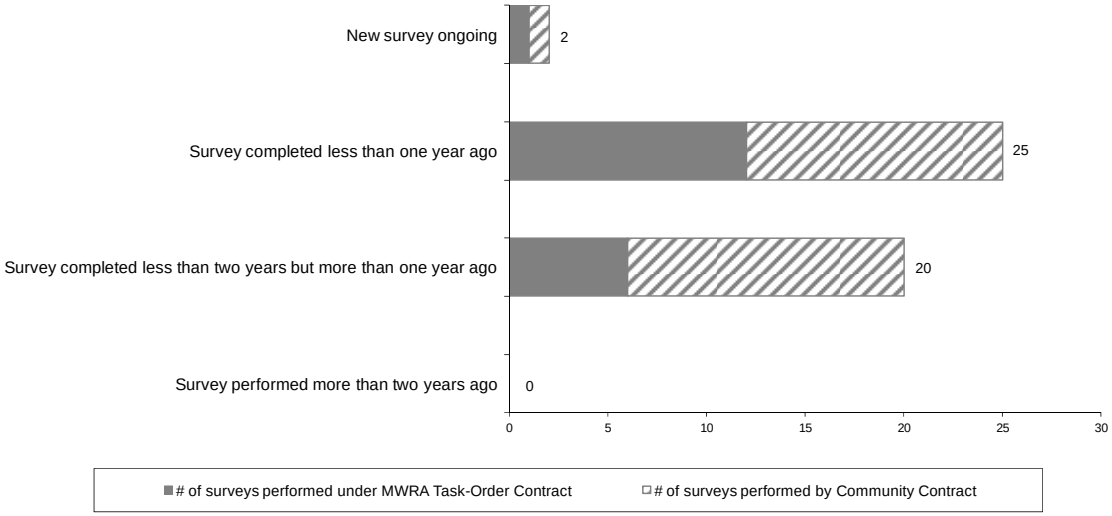
FY15 Quarterly Distributions of Water Loans



Community Support Programs
3rd 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 3rd 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	62,026		81,316
Low-Flow Fixtures (showerheads and faucet aerators)	10,000	6,382	1,886	2,301		10,569
Toilet Leak Detection Dye Tablets	------	5,041	2,207	1,679		8,927

BUSINESS SERVICES

Procurement: Purchasing and Contracts

3rd 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 6.0 days vs. 7.17 days in Q3 FY14. Processed 54 % (7 of 13) of contracts within target timeframes; Average Processing Time was 154 days vs. 122 days in Q3 FY14.

Purchasing

	No.	TARGET	PERCENT IN TARGET
$0 - $500	1026	3 DAYS	76.4%
$500 - $2K	1004	7 DAYS	93.7%
$2K - $5K	153	10 DAYS	74.5%
$5K - $10K	107	25 DAYS	86.9%
$10K - $25K	88	30 DAYS	76.9%
$25K - $50K	12	60 DAYS	66.6%
Over $50K	15	90 DAYS	75.0%

The Purchasing Unit processed 2405 purchase orders, 303 less than the 2708 processed in Q3 FY14 for a total value of $8,150,857 versus a dollar value of $9,119,892 in Q3 FY14.

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

Contracts, Change Orders and Amendments

Six contracts were not processed within the target timeline; one was intentionally delayed until market conditions relative to the cost of electricity improved; others exceeded target due to the need for specification revisions or contractor delays in providing insurance and bonds or other backup information.

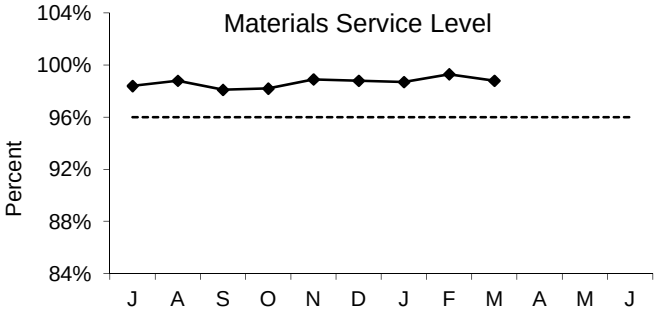
Procurement processed thirteen contracts with a value of $6,453,389 and five amendments with a value of $4,619,780.

Twenty six change orders were executed during the period. The dollar value of all non-credit change orders during Q3 FY14 was $1,506,723 and the value of credit change orders was $363,590.

Staff reviewed 30 proposed change orders and 27 draft change orders.

Materials Management

3rd Quarter - FY15



The service level is the percentage of stock requests filled. The goal is to maintain a service level of 96%. Staff issued 8,057 (98.8%) of the 8,141 items requested in Q3 from the inventory locations for a total dollar value of $1,923,668.

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 – ball valve, terminal block, pressure switch and gas sensors for I&C; Baldor motor, air separator and motor for HVAC; brush fittings and proximity probe for Core; epoxy adhesive for Residuals.
- Chelsea – brake calipers, brake rotors, headlights, coolant tank and connector fluid for Fleet Services; Baldor motor, conveyor scaper, mechanical seal, actuator, ballasts, variable frequency drive, submersible pump and blower for Work Order Coordination Group; hex nuts and caulking anchors for Maintenance.
- Southboro – padlocks, abrasive disks and pads for Maintenance; oil filters for Fleet Services; Ultraviolet (UV) sensors for Carroll Water Treatment Plant.

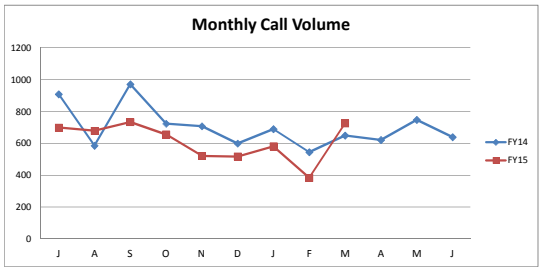
Property Pass Program:

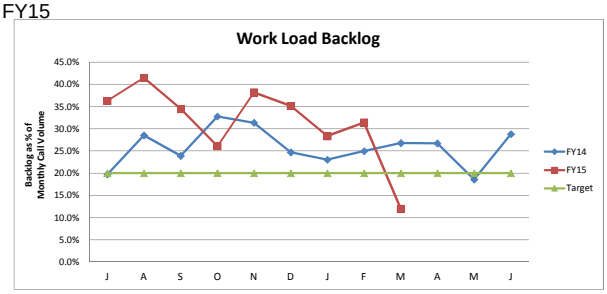
- Several audits were conducted for Chelsea welder's tool boxes and the Chelsea electric shop during Q3.
- Numerous obsolete monitors, computers, printers, scanners, projectors, mice, fax machines, cell phones and network switches have been received into Property Pass as surplus. Disposition is being handled as part of our ongoing recycling efforts.
- Scrap revenue received for Q3 amounted to $10,592. Year to date revenue received amounted to $49,909.
- Revenue received from online auctions held during Q3 amounted to $54,034. Year to date revenue received amounted to $127,207.

Items	Base Value July-14	Current Value w/o Cumulative New Adds	Reduction / Increase To Base
Consumable Inventory Value	7,749,357	7,671,794	-77,563
Spare Parts Inventory Value	7,358,692	7,817,445	458,753
Total Inventory Value	15,108,049	15,489,239	381,190

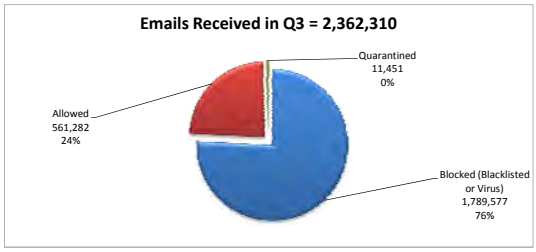
Note: New adds are items added at an inventory location for the first time for the purpose of servicing a group/department to meet their business needs/objectives.

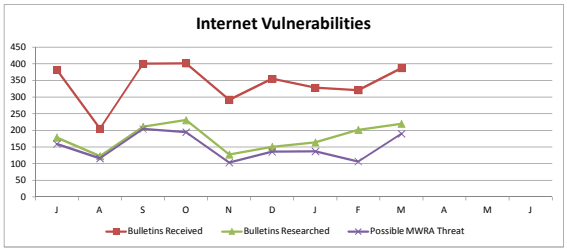
MIS Program
3rd Quarter FY15





Performance:
Call Volume: Peaked in March. FY15-Q3 call volume decreased by 10% from FY14-Q3 last year. Call Backlog: Peaked in January. FY15-Q3 backlog average is 4% above the targeted benchmark of 20%.





Information Security:
During Q3, staff pushed security fixes and updates to desktops and servers throughout the quarter in order to protect against 254 vulnerabilities. LANDesk Antivirus quarantined 16 distinct viruses from 14 MWRA PCs. PCs are current with anti-virus providers' signatures for all known malware.

Infrastructure:
Citrix Mobile Application Design and Development: Received cost quotes for both Netscaler SDX and XenDesktop Implementations. Netscaler Statement of Work(SOW) under development with a target for installation in May (after MWRA staff training in April). Blade Servers and Netscaler hardware has been received. MIS completed testing of iOS on 03/18/15. Updated WorxHome to version 10.0.3 (Build 59). 150 iPhone/iPads being managed with XenMobile, 31 Blackberry devices to be replaced with iPhones. Added text message email addresses in the Global Address List (GAL) and various distribution lists that will serve as alerts for critical emails and alarms. Created a Text Message User list that includes every MWRA cellular device.

Distributed Antenna System(DAS): In-Building Cellular was awarded the installation of the final DAS implementation for Deer Island. This will include five buildings: Winthrop, Disinfection, Main Switch, North and South Pump, and will enhance the Verizon cellular signal strength within the facilities. Expected completion is April 30, 2015.

Applications/Training/Records Center:
Strategic Sourcing and Contract Management: Migrated and tested all configurations and workflows in the production system in advance of the production system upgrade. The Landmark Supply Chain Management suite was successfully upgraded to version 9.1.1.4 and tested over the weekend of March 14th. Rolled out access to Crystal reports on the new Crystal Reports Server to users in Procurement. Provided a two-day training session to staff who will be working in Contracts Management. The first two Non-Professional Services contract events were put on the Supplier Portal in March and February.

e-Discovery Archive & Purge: This project will provide an automated and integrated solution for archiving electronic content and allow the Authority to store, manage and discover email and all critical business information sources across document types. Began data collection for Enterprise Vault Solution Design and Archiving Policies; compiled a list of Department contacts for the Business Definition phase. IT and Records Center staff completed the collection of the retention codes and periods and added them to the interim database for querying and reporting. Completed a web application to organize the record retention schedule data that includes records series codes by departments and DRMs. The data is now in a SQL database for better data management and will be used for the Active Records and Vital Records Filing Schemes. Conducted a demo of the Active Records Filing Scheme Tracking application at CNY, DI and Chelsea. Each demo was followed by a PowerPoint presentation given by the GLOBANET vendor so that attendees could see what their end user experience would be like when the Enterprise Vault application comes online.

Learning Management System (LMS): Went live with LMS. Created and posted a "How to Reset Password" job aid for CBT training. Installed the State Ethics Commission's training package. Created an SQL view to show employee completion of the training and built a query web application that provides training summaries and detail reports which can be exported to MS Excel. Expanded the application's reporting functionality to allow on-demand reports for the LMS Security Awareness class. Created accounts for the Advisory Board members so that they could take the Ethics Training class. Created SQL jobs to automate training reminders.

Electronic Lab Notebook (ELN): ELN is a replacement for physical log books that are used by laboratory staff. Log books contain information about sample state and other relevant information that is not currently stored in the Laboratory Information Management System (LIMS). This effort is required to ensure that LIMS is ready for new ELN sheets that will be added over the next one or two year period. On March 21, 2015 the ELN module was installed in LIMS in the production environment. Phase one of the project focuses on logs for the Water system. Phase II will focus on the Sewer system logs. To date there are 49 logs for the Water system, five have been completed, nine eliminated from the scope of the project and nine in various stages of development.

Pretreatment Information Management Systems (PIMS) Permit Notifications: New notification function for 16 general reports was added to PIMS. This function will notify TRAC Industrial Coordinators (ICs) about coming due dates for required actions defined in the permit. A notification is only generated if a required action was not completed and requires follow up by an IC. These actions relate to other requirements (not data submission) in the Permit that industry must complete on time (for example new PH meter installation).

MAXIMO Upgrade: MAXIMO is a computerized maintenance management system which is used to manage maintenance activities for Water and Wastewater assets. An initiative to upgrade the software and expand its use across multiple departments is underway by means of a competitive bidding process. The multi-department selection committee has released the RFQ/P, reviewed and scored proposals, and currently in negotiations with the top ranked firm.

Operations Management Monitoring System (OMMS): OMMS is a set of web applications that allow management to view near real-time operational data from MWRA authorized desktop computers and mobile devices. Recent expansion of this system now allows staff to monitor flows and pressures at 10 additional pump stations. A new category has also been added that organizes data by community which allows MWRA staff to quickly view a member community's flow and pressure.

Library & Records Center: The Library completed 47 research requests (143 YTD), added 22 books (116 YTD) and 40 Reports (99 YTD), distributed 83 periodicals (357 YTD) and 112 web requested books & reports (422 YTD). The Records Center added 133 boxes (515 YTD), conducted 1 training session, and attended 1 Records Conservation Board Meetings.

IT Training: For the quarter, 126 staff attended 16 classes and 4 workshops. 22% of the workforce has attended at least one class year-to-date. Citrix training was offered. Three Job aids were developed and published: Updating Your iPhone/iPad iOS Software, Using Citrix ShareFile, and Backing Up Data Files Using Windows 7.

Legal Matters
3rd Quarter - FY15

PROJECT ASSISTANCE

COURT AND ADMINISTRATIVE ORDER

- **Boston Harbor Litigation and CSO:** Reviewed draft CSO annual report. Reviewed and filed Compliance and Progress Report and CSO Annual Report with US District Court in compliance with Schedule Seven of the Boston Harbor Case. Filed supplement to March 13, 2015 Compliance and Progress Report.

- **NPDES:** Reviewed letter notifying EPA and DEP of testing of pumps with river water at Prison Point CSO facility. Reviewed EPA's rule regarding sufficiently sensitive methods for chemicals in discharges from POTWs. Reviewed DEP's and EPA's residuals landfill relative to contract requirements for operation of residuals plant. Reviewed and revised cover letter to DEP related to the permit application for installation/replacement of influent gates at Clinton Wastewater Treatment Plant.

REAL ESTATE, CONTRACT AND OTHER SUPPORT

- **Orders of Conditions:** Recorded Certificate of Compliance related to Order of Conditions for DEP File 337-1061, Hultman Aqueduct, DEP File No. NE 6-491 related to shoreline protection (south) at DITP and DEP File 115-375 related to stormwater pollution prevention plan for MWRA's Wachusett Aqueduct south dike project.

- **Fore River:** Recorded grant of railroad easement from Quincy Shipyard, LLC to MWRA/FRRC and release of railroad easement by MWRA/FRRC related to straightening of the curve of the railroad track in the Fore River Shipyard. Drafted license permitting MBTA to use the FRRC engine house in Quincy to repair its engines and other equipment.

- **Regulations:** Reviewed new regulations that complete the transfer of regulation of Underground Storage Tanks (USTs) from the Dept. of Fire Services (DFS) to the DEP.

- **Watershed Acquisition:** Reviewed and commented on materials for the acquisition of a parcel of land in Sterling from Erikson Sterling Realty Trust (W-000179).

- **Public Access:** Finalized amendment to Natick's Sudbury Aqueduct Public Access Permit.

- **Newton MOA:** Forwarded first draft of an MOA to counsel for the City of Newton to enable the City to use MWRA land in the vicinity of Willow and Lyman streets for access to Newton's planned new Fire Station.

- **Net Metering Credit Agreement - Chelsea facility:** Reviewed and provided comments on the Net Metering Credit Agreement proposed by Lodestar Energy and Griffin Way LLC with regard to placing a photovoltaic arrangement on the roof of the Chelsea Facility.

- **Process Piping Regulations:** Researched issue of whether in-house employee pipefitters doing piping work for MWRA were required to be licensed under new regulations concerning process piping work, and concluded they were not.

- **Contract 7335 – Section 4 Webster Avenue Pipeline and Utility Bridge Replacement Project:** Drafted various documents pursuant to G.L. c. 79 § 5C (notice of taking by eminent domain), § 9(b) of the MWRA enabling act (removal of obstructions), and voluntary grant of easement in order to ensure that MWRA had a permanent easement and clear access at 48 Webster Ave., Somerville in support of the project. Drafted licenses with NSTAR and MBTA to gain access necessary for the Project.

- **Ward Street Headworks:** Drafted and sent a demand letter to former elevator service contractor demanding indemnity and payment of a fine imposed on MWRA for failure to maintain the Certificate for Use up to date.

- **Construction Contractor Claim:** Reviewed and made a recommendation on two (2) construction contractor claims.

MISCELLANEOUS

- Reviewed and approved thirty-four (34) Section 8(m) Permits.

LABOR, EMPLOYMENT AND ADMINISTRATIVE

New Matters

Nine demands for arbitration were filed.

One appeal was filed at the Civil Service Commission.

Matters Concluded

Received an arbitrator's decision in favor of MWRA finding that the MWRA did not violate a collective bargaining agreement when employees claimed they were not paid for work performed out of title.

LITIGATION/TRAC

New Matters

During the Third Quarter of FY 2015, no new lawsuits were received.

Significant Developments

Daniel O'Connell's Sons, Inc. v. MWRA v. Allied Locke: This action arises out of MWRA Contract No. 6899, Primary and Secondary Clarifier Rehabilitation, Deer Island Treatment Plant, under which plaintiff Daniel O'Connell's Sons, Inc. rehabilitated 102 primary and secondary clarifiers at DITP. Plaintiff seeks money damages for the additional costs associated with making modifications to the head shaft driven sprockets ("bull sprockets") in the primary and secondary clarifiers at DITP. MWRA initiated a third-party lawsuit against Allied-Locke Industries, Inc. in which that company has now been joined as an additional party to the pending litigation. In February and March, six days of depositions were taken. On March 3, a Rule 16 conference was held in which the Superior Court indicated that Plaintiff's intentions to file a partial summary judgment motion appeared unwarranted. Discovery is continuing.

Dow v. MWRA: This is an action by a general contractor for alleged breach of contract and quantum meruit damages against MWRA under MWRA Contract No. 6394, which provided for cleaning, lining and repairs to water lines in Somerville and Medford. Plaintiff alleged that it furnished additional work ordered by MWRA totaling $488,723.49. 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, rejecting MWRA's argument that Dow improperly failed to include the costs in its winning bid. On February 5, 2014, MWRA filed a Notice of Appeal of the Superior Court's decision. In March, the parties entered into negotiations concerning possible settlement of the case.

Significant Matters Concluded

Steven v. Walker v. MWRA and P. Gioioso & Sons v. NSTAR State Trooper: Steven Walker alleged that on May 24, 2010, he was working as a detail officer on the North Dorchester Bay Combined Sewer Overflow Project in South Boston. Gioioso was the general contractor for MWRA on this project pursuant to MWRA Contract 7259. A Gioioso employee allegedly struck a power line while excavating in the street. Plaintiff alleged that as a result of defendants' negligence he was "electrocuted" and sustained serious personal injuries. Plaintiff claimed damages, including medical expenses, lost wages and pain and suffering of $267,500. All defending parties contested liability and damages. There was conflicting evidence regarding the proximity of the plaintiff to the damaged power line at the time of the incident, and the operator of the excavator was not injured. P. Gioioso & Sons provided MWRA with a legal defense and full indemnification in accordance with the applicable Contract. The case settled for a total payment of $20,000. Gioioso contributed $10,000, on behalf of Gioioso and MWRA, and NSTAR contributed the remaining $10,000.

Estate of Marie Stewart, et al. v. MWRA, et al.: This is an action seeking damages for personal injuries and wrongful death arising out of an accident on May 23, 2012 in which an MWRA vehicle operated by an MWRA employee struck and killed Marie Stewart at the intersection of Ferry Street and Cherry Street in Everett, MA. Marie Stewart was working as a crossing guard at the time of the accident. With approval of the Board of Directors, MWRA staff participated in mediation which resulted in settlement of the case. On March 18, 2015 the Court approved the settlement and the case has been dismissed.

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

Public Records During the Third Quarter of FY 2015 three public records request were received and one public records request was closed.

SUMMARY OF PENDING LITIGATION MATTERS

TYPE OF CASE/MATTER	As of Mar 2015	As of Dec 2014	As of Sept 2014
Construction/Contract/Bid Protest (other than BHP)	4	4	4
Tort/Labor/Employment	3	5	5
Environmental/Regulatory/Other	1	1	1
Eminent Domain/Real Estate	0	0	0
total – all defensive cases	**8**	**10**	**10**
Affirmative cases not in suit:	0	0	0
Other Litigation matters (restraining orders, etc.) MWRA v. Thomas Mercer	1	1	1
total – all pending lawsuits	**9**	**11**	**11**
Significant claims not in suit: Deer Island Submarine Power Cable Braiani, Agostinho Rosa, Antonio Gonzalez, Dora	4	4	3
Bankruptcy	1	1	1
Wage Garnishment	15	15	15
TRAC/Adjudicatory Appeals	1	1	1
Subpoenas	0	0	0
TOTAL – ALL LITIGATION MATTERS	**30**	**32**	**31**

TRAC/MISC.

New Appeals There were no new TRAC appeals received in the 3rd Quarter FY 2015.

Settlement by Agreement of Parties No cases were **s**ettled by Agreement of Parties in the 3rd Quarter FY 2015.

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 3rd Quarter FY 2015.

Final Decisions No Final Decisions were issued during the 3rd Quarter FY 2015.

INTERNAL AUDIT AND CONTRACT AUDIT PROGRAM
3rd Quarter FY15

Highlights

Staff provided financial analysis and negotiation assistance for the NEFCo contract extension. Staff also assisted in the development and implementation of the new computerized Active Records Filing Scheme. Policy and Procedures were being reviewed and updated as well as signature authorities.
Final reports were issued in the following areas:

- One consultant preliminary review
- Two construction preliminary reviews
- Two incurred cost audits
- A review of the lease for MWRA's Records Center in Marlborough

Status of Open Audit Recommendations (7 recommendations closed in the 3rd 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)	1	15
8(m) Permit Fee (11/17/14)	2	4
Records Management (12/5/14)	8	8
Total Recommendations	**35**	**125**

Audit Savings

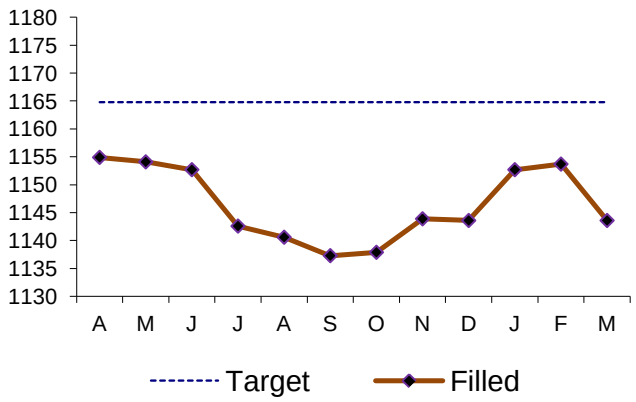
The Internal Audit Department's target is to achieve at least $1 million in cost savings each year. Cost savings vary each year based upon many factors. In some cases, cost savings for one year may be the result of work in prior years.

Savings	FY11	FY12	FY13	FY14	FY15 (3Q)	TOTAL
Consultants	$520,176	$259,245	$587,314	$294,225	$84,526	$1,745,486
Contractors & Vendors	$3,129,538	$435,760	$2,153,688	$415,931	$781,698	$6,916,615
Internal Audits	$152,478	$407,350	$391,083	$923,370	$122,849	$1,997,130
Total	**$3,802,192**	**$1,102,355**	**$3,132,085**	**$1,633,526**	**$989,073**	**$10,659,231**

OTHER MANAGEMENT

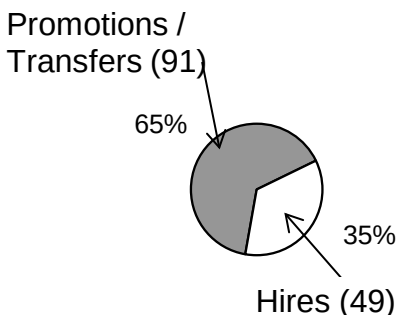
Workforce Management
3rd Quarter FY15

FTE Tracking



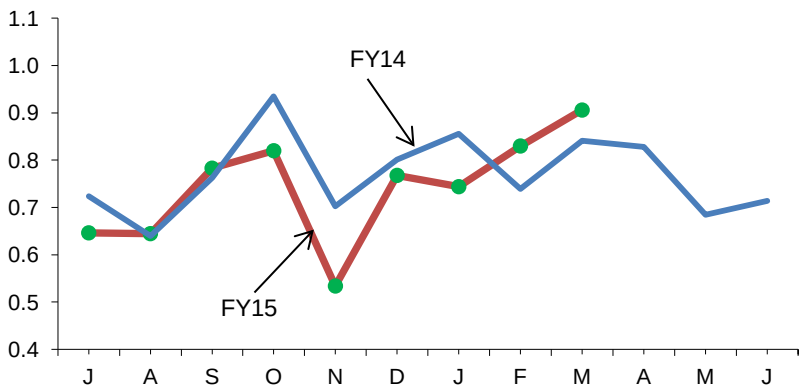
FY15 Target for FTE's = 1164.8
FTE's as of March 2015 = 1143.6

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	91 (65%)	49 (35%)	140	(To Date)

Average Monthly Sick Leave Usage
Per Employee



In Q3 of FY15, the average quarterly sick leave usage has increased 6.3% from the same quarter last year.

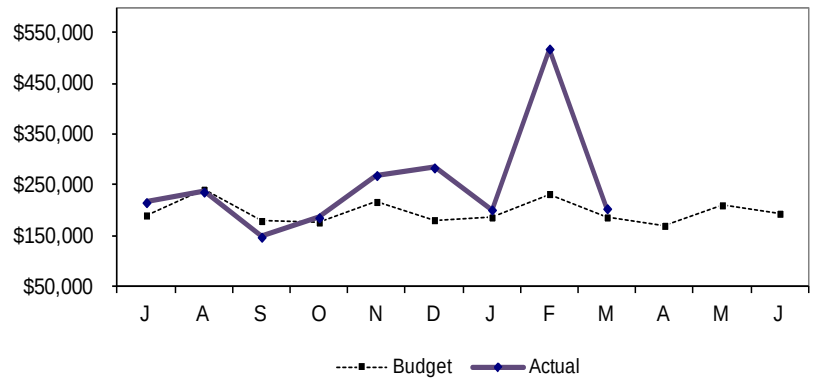
	Number of Employees	YTD	Annualized Total	Annual FMLA %	FY14
A&F	178	7.12	9.49	28.7%	10.18
Aff. Action	6	12.81	17.08	37.7%	11.78
Executive	5	2.05	2.73	0.0%	4.37
Int. Audit	7	4.63	6.17	0.0%	7.46
Law	17	9.16	12.21	14.0%	10.35
OEP	6	10.15	13.53	46.8%	16.14
Operations	935	6.53	8.71	20.6%	8.98
Pub. Affs.	14	6.09	8.12	13.5%	12.21
MWRA Avg	**1168**	****6.67**	**8.90**	**21.9%**	**9.23**

Average monthly sick leave for the 3rd Quarter of FY15 increased as compared to the 2nd Quarter of FY15 (8.49 to 9.92 days), the increase is attributable to several recent long term illnesses. Although sick leave increased for the 3rd Quarter, the annualized total for FY15 remains below FY14.

Percent of sick leave usage attributable to Family and Medical Leave Act (FMLA) leave is 21.9% for FY15.

** number revised 5/15/2015

Field Operations
Current Quarter Overtime $



Total Overtime for **Field Operations** for the third quarter of FY15 was $922,875 which is $317k over budget. Emergency overtime was $562k, which was $234k over budget mainly due to snow removal, which totaled $262k for the quarter. Coverage overtime was $163k, which was $42k over budget. Planned overtime was $198k or $42k over budget, mainly for maintenance off hours work - $88k, half-plant operations at Carroll - $36k, and maintenance work completion - 24k. YTD, Field Operations has spent $2,261,216 on overtime which is $470k over budget.

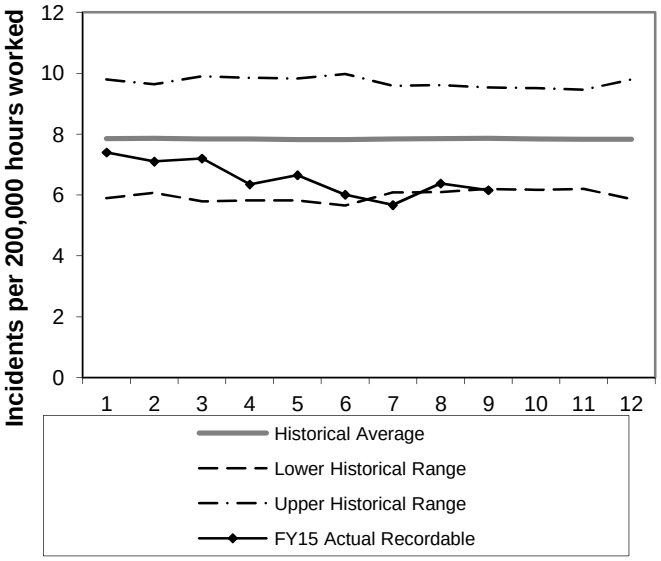
Deer Island Treatment Plant
Current Quarter Overtime $

Total overtime for **Deer Island** for the third quarter of FY15 was $360,587, which is $95,185 or 35.9% over budget. The variance is primarily due to higher than budgeted storm coverage overtime resulting from concurrent snow storms, $110K offset in part by less than required shift coverage overtime. YTD, Deer Island has spent $904,284 on overtime, which was $131K over budget.

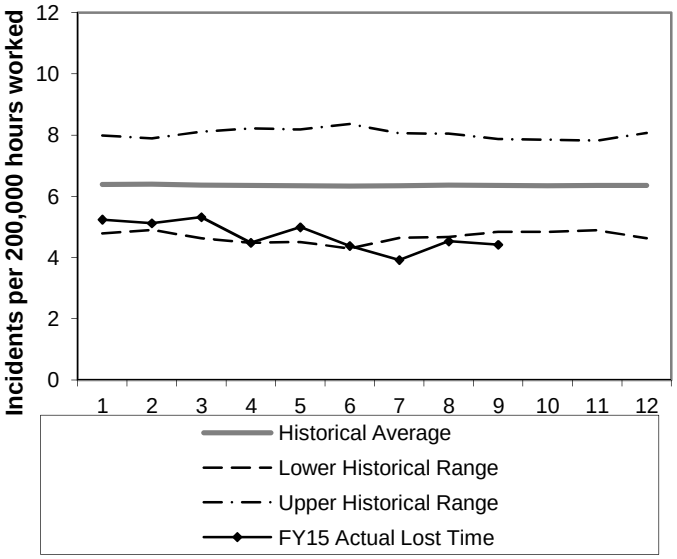
Note: For All Operations:
total YTD over budget overtime is $628k,

Workplace Safety
3rd 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 - Third Quarter FY15

	New	Closed	Open Claims
Lost Time	11	16	64
Medical Only	22	16	25
Report Only	23	23	
	New		**YTD Light Duty Returns**
Light Duty Returns	1		6

Highlights/Comments:

Light Duty Returns

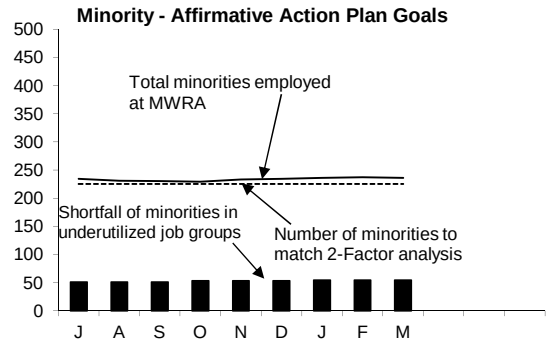
Jan none
Feb none
Mar 1 employee returned to light duty from workers' compensation

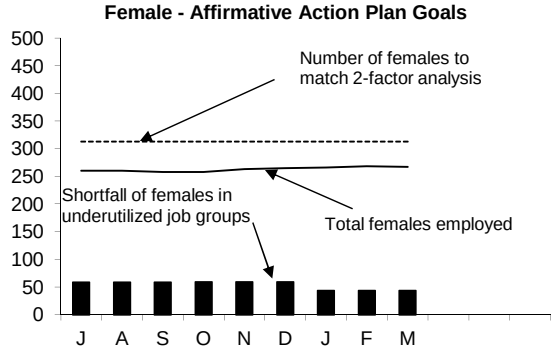
Regular Duty Returns

Jan 3 employees returned to work full duty from workers compensation
Feb 3 employees returned to work full duty from workers compensation
Mar 3 employees returned to work full duty from workers compensation

MWRA Job Group Representation

3rd Quarter, FY15





Highlights:

At the end of Q3 FY15, 11 job groups or a total of 54 positions are underutilized by minorities as compared to 10 job groups or a total of 59 positions at the end of Q3 FY14; for females 10 job groups or a total of 43 positions are underutilized by females as compared to 13 job groups or a total of 61 positions at the end of Q3 FY14. During Q3, 5

Underutilized Job Groups - Workforce Representation

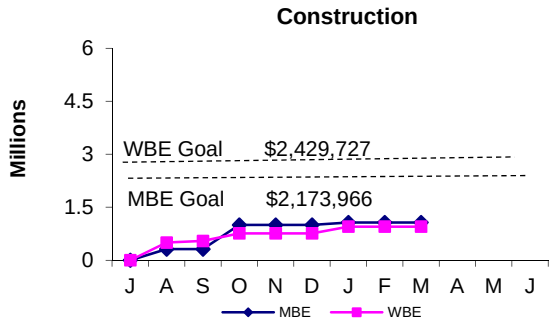
Job Group	Employees as of 3/31/2015	Minorities as of 3/31/2015	Achievement Level	Minority Over or Under Underutilized	Females As of 3/31/2015	Achievement Level	Female Over or Under Underutilized
Administrator A	21	2	3	-1	6	7	-1
Administrator B	19	0	5	-5	1	3	-2
Clerical A	39	17	5	12	33	35	-2
Clerical B	35	8	9	-1	12	15	-3
Engineer A	85	19	22	-3	16	35	-19
Engineer B	52	14	11	3	7	11	-4
Craft A	114	14	21	-7	0	5	-5
Craft B	149	29	36	-7	3	6	-3
Laborer	63	22	15	7	3	3	0
Management A	103	15	23	-8	36	20	16
Management B	42	6	11	-5	11	6	5
Operator A	65	5	8	-3	1	4	-3
Operator B	64	7	18	-11	3	2	1
Para Professional	58	14	8	6	27	20	7
Professional A	35	4	7	-3	23	15	8
Professional B	164	43	36	7	79	70	9
Technical A	53	16	10	6	5	6	-1
Technical B	6	1	1	0	1	0	1
Total	**1167**	**236**	**249**	**41/-54**	**267**	**263**	**47/-43**

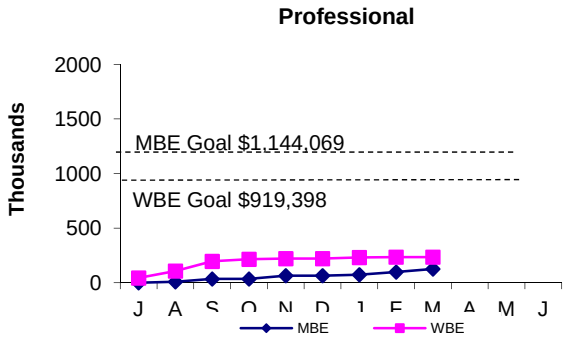
AACU Candidate Referrals for Underutilized Positions

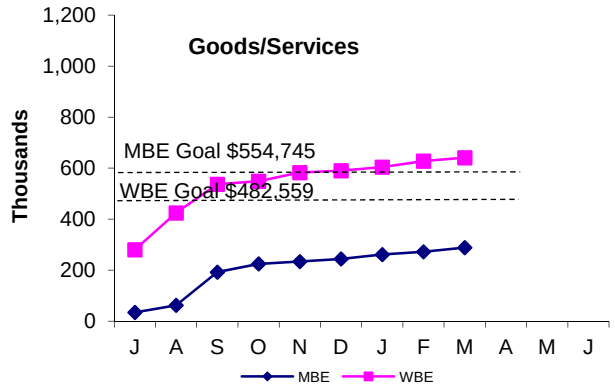
Job Group	Title	# of Vac	Requisition Int. / Ext.	Promotions/ Transfers	AACU Ref. External	Position Status
Administrative A	Director, Internal Audit	1	Int	1	0	P = WM
Craft A	M & O Specialist	2	Int	2	0	(2)P = WM
Craft A	WDS General Foreman, Valves	1	Int	0	0	In Progress
Craft B	Facilities Specialist	1	Int/Ext	1	0	P = BM
Craft B	Heavy Equipment Operator I	1	Int/Ext	0	0	In Progress
Craft B	Specialty Valve Installer	1	Int	0	0	In Progress
Craft B	Heavy Equipment Operator I	1	Int/Ext	0	0	In Progress
Clerical B	Head Clerk	1	Int/Ext	0	0	NH = WF
Engineer A	Sr. Program Manager, Valves	1	Int	1	0	P = WM
Engineer A	Project Engineer, Process Monitoring	1	Int/Ext	1	0	P = WM
Engineer B	Technical Assistant	1	Int	0	0	In Progress
Laborers	OMC Laborer	2	Int/Ext	1	0	T=WF; NH=HM
Management A	Payroll Manager	1	Int	0	0	In Progress
Management A	Manager, Benefits & HRIS	1	Int	1	0	P = WM
Management A	Manager, Maintenance	1	Int	1	0	P = WM
Management A	WCC Manager	1	Int	1	0	T = WM
Management B	Project Manager, Meter Data	1	Int	1	0	P = WM
Management B	Project Manager	3	Int/Ext	2	0	(2)P = WM; (1)In
Management B	Area Manager, Electrical	1	Int	0	0	In Progress
Management B	Operations Supervisor	1	Int	1	0	P = WM
Operator A	T & T Operator	2	Int	0	0	In Progress
Professional B	O&M Systems Specialist	1	Int/Ext	0	0	Rehire = WM
Professional B	Senior Financial Analyst	1	Int	0	1	In Progress
ParaProfessional	TIC Clerk	1	Int/Ext	0	0	NH = BM

MBE/WBE Expenditures
3rd 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 March.







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	1,068,048	49.1%	1,053,966	25.5%	950,655	39.1%	3,407,380	165.9%
Professional Svc.	126,779	11.1%	584,242	44.5%	235,293	25.6%	457,558	43.4%
Goods & Svcs.	288,465	52.0%	359,270	45.8%	640,931	132.8%	966,425	141.6%
Total	**1,483,292**	**38.3%**	**1,997,478**	**32.1%**	**1,826,879**	**47.7%**	**3,890,658**	**102.6%**

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

CEB Expenses
3rd Quarter - FY15

	March 2015 Year-to-Date					
	Period 9 YTD Budget	Period 9 YTD Actual	Period 9 YTD Variance	%	FY15 Approved	% Expended
EXPENSES						
WAGES AND SALARIES	$ 70,251,743	$ 68,400,866	$ (1,850,877)	-2.6%	$ 96,554,749	70.8%
OVERTIME	2,741,775	3,434,007	692,232	25.2%	3,620,600	94.8%
FRINGE BENEFITS	13,796,952	13,627,766	(169,186)	-1.2%	18,299,405	74.5%
WORKERS' COMPENSATION	1,650,000	1,685,978	35,978	2.2%	2,200,000	76.6%
CHEMICALS	7,436,335	7,215,716	(220,619)	-3.0%	10,219,580	70.6%
ENERGY AND UTILITIES	17,700,634	15,372,784	(2,327,850)	-13.2%	23,472,354	65.5%
MAINTENANCE	18,585,520	19,051,983	466,463	2.5%	27,972,607	68.1%
TRAINING AND MEETINGS	246,049	243,546	(2,503)	-1.0%	361,019	67.5%
PROFESSIONAL SERVICES	4,047,814	3,457,850	(589,964)	-14.6%	5,957,201	58.0%
OTHER MATERIALS	2,824,500	3,447,052	622,552	22.0%	5,952,729	57.9%
OTHER SERVICES	16,602,329	16,686,920	84,591	0.5%	22,538,498	74.0%
TOTAL DIRECT EXPENSES	**$ 155,883,651**	**$ 152,624,468**	**$ (3,259,183)**	**-2.1%**	**$ 217,148,742**	**70.3%**
INSURANCE	$ 1,596,116	$ 1,661,768	$ 65,652	4.1%	$ 2,128,155	78.1%
WATERSHED/PILOT	20,600,092	20,449,570	(150,522)	-0.7%	27,466,790	74.5%
BECo PAYMENT	2,233,932	2,130,214	(103,718)	-4.6%	3,198,174	66.6%
MITIGATION	1,204,475	1,094,927	(109,548)	-9.1%	1,605,967	68.2%
ADDITIONS TO RESERVES	362,215	362,215	-	0.0%	482,953	75.0%
RETIREMENT FUND	12,629,475	12,645,475	16,000	0.1%	12,629,475	100.1%
TOTAL INDIRECT EXPENSES	**$ 38,626,305**	**$ 38,344,169**	**$ (282,136)**	**-0.7%**	**$ 47,511,514**	**80.7%**
STATE REVOLVING FUND	$ 58,502,309	$ 58,113,673	$ (388,636)	-0.7%	$ 78,460,635	74.1%
SENIOR DEBT	163,642,175	161,295,031	(2,347,144)	-1.4%	220,835,626	73.0%
CORD FUND	657,380	657,380	-	0.0%	876,506	75.0%
DEBT SERVICE ASSISTANCE	(853,660)	(853,660)	-	0.0%	(853,660)	100.0%
CURRENT REVENUE/CAPITAL	7,650,000	7,650,000	-	0.0%	10,200,000	75.0%
SUBORDINATE MWRA DEBT	74,524,056	74,524,056	-	0.0%	99,686,106	74.8%
LOCAL WATER PIPELINE CP	3,111,340	3,111,340	-	0.0%	4,148,453	75.0%
CAPITAL LEASE	2,412,795	2,412,795	-	0.0%	3,217,060	75.0%
VARIABLE DEBT	-	(9,609,121)	(9,609,121)	---	-	0.0%
BOND REDEMPTION SAVINGS	(5,059,198)	(5,059,198)	-	0.0%	(6,745,598)	75.0%
DEFEASANCE ACCOUNT	-	12,344,902	12,344,902	---	-	0.0%
TOTAL DEBT SERVICE	**$ 304,587,197**	**$ 304,587,197**	**$ -**	**0.0%**	**$ 409,825,128**	**74.3%**
TOTAL EXPENSES	**$ 499,097,153**	**$ 495,555,834**	**$ (3,541,322)**	**-0.7%**	**$ 674,485,384**	**73.5%**
REVENUE & INCOME						
RATE REVENUE	$ 487,736,838	$ 487,736,838	$ -	0.0%	$ 650,315,784	75.0%
OTHER USER CHARGES	6,000,210	6,032,236	32,026	0.5%	8,259,693	73.0%
OTHER REVENUE	4,975,363	6,777,116	1,801,753	36.2%	6,180,450	109.7%
RATE STABILIZATION	-	-	-	---	-	---
INVESTMENT INCOME	7,215,194	7,186,918	(28,276)	-0.4%	9,729,457	73.9%
TOTAL REVENUE & INCOME	**$ 505,927,605**	**$ 507,733,108**	**$ 1,805,503**	**0.4%**	**$ 674,485,384**	**75.3%**

As of March 2015, total expenses were $495.6 million, $3.5 million or 0.7% lower than budget and total revenue was $507.7 million, $1.8 million or 0.4% higher than budget, for a net positive variance of $5.3 million.

Expenses –

Direct Expenses are $152.6 million, $3.3 million or 2.1% lower than budget.

- **Utilities** are underspent by $2.3 million or 13.2% due to lower Electricity of $1.4 million mainly due to lower unit costs and flows at Deer Island, Diesel of $796k mainly at Deer Island and Field Operations due to favorable pricing, and Water use of $119k.
- **Wages & Salaries** are underspent by $1.9 million or 2.6% due to lower headcount and the salary mix differential between staff retiring at higher rates and new hires coming on board at lower rates.
- **Overtime** is overspent by $692k or 25.2% due to higher wet weather events, especially snow removal, and coverage.
- **Other Materials** are over budget by $623k or 22.0% mainly due to timing of vehicle, computer hardware, work clothes, and Clinton gravel purchases. The overspending is offset by lower vehicle expenses mostly related to lower gasoline pricing.
- **Professional Services** are lower than budget by $590k or 14.6% mainly due to the timing of initiatives such as the Mystic River Modeling project, dam safety work, and as-needed engineering for maintenance projects.
- **Maintenance** is $466k or 2.5% higher than budget. Materials are overspent by $1.3 million and services are underspent by $872k mainly due to timing.
- **Chemicals** are underspent by $221k or 3.0% mainly for lower than budgeted Sodium Hypochlorite of $168k due to timing of deliveries and pricing, Liquid Oxygen of $143k due to better water quality, and Nitrazyme of $79k due to Town of Framingham system modifications. Underspending is offset by overspending for Ferric Chloride of $156k due to struvite control and Hydrogen Peroxide of $95k due to increased need for pretreatment of hydrogen sulfide gas due to lower plant flows.
- **Fringe Benefits** are lower than budget by $169k or 1.2% mainly due to lower than budgeted health and unemployment expenses.
- **Other Services** are higher than budget by $85k or 0.5% mainly due to higher telecommunication expenses of $158k for security data lines and Space Lease/Rentals of $81k partially offset by lower Grit Screen spending of $43k.

Indirect Expenses of $38.3 million are $282k or 0.7% lower than budget mainly due to Watershed Reimbursement expenses of $151k mainly due to an FY14 overaccrual, Mitigation payments of $110,000, and HEEC of $104,000 mainly for lower capacity charges. Underspending is partially offset by higher insurance costs of $66,000.

Debt Service Expenses totaled $304.6 million, which is at budgeted levels after the transfer of $12.3 million to the Defeasance Account.

Revenue and Income –

Total Revenue / Income for March is $507.7 million, $1.8 million or 0.4% higher than budget due to Non-Rate Revenue of $1.8 million. Higher non-rate Revenue is due to $995k for a prior period adjustment for Watershed expenses, $425k for the sale of emergency water for the Town of Hudson, $372k payment received for the sale of the Fox Point CSO Facility, $142k for higher permit, monitoring, and penalty fees, and $75k reimbursement for Briarwood Rehabilitation Easement project. The higher favorable variances were offset by lower Energy revenue of $448k mainly due to the timing of Renewable Portfolio Standard (RPS) sales.

Cost of Debt
3rd 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.

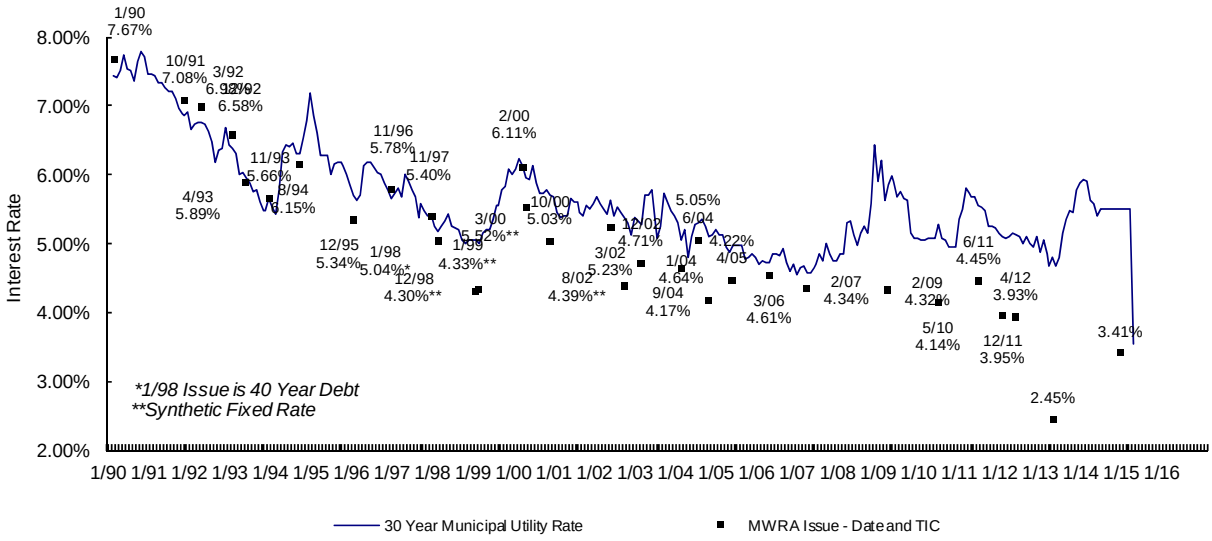
Average Cost of MWRA Debt

Fixed Debt ($3,980)	4.25%
Variable Debt ($484.2)	0.62%
SRF Debt ($1,037)	1.30%
Weighted Average Debt Cost ($5,,502)	3.37%

Most Recent Senior Fixed Debt Issue
November 2014

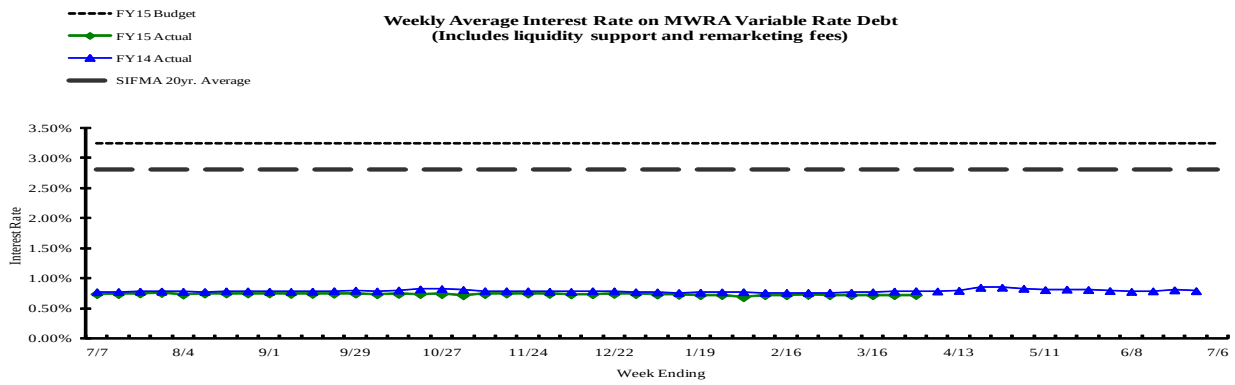
2014 Series D-F ($243.9)	3.41%

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



Weekly Average variable Interest Rates vs. Budget

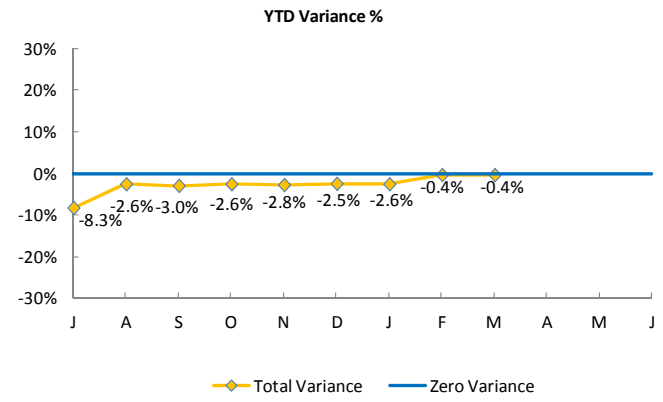
MWRA currently has ten variable rate debt issues with $1.0 billion outstanding, excluding commercial paper. Of the ten outstanding series, five have portions which have been swapped to fixed rate. Variable rate debt has been less expensive than fixed rate debt in recent years as short-term rates have remained lower than long-term rates on MWRA debt issues. In March, SIFMA rates reset every week at 0.02%. 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.



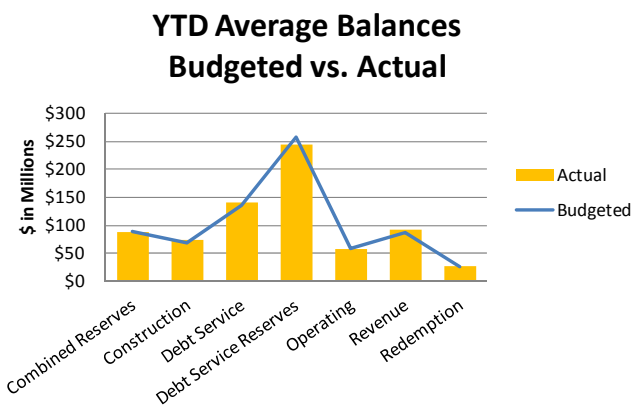
Investment Income

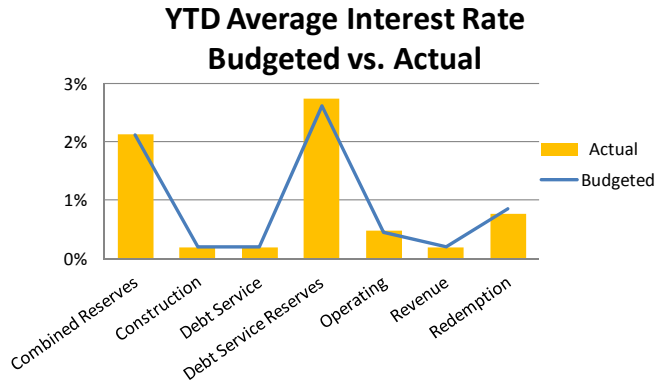
3rd Quarter - FY15

Year To Date



	YTD BUDGET VARIANCE ($000)			
	BALANCES IMPACT	RATES IMPACT	TOTAL	%
Combined Reserves	($1)	($0)	(2)	-0.1%
Construction	$7	($4)	2	2.1%
Debt Service	$6	($9)	(3)	-1.7%
Debt Service Reserves	($189)	$171	(18)	-0.4%
Operating	($2)	$10	8	4.2%
Revenue	$5	($5)	(1)	-0.4%
Redemption	($0)	($14)	(14)	-8.6%
Total Variance	($176)	$148	($28)	-0.4%





Monthly