

MASSACHUSETTS WATER RESOURCES AUTHORITY

# Board of Directors Report

on

## Key Indicators of MWRA Performance

for

Fourth Quarter FY2013

Q1	Q2	Q3	Q4



Frederick A. Laskey, Executive Director  
Michael J. Hornbrook, Chief Operating Officer  
September 18, 2013

# Board of Directors Report on Key Indicators of MWRA Performance

## Fourth Quarter FY2013

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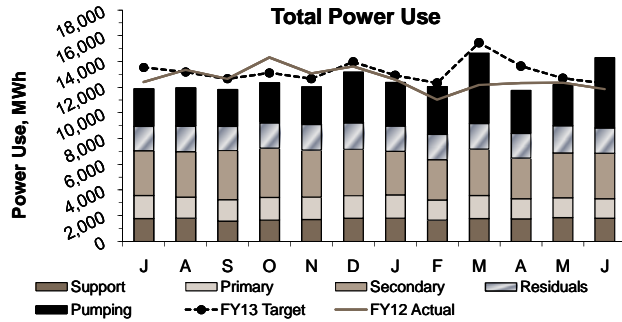
This quarterly report is prepared by MWRA staff to track a variety of MWRA performance measures for routine review by MWRA's board of directors. The content and format of this report is expected to develop as time passes. Information is reported on a preliminary basis as appropriate and available for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

Frederick A. Laskey, Executive Director  
Michael J. Hornbrook, Chief Operating Officer  
September 18, 2013

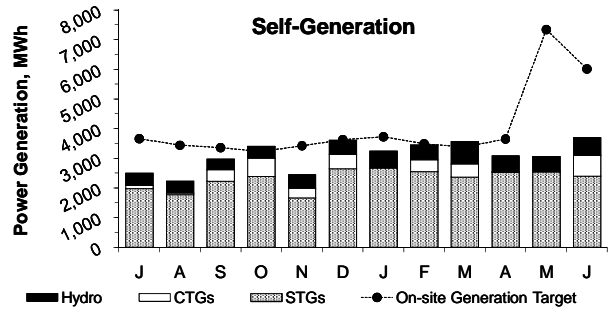
# OPERATIONS AND MAINTENANCE

# Deer Island Operations

4th Quarter - FY13



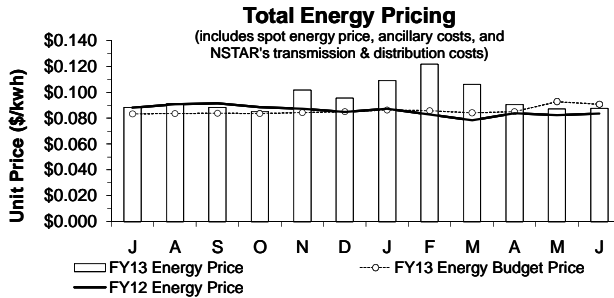
Total Power Use in the 4th Quarter was on target with the FY13 projections (-1%). Power use was lower than the target in April and May, due to lower flows, and higher power in June, due to higher flows. Power used for pumping operations was 72% higher-than-expected in June as a result of 64% higher-than-expected plant flows which caused Total Power Use to exceed the budgeted estimate for the first time in 18 months. For FY13, Total Power Use was 5% lower than the target as plant flow was 8.5% lower than the 3 year average plant flow.



Power generated on-site during the 4th Quarter was 39% lower than target due mainly to 86% less generation by the CTGs than was budgeted as there was much less wet weather operation than was projected in the budget. Generation by the Solar Panels was 15% higher-than-expected this quarter. However, generation by the STGs was 20% lower than target, as the system is not currently optimized to operate efficiently in summer mode, and generation by the Hydro Turbines was within 2% of the target. Generation by the Wind Turbines was 50% lower-than-expected as Turbine #2 has been out of service since January 23 due to bearing issues.

For FY13, Total Power generated on-site was 18.2% lower than the target due mainly to 40% lower-than-expected generation by the CTGs.

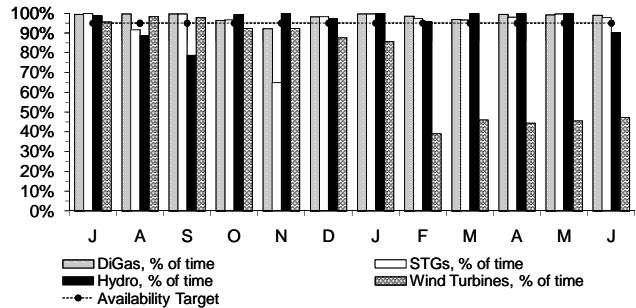
Note: Power generation by the Solar Panels and the Wind Turbines are not included in the graph (as the amounts generated cannot be seen within the current scale of this graph); a total of 312 MWh was generated by the Solar Panels and 234 MWh was generated by the Wind Turbines in the 4th Quarter.



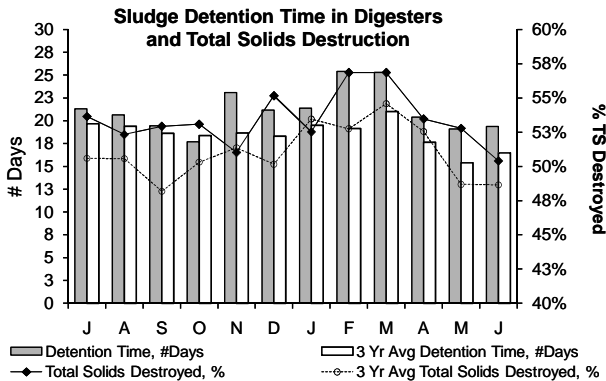
Under the current energy supply contract, a block portion of DI's energy is a fixed rate and the variable load above the block is purchased in real time. The actual total energy unit price in June was 3.5% lower than the FY13 budget value. The total energy unit price includes a fixed block price, spot energy price, transmission & distribution charges, and ancillary charges. Even though fiscal year end purchased power use was on target (within 0.3%), year end costs were \$1,164,192 (12%) higher-than-budget due to an average total energy unit price that was 12% higher-than-expected.

## Self-Generation Equipment On-Line

(% of Time in Operation)

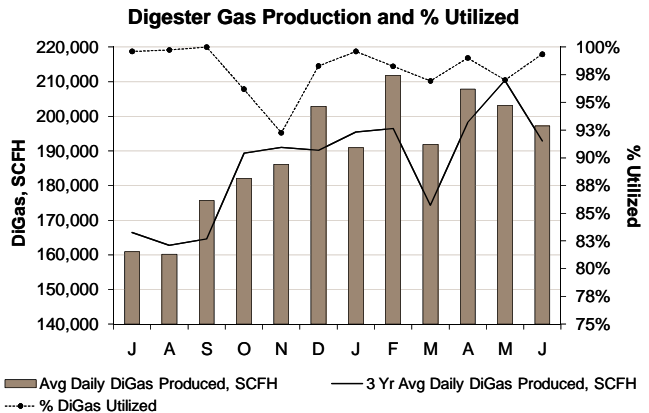


The DiGas, STGs, and Hydro Turbine systems all met their 95% Availability Target for the 4th Quarter and for FY13. The Wind Turbines fell 49% below the 95% target for the 4th Quarter as Wind Turbine #2 has been out of service since January 23 due to a major bearing failure. Wind Turbine #1 was available 92% of the time in the quarter. Overall Wind Turbine availability for FY13 was 72%.



Total solids (TS) destruction averaged 52% following anaerobic sludge digestion during the 4th Quarter with an average sludge detention time in the digesters of 19.6 days. Solids destruction was 5% higher than the 3 year average for the quarter as sludge detention time in the digesters was 19% higher than the 3 year average detention time.

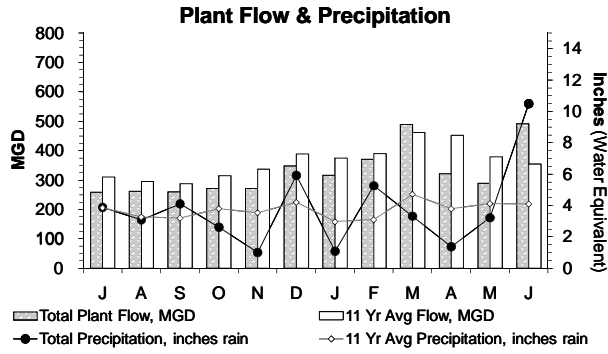
Although it appears that detention time is trending downward, detention time during Q4 is more typical of what is anticipated, while February and March were unusually high during the process of swapping Module #2 digesters off-line and Module #3 digesters on-line. During the transition, an average of 8.9 (February) and 8.3 (March) digesters were on-line as opposed to a normal 8.



The Avg Daily DiGas Production was 1% higher in the 4th Quarter than the 3 Year Avg Daily DiGas Production and 2% higher overall for FY13. 98% of all the DiGas produced in the 4th Quarter and in FY13 was utilized at the Thermal Power Plant.

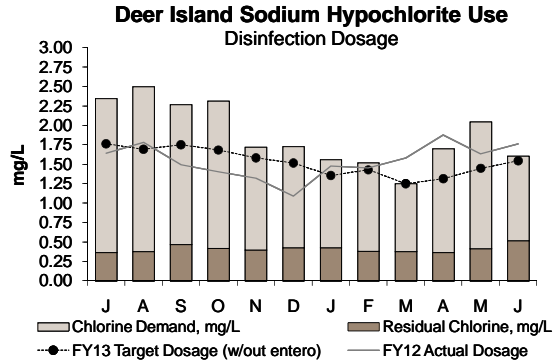
# Deer Island Operations

4th Quarter - FY13



The Total Plant Flow for the 4th Quarter was 7% lower than target (367.6 MGD actual vs. 394.7 MGD expected) even though precipitation was 26% higher-than-expected for the quarter (15.09 inches actual vs. 12.01 inches expected) due mainly to the 10.5 inches of rainfall in June alone. Both plant flow and rainfall were much lower-than-expected in April and May.

For FY13, Total Plant Flow was 9% lower than target even though precipitation was on target (+1%). The precipitation pattern in FY13 was erratic with a few months seeing much higher-than-expected precipitation but was more commonly marked by months having much lower-than-expected precipitation which caused plant flows to remain lower-than-expected for the majority of the time.



The disinfection dosing rate in the 4th Quarter was 24% higher than the target. Dosing was higher-than-expected due to a higher chlorine demand as a result of stronger wastewater caused by the lengthy period of much lower-than-normal plant flows in April and May and by higher solids and bacteria levels due to numerous storm events in June. DITP maintained an average disinfection chlorine residual of 0.43 mg/L this quarter with an average dosing rate of 1.78 mg/L (as chlorine demand was 1.35 mg/L). Overall in FY13, the average disinfection chlorine residual was 0.41 mg/L with an average dosing rate of 1.88 mg/L (as chlorine demand was 1.47mg/L).

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	99.7%	5.78
A	1	1	0	99.9%	2.04
S	2	2	0	99.8%	4.35
O	3	3	0	99.6%	6.92
N	0	0	0	100.0%	0.00
D	4	4	0	98.3%	22.41
J	0	0	0	100.0%	0.00
F	1	1	0	97.0%	41.01
M	3	3	0	99.8%	10.92
A	0	0	0	100.0%	0.00
M	2	2	0	100.0%	1.64
J	10	10	0	95.1%	93.83
<b>Total</b>	<b>28</b>	<b>28</b>	<b>0</b>	<b>98.9%</b>	<b>188.91</b>

There were a total of 12 separate secondary blending events during the 4th Quarter of FY13; all were due to high plant flows resulting from heavy rain. There were no secondary blending events in April, two (2) short duration events in May, and 10 separate blending events in June.

All 12 blending events combined produced a total of 95.47 hours of blending and 720.24 Mgal of flow blended with secondary effluent.

**Secondary permit limits were met at all times during the 4th Quarter and during the entire FY13.**

## Deer Island Operations & Maintenance Report

### Environmental/Pumping:

The 15.09 inches of rainfall in the 4th Quarter was 26% higher than the 11 year average of 12.01 inches. The total plant flow for the Quarter was 7% lower than the target (367.6 actual vs. 394.7 MGD target). The majority of the rainfall for the quarter fell in June (10.5 inches) .

The plant achieved a maximum average hourly flow rate of 1,216.0 MGD in the 4th Quarter during the overnight hours of June 7 into June 8 as a result of the remnants of Tropical Storm Andrea which dropped a total of 3.63 inches of rain in the Boston area from June 6 through June 8. Pumping and treatment operations at DITP continued without incident through this storm, as well as throughout the entire quarter.

## Deer Island Operations & Maintenance Report (continued)

### Odor Control Treatment:

The internal surface of Carbon Adsorber (CAD) units #7 in the East Odor Control (EOC), #5 in the West Odor Control (WOC), and #1 in the Residuals Odor Control (ROC) Facilities were recoated this quarter, as a preventative maintenance measure to ensure the integrity of the underlying internal structure of the adsorber by preventing corrosion and wear as the existing coating has aged over time.

The process airflows in the North Pumping Odor Control (NPOC), Secondary Odor Control (SOC), and in a portion of both the West Odor Control (WOC) and the East Odor Control (EOC) Facilities were offline on June 26 from 33 minutes up to 3 hours and 35 minutes due to a brief unanticipated partial power loss on DITP resulting from NSTAR maintenance activities. No stack emission exceedances occurred since the odor control facility fans were not in operation and no odor complaints were received associated with this incident.

### Residuals Treatment:

One of the digested sludge holding tanks, Dystor #2, was taken out of service in mid-April for valve replacement work. Preparing the tank for the contractor required the sludge contents to be drained to a point whereby the contractor would be able to enter for final cleanout. This involved diluting then draining the remaining contents in the tank four (4) times, taking nine (9) days to achieve with a 3.5 million gallon tank, in addition to a complicated gas purging procedure to safely remove the residual digester gas in the tank.

### Energy and Thermal Power Plant:

Overall, total power generated on-site accounted for 27.1% of Deer Island's total electrical power use for the 4th Quarter and 26.2% of Deer Island's total electrical power use for FY13. Renewable power generated on-site (by Solar, Wind, STGs, and Hydro Turbines) accounted for 25.2% of Deer Island's total electrical power use for the quarter and 23.9% of the total electrical power use for FY13.

April marked the second year anniversary of the startup of both the solar installations on the roof of the Grit Facility and on the ground of the South Parking Lot. May marked the five-year anniversary of the startup of the solar installation on the roof of the Residuals Odor Control Facility. This solar installation exceeded the projected output for four of the past five years and, on average, produced 10% more electricity than projected.

Annual overhaul maintenance on CTG-1A took place during the first two (2) weeks of June and required the generator to be locked out from Monday to Friday (but available for operation if needed and within two hours during the off shifts).

Deer Island experienced a partial loss of power at 8:42 AM on June 26 due to NSTAR maintenance activities on equipment owned and operated by NSTAR at NSTAR's Deer Island station. This loss of power was temporary and did not affect all systems at Deer Island. Some of the systems on DITP that were impacted by this partial power loss include portions of the odor control treatment system, some pumps in the North Main Pump Station (for Boston Main Drain) and South System Pump Station, the STGs, the Hydro Turbines, as well as, several other systems. All critical operating systems were restored to operation immediately following the power loss and there were no impacts to the NPDES permitted parameters as a result of this event.

### Regulatory:

Deer Island officially received NACWA's (National Association of Clean Water Agencies) Platinum Award for Peak Performance for the 2012 operation year which recognizes outstanding compliance with our National Pollutant Discharge Elimination System (NPDES) permit limits. The Platinum award is given in recognition of 100% compliance with NPDES permits over a consecutive five year period. This is Deer Island's second consecutive Platinum Award for having operated with no permit violations from 2007 through 2012.

Representatives from EPA and DEP were onsite on April 30 for a Spill Prevention Control and Countermeasure (SPCC) and Facility Response Plan (FRP) inspection. The inspection has two purposes: to ensure facilities are in compliance, and to give EPA the opportunity to educate operators about the regulations and methods for ensuring compliance. The inspection began in the morning with a review of the Integrated Contingency Plan (ICP) and a facility records review, and was followed by a facility-wide walkthrough inspection. The inspectors were generally satisfied, although they did find several minor items on their extensive and detailed check sheet that will require some remedial action, primarily minor textual and referential adjustments within the written plan. They indicated that they were impressed by the clean and orderly appearance of the facility.

### Clinton AWWTP:

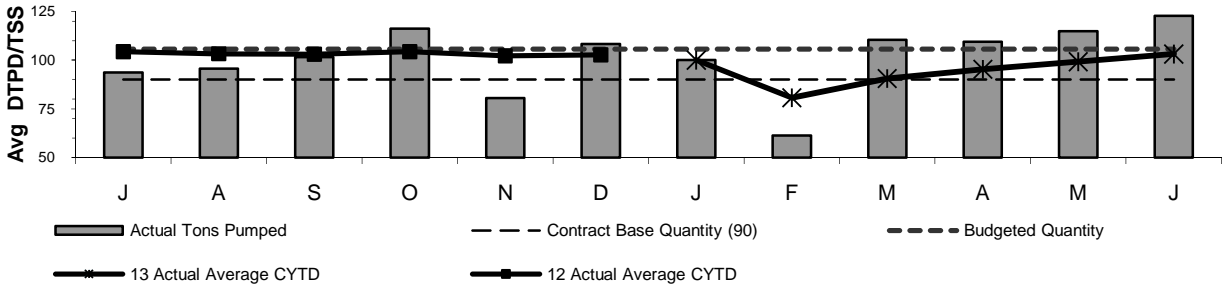
The \$177,000 NGRID rebate for the fine bubble diffused air system has been received in full. In addition, we have been able to secure a rebate for the pump VFD's in the amount of \$21,000. The plant continues to meet its running average flow limit. June is the eighth month in the previous twelve the running average has been met.

# Deer Island Residuals

4 th Quarter - FY13

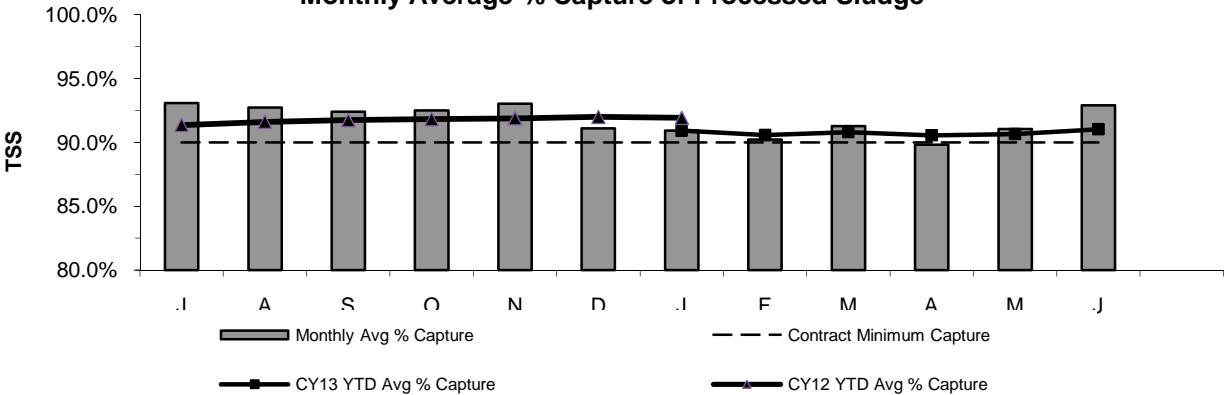
MWRA pays a fixed monthly amount for the calendar year to process up to 90 DTPD/TSS as an annual average. The monthly invoice is based on 90 DTPD/TSS (Dry Tons Per Day/Total Suspended Solids) times 365 days divided by 12 months. At the end of the year, the actual totals are calculated and additional 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 (FY13's budget is 105.7 DTPD/TSS).

## Sludge Pumped From Deer Island



The average total quantity of sludge pumped in the 4th Quarter was 115.7 DTPD - higher than FY13's budget of 105.7 DTPD. The higher amount is due to high flows in June that scour the sewerage system, resulting in more sludge going to the digesters. The FY13 average quantity was 101.2 -- well below the budget number. The biggest reason for the lower sludge quantities to FRSA is higher detention times; this means more digas production and less sludge to pelletizing.

## Monthly Average % Capture of Processed Sludge



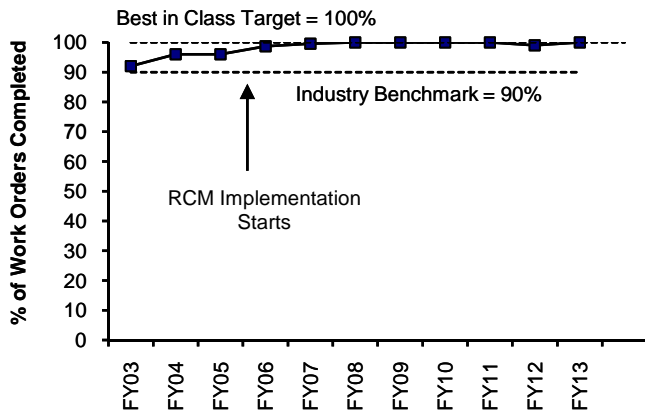
The contract requires NEFCo to capture at least 90% of the solids delivered to the Biosolids Processing Facility in Quincy; the solids capture rate for the 4th Quarter was 91.26%. The FY13 average capture was 91.75%

# Deer Island Yearly Maintenance Metrics

## 4th Quarter - FY13

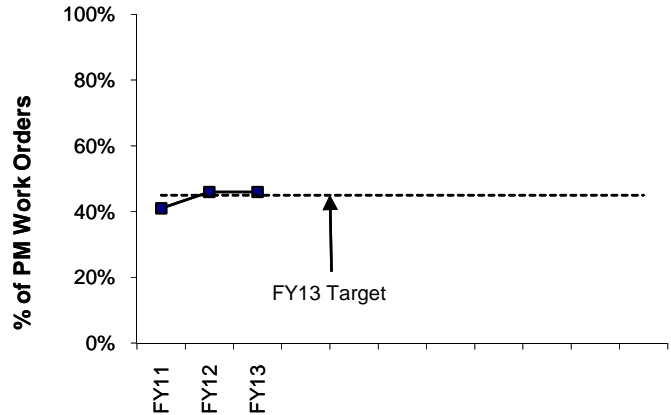
### Proactive and Productivity Measures

#### Preventive Maintenance



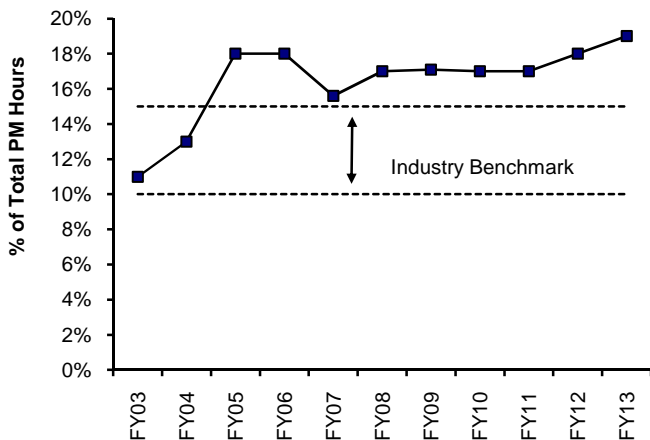
The industry benchmark is 90% for Preventive Maintenance (PM) completion. Upon reaching the 90% goal in FY03, the target goal was increased to the "best in class" standard of 100% PM completion. Since then, the percentage of PM work order completion has been at 99% or higher. Reliability-Centered Maintenance (RCM) and PM optimization efforts have continued in FY13. PM completion rate was 99.75% in FY13.

#### Preventive Maintenance Kitting



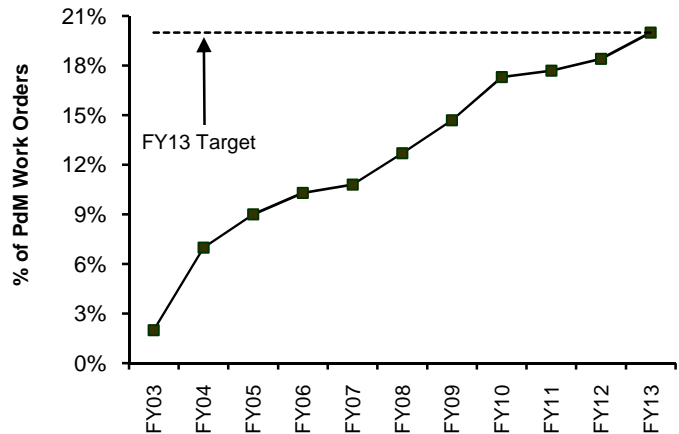
PM inventory items were loaded into Maximo so that parts for equipment could be assigned to PM work orders on a monthly basis. DITP reached the PM kitting goal in FY10. A new graph above was developed in FY11 to track kitting of all maintenance work orders. In an effort to increase wrench time, staff have been fine-tuning a process to "kit" all maintenance work orders. Kitting is considered a best practice by maintenance and reliability professionals and entails staging parts necessary to complete maintenance work. Kitting allows maintenance staff to spend more time "turning the wrench" and less time waiting for parts at the stockroom window.

#### Operations Light Maintenance PMs



The percentage of preventive maintenance work order hours completed by Operations staff (not maintenance staff) has increased from less than 1% in January 2002 to the current level of 19%. DI reached the industry benchmark range of 10-15% in April 2003 and has exceeded the goal through FY13. Operations completes approximately 600 PM work orders per month.

#### Predictive Maintenance



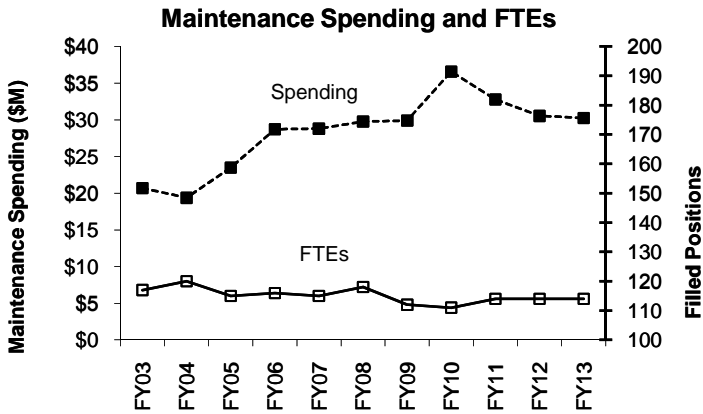
Predictive maintenance has steadily increased from 0% in FY02 to 20% in FY13. The increase in predictive maintenance was achieved through the expanded use of lubrication, vibration, thermography, and acoustic ultrasonic testing techniques. The Condition Monitoring Group continually reviews and investigates new opportunities and initiatives to expand condition monitoring testing and analysis. Every month, a "action" list is generated from the condition monitoring for testing and analysis.



# Deer Island Yearly Maintenance Metrics

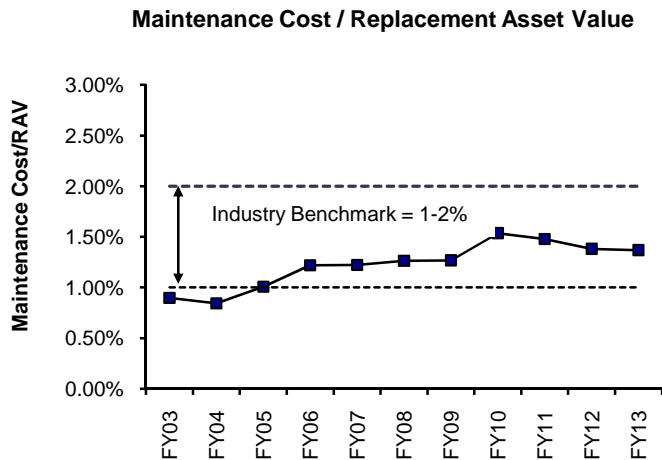
4th quarter - FY13

## Overall Maintenance Program Measures

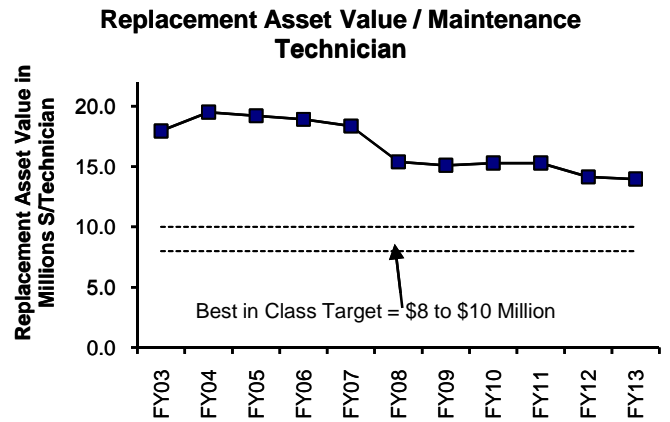


Maintenance staff is currently at 114 FTE's. Maintenance has been successful in meeting its goals through implementation of numerous maintenance efficiencies including Operations staff performing light maintenance, cross-functional training and flexibility, and Reliability Centered Maintenance.

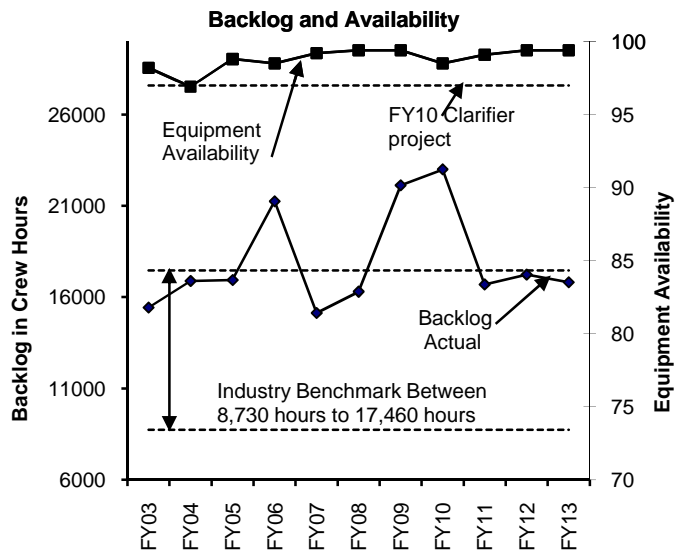
The maintenance spending graph shows actual annual maintenance spending and large asset replacements (equipment costs only). Maintenance budgeting will continue to evaluate proper preventive maintenance of plant assets and requirements for replacement of obsolete equipment to insure plant operates at maximum efficiency. In FY13, overall spending remained at the same level as FY12. CIP projects during FY13 included the Digester valve replacement, Expansion joint repairs, and W3H flushing system. The large spike in FY10 and FY11 was attributed to the Clarifier rehabilitation project (\$58M) which was on-going during that period.



The industry benchmark for annual maintenance spending is between 1% to 2% of replacement asset value. The plant's replacement asset value was calculated to be approximately \$2.3 billion dollars. DITP's current maintenance spending is within the target range. Additional spending is expected to be required as the plant ages and additional equipment replacements are required. The maintenance spending includes \$12.5 million in CEB together with CIP spending which included projects such as Digester valve replacement, Expansion joint repairs, and W3H (high pressure plant water) flushing system.



DITP has adopted a "best in class" target of \$8-\$10 Million/Technician for its maintenance staffing. DITP exceeds the target at this time although the trend continues downward. As the plant ages and additional projects and replacements are required, additional staffing needs will be assessed.



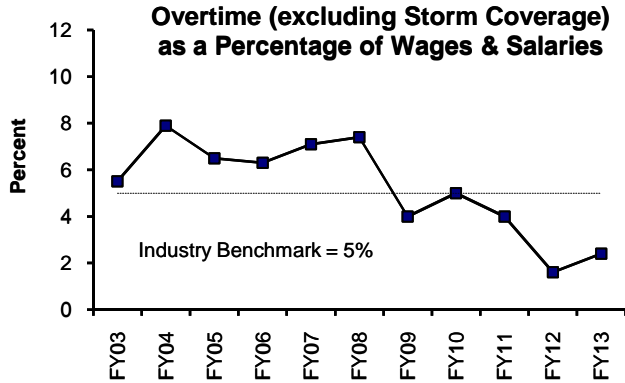
The industry benchmarks for equipment availability is 97% and the maintenance backlog based on current staffing levels is between 8,730 to 17,460 hours, respectively. The equipment availability exceeded the goal for the last nine years and was 99.4% for FY13.

The total average backlog for FY13 was 16,812 hours and is within the industry benchmark. The slight decrease in backlog is attributed to less maintenance work on clarifiers after completing of the clarifier rehabilitation project and the return of some staff from IA, absences, and filling critical trade vacancies. Management continues to prioritize work and closely monitor our backlog.

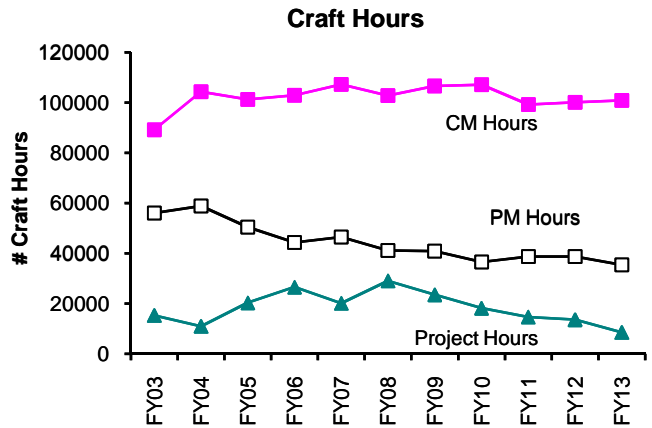
# Deer Island Yearly Maintenance Metrics

4th Quarter- FY13

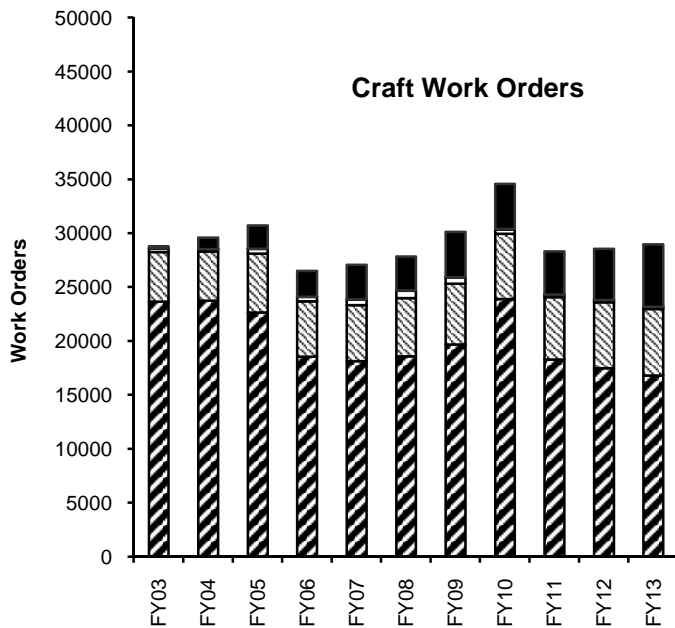
## Overall Maintenance Program Measures



Management continues its effort to keep overtime within the industry benchmark. DITP maintenance overtime was 2.4% for FY13. Management has taken steps to reduce overtime spending by limiting overtime to repair critical equipment and systems only. DITP has been on or under budget from FY09 through FY13.



Optimization of the PM program through the transfer of some light maintenance tasks to Operations staff (19% of PM hours at the end of FY13), elimination of duplicate work orders, decreasing PM frequency due to equipment history and performance, completion of a PM Optimization efforts, and RCM recommendations has resulted in a significant decrease of 20,638 hours in maintenance staff PM craft hours from FY03 to FY13. Corrective Maintenance (CM) hours have remained the same from last year. Project Maintenance hours continues to show a decline as an increasingly amount of project work is being handled through the CIP asset protection program.



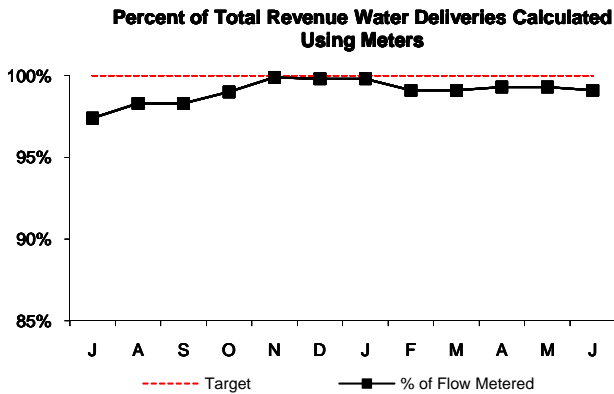
During FY13, the number of work orders increased by 444 from the previous year as a result of adding condition monitoring tasks. These techniques allow maintenance to monitor and test equipment using technology that takes less time and is less intrusive.

- Predictive Maintenance
- Project
- ▨ Preventive Maintenance
- Emergency Maintenance
- ▨ Corrective Maintenance

# Operations Division Metering

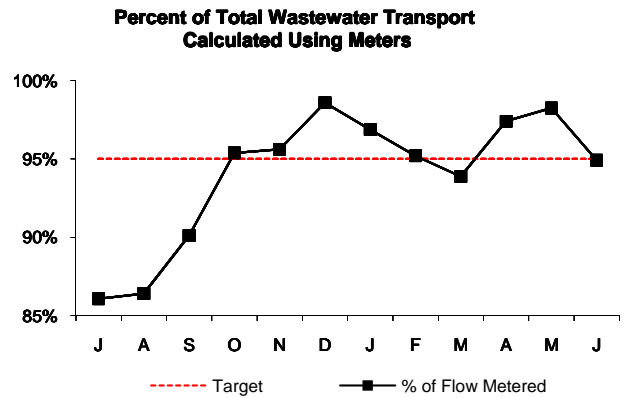
4th Quarter - FY13

## WATER METERS



The target for revenue water deliveries calculated using meters is 100%. Estimates are generated for meters that are out of service due to instrumentation problems or in-house and capital construction projects. During the 4th Quarter of FY13, meter actuals accounted for 99.23% of flow; only 0.76% of total revenue water deliveries were estimated. The following is the breakdown of estimations:  
 In-house and Capital Construction Projects - 0.03%  
 Instrumentation Failure - 0.73%

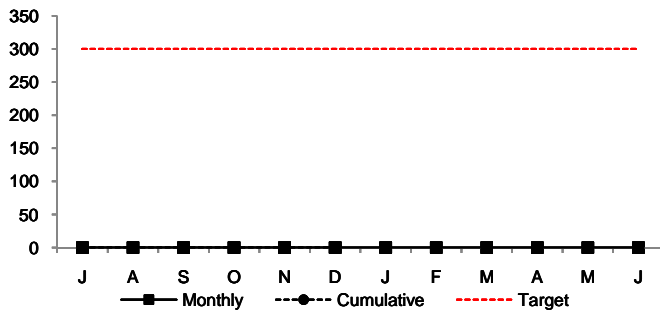
## WASTEWATER METERS



The target for revenue wastewater transport calculated using meters is 95%. Estimates are generated for meters missing data due to instrument failure and/or erratic meter behavior. Estimates are produced using data from previous time periods under similar flow conditions. During the 4th Quarter of FY13, meter actuals accounted for 96.9% of flow; 3.1% of wastewater transport was estimated.

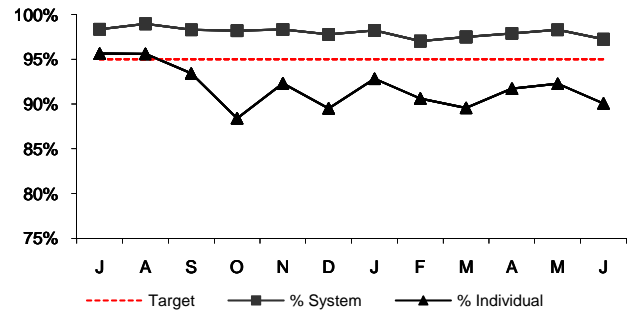
## WATER DISTRIBUTION SYSTEM PIPELINES

### Miles Surveyed for Leaks



Two new leak detection staff are being hired: one started in June, and the second is expected to begin in August. After familiarization with the system, leak detection activities resumed in July.

### % Wastewater Meter Uptime



During the 4th Quarter of FY13, out of a possible 1,581,216 data points, only 34,597 points were missed resulting in a system-wide up time of 97.8%. Of the 181 revenue meters installed, on average 15.7 meters/mth. experienced down time greater than the 5% target resulting in a 91.4% individual meter uptime. For the 4th Quarter of FY13, down time for an individual meter is defined by any individual meter having on average less than 2766 data points out of a potential 2,912 data points.

Water Distribution System

Month	J	A	S	O	N	D	J	F	M	A	M	J
Leaks Detected	2	2	1	0	0	1	3	2	0	0	2	0
Leaks Repaired	2	1	2	0	0	1	3	2	0	0	0	2
Backlog	0	1	0	0	0	0	0	0	0	0	2	0
Avg. Lag Time	1.0	2.3	3.0	3.0	3.0	4.5	4.4	4.1	4.1	4.1	3.8	5.0

During the 4th Quarter of FY13, only two leaks were detected and both occurred during the month of May. The first leak was located at Alewife in Somerville and the second at the Deer Island Scum Building. Repairs were completed on June 5th and June 13th respectively. For FY13 all leaks have been repaired and the average lag time was 5 days.

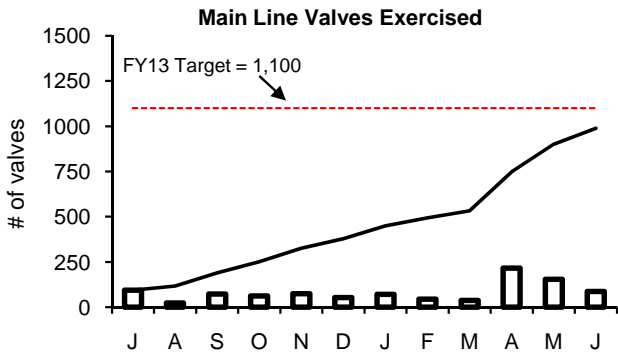
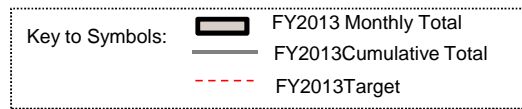
While there are no outstanding leaks in the Metropolitan distribution system, staff can have to work towards repairing a leak on the Chicopee Valley Aqueduct. Improvements to an MWRA/Springfield interconnection and bypass piping will be required.

## Water Distribution System Valves 4th Quarter - FY 13

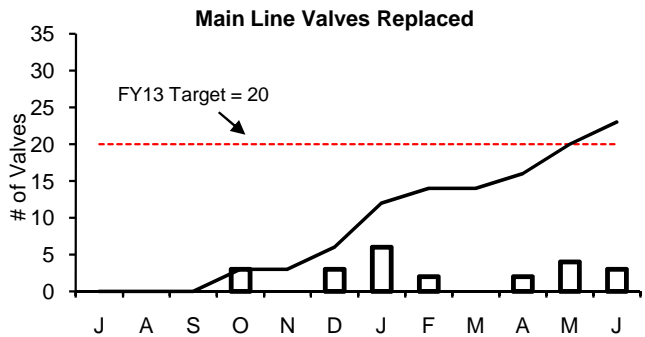
### Background

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.

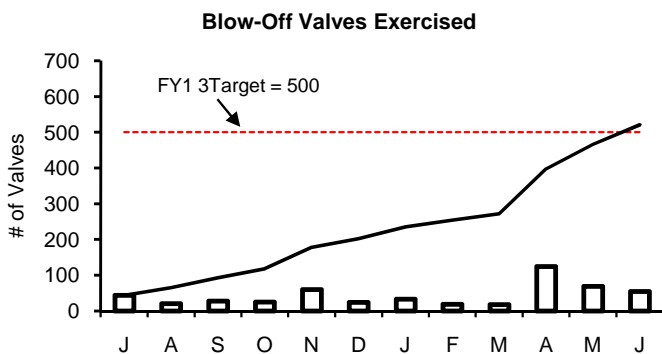
Type of Valve	Inventory #	Operable Percentage	
		FY13 to Date	FY13 Targets
Main Line Valves	2,092	97.5%	92%
Blow-Off Valves	1,206	95.0%	94%
Air Release Valves	1,335	93.4%	92%
Control Valves	48	100.0%	95%



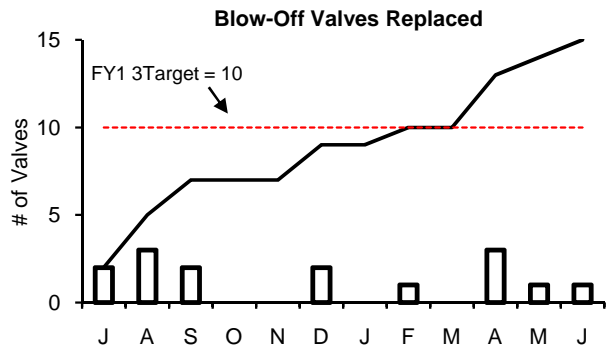
During Q4 of FY13, staff exercised 456 main line valves. The total exercised for the fiscal year is 988. YTD main line valves exercised is approximately 10% below target. During the first three Quarters of FY13 our results were lower than average. This deviation was due in large part to water quality issues, valve crews support of contractor's construction contracts, inability to access valves during weather related incidents and one foreman out on I/A.



During Q4 of FY13, nine main line valves were replaced. The total replaced for the fiscal year to date is 23.



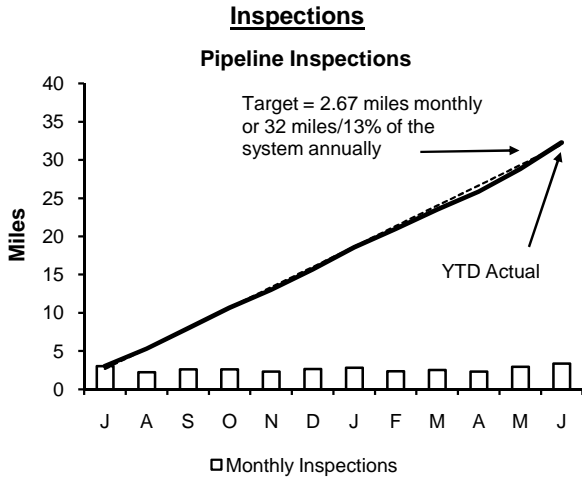
During Q4 of FY13, staff exercised 249 blow-off valves. The total exercised for the fiscal year is 521.



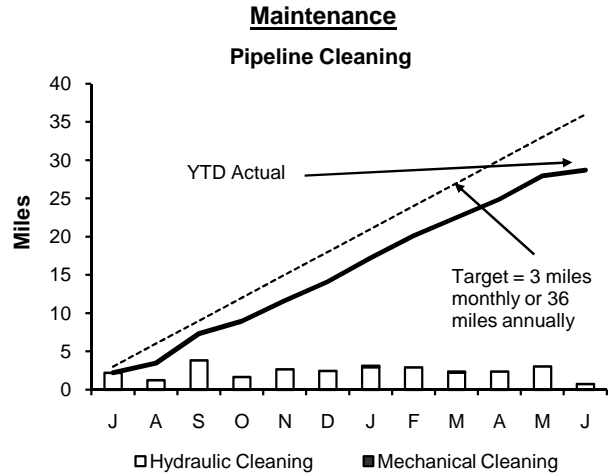
During Q4 of FY13, staff replaced five blow off valves. The total replaced for the fiscal year is fifteen.

# Wastewater Pipeline and Structure Inspections and Maintenance

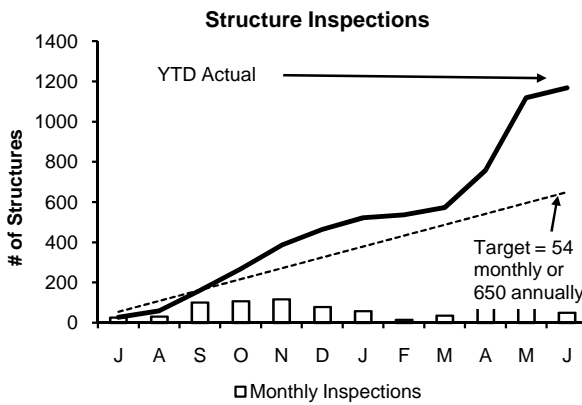
4th Quarter - FY 13



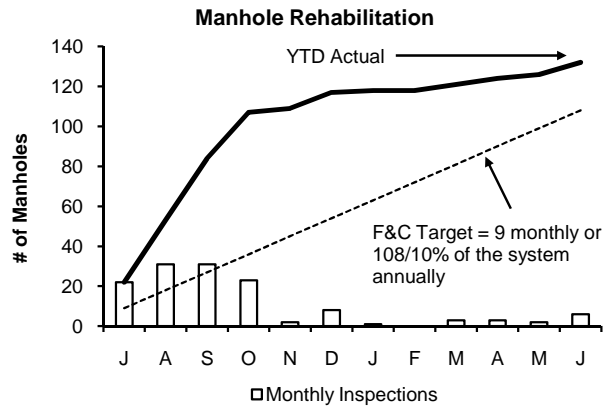
Staff internally inspected 8.74 miles of MWRA sewer pipeline during the 4th quarter. The year to date total is 32.25 miles. No Community Assistance was provided this quarter.



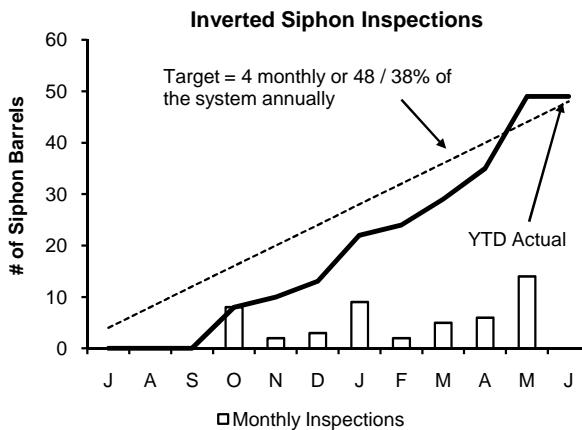
Staff cleaned 6.17 miles of MWRA's sewer system and removed 33 yards of grit and debris during the 4th quarter. The year to date total is 28.69 miles. No Community Assistance was provided this quarter.



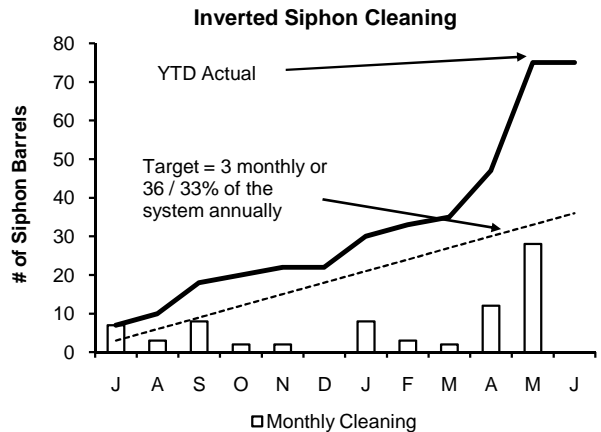
Staff inspected the 36 CSO structures and performed 575 additional manhole/structure inspections during the 4th quarter. The year to date total is 1168 inspections.



Staff replaced 11 frames & covers during the 4th quarter. The year to date total is 132.



Staff inspected 20 siphon barrels during the 4th quarter. Year to date total is 49 inspections.



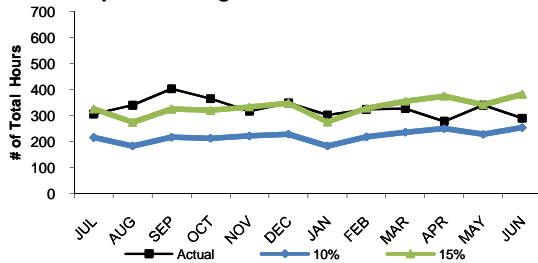
Staff cleaned 40 siphon barrels during the 4th quarter. The year to date total remains at 75 barrels.

# Field Operations' Metropolitan Equipment & Facility Maintenance

## 4th Quarter, FY13

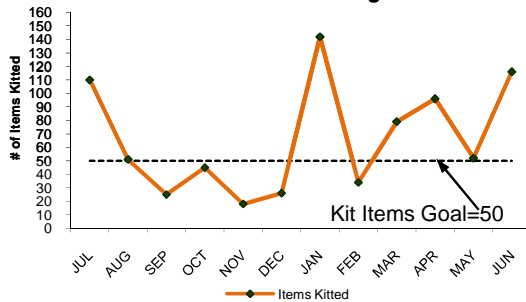
Several maintenance and productivity initiatives are in progress. The goal for the Overall PM completion and the Operator PM completion was raised to 100% for Fiscal Year 2010. The Operator PM and kitting initiatives frees up maintenance staff to perform corrective maintenance and project work, thus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

**Operations Light Maintenance PM Hours**



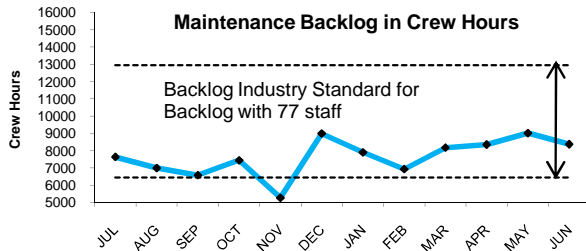
Operations staff averaged 328 hours of preventive maintenance during FY13 an average of 16% of the total PM hours for FY13, which is above the industry benchmark of 10% to 15%.

**Items Kitted Utilizing Maximo**



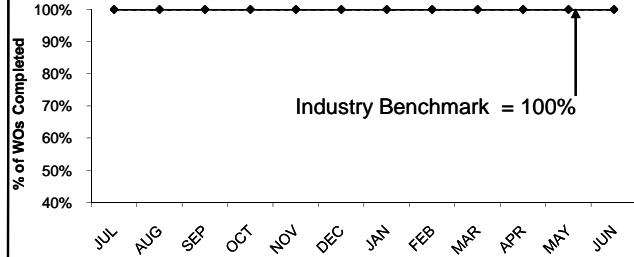
In an effort to more efficiently complete work, maintenance staff and work coordination staff have utilized the Lawson/Maximo interface to better kit stock and non stock material. The goal for FY13 is to "kit" 50 stock and non stock items total per month. An average of 66 items were kitted during FY13.

**Maintenance Backlog in Crew Hours**



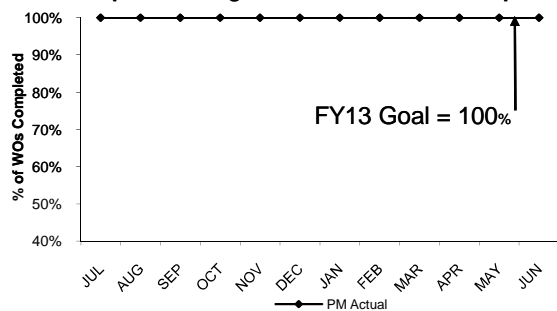
The FY13 backlog average is 7645 hours. Management's goal is to continue to control overtime and still stay within the industry benchmark of 6450 to 12,940 hours.

**Overall Preventive Maintenance**



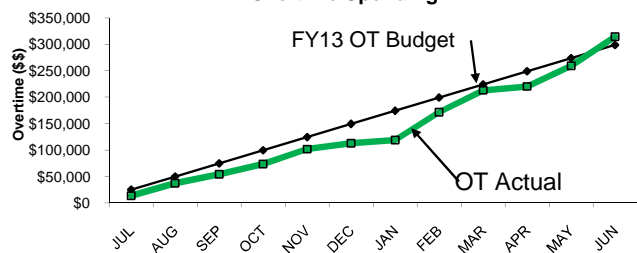
The Field Operations Department (FOD) preventive maintenance goal for FY13 is 100% of all PM work orders. Staff completed an average of 100% of all PM work orders during FY13.

**Operations Light Maintenance % PM Completion**



Wastewater Operators complete light maintenance PM's which frees up maintenance staff to perform corrective maintenance. Operations' FY13 PM goal is completion of 100% of all PM work orders assigned. Operations completed an average of 100% of PM work orders in FY13.

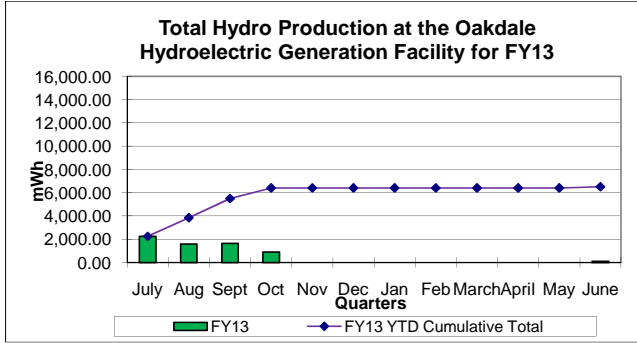
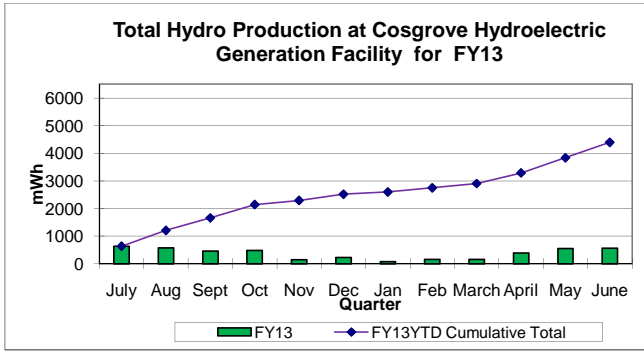
**Overtime Spending**



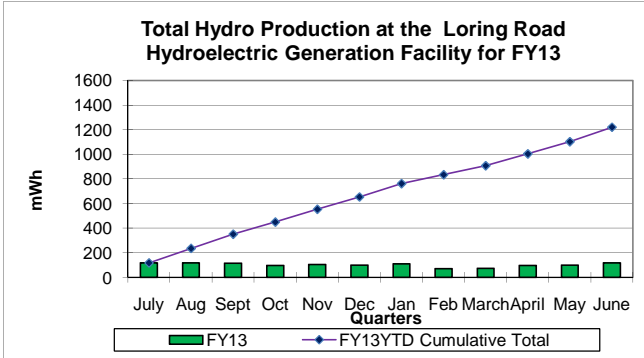
Maintenance overtime was \$31k over budget for FY13. Overtime was used for emergency repairs and wet weather coverage.

# Field Operations Hydroelectric Generation Quarterly Report

## 4th Quarter - FY13



In the 4th Quarter, the **Cosgrove Hydroelectric Station** generated a net of 1493 MWh; approximately 3% more power than was generated during the same quarter in FY12. The revenue generated at Cosgrove in the fourth quarter was \$61,647 exclusive of Renewable Energy Certificates.



In the 4th Quarter, the **Oakdale Hydroelectric Station** generated a net of 105 MWh; significantly less power than was generated during the same quarter in FY12, however, the station was shut down November through May due to planned electrical upgrades and only began energy production late in June. The net revenue generated in the fourth quarter was \$11,855. (Power is generated when water is transferred from Quabbin to Wachusett.)

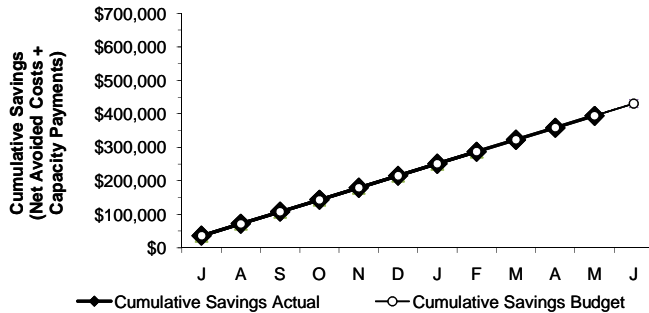
In the 4th Quarter, the **Loring Road** hydroelectric 200 kW station generated 313 MWh; approximately 3% more power than was generated during the same quarter in FY12. The net revenue generated in the April and May was \$4,566 (June's invoice hasn't been received yet). Power is generated as water conveyed from Norumbega to the Loring Road storage tanks is reduced in pressure and the energy available in this pressure reduction is captured by the new turbine. The facility operates continuously. Some power is consumed on site, with the bulk exported to the grid.

**Energy Audits and Implementation of Audit Recommendations at FOD Facilities:** Audits of 24 facilities were performed in two phases from FY10 through the first quarter of FY12. The focus of these energy audits were lighting, HVAC, pumps, and motors. Implementation of the audit recommendations began at the end of the 1st Quarter of FY11 and are on-going. Audits of an additional 6 facilities began in the second quarter of FY12 and were 90% completed in the fourth quarter of FY13.

- Installation of energy efficient interior lighting at Columbus Park, expected to save approximately 69,784 kWh and \$10,500 annually, was completed during the fourth quarter of FY13.
- Evaluation of feasibility of converting specific facilities from oil to natural gas for heating. Currently three facilities have been identified for evaluation, Chelsea Creek, Brattle Court, and the IPS.

**Demand Response Payments:** The John Carroll Water Treatment Plant, Loring Road Hydro, and Chelsea Creek, Columbus Park, and Ward Street Headworks are all enrolled in the ISO's Demand Response Program. The total net capacity payments for all four quarters of FY13 was \$50,647.

### DI Load Response Program

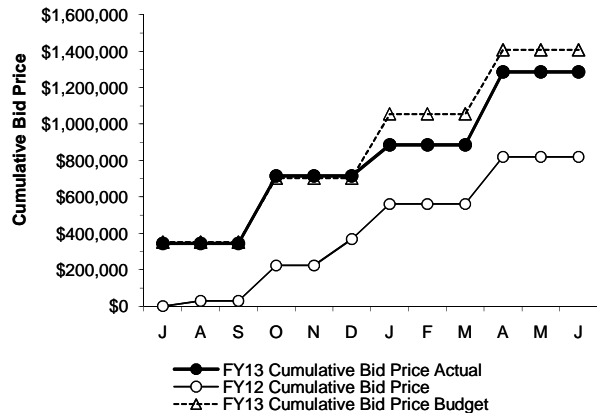


Deer Island participates in the ISO-New England Load Response Programs. By agreeing to have its Combustion Turbine Generators available to run and thus relieve the New England energy grid of Deer Island's load during times of high energy demand, MWRA receives monthly Capacity Payments from ISO-NE. "Net Avoided Cost" is the avoided NSTAR payments offset by the cost of running the CTGs. Cumulative savings are the sum of Net Avoided Costs and monthly Capacity Payments - totaling \$430,2 through May.

DITP participated in one (1) demand response audit event on June 11.

Note: Only the actual payments received are now being reported. The capacity payment for June is not reported here as the payment has not been received.

### MA Renewable Portfolio Standard

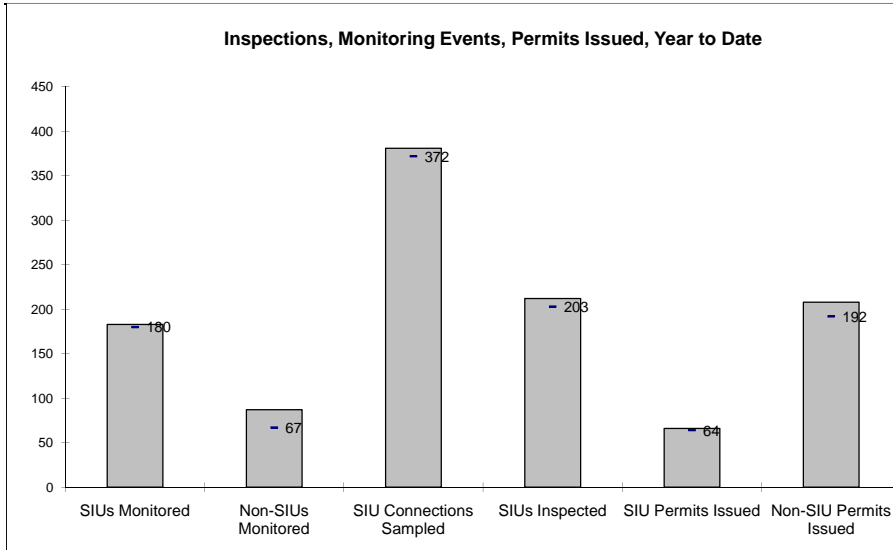


There were no Renewable Energy Certificate (REC) bids in June. The next auction is scheduled for July.

REC prices reflect the bid prices on the date that bids are accepted. Cumulative bid price reflects the total value of bids received to date. The FY13 budgeted cumulative bid estimate is \$1,407,055 while the actual bid total is \$1,286,106.

# Toxic Reduction and Control

4th Quarter - FY 2013



EPA Required SIU Monitoring Events  
for FY13: 180  
YTD: **183**

Required Non-SIU Monitoring Events  
for FY13: 67  
YTD: **87**

SIU Connections to be Sampled  
For FY13: 372  
YTD: **381**

EPA Required SIU Inspections  
for FY13: 203  
YTD: **212**

SIU Permits due to Expire  
In FY13: 64  
YTD: **66**

Non-SIU Permits due to Expire  
for FY13: 192  
YTD: **208**

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. TRAC met its EPA required inspection and monitoring goals for FY13.

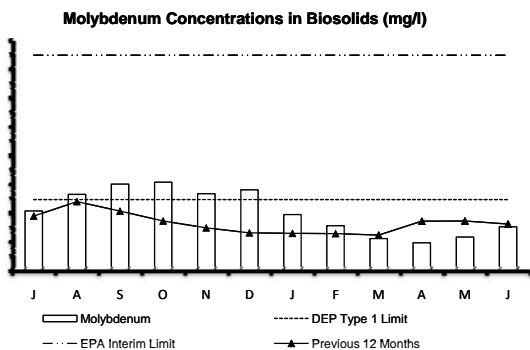
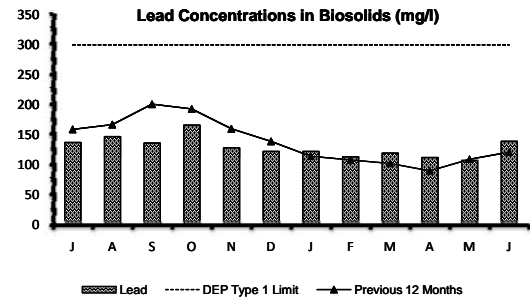
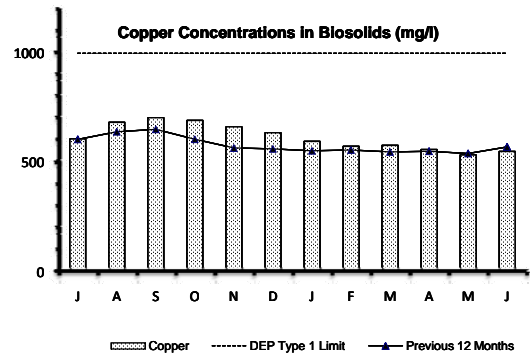
SIU and Non-SIU permits are issued with durations of two to five years, depending on the category of industry, varying the number of permits that expire in a given year.

	Number of Days to Issue a Permit						Total Permits Issued	
	0 to 120		121 to 180		181 or more		SIU	Non-SIU
Jul	2	8	0	0	0	0	2	8
Aug*	1	9	1	0	0	0	2	9
Sep	1	8	0	1	0	1	1	10
Oct	4	25	0	2	0	1	4	28
Nov	6	13	0	1	0	1	6	15
Dec	4	9	1	0	0	2	5	11
Jan	7	44	0	1	0	1	7	46
Feb	9	13	0	2	1	1	10	16
Mar	5	9	0	0	0	0	5	9
Apr	9	24	0	0	0	0	9	24
May	5	16	0	2	1	0	6	18
Jun	9	13	0	0	0	1	9	14
% YTD	94%	92%	3%	4%	3%	4%	66	208

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. As indicated above, TRAC exceeded this requirement, during the fiscal year, issuing 94% of SIU permit within 120 days. EPA also requires the remaining 10% of SIU permits to be issued within 180 days. During the fiscal year, three percent of the remaining 6% were issued in 180 days, and three percent (2 permits) took longer than 180 days while difficult permitting issues were resolved. In Q4 of FY13, twenty-three SIU and fifty-three non-SIU permits were issued within 120 days after receipt of their applications. One SIU and three non-SIU permits were issued after 121 days.

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.

In Q4 of FY13, levels of molybdenum stayed below the DEP type 1 Limit. MWRA and its contractor (NEFCO) do not distribute product in Massachusetts between July and January under its approval of suitability.





# Field Operations Highlights – Orange Notebook Bullets

## 4<sup>th</sup> Quarter – FY13

### Western Water Operations and Maintenance

- Cosgrove Intake and Power Station: Staff supported the Hydro Turbine Governor Controls Contractor while conducting index testing on both hydro turbines. The data is used to update the operating characteristic curves to ensure that the hydro turbines are operated in the most efficient manner for their current condition. Staff also conducted a turbine trip test to determine the hydraulic impact a trip with both turbines running would have on the Carroll Water Treatment Plant. The plant rode through the event successfully.
- CWTP: Staff provided emergency power connections for the back up Operations Control Center for Metro Water and Metro Wastewater Operations to be located at CWTP. Staff also supported the UV contractor during the filling of the UV reactors and their associated piping prior to disinfection and hydraulic testing that will take place next quarter.
- Hultman Aqueduct: Staff supported the contractor while replacing the 16-inch gate valve off the Hultman Aqueduct that feeds the Marlborough Pump Station. Staff supported the contractor while disinfecting and flushing the Upper Hultman. Staff tested new and upgraded valve actuators along the aqueduct to ensure they were working properly in remote SCADA operation. Staff also started fabrication and installation of new stainless steel, hamper-proof hasps for the valve vault access hatches.
- Ware Disinfection Facility: Staff, in support of the UV construction project, tested the Chicopee Valley Aqueduct isolation valves that will be required to tie in the new UV piping

### Metro Water Operations & Maintenance

- Incidents: A contractor working for the town of Belmont mistakenly hit one of the town's mains in the early morning hours of June 3. MWRA Staff mobilized at the request of the town to potentially open an emergency connection from our system if needed. By mid morning, the contractor was able to expose the damaged pipe and stop the leaking water. The emergency connection did not need to be opened, as the town was able to maintain normal service.
- Water Pipeline Program: Site work began in April at Section 89 in Woburn on the south side of the Washington Street Bridge for the planned replacement of the existing 24" globe valve and 36" butterfly valve. On May 1, staff replaced the existing 24" globe valve and 36" butterfly valve with a 36" globe valve and 36" gate valve. The installation of these valves are the final pieces of the overall head loss reduction program on Section 89. Section 89 was isolated during the overnight hours for the valve work to be done. No service impacts occurred. On May 21, another isolation occurred to install and set the control piping on the new 36" globe valve. This work was completed within a day time isolation of Section 89. During the May 21 isolation, the blow-off valve on the north side of the bridge was retrofitted. The blow-off valve on Section 89 on the south side of the bridge was retrofitted during an overnight isolation of the pipeline on June 18. The work was successfully completed, with no service impacts. This was the last scheduled isolation of Section 89 for the immediate future. Staff installed several hundred feet of 16" high density polyethylene (HDPE) pipe at the Braintree-Weymouth Pump Station in Quincy. The pipe will avoid the need to deploy temporary piping if portable pumps are required to be used at the pump station during extreme wet weather events.
- Valve Program: Valve Staff worked with the Quincy and Saugus Water departments to isolate several meters to the city and the town. Quincy continued their ongoing water main installation that required isolation and activation of Meter 334 to the city. Saugus had experienced a water main break downstream of Meter 134. The valve work performed by MWRA Staff allowed the town to install a new valve within their system for improved hydraulic control. Valve Staff flushed the emergency connection between Stoneham and Reading in the event that it was needed during the Section 89 work noted above. Staff deployed the portable water fountain at a variety of functions during the month.
- CIP and 8M Permit Support: Section 10 was isolated on April 29 to allow the Mass DOT Contractor working on the Larz Anderson Bridge Reconstruction to install a new valve (A future isolation will be required once the new piping across the bridge has been installed.). Staff refilled Section 10 on May 6 after the completion of the installation of a new valve. There was an issue with the pipe restraints that had been used and the line was re-isolated that day. The restraint system was redesigned and the pipeline was refilled on May 28. Flushing of the line occurred over several weeks, with water quality samples being taken late in the month. Reactivation is to occur in early July.
- Dig Safe Pilot Program: The Dig Safe Pilot Program continues to function successfully. Brookline, Chelsea and Saugus are included in the program that is related to MWRA water pipelines. During the fourth quarter, MWRA received 892 notices, of which 103 were of an emergency nature. Twenty-three (23) emergency mark outs and 103 regular mark outs were required from the 892 total notices.

### Wastewater Operations & Maintenance

- April 15, 2013-Marathon Bombing-Security Action: Staff maintained normal operations and were advised of communication impacts to the cellular network during this emergency situation. Staff roved facilities to ensure facility security and were kept advised of the ongoing police actions throughout this event. EOC was staffed by MWRA Security and Emergency Planning Staff.

## **Wastewater Operations & Maintenance (cont.)**

- Department of Public Health Meeting: Members of the both the MWRA Senior Staff and Operations Staff met with representatives from the Massachusetts Department of Public Health to discuss the issue of PCBs found in paint at several MWRA facilities.
- Braintree/Weymouth Relief Pump Station: Staff monitored and operated the new manual bar screens at the Braintree/Weymouth Relief Pump Station. The screens are intended to keep rags and other debris from clogging the two grinders at the facility. An SOP was developed on cleaning the screens and staff was trained. Staff provided support while testing the newly installed bypass pumping piping. The system was successful handling the flows during the testing and will be utilized as required in the future
- Cottage Farm Fuel Oil System Upgrade: This project to install new fuel oil day tanks for the diesel engines, generator and main facility boilers, fuel transfer pumps, an overflow tank, chemical building fuel storage tanks and underground storage tank selector valves to meet current code requirements and improve fuel handling and monitoring capabilities within the facility was completed on June 2013.
- Nut Island Power Switching Modifications: The project was designed through a Task Order to purchase and install lightning arrestors, transient surge suppression, and a metering system within the existing switchgear, and rewire electrical feeds to various equipment to ensure backup power. The NTP in was issued in December 2012, and as of the end of June, the contractor has successfully completed the installation and testing of all equipment.

## **TRAC**

- Enforcement: Penalty Assessment Notices: TRAC issued a Penalty Assessment Notice (PAN) to Aero Brazing Corporation in Woburn, MA for operating without a licensed pretreatment operator, falsifying information on its permit application and failing to submit a pretreatment report as required by its permit. The amount of the penalty is \$62,500.00. TRAC issued a PAN to Northeastern University. for discharge of wastewater containing excessive levels of mercury to the sanitary sewer, after the issuance of a Notice of Noncompliance and Order. The amount of the penalty is \$25, 500.00. TRAC issued twenty-four Penalty Assessment Notices (PANs) totaling \$8,775.00 to companies that failed to submit the annual Compliance Report as required by the Group Permit for Food Processing Operations (G2 Group Permit). The due date for filing the Compliance Report was July 2, 2012. The penalties ranged from \$175.00 to \$1,000.00.
- Annual Meetings for Significant Industrial Users (SIUs): On May 28, 29 and 30, TRAC held its annual meetings for Significant Industrial Users (SIUs) at the Deer Island Treatment Plant. 79 representatives from more than 40 facilities attended the single-day meetings and enjoyed tours of the plant as well as presentations about pretreatment issues.
- Quincy Salinity Project: MWRA and the City of Quincy commenced investigations for sources of sea water inflow and infiltration during astronomically high tides and low flow to the MWRA/Quincy sewer systems. On May 29, 2013, samples were collected at a total of 10 locations, segregating out lines going to Squantum Pump Station, Houghs Neck Pump Station and Quincy Pump Station.

## **Metro Equipment and Facility Maintenance**

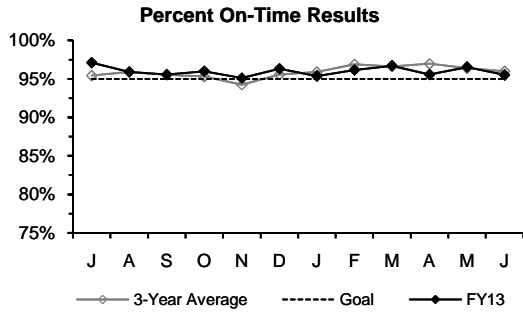
- Chelsea Facility Guard Shack and Parking Lot Lights: MWRA Electrical Staff ran conduit and wiring to provide to the emergency generator electrical panel. Both the guard shack and parking lot lighting will now be powered by the emergency generator during a power outage.
- Prison Point Wet Weather Screens: The screening rakes on Screens 2 and 4 were inspected during routine preventive maintenance. Eight rakes on each screen were determined to be worn and in need of replacement, and were replaced in kind.
- Lexington Pump Station: The surge valve for Pump #3 was replaced with a newer more reliable valve by MWRA staff.
- All Headworks: MWRA conducted ultra sonic thickness testing for the grit pipe at Chelsea, Columbus Park and Ward Street Headworks. Results were documented and any pipe out of tolerance will be replaced.

## **Operations Support**

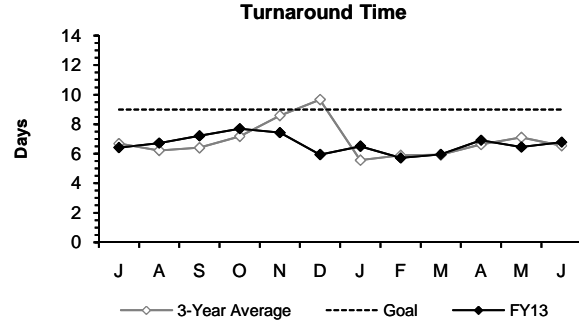
- Development of ERP Training Programs: Staff continued implementation of the Community Emergency Response Training Program as required by DEP. This training is being provided by MWRA expert staff and is being delivered to local community and MWRA staff. Through the end of June, the two-day 10-hour modular course has been repeated four times and is scheduled to be repeated again at least once more in September 2013 to accommodate the expected community participation.
- Chicopee Valley Aqueduct Leak: Staff has been investigating a leak near the Swift River crossing of the CVA. In April, an unsuccessful attempt was made to do a repair by internal entry and further contingency plans were developed in the event of the leak worsening. In May, staff worked with Springfield Water & Sewer Commission to assess the feasibility of a backup supply and began procuring parts for an emergency pumping connection. Design of a long-term repair is underway.

## Laboratory Services

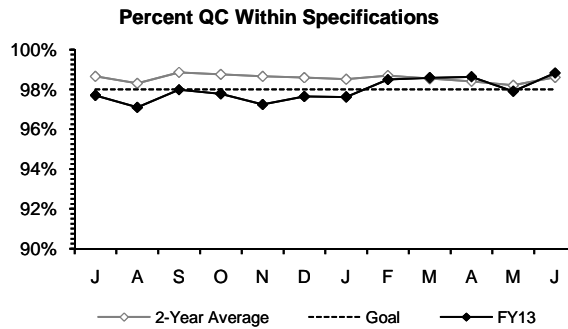
4th Quarter - FY13



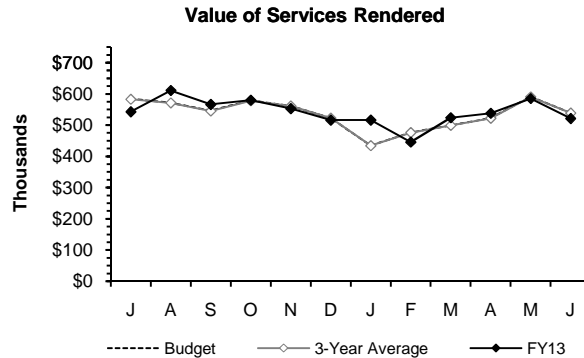
The Percent On-Time measurement exceeded the 95% goal.



Turnaround Time was faster than the 9-day goal.



Percent of QC tests meeting specifications was above the 98% in-house goal at 98.8%



Value of Services Rendered was slightly below the seasonally adjusted budget projection, but above the fiscal year to date projection.

### Highlights:

**Quality Assurance:** Passed 98.8% of the annual Proficiency Test (PT) parameters on the first try. That's 416 out of 421 right answers for chemistry and microbiology parameters. Annual PT tests are required for DEP certification and also for NPDES permits (DMR-QA). Any results that are not acceptable need to be successfully repeated by the end of the calendar year.

**Compliance Audit:** The in-house quarterly compliance audit was on sample custody. Documenting proper custody on samples is important for establishing sample integrity and the validity of lab and field results. External and internal custody documentation at all five lab locations was found to be compliant with established procedures.

**DITP:** Due to our consistent testing procedures, our results were used to help DITP resolve two plumbing issues in the digesters. Collected QC samples during Thermal Power Plan fuel oil deliveries.

**ENQUAD:** DCR Boston Harbor beach testing began. EPA removed the requirement to test fat particles from net tows at the outfall area based on two years of results.

**TRAC:** Worked with TRAC to identify a suitable field preservation procedure for cyanide samples from a difficult industry type. A cyanide field spike quality control sample demonstrated when sample preservation was sufficient to obtain suitable results.

**Water Quality Assurance:** Tested rush Quabbin Reservoir samples in response to a security incident. Participated in developing and presenting the biennial drinking water sampler training program.

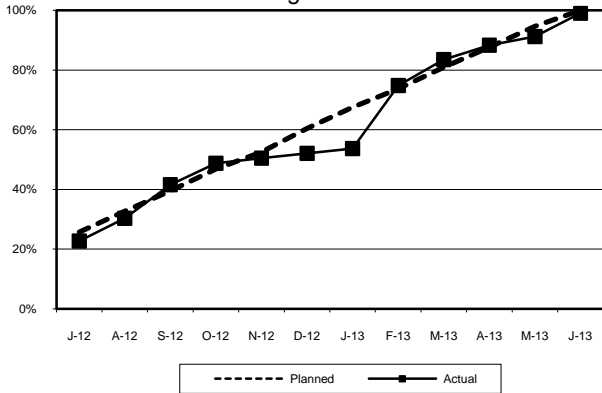
# CONSTRUCTION PROGRAMS

# Projects In Construction

## 4<sup>th</sup> Quarter, FY13

(Progress Percentages based on Construction Expenditures)

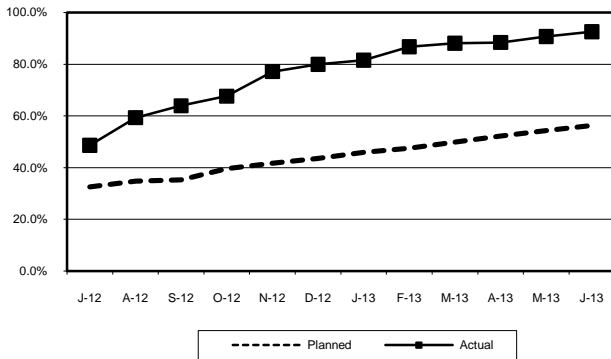
**Hultman Aqueduct Interconnection  
CP-6B Progress – June 2013**



*Project Summary:* This project includes the replacement and rehabilitation of valves and piping in the Shaft 4 Headhouse, adjoining aqueduct chamber and the sections of the Hultman Aqueduct located in Marlborough and Southborough.

*Status and Issues:* As of June, the Contractor completed the start-up and testing of the vertical turbine wet well sump pump; installed grating on mid-level inside Shaft 4 and reinstalled the precast concrete roof planks over the Weston Aqueduct Transfer Chamber. This contract has been declared substantially complete.

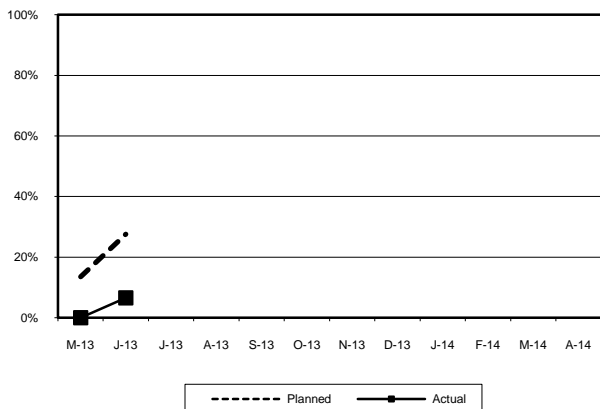
**UV Disinfection Facilities CWTP  
Progress – June 2013**



*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 June, the Contractor completed all work related to the demolition and modification of the 120" stainless steel pipe with concrete transition piece connection to the influent flange at the A&B sides. A hydrostatic pressure test was completed on the A side, 120"x48" line. The A side has been chlorinated, disinfected and samples were sent for laboratory analysis.

**Watertown Section Rehabilitation  
Progress - June 2013**



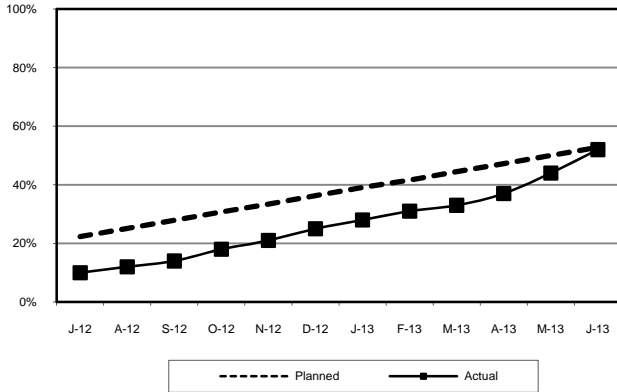
*Project Summary:* Watertown Section Rehabilitation involves the sliplining of a 5,300 foot-long 30-inch steel pipe with 24-inch High Density Polyethylene (HDPE) pipe and the installation of 400 feet of 24-inch and 30-inch diameter HDPE pipe by open cut.

*Status and Issues:* As of June, the Contractor completed 10 access pits, cleaned and video taped the 30" steel main from Sta. 1+46 to 21+25. In addition, approximately 1,800 LF of 24" HDPE has been fused together in various lengths in the Church Lot staging area.

## Projects In Construction 4<sup>th</sup> Quarter, FY13

(Progress Percentages based on Construction Expenditures)

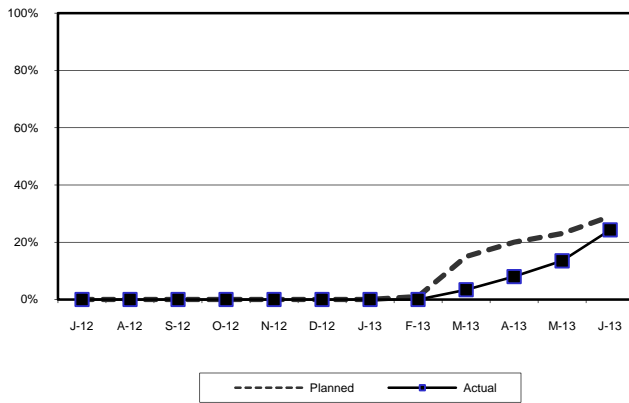
**Spot Pond Water Storage Facility  
Progress – June 2013**



*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:* Through June, the Contractor continued with the placement of the concrete base slab, wall sections and roof decks in Tank #2. They began placing concrete base slab cells and wall sections in Tank #1. In addition, they continued with the installation of ductile iron pipe for concrete encasement below tank #2 and the pump station.

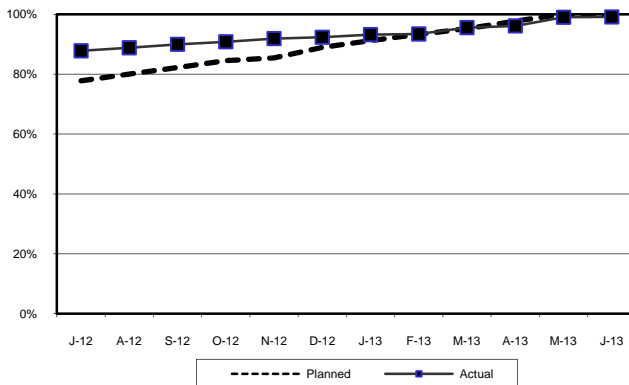
**Quabbin UV Disinfection  
Progress – June 2013**



*Project Summary:* This project will improve the quality of the drinking water delivered to the CVA communities serviced by the MWRA. It involves the addition of UV disinfection at the Quabbin Disinfection Facility to meet the EPA's regulation for a second means of disinfection for unfiltered water systems.

*Status and Issues:* Through June, the Contractor formed, poured and then removed the forms from the Vault 1B roof slab. They formed and placed concrete for the knock out panel and installed a 48" flanged pipe in the UV building basement. In addition, they installed the raw water pipe line from the UV building to Vault 1B.

**Hultman Aqueduct Interconnections Project  
Progress - June 2013**



*Project Summary:* This project includes rehabilitation construction to the Hultman Aqueduct to provide redundancy to the MetroWest Tunnel from Southborough to Weston by adding five new MetroWest/Hultman interconnections, two surge relief structures, 13.5 miles of internal rehabilitation and 15 miles of external access work.

*Status and Issues:* As of June, the Contractor reached substantial completion. They are continuing work on punch list items, erosion controls, pavement removal and restoration of the old staging area. In addition, they loamed and seeded areas at Loring Road and River Road.

# CSO CONTROL PROGRAM

4th Quarter - FY13

In April 2013, the Town of Brookline completed the Brookline Sewer Separation project and the City of Cambridge completed the CAM004 Stormwater Outfall and Wetland Basin project, bringing the total number of completed projects to 31 of the 35 projects in MWRA's Long-Term CSO Control Plan. Two CSO projects are in construction: Reserved Channel Sewer Separation by BWSC and CAM004 Sewer Separation by the City of Cambridge. The remaining two projects, both related to Alewife Brook, are in design by MWRA. The FY14 CIP budget for the CSO Program of \$888,112,279 is \$25,971,804 (3%) more than the FY13 CIP budget of \$862,140,475, primarily due to increased cost for the CAM004 Sewer Separation project.

Project	Court Milestones in Schedule Seven (Shaded milestones are complete.)			Status as of June 30, 2013																												
	Commence Design	Commence Construction	Complete Construction																													
Brookline Sewer Separation	Nov 06	Nov 08	Jul 13	<p>The Brookline Sewer separation project comprises two Brookline construction contracts and one MWRA construction contract, at a total cost of \$26.0 million.</p> <p>The Town of Brookline completed construction of the Brookline Sewer Separation project on April 26, 2013, ahead of the July 2013 milestone in Schedule Seven. All CSO related elements of the project are functioning as intended for full environmental benefit. Brookline has removed large volumes of stormwater from its and the Authority's sewer systems, and the separated stormwater now drains to the Charles River Basin through MWRA's CSO Outfall MWR010. The achieved separation removes the burden of the stormwater flows on the sewage transport systems, reduces flows to MWRA's Ward Street Headworks, and is predicted to lower CSO discharges to the Charles River at Outfall MWR010, at the Cottage Farm CSO Facility, and potentially at other Charles River CSO outfalls.</p> <p>MWRA prepared Outfall MWR010 for handling the separate stormwater flows by completing the \$1.1 million outfall cleaning contract in August 2012.</p>																												
Reserved Channel Sewer Separation	Jul 06	May 09	Dec 15	<p>BWSC continues to make progress with the nine planned contracts for the \$64.8 million Reserved Channel Sewer Separation project.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Contract 1</td> <td style="width: 45%;">CSO outfall rehab</td> <td style="width: 15%;">\$ 4.2 M</td> <td style="width: 25%;">Complete</td> </tr> <tr> <td>Contract 2</td> <td>Sewer separation</td> <td>\$ 5.9 M</td> <td>Complete</td> </tr> <tr> <td>Contract 3A</td> <td>Sewer separation</td> <td>\$10.2 M</td> <td>Complete</td> </tr> <tr> <td>Contract 3B</td> <td>Sewer separation</td> <td>\$ 9.6 M</td> <td>60% complete</td> </tr> <tr> <td>Contract 4</td> <td>Sewer separation</td> <td>\$ 7.4 M</td> <td>40% complete</td> </tr> <tr> <td>Contract 7</td> <td>Pavement restoration</td> <td>\$ 1.1 M</td> <td>Complete</td> </tr> <tr> <td>Contract 8</td> <td>Pavement restoration</td> <td>\$ 5.4 M</td> <td>Ongoing</td> </tr> </table> <p>BWSC expects to award Contract 5 (existing sewer cleaning and lining – not MWRA-eligible) and Contract 6 (downspout disconnections) this year, and complete all work for the Reserved Channel sewer separation project by December 2015, in compliance with Schedule Seven.</p>	Contract 1	CSO outfall rehab	\$ 4.2 M	Complete	Contract 2	Sewer separation	\$ 5.9 M	Complete	Contract 3A	Sewer separation	\$10.2 M	Complete	Contract 3B	Sewer separation	\$ 9.6 M	60% complete	Contract 4	Sewer separation	\$ 7.4 M	40% complete	Contract 7	Pavement restoration	\$ 1.1 M	Complete	Contract 8	Pavement restoration	\$ 5.4 M	Ongoing
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## South Dorchester Bay Sewer Separation Post-Construction Inflow Removal , Status as of June 30, 2013

BWSC continues to investigate alternatives for removing additional stormwater inflow from its Dorchester Interceptor or otherwise relieving hydraulic conditions in the interceptor during extreme storms following the closing of its CSO regulators with completion of the South Dorchester Bay sewer separation project in 2007. BWSC recently issued the notice to proceed for 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 FY14 CIP includes a total of \$5.4 million for the inflow removal effort, of which approximately \$2.7 million is allocated to awarded design and construction contracts.

Project		Court Milestones in Schedule Seven (Shaded milestones are complete.)			Status as of June 30, 2013									
		Commence Design	Commence Construction	Complete Construction										
Cambridge/ Alewife Brook Sewer Separation	CAM004 Outfall and Wetland Basin		Apr 11	Apr 13	The City of Cambridge attained substantial completion of the CAM004 Stormwater Outfall and Wetland Basin project, including the 4-foot by 8-foot box culvert storm drain and all functional components of the wetland basin, on April 25, 2013, in compliance with Schedule Seven. MWRA provided \$13.9 million to Cambridge for planning, design and construction, including MWRA's \$6.2 million share of the construction cost. Cambridge's share of the construction cost was \$12.5 million, including the costs of the on-site amenities required by the Department of Conservation and Recreation (DCR) that will support recreational and educational opportunities in the Alewife Brook Reservation. The storm drain conduit will convey the stormwater now being separated from the Cambridge sewer system to the wetland basin, which in turn will attenuate the peak stormwater flows to avoid increasing flood elevations in the Little River and Alewife Brook. The wetland basin will also provide a level of stormwater treatment. Work related to the recreational and educational amenities required by the DCR construction permit (not eligible for MWRA funding) will continue through September 2013.									
	CAM004 Sewer Separation	Jan 97	Jul 98	Dec 15	<p>Cambridge completed four initial construction contracts for this project more than a decade ago and has planned three additional contracts (contracts 8A, 8B and 9) to complete the project.</p> <table border="1"> <tr> <td>Contract 8A</td> <td>Huron Ave. corridor, west</td> <td>30% Complete</td> </tr> <tr> <td>Contract 8B</td> <td>Huron Ave. corridor, east</td> <td>NTP Aug 13</td> </tr> <tr> <td>Contract 9</td> <td>Concord Ave. corridor</td> <td>60% Design</td> </tr> </table> <p>In June, Cambridge informed MWRA that its Engineer's Estimate and the low bid for Contract 8B exceeded the award amount in the MOU and Financial Assistance Agreement (FAA) due to additional quantities and higher costs of certain materials and work, which would also affect the cost of Contract 9. MWRA's Board approved a \$2.1 million increase to the MOU/FAA award amount in July to cover the higher cost of Contract 8B. Staff plan to seek Board approval to add the construction related costs for Contract 9 to the MOU/FAA later this year, once Cambridge provides the 100% design submission and associated cost estimate. This future amendment is expected to increase the award amount by up to \$13 million, bringing the total MWRA cost share for this and all other Cambridge implemented CSO projects to approximately \$92 million.</p>	Contract 8A	Huron Ave. corridor, west	30% Complete	Contract 8B	Huron Ave. corridor, east	NTP Aug 13	Contract 9	Concord Ave. corridor	60% Design
			Contract 8A			Huron Ave. corridor, west	30% Complete							
	Contract 8B	Huron Ave. corridor, east	NTP Aug 13											
Contract 9	Concord Ave. corridor	60% Design												
	Sep 12													
MWR003 Gate and Rindge Ave. Siphon	Apr 12	Aug 14	Oct 15	MWRA advertised construction contract 6953 for the improvements at Outfall SOM01A in July and expects to award the contract and issue the notice to proceed in August, ahead of the September 2013 milestone in Schedule Seven. The Engineer's Estimate for Contract 6953 is \$283,000. MWRA received the 50% design submission for the improvements at Outfall MWR003 and Rindge Ave. Siphon in July and expects to award the contract and issue the notice to proceed with construction by August 2014, in compliance with Schedule Seven.										
SOM01A Relief and Floatables Control		Sep 13	Jun 14											



## CIP Expenditures

4<sup>th</sup> Quarter, FY13

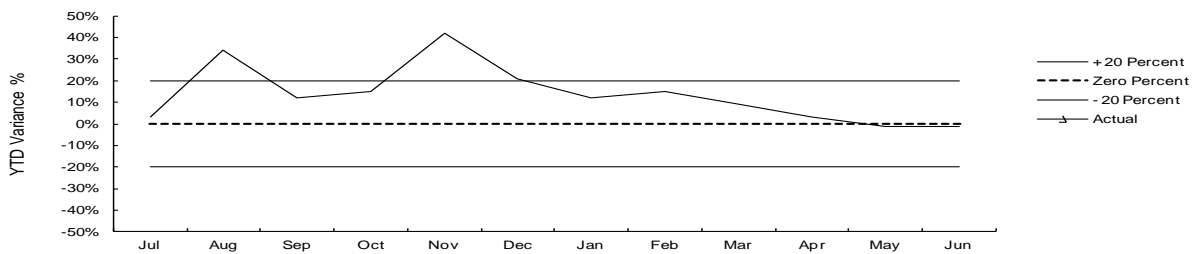
The Year-To-Date variances are highlighted below:

FY13 Capital Improvement Program Expenditure Variances through June by Program (\$000)				
Program	FY13 Budget Through June	FY13 Actual Through June	Variance Amount	Variance Percent
Wastewater	71,354	74,205	2,851	4%
Waterworks	73,489	75,110	1,621	2%
Business and Operations Support	11,094	5,208	(5,887)	-53%
<b>Total</b>	<b>\$155,937</b>	<b>\$154,522</b>	<b>(\$1,415)</b>	<b>-1%</b>

Overspending within Wastewater is primarily due to greater than anticipated requests for community grants and loans for the I/I program, greater than anticipated progress for the Reserved Channel Sewer Separation, and award greater than anticipated and progress for the Cambridge Sewer Separation project. This was partially offset by delays of the Electrical Upgrade Construction 4, Scum Skimmer Replacements, Miscellaneous Variable Frequency Drive Replacements, Power System Improvements, Prison Point Pump & Gearbox Rebuilds, HVAC Equipment Replacement Design, Thermal Power Plant Boiler Control Replacement, Fire Alarm Replacement Design, Sodium Hypochlorite Pipe Replacement Design, Expansion Joint Repairs Construction 2, and lower than anticipated easement settlement for the Upper Neponset Valley Relief Sewer. Overspending in Waterworks is due to greater than anticipated community requests for loans and repayments for Local Water Pipeline Assistance Program, greater than anticipated contractor progress for the Upper Hultman Rehabilitation (CP-6B), Carroll Plant Ultraviolet Disinfection Construction, and Oakdale Phase 1A Electrical contracts. This was partially offset by project delays for the Spot Pond Storage Facility Design/Build contract, delay in Gillis Pump Station Improvements, Carroll Water Treatment Plant Existing Facility Modifications CP-7, lower award and delay for the Sudbury Aqueduct Massachusetts Environmental Policy Act Review, timing of Watershed Land Purchases, and delay in award of the Weston Aqueduct Supply Mains 3 Design/Construction Administration/Resident Inspection contract.

### CIP Expenditure Variance

*Total FY13 CIP Budget of \$164,912,000.*



### 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 07/01/2013	\$130 million
Unused capacity under the debt cap:	\$602 million
Estimated date for exhausting construction fund without new borrowing:	May-14
Estimated date for debt cap increase to support new borrowing:	Not anticipated at this time
Commercial paper outstanding:	\$144 million
Commercial paper capacity:	\$350 million
Budgeted FY13 capital spending*:	\$135 million

\* Cash based spending is discounted for construction retainage.

# DRINKING WATER QUALITY AND SUPPLY

## Source Water – Microbial Results and UV Absorbance

4th Quarter – FY13

### 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 Ware Disinfection Facility (WDF) raw water tap before being treated and entering the CVA system.

All samples collected during the 4th Quarter were below 20 cfu/100ml. **For the current six-month period, 0.6% 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.

Fecal coliform levels tend to increase during the winter because, when water bodies near Wachusett ice over, waterfowl seek open water. Many roost at Wachusett, which tends to freeze later in the year than smaller ponds nearby. DCR has an active bird harassment program to move the birds away from the intake area.

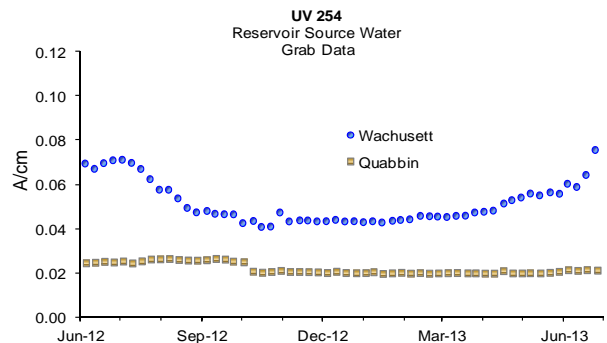
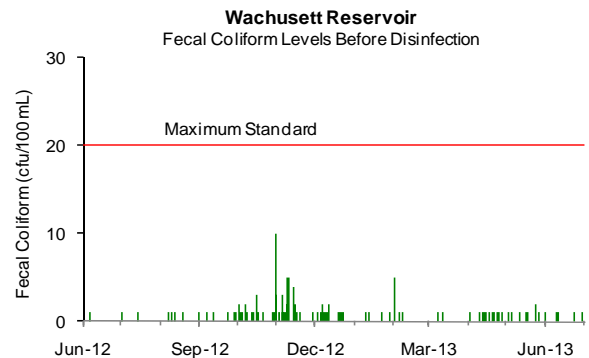
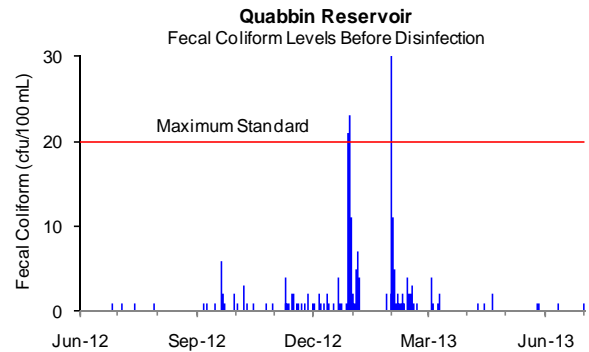
All samples collected during the 4th Quarter were below 20 cfu/100mL. **For the current six-month period, 0% of the samples exceeded a count of 20 cfu/100mL.**

### 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 0.02 A/cm.

Wachusett Reservoir UV-254 levels are currently around 0.08 A/cm.



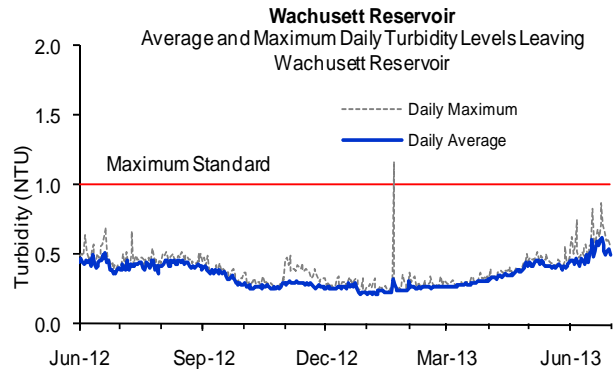
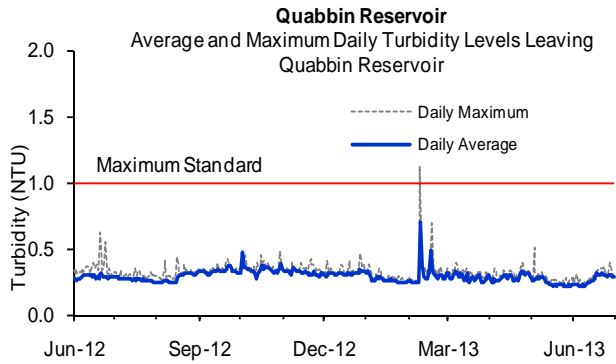
## Source Water – Turbidity 4th Quarter – FY13

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 chlorine demand or may protect bacteria from the disinfectant effects of chlorine, 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 Ware Disinfection Facility (WDF) before chlorination. Turbidity of Wachusett Reservoir is monitored continuously at the Carroll Water Treatment Plant before ozonation.

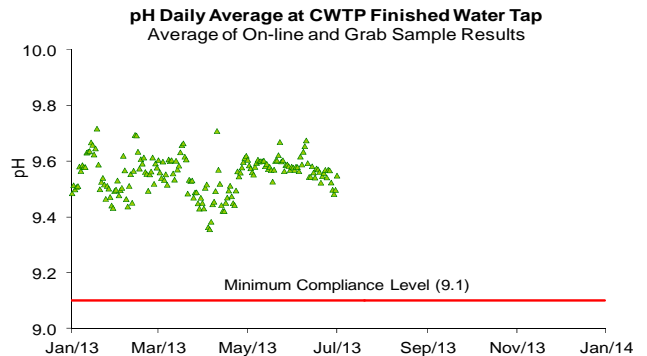
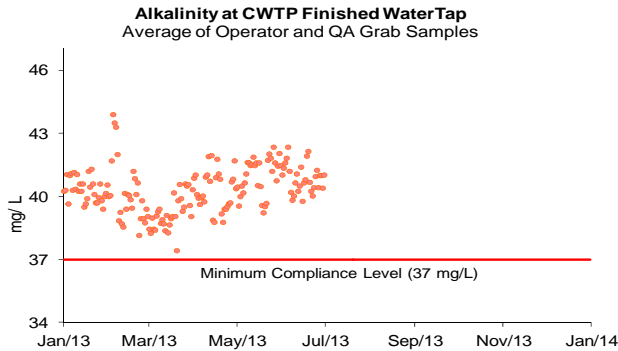
Maximum turbidity results at Quabbin and Wachusett were within DEP standards for the quarter



## 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 June 12 and 13, 2013. Distribution system sample pH ranged from 9.4 to 9.6 and alkalinity ranged from 40 to 41 mg/L. No sample results were below DEP limits for this quarter.



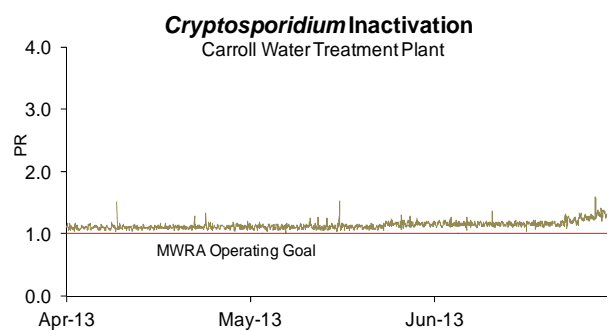
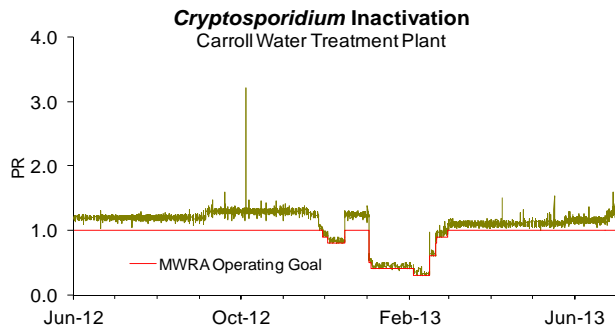
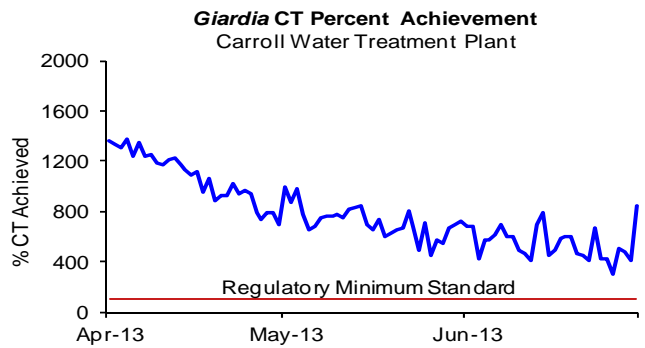
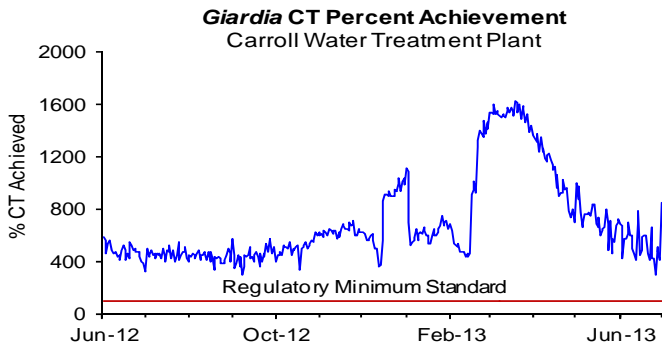
## Treated Water – Disinfection Effectiveness

4th Quarter – FY13

At the Carroll Water Treatment Plant (CWTP), MWRA reports on both regulatory required 99.9% inactivation for *Giardia* (reported as “CT”), and its voluntary operating goal of 99% inactivation for *Cryptosporidium*. MWRA calculates hourly CT inactivation rates and reports daily CT inactivation rates at maximum flow, as specified by EPA regulations. The concentration (C) of the disinfectant over time (T) yields a measure of the effectiveness of disinfection. CT achievement for *Giardia* assures CT achievement for viruses, which have a lower CT requirement. The required CT for ozonated water varies with water temperature. Compliance with the *Giardia* standard is expressed as percent of required CT achieved; 100% is the minimum allowed. To avoid confusion with regulatory requirements, inactivation of *Cryptosporidium* is reported as Performance Ratio (PR); a PR of 1 demonstrates inactivation of 99% of *Cryptosporidium* based on site-specific data.

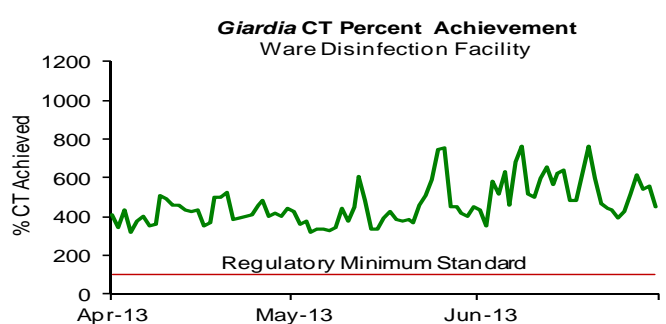
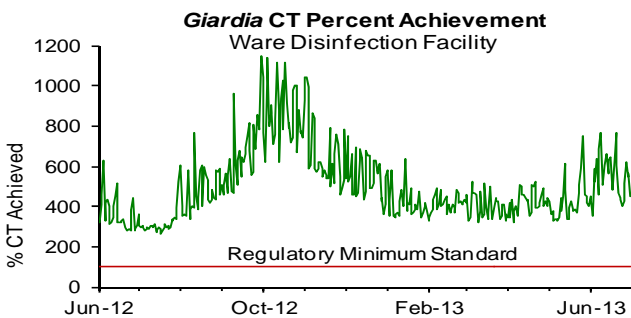
### Wachusett Reservoir – MetroWest/Metro Boston Supply:

- 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.
- MWRA’s operating goal to meet a *Cryptosporidium* PR of 1 was met at all times the plant was providing water into the distribution system for the quarter.
- Ozone dose at the CWTP varied between 2.1 to 3.1 mg/L for the quarter.



### Quabbin Reservoir at Ware Disinfection Facility (CVA Supply):

CT was maintained above 100% at all times the plant was providing water into the distribution system for the quarter, as well as every day for the last fiscal year. The chlorine dose at Ware Disinfection Facility (WDF) is adjusted in order to achieve MWRA’s seasonal target of  $\geq 0.75$  mg/L (November 01 – May 31) and  $\geq 1.0$  mg/L (June 1– October 31) at Ludlow Monitoring Station. The chlorine dose at WDF varied between 1.4 to 1.7 mg/L for the quarter.



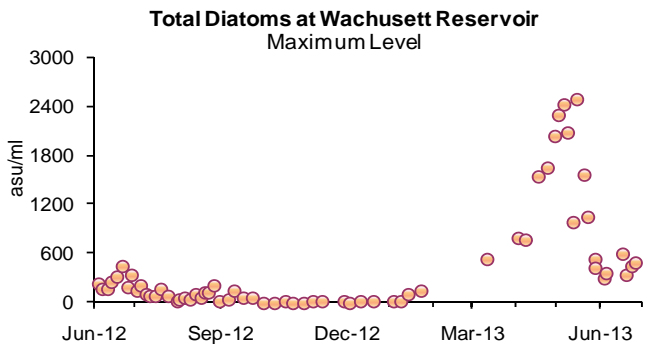
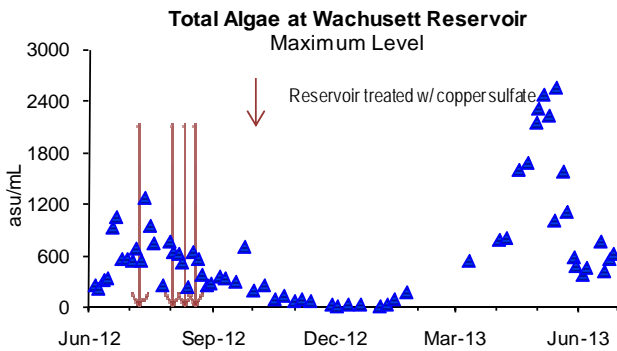
## Algae in the Source Water

### 4th Quarter – FY13

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 algicide. 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 4th Quarter, there were three clogged filter complaints which may be related to algae reported from local water departments.

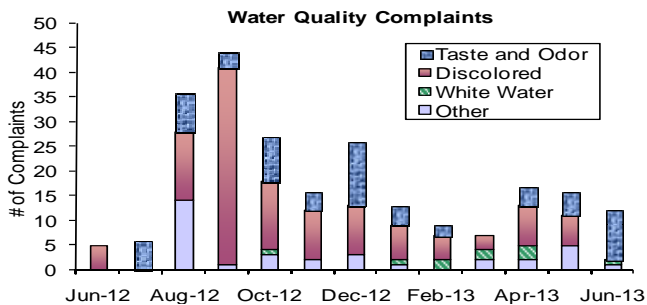


## Drinking Water Quality Customer Complaints: Taste, Odor, or Appearance

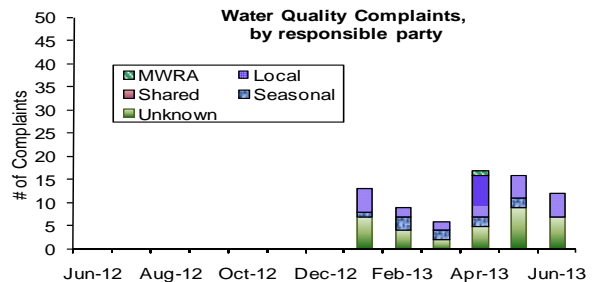
MWRA collects information on water quality complaints that typically fall into four categories: 1.) discoloration due to MWRA or local pipeline work; 2.) taste and odor due to algae blooms in reservoirs or chlorine in the water; 3.) white water caused by changes in pressure or temperature that traps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

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

Communities reported 45 complaints during the quarter. A comparison cannot be made to the 4th Quarter of FY12 due an interruption in data collection. Of these complaints, 14 were for “discolored water”, 19 were for “taste and odor”, 4 were for “white water”, and 8 were for “other”. Of these complaints, 19 were local community issues, 1 was an MWRA issue, 4 were seasonal in nature, and 21 were unknown.



\* Outgoing calls to communities were interrupted during a portion of FY12 and resumed during Q1 FY13, thus, some results are not directly comparable with historical data.



\*\*Reporting by Responsible Party trending initiated January 2013.

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

### 4th Quarter – FY13

While all communities collect bacteria samples for the Total Coliform Rule (TCR), 42 systems (including Deer Island and Westborough State Hospital) use MWRA's Laboratory for TCR compliance testing. These systems collect samples for bacteriological analysis and measure water temperature and chlorine residual at the time of collection.

There are 139 sampling locations for which MWRA is required to report TCR results. These locations include a subset of the community TCR locations, as well as sites along MWRA's transmission system, water storage tanks, and pumping stations.

The TCR requires that no more than 5% of all samples may be total coliform positive in a month (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 that is almost always present in fecal material and whose presence 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 4th Quarter, two of the 5,785 community samples (0.03% system-wide) submitted to MWRA labs for analysis tested positive for coliform (Boston, Chelsea – in June). Of the 1,935 MWRA samples taken, two tested positive (0.10%) for total coliform. No sample tested positive for *E.coli*. Only 2.5% of 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)
<i>MWRA Sampling Locations (d)</i>	1935	2 (0.10%)	0	No	0.02	1.87
ARLINGTON	170	0 (0%)	0		0.01	1.41
BELMONT	104	0 (0%)	0		0.74	1.89
BOSTON	767	1 (0.13%)	0	No	0.57	1.95
BROOKLINE	221	0 (0%)	0		0.06	1.95
CHELSEA	172	1 (0.58%)	0	No	1.20	1.85
DEER ISLAND	52	0 (0%)	0		1.60	1.94
EVERETT	142	0 (0%)	0		0.01	1.05
FRAMINGHAM	216	0 (0%)	0		0.26	1.98
LEXINGTON	111	0 (0%)	0		1.56	2.02
LYNNFIELD	18	0 (0%)	0		0.60	1.27
MALDEN	234	0 (0%)	0		1.42	1.55
MARBLEHEAD	72	0 (0%)	0		0.14	1.79
MEDFORD	204	0 (0%)	0		1.16	1.82
MELROSE	117	0 (0%)	0		0.02	1.09
MILTON	96	0 (0%)	0		1.20	1.76
NAHANT	30	0 (0%)	0		0.01	1.38
NEWTON	276	0 (0%)	0		0.60	1.89
NORWOOD	101	0 (0%)	0		0.02	1.51
QUINCY	299	0 (0%)	0		0.13	1.68
READING	130	0 (0%)	0		0.40	1.65
REVERE	195	0 (0%)	0		1.02	1.81
SAUGUS	104	0 (0%)	0		1.24	1.78
SOMERVILLE	273	0 (0%)	0		1.06	1.83
SOUTHBOROUGH	30	0 (0%)	0		0.33	1.98
STONEHAM	91	0 (0%)	0		1.12	1.93
SWAMPSCOTT	53	0 (0%)	0		0.75	1.75
WALTHAM	216	0 (0%)	0		1.01	1.87
WATERTOWN	130	0 (0%)	0		1.13	1.97
WESTBORO HOSPITAL	15	0 (0%)	0		0.01	0.14
WESTON	48	0 (0%)	0		1.09	2.01
WINTHROP	72	0 (0%)	0		0.05	1.30
<i>Total: Fully Served</i>	<i>4759</i>	<i>2 (0.04%)</i>				
BEDFORD	56	0 (0%)	0		0.08	1.03
HANSCOM AFB	27	0 (0%)	0		0.08	1.41
MARLBORO	126	0 (0%)	0		1.48	2.05
NEEDHAM	123	0 (0%)	0		0.08	0.75
NORTHBORO	48	0 (0%)	0		0.65	1.81
WAKEFIELD	143	0 (0%)	0		0.33	1.33
WELLESLEY	108	0 (0%)	0		0.04	0.78
WILMINGTON	87	0 (0%)	0		0.18	1.82
WINCHESTER	65	0 (0%)	0		0.20	1.22
WOBURN	195	0 (0%)	0		0.02	0.87
SOUTH HADLEY FD1 (c)	48	0 (0%)	0		0.15	0.58
<i>Total: CVA &amp; Partially Served</i>	<i>1026</i>	<i>0 (0%)</i>				
<b><i>Total: Community Samples</i></b>	<b><i>5785</i></b>	<b><i>2 (0.03%)</i></b>				

(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

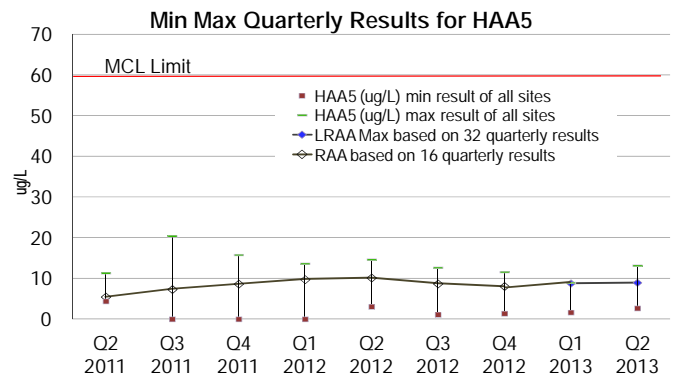
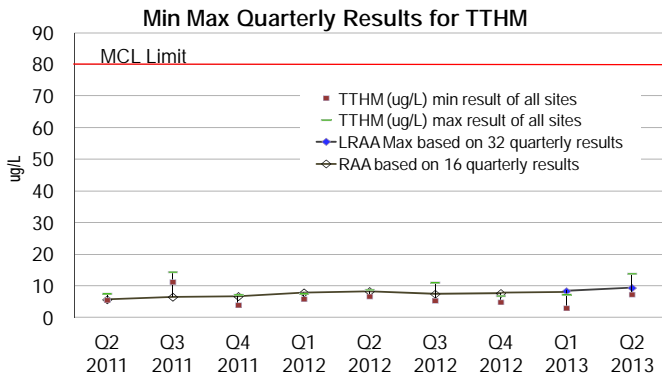
### 4th Quarter – FY13

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 a locational running annual average (LRAA). Sampling locations have increased from 16 to 32 each quarter. Data prior to May 2013 reports the running annual average, and after May 2013, the maximum LRAA is reported (in addition to min and max values). Partially served communities are responsible for their own compliance monitoring and reporting, and must be contacted directly for their results. For the CVA communities, Stage 2 DBP reporting for the CVA system begins in October 2013.

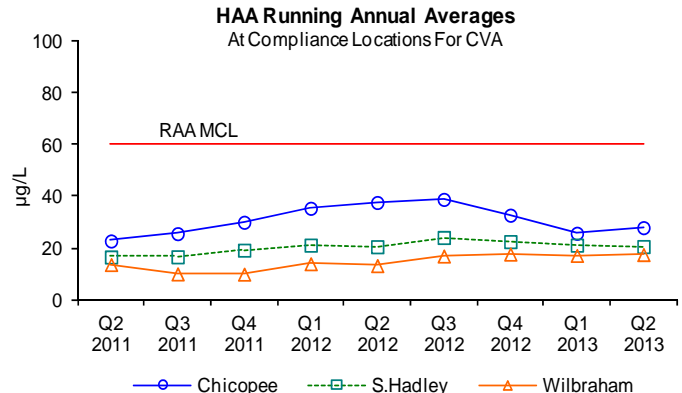
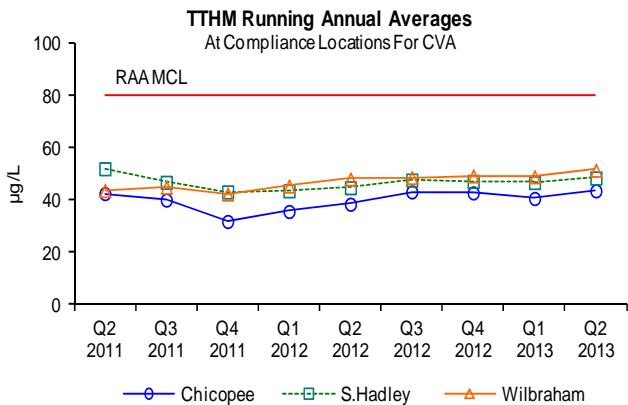
Bromate is tested monthly per DEP requirements for water systems that treat with ozone. Bromide in the raw water may be converted into bromate following ozonation. EPA's RAA MCL standard for bromate is 10 ug/L.

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 = 9.4 ug/L; HAA5s = 8.9 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

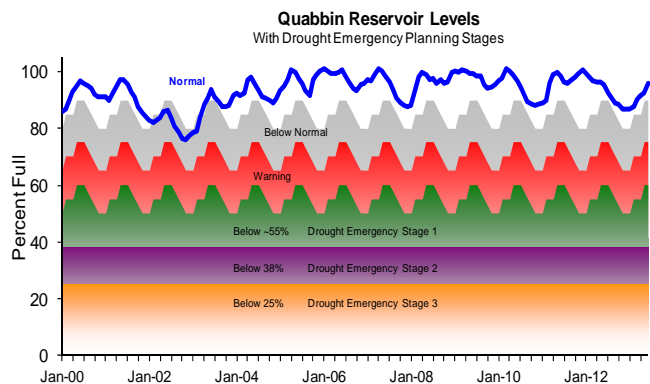
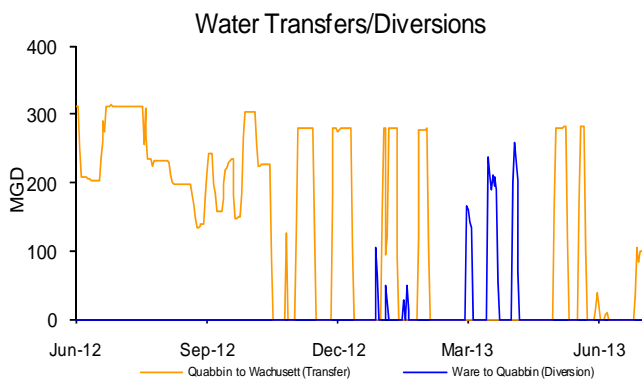
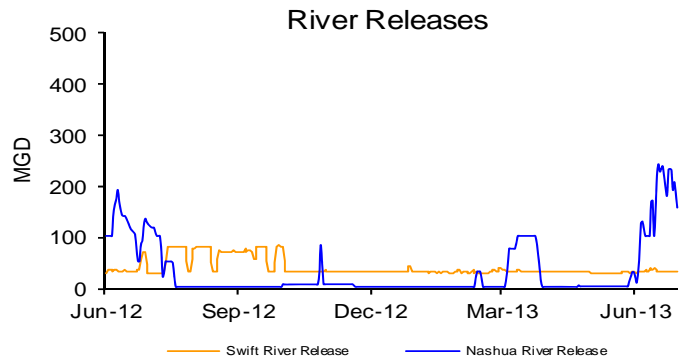
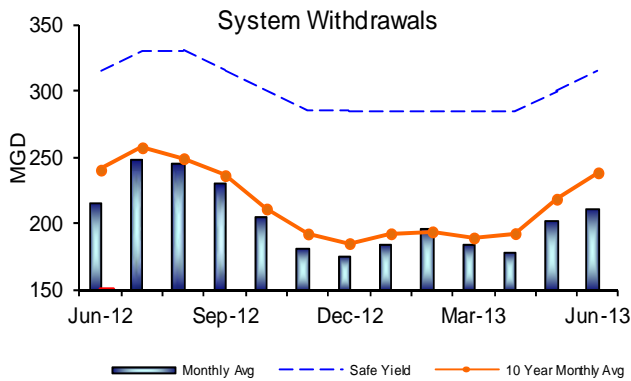
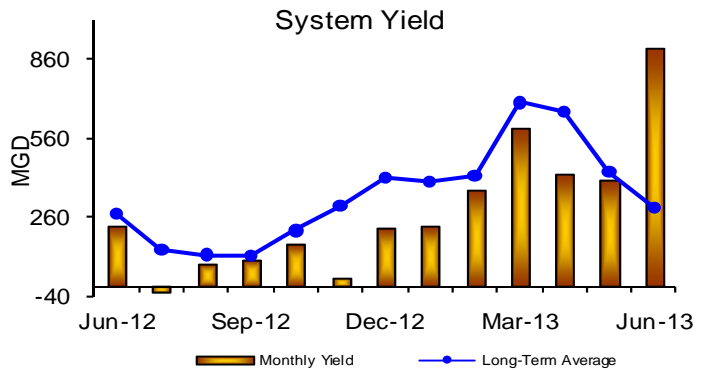
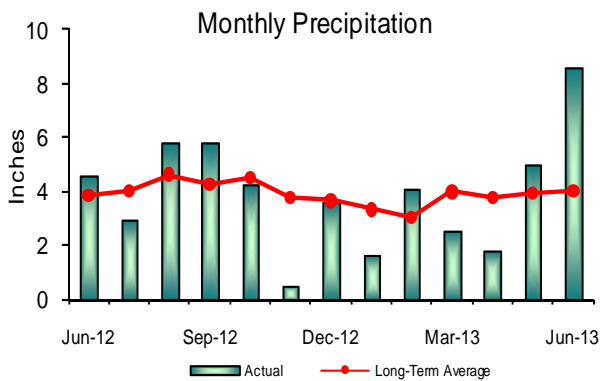
4th Quarter – FY13

## 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 above the normal operating range for this period of the year. The reservoir was at 96.1% of capacity as of June 30, 2013; a 5.8% increase for the quarter, which represents an increase of 24.0 billion gallons of storage. Yield and precipitation for the quarter were above their respective long term quarterly averages. Monthly withdrawals continue to be below its long-term average.

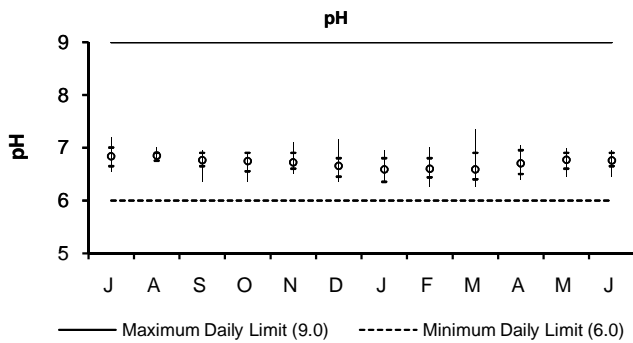


# WASTEWATER QUALITY

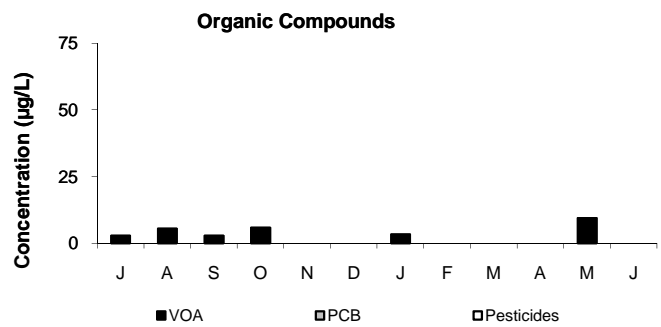
**NPDES Permit Compliance: Deer Island Treatment Plant**  
4th Quarter - FY13

**NPDES Permit Limits**

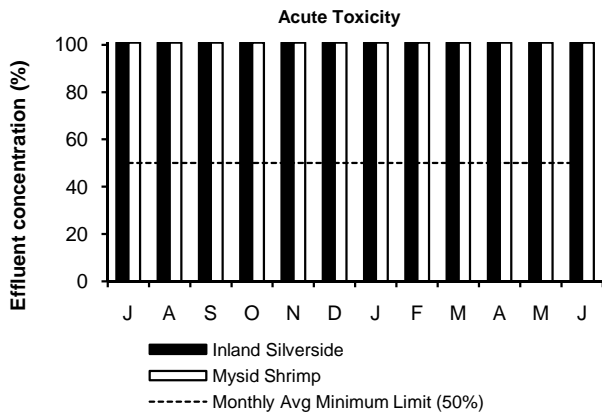
Effluent Characteristics		Units	Limits	April	May	June	4th Quarter Violations	FY13 YTD Violations
Dry Day Flow:		mgd	436	270.5	272.5	271.7	0	0
cBOD:	Monthly Average	mg/L	25	8.4	6.9	5.5	0	0
	Weekly Average	mg/L	40	9.9	8.6	7.1	0	0
TSS:	Monthly Average	mg/L	30	12.1	7.7	9.7	0	0
	Weekly Average	mg/L	45	15.1	9.8	13.3	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	88	13	45	0	0
	Weekly Geometric Mean	col/100mL	14000	40	7	16	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	6.4-7.1	6.5-7.0	6.5-7.0	0	0
PCB, Aroclors: Monthly Average		ug/L	0.000045	UNDETECTED			0	0
Acute Toxicity:	Mysid Shrimp	%	≥50	>100	>100	>100	0	0
	Inland Silverside	%	≥50	>100	>100	>100	0	0
Chronic Toxicity:	Sea Urchin	%	≥1.5	100	100	100	0	0
	Inland Silverside	%	≥1.5	50	50	100	0	0



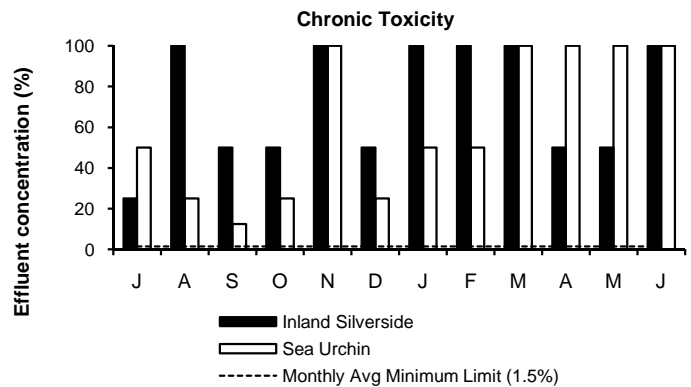
pH is a measure of the alkalinity or acidity of the effluent. Fluctuations in pH do not have an adverse effect on marine environments. Because of the pure oxygen used in the activated sludge reactor, the effluent pH tends to be at the lower pH range. pH measurements for the 4th Quarter were within the daily permit limits.



An important wastewater component to be monitored in the effluent is organic compounds, including volatile organic acids, pesticides, and polychlorinated biphenyls. The secondary treatment process has significantly reduced organic compounds in the effluent stream.



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 4th 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% dilution water must show no observed effect on the growth and reproduction of the test species. Chronic toxicity permit limits were met for the 4th Quarter for both the inland silverside and sea urchin.

## NPDES Permit Compliance: Clinton Wastewater Treatment Plant 4th Quarter - FY13

### NPDES Permit Limits

Effluent Characteristics	Units	Limits	April	May	June	4th Quarter Violations	FY13 YTD Violations
Flow:	mgd	3.01	2.39	2.32	2.42	0	2
BOD: Monthly Average:	mg/L	20	3.6	3.6	2.6	0	0
Weekly Average:	mg/L	20	3.9	3.8	3.8	0	0
TSS: Monthly Average:	mg/L	20	4.2	4.1	3.5	0	0
Weekly Average:	mg/L	20	5.4	4.5	4.2	0	0
pH:	SU	6.5-8.3	7.2-7.6	7.3-7.7	7.2-7.5	0	0
Dissolved Oxygen: Daily Minimum:	mg/L	6	8.6	7.1	7.2	0	0
Fecal Coliform: Daily Geometric Mean:	col/100mL	400	5	5	4	0	0
Monthly Geometric Mean:	col/100mL	200	3	3	3	0	0
TCR: Monthly Average:	ug/L	50	0	0.8	0.2	0	0
Daily Maximum:	ug/L	50	0	18.0	6.7	0	0
Total Ammonia Nitrogen: May 1 - May 31							
Monthly Average:	mg/L	10.0	0.00	0.00	0.01	0	0
Daily Maximum:	mg/L	35.2	0.00	0.00	0.07	0	0
Copper: Monthly Average:	ug/L	20	7.2	6.4	3.7	0	0
Phosphorus: May 1 - Oct 31							
Monthly Average:	mg/L	1.0	--	0.53	0.45	0	0
Acute Toxicity: Daily Minimum:	%	≥100	*N/A	*N/A	> 100	0	0
Chronic Toxicity: Daily Minimum:	%	≥62.5	*N/A	*N/A	100	0	0

There have been two permit violations in FY13 at the Clinton Treatment Plant.

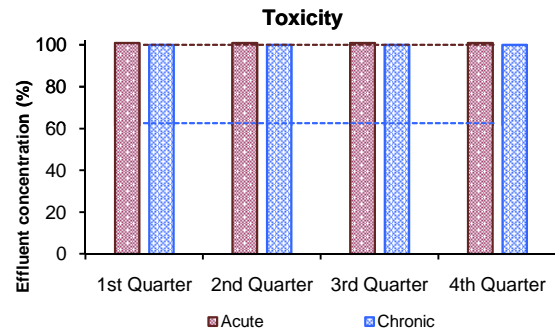
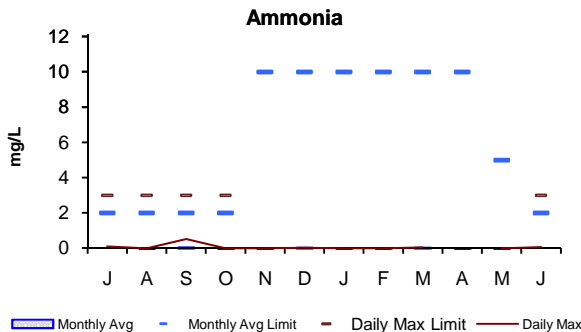
**1st Quarter:** There were two permit violations in the 1st Quarter of FY13. In July and August 2012 the running average flow was 3.22 and 3.16 MGD respectively, above the permit limit of 3.01 MGD. The actual measured plant flow for July and August was 2.13 and 1.82 MGD.

**2nd Quarter:** There were no permit violations in the 2nd Quarter of FY13.

**3rd Quarter:** There were no permit violations in the 3rd Quarter of FY13.

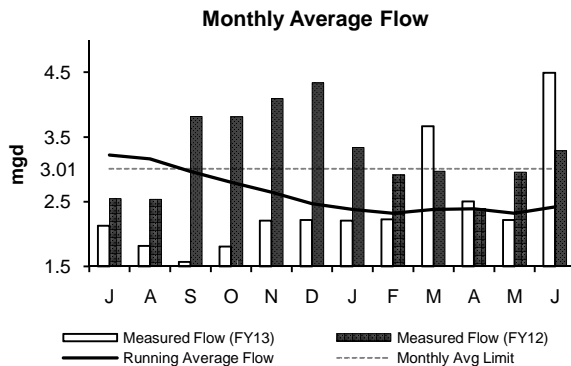
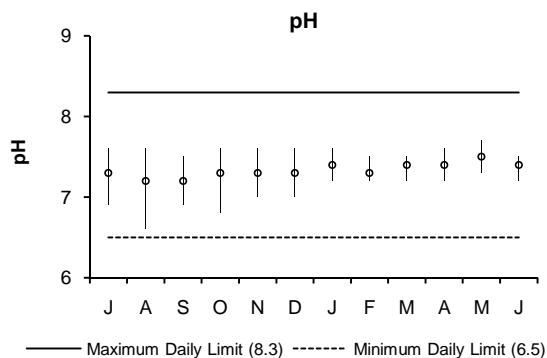
**4th Quarter:** There were no permit violations in the 4th Quarter of FY13.

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



The 3rd Quarter's monthly average and daily maximum concentrations were below the permit limits. The monthly average and daily maximum limits for the 4th Quarter are variable, getting more stringent towards June. 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 4th Quarter.



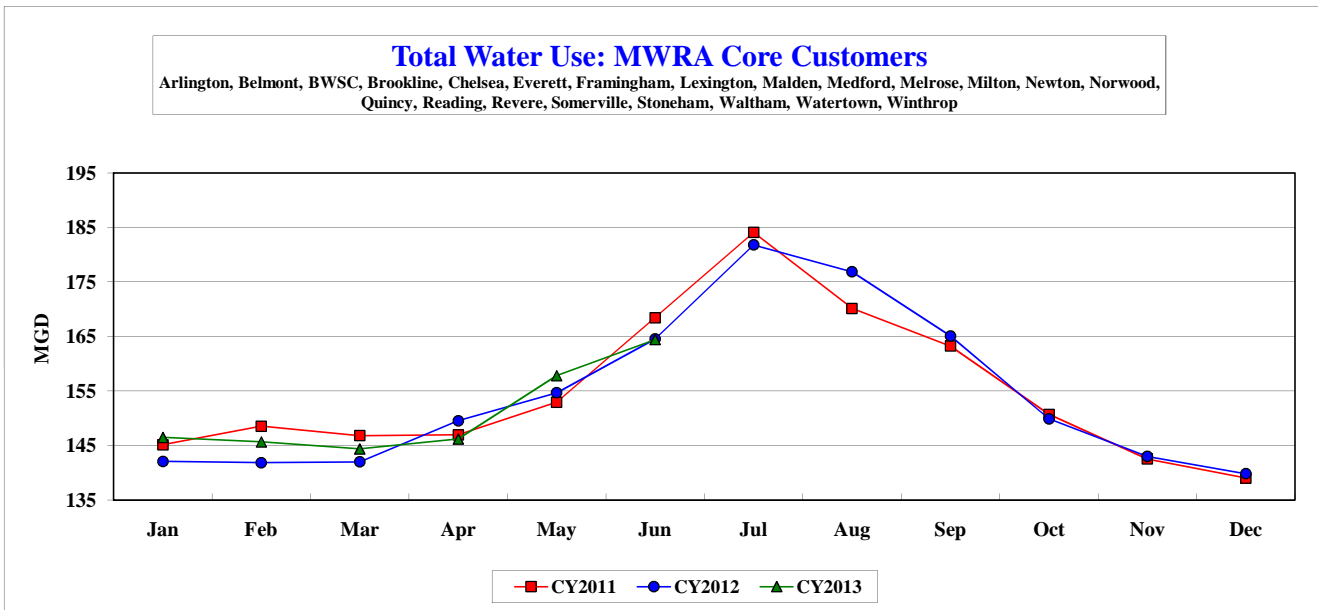
# COMMUNITY FLOWS AND PROGRAMS

## Total Water Use: MWRA Core Customers 4th Quarter- FY13

Massachusetts Water Resources Authority  
Water Supplied: MWRA Core Communities

MGD	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
CY2011	145.115	148.527	146.797	146.931	152.931	168.416	184.085	170.122	163.231	150.683	142.515	139.004	154.911
CY2012	142.065	141.834	141.967	149.527	154.647	164.532	181.801	176.862	165.092	149.865	142.968	139.811	154.302
CY2013	146.467	145.657	144.348	146.182	157.797	164.412	0.000	0.000	0.000	0.000	0.000	0.000	150.846

MG	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
CY2011	4,498.571	4,158.744	4,550.712	4,407.920	4,740.857	5,052.494	5,706.639	5,273.797	4,896.915	4,671.177	4,275.458	4,309.129	56,542.412
CY2012	4,404.020	4,113.193	4,400.982	4,485.812	4,794.071	4,935.954	5,635.832	5,482.733	4,952.773	4,645.824	4,289.046	4,334.134	56,474.376
CY2013	4,540.462	4,078.391	4,474.786	4,385.460	4,891.703	4,932.360	0.000	0.000	0.000	0.000	0.000	0.000	27,303.163



Attached for your information is the June 2013 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 2013 water use will be used to allocate the FY15 water utility rate revenue requirement.

June 2013 water supplied of 204.8 mgd (for revenue generating users) is down 3.3 mgd or 1.6% compared to June 2012. Annual system-wide water consumption for CY13 remains slightly higher than CY12 with 181.6 mgd being supplied to MWRA customers through June. This is 1.6 mgd higher than CY12, and is an increase of 0.9%.

# Community Wastewater Flows

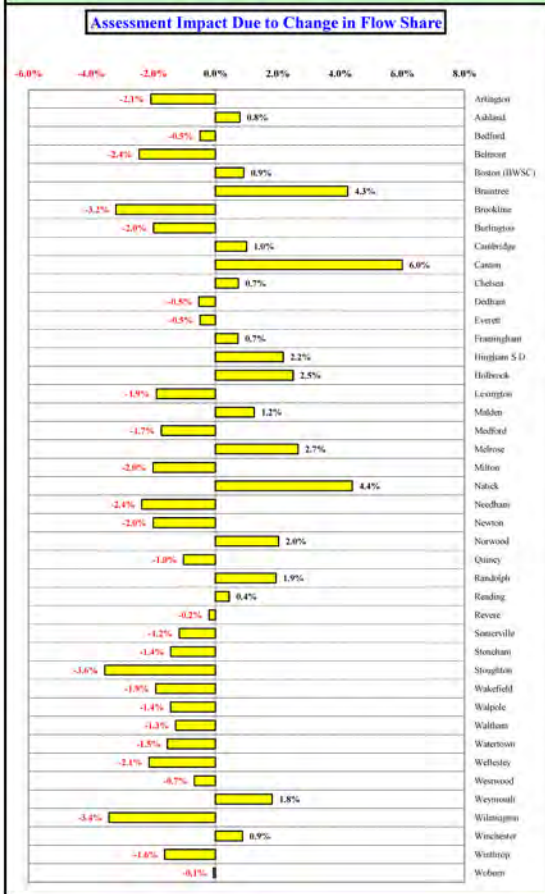
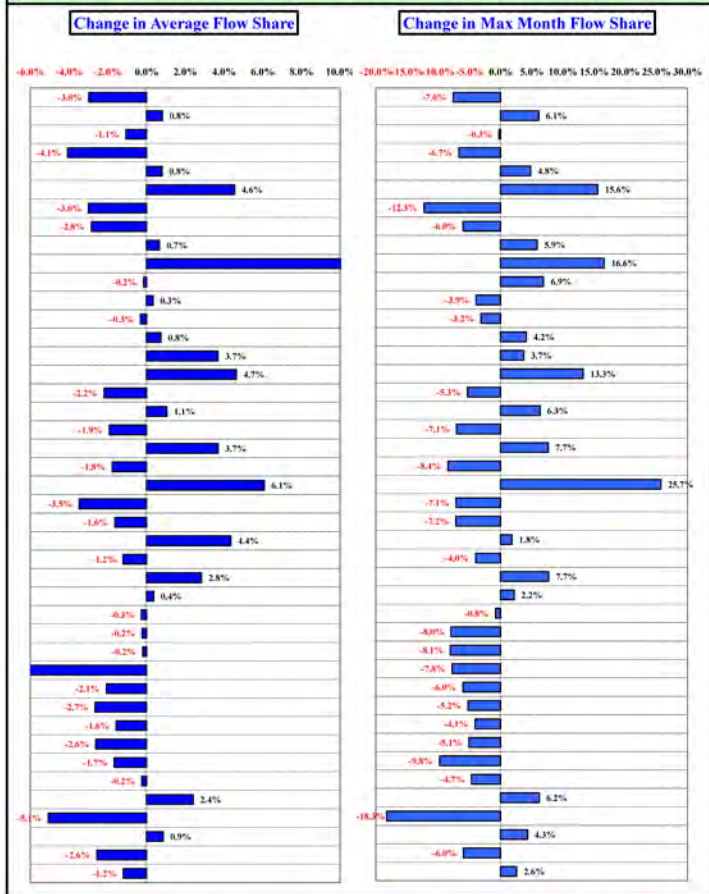
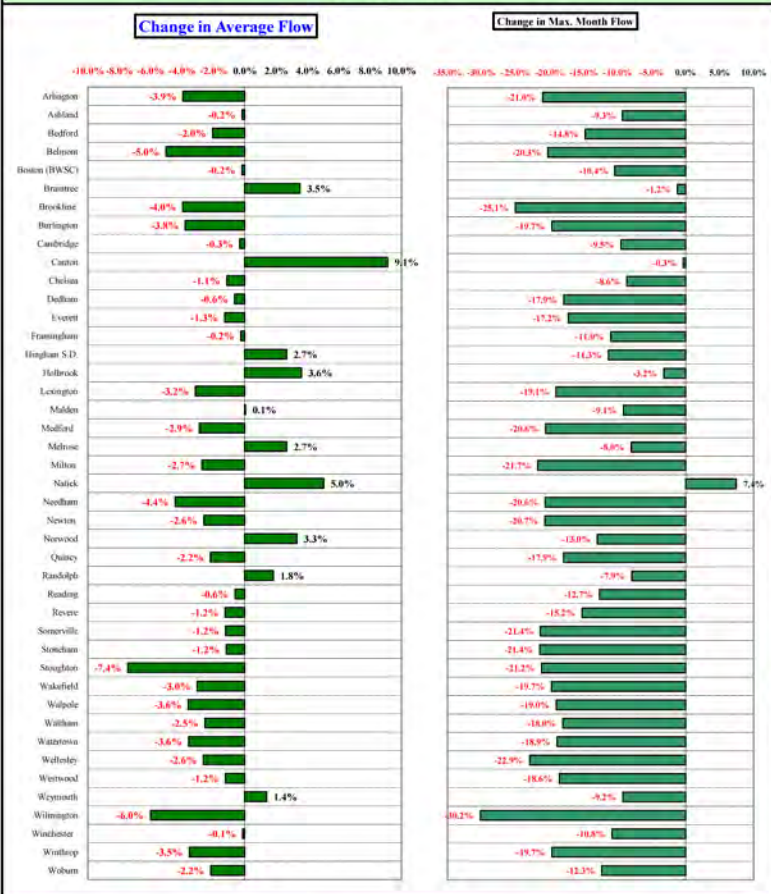
## 4th Quarter - FY13

### How Projected CY2013 Community Wastewater Flows Could Effect FY2015 Sewer Assessments <sup>1,2,3</sup>

The flow components of FY2015 sewer assessments will be calculated using a 3-year average of CY2011 to CY2013 wastewater flows compared to FY2014 assessments that used a 3-year average of CY2010 to CY2012 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 CY2011 to CY2013 flow share compared to CY2010 to CY2012 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. <sup>4</sup>



**Notes:**

- <sup>1</sup> 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.
- <sup>2</sup> Based on CY2010 to CY2013 average wastewater flows as of 09/05/13. Flow data is preliminary and subject to change pending additional MWRA and community review.
- <sup>3</sup> CY2010 to CY2012 wastewater flows based on actual meter data. CY2013 flows based on actual meter data for January to June and projected flows for July to December.
- <sup>4</sup> Represents ONLY the impact on the total BASE assessment resulting from the changes in average and maximum wastewater FLOW SHARES.

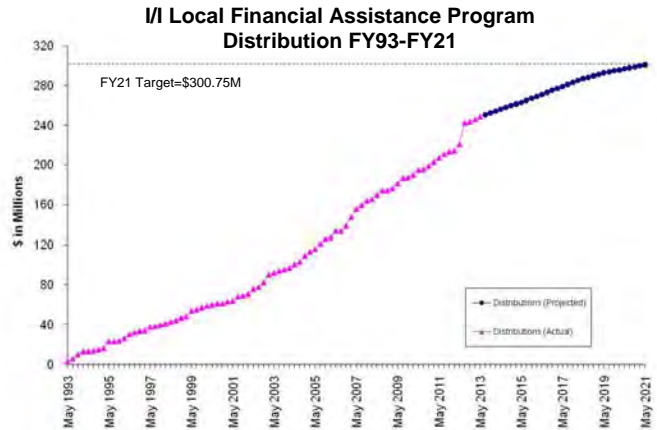
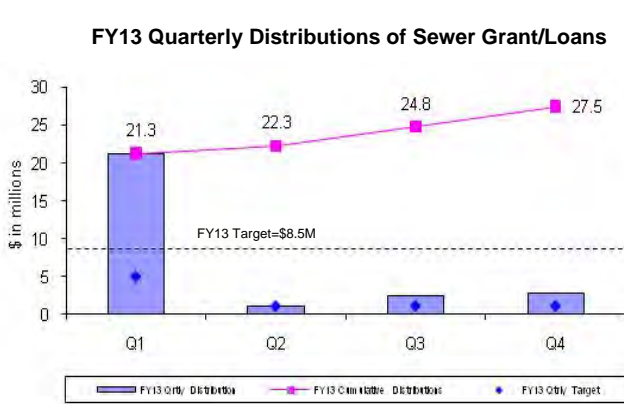


# Community Support Programs

## 4th Quarter – FY13

### Infiltration/Inflow Local Financial Assistance Program

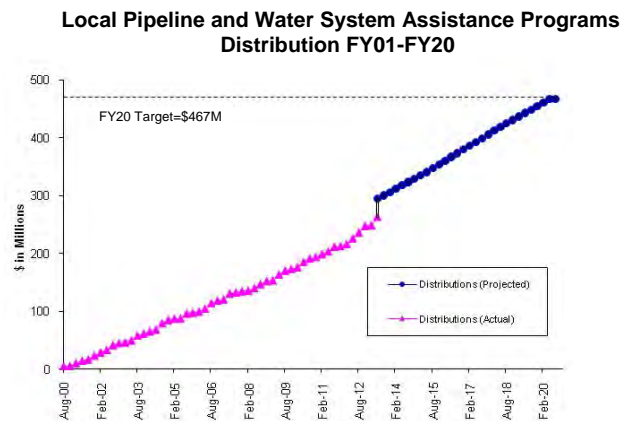
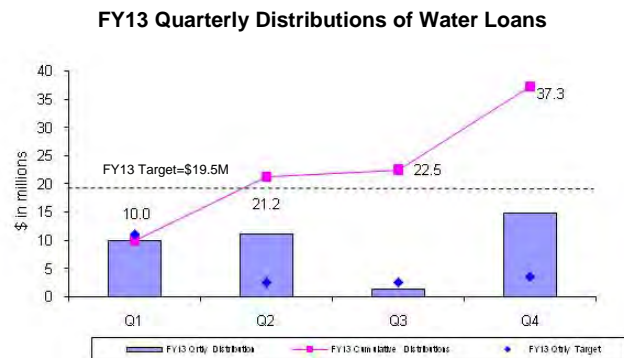
MWRA's Infiltration/Inflow (I/I) Local Financial Assistance Program provides \$300.75 million in grants and interest-free loans (average of about \$10 million per year from FY93 through FY21) to member sewer communities to perform I/I reduction and sewer system rehabilitation projects within their locally-owned 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. Interest-free loans are repaid to MWRA over a five-year period beginning one year after distribution of the funds.



During the 4<sup>th</sup> Quarter of FY13, \$2.7 million in financial assistance (45% grants and 55% interest-free loans) was distributed to fund local sewer rehabilitation projects in Braintree, Brookline, Dedham, Norwood and Woburn. Total grant/loan distribution for FY13 is \$27.5 million. From FY93 through the 4<sup>th</sup> Quarter of FY13, all 43 member sewer communities have participated in the program and more than \$248 million has been distributed to fund 444 local I/I reduction and sewer system rehabilitation projects. Distribution of the remaining funds has been approved through FY21 and community loan repayments will be made through FY26. All scheduled community loan repayments have been made.

### Water Local Pipeline and Water System Assistance Programs

MWRA's Local Pipeline and Water System Assistance Programs (LPAP and LWSAP) provide \$467 million in interest-free loans (an average of about \$23 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.



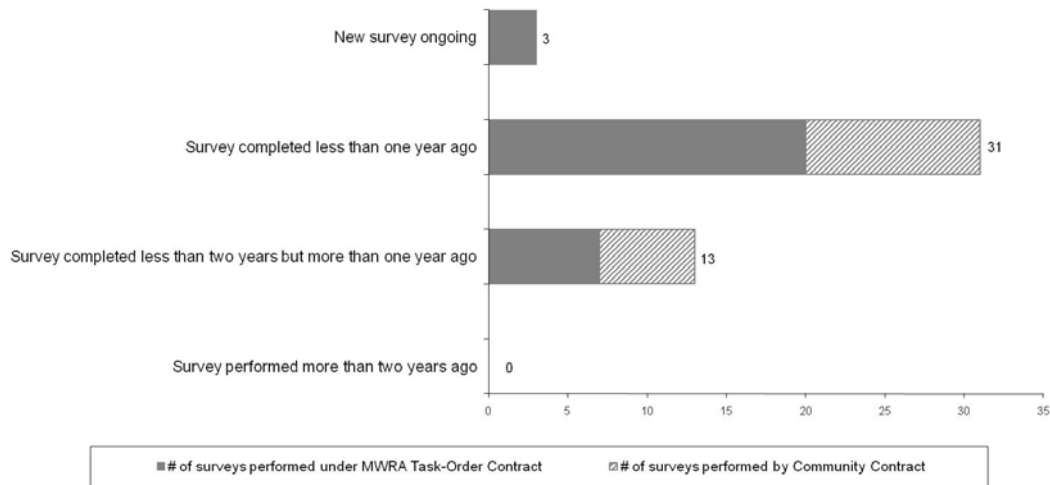
During the 4<sup>th</sup> Quarter of FY13, \$14.8 million in interest-free loans was distributed to fund local water projects in Everett, Marlborough, Medford, Milton, Nahant, Revere, Somerville, Stoneham, Waltham and Watertown. Total loan distribution for FY13 is \$37.4 million. From FY01 through the 4<sup>th</sup> Quarter of FY13, more than \$263 million has been distributed to fund 300 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. FY13 is the last year of community loans under the Phase 1 Local Pipeline Assistance Program.



## Community Support Programs 4th Quarter – FY13

### 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 4th Quarter of FY13, 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.

During FY12, requests for educational brochures (indoor and outdoor bill stuffers) were lower than in prior years. For FY13, the target for educational brochure distribution has been lowered from 150,000 to 100,000.

FY13 DISTRIBUTION	Annual Target	Q1	Q2	Q3	Q4	Annual Total
Educational Brochures	100,000	45,178	16,370	15,646	41,370	118,564
Low-Flow Fixtures (showerheads and faucet aerators)	10,000	1,566	3,178	4,222	2,735	11,701
Toilet Leak Detection Dye Tablets	-----	1,196	3,477	6,855	967	12,495

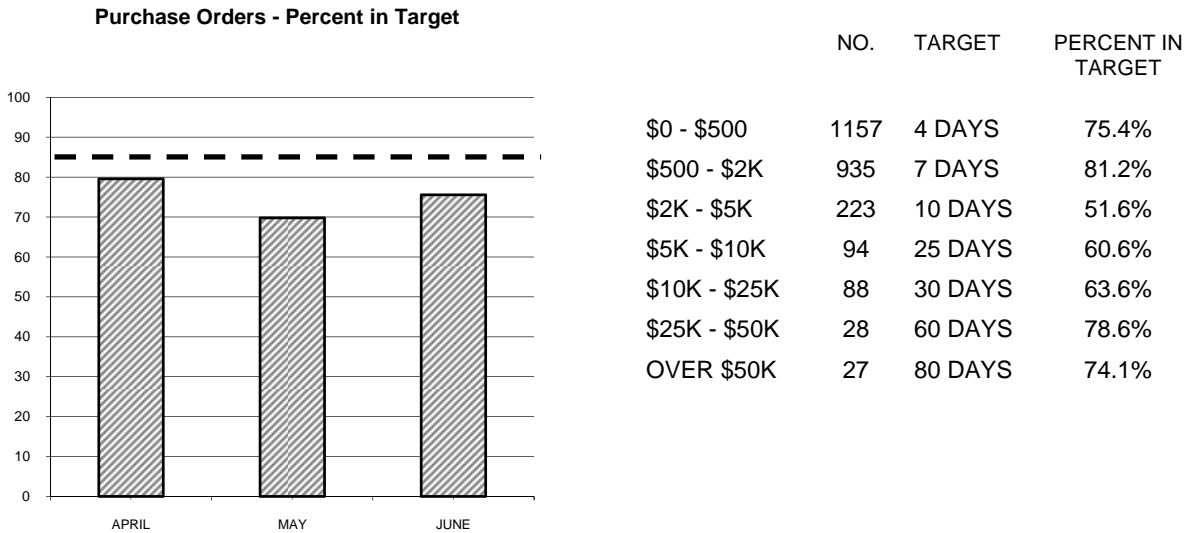
## BUSINESS SERVICES

## Procurement: Purchasing and Contracts Fourth Quarter FY13

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

**Outcome:** Processed 75% of purchase orders within target; Avg. Processing Time was 12.63 days vs. 6.73 days in Qtr 4 of FY12. Processed 86% (12 of 14) contracts within target timeframes; Avg. Processing Time was 78 days vs. 117 days in Qtr 4 of FY12.

### Purchasing



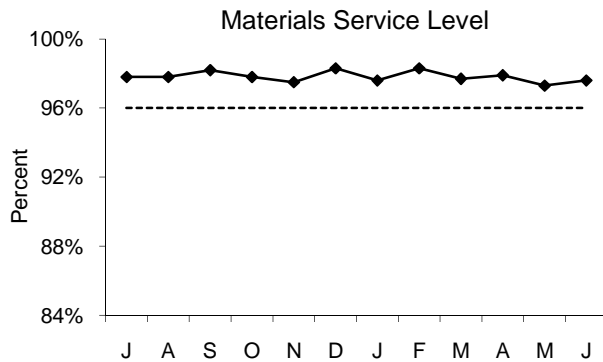
- Purchasing Unit processed 2552 purchase orders, 112 fewer than the 2664 processed in Qtr 4 of FY12, for a total value of \$11,313,866 vs. a dollar value of \$12,126,509 in Qtr 4 of FY12.
- The target was not achieved for the \$0 – \$500 and the \$2k - \$5k categories due to vendor sourcing and end user confirmation, the \$5k - \$10k category because of vendor sourcing, the \$10k - \$25k category because of specification development, the \$25k - \$50k category because of vendor sourcing and end user confirmation and the over \$50k category due to extended bid review

### Contracts, Change Orders and Amendments

- Two contracts were not processed within target timeframes. One was processed within two weeks of target; and the other was extended in order to review the qualifications of the low bidder.
- Procurement processed fourteen contracts with a value of \$16,046,318 and ten amendments with a value of \$17,545,111.
- Twenty-three change orders were executed during the period, but some were credit change orders and are recorded as negative numbers. The dollar value of all non-credit change orders during the 4th quarter FY13 was \$2,173,223 and the value of credit change orders was (\$12,740).
- In addition, staff reviewed 48 proposed change orders and 28 draft change orders.

## Materials Management

4th Quarter, FY13



The service level is the percentage of stock requests filled. The goal is to maintain a service level of 96%. Staff issued 9,116 (97.6%) of the 9,339 items requested in Q4 from the inventory locations for a total dollar value of \$869,012.

### 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 FY13 goal is to reduce consumable inventory from the July '12 base level (\$7.7 million) by 4.0% (approximately \$310,231), to \$7.4 million by June 30, 2013 (see chart below) has been met.

Items added to inventory this quarter include:

- Deer Island – wrench lamp, connectors, belt drives, spill kits, actuators, power supply, cables and motor for Core; reducing bushings, sampling oil, proximity switch cable for Liquid Train.
- Chelsea –CV shaft, clamps, fuel filters, brake drums, ABS sensor, air bag sensor and plate frame for VMM; bearings, adapters, back pressure valve, pin clamps, solenoid valve, rotork actuator and square D breaker for Work Order Coordination Group.
- Southboro – filter mats, oil separator cartridges and ozone sensors for Carroll Water Treatment Plant; sunscreen for Maintenance.

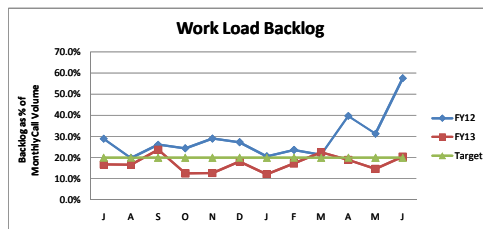
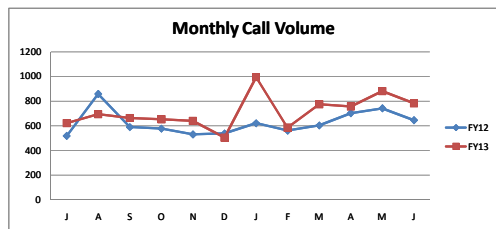
Property Pass Program:

- Audits were conducted at Chelsea Carpenters, Chelsea Technical Inspection Unit, Chelsea Sewer Pipe Maintenance during Q4.
- Numerous obsolete computers, monitors, printers, keyboards, scanners, tape drives, mice, docking stations, laptops, typewriters and cameras have been received into property pass as surplus. Disposition is being handled as part of our ongoing recycling efforts.
- Scrap revenue received to date for the quarter amounted to \$13,792.
- Revenue received from online vehicle auction held during Q4 amounted to \$69,522. Year to date revenue received amounts to \$249,627.

Items	Base Value July-12	Current Value w/o Cumulative New Adds	Reduction / Increase To Base
Consumable Inventory Value	7,755,777	6,831,564	-924,213
Spare Parts Inventory Value	7,368,162	7,174,389	-193,773
Total Inventory Value	15,123,939	14,005,953	-1,117,986

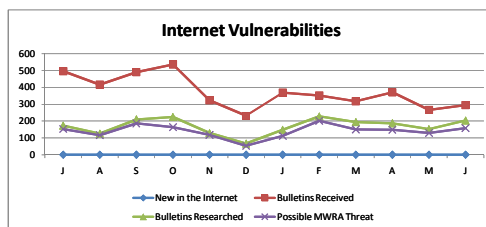
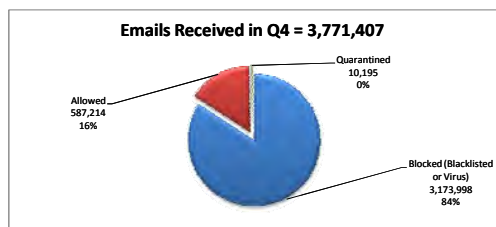
**Note:** New adds are items added at an inventory location for the first time for the purpose of servicing a group/department to meet their business needs/objectives.

## MIS Program 4th Quarter FY13



**Performance:**

Call Volume: Peaked in May and increased by 1.6% from Q4 last year. Call Backlog: Peaked in June and is 0.5% 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 68 vulnerabilities. LANDesk Antivirus quarantined 41 distinct viruses from 48 MWRA computers. MWRA's systems are current with anti-virus providers' signatures for all known malware.

**Infrastructure:**

Exchange 2010: The new email environment for Exchange 2010 upgrade has been built and virtualized on the existing blade chassis reducing the number of physical servers by three and resulting in reduction of power consumption and carbon footprint. Another benefit is the ability to allocate additional space for all user email boxes without compromising the integrity of the system. Migration of pilot users to the new environment was successfully completed and the nightly backup of the new environment has been set up. Exchange 2010 is scheduled to be in full production by early Q1 FY14.

Interactive SmartBoards: SmartBoards are installed in the Chelsea EOC, and Muster Room, Deer Island EOC, the JJCWTP EOC, and Southboro conference area. This technology enables staff to collaborate on projects limiting the need for travel, additionally it enables coordination with all EOC's during weather events and emergency situations.

**Applications/Training/Records Center:**

Strategic Sourcing and Contract Management: Electronic bidding went live in April. A presentation of the application was given at the April Board of Directors meeting. Purchasing Events (\$25,000 or greater) were posted on the Supplier Portal during the first week of April and by week's end there were 332 registered suppliers on the Strategic Sourcing Portal. Shortly after, Purchasing Events less than \$25,000 were posted. Supporting documents were written or updated. Programming staff matched Suppliers with AP Vendors and updated the supplier table in the Sourcing module with the Vendor numbers. System administration and application support staff worked with Lawson Software support to upgrade the Landmark Grid Environment (10.0.1 to 10.0.3) and Procurement module (9.1.0.3 to 9.1.0.9) on the development system. Construction Contracts configuration and implementation on the vendor portal is being designed in conjunction with new Contract Management system. Deployed screen changes to the production server that included field reorganization and the display of instructions for supplier password creation.

Contracts Management: Met with Contract Management staff to refine user requirements for contract management, determine whether requirement(s) can be achieved with "out of box" functionality, clearly define the implication if a requirement cannot be achieved with "out of box" functionality, and, determine a viable workaround when needed. Members of A&F and Procurement Department worked with a Lawson Contract Management application consultant, on-site, for four days focusing on system configuration, gap analysis resolution, and data conversion.

Rain Gauge Portal: Operations staff identified five WeatherBug stations to add to the Rain Gauge application. A new map that included all the rain data collection sites was generated for the user interface and the application was revised to address the new sites, tested for functionality and ADA compliance, and deployed. In addition, error trapping notification code was added that will email developers if error conditions occur.

TISCOR Products: In Q3, MIS received a request from Operations to help support their TISCOR facility inspection software and to evaluate the InspectNTrack product, a web based application with a SQL back-end, which could be used to consolidate multiple standalone departmental TISCOR databases. In Q4, staff worked with the vendor on data mapping and migration of the existing four standalone databases into a new centralized database. Standardized facility names exported from Maximo are being used and new or revised inspection routes were established. The applications were installed on a development server and data scrubbing is nearly complete. Production server installation and vendor training for users is scheduled for July.

Lawson/Infor Fiscal Year End Support: Staff supported HR and Payroll with upcoming fiscal year-end closing tasks that included loading longevity payments, final testing of the LP module (personal time allotment for all employees, Unit 2 annual vacation allotments, etc.), loading new clothing/uniform allowance file into system for HR, reformatting and loading holiday to vacation transfer of hours for employees who banked the Patriots Day holiday in April and still have not used it, processing longevity checks and vacation milestone adjustments for Units 2, 3 and 9.

LIMS: The first LIMS amendment was signed by the Executive Office and sent to LabWare for signatures. The amendment included licensing for their Electronic Laboratory Notebook (ELN), professional services for enhancements, additional core LIMS licenses and, version 6 upgrade assistance. Version 6 upgrade development environment was successfully validated on Oracle 11g. Backups in the form of database exports are being done nightly.

Harbor Outfall Monitoring Loading (HOML): The HOML application was reconfigured to work with the Oracle 11i database upgrade.

Library & Records Center: The Library completed 65 research requests (223 YTD), added 54 books (282 YTD), distributed 15 periodicals and 1,954 electronically (7,698 YTD) linked articles to staff. The Records Center added 431 boxes (656 YTD), conducted 6 training sessions for 13 staff, and attended 3 Record Conservation Board Meetings. Disposed of 1,755 boxes.

IT Training: For the quarter, 122 staff attended 14 classes and 2 workshops. 19% of the workforce has attended at least one class year-to-date. New job aids for Smart Boards were developed to assist user access and MWRA file system navigation. Nearly 50 remote staff were trained for electronic Time Sheet submissions.

# Legal Matters

## 4th Quarter FY 2013

### PROJECT ASSISTANCE

#### COURT AND ADMINISTRATIVE ORDER

- **Boston Harbor Litigation and CSO:** Reviewed amendment 9 to memorandum and financial assistance agreement between MWRA and Cambridge for implementation of CSO projects. Reviewed quarterly compliance and progress report and prepared filing for federal court.
- **NPDES:** Reviewed MWRA's requests for three year extensions to Alewife Brook and Upper Mystic River Basin CSO variance and for extension to Lower Charles River/Charles Basin CSO variance. Reviewed MA DEP's proposed revisions to its sewer regulations. Reviewed MWRA's draft fact sheets for three year extensions to Alewife Brook and Upper Mystic River Basin CSO variance and for extension to Lower Charles River/Charles Basin CSO variance. Prepared comments related to co-permittee issue for anticipated draft NPDES permit for Clinton Wastewater Treatment Plant. Reviewed DEP's tentative determinations to extend variances for CSO discharges to the Alewife Brook/Upper Mystic River Basin and the Lower Charles River Basin.
- **Administrative Order (Clinton Wastewater Treatment Plant):** Reviewed annual copper optimization report No. 11 and drafted cover letter.
- **Administrative Consent Order (DITP power outages):** Reviewed and submitted updated semi-annual *Consultant's Deer Island Energy Recommendations Tracking Sheet* to DEP and EPA.

#### REAL ESTATE, CONTRACT AND OTHER SUPPORT

- **FRRC:** Reviewed and submitted approval not required (ANR) plan related to land transaction in Fore River between MWRA and March Fourth, LLC. Drafted license agreement by and between MWRA, FRRC, and RailPod for access to rail tracks for testing; drafted legislation for the easement "swap" with March Fourth LLC; drafted seventh supplemental indenture of lease related to land transaction in Fore River between MWRA and March Fourth, LLC.
- **CNY:** Executed the Third Amendment to Sublease for the headquarters at CNY.
- **Wireless Carrier Permits:** Reviewed AT&T and Cingular wireless agreement related MWRA's water tank located at Turkey Hill in Arlington.
- **Section 36/New 11B Interconnection/Watertown Section/Waltham Connection:** Received and recorded six (6) voluntary Grants of Temporary Easements to support the first contract of the Project.
- **Wetlands Protection Land Acquisition:** Reviewed and provided comments as to acceptability for the following parcels: W-1068 (WPR) and W-1069/1070 in Wendell/New Salem from the Estate of Overing, W-1050 for parcel of land in West Bolyston owned by Chapman, watershed acquisitions W-0213 and W-0214 for land owned by McKay/Stuart in Princeton/Wachusett; Parcel W-1048 for land owned by Pine Forest Realty Trust in New Salem; and parcel W-1095 for property in Rutland/Ware owned by Capa Corporation.
- **Public Access:** Drafted and issued 8(m) permits for public access trail on: Wachusett Aqueduct in Northborough, Framingham and Southborough that cover the Bay Circuit Trail (BCT) connection, and the Wachusett Aqueduct in Northborough; a permit for a community picnic on the Sudbury Aqueduct at Hemlock Reservation in Newton.
- **Weston Water Main:** Met with representatives of the Defendant Victaulic to provide a rebuttal of Victaulic's prior technical and legal presentation for the purpose of continuing mediation and possible settlement.
- **Miscellaneous:** Reviewed and provided comments on three (3) agreements for MIS and one (1) for Procurement; reviewed and approved thirty-nine (39) Section 8(m) Permits and one (1) direct connect permit.

#### ENVIRONMENTAL

- **Co-Digestion:** Reviewed and commented on the re-drafted notification letter to DEP, informing the agency of MWRA's proposed pilot project for co-digestion in DITP anaerobic digesters.
- **Regulations:** Reviewed MWRA's draft comments to proposed amendments to the wetlands, waterways, water quality and waste site cleanup regulations.

## LABOR, EMPLOYMENT AND ADMINISTRATIVE

**New Matters** Five demands for arbitration were filed.

### Matters Concluded

Received an arbitrator's decision in favor of MWRA finding that the MWRA did not violate Article 15 or 16 of a collective bargaining agreement in the assignment of duties to the grievant.

### SUMMARY OF PENDING LITIGATION MATTERS

TYPE OF CASE/MATTER	As of June 2013	As of Mar 2013	As of Dec 2012
Construction/Contract/Bid Protest (other than BHP)	6	7	3
Tort/Labor/Employment	6	4	6
Environmental/Regulatory/Other	1	1	1
Eminent Domain/Real Estate	0	0	0
total – all defensive cases	13	12	10
Affirmative Cases: <u>MWRA v. J. F. Shea Co., Inc., et al.</u>	1	1	1
Other Litigation matters (restraining orders, etc.) <u>MWRA v. Thomas Mercer</u>	1	1	0
total – all pending lawsuits	15	14	11
Significant claims not in suit: <u>Oscar Malera personal injury claim</u>	1	2	3
Bankruptcy	0	1	2
Wage Garnishment	14	14	14
TRAC/Adjudicatory Appeals	15	2	0
Subpoenas	3	3	6
<b>TOTAL – ALL LITIGATION MATTERS</b>	<b>48</b>	<b>36</b>	<b>36</b>

## LITIGATION/TRAC

**New Matters** During the Fourth Quarter of FY 2013 two new lawsuits were received.

Steven V. Walker v. Department of Conservation and Recreation, Massachusetts Water Resources Authority and P. Gioioso & Sons, Inc.: State Trooper Walker alleges that on May 24, 2010, he sustained injuries as a result of the negligence of the defendants in connection with the North Dorchester Bay Combined Sewer Overflow Project. Plaintiff alleges that the contractor Gioioso was negligent when it failed to notify Dig Safe and struck a power line, and that MWRA and DCR were negligent in their oversight of the project. Plaintiff alleges that he was “electrocuted.” Plaintiff’s claimed money damages to date total \$267,500, including damages for medical expenses, lost wages and pain and suffering. MWRA previously tendered defense of this claim to P. Gioioso & Sons, Inc. and its insurer Liberty Mutual Insurance. On May 24, 2012, Liberty Mutual agreed to defend and indemnify MWRA up to policy limits of \$1,000,000, without any reservation of rights.

(Current Employee) v. Massachusetts Water Resources Authority: This is a proceeding for declaratory relief and for damages pursuant to M.G.L. c. 151B with respect to allegations of discriminatory practices, policies and customs.

### Significant Developments

MWRA staff made a presentation to the principals and legal counsel for Victaulic Company seeking to prompt Victaulic to increase its settlement offer in the Shaft 5A litigation.

## LITIGATION/TRAC (cont.)

### Matters

#### Concluded

MWRA v. Federal Metal Finishing, Inc.: MWRA brought this suit to obtain payment of an unpaid TRAC permit fee. Federal Metal Finishing did not pay its permit fee of \$11,610 for FY 2012, on which \$181.89 in interest had accrued when MWRA filed suit. The company ceased discharging at the end of December, 2011, and filed corporate dissolution papers, which became effective at the end of January, 2012. MWRA agreed to settle this case for a payment of \$5,000, which was received from the owners of Federal Metal Finishing on April 4, 2013.

West Boylston Municipal Lighting Plant v. MWRA: This dispute concerned the appropriate rate to be charged by MWRA to West Boylston for electricity generated from MWRA's Oakdale hydro facility and was pending both in an arbitration and in the Worcester Superior Court. West Boylston claimed that it made overpayments of \$250,000 to MWRA. The Board has authorized staff's recommended settlement of the dispute in which all parties have waived all claims that either may ever have had against one another under a Power Purchase Agreement (PPA) which has now been terminated for all purposes. MWRA made no payment to West Boylston and the PPA was terminated as of March 31, 2013, ahead of its June 2014 expiration. Both the litigation and the arbitration have been dismissed and all interested parties have signed settlement agreements which include the exchange of mutual releases. MWRA has since entered into an agreement to sell electricity to NGRID, a process under which West Boylston's cooperation was required and was provided.

#### Subpoenas

During the Fourth Quarter of FY 2013, two new subpoenas were received, and three subpoenas were pending at the end of the Fourth Quarter FY 2013.

#### Public

#### Records

During the Fourth Quarter of FY 2013 nine new public records requests were received and seven remained pending at the end of the Fourth Quarter FY 2013.

## TRAC/MISC.

#### New Appeals

Fourteen new appeals were received in the 4<sup>th</sup> Quarter FY 2013.

- 1) F.B. Packing; MWRA Docket No. 13-03
- 2) Adams-Chapman Co.; MWRA Docket No. 13-04
- 3) Campco; MWRA Docket No. 13-05
- 4) Pier 7, Inc.; MWRA Docket No. 13-06
- 5) Samuel Holmes; MWRA Docket No. 13-07
- 6) Frank Bertolino Beef; MWRA Docket No. 13-08
- 7) Rago Veal; MWRA Docket No. 13-09
- 8) Metropolitan Meat Company; MWRA Docket No. 13-10
- 9) Aquanor Marketing, Inc.; MWRA Docket No. 13-11
- 10) Great Eastern Seafood; MWRA Docket No. 13-12
- 11) Channel Fish Processing Company; MWRA Docket No. 13-13
- 12) True World Foods; MWRA Docket No. 13-14
- 13) Atlantic Seacove, Inc.; MWRA Docket No. 13-15
- 14) Aero Brazing Corporation; MWRA Docket No. 13-16

#### Settlement by Agreement of Parties

One case was settled by Agreement of Parties in the 4<sup>th</sup> Quarter FY 2013.

Lucky Star Transportation Corp.; MWRA Docket No. 13-02

#### Stipulation of Dismissal

No cases were dismissed by Stipulation of Dismissal.

#### 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 4<sup>th</sup> Quarter FY 2013.

#### Final Decisions

No Final Decisions were issued during the 4<sup>th</sup> Quarter FY 2013.



**INTERNAL & CONTRACT AUDIT PROGRAM**  
4<sup>th</sup> Quarter FY13

**Highlights**

MIS Equipment Management

MIS is responsible for the requisition, receipt, issuance, and disposition of computer equipment, cell phones, pagers, digital cameras, and audio/visual equipment. The estimated value of deployed equipment is \$3 million. The audit found that many equipment management activities need improvement. A total of 36 recommendations were made focusing on proper documentation, consolidating inventory databases, maintaining the currency of inventory records, improving the management of equipment, and ensuring a separation of duties. Management completed action on 17 of the recommendations while audit fieldwork was still in process.

**Status of Open Audit Recommendations** (17 recommendations closed in the 4th 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
Warehouse Practices (9/30/10)	2	8
Facility Card Access Controls (2/22/11)	3	17
DITP Data Center Access Controls (10/14/11)	4	18
Chelsea Facility Physical Security (12/31/12)	9	22
Hardware Equipment Management (5/22/13)	19	17
Review of Purchase Card Activity (6/28/13)	3	0
<b>Total Recommendations</b>	<b>40</b>	<b>82</b>

**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.

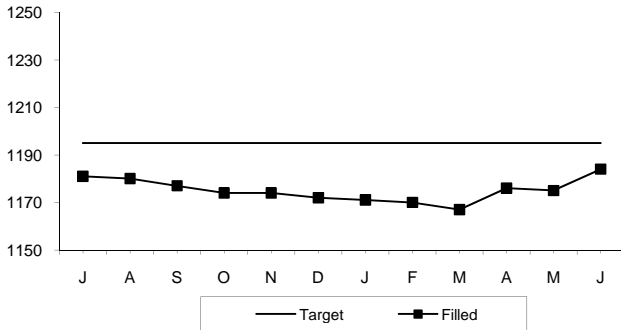
Savings	FY09	FY10	FY11	FY12	FY13	TOTAL
Consultants	\$316,633	\$194,238	\$520,176	\$259,245	\$587,314	\$1,522,547
Contractors & Vendors	\$1,262,088	\$599,835	\$3,129,538	\$435,760	\$2,153,688	\$5,819,165
Internal Audits	\$438,027	\$206,282	\$152,478	\$407,350	\$391,083	\$1,382,910
<b>Total</b>	<b>\$2,016,748</b>	<b>\$1,000,355</b>	<b>\$3,802,192</b>	<b>\$1,102,355</b>	<b>\$3,132,085</b>	<b>\$8,724,622</b>

## OTHER MANAGEMENT

# Workforce Management

## 4th Quarter FY13

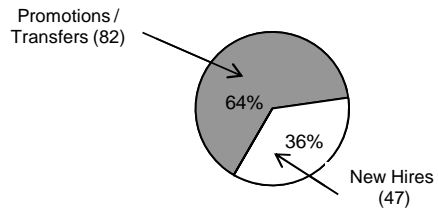
**Filled Position Tracking**



FY13 Target for Filled Positions = 1195

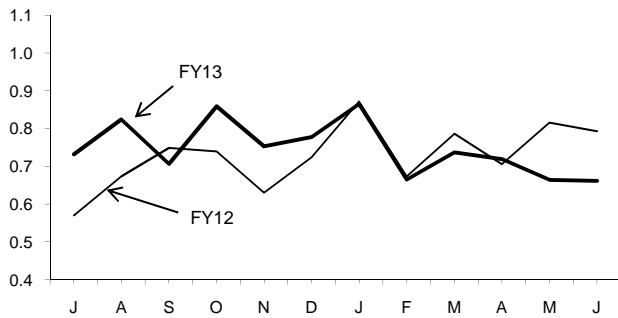
Filled Positions as of June 2013 = 1174

**Positions Filled by Hires/Promotions FY13 (YTD)**



	Pr/Trfrs	New Hires	Total
FY11	48 (62%)	30 (38%)	78
FY12	42 (61%)	27 (39%)	69
FY13	82 (64%)	47 (36%)	129

**Average Monthly Sick Leave Usage Per Employee**



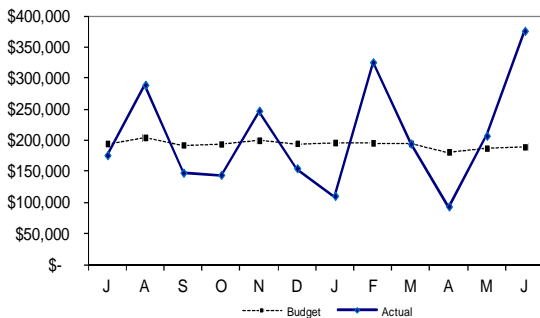
Average monthly sick leave dropped in the 4th Quarter compared to the first 3 quarters of FY13 (from 9.23 days to 8.95 days). FY13 sick leave was slightly higher than FY12.

In FY13, the average quarterly sick leave usage has increased 7.8% from the same time last year.

	Number of Employees	YTD	Annualized Total	Annual FMLA %	FY12
A&F	182	8.48	8.48	24.5%	8.18
Aff. Action	7	12.25	12.25	47.2%	13.14
Executive	5	3.08	3.08	0.0%	6.53
Int. Audit	8	7.36	7.36	19.7%	5.94
Law	16	11.80	11.80	36.5%	11.25
OEP	5	5.89	5.89	0.0%	5.21
Operations	948	9.02	9.02	24.0%	8.81
Pub. Affs.	13	9.08	9.08	4.4%	7.81
<b>MWRA Avg</b>	<b>1184</b>	<b>8.95</b>	<b>8.95</b>	<b>24.1%</b>	<b>8.69</b>

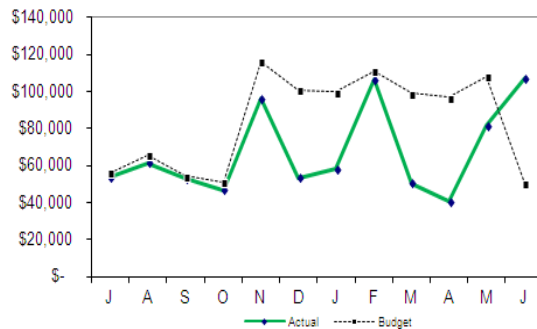
Percent of sick leave usage attributable to Family and Medical Leave Act (FMLA) leave is 24.1% ending June 30, 2013

**Field Operations Current Month Overtime \$**



Total Overtime for Field Operations in the 4th quarter of FY13 \$675k which is \$119k or 21% over budget. Emergency overtime was \$424k, which was \$143k over budget. The majority of this spending was for emergency operations of which \$307k was for wet weather response.

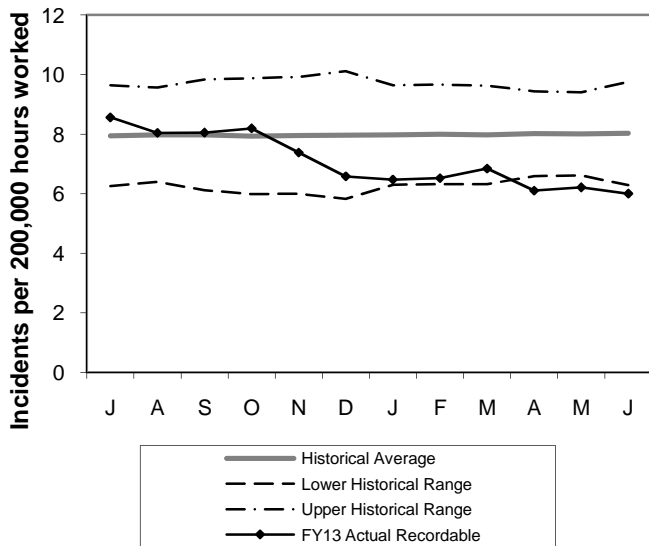
**Deer Island Treatment Plant Current Month Overtime \$**



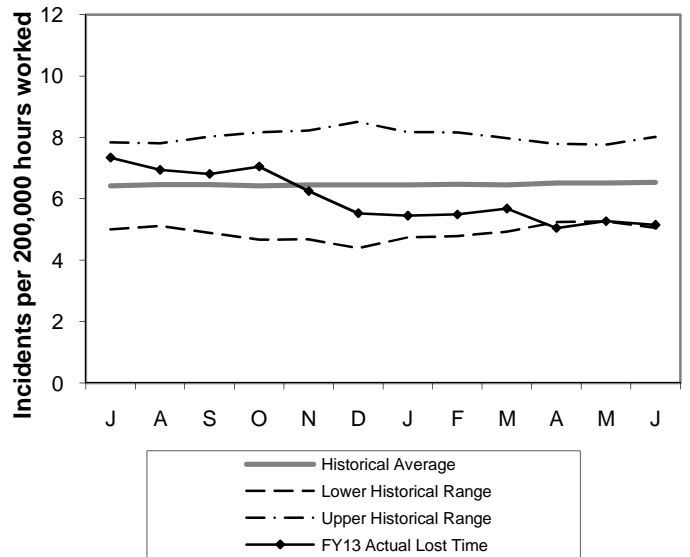
Deer Island's total overtime expenditure for the 4th quarter of FY13 was \$230K, which was (\$26K) or (10.2%) under budget. The variance is primarily attributable to lower than anticipated storm coverage requirements, (\$26K) or (647 hours). In addition, Management's continued efforts to control overtime spending by allowing overtime for maintenance or repair of critical equipment, (\$36K) or (859 hours). These savings are partially offset by higher than anticipated shift coverage requirements, \$36K.

## Workplace Safety 4th Quarter, FY 13

### 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 FY12. The "Upper" and "Lower Historical Ranges" are computed using these same data – adding and subtracting two standard deviations respectively. FY13 actual incident rates can be expected to fall within this historical range.

### Workers Compensation Claims Highlights - Fourth Quarter FY13

	New	Closed	Open Claims
Lost Time	11	10	69
Medical Only	43	61	19
	<b>New</b>		<b>YTD Light Duty Returns</b>
Light Duty Returns	2		14

#### Highlights/Comments:

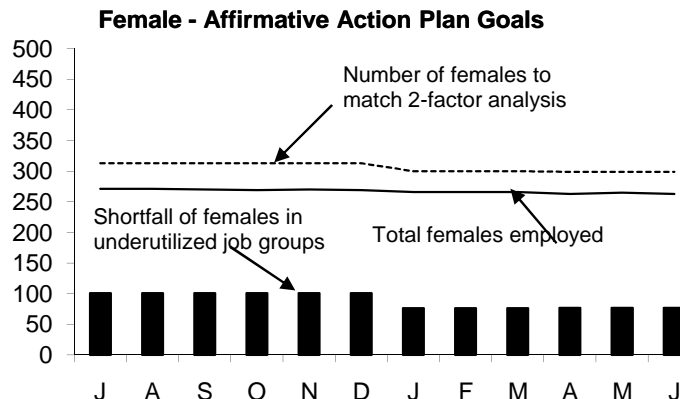
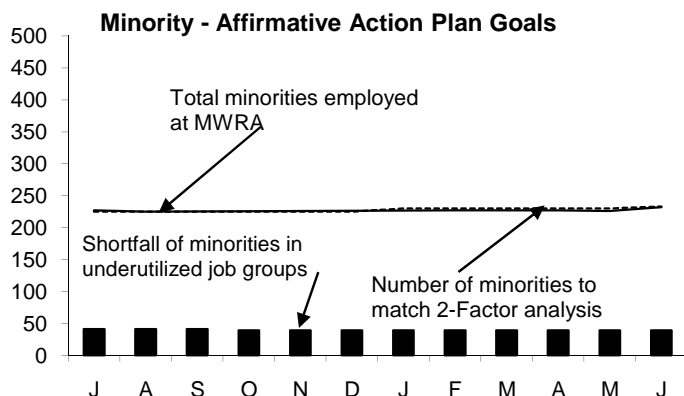
##### Light Duty Returns

- April**            1 employee returned to light duty from IA  
                          2 employees, while on light duty, had several days during the month of IA
- May**                1 employee returned to light duty from IA  
                          1 employee, while on light duty, had several days during the month of IA
- June**                1 employee, while on light duty, had several days during the month of IA

##### Regular Duty Returns

- April**                1 employee returned to full duty on a part time basis, from IA, then went to full time after two weeks  
                          1 employee returned to work full duty from IA  
                          1 employee returned to work full duty from 2 days IA
- May**                 3 employees returned to work full duty from IA
- June**                 1 employee returned to work full duty from IA  
                          3 employees returned to work full duty from light duty

## MWRA Job Group Representation 4th Quarter, FY13



### Highlights:

At the end of Q4 FY13, 10 job groups or a total of 40 positions are underutilized by minorities as compared to 8 job groups or a total of 44 positions at the end of Q4 FY12; for females 14 job groups or a total of 77 positions are underutilized by females as compared to 13 job groups or a total of 101 positions at the end of Q4 FY12. During Q4, 7 minorities and 3 females were hired. During this same period, 2 minorities and 6

### Underutilized Job Groups - Workforce Representation

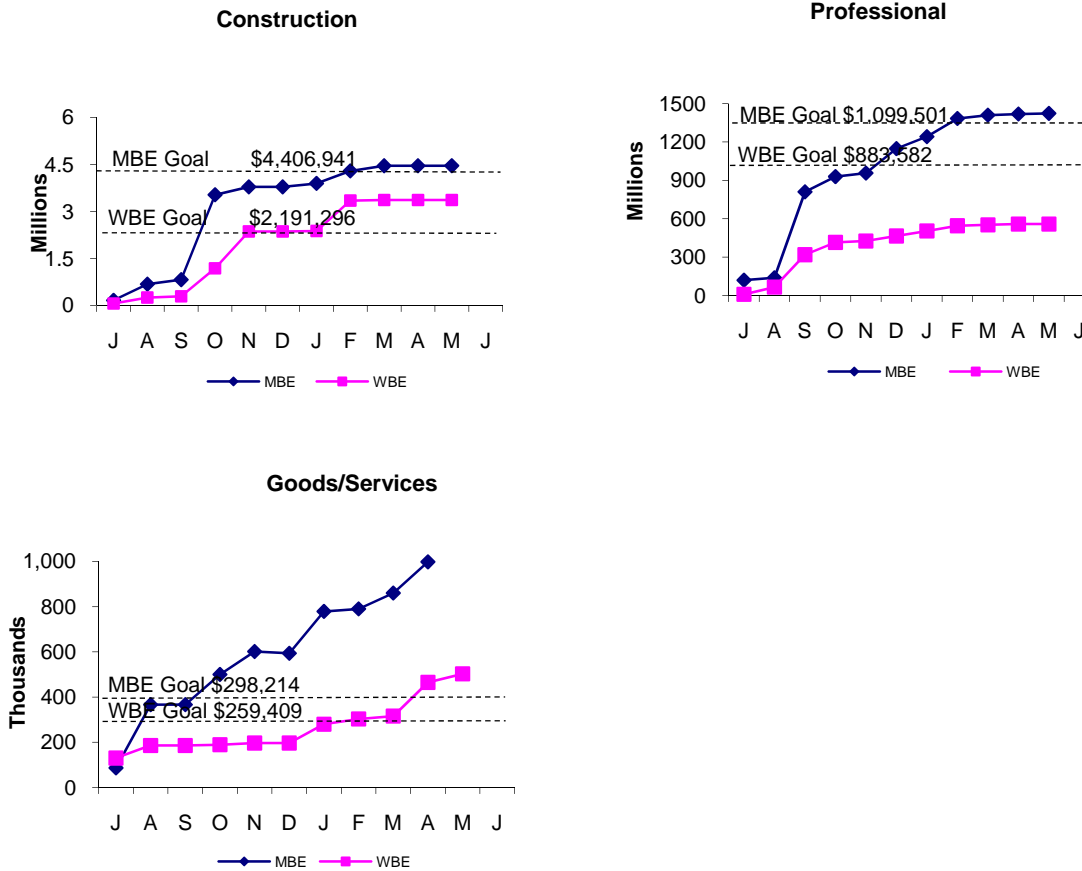
Job Group	Employees as of 6/30/2013	Minorities as of 6/30/2013	Achievement Level	Minority Over or Under Utilized	Females As of 6/30/2013	Achievement Level	Female Over or Under Utilized
Administrator A	18	3	2	1	3	5	-2
Administrator B	20	0	3	-3	4	5	-1
Clerical A	46	19	12	7	40	20	20
Clerical B	32	8	9	-1	14	1	13
Engineer A	82	15	20	-5	11	17	-6
Engineer B	51	14	10	4	6	13	-7
Craft A	117	14	21	-7	0	4	-4
Craft B	149	30	23	7	3	6	-3
Laborer	66	18	10	8	2	4	-2
Management A	107	16	22	-6	33	48	-15
Management B	50	9	12	-3	14	21	-7
Operator A	67	4	7	-3	2	4	-2
Operator B	67	7	14	-7	4	2	2
Para Professional	52	12	11	1	22	32	-10
Professional A	37	3	7	-4	23	17	6
Professional B	162	43	40	3	76	88	-12
Technical A	52	16	8	8	5	8	-3
Technical B	9	1	2	-1	1	4	-3
<b>Total</b>	<b>1184</b>	<b>232</b>	<b>233</b>	<b>36/-39</b>	<b>263</b>	<b>299</b>	<b>41/-77</b>

### ACCU Candidate Referrals for Underutilized Positions

Job Group	Title	# of Vac	Requisition Int. / Ext.	Promotions/ Transfers	AACU Ref. External	Position Status
Craft B	Equipment Repair Specialist	1	Int./Ext.	1	0	Promo/WM
Craft B	Electrician	2	Int./Ext.	1	1	Promo/WM-Hire/BM
Craft B	Instrument Technician	2	Int.	1	0	Promo/WM-Hire/WM
Craft B	Facilities Specialist	2	Ext.	1	0	Promo/BM & N Hire/WM
Craft B	Machinist	2	Ext.		1	Pending
Craft B	Plumber/Pipefitter	2	Ext.		2	Pending
Craft B	Warehouse Materials Handler	3	Int/Ext	2	0	Hire/WM- Promo/WM
Craft A	M&O Specialist	2	Ext.	1	0	Promo/WM - 1 Pending
Craft A	Valve General Foreman	1	Int.	1	0	Promo/WM
Engineer A	Sr. Program Manager, OCC	1	Int	1	0	Promo/WM
Laborers	Building and Grounds Worker	3	Int/Ext	0	0	Hires/1-HM & 2-WM
Management A	Senior Program Manager, QA	1	Int	1	0	Promo/WM
Professional B	Chemist	1	Int.	1	0	Promo/WF
Professional B	Biologist	1	Int.	1	0	Promo/WM
Professional B	Industrial Coordinator	2	Int.	1	1	Promo/WM & WF
Professional B	Sampling Associate	2	Ext.	2	2	Pending
Professional B	Senior Lab Technician	1	Int.	1	0	Rehire/AF
ParaProfessional	Planning / Scheduling Coordinator	1	Int	1	0	Promo/WM
Technical B	General Construction Inspector	1	Int/Ext	1	0	Promo/WM

## MBE/WBE Expenditures 4<sup>th</sup> Quarter, FY13

**Background:** MBE/WBE targets are determined based on annual MWRA expenditure forecasts in the procurement categories noted below. MBE/WBE percentage goals, resulting from a 2002 Availability Analysis, are applied to the MWRA CIP and CEB expenditure forecasts. As a result of the Availability Analysis, the category of Non-Professional Services is included in Goods/Services. Consistent with contractor reporting requirements, MBE/WBE expenditure data is available through May.



FY13 spending and percentage of goals achieved, as well as FY12 performance are as follows:

	MBE		FY12		WBE		FY12	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
Construction	4,455,307	101.1%	3,771,155	112.8%	3,362,894	153.5%	6,992,984	305.0%
Professional Svc.	1,422,113	129.3%	1,216,840	97.2%	557,922	63.1%	524,130	52.1%
Goods & Svcs.	1,099,000	368.5%	879,467	303.3%	502,549	193.7%	737,776	292.5%
<b>Total</b>	<b>\$6,976,420</b>	<b>120.2%</b>	<b>\$5,867,462</b>	<b>120.1%</b>	<b>\$4,385,667</b>	<b>131.5%</b>	<b>\$8,184,890</b>	<b>232.0%</b>

## MWRA FY13 CEB Expenses through 4<sup>th</sup> Quarter FY13

	June 2013 Year-to-Date (\$'000)									
	Budget		Actual		Variance	%	FY13 Budjet		%	
<b>EXPENSES</b>										
WAGES AND SALARIES	\$	94,059	\$	90,659	\$	(3,401)	-3.6%	\$	94,059	96.4%
OVERTIME		3,573		3,543		(31)	-0.9%		3,573	99.1%
FRINGE BENEFITS		18,242		17,536		(705)	-3.9%		18,242	96.1%
WORKERS' COMPENSATION		2,100		2,115		15	0.7%		2,100	100.7%
CHEMICALS		9,963		10,139		176	1.8%		9,963	101.8%
ENERGY AND UTILITIES		23,127		23,058		(70)	-0.3%		23,127	99.7%
MAINTENANCE		28,229		26,956		(1,273)	-4.5%		28,229	95.5%
TRAINING AND MEETINGS		386		321		(65)	-16.9%		386	83.1%
PROFESSIONAL SERVICES		5,901		5,003		(898)	-15.2%		5,901	84.8%
OTHER MATERIALS		5,591		6,955		1,364	24.4%		5,591	124.4%
OTHER SERVICES		23,744		22,323		(1,420)	-6.0%		23,744	94.0%
<b>TOTAL DIRECT EXPENSES</b>	<b>\$</b>	<b>214,916</b>	<b>\$</b>	<b>208,607</b>	<b>\$</b>	<b>(6,308)</b>	<b>-2.9%</b>	<b>\$</b>	<b>214,916</b>	<b>97.1%</b>
<b>INDIRECT EXPENSES</b>										
INSURANCE	\$	2,098	\$	2,221	\$	123	5.9%	\$	2,098	105.9%
WATERSHED/PILOT		26,413		26,005		(408)	-1.5%		26,413	98.5%
BEC <sub>o</sub> PAYMENT		3,742		3,492		(250)	-6.7%		3,742	93.3%
MITIGATION		1,567		1,518		(49)	-3.1%		1,567	96.9%
ADDITIONS TO RESERVES		1,398		1,398		-	0.0%		1,398	100.0%
RETIREMENT FUND		10,474		10,490		16	0.2%		10,474	100.2%
<b>TOTAL INDIRECT EXPENSES</b>	<b>\$</b>	<b>45,693</b>	<b>\$</b>	<b>45,124</b>	<b>\$</b>	<b>(569)</b>	<b>-1.2%</b>	<b>\$</b>	<b>45,693</b>	<b>98.8%</b>
<b>DEBT SERVICE EXPENSES</b>										
STATE REVOLVING FUND	\$	73,805	\$	71,491	\$	(2,313)	-3.1%	\$	73,805	96.9%
SENIOR DEBT		193,432		209,826		16,394	8.5%		193,432	108.5%
DEBT SERVICE ASSISTANCE		(350)		-		350	-100.0%		(350)	0.0%
CURRENT REVENUE/CAPITAL		8,200		8,200		-	0.0%		8,200	100.0%
SUBORDINATE MWRA DEBT		93,304		100,372		7,068	7.6%		93,304	107.6%
LOCAL WATER PIPELINE CP		3,641		335		(3,305)	-90.8%		3,641	9.2%
CAPITAL LEASE		3,217		3,217		0	0.0%		3,217	100.0%
VARIABLE DEBT		-		(13,197)		(13,197)	---		-	0.0%
DEFEASANCE ACCOUNT		-		-		-	---		-	---
<b>TOTAL DEBT SERVICE</b>	<b>\$</b>	<b>375,247</b>	<b>\$</b>	<b>380,244</b>	<b>\$</b>	<b>4,997</b>	<b>1.3%</b>	<b>\$</b>	<b>375,248</b>	<b>101.3%</b>
<b>TOTAL EXPENSES</b>	<b>\$</b>	<b>635,856</b>	<b>\$</b>	<b>633,976</b>	<b>\$</b>	<b>(1,881)</b>	<b>-0.3%</b>	<b>\$</b>	<b>635,857</b>	<b>99.7%</b>
<b>REVENUE &amp; INCOME</b>										
RATE REVENUE	\$	607,512	\$	607,512	\$	-	0.0%	\$	607,512	100.0%
OTHER USER CHARGES		7,767		7,707		(60)	-0.8%		7,767	99.2%
OTHER REVENUE		6,117		8,174		2,057	33.6%		6,117	133.6%
INVESTMENT INCOME		14,461		13,590		(871)	-6.0%		14,461	94.0%
<b>TOTAL REVENUE &amp; INCOME</b>	<b>\$</b>	<b>635,857</b>	<b>\$</b>	<b>636,983</b>	<b>\$</b>	<b>1,126</b>	<b>0.2%</b>	<b>\$</b>	<b>635,857</b>	<b>100.2%</b>

As of June 2013, total revenue was \$637.0 million, \$1.1 million or 0.2% higher than budget and total expenses were \$634.0 million, \$1.9 million or 0.3% less than budget for a net variance of \$3.0 million. It should be noted that \$25.4 million was defeased in June from \$20.4 million in debt related surplus and \$5.0 million from direct and indirect underspending.

### Expenses –

- **Direct Expenses** are \$208.6 million, \$6.3 million or 2.9% less than budget.
- **Wages and Salaries** are underspent by \$3.4 million or 3.6% due to lower headcount and mix of salaries.
- **Other Services** are underspent by \$1.4 million or 6.0% mostly due to Sludge Pelletization of \$759,000 and Other Services of \$510,000.
- **Other Materials** are over budget by \$1.4 million or 24.4% due to the receipt of the unbudgeted Motorola radios offset by lower Computer Hardware purchases of \$136,000.
- **Maintenance** is underspent by \$1.3 million or 4.5% year-to-date. Services are lower than budget by \$2.7 million while materials are overspent by \$1.5 million.
- **Professional Services** are under budget by \$898,000 or 15.2% mainly due to lower Other of \$333,000, Lab & Testing of \$242,000, Security of \$128,000, and lower as-needed Engineering of \$121,000.
- **Fringe Benefits** are under budget by \$705,000 or 3.9% due to lower Health Insurance costs of \$551,000 due to lower headcount and higher new employee contributions.
- **Chemicals** are overspent by \$176,000 or 1.8% mainly due to higher spending for Ferric Chloride of \$149,000 for struvite control and Soda Ash of \$120,000 for price increases offset by lower spending for Nitrazyme of \$96,000 for corrosion control.
- **Utilities** are under budget by \$70,000 or 0.3% due to lower Diesel Fuel of \$961,000 for both lower price and usage offset by higher Electricity of \$985,000 due to commodity pricing.
- **Indirect Expenses** are \$45.1 million, \$569,000 or 1.2% under budget for lower Watershed expenses of \$408,000 mainly for a FY12 overaccrual and Harbor Electric Energy Company (HEEC) reimbursements of \$250,000 due to lower than projected maintenance projects offset by higher Insurance of \$123,000 due to higher claims.
- **Debt Service Expenses** totaled \$380.2 million which is higher than budget by \$5.0 million or 1.3% after the transfer of \$20.4 million of favorable year-to-date variance to the Defeasance Account and recognition of the loss of Debt Service Assistance (DSA) per the Governor's 9C budget cuts.

### Revenue and Income –

- **Total Revenue / Income** for June is \$637.0 million, \$1.1 million or 0.2% higher than budget due to Non-Rate Revenue of \$2.0 million offset by lower investment income of \$871,000. The higher Non-Rate Revenue is comprised of \$724,000 for Profit/Loss on Disposal of Equipment for Chelsea land sale and sale of vehicles, \$712,000 for Miscellaneous Revenue for NSTAR and other vendor rebates, \$452,000 for Federal Emergency Management Agency (FEMA) reimbursements, and \$338,000 in higher net energy-related revenue mostly for Charlestown Wind and Renewable Portfolio Standard (RPS) sales.

## Cost of Debt 4th Quarter-FY13

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.

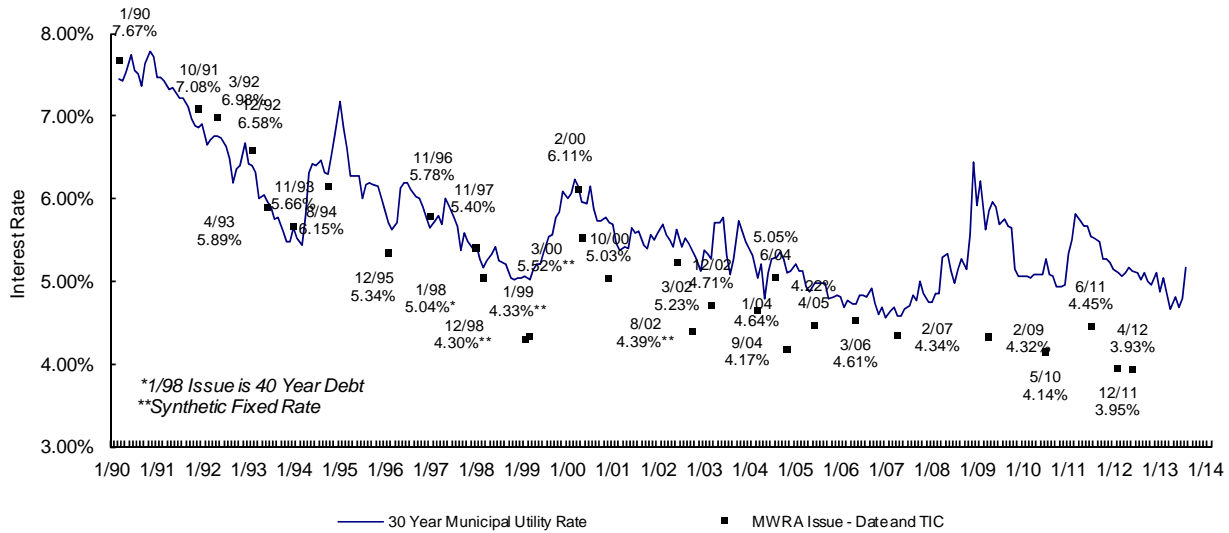
### Average Cost of MWRA Debt

Fixed Debt (\$4,066)	4.34%
Variable Debt (\$484.3)	0.78%
SRF Debt (\$1,077)	1.21%
Weighted Average Debt Cost (\$5,628)	3.43%

### Most Recent Senior Fixed Debt Issue March 2013

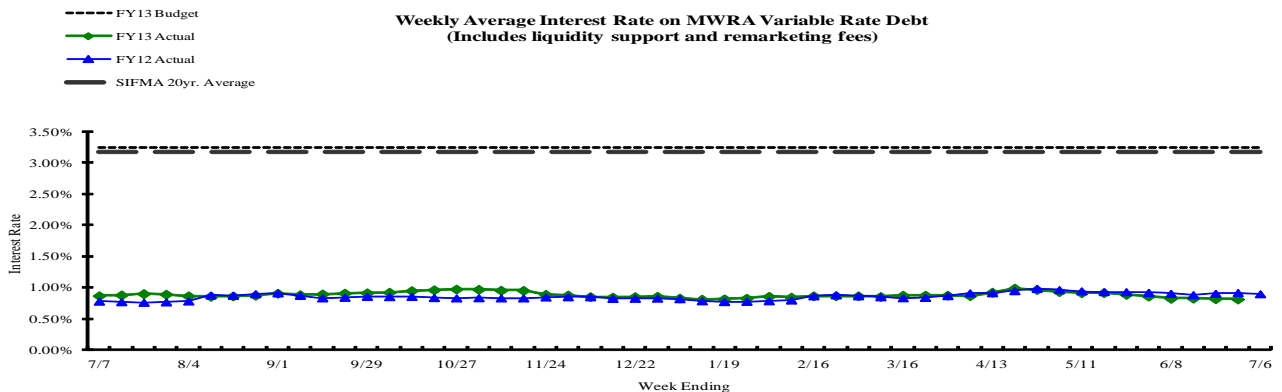
2013 Series A (\$170.6)	2.45%
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### MWRA Fixed Rate Debt vs. 30 Year Municipal Utility Interest Rate



### Weekly Average variable Interest Rates vs. Budget

MWRA currently has ten variable rate debt issues with \$1.1 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 June, SIFMA rates fluctuated with a high of 0.12% and a low of 0.06%. 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.

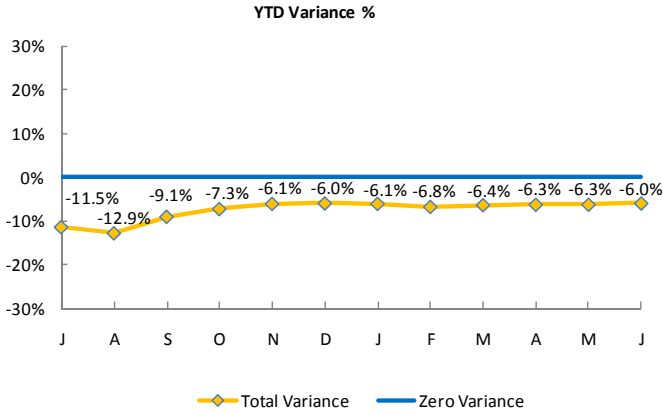




# Investment Income

4<sup>th</sup> Quarter FY13

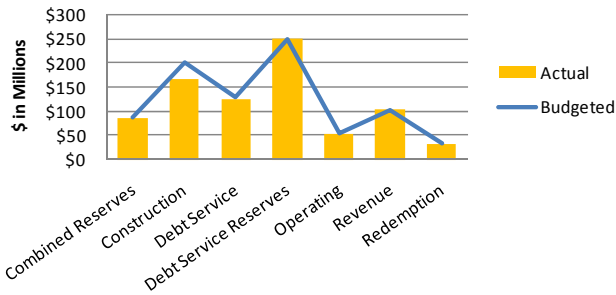
## Year To Date



	YTD BUDGET VARIANCE			
	(\$'000)			
	BALANCES IMPACT	RATES IMPACT	TOTAL	%
Combined Reserves	\$58	(\$67)	(9)	-0.3%
Construction	(\$69)	(\$358)	(427)	-53.4%
Debt Service	(\$16)	(\$242)	(257)	-48.8%
Debt Service Reserves	\$50	\$26	76	0.9%
Operating	(\$25)	(\$20)	(45)	-5.8%
Revenue	\$3	(\$189)	(186)	-36.8%
Redemption	\$0	(\$22)	(22)	-4.6%
<b>Total Variance</b>	<b>\$1</b>	<b>(\$872)</b>	<b>(\$871)</b>	<b>-6.0%</b>

➤ The negative balance is mainly attributed to the lower than budgeted interest rates.

### YTD Average Balances Budgeted vs. Actual

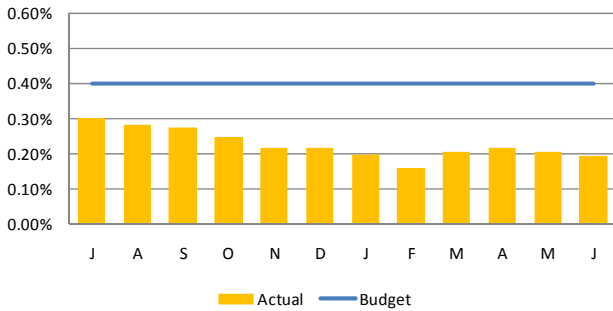


### YTD Average Interest Rate Budgeted vs. Actual

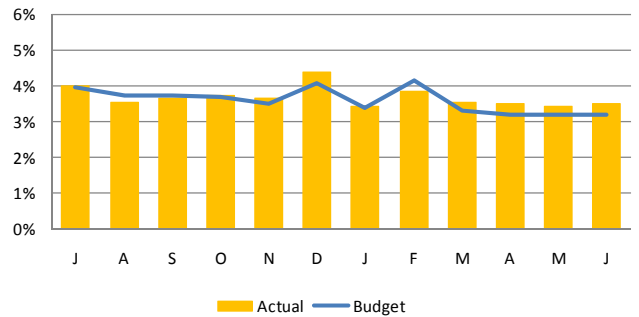


## Monthly

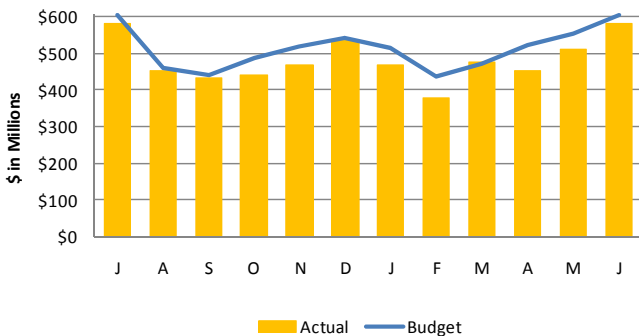
### Short-Term Interest Rates



### Long-Term Interest Rates



### Short-Term Average Balances



### Long-Term Average Balances

