MASSACHUSETTS WATER RESOURCES AUTHORITY

Board of Directors Report

on

Key Indicators of MWRA Performance

for

Fourth Quarter FY2010

Q1	Q2	Q3	Q4

Frederick A. Laskey, Executive Director
Michael J. Hornbrook, Chief Operating Officer
September15, 2010

Board of Directors Report on Key Indicators of MWRA Performance for Fourth Quarter FY2010

Table of Contents

Operations and Maintenance

DITP Operations-Energy 1
DITP Operations 2
Residuals Processing 4
DITP Yearly Maintenance Metrics 5
Operations Division–Metering & Leak Detection 8
Water Distribution System–Valves 9
Wastewater Pipeline/Structures 10
FOD Metro Facility & Equipment Maintenance 11
Field Operations Energy Program 12
Toxic Reduction and Control 13
Field Operations – Narrative Topics 14
Laboratory Services 16

Construction Programs

Projects in Construction 17
CSO Update 19
CIP Expenditures 22

Drinking Water Quality and Supply

Source Water – Microbial Results 23
Source Water – Turbidity and Algae 24
Treated Water – Disinfection Effectiveness 25
Treated Water – pH and Alkalinity, Complaints 26
Bacteria and Chlorine Residual Results 27
Disinfection By-Products, UV 254 28
Water Supply/Source Water Management 29

Wastewater Quality

NPDES Permit Compliance – Deer Island 30
NPDES Permit Compliance – Clinton 31

Community Flows and Programs

Total Water Use – Core Communities 32
Community Wastewater Flows 33
Community Support Programs 34

Business Services

Procurement 36
Materials Management 37
MIS Program 38
Law Dept.-Activities 39
Internal and Contract Audits 42

Other Management

Workforce Management 43
MWRA Workplace Safety Program 44
Job Group Representation 45
MBE/WBE Expenditures 46
CEB Expenses 47
Cost of Debt 48
Investment Income 49

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.

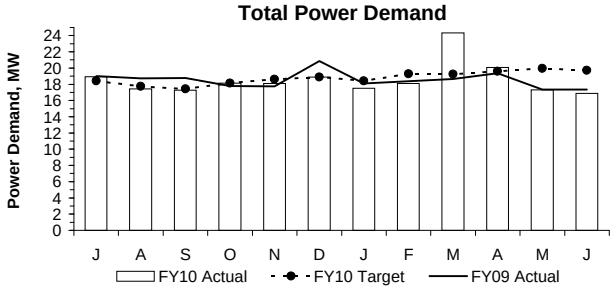
Frederick A. Laskey, Executive Director
Michael J. Hornbrook, Chief Operating Officer

September 15, 2010

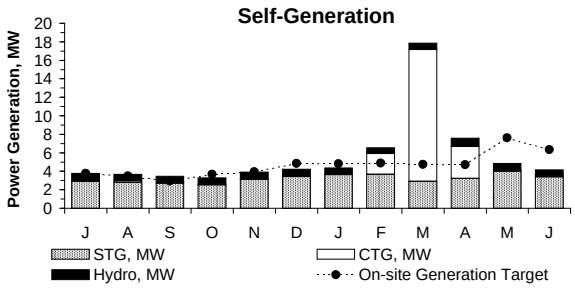
OPERATIONS AND MAINTENANCE

Deer Island Operations

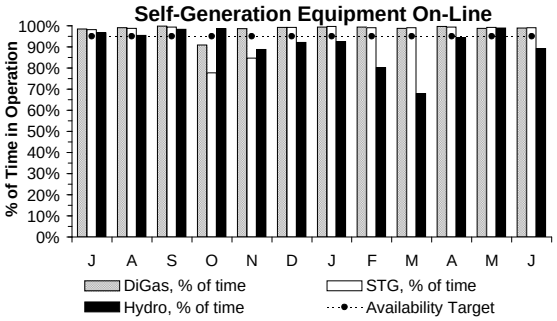
4th Quarter - FY10



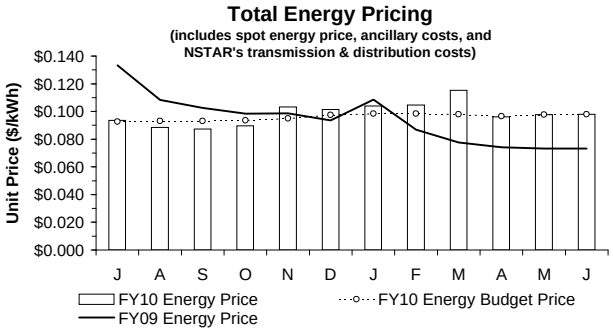
Total Power Demand in the 4th Quarter was 8% lower than target as Total Plant Flow for the quarter was 10% lower than expected. Total Power Demand was slightly higher than target in April as Total Plant Flow was 9% higher than target. May's and June's Total Power Demand were below target as plant flow also fell below target. Total Power Demand for pumping alone this quarter was 10% lower than expected due to the 10% lower plant flow. Overall in FY10, Total Power Demand was only 1% lower than expected even though Total Plant Flow was 7% higher than expected due to the benefits of energy-savings initiatives in the non-pumping areas of the plant.



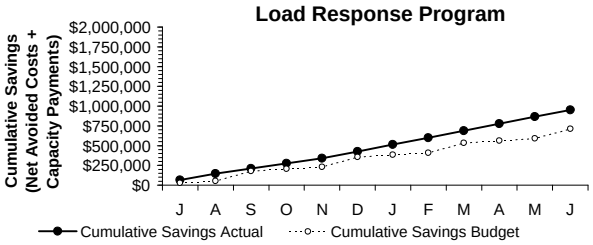
Power generated on-site was 7% below target for the 4th Quarter, mainly due to less-than-budgeted generation by the CTGs and the wind turbines. Even though the CTGs operated for nearly 220 hours in early April during the wet weather, high-flow conditions, they were operated for a total of only 33 hours in May and June; below target due to fewer-than-expected demand response events. DI participated in one demand response event on June 21. Wind turbine generation was 24% lower than target for the quarter due, in part, to lower-than-normal average wind speeds during each month of the quarter. Power generation by the STG, solar panels, and hydro turbines were similar to or higher than target. Solar power generation was 0.87% and wind turbine generation was 3.47% of the total power generated on-site for the 4th Quarter.



The DiGas and STG systems exceeded their 95% Availability Target for the 4th Quarter of FY10, while the hydro turbine system was just 0.8% below target. The hydro turbines were below target due to annual scheduled maintenance in June resulting in periods of downtime.

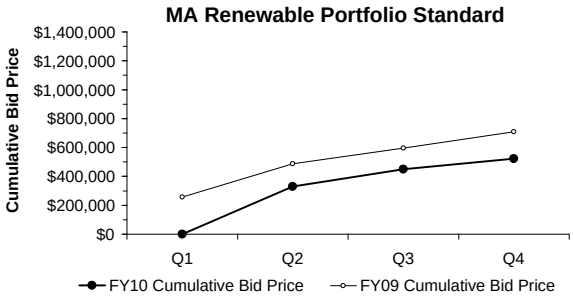


Under the new energy supply contract, a block portion of DI's energy is a fixed rate and the variable load above the block is purchased in real time. Overall, the total energy price in the 4th Quarter was on target with budgeted spot energy prices. The total energy price includes a fixed block price, spot energy price, transmission & distribution charges, and ancillary charges. Please note the May and June total energy prices are estimates as the invoices have not been received. Year-to-date costs as a result of the lower energy pricing are estimated at approximately $48,372 less than budgeted through the 4th Quarter of FY10.



DI participated in one demand response event on June 21. Payment estimates for May and June have not yet been supplied by the electricity supplier.

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 or high pricing, MWRA receives monthly Capacity Payments from ISO-NE. When DI runs the CTGs at ISO-NE's request, MWRA receives energy payments from ISO-NE and also avoids NSTAR's transmission and distribution charges. "Net Avoided Cost" is the avoided NSTAR payments offset by the cost of running the CTGs, and the energy payments from ISO-NE. Cumulative savings are the sum of Net Avoided Costs and monthly Capacity Payments - estimated to be $951,026 through the 4th Quarter compared to the budgeted savings of $713,400.



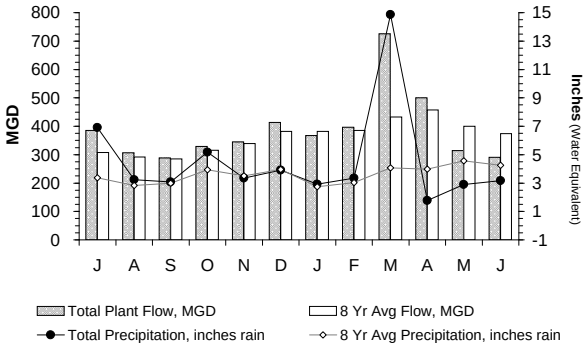
Bids were awarded in June for the sale of 5,312 Renewable Energy Certificates (RECs), for a total value of $74,368; no bids were awarded in April or May. YTD in FY10, bids were awarded for a total of 23,415 RECs with a total value of $523,579.

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 FY10 budgeted bid estimate through the 4th Quarter was $619,464.

Deer Island Operations

4th Quarter - FY10

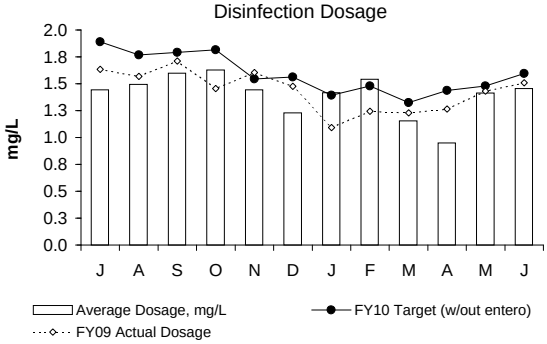
Plant Flow & Precipitation



The Total Plant Flow for the 4th Quarter was 10% lower than the 8-year average flow (368.1 mgd actual vs. 410.4 mgd expected) as precipitation was 38% lower than the 8-year average for the quarter (7.86 inches actual vs. 12.78 inches expected). Total Plant Flow in April was 9% higher than the 8-year average flow, but was 21% and 22% lower than the 8-year average in May and June, respectively.

Deer Island Sodium Hypochlorite Use

Disinfection Dosage



The disinfection dosing rate was 15% lower than the target for the 4th Quarter. The disinfection dosing rate was slightly lower than target in both May and June but was 34% lower in April due to a lower chlorine demand as a result of the diluted wastewater from the high flows.

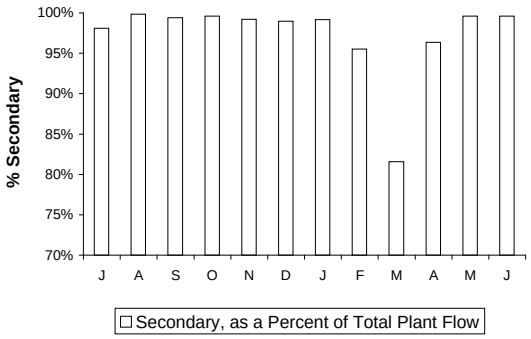
The overall disinfection dosing rate (target and actual) is dependent on plant flow, target effluent total chlorine residual levels, effluent quality and NPDES permit levels for fecal coliform.

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	8	8	0	98.1%	30.2
A	1	1	0	99.9%	3.99
S	1	1	0	99.4%	6.34
O	3	3	0	99.6%	8.21
N	2	2	0	99.2%	10.61
D	3	3	0	99.0%	21.77
J	1	1	0	99.2%	10.27
F	6	6	0	95.5%	64.20
M	7	7	0	81.6%	317.52
A	2	2	0	96.3%	93.74
M	3	3	0	99.6%	6.56
J	3	3	0	99.6%	7.34
Total	40	40	0	97.2%	580.8

There were a total of eight separate blending events *initiated* during the 4th Quarter and all were due to rain and high flows. There was a single blending event that started on March 29 (this event was accounted for and reported in the 3rd Quarter Orange Notebook) and continued uninterrupted until the early morning of April 4 as a result of unprecedented high flows during that period. A total of 620.4 million gallons of primary-only treated flow was blended with secondary effluent, and 107.7 hours of blending occurred during the 4th Quarter, which includes the volume of blended flow from April 1 to April 4. **Secondary permit limits were met at all times in the 4th Quarter.**

Deer Island Secondary Treatment as a Percent of Total Plant Flow



Overall, 98.1% of the total plant flow to DITP was treated through secondary treatment during the 4th Quarter. The Maximum Secondary Capacity for the entire quarter was 700 mgd.

Deer Island Operations & Maintenance Report

Environmental/Pumping:

Measurable rain fell on 29 of the 92 days in the quarter. Lower-than-expected rainfall occurred in April but plant flows remained well above normal due to the effects of the unprecedented high flows and rainfall at the end of the 3rd Quarter. The plant achieved a maximum average hourly flow rate of 1,036 mgd on April 1 as a result of a rainstorm that produced a total of 4.93 inches of precipitation from March 29 through March 31. Overall, Total Plant Flow for FY10 was 7% higher than the target (388.2 mgd compared to 362.6 mgd) and 8% higher than the overall Total Plant Flow in FY09 of 359.9 mgd. Pumping and treatment operations continued without incident throughout the entire 4th Quarter.

Clarifier Rehabilitation Project:

Progress on the major Primary and Secondary Clarifier Rehabilitation Project, MWRA Contract 6899, continued through the 4th Quarter. The primary scope of this project is to replace all of the chain and sprockets in the Primary and Secondary Clarifiers, along with some other limited repairs. Rehabilitation work on a total of seven Primary and eight Secondary clarifiers was completed during this quarter. All the clarifiers within Primary Battery A and more than half the clarifiers within Secondary Batteries A and B have now been completed.

Deer Island Operations & Maintenance Report (continued)

Secondary Treatment:
Annual maintenance was performed at the Cryogenic Oxygen Facility during the last two weeks of April. This turnaround maintenance is performed on roughly half of the components and systems in the facility and allows the remaining half of the facility to continue to operate and produce oxygen uninterrupted. This maintenance was performed on Cryo Train 2; the same maintenance is planned for the remaining systems sometime in the fall.

Odor Control:
Carbon media changeout was performed on one carbon adsorber unit in the West Odor Control Facility in May. In June, wet chemical scrubber media changeout was performed on one scrubber in the East Odor Control (EOC) Facility and on one scrubber in the West Odor Control Facility. Media changeout for Scrubber 5 in the EOC Facility was started in late June and will be completed in early July, followed by Scrubber 3 in the Residuals Odor Control Facility.

Energy:
The new solar panels mounted on the rooftop of the Maintenance/Warehouse Building became operational on March 26. The power generation data reported on Page 1 for the solar panels through the entire 4th Quarter includes the solar panels on the rooftop of the Residuals Odor Control Building and the new solar panels on the Maintenance/Warehouse Building.

Regulatory/Compliance:
Officials with the Massachusetts Department of Environmental Protection were on site on June 23 for a site visit and audit of the treatment plant. A presentation and a comprehensive plant tour were given to the officials as part of this one-day event.

Clinton Wastewater Treatment Plant Operations & Maintenance Report

Storm Recap and Assessment: As a result of the March 2010 (into April) storms, plant management has initiated and/or participated in several steps to address similar events in the future. Those steps included participating in a FEMA meeting to discuss consideration of recouping emergency funds expended during the storms and potentially receiving funds for projects to prevent catastrophic events at the plant. In addition, a consultant is reviewing an asset protection plan of installing influent gates to throttle flow during high flow storm events. Further, staff anticipate receiving a draft of a plan to install auxiliary pumps in the influent wet well and intermediate wet well to supplement pumping capacity.

Storm Clean-up: Staff disassembled the auxiliary pumps and all associated piping. Staff also cleaned debris from around the perimeter fence and secured broken fence sections; removed sump pumps in all roadway manholes; and cleaned up the Generator Room and the Electric Room in the Headworks Building after the flooding.

Digester Cleaning Project: Preparation continued during the 4th Quarter and this project is scheduled to begin the week of July 12, 2010. This is the first phase of a project that will rehabilitate both digesters and their components over the next two years.

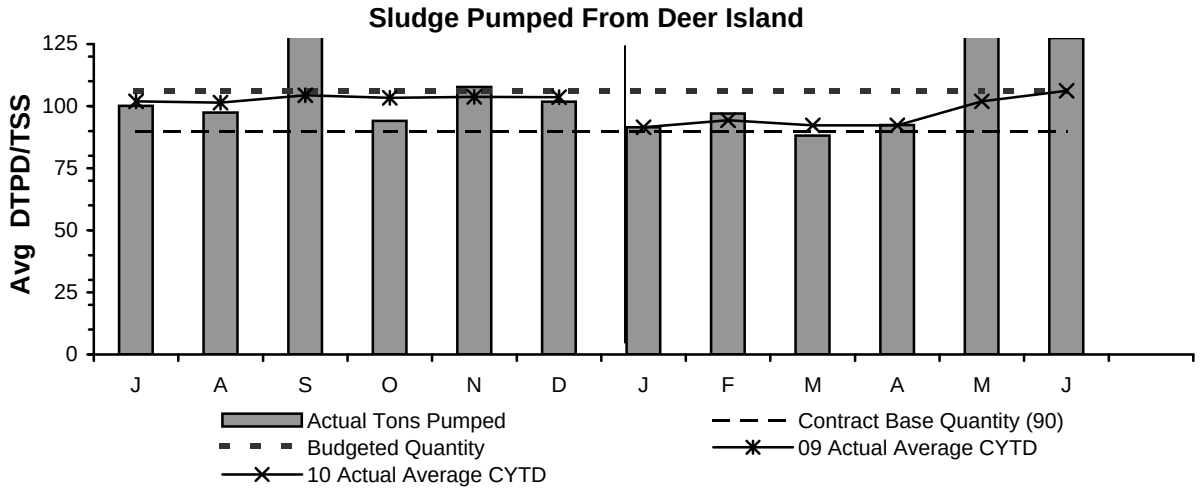
Phosphorous Treatment Alternatives: Working with MWRA's consultant, staff have prepared an abstract of phosphorous treatment alternatives to be presented at the annual NEWEA Conference in Boston. A similar presentation was recently made at an MWRA Advisory Board meeting. Under the present National Pollutant Discharge Elimination System (NPDES) permit, the Clinton Plant is required to meet a monthly average effluent limit of 1.0 mg/l of total phosphorus from May 1 to October 31. Staff anticipate that the new NPDES permit will require a much more stringent limit (potentially as low as 0.15 mg/l April-October, and 1.0 mg/l November–March.) In addition, limitations on aluminum will require Clinton to use a different treatment than alum addition.

Operations and Maintenance: All preventive maintenance works orders were completed in the 4th Quarter. In addition, staff completed a number of other corrective, preventive and predictive maintenance tasks this quarter.

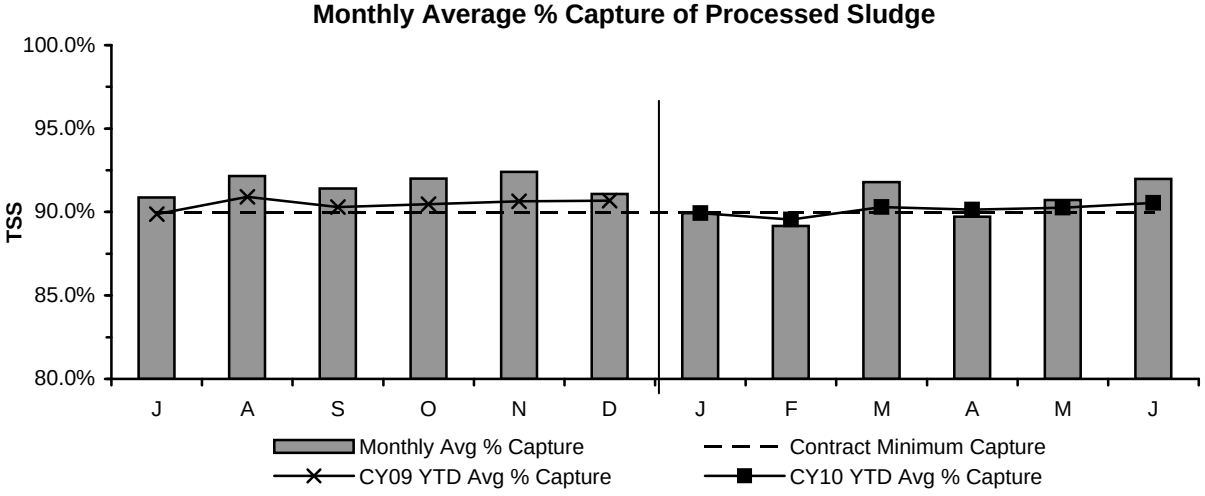
Deer Island Residuals

4th Quarter - FY10

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 (FY10's budget was 106 DTPD/TSS; the actual FY10 average was 105.7 DTPD/TSS).



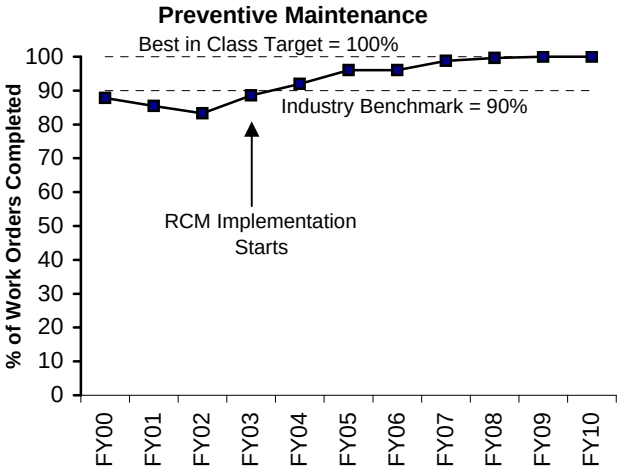
The 4th Quarter's average total quantity of sludge pumped to FRSA was 120.1 DTPD, which was more than FY10's budget of 106 DTPD/TSS. Among the reasons for the higher quantity was the higher-than-average temperatures, which led to more secondary sludge generation. Changes in sludge inventory, the performance of primary and secondary treatment, and upset conditions, can all impact sludge quantities.



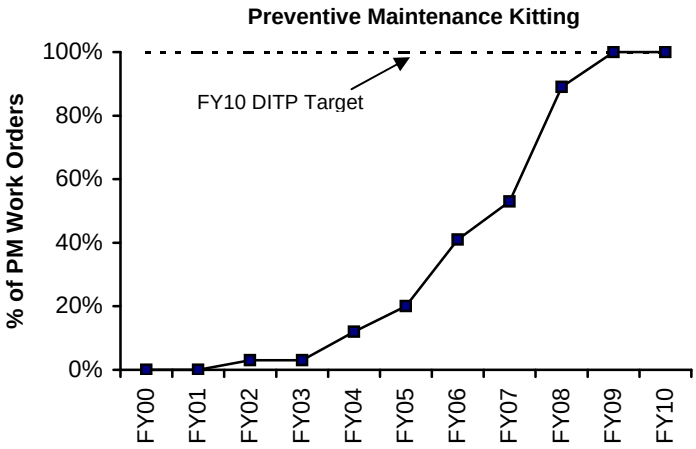
The contract requires NEFCo to capture at least 90% of the solids delivered to the Pelletizing Plant at FRSA; the average solids capture rate for the 4th Quarter was 90.32%. Staff interpret the contract requirement to be met at all times and will review the capture rate for each month at the end of the calendar year to determine if cost recovery should be pursued.

DI Yearly Maintenance Metrics

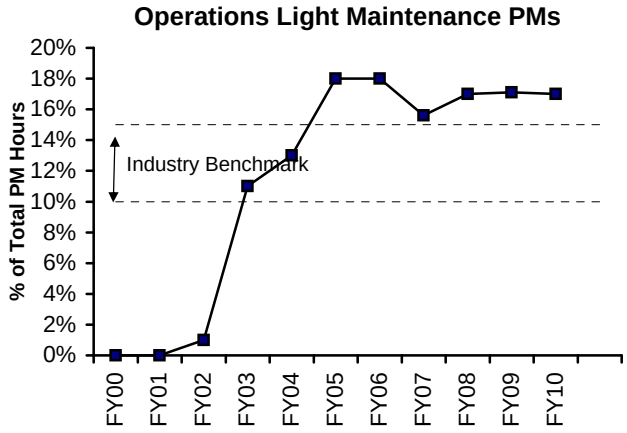
Proactive and Productivity Measures (p1)



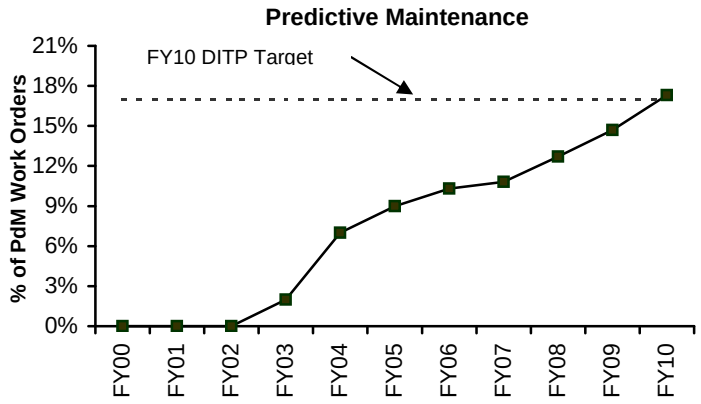
The industry benchmark for preventive maintenance is 90% completion. Deer Island raised the goal to the "Best in Class" 100% target in FY02 and has maintained that goal since then. Deer Island's PM work order completion has been trending upward. Reliability-Centered Maintenance (RCM) and Preventive Maintenance (PM) optimization efforts have continued in FY10; DITP's PM completion was 99.9%.



In an effort to increase wrench time, staff have been developing a process to "kit" all preventive 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" rather than waiting for parts at the stockroom window. PM inventory items were loaded into Maximo so that parts for equipment could be assigned to work orders on a monthly basis. DITP reached the 100% goal in the last month of FY09. Maintenance performed an audit beginning FY10 to ensure all PM schedules that required materials were complete. A new graph was developed late in FY10 to track kitting of all work orders.



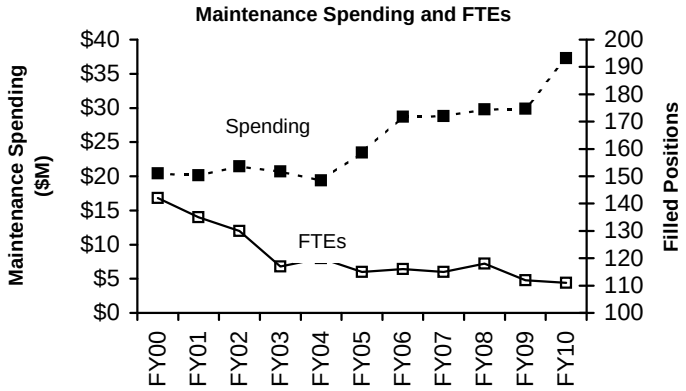
The percentage of preventive maintenance work order hours completed by Operations has increased from less than 1% in January 2002 to the current level of 17%. DI reached the industry benchmark range of 10-15% in April 2003 and has exceeded the goal through FY10. Operations completes approximately 600 PM work orders per month.



The percentage of predictive maintenance has steadily increased from 0% in FY02 to 17% in FY10. An increase in predictive maintenance activities was achieved through the expanded use of lubrication, vibration, thermography, and acoustic ultrasonic testing techniques. The Condition Monitoring Group continually reviews existing workload and investigates new opportunities and initiatives to expand condition monitoring testing and analysis. Every month a "needs action" list is generated as a result of condition monitoring testing and analysis; these work orders are called condition-based maintenance.

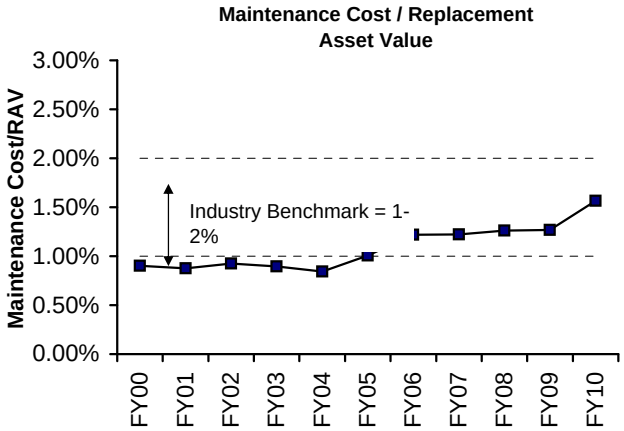
DI Yearly Maintenance Metrics

Overall Maintenance Program Measures (p2)

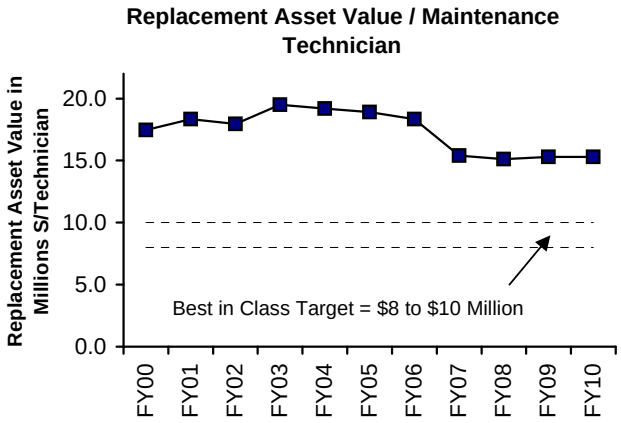


The number of FTEs has steadily decreased over time through staff attrition. Maintenance has been successful in meeting its goals through implementation of numerous maintenance efficiencies, including Operations staff performing light maintenance, cross-functional flexibility, and Reliability-Centered Maintenance.

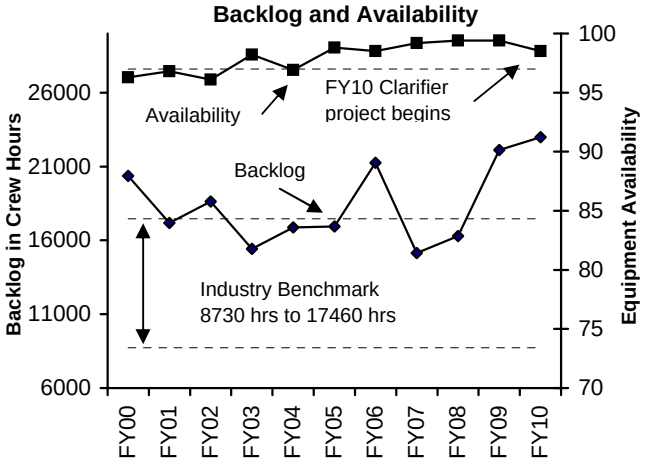
Maintenance spending is actual annual maintenance spending and large asset replacements (equipment costs only). To ensure proper maintenance of plant assets, maintenance spending will continue to increase (due to the plant becoming older and the need to replace obsolete equipment). In FY10, overall spending was higher than FY09 due to some significant CIP projects. The capital replacement projects were electrical equipment upgrades, heat loop, roof replacement, and the Primary and Secondary Clarifier Rehabilitation Project.



This metric is used to determine if annual maintenance spending is within the industry benchmark of between 1% to 2%. The plant replacement asset value was calculated to be approximately $2.5 billion. DITP's current maintenance spending is within the target range. The increase is due to the Primary and Secondary Clarifier project. Additional spending is expected as the plant ages and additional equipment requires replacement.



This metric is used to benchmark maintenance staffing. DITP has adopted a best in class target of $8-$10 Million/Technician. DITP currently exceeds the target. As the plant ages and additional maintenance is required, additional technicians will be required to provide adequate care for plant assets. In FY10, additional outside services supplemented maintenance staffing resulting in an slightly higher value.

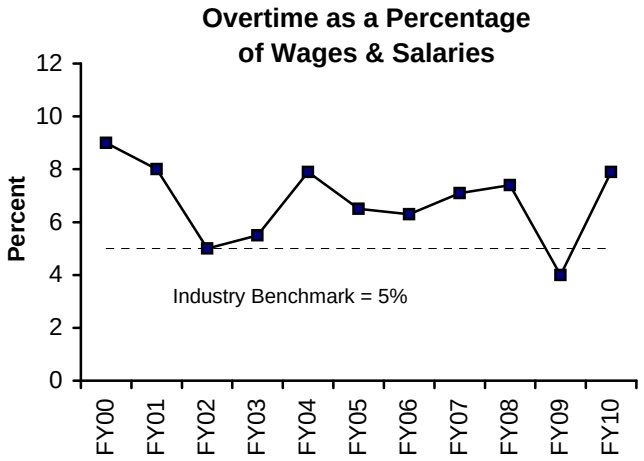


The industry benchmark for equipment availability is 97%; the industry benchmark for maintenance backlog is between 8,730 to 17,460 hours. DI's equipment availability goal has been met for the past eight years and was 98.5% in FY10.

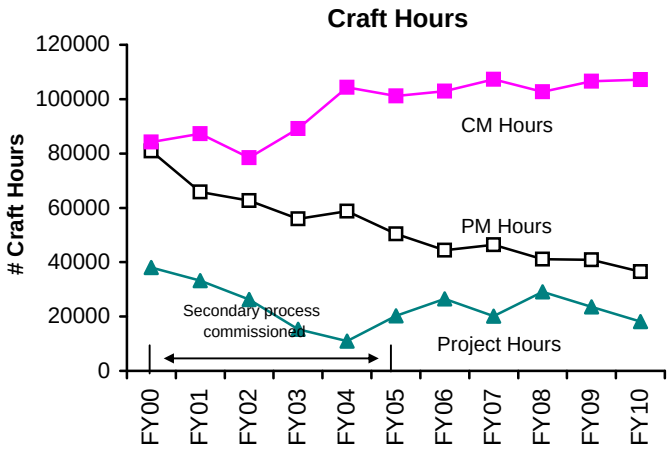
The total average backlog for FY10 was 22,989 hours. Currently, DI's backlog as of July 1, 2010 is 15,825 hours, which is well within the industry average. In an effort to reduce the overtime budget earlier this year, the backlog increased. DITP staff closely monitor all other key performance indicators to ensure that the backlog does not impact plant performance. Management continues to prioritize work and limit overtime to repair of critical equipment or systems only.

DI Yearly Maintenance Metrics

Overall Maintenance Program Measures (p3)

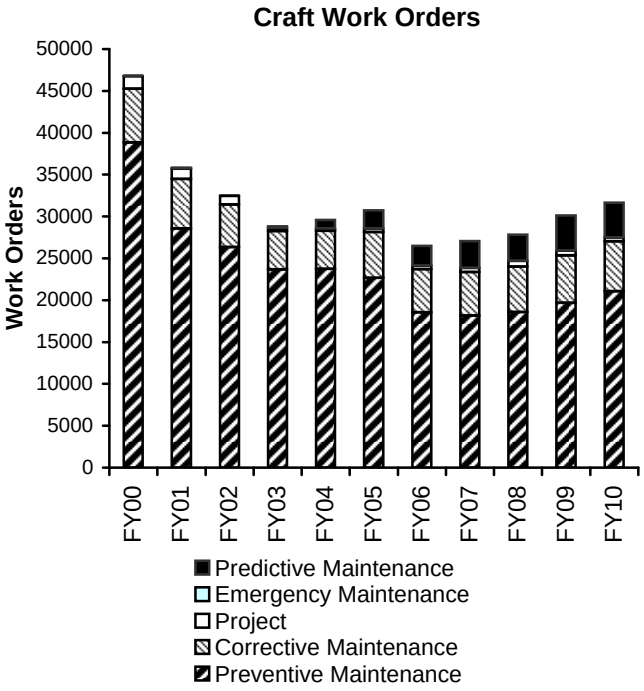


Overtime in FY10 is over the industry benchmark due to the high flows that were experienced during the Spring of 2010. DITP was under budget from July 2009 until February 2010. In March the service area received record amounts of rainfall and this required maintenance staff to be on island 24/7 for most of the month. DITP management closely monitors the overtime and is working on critical equipment only.



Optimization of the preventive maintenance (PM) program through the transfer of some light maintenance tasks to Operations staff (17% of PM hours at the end of FY10), elimination of duplicate work orders, decreasing PM frequency due to equipment history and performance, completion of a PM Optimization effort in FY05, and RCM recommendations which are still on going have resulted in a significant decrease (44,412 hours) of PM craft hours from FY00 to FY10.

The slight decrease in hours is also from our condition monitoring (CM) techniques being applied which allow maintenance to monitor and test equipment using technology which takes less time and is less intrusive.

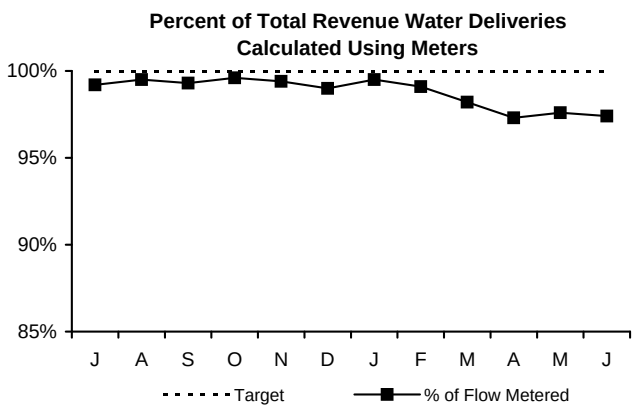


During FY10, the number of total work orders increased by approximately 3290 work orders. Condition Based Maintenance (CBM) work orders are up 20% in FY10. CBM work orders are a follow-up work order with a recommended action required which was identified while using a predictive maintenance technique or tool (Vibration analyses, Acoustic Ultrasonic, or Lube oil analyses). This is part of the transition from reactive maintenance to proactive maintenance using less intrusive methods which is part of DITP's strategy to improve maintenance.

Operations Division Metering

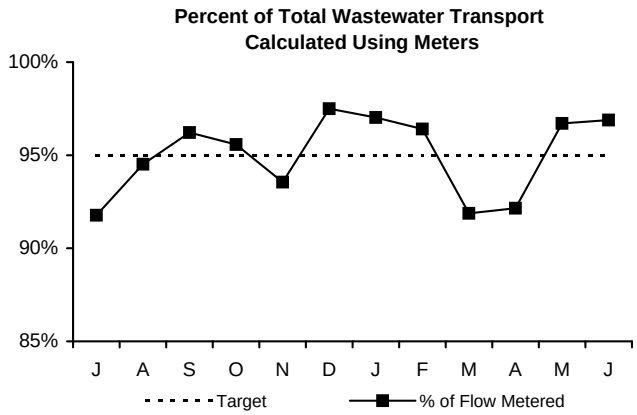
4th Quarter - FY10

WATER METERS

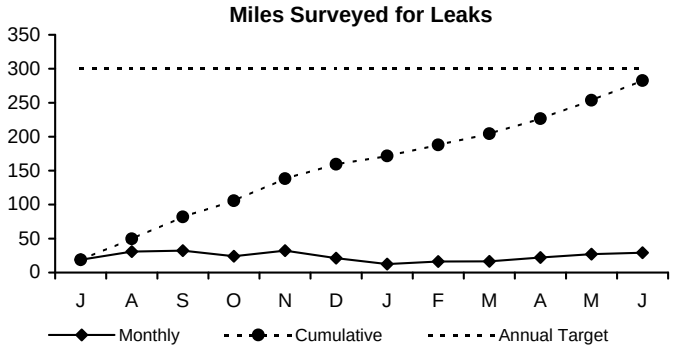


The target for revenue water deliveries calculated using meters is 100%. Estimates are generated for meters that are out of service due to instrumentation problems or in-house and capital construction projects. For the 4th Quarter, meter actuals accounted for 97.4% of flow; only 2.6% of total revenue water deliveries were estimated. The following is the breakdown of estimations:
In-house and Capital Construction Projects - 1.5%
Instrumentation Failure - 1.1%

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. For the 4th Quarter, meter actuals accounted for 95.25% of flow; 4.75% of wastewater transport was estimated. Due to the March/April storms, an increase in meter outages increased the need for estimations.

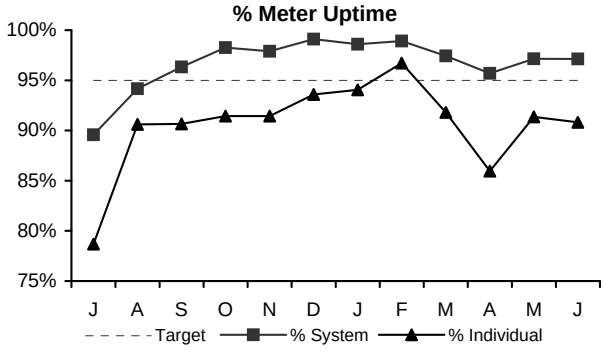


During the 4th Quarter, staff inspected 78.2 miles of MWRA water mains. This brings the total for the fiscal year to 282.75 miles, which is just below the FY10 goal of 300 miles.

Water Distribution System

Month	J	A	S	O	N	D	J	F	M	A	M	J
Leaks Detected	0	1	1	0	0	2	1	0	0	0	0	0
Leaks Repaired	0	1	1	0	0	2	1	0	0	0	0	0
Backlog	0	0	0	0	0	0	0	0	0	0	0	0
Avg. Lag Time	**0.0**	**3.0**	**2.0**	**2.0**	**2.0**	**5.8**	**6.4**	**6.4**	**6.4**	**6.4**	**6.4**	**6.4**

The leak backlog for FY10 finished at zero; no leaks were detected during the 4th Quarter. The Pipeline Program's goal is to repair all leaks found during the fiscal year. However, if the goal cannot be reached due to restrictions, isolations, communities, or degree of difficulty, then the goal is to have not more than two leaks outstanding at year's end. The Pipeline Program's goal was met for FY10.



For the 4th Quarter, out of a possible 1,616,160 data points, only 54,001 points were missed resulting in a system-wide up time of 96.66%. Of the average of the 185 revenue meters installed, on average, 19.7 experienced down time greater than the 5% target resulting in an 89.35% individual meter uptime. For the 4th Quarter, down time for an individual meter is defined by any individual meter having, on average, less than 2,766 data points. Due to the March/April storms, higher-than- normal individual meter failure was experienced.

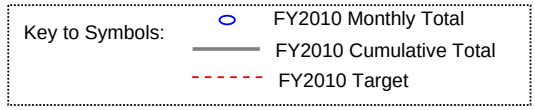
Water Distribution System Valves

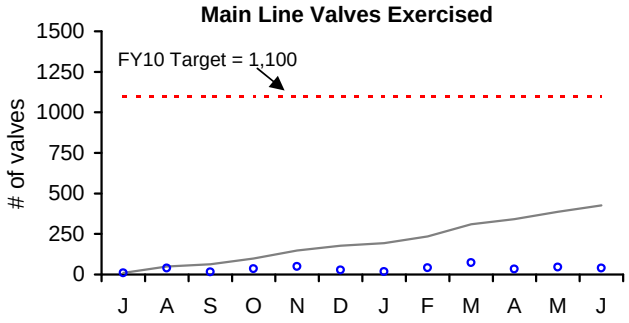
4th Quarter - FY10

Background

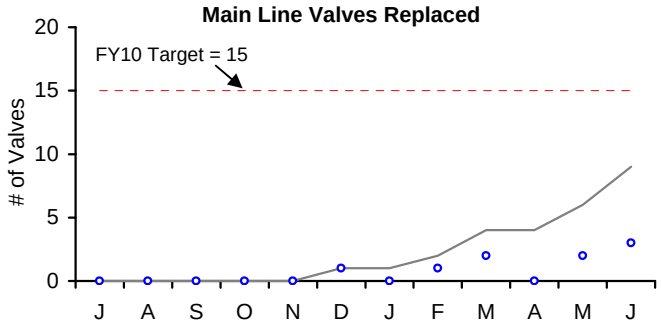
Valves are exercised, rehabilitated, or replaced in order to improve their operating condition. This work occurs year round. Valve replacements occur in roadway locations during the normal construction season, and in off-road locations during the winter season. Valve exercising can occur year round but 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. Since October 2008, Field Operations' valve work has been impacted by construction/work zone safety issues and the use of flaggers.

Type of Valve	Inventory #	Operable Percentage	
		FY10 to Date	FY10 Targets
Main Line Valves	2,083	85.4%	87%
Blow-Off Valves	1,175	92.0%	94%
Air Release Valves	1,338	91.1%	92%
Control Valves	48	94.0%	92%

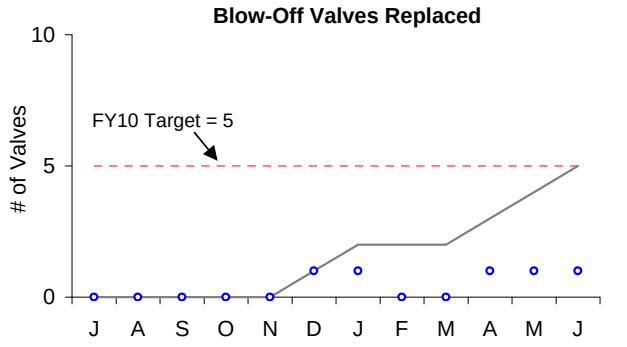




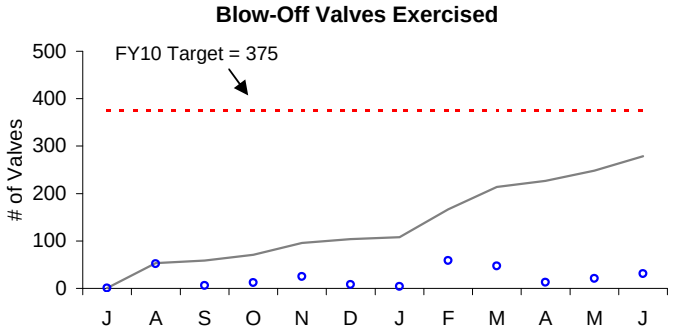
During the 4th Quarter, staff exercised 118 main line valves bringing the final total for the fiscal year to 427. MWRA has 2,083 main line valves. The current AWWA standard recommends that valves should be exercised every five years; MWRA sets a more aggressive internal rate of exercising valves once every two to three years. Staff have already begun working in a more focused manner in FY11 to attain the target of exercising 1,100 valves during the year. It should be noted (from above) that main line valve operability remains high at better than 85% so system operability is very good.



Staff replaced five main line valves in the 4th Quarter, which brings the final total for the fiscal year to nine (the annual goal is 15). Several other projects were required to be completed that kept Pipeline staff from working on valve replacements. These projects included drain pipe installation at the IPS in Weymouth, sludge pipe installation at the Pelletizing Plant at FRSA, leak excavations at Nut and Deer Island, dam armoring at Spot Pond, Nonantum Road sleeve valve removal and pressure reducing valve installation, and trench drain and oil/water separator installation at the Chelsea Facility.



Staff replaced three blow-off valves in the 4th Quarter, which brings the final total for the fiscal year to five, meeting the FY10 goal for blow-off valve replacements.



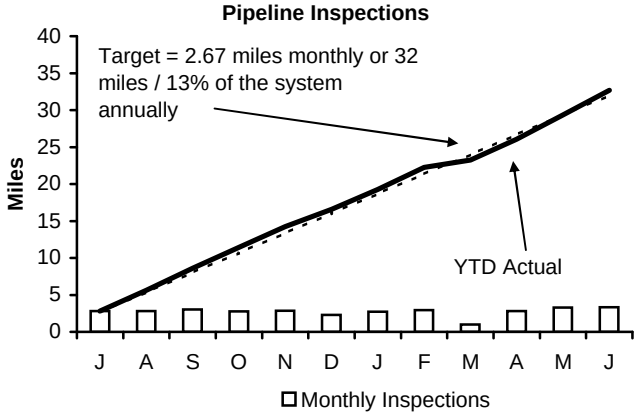
During the 4th Quarter, staff exercised 65 blow-off valves bringing the final total for the fiscal year to 279.

Wastewater Pipeline and Structure Inspections and Maintenance

4th Quarter - FY10

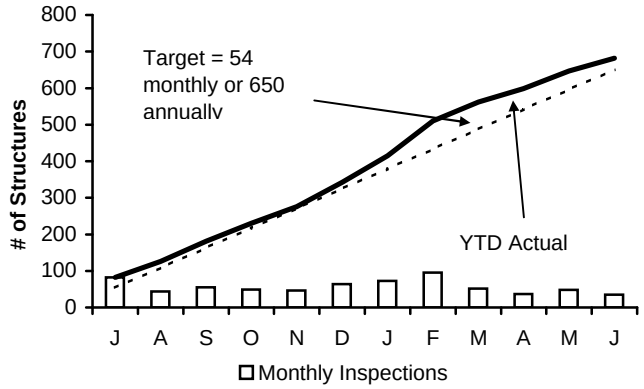
Inspections

Pipeline Inspections



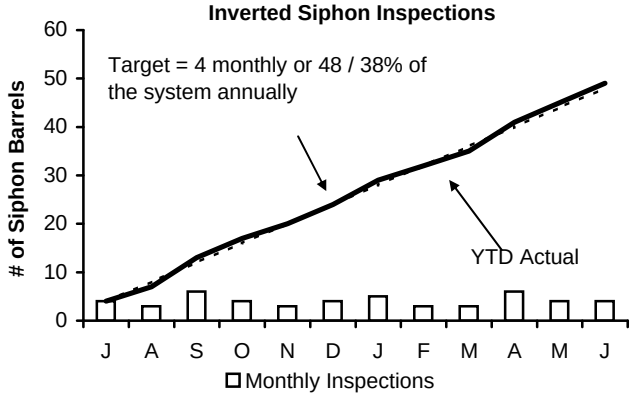
Staff internally inspected 9.44 miles of MWRA sewer pipeline in the 4th Quarter. Community Assistance (TV Inspections) was provided to the following communities: Bedford (4,472 linear feet), Somerville (125 linear feet), Wakefield (275 linear feet), and Newton (470 Linear feet).

Structure Inspections



Staff inspected all 12 CSO structures each month during the 4th Quarter (36 inspections) and also performed 120 additional manhole/structure inspections.

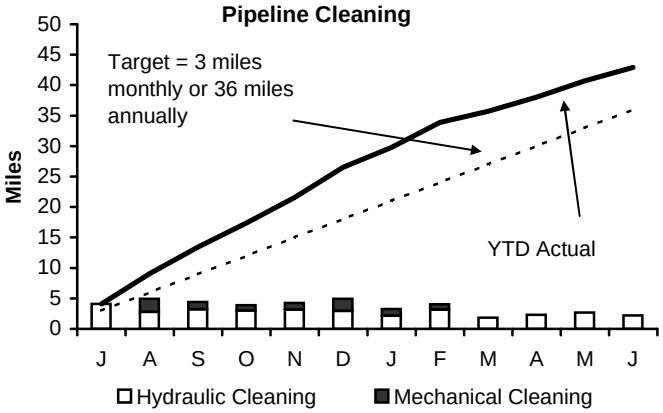
Inverted Siphon Inspections



Staff inspected 14 siphon barrels in the 4th Quarter.

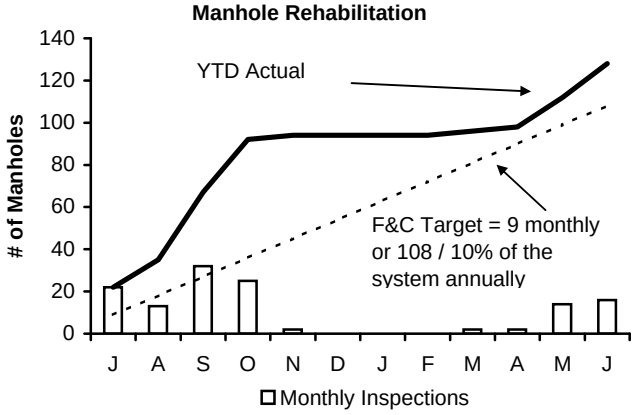
Maintenance

Pipeline Cleaning



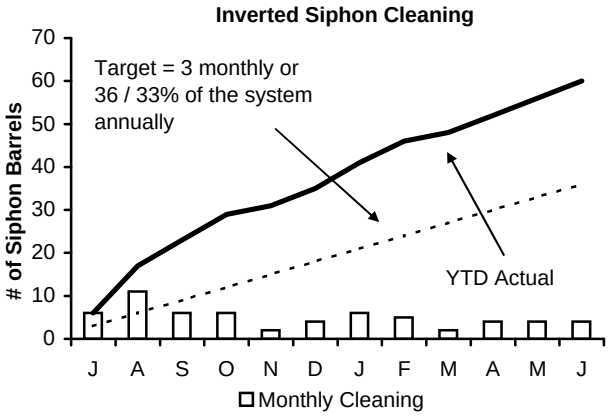
In the 4th Quarter, staff cleaned 7.19 miles of MWRA's sewer system and removed 10 cubic yards of grit and debris. No Community Assistance cleaning was provided this quarter.

Manhole Rehabilitation



Staff replaced 32 frames and covers in the 4th Quarter.

Inverted Siphon Cleaning

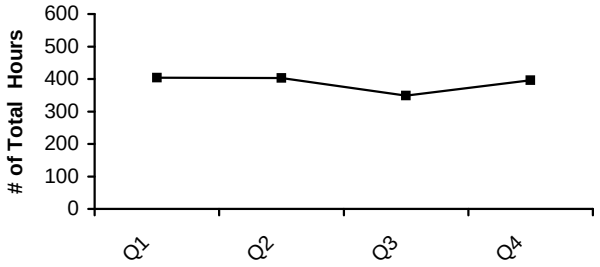


In the 4th Quarter, staff cleaned 12 siphon barrels.

Field Operations' Metropolitan Equipment & Facility Maintenance
4th Quarter - FY10

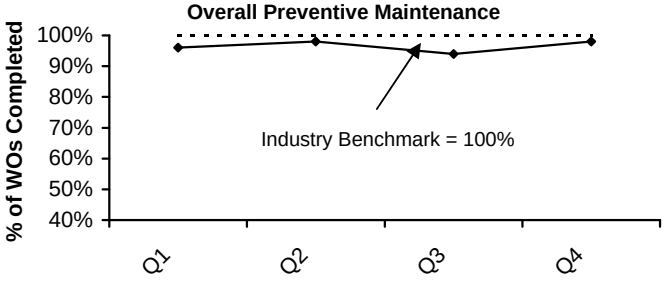
Several maintenance and productivity initiatives are in progress. Operators now performing light maintenance tasks is one of those productivity initiatives. This frees up maintenance staff to perform corrective maintenance and project work, thus reducing maintenance spending. Backlog and overtime metrics monitor the success of these maintenance initiatives.

Operations Light Maintenance PM Hours



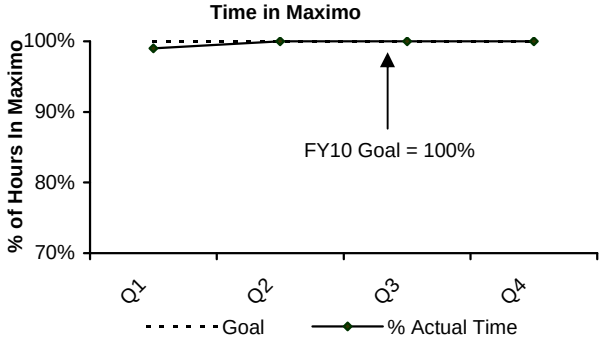
Operations staff averaged 396 hours of preventive maintenance during the 4th Quarter, an average of 18% of the total PM *hours* for the 4th Quarter, which is above the industry benchmark of 10% to 15%. The average for FY10 was 388 hours completed per month.

Overall Preventive Maintenance



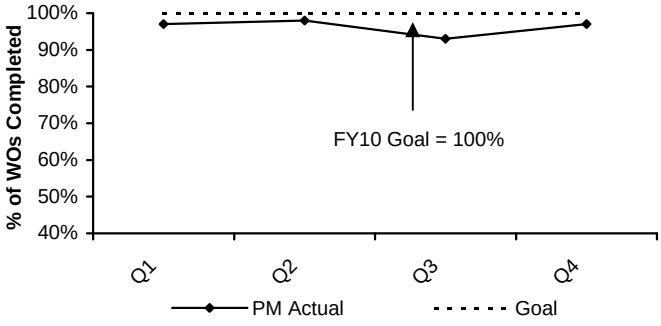
FOD's preventive maintenance goal for FY10 is 100% of all PM work orders. Staff completed an average of 98% of all PM work orders in the 4th Quarter and an average of 97% for the year.

Time in Maximo



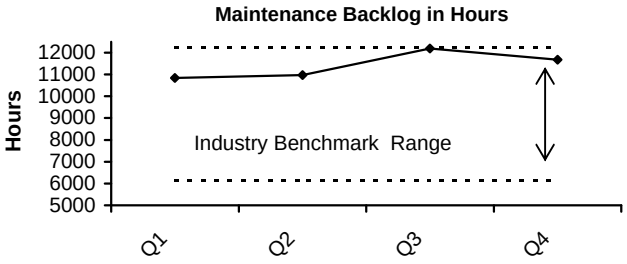
To ensure accurate data in the Maximo database, 8 hours of staff time each day must be entered into Maximo. Staff have developed a new method of time entry into Maximo that, with the issuance of a daily accountability report, has improved time entry. The FY10 goal is 100%; 100% of time was entered in the 4th Quarter and 99.8% of time was entered for the year.

Operations Light Maintenance % PM Completion



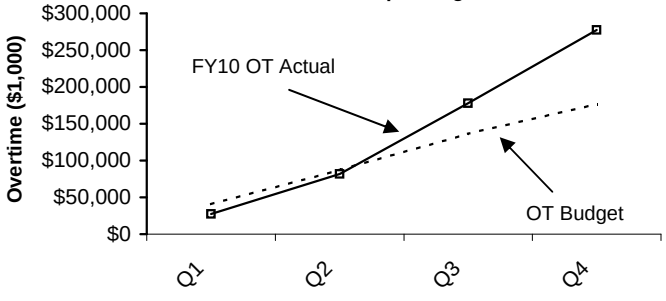
Operations' FY10 PM goal is completion of 100% of all PM work orders assigned. Operations completed an average of 97% of PM work orders in the 4th Quarter and 96% overall for FY10.

Maintenance Backlog in Hours



The 4th Quarter backlog average is 11,648 hours while overtime spending was $100K over budget for the 4th Quarter. Overall backlog is within the industry standard for the 4th Quarter and for FY10. Management's goal is to continue to control the overtime budget and still work within the industry benchmark of 3 to 6 weeks.

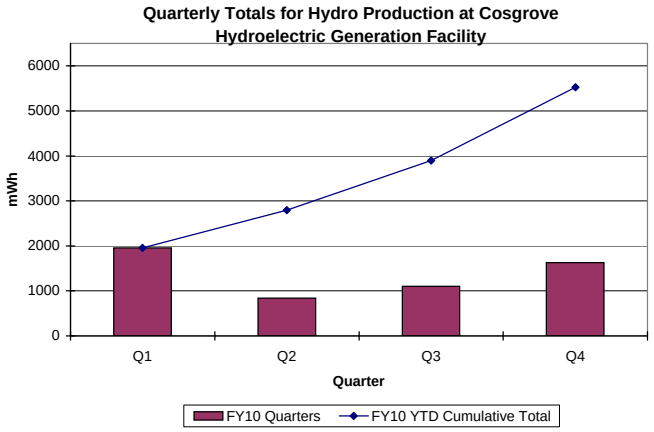
Overtime Spending



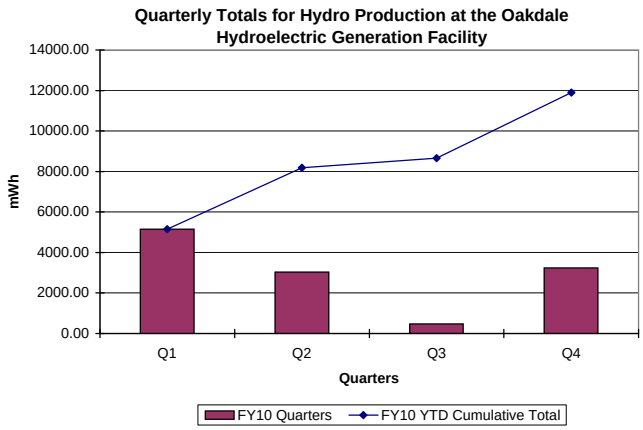
Maintenance overtime was $100K over budget for the 4th Quarter. Overtime in the 4th Quarter was used to complete emergency repairs in various facilities as well as emergency coverage for the pipe repair at Shaft 5 and wet weather events.

Field Operations Hydroelectric Generation

4th Quarter - FY10



In the 4th Quarter, the Cosgrove Hydroelectric Station generated a net of 1,628 MWh; 2% more power than was generated during the same quarter in FY09. The revenue generated at Cosgrove in the 4th Quarter was $72,250; the total revenue for FY10 at Cosgrove was $213,413. It should be noted that the total energy produced at Cosgrove in FY10 was the highest since FY01.



In the 4th Quarter, the Oakdale Station's hydroelectric plant generated a net of 3,237 MWh; 9% more power than was generated during the same period in FY09. The revenue generated at Oakdale in the 4th Quarter was $240,209; the total revenue for FY10 at Oakdale was $811,146. (Oakdale's operating protocol dictates that power is generated when water is transferred from Quabbin to Wachusett unless conditions result in flows that are in excess of generating capability.)

Loring Road Hydroelectric Project: Under the American Recovery and Reinvestment Act for Green Infrastructure projects, MWRA received $1.5 million in stimulus funding from SRF for this project. A construction kick-off meeting was held in January 2010 and construction is on-going.

Lonergan Intake: MWRA completed a feasibility study of hydroelectric power at this facility and although initial indications were favorable, the study determined that generating hydroelectric power at this site would not be cost effective.

Carroll Water Treatment Plant (CWTP) Photovoltaic: A feasibility study was completed for the placement of a solar power system up to 480 kW on either the Dissolved Air Floatation platform or on the roof. Under the American Recovery and Reinvestment Act for Green Infrastructure projects, MWRA is to receive $1.5 million in stimulus funding from SRF for this project. The NTP was issued in January 2010 and work is expected to be completed by the end of calendar year 2010. Staff are evaluating the feasibility of installing another solar power system for the roof of the storage tank.

Southborough Photovoltaic: A feasibility study has been completed for the Trade Shop roof. The feasibility of installing a system on the roof of the new Lab Building was studied as part of the design and construction of the new building and determined to be not cost effective.

Wind Power: The installation of wind turbines at Nut Island continues to be studied. Staff continue to work with the City of Quincy to resolve some siting issues. MWRA had previously received a $500,000 design and construction grant from the Massachusetts Technology Council for this project.

Under the American Recovery and Reinvestment Act for Green Infrastructure projects, MWRA received $4.75 million in stimulus funding from SRF for a wind turbine at the DeLauri Pump Station during the 4th Quarter of FY09. MWRA issued an NTP for design/build of a 370-foot turbine in March 2010. Work is on-going.

CWTP Energy Audit: Recommendations from the energy audit regarding process changes at CWTP are moving forward including installation of demand-controlled ventilation in the office space and variable frequency drives (VFDs). Installation of these energy saving initiatives is expected to be completed by October 30, 2010 and is being coordinated with NGRID so that MWRA will received the allowed incentives for each measure implemented.

Chelsea Facility Energy Audit: The second phase of NSTAR's energy audit at Chelsea, a study of the HVAC system, was completed in the 1st Quarter. The study recommended installing an Energy Management System (EMS) for the Admin. Building along with some equipment updates. Staff are working with NSTAR to put together a specifications package system to be completed by August, 31 2010. NSTAR has agreed to provide a $168,000 incentive to MWRA for the installation of the EMS.

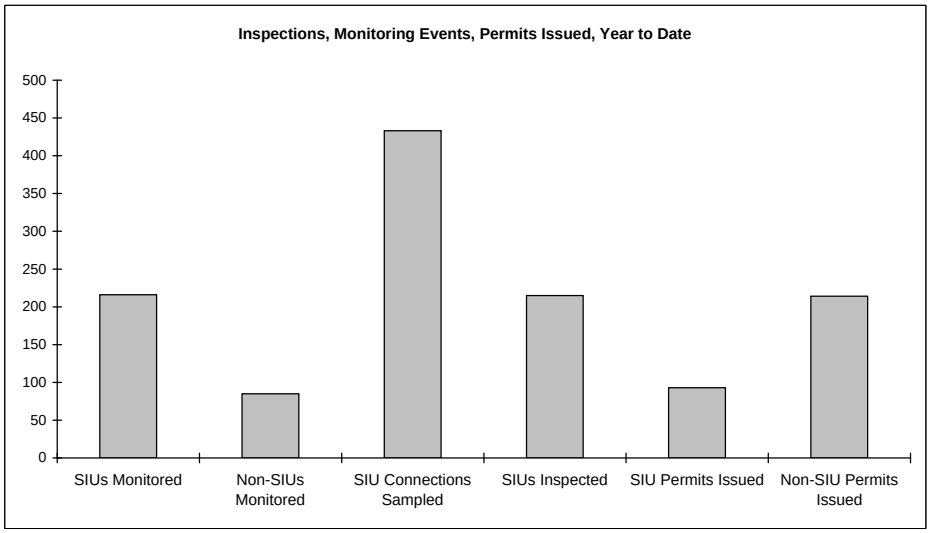
Energy Audit of Eight FOD Facilities: MWRA staff identified multiple facilities that would benefit from a comprehensive energy audit. Phase 1 was conducted in the 4th Quarter of FY09 and included: Chelsea Creek, Columbus Park, Ward Street, Gillis, Newton Street, Commonwealth Avenue, Prison Point, and the Chelsea Screen House. The focus of this energy audit was lighting, HVAC, pumps, and motors. These audits were completed in the 1st Quarter and individual reports for each facility were submitted during the 2nd Quarter of FY10. Implementation of the audit recommendations will begin during the 1st Quarter of FY11. There are five FOD facilities on the south shore that are in NGRID's service area and audits of these facilities are being conducted through NGRID. The lighting audits were completed and reports submitted in the 2nd Quarter of FY10. Evaluations of the pumps and motors were conducted during the 3rd and 4th Quarters of FY10.

Staff also began working with NSTAR on setting up audits for an additional 14 FOD facilities that will be conducted in the 1st and 2nd Quarters of FY11.

Six Water Pump Station VFD Installations: VFDs are being installed at six water pump stations, Brattle Court, Belmont, Hyde Park, Newton Street., Reservoir Road, and Spring Street for better process control and energy efficiency. Brattle Court has been completed and MWRA received a $68,000 rebate check from NSTAR as a result of that installation. Data from Brattle Court has shown that MWRA is using approximately 50% less energy at the station as a result of the new VFD. Newton Street Pump Station was completed in the 2nd Quarter of FY10 and NSTAR issued MWRA a $35,314 rebate check. Reservoir Road and Spring Street were completed during the 4th Quarter of FY10 and rebate checks will be issued by NSTAR once the work has been verified by NSTAR as completed.

Toxic Reduction and Control

4th Quarter - FY10



EPA Required SIU Monitoring Events
for FY10: 186
YTD : **216**

Required Non-SIU Monitoring Events
for FY10: 75
YTD : **85**

SIU Connections to be Sampled
For FY10: 384
YTD: **433**

EPA Required SIU Inspections
for FY10: 212
YTD: **215**

SIU Permits due to Expire
In FY10: 93
YTD: **93**

Non-SIU Permits due to Expire
for FY10: 169
YTD: **214**

Significant Industrial Users (SIUs) are MWRA's highest priority industries due to their flow, type of industry, and/or their potential to violate limits. SIUs are defined by EPA and require a greater amount of oversight. EPA requires that all SIUs *with flow* be monitored at least once during the fiscal year. The "SIU Monitored" data above reflects the number of industries monitored. However, many of these industries have more than one sampling point and the "SIU Connections Sampled" data reflect samples taken from multiple sampling locations at these industries.

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's monitoring plan requires one additional sampling event for 40% of the SIUs and two additional sampling events for 10% of the SIUs. TRAC also monitors one-third of the non-SIUs each year.

TRAC met or exceeded all of its monitoring and inspection goals for FY10.

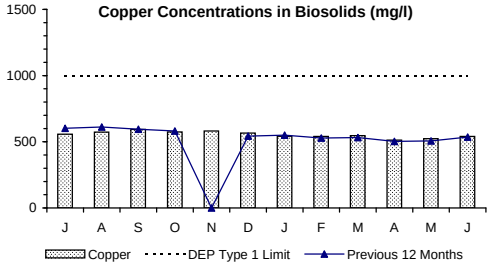
SIU and Non-SIU permits are issued with durations of two to five years, depending on the category of industry, varying the number of permits that expire in a given year.

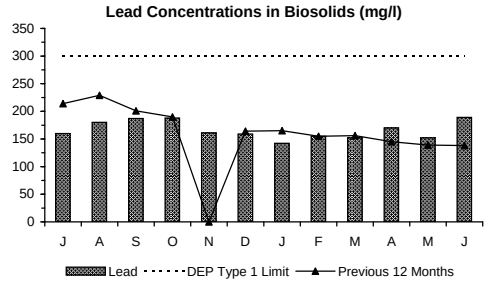
Number of Days to Issue a Permit								
	0 to 120		121 to 180		181 or more		Total Permits Issued	
	SIU	Non-SIU	SIU	Non-SIU	SIU*	Non-SIU	SIU	Non-SIU
Jul	5	15	0	0	0	1	5	16
Aug	1	4	0	2	0	2	1	8
Sep	6	5	1	0	0	1	7	6
Oct	19	23	1	5	2	0	22	28
Nov	4	18	0	5	2	3	6	26
Dec	5	12	0	1	0	3	5	16
Jan	1	40	0	0	1	1	2	41
Feb	3	1	0	0	0	0	3	1
Mar	6	18	0	1	0	2	6	21
Apr	7	14	1	0	1	1	9	15
May	9	17	3	3	0	5	12	25
Jun	9	10	0	1	6	0	15	11
% YTD	**81%**	**83%**	**6%**	**8%**	**13%**	**9%**	**93**	**214**

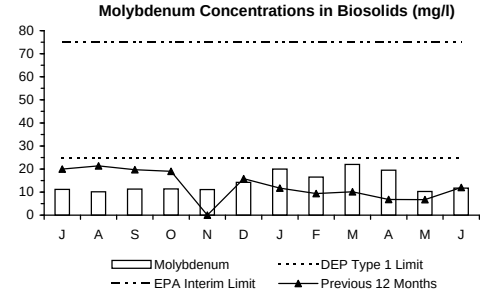
EPA requires MWRA to issue or renew 90% of SIU permits within 120 days of receipt of the application or the permit expiration date - whichever is later. EPA also requires the remaining 10% of SIU permits to be issued within 180 days. *A small number of SIU permits were issued beyond 180 days due to enforcement-related issues (development of compliance schedules) and the time necessary to acquire and consider information to correctly categorize the facilities. Facilities remain covered by their existing permits while their renewal permits are pending.

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. 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. TRAC will continue its voluntary molybdenum reduction program, which has decreased influent loads significantly since 1995.

It should be noted that in for the past two full fiscal years, FY09 and FY10, MWRA met DEP's Type 1 Molybdenum limit, which is a significant event that can be partly attributed to the aforementioned on-going efforts to push voluntary reductions of molybdenum-based corrosion inhibitors. In prior years, molybdenum levels have exceeded the state standard for four to six months, depending upon the weather.







Field Operations Highlights

4th Quarter – FY10

Note: Field Operations staff in several units were pressed into service in response to the Shaft 5 leak on Saturday, May 1, 2010; many staff worked long hours, both in the field and in the Emergency Operations Center.

Western Water Operations & Maintenance

- Carroll Water Treatment Plant (CWTP): Staff supported the contractor while placing the new closed-loop cooling system for the ozone generators into service. Staff isolated Ozone Generator 1 to allow the OEM, Fuji Electric Corp., to overhaul the unit in June. Staff dug test pits to evaluate the soil on top of the storage tanks to address drainage issues. Staff also ran the stand-by generators at the plant during high electrical demand periods at the end of June.

- Nash Hill Tanks: Staff supported the diving contractor at the during the cleaning of both 12.5-million-gallon Nash Hill Tanks; the tanks were isolated to provide access and later placed back into service once cleaned and inspected using a remotely operated vehicle.

- Wachusett Lower Gatehouse: Staff completed a project to construct an emergency disinfection station within the facility. Staff installed pumps and piping for the process and also built a room within the facility to house the equipment.

- Norumbega Covered Storage: Staff cleaned and inspected the infiltration gallery of the surface water drainage system. The gallery is a concrete chamber that is 530 feet long, 24 feet wide and 9 feet deep. The work included removing sediment from the filter fabric, repairs to the fabric itself and installation of new splash plates to dissipate the energy of the incoming water.

Metro Water Operations & Maintenance

- Pipeline Isolations: A portion of WASM 11 and 12 were isolated, flushed, disinfected and returned to service in Arlington to allow for the Section 28 contractor to make connections between the pipelines. This isolated the Brattle Court Pump Station from service. Spring Street Pump Station remained in service for the Northern Extra High service area. Sections 21/43 and Meter 107 to Milton were isolated to allow for construction of the new 48-inch Section 107 pipeline.

- Water Pipeline Program: Work was completed on the dam armoring at Spot Pond; work continued on the pressure reducing valve (PRV) installation at Nonantum Road on WASM 14; work was completed at the Stone Zoo for the Northern Intermediate High pumping connection; two blow-off valve sites were retrofitted (Section 40 on Hyde Park Avenue in Boston and Section 86, Lombardi Road, Somerville); and test pits were excavated on Section 4 on the Webster Avenue Bridge approaches in Somerville.

- Valve Program: Main line valve exercising was performed on Sections 23, 24, 30, 47, 73, and 94; PRV preventative maintenance was performed at Deer Island Tank, Shaft 9A, Arlington Covered Reservoir, Gillis Pump Station, Meter 171 in Arlington, and Meter 157 in Brookline. Staff also participated in a deployment drill of the Mobile Disinfection Unit with Reading Water Department staff at the town's well field.

Wastewater Operations & Maintenance

- SCADA at the Headworks: Efforts for further implementation of SCADA controls at the headworks are ongoing. Columbus Park has automatic gate control that has been field-tested during three separate rain events. The system has been accepted by Operations. The Ward Street System will be field tested during the next few rain events for any adjustments and/or operational issues that may arise and from lessons learned during Columbus Park startup. Chelsea Creek will be third for gate control installation.

- Nut Island Outfall Inspection: Inspection of the outfall discharges has been completed. Internal outfall inspection was attempted; the contractor will revisit in July to complete inspection.

TRAC

- Enforcement: Settlement Agreement between Brandeis University and MWRA: TRAC and Brandeis entered into a Settlement Agreement, effective April 6, 2010, to resolve all issues related to the September 3, 2009 Penalty Assessment Notice (PAN) resulting from Brandeis' discharge of excessive levels of cyanide into MWRA's sanitary sewer system after the January 12, 2009 deadline (which was an extension of the original December 3, 2008 deadline). The total amount of the penalty assessed was $40,500. Brandeis had appealed the PAN. The Settlement Agreement requires Brandeis to pay a $27,500 administrative penalty and pay stipulated penalties for a period of two years.

TRAC (Continued)

- Consent Agreement between Advanced Electron Beams (AEB) and MWRA: TRAC and AEB entered into a Consent Agreement effective June 1, 2010 to resolve discharge and reporting violations of MWRA regulations and federal pretreatment requirements for metal finishing operations. Specifically, AEB discharged wastewater from a federally-regulated process without an MWRA Sewer Use Discharge Permit and did not submit a Baseline Monitoring Report as required by federal regulations. The Consent Agreement required AEB to pay a $20,000 penalty.

Metro Equipment and Facility Maintenance

- Headworks Grit Removal: During the heavy rains in March, two channels at Columbus Park, one half channel at Chelsea Creek, and one channel at Ward failed and filled with grit. Staff dug out the grit and each system was repaired.

- Tree Removal: Trees were cleared at the Columbus Park Headworks, Pearl Street and the High Fells Roadway.

- Mystic River Watershed Association Assistance: On Saturday June 12, nearly 25 volunteers from Friends of the Mystic River, Groundwork Somerville, Mystic River Watershed Association and MWRA came together to pull the invasive water chestnut from the Mystic River. Volunteers filled 250 baskets of water chestnuts from the river filling two dump trucks.

- Fells Detention Basin: Grounds staff started removing trees from the basin and Pipeline staff assisted in clearing the drain to the basin. This work is expected to be completed in July.

- City of Boston Assistance: MWRA Painters removed graffiti to support a City of Boston clean-up in the Fenway area.

Operations Support

- Development of ERP Training Programs: Staff continued developing a comprehensive annual emergency plan training program to comply with DEP requirements. A training outline was developed in April and circulated to DEP for approval in May. Staff anticipate that the training will begin sometime in Q1 of FY11 and continue throughout the year.

- Department of Homeland Security (DHS) Visit: A DHS-led security audit team performed a physical audit at many MWRA sites in April and staff are still awaiting results. In June, DHS staff conducted a Cyber Assessment Workshop with MWRA staff under the Regional Resiliency Assessment Project.

- Start-up Testing: Reservoir Road Pump Station was completed in April.

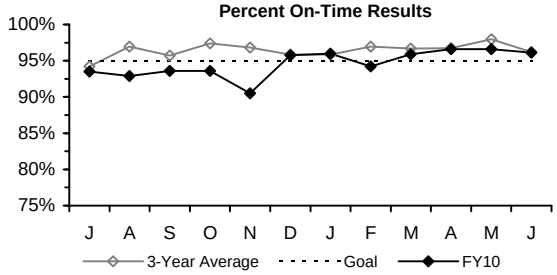
- Headworks SCADA Project: During the fourth quarter, staff continued to support the follow-up in-house projects that replaced the originally planned Contract 3, including SCADA work at the Arthur Street Pump Station. Flume testing of the new headworks flow measurement system was completed at Ward Street in March but additional issues were identified with the submergence correction instrumentation that resulted in additional field testing in May. Staff are reviewing a revised draft report that was submitted by the consultant in June.

- Cyber Assessment: Staff continued participating in an internal cyber security audit covering the SCADA system and MIS administrative networks. This effort is in addition to the DHS cyber assessment visit. In May, staff completed the core audit forms. Additional sessions were held in June to work on detailed questions that were identified as follow-ups from the core audit process.

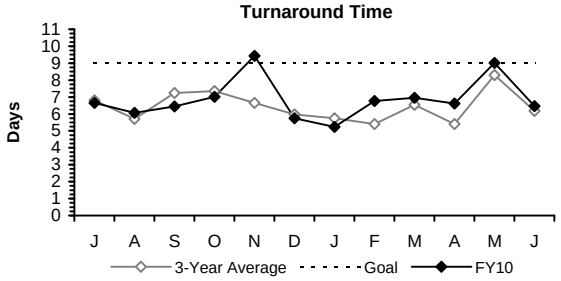
- Seasonal Work: Staff supported the scheduled May chlorine point relocation and began monitoring summer issues, including supporting the seasonal algae and coliform monitoring.

Laboratory Services

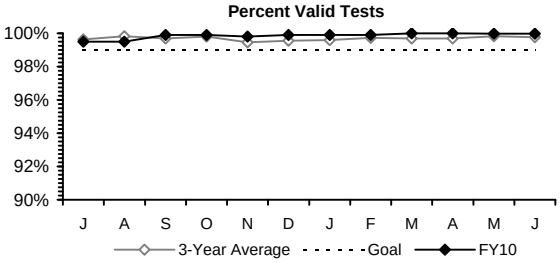
4th Quarter - FY10



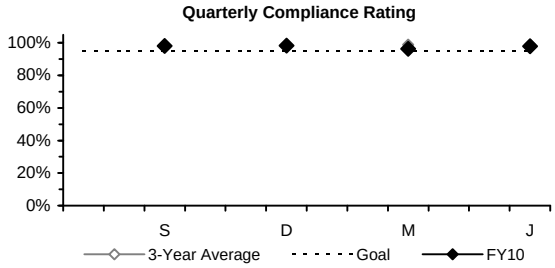
In the 4th Quarter, the Percent On-Time measurement was above the 95% goal (the second full quarter using the new LIMS).



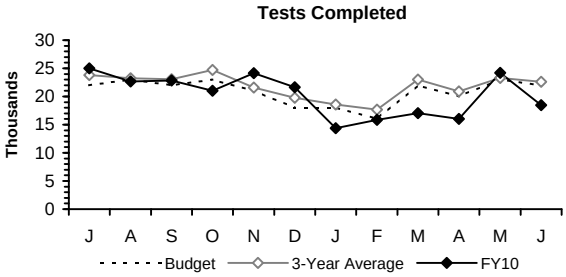
Turnaround Time was faster than the 9-day goal this quarter and consistent with historical performance.



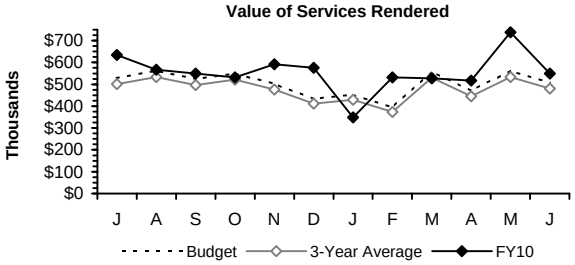
The Percent Valid Tests measurement stayed above the 99% goal in the 4th Quarter.



An audit of "DEP audit readiness" at the four certified lab locations found good compliance with requirements. Compliance audits are performed in September, December,



The Tests Completed measurement was below the seasonally adjusted budget goal during the 4th Quarter, largely due to a change in how tests are counted.



The Value of Services Rendered was above the seasonally adjusted budget projection for the 4th Quarter.

Highlights: DLS tested a month's worth of samples in two days at the Chelsea and Southborough Labs in support of the water break emergency in May; also tested Chestnut Hills Reservoir samples at Southborough and the Central Lab.

LIMS: LIMS continues to work successfully at all five lab locations. Continuing to work with DEP to identify bugs in its eDEP program for uploading regulatory drinking water results. Participated in a LIMS client meeting.

Quality Assurance: DEP audited the Central Lab at the end of June. This was the first full audit under the new LIMS and no significant issues were identified. Completed revisions to the Quality Assurance Management Plan and SOPs affected by the new LIMS. Working with Standard Methods joint task groups on cyanide testing and quality control charts.

DITP: Collected fuel oil QC samples during truck deliveries.

ENQUAD: Provided boat transportation for repair of the Mass Bay monitoring buoy. Performed chemistry tests on Alexandrium (Red Tide) samples from Mass. Bay and some additional samples from the monitoring buoy.

FOD/TRAC: Tested special investigation rush samples. Completed revisions to the procedure on how samples are tested and reported when results are near or above a local limit. Making arrangements to test sodium hypochlorite samples from CSO facilities each week.

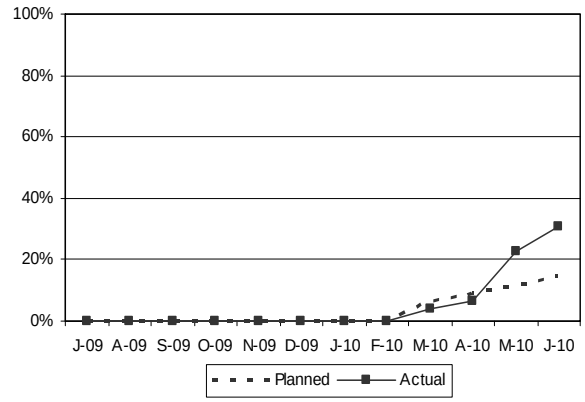
FOD/Water Quality Assurance: Completed the large set of semi-annual Lead and Copper Rule samples using the new ICP-MS instrument that can simultaneously test for both metals with high sensitivity. Lobbying DEP via the DEP Lab Advisory Committee and the Independent Testing Laboratory Association to ensure that the eDEP electronic reporting system for drinking water has adequate IT resources to function successfully. Worked with FOD and Planning on Groundwater Rule notification procedures. Sent samples of typical and atypical coliform growth to AWWA researchers. The project will use an RNA-based approach to provide additional information on the sources of total coliforms in distribution systems. Participated in a community meeting on the water pipe break.

Outside Customers: Testing Lead and Copper Rule samples for Reading and South Hadley. Making arrangements with Wilmington to begin testing its Total Coliform Rule samples beginning in August. Testing Quabbin-area DCR pond samples for calcium to gauge the potential for Zebra mussel growth. Provided boat and captain for Mystic River water chestnut pull. Adding UV tests to Wachusett tributary samples for a DCR/UMASS modeling study. Added Reading location to nitrification project locations.

CONSTRUCTION PROGRAMS

Projects In Construction - 1
4th Quarter FY10
(Progress Percentages based on Construction Expenditures)

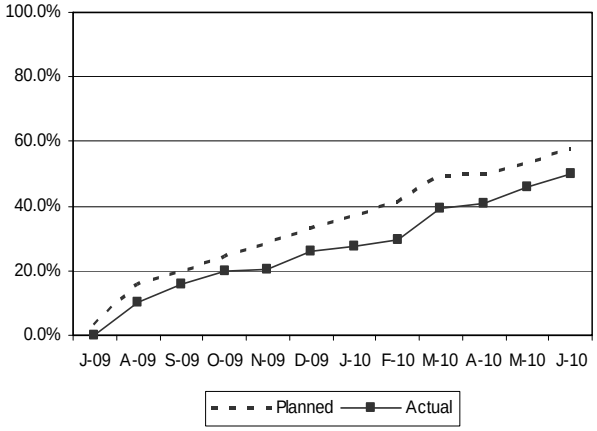
Southern Spine Water Mains Rehabilitation - Section 107
Progress - June 2010



Project Summary: This project for Section 107 includes the removal of 17,000-linear feet (lf) of 24-inch water main, installation of 9,400-lf of new 48-inch water main, replacement of three revenue meters, and the cleaning and lining of 1,000-lf of 24-inch & 1,500-lf of 48-inch water main.

Status and Issues: In Milton, the contractor installed 2,269 linear feet of 48" Ductile Iron Pipe (DIP) from station 48+00 to 25+31 and 3,577 linear feet of Town of Milton Water Main 12" DIP from station 37+68 to 66+89 and station 12+60 to 18+70. The contract has assigned four construction crews to this work, more than originally scheduled. More crews along with favorable spring weather has put the contract ahead of schedule.

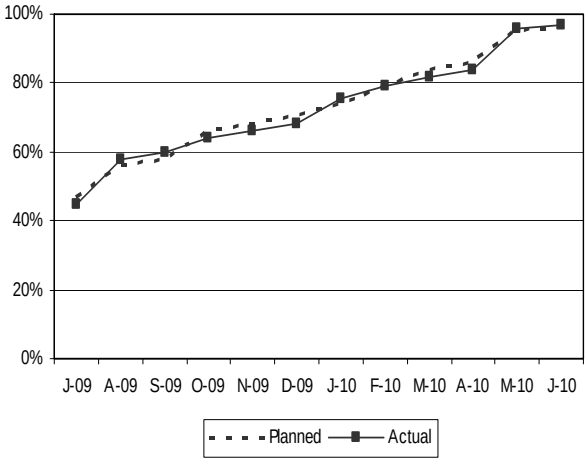
North Dorchester Bay Pump Station and Sewers
Progress - June 2010



Project Summary: Construction of 15-MGD CSO pump station, approximately 3,200 linear feet of 24-inch force main and 640 linear feet of 30-inch gravity sewers and appurtenant work.

Status and Issues: During June, the contractor completed construction of the remaining pump station substructure including the EL118 slab and is preparing for the final wetwell leakage test. Waterproofing and backfilling continued on annular space between the substructure and the slurry wall. On the gravity sewer, the contractor completed installation of the 30-inch PVC sewer on N St. between E 4th and E Broadway. At the force main, the crew remobilized at station 25+00 on Broadway, below O Street. One pipe was installed. Force main installation is at 72% completion. The contractor is reporting that construction completion will be in accordance with the court ordered milestones.

East Boston Branch Relief Sewer
Progress - June 2010

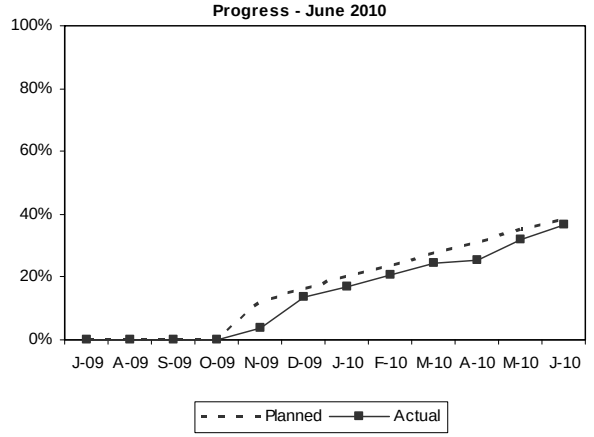


Project Summary: Construction of 14,500 feet of replacement sewers primarily by microtunneling.

Status and Issues: The contractor completed the 36-inch PVC slip lining from JS-1A to RS-2 and JS-1A and RS-1A. Bypass pumping continues at Marginal and Cottage St. as well as at 142 Border St. Installation of sewer manhole #27 was completed and the contractor began the installation of the 20" PVC connection pipe between manhole #27 and the BWSC manhole. Work continued on the installation of the 24-inch PVC pipe on Marginal St.

Projects In Construction – 2
4th Quarter FY10
(Progress Percentages based on Construction Expenditures)

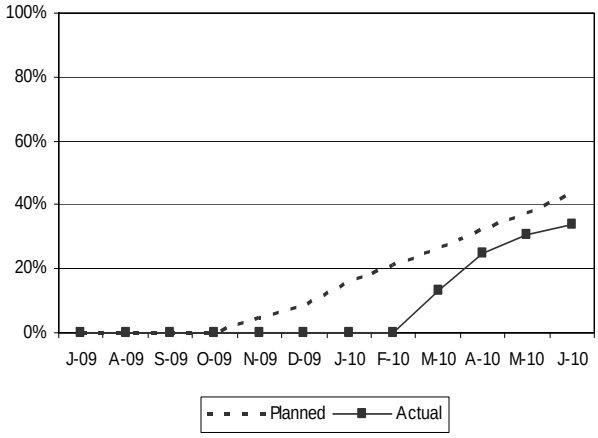
Section 18, 50 & 51 Rehabilitation in Medford/Somerville
Progress - June 2010



Project Summary: This project is one of the Shaft 7 to WASM 3 phases (CP-5) and provides for the rehabilitation of valves and 15,000 linear feet of 48, 20 and 16-inch pipe in Medford and Somerville including replacement of revenue Meter 32 in Somerville.

Status and Issues: On Section 18, the contractor installed water main access pits at station 189+00, 186+80, 186+50, 185+00, 179+60, 171+25, 161+60 and 153+80. On Section 50, the contractor chlorinated the pipeline from Station 120+30 to 128+00 and pressure tested Meter 129's 12-inch piping between gate valve 50-18-C and 50-18-D. Cathodic protection was installed and the access pit backfilled at station 128+00.

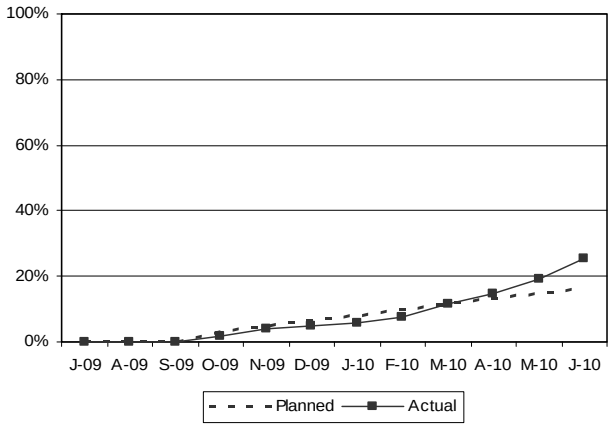
North Dorchester Bay Ventilation Building
Progress - June 2010



Project Summary: Construction of a ventilation building, interconnection to the NDB storage tunnel maintenance access structure at BOS-087 and final restoration of the -087 work area.

Status and Issues: At the ventilation building the contractor placed the remainder of the base slab mud mat, waterproofed below the base mat and finished the base mat formwork and reinforcing steel. Work also included plumbing and electrical conduit embedded in the base mat. On the Yard Work the contractor completed the installation of the telephone ductbank and commenced reconstruction of the state police barracks parking lot.

Hultman Aqueduct Interconnections Project
Progress - June 2010



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: The contractor installed precast top slabs with safety access hatches at stations 567+05, 443+80, 445+45, 522+11 and five other locations in Framingham. The first two sections of 120-inch pipe were installed between existing VC-L1 and the new VC-L2. Pipe repair inspections began for Segment A, VC-E3 and Grove Street. Rock drilling was completed for the installation of the 84-inch overflow pipe near the VC-N2/OSA site.

CSO CONTROL PROGRAM

4th Quarter - FY10

Of the 35 projects in MWRA's Long-Term CSO Control Plan, 24 are complete as reported last quarter. Eight projects are in construction, including a few with continuing design work on later-phased contracts, and two additional projects are in design. Two of the eight projects in construction as of June 2010 are on contract schedule to be completed in July 2010, including East Boston Branch Sewer Relief by MWRA and Bulfinch Triangle Sewer Separation by BWSC. MWRA plans to commence design of the one project not yet started (MWR003 Gate and Floatables Control, Rindge Ave. Siphon Relief and SOM01A Interconnection Relief and Floatables Control) by April 2012.

Progress on the 11 CSO projects not yet complete is presented in the following table.

Project	Court Milestones in Schedule Seven (Shaded milestones are complete)			Status
	Commence Design	Commence Construction	Complete Construction	
North Dorchester Bay Storage Tunnel and Related Facilities	Aug 97	Aug 06	May 11	Tunnel Construction: Contractor attained Substantial Completion of this $147 million tunnel contract in November 2009 and continues to address punch list items. Dewatering Pump Station and Sewer Construction: This $26.1 million contract commenced in May 2009 and was 50% complete as of June 30, 2010. The contractor completed foundation work for the pumping station, has poured the substructure concrete walls for the wetwell and station up to grade, and has completed installation of the pipe connection from the main tunnel shaft to the pumping station wet well. The contractor expects to resume installation of the 3,200-foot-long, 24-inch-diameter force main and complete the remaining 900 feet this summer. The contractor commenced installation of a 30-inch PVC pipe to upsize a BWSC gravity sewer on N Street so that it can accommodate the tunnel dewatering flows along with neighborhood sanitary flows. Ventilation Building Construction: This $5.2 million contract commenced in November 2009 and was 37% complete as of June 30, 2010. The contractor completed excavation, installation of the base slab, and most of the perimeter form work and reinforcing steel for the below- ground facility's walls. On April 14, 2010, the pile driving crane rolled over on its side. No one was injured as a result of this accident. OSHA was onsite on April 14 and April 15 to conduct an investigation; the cause of the accident has not yet been determined.
East Boston Branch Sewer Relief	Mar 00 Jun 06	Mar 03 Jun 08	Jun 10	MWRA completed a $5.2 million interceptor rehab contract in 2004 and is nearing completion of the second and third contracts: Contract 6257 (microtunneling) and Contract 6841 (pipebursting). Both contracts are scheduled to be substantially complete in July 2010. Contract 6257 ($62.5 million): Contract was 97% complete and pipe installation was 98% complete as of June 2010. The contractor completed construction of a special junction chamber on Chelsea Street and installation of a short section of 66-inch-diameter pipe to join and connect the downstream end of the new relief sewer and the downstream end of the rehabilitated trunk line from the first construction contract to MWRA's Caruso Pump Station. With completion of this work, MWRA was able to bring 8,000 feet of the new sewer along Border, Condor, East Eagle and Chelsea streets (all of the Phase I microtunnel drives) into dedicated service and begin to realize the expected CSO control benefits. The contractor also completed the last three microtunnel drives in Phases II and III, with 2,256 linear feet of 48-inch pipe installation along Orleans and Border streets, and also completed slip-lining this new 48-inch-diameter concrete pipe with a 36-inch-diameter PVC liner.

CSO CONTROL PROGRAM

4th Quarter FY10 (continued)

Project	Court Milestones in Schedule Seven (Shaded milestones are complete)			Status
	Commence Design	Commence Construction	Complete Construction	
East Boston Branch Sewer Relief (continued)				Contract 6841 ($8.5 million): Contract was 95% complete and pipe installation was 99% complete as of June 2010. The contractor completed four pipebursting drives along Maverick Street that replaced 1,735 linear feet of 15-inch-diameter clay pipe with 20-inch-diameter, high-density polyethylene (HDPE) pipe and a pipe-bursting drive along Jeffries Street that replaced 447 linear feet of 12-inch-diameter clay pipe with 16-inch-diameter HDPE pipe. At the shaft locations involved in these drives, the contractor also completed manhole installations, backfilling and surface restoration. Most of the completed pipe sections have been brought into dedicated service, providing CSO control benefits as the project nears completion. The contractor has also commenced work at CSO regulator chamber RE 003-02 at the intersection of Maverick and Cottage Streets to install floatables controls.
Charles River Interceptor Gate Controls and Additional Interconnections	Jan 08	Jan 10	Jan 11	From an 18-month hydraulic study that began in January 2008, MWRA concluded that system optimization measures cannot improve wet weather performance or further reduce CSOs at the Cottage Farm Facility without also causing flooding risks. MWRA presented its recommended plan of "no action" in a supplemental technical report submitted to EPA and DEP on September 14, 2009 and in a December 14, 2009 MWRA response to EPA comments. On June 14, 2010, MWRA submitted information responding to a remaining EPA technical comment seeking a feasible option. MWRA continues to propose deletion of related construction milestones in Schedule Seven.
South Dorchester Bay Sewer Separation (Project is Complete per Court Order)	Jun 96	Apr 99	Nov 08	BWSC continues to pursue additional stormwater inflow removal (i.e., downspout disconnections) from the sanitary sewer system in order to mitigate the remaining risks of sewer system flooding in large storms. BWSC advertised a Request for Proposals for associated design services in April 2010 and received proposals in May. BWSC plans to award the design contract in August 2010.
Reserved Channel Sewer Separation	Jul 06	May 09	Dec 15	BWSC continues to make progress with the first of nine planned construction contracts for the $73.7 million Reserved Channel Sewer Separation project. On June 2, 2010, BWSC advertised the second construction contract, which involves rehabilitation of the four CSO outfalls that will convey the separated stormwater flows to the Reserved Channel, as well as the third construction contract, which involves roadway resurfacing. BWSC is also making progress with final design of the remaining six contracts for this project.
Bulfinch Triangle Sewer Separation	Nov 06	Nov 08	Jul 13	BWSC is on schedule to complete the sole construction contract for this $10.0 million project in July 2010, three years ahead of the court milestone. BWSC completed installation of storm drains several months ago and more recently performed TV inspections, cleaning of sanitary sewers, and rehabilitation of sewer structures. The contractor will modify and close a gate at Outfall BOS049, which will isolate the new BWSC storm drain system from MWRA's combined sewer system and eliminate CSO discharges at Outfall BOS049, which will then function as a stormwater outfall to the Charles River.

CSO CONTROL PROGRAM

4th Quarter FY10 (continued)

Project		Court Milestones in Schedule Seven (Shaded milestones are complete)			Status
		Commence Design	Commence Construction	Complete Construction	
Brookline Sewer Separation		Nov 06	Nov 08	Jul 13	The first of two Brookline construction contracts for this $26.6 million project is complete. The second contract involves microtunneling along Beacon Street to install new sewers at significant depths, as well as the construction of several special structures that will connect the new sewers to existing laterals and to MWRA's interceptors. Main trunk combined sewers will be converted to storm drains. Brookline plans to advertise the construction bid in July, award the contract in September 2010, and complete the work ahead of the July 2013 milestone in Schedule Seven. In the meantime, MWRA has completed internal inspections of CSO Outfall MWR010, which will convey the separated Brookline stormwater to the Charles River. MWRA plans to clean and rehabilitate the outfall by the time Brookline completes the sewer separation work. Funds for the outfall work are included in the FY11CIP.
Cambridge/ Alewife Brook Sewer Separation	CAM004 Outfall and Wetland Basin		Jul 10*	Jul 12*	Cambridge continues to pursue the numerous construction and long-term maintenance easements from private and public land owners necessary to award and perform Contract 12. Cambridge is working to obtain permits from the MBTA and other railroad operators for a railroad crossing and is coordinating its proposed CSO work with planned track improvements currently under design by the MBTA. Cambridge and the Department of Conservation and Recreation (DCR) are cooperatively pursuing Article 97 legislation to formally acknowledge long-term use of a portion of DCR's Alewife Brook Reservation for the Contract 12 drainage and stormwater wetland. In the meantime, Cambridge completed final design, advertised the construction contract on May 20, 2010 and will receive bids on July 1.
	CAM004 Sewer Separation	Jan 97	Jul 98 Jul 12*	Dec 15*	As reported last quarter, Cambridge has resumed design activities and plans to issue the next construction contract by July 2012.
	CAM400 Manhole Separation	Jul 06*	Jan 10*	Mar 11*	On January 11, 2010, Cambridge awarded the construction contract that includes both of these projects. As reported last quarter, work is underway to separate common manholes in the Whittemore Avenue area and upgrade connections between the Cambridge and MWRA systems along Alewife Brook Parkway near Mass Ave. The contractor plans to complete all work by December 2010.
	Interceptor Connection Relief/ Floatables	Jul 06*	Jan 10*	Oct 10*	
	MWR003 Gate and Rindge Ave. Siphon	Apr 12*	Nov 13*	Jan 15*	As reported last quarter, MWRA plans to commence design by April 2012.

* Alewife Brook project schedules are delayed at least 27 months due to past wetlands permit appeals. Additional time is required for certain Alewife projects due to permits, land, easements and Article 97 legislation requirements for the CAM004 Outfall and Wetland Basin project. MWRA is presently seeking revisions to the milestones in Schedule Seven based on new project schedules proposed by the City of Cambridge.

CIP Expenditures
Fourth Quarter FY10

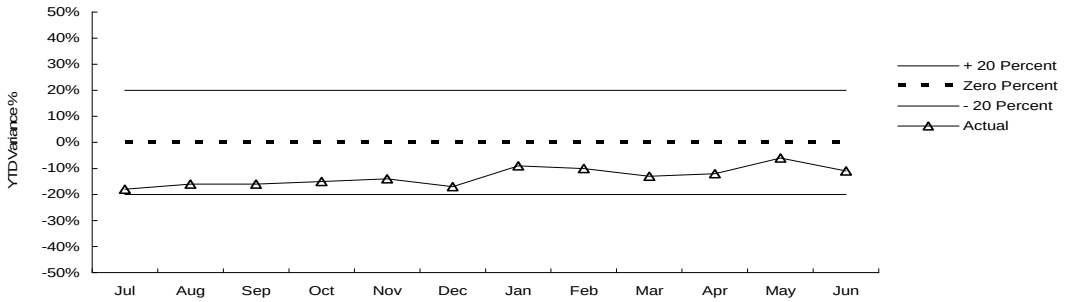
The Year-To-Date variances are highlighted below:

FY10 Capital Improvement Program Expenditure Variances through June by Program ($000)				
Program	FY10 Budget Through June	FY10 Actual Through June	Variance Amount	Variance Percent
Wastewater	165,370	152,658	(12,712)	-8%
Waterworks	60,089	50,106	(9,983)	-17%
Business and Operations Support	12,393	8,669	(3,724)	-30%
Total	$237,851	$211,433	($26,418)	-11%

Underspending within Wastewater is primarily attributable to schedule changes and repackaging work for the DI Digester Sludge Pump Replacements, delay of equipment delivery for the STG System Modifications Construction, scope change and consolidation of Variable Frequency Drive Replacements at DI, scope changes to the Power System Improvements contract, delayed start for Digester Modifications Pipe Replacement, and aggressive in-house expenditure forecast for North Dorchester Dewater/Pump Station & Sewers. Also, delay in award of the Fort Point Channel Lower Dorchester Brook Conduit and Brookline Sewer Separation contracts, restructuring Cambridge Floatables Controls, and project delays for Cambridge Sewer Separation. This was partially offset by higher community requests for grants and loans, progress on the DI Primary & Secondary Clarifier Rehabilitation, Heat Loop Pipe Replacement, Reserved Channel and Bulfinch Triangle Sewer Separation projects, additional work on the East Boston Section 38 & 207 Replacement, and DI Roof Replacement work scheduled for FY09 but performed in FY10. Underspending in Waterworks is due to timing of Watershed Land purchases, reclassification of costs for PCB Ph 2 Material Remediation, lower bid award for New Connecting Mains Shaft 7 to WASM 3 Northeast Segment (CP5) projects, and work scheduled in FY10 completed in FY09 for Blue Hills Covered Storage. This was partially offset by progress on the Southern Spine Section 107 Phase 2 and Rehabilitation of 5 Pumping Stations projects.

CIP Expenditure Variance

Total FY10 CIP Budget of $238,252,000.



Construction Fund Management

All payments to support the capital program are made from the Construction Fund. Sources of fund revenues 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 6/30/10	$136 million
Unused capacity under the debt cap:	$609 million
Estimated date for exhausting construction fund without new borrowing:	May-11
Estimated date for debt cap increase to support new borrowing:	FY2011
Commercial paper outstanding:	$194 million
Commercial paper capacity:	$350 million
Budgeted FY10 capital spending*:	$207 million
Projected FY10 grant and SRF receipt:	$13 million

* Cash based spending is discounted for construction retainage.

DRINKING WATER QUALITY AND SUPPLY

Source Water – Microbial Results

4th Quarter – FY10

Background

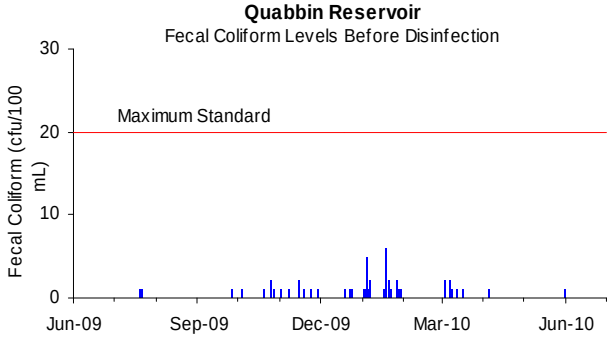
Total coliform bacteria are monitored in both source and treated water to provide an indication of overall bacteriological activity. Most coliforms are harmless. However, fecal coliform, a subclass of the coliform group, are identified by their growth at temperatures comparable to those in the intestinal 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 entering the CVA system.

All samples collected during the 4th Quarter were below 20 cfu/100ml.

For the current six-month period, 0.0% of the samples exceeded a count of 20 cfu/100ml.



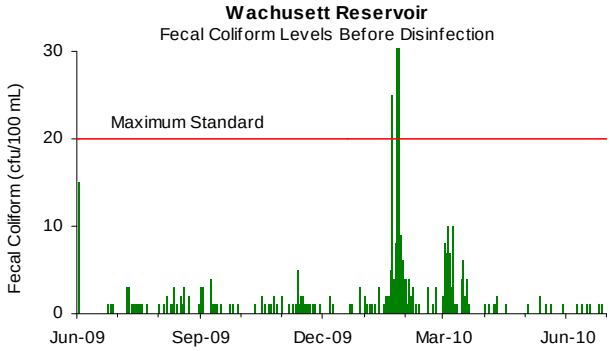
Sample Site: Wachusett Reservoir

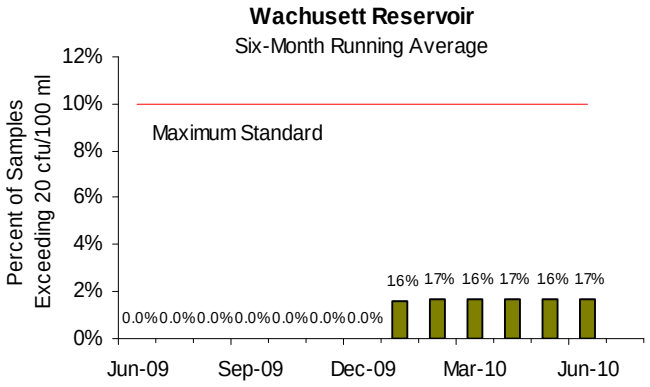
Wachusett Reservoir water is sampled at the CWTP raw water tap in Marlborough before it enters the MetroWest/Metropolitan Boston systems.

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, 1.7% of the samples exceeded a count of 20 cfu/100ml (several samples exceeded 20 cfu/100ml in January 2010).





Source Water – Turbidity

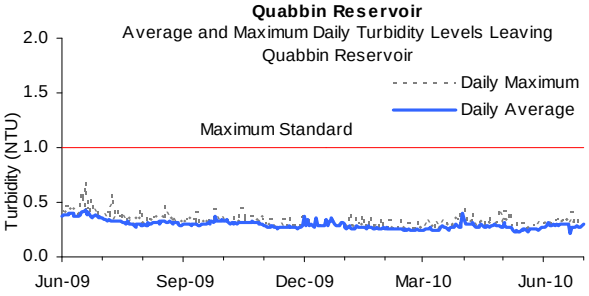
4th Quarter – FY10

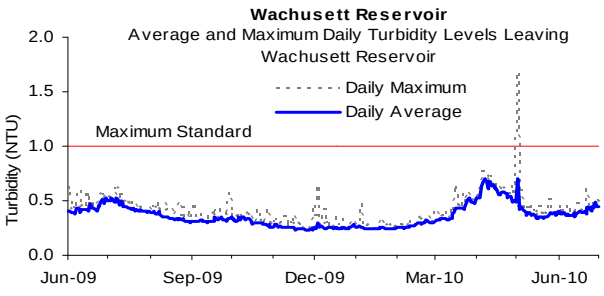
Background

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.

Samples for turbidity from Quabbin Reservoir are collected at the Ware Disinfection Facility before chlorination. Samples from Wachusett Reservoir are taken at the CWTP's inlet (raw water line) before ozonation. The Massachusetts Department of Environmental Protection standard for source water turbidity for unfiltered water supply systems is a maximum of 1.0 NTU; the EPA standard is a maximum of 5.0 NTU. Maximum turbidity results at Quabbin were within DEP standards for the quarter. Wachusett maximum turbidity results were within DEP standards in April and June.

During the Shaft 5 incident on May 1, flows through the Cosgrove Tunnel and the CWTP increased significantly. During the high rate of flow, raw water turbidity at the CWTP inlet exceeded 1.0 NTU from 1:15 pm to 5:15 pm. The maximum turbidity measured was 1.69 NTU. The CWTP met treatment requirements during the high turbidity incident as indicated by the following: the hourly CT (calculated) ranged from 391% to 1,255% of the CT (required) for 3-log Giardia inactivation, total chlorine residual of finished water ranged from 2.39 mg/L to 2.57 mg/L, and there were no TCR positive samples from CWTP finished water taps, Shaft 9A and MWRA storage tanks.



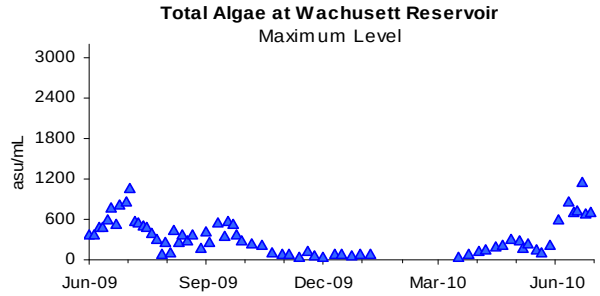


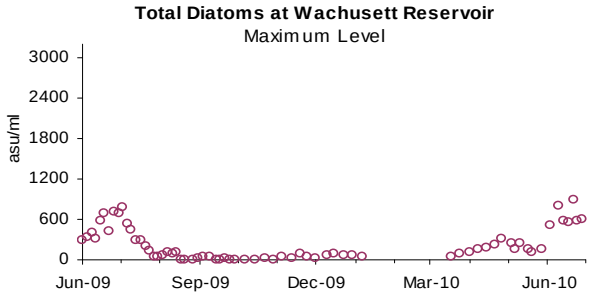
Source Water – Algae

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

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

Of the 19 complaints received for the quarter from local water departments, none concerned taste and odor that may be due to algae.





Treated Water – Disinfection Effectiveness

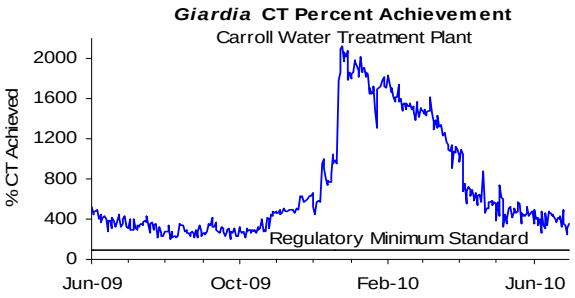
4th Quarter – FY10

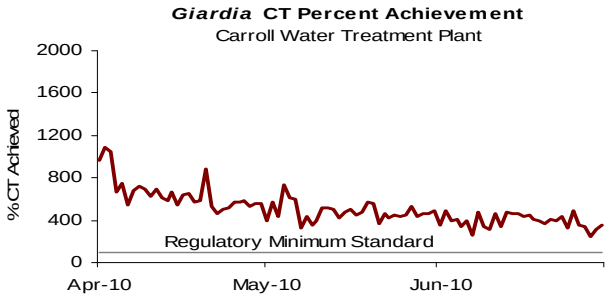
Background

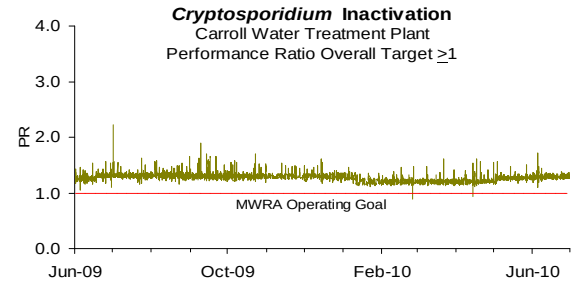
With the activation of the Carroll Water Treatment Plant (CWTP), MWRA now reports on both regulatory required 99.9% inactivation for *Giardia* (reported as "CT"), and its voluntary operating goal of 99% inactivation for *Cryptosporidium*. MWRA calculates hourly CT inactivation rates and reports daily 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 a percent of required CT achieved; 100% is the minimum allowed. To avoid confusion with regulatory requirements, inactivation of *Cryptosporidium* is reported as a Performance Ratio (PR). A PR of 1 demonstrates inactivation of 99% of *Cryptosporidium* based on site-specific data.

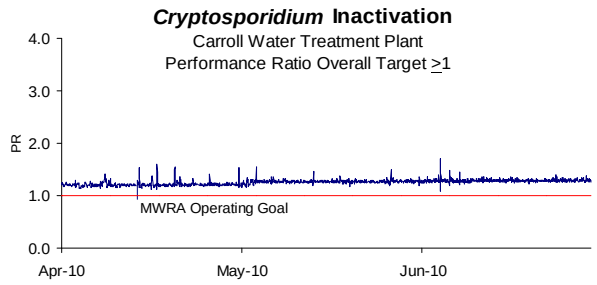
Wachusett Reservoir – MetroWest/Metro Boston Supply:

- CT was maintained above 100% at all times the plant was providing water into the distribution system this quarter.
- MWRA's operating goal to meet a PR of 1 was met for every hour of the quarter except for a brief period following a planned shutdown on April 13, 2010. During plant restarts, MWRA applies an ozone dose adequate to achieve *Cryptosporidium* inactivation. Measurements of PR briefly dropped below MWRA's voluntary target of 1 for 15 minutes, and the hourly average was 0.9 following plant restart. All regulatory targets were met.
- Ozone dose at the CWTP varied between 2.4 to 3.6 mg/L for the quarter.
- During months when the water is cold, a higher level of disinfection is required to achieve MWRA's PR target for *Cryptosporidium*; this results in a much higher CT achievement for *Giardia*.



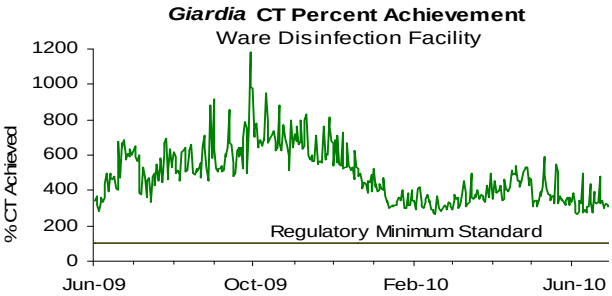


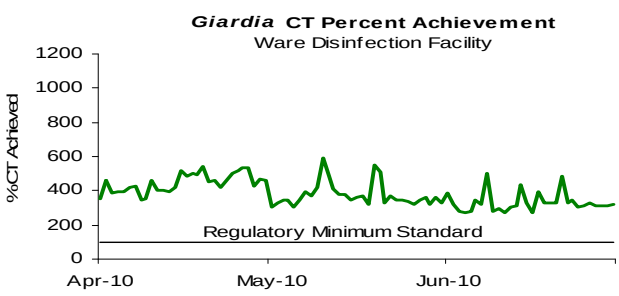




Quabbin Reservoir at Ware Disinfection Facility (CVA Supply):

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. Chlorine dose remains at 1.3 mg/L.



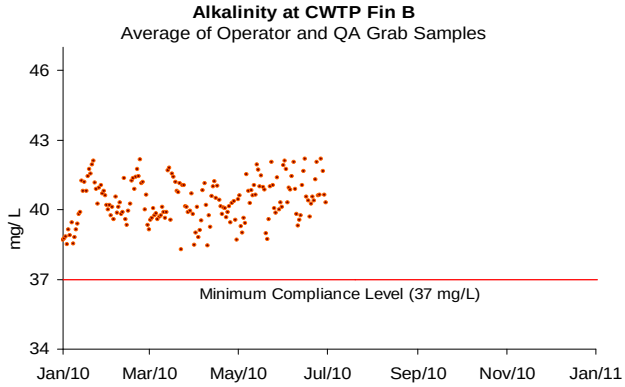


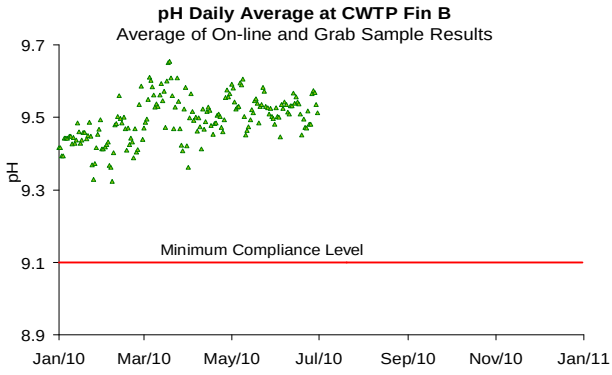
Treated Water – pH and Alkalinity Compliance

4th Quarter – FY10

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's target for distribution system pH is 9.3; the target for alkalinity is 40 mg/l. Per DEP requirements, samples from the CWTP Fin B tap 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 this level for more than nine days in a six-month period. MWRA tests finished water pH and alkalinity daily at the CWTP Fin B sampling tap. Distribution system samples are collected in March, June, September and December.

Distribution system samples were collected on June 21, 2010; sample pH ranged from 9.4 to 9.6 and alkalinity ranged from 41 to 43 mg/L. No sample results were below DEP limits in the 4th Quarter.





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

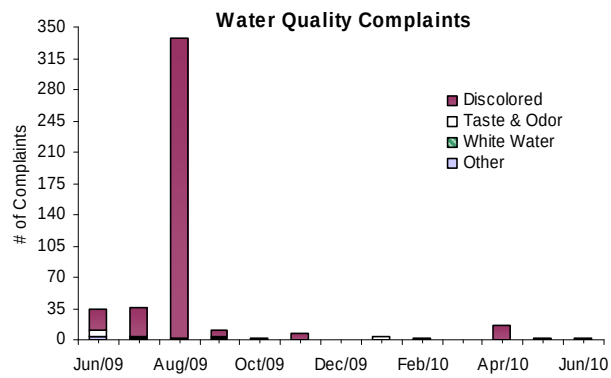
Background

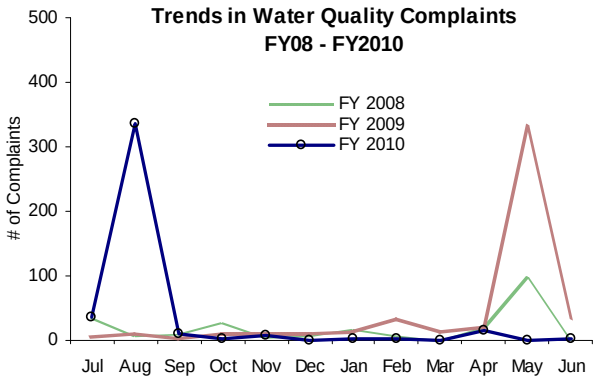
MWRA collects information on water quality complaints that typically fall into four categories: 1.) discoloration due to MWRA or local pipeline work; 2.) taste and odor due to algae blooms in reservoirs or chlorine in the water; 3.) white water caused by changes in pressure or temperature that traps 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.

Outcome

Communities reported 19 complaints during the 4th Quarter compared to 386 complaints for 4th Quarter of FY09. Of these complaints, 17 were for "discolored water" and two were for "taste and odor."





Bacteria & Chlorine Residual Results for Communities in MWRA Testing Program

4th Quarter – FY10

While all communities collect bacteria samples for the Total Coliform Rule (TCR), 40 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. The other 10 MWRA customer communities (including Lynn's GE plant) have their samples tested elsewhere and these towns should be contacted directly for their monthly results.

There are 140 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. Additional testing is conducted immediately and joint corrective action by DEP, MWRA, and the community is undertaken. 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, eight of the 7,131 community samples (0.11% system-wide) submitted to MWRA labs for analysis tested positive for coliform (Arlington, Boston, Saugus, Somerville - May); five of the 2,661 (0.19%) MWRA samples tested positive for total coliform. No sample tested positive for *E.coli*. All 40 systems that submitted chlorine residual data maintained an average disinfectant residual of at least 0.2 mg/L. Only 2.6% of the samples had any results with a disinfectant residual lower than 0.2 mg/L for the quarter. In May, approximately twice as many samples as normal were collected due to the extra samples collected during the Shaft 5 leak.

TCR results by Community

Town	Samples Tested for Coliform (a)	Total Coliform # (%) Positive	E.coli % Positive	Public Notification Required?	Minimum Chlorine Residual (mg/L)	Average Chlorine Residual (mg/L)
ARLINGTON	246	3 (1.22%)	0.0%	No	0.05	1.50
BELMONT	128	0 (0%)	0.0%		0.50	1.72
BOSTON	955	3 (0.31%)	0.0%	No	0.39	1.90
BROOKLINE	289	0 (0%)	0.0%		0.01	1.86
CHELSEA	160	0 (0%)	0.0%		1.17	1.86
DEER ISLAND	56	0 (0%)	0.0%		1.42	1.82
EVERETT	160	0 (0%)	0.0%		0.01	0.98
FRAMINGHAM	216	0 (0%)	0.0%		0.35	1.93
HANSCOM AFB (Bedford) (b)	71	0 (0%)	0.0%		0.04	0.50
LEXINGTON	152	0 (0%)	0.0%		0.03	1.83
LYNNFIELD	36	0 (0%)	0.0%		0.68	1.72
MALDEN	255	0 (0%)	0.0%		1.26	1.48
MARBLEHEAD	128	0 (0%)	0.0%		0.27	1.69
MARLBOROUGH (b)	156	0 (0%)	0.0%		0.20	1.70
MEDFORD	289	0 (0%)	0.0%		0.29	1.73
MELROSE	144	0 (0%)	0.0%		0.02	0.74
MILTON	128	0 (0%)	0.0%		0.94	1.69
NAHANT	50	0 (0%)	0.0%		0.08	1.32
NEEDHAM (b)	123	0 (0%)	0.0%		0.06	0.61
NEWTON	359	0 (0%)	0.0%		0.10	1.73
NORTHBOROUGH	48	0 (0%)	0.0%		0.03	1.08
NORWOOD	144	0 (0%)	0.0%		0.02	1.51
QUINCY	389	0 (0%)	0.0%		0.08	1.64
READING	170	0 (0%)	0.0%		0.81	1.70
REVERE	255	0 (0%)	0.0%		0.97	1.78
SAUGUS	140	1 (0.71%)	0.0%	No	1.16	1.87
SOMERVILLE	399	1 (0.25%)	0.0%	No	0.88	1.81
SOUTH HADLEY FD1 (c)	48	0 (0%)	0.0%		0.03	0.43
SOUTHBOROUGH	30	0 (0%)	0.0%		0.20	1.66
STONEHAM	119	0 (0%)	0.0%		0.65	1.82
SWAMPSCOTT	90	0 (0%)	0.0%		0.36	1.62
WAKEFIELD (b)	188	0 (0%)	0.0%		0.22	1.29
WALTHAM	292	0 (0%)	0.0%		0.04	1.91
WATERTOWN	160	0 (0%)	0.0%		0.13	1.69
WELLESLEY (b)	108	0 (0%)	0.0%		0.10	0.61
WESTBORO HOSPITAL	15	0 (0%)	0.0%		0.68	1.61
WESTON	48	0 (0%)	0.0%		0.68	1.76
WINCHESTER (b)	69	0 (0%)	0.0%		0.12	1.02
WINTHROP	125	0 (0%)	0.0%		0.29	1.43
WOBURN (b)	193	0 (0%)	0.0%		0.14	1.10
Total:	7131	8 (0.11%)	0.0%			
MASS. WATER RESOURCES AUTHORITY (d)	2661	5 (0.19%)	0.0%	No	0.01	1.75

(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 sampling program includes a subset of community TCR sites as well as sites along the transmission system, tanks and pumping stations. Some MWRA TCR sites which are entry points to the community had low chlorine residuals due to various reasons.

As a result of the Shaft 5 break on May 1, communities provided two additional rounds of sampling between May 2 and May 3. Communities resumed their routine sample collections May 4.

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

4th Quarter – FY10

Background

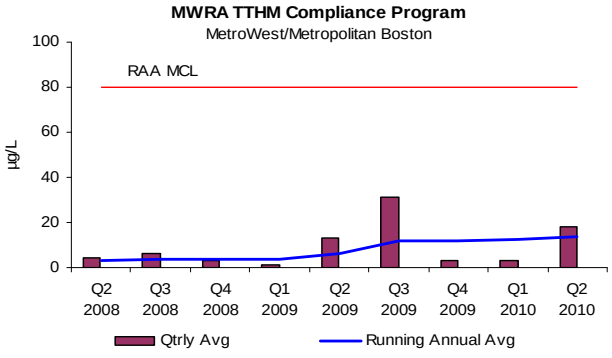
Total Trihalomethanes (TTHMs) and Haloacetic Acids (HAA5s) are by-products of disinfection treatment with chlorine. TTHMs and HAA5s are of concern due to their potential adverse health effects at high levels. EPA's running annual average (RAA) standard is 80 ug/L for TTHMs and 60 ug/L for HAA5s. The switch from chlorine to ozone for primary disinfection and the consolidation of treatment has lowered DBP formation and results are now more uniform. DEP requires that compliance samples be collected quarterly. Partially served communities are responsible for their own compliance monitoring and reporting and must be contacted directly for their results.

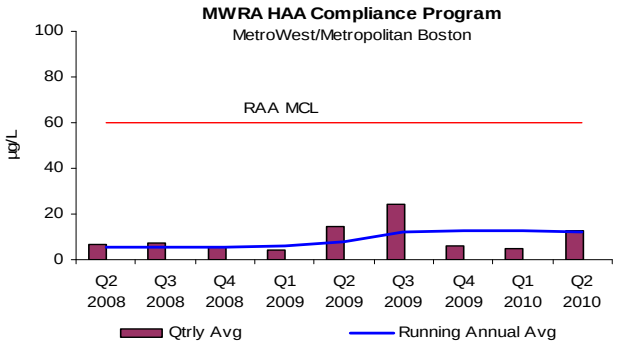
Absorbance, measured as UV-254, is a surrogate measure of reactive organic matter. Regulated DBPs have dropped to very low levels with the CWTP coming on-line. However, UV-254 levels remain useful for estimating ozone dosage and serving as a trigger for Quabbin transfer consideration.

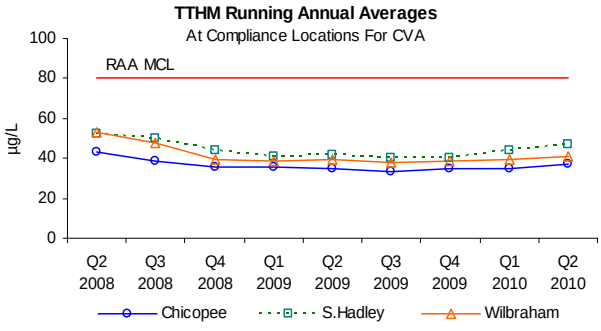
Bromate is tested monthly per DEP requirements for water systems that treat with ozone. Bromide in the raw water may be converted into bromate following ozonation. EPA's RAA MCL standard for bromate is 10 ug/L.

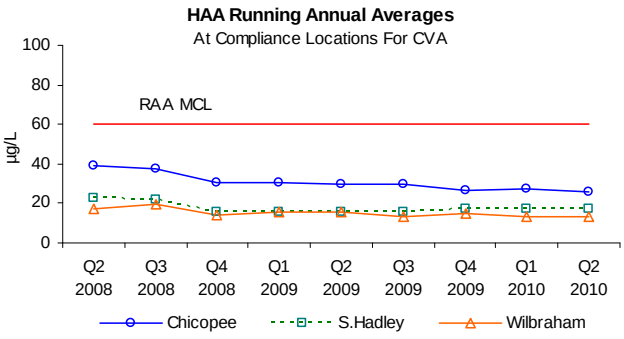
Outcome

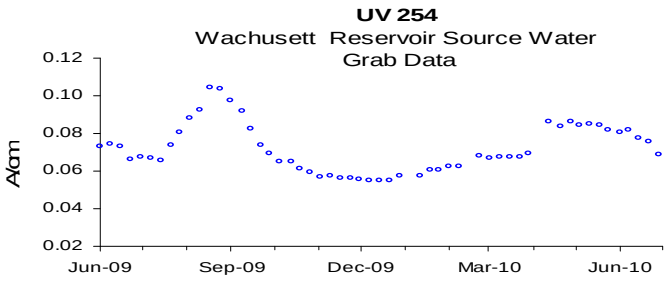
The RAA for TTHMs and HAA5s for MWRA's Compliance Program (represented as the line in the top two graphs below) remained below current standards. The RAA for TTHMs = 14.1 ug/L; HAA5s = 11.9 ug/L. CVA's DBP levels continue to be below current standards. UV-254 levels are currently around 0.07 A/cm. The current RAA for Bromate = 0.0 ug/L.











Water Supply and Source Water Management

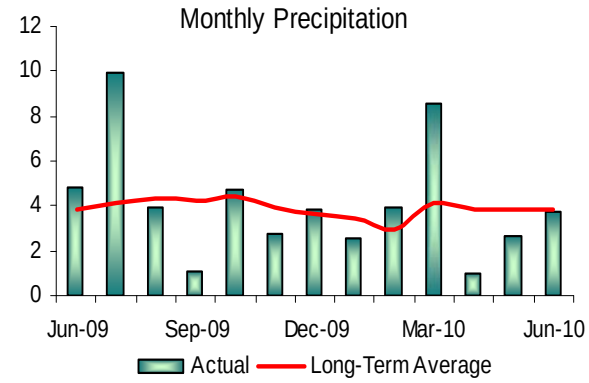
4th Quarter – FY10

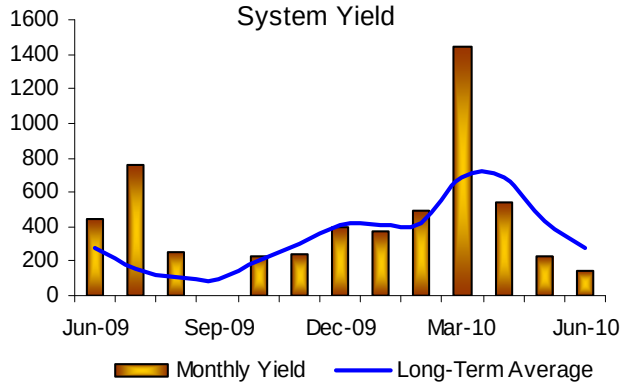
Background

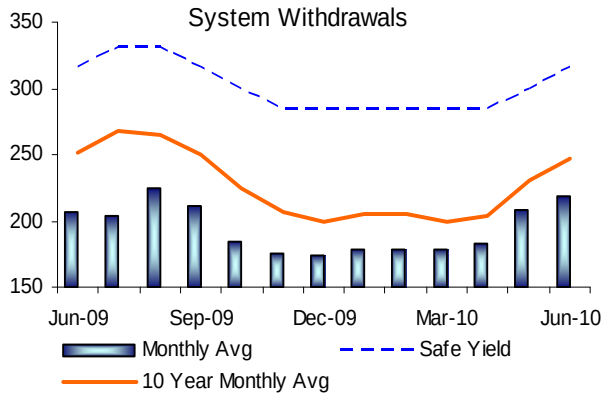
A reliable supply of water in MWRA's reservoirs depends on adequate precipitation during the year and seasonal hydrologic inputs from watersheds that surround the reservoirs. Demand for water typically increases with higher summer temperatures and then decreases as temperatures decline. Quabbin Reservoir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

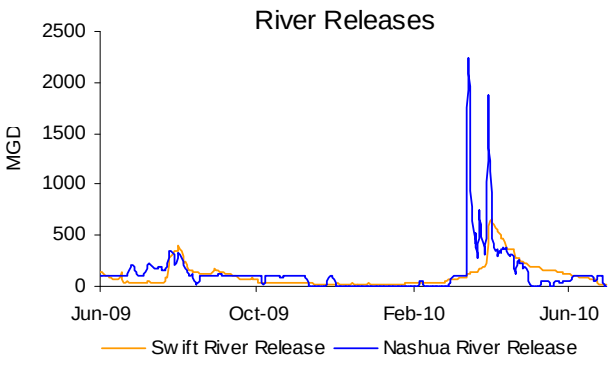
Outcome

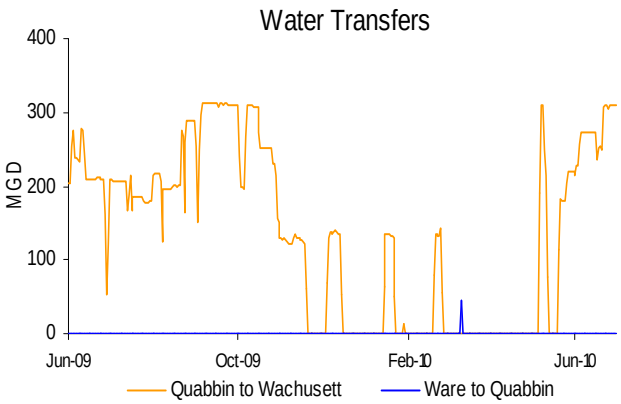
Quabbin Reservoir level remains above the normal operating range for this period of the year. Quabbin Reservoir was at 97.0% of capacity as of June 30, 2010; 2.5% lower than the same time last year. The reservoir level is down 1.33' from last year, which represents a decrease of more than 10.3 billion gallons of storage. System Withdrawal was above 200 mgd during the months of May and June. As the summer season approaches the System Withdrawal will increase due to higher seasonal temperatures and summer activities. Precipitation and Yield were below average for the quarter.

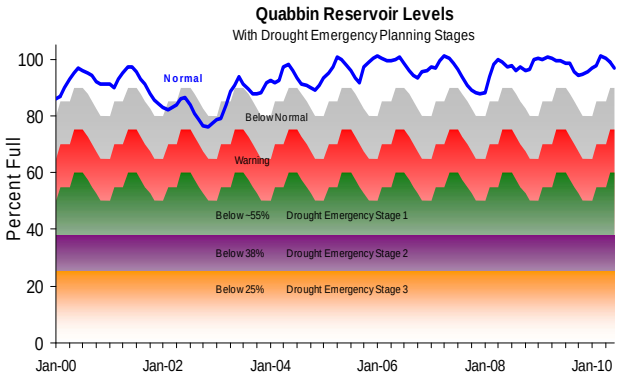












WASTEWATER QUALITY

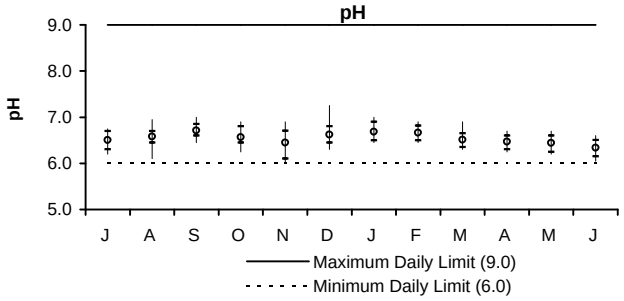
NPDES Permit Compliance: Deer Island Treatment Plant

4th Quarter - FY10

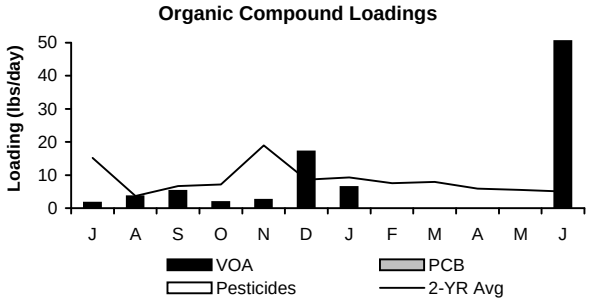
NPDES Permit Limits

Effluent Characteristics		*Units*	*Limits*	*April*	*May*	*June*	*4th Quarter Violations*	*FY10 YTD Violations*
Dry Day Flow:		mgd	436	344.3	343.3	341.5	0	0
cBOD:	Monthly Average	mg/L	25	5.2	4.4	4.3	0	0
	Weekly Average	mg/L	40	9.1	5.5	4.6	0	0
TSS:	Monthly Average	mg/L	30	8.5	6.1	6.1	0	0
	Weekly Average	mg/L	45	18.9	7.4	7.2	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	156.5	11.4	355.2	0	0
	Weekly Geometric Mean	col/100mL	14000	65.7	8.5	10.0	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	6.3-6.7	6.2-6.7	6.1-6.6	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	6.25	50	50	0	0

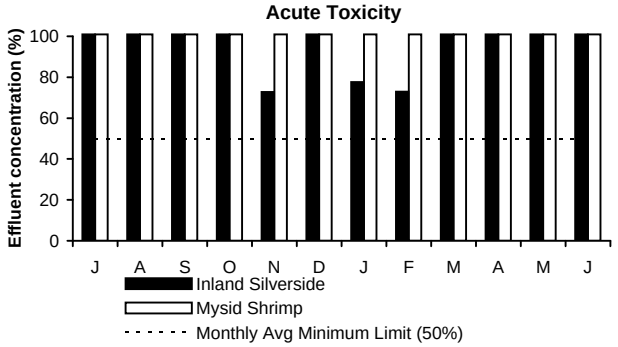
There were no permit violations at the Deer Island Treatment Plant in FY10!



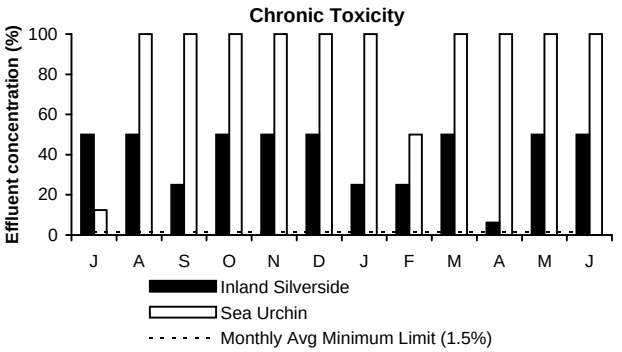
pH is a measure of the alkalinity or acidity of the effluent. Fluctuations in pH do not have an adverse effect on marine environments. Because of the pure oxygen used in the activated sludge reactor, the effluent pH tends to be at the lower range. pH measurements for the 4th Quarter were within the daily 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 compound loadings in the effluent stream. June's VOA measurement was higher than usual; the cause is unknown and may be due to sampling variability. The increase in June was not a permit violation.



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 in 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, 1.5% of the effluent 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 the sea urchin.

NPDES Permit Compliance: Clinton Wastewater Treatment Plant

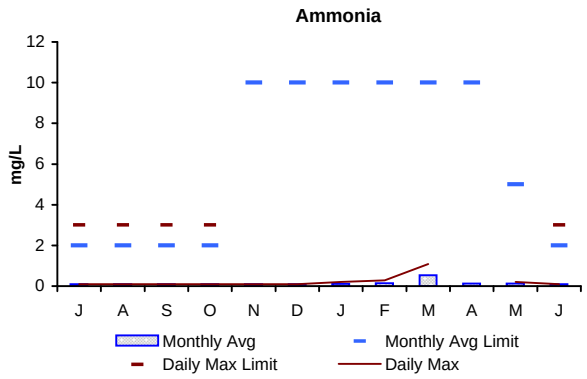
4th Quarter - FY10

NPDES Permit Limits

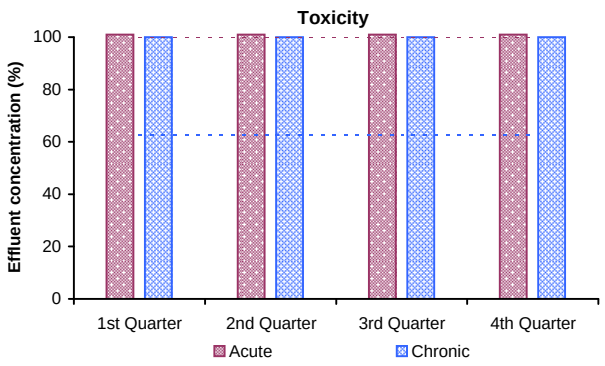
Effluent Characteristics		*Units*	*Limits*	*April*	*May*	*June*	*4th Quarter Violations*	*FY10 YTD Violations*
Flow:		mgd	3.01	3.80	3.77	3.73	3	12
BOD:	Monthly Average:	mg/L	20	4.0	3.6	2.7	0	0
	Weekly Average:	mg/L	20	5.2	5.2	3.2	0	0
TSS:	Monthly Average:	mg/L	20	5.1	6.7	4.9	0	0
	Weekly Average:	mg/L	20	5.7	8.4	5.6	0	0
pH:		SU	6.5-8.3	6.7-7.3	6.7-7.4	6.8-7.3	0	0
Dissolved Oxygen:	Daily Minimum:	mg/L	6	7.5	8.3	7.1	0	0
Fecal Coliform:	Daily Geometric Mean:	col/100mL	400	10	7	11	0	0
	Monthly Geometric Mean:	col/100mL	200	2	2	2	0	0
TCR:	Monthly Average:	ug/L	50	0	0	0	0	0
	Daily Maximum:	ug/L	50	0	0	0	0	0
Total Ammonia Nitrogen:	6/1-10/31							
	Monthly Average:	mg/L	10.0	0.1	0.1	0.1	0	0
	Daily Maximum:	mg/L	35.2	0.2	0.2	0.1	0	0
Copper:	Monthly Average:	ug/L	20	5.1	6.0	8.2	0	0
Phosphorus:	May 1 - Oct 31							
	Monthly Average:	mg/L	1.0	N/A	N/A	N/A	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

Average monthly flows at the Clinton Wastewater Treatment Plant for April, May and June 2010 were 3.80 mgd, 3.77 mgd, and 3.73 mgd, respectively; the permit limit is 3.01 mgd.

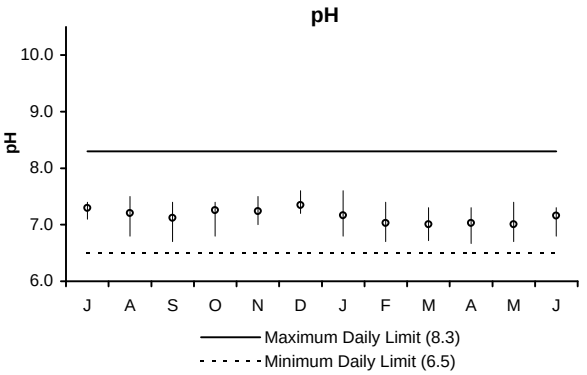
Toxicity testing is only conducted on a quarterly basis; toxicity limits were met in the 4th Quarter (see results below).



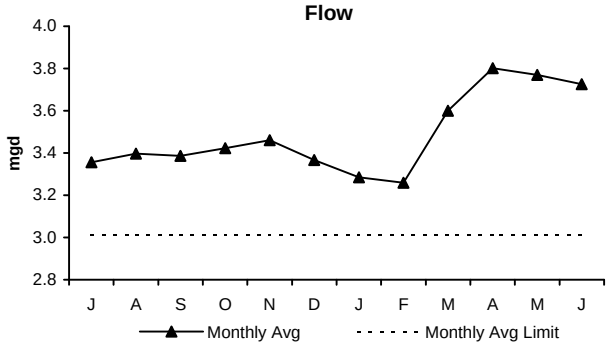
The 4th Quarter's monthly average and daily maximum concentrations were below permit limits. The monthly average and daily maximum limits for the period of November 1 - March 31 are 10 mg/L and 35.2 mg/L, respectively. The permit limits are most stringent from June - October when warm weather conditions 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.



pH is a measure of the alkalinity or acidity of the effluent. All daily pH results for the 4th Quarter were within the range set by the permit.



The graph depicts the average monthly flow, measured in million gallons per day, entering the plant. The average monthly flows during the 4th Quarter exceeded the permit limit. The average flows during April, May, and June were 3.80 mgd, 3.77 mgd, and 3.73 mgd, respectively; the permit limit is 3.01 mgd.

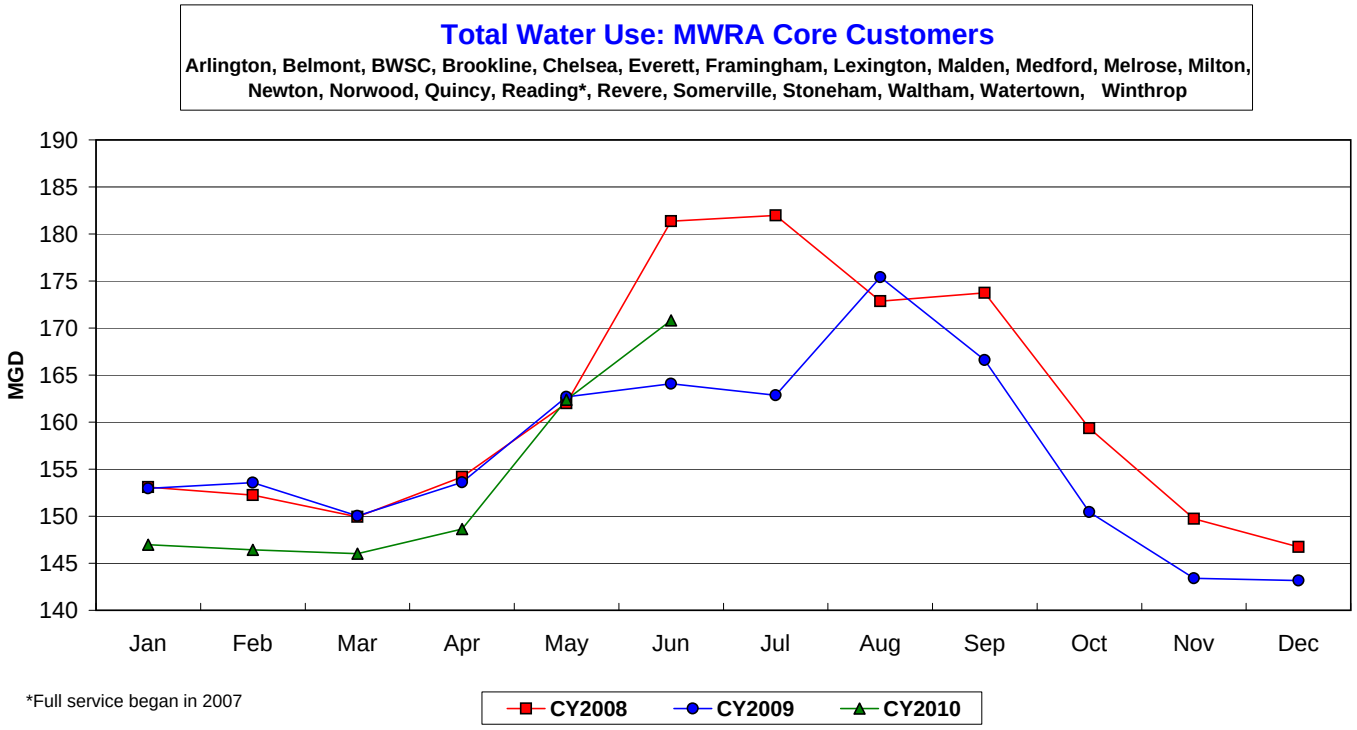
COMMUNITY FLOWS AND PROGRAMS

Total Water Use: MWRA Core Customers

4th Quarter - FY10

MGD	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
CY2008	153.088	152.234	149.917	154.190	162.017	181.350	181.977	172.851	173.742	159.347	149.732	146.722	161.444
CY2009	152.955	153.584	150.040	153.610	162.670	164.096	162.866	175.400	166.583	150.449	143.414	143.167	156.590
CY2010	146.968	146.445	146.031	148.655	162.386	170.818	0.000	0.000	0.000	0.000	0.000	0.000	153.600

MG	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
CY2008	4,745.722	4,414.773	4,647.415	4,625.691	5,022.518	5,440.499	5,641.288	5,358.375	5,212.249	4,939.760	4,491.952	4,548.371	59,088.614
CY2009	4,741.614	4,300.347	4,651.228	4,608.285	5,042.784	4,922.882	5,048.836	5,437.393	4,997.482	4,663.925	4,302.417	4,438.185	57,155.379
CY2010	4,556.000	4,100.454	4,526.963	4,459.643	5,033.968	5,124.550	0.000	0.000	0.000	0.000	0.000	0.000	27,801.578

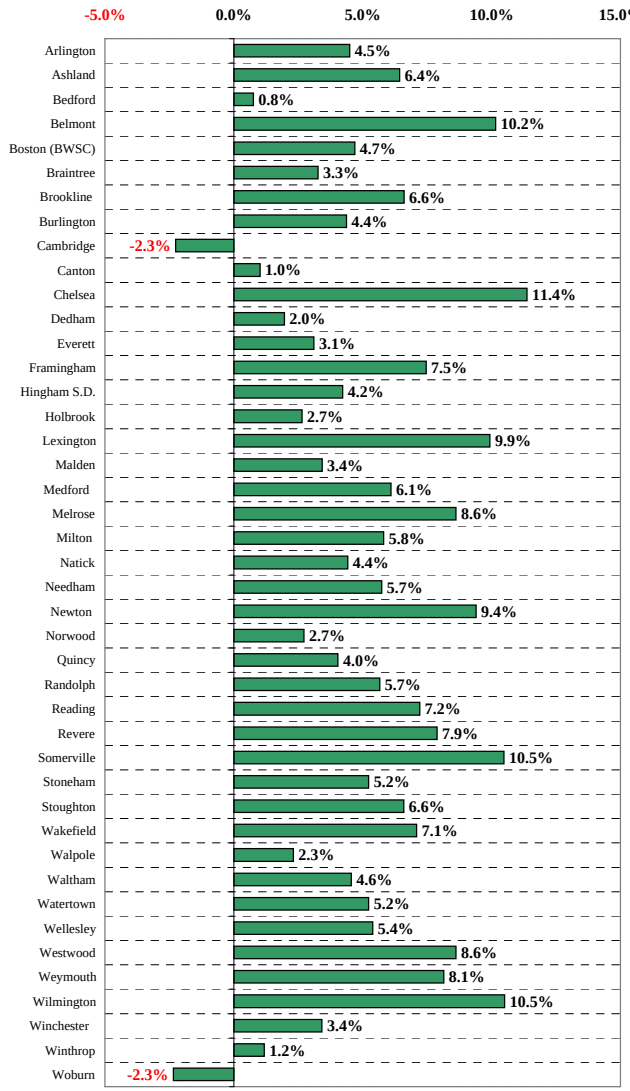


*Full service began in 2007

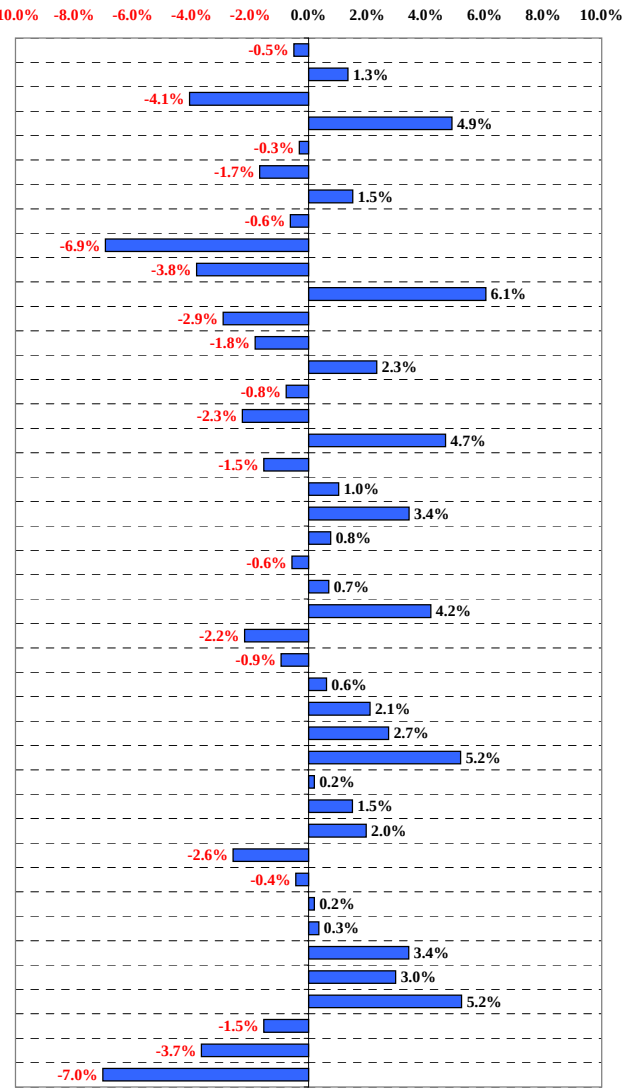
How CY2010 Community Wastewater Flows Through Two Months Could Effect FY2012 Sewer Assessments [1,2]

The flow components of FY2012 sewer assessments will be allocated using a 3-year average of CY2008 to CY2010 wastewater flows compared to PFY2011 assessments that used a 3-year average of CY2007 to CY2009 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 CY2008 to CY2010 flow share compared to CY2007 to CY2009 flow share, compared to all other communities in the system.** → **Change in flow shares are only a part of the assessment calculation as illustrated by the estimated impact of flow share changes on FY2012 sewer assessments.**

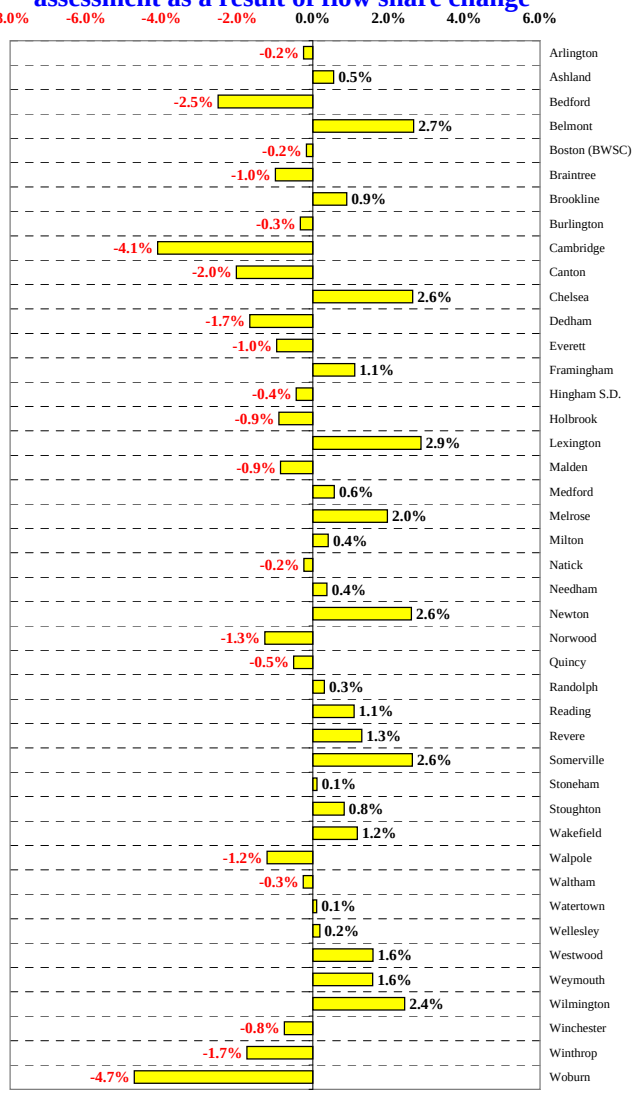
Change in community absolute flow



Change in community flow share



Estimated variance from average system assessment as a result of flow share change [3]



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

[2] Based on CY2007 to CY2010 average wastewater flows as of 04/14/10. Flow data is preliminary and subject to change pending additional MWRA and community review.

[3] Represents the assessment impact of the changes in wastewater flow share.

MARCH DATA STILL UNDER REVIEW DUE TO LARGE STORM EVENTS.

Flow Impacts

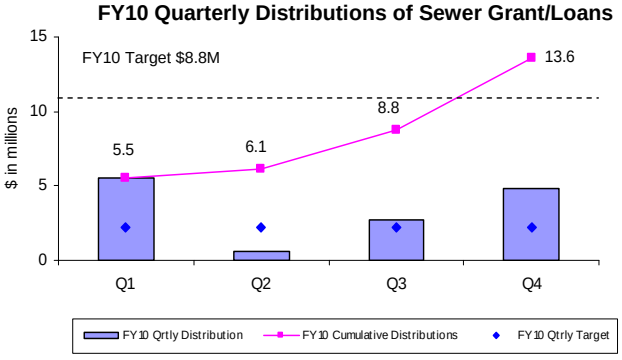
Community Support Programs

4th Quarter – FY10

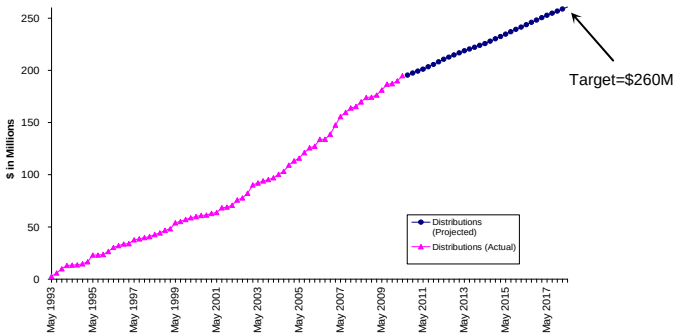
Infiltration/Inflow Local Financial Assistance Program

The MWRA's Infiltration/Inflow (I/I) Local Financial Assistance Program provides $260.75 million in grants and interest-free loans (average of about $10 million per year from FY93 through FY18) 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.

FY10 Quarterly Distributions of Sewer Grant/Loans



I/I Local Financial Assistance Program
Distribution FY93-FY18 Target is $260M

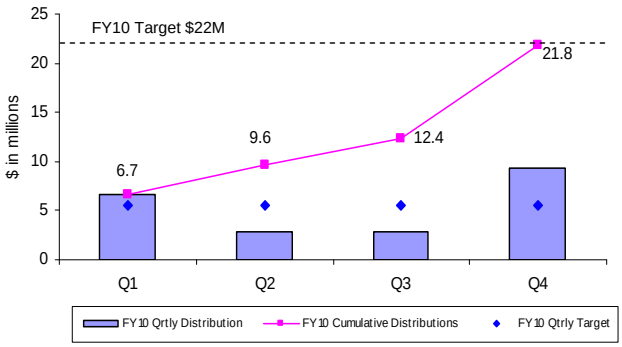


During the fourth quarter of FY10, $4.8 million in financial assistance (45% grants and 55% interest-free loans) was distributed to fund local sewer rehabilitation projects in Bedford, Dedham, Lexington, Natick, Needham, Watertown, Wellesley, Weymouth and Winthrop. Total grant/loan distribution for FY10 is $13.6 million. From FY93 through the fourth quarter of FY10, all 43 member sewer communities have participated in the program and more than $195 million has been distributed to fund 391 local I/I reduction and sewer system rehabilitation projects. Distribution of the remaining funds has been approved through FY18 and community loan repayments will be made through FY23. All scheduled community loan repayments have been made.

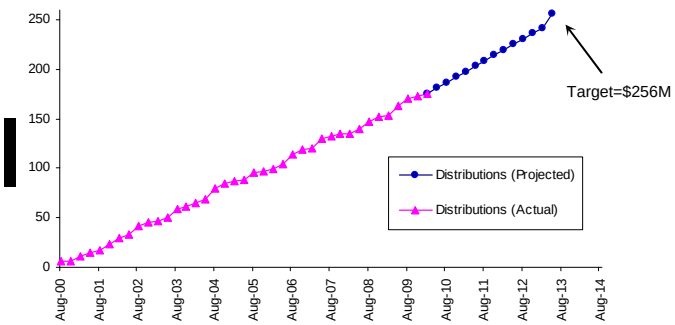
Water Local Pipeline Assistance Program

The MWRA's Local Pipeline Assistance Program (LPAP) provides $256,796,500 in interest-free loans (an average of about $20 million per year from FY01 through FY13) to member water communities to perform water main rehabilitation projects within their locally-owned water distribution system. Eligible project costs include: water main cleaning/lining, replacement of unlined water mains, lead service replacements, valve work along the pipe alignment, engineering design, engineering services during construction, etc. LPAP funds are allocated to member water communities based on their percent share of unlined water pipe. 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.

FY10 Quarterly Distributions of Water Loans



Water Local Pipeline Assistance Program
Distribution FY01-FY13 Target is $256M



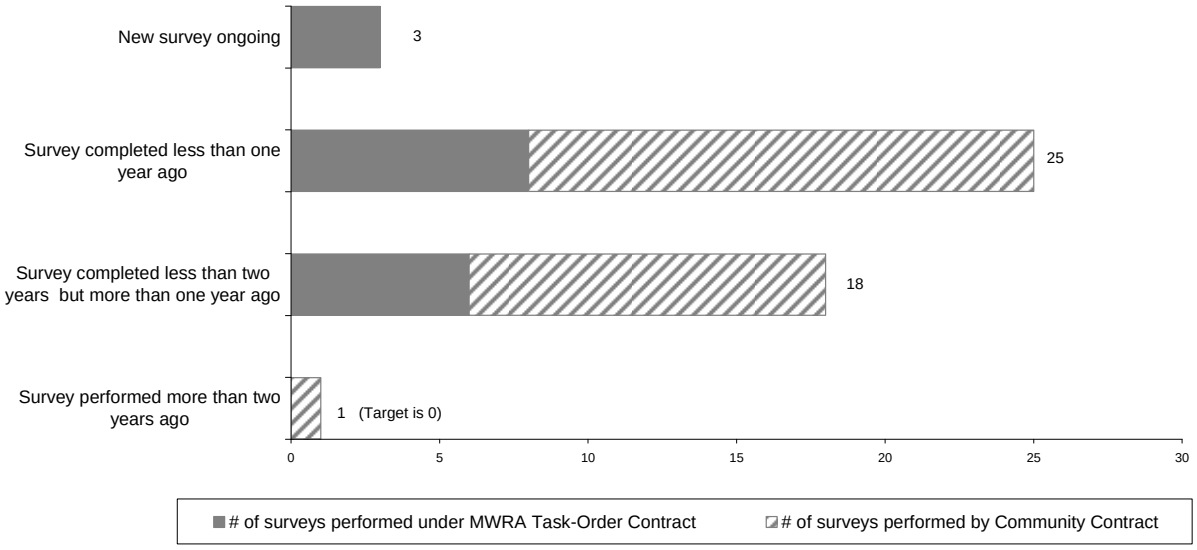
During the fourth quarter of FY10, $9.4 million in interest-free loans was distributed to fund local water projects in Arlington, Belmont, Boston, Chelsea, Newton, and Watertown. Total loan distribution for FY10 is $21.8 million. From FY01 through the fourth quarter of FY10, $185 million has been distributed to fund 215 local water pipeline rehabilitation projects in 31 MWRA member water communities. Distribution of the remaining funds has been approved through FY13 and community loan repayments will be made through FY23. All scheduled community loan repayments have been made.

Community Support Programs

4th Quarter – FY10

Community Water System Leak Detection

To ensure member water communities identify and repair leaks in local-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 contractor 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 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 by MWRA, and the costs are billed to the community the following year. During the fourth quarter of FY10, one member water community (Northborough) is out of compliance with MWRA Leak Detection Regulations.



Community Water Conservation Outreach

The 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) primarily to communities, and low-flow water fixtures and related materials (shower heads, faucet aerators, toilet leak detection dye tabs, and instructions) primarily to individuals, all at no cost to member communities or individual customers. The annual budget is $25,000 for printing and purchase of materials. Annual distribution targets and totals are provided in the table below.

	Annual Target	Q1	Q2	Q3	Q4	Annual Total
Educational Brochures	200,000	1,760	22,169	81,488	5,598	111,015
Low-Flow Fixtures (showerheads and faucet aerators)	6,000	4,185	2,270	6,268	6,686	19,409
Toilet Leak Detection Dye Tablets	------	4,330	1,246	1,909	1,870	9,355

BUSINESS SERVICES

Procurement: Purchasing and Contracts

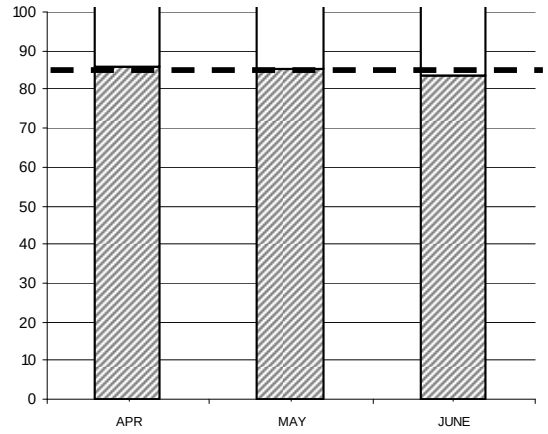
Fourth Quarter FY10

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

Outcome: Processed 85% of purchase orders within target; Avg. Processing Time was 6.48 days vs. 4.25 days in Qtr 4 of FY09. Processed 95% (75 of 79) contracts within target timeframes; Avg. Processing Time was 40 days vs. 145 days in Qtr 4 of FY09.

Purchasing

Purchase Orders - Percent in Target



	NO.	TARGET	PERCENT IN TARGET
$0 - $500	1221	4 DAYS	86.2%
$500 - $2K	828	7 DAYS	88.8%
$2K - $5K	254	10 DAYS	73.2%
$5K - $10K	105	25 DAYS	87.6%
$10K - $25K	73	30 DAYS	74.0%
$25K - $50K	18	60 DAYS	44.4%
OVER $50K	34	80 DAYS	58.8%

- Purchasing Unit processed 2533 purchase orders, 104 more than the 2429 processed in Qtr 4 of FY09, for a total value of $12,176,658 vs. a dollar value of $21,753,471 in Qtr 4 of FY09.

- The target was not achieved for the $2k - $5k category due to clarification of specifications, sourcing of vendors, and coordination with DCR, the $10k- $25k category due to identification of end user needs, and the sourcing of additional vendors, the $25k - $50k category due to a bid protest, an extended review of bids and vendor sourcing, the over $50k category due to extended negotiations with the vendor, a re-bid, finalizing specifications and numerous vendor questions.

Contracts, Change Orders and Amendments

- Four contracts were not processed within target timeframes. Reasons included: delay in the vendor processing paperwork, re-bid after rejecting all bids and an extended review of bidder qualifications.

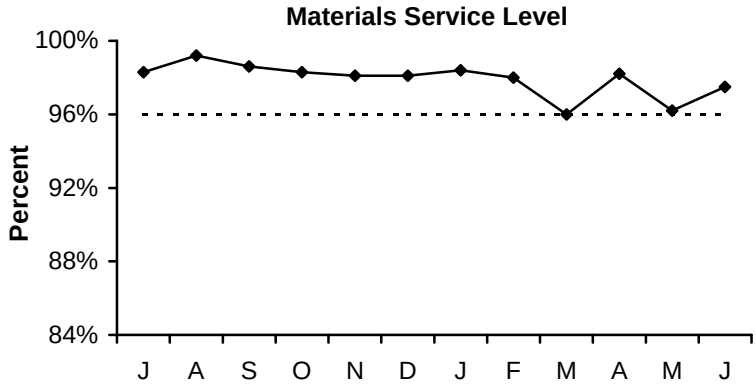
- Procurement processed seventy-nine contracts with a value of $186,826,607 and ten amendments with a value of $16,489.

- Forty-five change orders were executed during the period, but several were large balancing change orders at the end of jobs, and are recorded as credits or negative numbers. The dollar value of all non-credit change orders during the 4th quarter FY10 was $2,575,416 and the value of credit change orders was ($860,405). The net dollar value of all change orders was $1,715,011.

- In addition, staff reviewed 138 proposed change orders and 58 draft change orders.

Materials Management

4th Quarter, FY10



The service level is the percentage of stock requests filled. The goal is to maintain a service level of 96%. Staff issued 10,325 (97.2%) of the 10,618 items requested in Q4 from the inventory locations for a total dollar value of $1,198,486.

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 FY10 goal is to reduce consumable inventory from the July '09 base level ($6.88 million) by 3.0% (approximately $206,504), to $6.67 million by June 30, 2010 (see chart below).

Items added to inventory this quarter include:

- Deer Island – flow switches and electrodes for Core; elbows, cross tees and unions for Residuals; mechanical seal, pinion gear and sprockets for Liquid Train.
- Chelsea – no new items were added.
- Southboro – pump rebuild kit, cable conductor and chlorine reagent for the Carroll Water Treatment Plant; plumbing fixtures, conduit fittings and electrical brushes for Maintenance.

Property Pass Program:

- Audits were conducted at Chelsea Plumbing Shop, Tech Base and Norumbega during Q4.
- Numerous obsolete computers, printers, monitors, keyboards, mice, memory boards, modems, projectors and servers have been received into property pass as surplus. Disposition is being handled as part of our ongoing recycling efforts.
- Scrap revenue for the fourth quarter amounted to $6,642

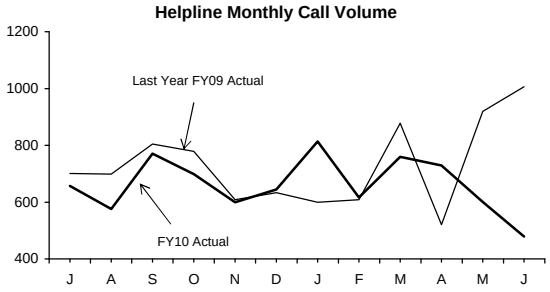
Items	Base Value July-09	Current Value w/o Cumulative New Adds	Reduction / Increase To Base
Consumable Inventory Value	6,883,472	7,318,770	435,298
Spare Parts Inventory Value	7,243,971	6,840,258	-403,713
Total Inventory Value	14,127,443	14,159,028	31,585

Note: In June FY10, approximately $639,758 worth of MIS equipment was received into the warehouse and will be issued in Q1 FY11. This equipment's value is reflected in the increase in consumable inventory value.

MIS Program
4th Quarter FY10

Operations

Highlights:

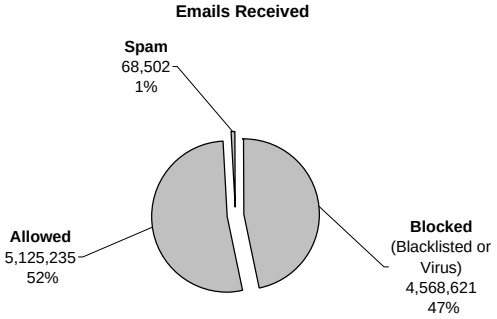


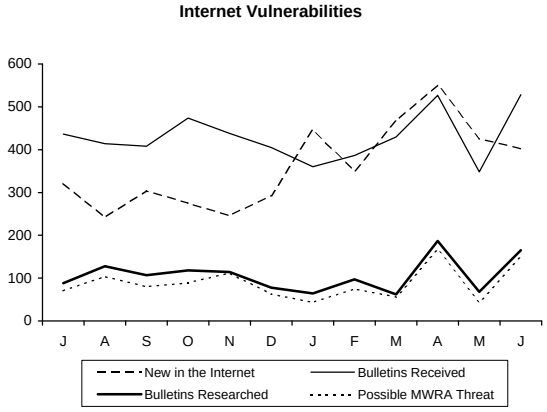
Performance

A total of 7944 calls were received for the year of which 89% were closed within 3 business days (target is 90%). Overall call volume decreased by 9.27% from last year. The backlog peaked in April and finished the year above the targeted benchmark range.

Business System Plan

- Cyber Security: During Q4, staff pushed security fixes and updates to desktops and servers throughout the quarter in order to protect against the 1379 newly revealed vulnerabilities.
- Thirteen files were identified with viruses on MWRA computers this quarter and infected files were cleaned or deleted before any damage ensued.





Applications/Training/Records Center

Area	Significant Accomplishments
Operations Management Monitoring	Created an Operations Management Monitoring System (OMMS) Blackberry web application with 16 PI data collection tags allowing staff to remotely monitor, process information relating to the May 1st, "Shaft 5 Break" break. Information linked to the new screen includes shaft, meter and reservoir data.
Search Server 2008 Express	Rolled out of the Windows Search Server 2008 which replaces ESNet as the MWRA's Intranet indexing and search software. ESNet's producer went out of business and the current product is not compatible with new server environments. Windows Search Server 2008 is included in the Server Operating System.
Community Contacts Application	MIS conducted a demo for key operations, emergency planning, and public affairs staff. The application was well received and a number of data entry enhancements were requested and implemented. This application is scheduled to go live in July.
Lawson	Upgraded the Portal core technology. Upgraded the Websphere server, Tivoli and DB2 to the latest fix packs. These periodic upgrades provide enhanced security and product stability; refreshed the DIEROS product line data to aid in the testing of several time entry rotating schedule enhancements; the new MW483, Holiday to vacation time transfer, went live this month. This process transfers all holiday saved time to the vacation bank two weeks after it is earned; and assisted Procurement with the successful closing of FY10.
Maximo	Inserted 500 new equipment records; developed a new Crystal Report that automatically runs on the first of every month and is sent via email to Deer Island Supervisors with information regarding work orders generated for that month; and MIS and FOD participated in an information exchange with MassDOT to provide details on MWRA's use of Maximo and our asset management program. MassDOT is in the process of purchasing a new asset management system; the conference call as part of their due diligence.
Training	For the quarter, 65 staff attended 13 classes and 10 workshops. In FY10, 325 staff have attended 57 classes and 34 workshops. 19% of the workforce have attended at least one class year-to-date. Procured supplemental online training in June. The online classes will provide an additional option for basic MS Office classes and an option for advanced topics training.
Library & Records Center	Library/RC staff responded to Shaft 5A break by conducting more than 150 separate researches and delivering 279 boxes over 18 days. Staff managed a new secured research and evidence room (1A), supervised 127 visitors, and copied more than 3,000 documents. The room is equipped with standard office equipment including a newly purchased microfilm scanner/reader. The Library distributed 4,294 (16,739 YTD) electronic articles to staff desktops including 3,052 (11,608 YTD) from combined ENQUAD topics and 469 (2,044 YTD) renewable energy articles. Processed 52 (242 YTD) searches on topics such as pipe standards, algae control and microwave signals. The Records Center added 131 (497 YTD) new boxes.

Legal Matters
4th Quarter FY2010

PROJECT ASSISTANCE

COURT AND ADMINISTRATIVE ORDERS

- **Boston Harbor Litigation and CSO:** Finalized and filed Compliance and Progress Report and CSO Quarterly Progress Report with Federal District Court.

- **NPDES:** Drafted fact sheet for extension of variance for combined sewer overflow CSO discharges to the Alewife Brook/Upper Mystic River Basin and the Lower Charles River/Charles Basin; finalized Administrative Consent Order with Penalty (ACOP) issued by MADEP for diesel fuel spill at Cottage Farm CSO facility and finalized supplemental environmental project to be implemented in lieu of the penalty; reported SSOs that occurred during March 29 through April 1 storm event. Submitted CSO Discharge Estimates and Rainfall Analyses for Calendar Year 2009 to EPA and DEP.

- **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 AND CONTRACT AND OTHER SUPPORT

- **Watershed Land Acquisition:** Reviewed 3 proposed acquisitions of either Watershed Preservation Restrictions or real property for Watershed Preservation to identify issues prior to approval for funding.

- **Trustees of Heather Realty Trust v. MWRA:** Drafted an Order of Taking, and Notice Letter for the acquisition of an additional temporary easement on the property located at 1625 VFW Parkway in West Roxbury to extend the period of time on the easement acquired in March 2010.

- **Oren Nichols House Museum – Southborough:** Revised the draft Memorandum of Understanding with the Oren Nichols House for an American History Museum and archive facility

- **Hultman Aqueduct Interconnector Project:** Negotiated and drafted a license agreement with the City of Waltham.

- **Weston Water Main:** Performed research, document review and analysis of potential litigation claims arising out of the water main break on May 1, 2010 and other litigation strategy issues for consideration and deliberation by Board members; issued notices to the companies that participated in the design, construction or material supply for MWWST CP-3A reserving all of MWRA's rights to pursue any remedy it may have against any entity that caused or may have contributed to the water main break and resultant damage.

- **Section 8(m) permits:** Reviewed and approved 41 Section 8(m) permits and 7 Direct Connect Permits.

ENVIRONMENTAL

- **Statutes/Regulations-Amendments:** Reviewed draft of federal General Permit covering Remediation Discharges (RGP) in Massachusetts.

LABOR, EMPLOYMENT AND ADMINISTRATIVE

New Matters

Six demands for arbitration were filed.

One charge was filed at the Massachusetts Commission Against Discrimination.

Matters Concluded

Received an arbitrator's decision in favor of the MWRA on the grounds that the MWRA did not violate Article 23 of the collective bargaining agreement when it terminated grievant.

Received three dismissals by the MCAD on charges of discrimination.

LITIGATION/TRAC

New Lawsuits

During the fourth quarter of FY 2010, two new lawsuits were reported and two new claims were reported.

Capital One Bank v. (Current Employee) and MWRA: A Trustee summons was received on April 7, 2010 from Capital One Bank for (current MWRA employee) to garnish wages in the amount of $2911.

National Cargo, Inc. v. MWRA: Plaintiff is a trucking firm based in New Jersey that alleges that it was contracted to pick up a shipment at Conley Terminal in South Boston and transport it to the Deer Island Treatment Plant. Plaintiff alleged that the shipment (Electrical Substation Transformer) was over-sized and that the equipment needed to transport this machine was more expensive than had been arranged by the shipper. Plaintiff asked to be reimbursed for costs to transport an over-sized shipment plus waiting time. Staff located MWRA's vendor and have succeeded in having the vendor pay the full claim.

Geico/Travelers Insurance Claims: The Law Division, in conjunction with Risk Management, is monitoring two claims arising out of a three car accident that included an MWRA van. The accident occurred September 1, 2009 at Eastern Ave. and Griffin Way, Chelsea. The insurers for the other drivers are seeking reimbursement from MWRA for property damage to their insureds' vehicles.

Significant Developments

(Current Employee) v. MWRA: Judge Lemire of the Worcester Superior Court granted in part, and denied in part MWRA's Motion for Summary Judgment in this lawsuit ruling that there are genuine issues of material fact concerning "defendants' knowledge, intent, or state of mind" in relation to the plaintiff's allegations. Judge Lemire ruled, however, that the period over which plaintiff may recover, if at all, is more circumscribed than plaintiff asserts. The Court has scheduled a pre-trial conference for September 2, 2010.

Current Employee) v. MWRA: On May 21, 2010, the Superior Court granted in part, and denied in part, MWRA's Motion for Summary Judgment in this employment discrimination case. The Court ruled that applicable statutes of limitations precluded recovery for some of plaintiff's allegations, but full summary judgment was precluded by disputed issues of fact.

SUMMARY OF PENDING LITIGATION MATTERS

TYPE OF CASE/MATTER	As of JUNE 2010	As of Mar 2010	As of Dec 2009
Construction/Contract/Bid Protest (other than BHP)	4	3	4
BHP Claims/Contract Cases	0	0	0
Tort/Labor/Employment	7	7	7
Environmental/Regulatory/Other	2	2	2
Eminent Domain/Real Estate	2	2	2
total – all defensive cases	**15**	**14**	**15**
Affirmative Cases: MWRA v. (current employee) MWRA v. Chutehall Construction Co., Ltd, et al.	2	2	3
Other Litigation matters (restraining orders, etc.)	0	2	2
total – all pending lawsuits	**17**	**18**	**20**
Significant claims not in suit: Geico/Travelers Insurance Claims	2	0	2
Bankruptcy	8	9	1
Wage Garnishment	5	8	7
TRAC/Adjudicatory Appeals	2	3	5
Subpoenas	2	1	1
TOTAL – ALL LITIGATION MATTERS	36	39	36

Closed Cases

Six cases were reported closed in the Fourth Quarter of 2010.

Massachusetts Higher Education Assistance Corporation v. (Current Employee) and MWRA. This is a wage garnishment matter to garnish wages for (current MWRA employee) in the amount of $22,421.16. MWRA filed a discharge of trustee with the court on May 18, 2010 and the matter is now considered closed.

Portfolio Recovery Associates v. (Current Employee) and MWRA: This is a wage garnishment matter to garnish wages for (current MWRA employee) in the amount of $5,000. A Stipulation of Dismissal together with a Discharge of Trustee was filed with the court on June 29, 2010 and the matter is now considered closed.

(Current Employee) – Personal Bankruptcy: This is a wage garnishment matter where the employee filed for Chapter 13 Bankruptcy protection. The deductions of $400 a month for sixty months has been completed. A Discharge of Trustee was filed with the court and the matter is now closed.

MWRA v. (Former Employee): This is an action brought by MWRA to enjoin the defendant, a former MWRA employee, from harassing, threatening or contacting another MWRA employee. A Stipulation of Dismissal has been filed and the matter is now closed.

MWRA v. (Former Employee): This is an action brought by MWRA to enjoin the defendant, a former MWRA employee, from harassing, threatening or contacting another MWRA employee. A Stipulation of Dismissal has been filed and the matter is now closed.

Delta Management Associates, Inc. v. (Current Employee) and Windham Professionals v. (Current Employee): This is a wage garnishment action to garnish wages in the amount of $3,186.84 for (current employee). A Stipulation of Dismissal was filed and the matter is now closed.

Subpoenas

During the Fourth Quarter of FY 2010 one subpoena was received and two subpoenas were pending at the end of the Fourth Quarter FY 2010.

Public Records

During the Fourth Quarter of FY 2010 thirty seven new public records requests were received and eight requests were closed at the end of Fourth Quarter FY 2010.

TRAC/MISC.

New Appeals:

One new appeal was received in the 4th Quarter FY 2010.

Barletta Heavy Division, Inc. 10-02: This matter raises an issue whether Barletta complied with the WBE participation requirement in Contract 6212.

Settlement by Agreement of Parties

Two cases were settled by Agreement of Parties in 4th Quarter FY 2010.

Brandeis University; MWRA Docket No. 09-05

Harvard University; MWRA Docket No. 09-01

Notice of Dismissal Fine paid in full

No cases were dismissed by Notice of Dismissal, fine paid in full.

Tentative Decisions

No Tentative Decisions were issued in 4th Quarter FY 2010.

Final Decisions

No Final Decisions were issued during the 4th Quarter FY 2010.

Internal & Contract Audit Program
4th Quarter FY10

Highlights

CHELSEA DATA CENTER PHYSICAL CONTROLS (Issued: May 5, 2010)
The purpose of this assignment was to assess physical controls at the Chelsea Data Center. Recommendations were made dealing with reducing access privileges to the Data Center, strengthening controls over visitors, replacing core locks and maintaining a list of issued keys, restricting food and drink in the Data Center, and assessing the need for lightning protection.

BAY STATE FERTILIZER (Issued: June 30, 2010)
The purpose of this assignment was to evaluate the operations of the Bay State Fertilizer program. From January 2005 through December 2009 the Authority received $94,995 from wholesale customers and a total of 563 tons of pellets valued at $98,490 were given to public entities. Recommendations were made to strengthen internal controls by making the Controller responsible for invoicing, rather than the Residuals Department, to have customers remit payments directly to the Treasury Department, and to promptly follow-up on $16,467 in outstanding receivables.

Status of Open Audit Recommendations (10 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 92% of recommendations have been implemented.

Report Title (date)	Recommendations Pending Implementation	Closed Recommendations
Financial & Management Controls of the Fore River Railroad (3/1/07)	1	6
Audit of Buying Practices (9/15/08)	1	10
Boston Water & Sewer Commission CSO Financial Assistance Agreement (9/18/09)	1	2
Review of Fixed Assets (9/21/09)	5	5
Construction Change Order Pricing (12/31/09)	5	0
Chelsea Data Center Physical Controls (5/5/10)	5	6
Review of Emergency Action Plans (6/30/10)	5	2
Bay State Fertilizer (6/30/10)	1	2
Total Recommendations	**24**	**33**

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. In addition, to the typical recoveries and cost avoidance arising from consultant and construction audits, and ongoing savings from prior year assignments, staff collected $42,734 in overcharges by three vendors, and reviewed an invoice from Clean Harbors for its cleanup of the Cottage Farm diesel fuel spill resulting in $30,674 in savings.

Savings	FY06	FY07	FY08	FY09	FY10	TOTAL
Consultants	$768,394	$358,341	$55,901	$316,633	$194,238	$1,693,507
Contractors & Vendors	$456,968	$637,378	$2,147,311	$1,262,088	$599,835	$5,103,580
Internal Audits		$183,840		$438,027	$206,282	$828,149
Total	**$1,225,362**	**$1,179,559**	**$2,203,212**	**$2,016,748**	**$1,000,355**	**$7,625,236**

INTERNAL & CONTRACT AUDIT PROGRAM
3rd Quarter FY10

Highlights

Internal Audit was in the process of closing a number of assignments in the third quarter. As part of its ongoing review of MIS general controls a draft report was issued on physical controls at the MIS Chelsea Data Center. A draft report was issued on the review of the construction work in process account. Two reports were issued on the residuals program, a draft report on the Bay State Organic program and an interim report on New England Fertilizer Company's (NEFCO's) financial results from the operation of the pellet plant in Quincy in calendar years 2007, 2008 and 2009. Additional field work is scheduled at NEFCO in April to finalize the 2009 financial results.

Status of Open Audit Recommendations

The Internal Audit Department follows up on open recommendations on a continuous basis. All pending recommendations have target implementation dates and Internal Audit has implemented a tracking system that automatically notifies the responsible managers 30 days prior to the target implementation date. 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 95% of recommendations have been implemented.

Report Title (date)	Recommendations Pending Implementation	Closed Recommendations
Financial & Management Controls of the Fore River Railroad (3/1/07)	1	6
Audit of Buying Practices (9/15/08)	1	10
Boston Water & Sewer Commission CSO Financial Assistance Agreement (9/18/09)	1	2
Review of Fixed Assets (9/21/09)	5	5
Construction Change Order Pricing (12/31/09)	5	0
Total Recommendations	**13**	**23**

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. Commencing in FY07 cost savings include the dollar impact, if measurable, of internal assignments.

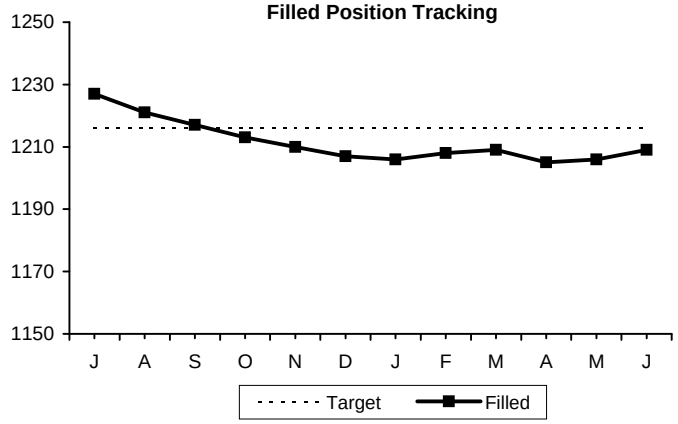
- Through the third quarter, some of the more significant savings include $265,858 in projected savings from preliminary construction labor burden reviews, $124,993 in savings arising from audit advisory services during the award of the current security contract, and $102,394 in tax savings from the MWRA lease of the Engine House to the Fore River Railroad Corporation (FRRC). Staff also recovered $89,201 and avoided $52,293 in consultant billings as the result of incurred cost audits.

Savings	FY06	FY07	FY08	FY09	FY10	TOTAL
Consultants	$768,394	$358,341	$55,901	$316,633	$163,994	$1,663,263
Contractors & Vendors	$456,968	$637,378	$2,147,311	$1,262,088	$536,606	$5,040,351
Internal Audits		$183,840		$438,027	$141,477	$763,344
Total	**$1,225,362**	**$1,179,559**	**$2,203,212**	**$2,016,748**	**$842,077**	**$7,466,958**

OTHER MANAGEMENT

Workforce Management
4th Quarter FY10

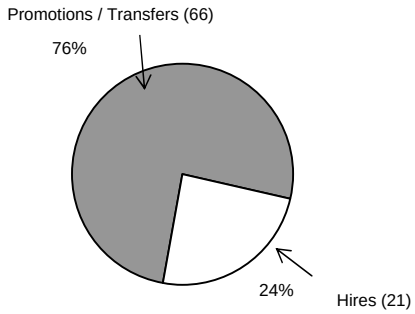
Filled Position Tracking



FY10 Target for Filled Positions = 1216

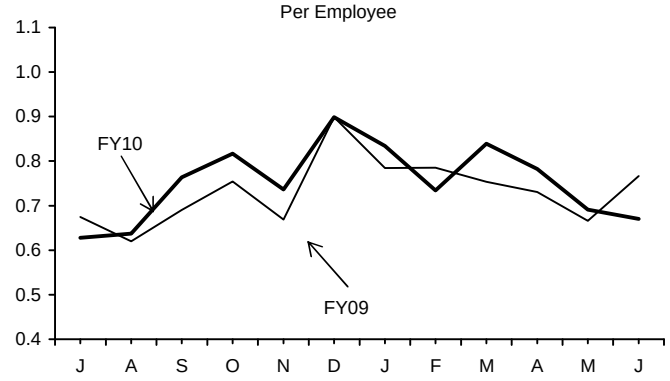
Filled Positions as of June 2010 = 1209

Positions Filled by Hires/Promotions
FY10



	Pr/Trns	Hires	Total
FY07	52 (56%)	41(44%)	93
FY08	63 (62%)	39(38%)	99
FY09	63 (73%)	23(27%)	86

Average Monthly Sick Leave Usage
Per Employee

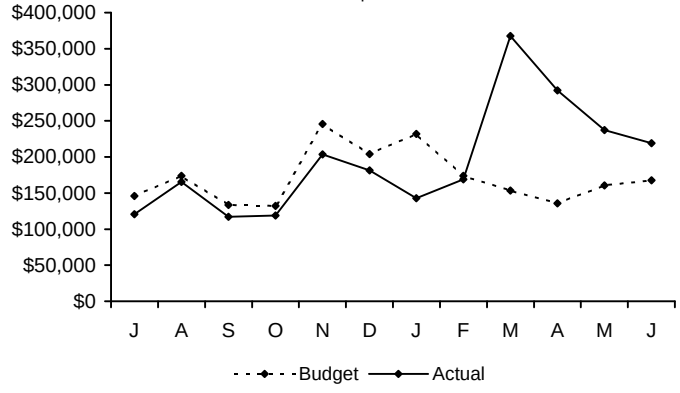


In FY10, the average monthly sick leave usage has increased 2.73% from the same time last year.

	Number of Employees	YTD	Annualized Total	Annual FMLA %	FY09
Law	18	10.03	10.03	5.8%	7.91
Planning	22	6.08	6.08	20.2%	8.07
Operations	940	9.26	9.26	23.3%	9.11
Support	180	8.05	8.05	35.1%	7.53
Finance	44	10.40	10.40	40.0%	8.45
Executive	9	3.96	3.96	0.0%	6.83
MWRA Avg	**1,213**	**9.03**	**9.03**	**24.9%**	**8.79**

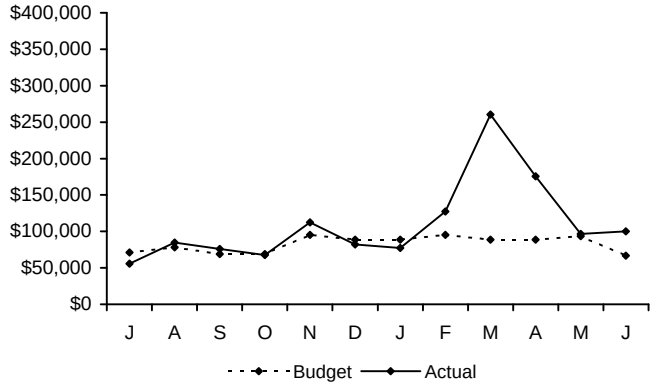
Percent of sick leave usage attributable to Family and Medical Leave Act (FMLA) leave is 24.9% ending June 30, 2010.

Field Operations
Overtime Expenditure Variance



Overtime spending in the 4th Quarter was $283,989 or 61.2% over budget, mainly due to the unprecedented rain events in March and early April, coupled with the emergency response needs resulting from the May 1, 2010 Shaft 5 leak.

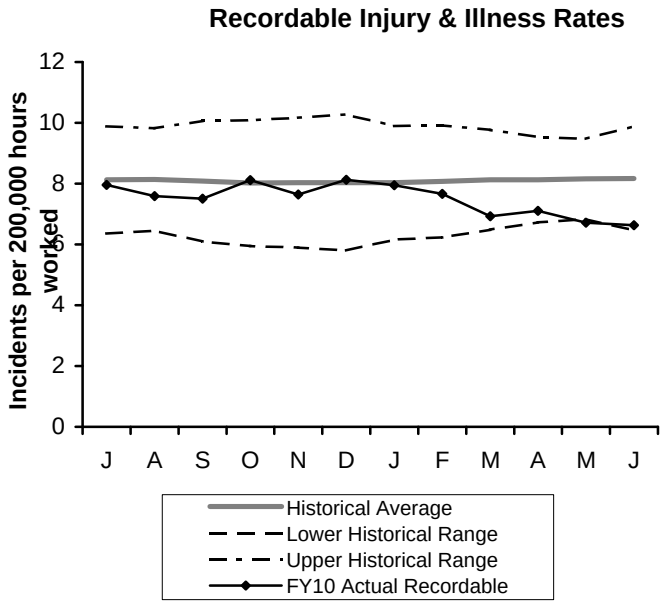
Deer Island Treatment Plant
Overtime Expenditure Variance

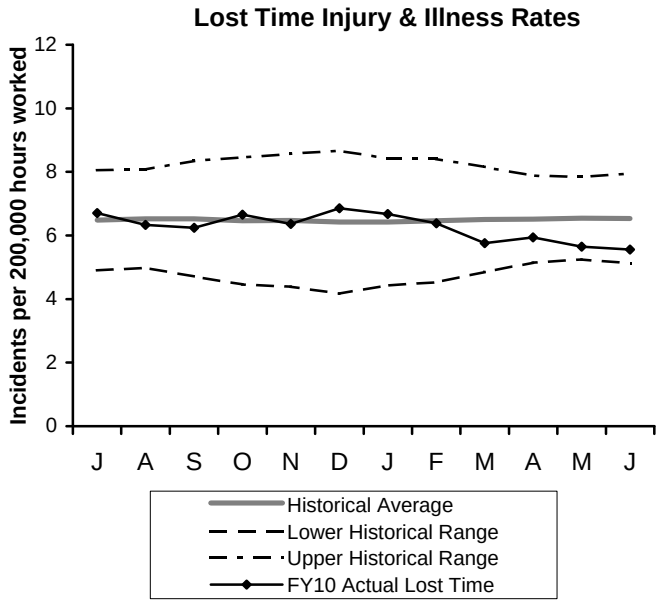


Overtime spending in the fourth quarter was $122,793 more than budgeted 49.3%, primarily due to storm coverage in Operations, Thermal and Maintenance.

Workplace Safety

4th Quarter 2010





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 FY09. The “Upper” and “Lower Historical Ranges” are computed using these same data – adding and subtracting two standard deviations respectively. FY10 actual incident rates can be expected to fall within this historical range.

Workers Compensation Claims Highlights

	New	Closed	Open Claims
Lost Time	6	15	54
Medical Only	40	46	47
	New		**YTD Returns**
Light Duty Returns	4		5

Highlights / Comments

Light Duty Returns

At the end of the 4th quarter, 2 employees remain on light duty.

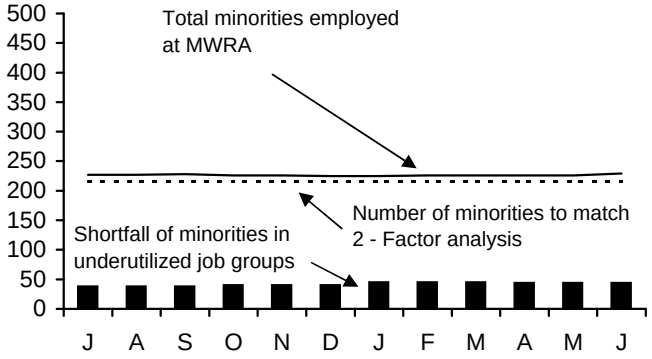
Regular Duty Returns

During the 4th quarter, 10 employees returned to regular duty, from either IA or light duty.

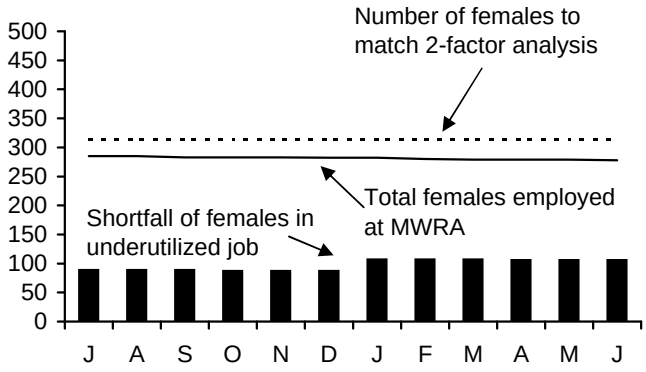
MWRA Job Group Representation

Fourth Quarter, FY 2010

Minority - Affirmative Action Plan Goals



Female - Affirmative Action Plan Goals



Highlights:

At the end of Q4 FY10, 8 job groups or a total of 44 positions are underutilized by minorities as compared to 7 job groups or a total of 40 at the end of Q4 FY09; for females 13 job groups or a total of 106 positions are underutilized by females as compared to 13 job groups or a total of 86 at the end of Q4 FY09. During Q4, 3 minoritiy and 0 females were hired. During this same period, 0 minorities and 2 females terminated.

Underutilized Job Groups - Workforce Representation

Job Group	Employees as of 6/30/2010	Minorities as of 6/30/2010	Achievement Level	Minority Over or Under Under utilized	Females As of 6/30/2010	Achievement Level	Female Over or Under Under utilized
Administrator A	17	3	2	1	2	5	-3
Administrator B	25	0	4	-4	6	6	0
Clerical A	48	21	11	10	42	12	30
Clerical B	36	9	8	1	18	3	15
Engineer A	85	16	14	2	11	15	-4
Engineer B	49	9	4	5	6	25	-19
Craft A	122	16	21	-5	0	6	-6
Craft B	146	26	20	6	3	8	-5
Laborer	61	14	11	3	4	10	-6
Management A	105	17	20	-3	31	41	-10
Management B	56	10	12	-2	14	28	-14
Operator A	66	5	7	-2	2	4	-2
Operator B	67	8	13	-5	4	4	0
Para Professional	61	11	27	-16	28	54	-26
Professional A	37	2	9	-7	23	15	8
Professional B	169	43	31	12	77	79	-2
Technical A	51	16	11	5	4	12	-8
Technical B	11	3	2	1	3	4	-1
Total	**1212**	**229**	**227**	**46/-44**	**278**	**331**	**53/-106**

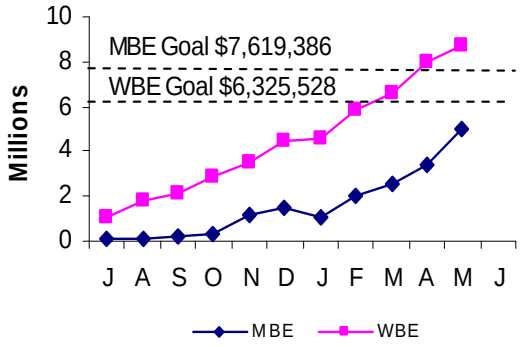
AACU Candidate Referrals for Underutilized Positions

Job Group	Title	# of Vac	Requisition Int. / Ext.	Promotions/ Transfers	AACU Ref. External	Position Status
Craft A	M&O Specialist	1	Ext	0	0	Pending
Craft B	Jr. Instrument Technician	1	Int	0	0	Pending
Craft B	Plumber/Pipefitter	1	Ext	1	1	W/M-Transfer
Craft B	Construction Pipelayer	1	Ext	0	0	Pending
Engineer A	Mechanical Designer	1	Ext	0	0	Pending
Management A	Program Manager, I&C	1	Ext	0	0	Pending
Operator A	Area Supervisor	2	Int	0	0	Pending
Operator B	Operator	1	Ext	0	0	W/M-New Hire
Operator B	Operator	1	Ext	1	0	W/F-Transfer
Technical A	Sr. Instrument Technician	1	Ext	0	0	B/M-New Hire

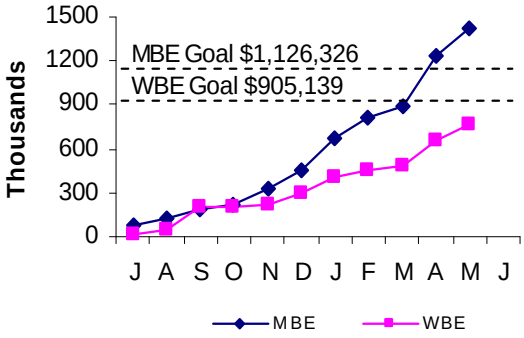
MBE/WBE Expenditures
Fourth Quarter 2010

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.

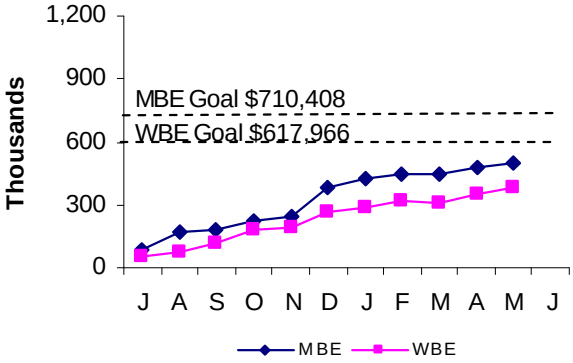
Construction



Professional



Goods/Services



Note: MBE Construction dollars decreased from December to January due to the disallowance of previously reported dollars. This is due to a contractor being sanctioned for non-compliance with contractual requirements.

FY10 spending and percentage of goals achieved, as well as FY09 performance are as follows:

	MBE				WBE			
	FY10 Year-to-Date		FY09		FY10 Year-to-Date		FY09	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
Construction	4,952,189	65.0%	6,609,216	122.4%	8,692,086	137.4%	8,770,461	210.0%
Professional Svc.	1,418,472	125.9%	1,266,243	83.5%	760,275	84.0%	706,320	57.9%
Goods & Svcs.	498,671	70.2%	1,288,538	187.7%	378,856	61.3%	835,066	139.8%
Total	**$6,869,332**	**72.6%**	**$9,163,997**	**120.5%**	**$9,831,217**	**125.3%**	**$10,311,847**	**172.1%**

MWRA FY10 CEB Expenses through
Fourth Quarter FY10

	June 2010 Year-to-Date					
	Period 12 YTD Budget	Period 12 YTD Actual	Period 12 YTD Variance	%	FY10 Approved	% Expended
EXPENSES						
WAGES AND SALARIES	$ 91,711,114	$ 89,957,003	$ (1,754,111)	-1.9%	$ 91,711,114	98.1%
OVERTIME	3,408,792	3,965,999	557,207	16.3%	3,408,792	116.3%
FRINGE BENEFITS	16,578,832	15,995,517	(583,315)	-3.5%	16,578,832	96.5%
WORKERS' COMPENSATION	1,325,000	2,226,080	901,080	68.0%	1,325,000	168.0%
CHEMICALS	10,363,436	8,998,799	(1,364,637)	-13.2%	10,363,436	86.8%
ENERGY AND UTILITIES	24,072,215	25,982,266	1,910,051	7.9%	24,072,215	107.9%
MAINTENANCE	28,259,673	25,561,320	(2,698,353)	-9.5%	28,259,673	90.5%
TRAINING AND MEETINGS	164,003	94,865	(69,138)	-42.2%	164,003	57.8%
PROFESSIONAL SERVICES	5,903,213	6,089,889	186,676	3.2%	5,903,213	103.2%
OTHER MATERIALS	4,603,646	4,811,574	207,928	4.5%	4,603,646	104.5%
OTHER SERVICES	23,222,760	22,477,713	(745,047)	-3.2%	23,222,760	96.8%
TOTAL DIRECT EXPENSES	**$ 209,612,684**	**$ 206,161,025**	**$ (3,451,661)**	**-1.6%**	**$ 209,612,684**	**98.4%**
INSURANCE	$ 2,316,000	$ 3,453,720	$ 1,137,720	49.1%	$ 2,316,000	149.1%
WATERSHED/PILOT	23,549,673	23,349,465	(200,208)	-0.9%	23,549,673	99.1%
BECo PAYMENT	3,877,500	3,895,850	18,350	0.5%	3,877,500	100.5%
MITIGATION	1,481,367	1,447,883	(33,484)	-2.3%	1,481,367	97.7%
ADDITIONS TO RESERVES	(653,254)	(653,254)	-	0.0%	(653,254)	100.0%
RETIREMENT FUND	8,392,133	5,621,259	(2,770,874)	-33.0%	8,392,133	67.0%
POST EMPLOYEE BENEFITS	800,000	800,000	-	0.0%	800,000	---
TOTAL INDIRECT EXPENSES	**$ 39,763,419**	**$ 37,914,923**	**$ (1,848,496)**	**-4.6%**	**$ 39,763,419**	**95.4%**
DEBT SERVICE	$ 347,226,225	$ 345,229,503	$ (1,996,722)	-0.6%	$ 346,876,225	99.5%
DEBT SERVICE ASSISTANCE	(350,000)	-	350,000	-100.0%	-	0.0%
TOTAL DEBT SERVICE	**$ 346,876,225**	**$ 345,229,503**	**$ (1,646,722)**	**-0.5%**	**$ 346,876,225**	**99.5%**
TOTAL EXPENSES	**$ 596,252,328**	**$ 589,305,451**	**$ (6,946,879)**	**-1.2%**	**$ 596,252,328**	**98.8%**
REVENUE & INCOME						
RATE REVENUE	$ 561,431,000	$ 561,431,000	$ -	0.0%	$ 561,431,000	100.0%
OTHER USER CHARGES	7,939,758	7,786,906	(152,852)	-1.9%	7,939,758	98.1%
OTHER REVENUE	4,371,736	5,079,438	707,702	16.2%	4,371,736	116.2%
RATE STABILIZATION	7,312,438	7,312,438	-	0.0%	7,312,438	100.0%
INVESTMENT INCOME	15,197,396	15,222,741	25,345	0.2%	15,197,396	100.2%
TOTAL REVENUE & INCOME	**$ 596,252,328**	**$ 596,832,523**	**$ 580,194**	**0.1%**	**$ 596,252,328**	**100.1%**

Through June 2010, total revenue was $596.8 million, $580,000 greater than budget. Total expenses were $589.3 million, $6.9 million or 1.2% less than budget.

Expenses –

- **Direct Expenses** are $206.2 million, $3.5 million or 1.6% less than budget.
- **Maintenance** is $2.7 million or 9.5% under budget mainly for services.
- **Utilities** are $1.9 million or 7.9% over budget due to higher Diesel Fuel of $2.7 million offset by lower Electricity of $783,000 (mainly DI usage) due to higher DI self-generation for wet weather activities.
- **Wages and Salaries** are $1.8 million or 1.9% less than budget due to lower headcount, greater attrition than planned, employees out on work related injury or unpaid leave and leave balance accounting treatment.
- **Chemicals** are $1.4 million or 13.2% under budget mostly due to lower flows and dosing.
- **Workers' Compensation** is $901,000 higher than budget due to the unusually high number of claimants who have applied for and received accidental disability retirements.
- **Other Services** are $745,000 or 3.2% less than budget. Underspending for Sludge Pelletization of $732,000 due to lower inflation indices, Printing/Duplicating $121,000, and Other Services of $94,000, offset by higher Space Lease/Rentals of $110,000 and equipment rentals of $59,000.
- **Fringe Benefits** are $583,000 or 3.5% under budget. Lower Health Insurance of $589,000, Medicare of $87,000 and Dental Insurance of $28,000 offset by higher Unemployment Insurance of $134,000 due to the extension of benefits.
- **Overtime** is $557,000 or 16.3% over budget mainly due to emergency related wet weather activities.
- **Other Materials** are $208,000 or 4.5% over budget mostly due to Vehicle Replacement of $227,000 and Computer Hardware of $120,000 due to accelerated purchases and Health/Safety Materials of $125,000 offset by Vehicle Expense of $266,000 due to lower gas prices and usage.
- **Professional Services** are $187,000 or 3.2% more than budget due to Lab & Testing of $261,000 due to delay in harbor and monitoring scope revisions, and Engineering of $152,000, offset by lower spending for Security of $133,000 and Legal of $95,000.
- **Indirect Expenses** are $37.9 million, $1.8 million or 4.6% under budget mainly due to decision to not make the voluntary Pension payment of $2.8 million and lower Watershed Reimbursements of $433,000 offset by higher Insurance claims of $1.2 million due to accruals for the Cottage Farm site clean-up, Squantum sinkhole repair, and equipment replacement and repair that was damaged during the March wet weather events.
- **Debt Service Expenses** total $345.2 million, $1.6 million or 0.5% less than budget due to favorable interest rates.

Revenue and Income –

- **Total Revenue / Income** through June was $596.8 million, $580,000 greater than budget. This increase is due to higher Other Revenue of $708,000 mainly due to higher energy revenue, permit fees and rebates and vendor refunds and higher Investment Income of $25,000 offset by lower Other User Charges of $153,000 mainly due to lower than projected water usage by the Town of Wilmington.

Cost of Debt
Fourth Quarter FY10

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.

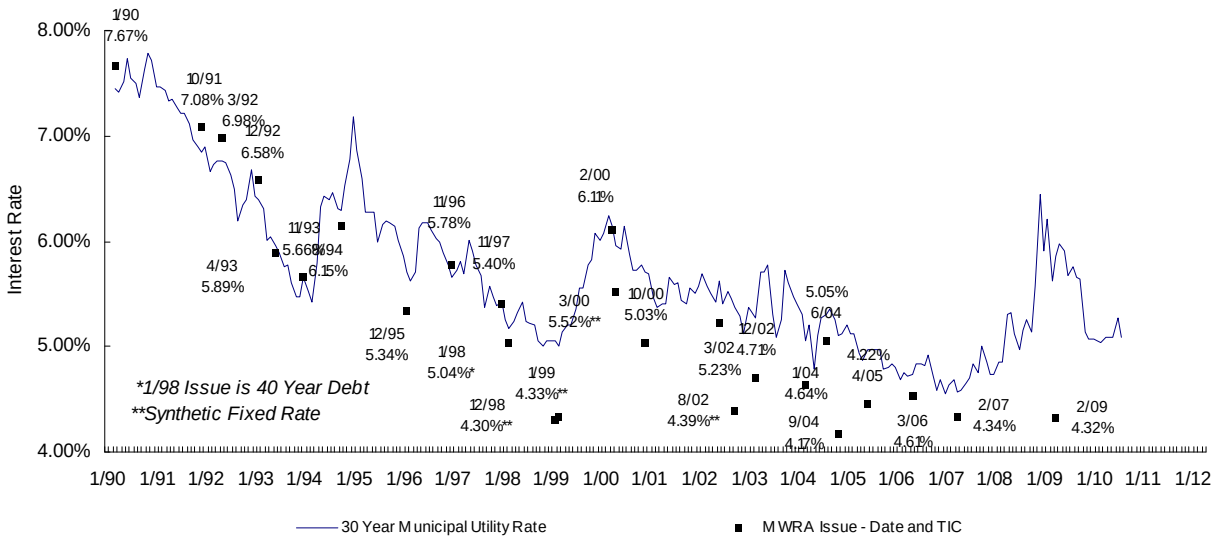
Average Cost of MWRA Debt

Fixed Debt ($4,034)	4.55%
Variable Debt ($529)	0.86%
SRF Debt ($1,056)	1.00%
Weighted Average Debt Cost ($5,618)	3.54%

Most Recent Senior Fixed Debt Issue
May 2010

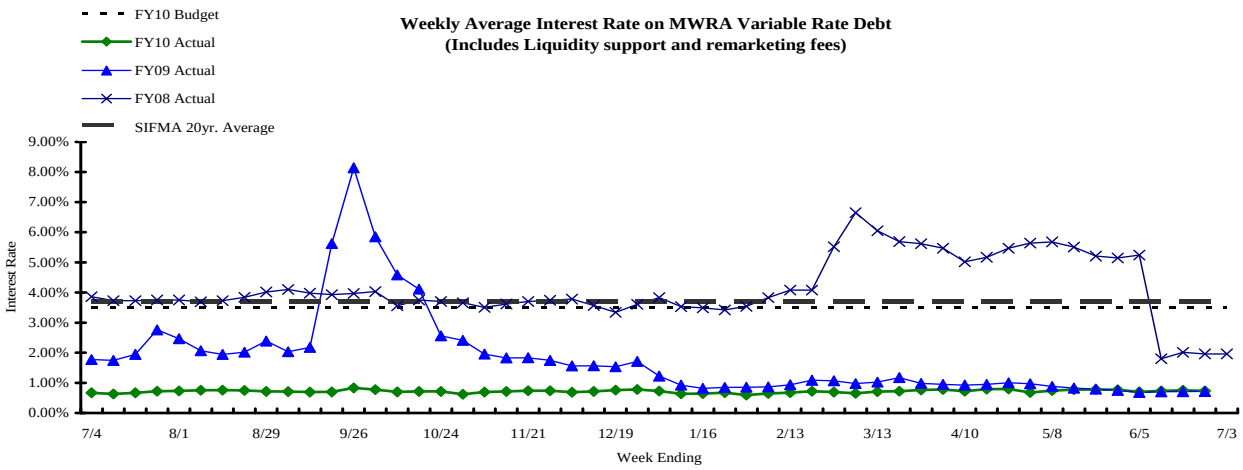
2010 Series A & B ($284)	4.14%

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



Weekly Average variable Interest Rates vs. Budget

MWRA currently has nine variable rate debt issues with $1.3 billion outstanding, excluding commercial paper. Of the nine 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 0.32% and a low of 0.26%. 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
Fourth Quarter FY10

Actual interest income varies from budgeted amounts because either fund balances or interest rates are greater or lower than budgeted.

YTD Investment Income vs. Budget
($000)

	Impact on Investment Income due to Variance in Fund Balances				Impact on Investment Income due to Variance in Interest Rates			Combined Impact on Investment Income	
Fund	Average Budgeted Balance	Average Actual Balance	Variance	Impact	Budget	Actual	Impact	Impact	%
Combined Reserves	$92,836	$92,138	($698)	($39)	4.57%	4.73%	$153	114	2.7%
Construction	$118,282	$129,985	$11,703	$88	0.75%	0.48%	($356)	(268)	-30.3%
Debt Service	$121,051	$115,318	($5,733)	($43)	0.75%	0.42%	($375)	(418)	-46.1%
Debt Service Reserves	$252,481	$252,571	$91	$5	2.82%	3.18%	$909	914	12.8%
Operating	$55,121	$53,218	($1,903)	($9)	1.46%	1.46%	($19)	(28)	-3.5%
Revenue	$74,957	$95,347	$20,390	$153	0.92%	0.53%	($336)	(183)	-26.7%
Redemption	$32,853	$32,851	($3)	($44)	1.68%	1.36%	($61)	(104)	-18.9%
Total	$747,579	$771,427	$23,848	$111	2.03%	1.97%	($86)	25	0.2%

YTD Investment Income Variance