

MASSACHUSETTS WATER RESOURCES AUTHORITY

Board of Directors Report

on

Key Indicators of MWRA Performance

for

Second Quarter FY2010

Q1	Q2	Q3	Q4



Frederick A. Laskey, Executive Director
Michael J. Hornbrook, Chief Operating Officer
February 10, 2010

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

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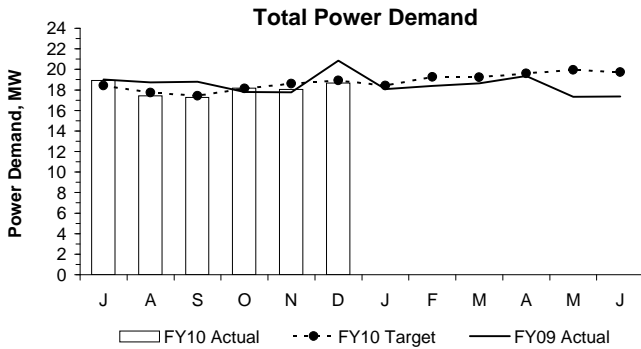
This quarterly report is prepared by MWRA staff to track a variety of MWRA performance measures for routine review by MWRA's board of directors. The content and format of this report is expected to develop as time passes. Information is reported on a preliminary basis as appropriate and available for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

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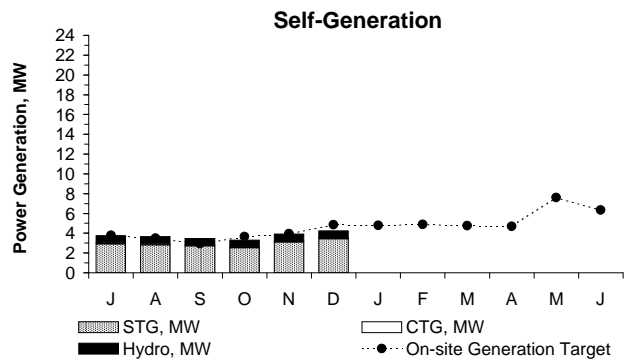
OPERATIONS AND MAINTENANCE

Deer Island Operations

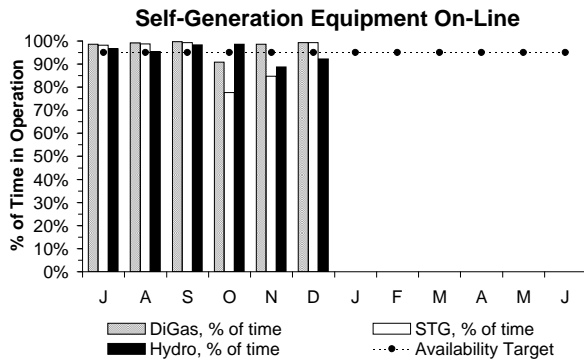
2nd Quarter - FY10



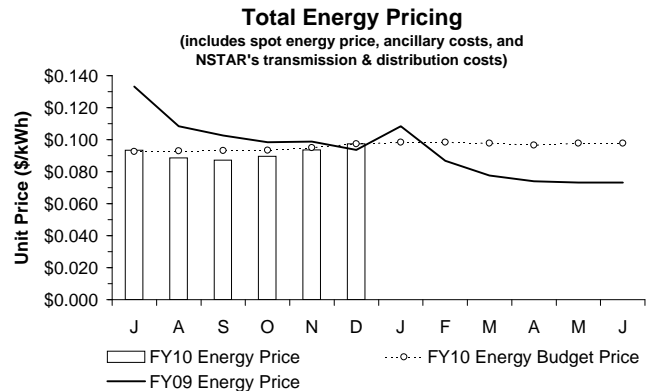
Total Power Demand in the 2nd Quarter was within (-1%) of projections and slightly lower than the FY09 actual (-2%). Even though Total Plant Flow for the 2nd Quarter was 5% higher than expected due to higher-than-expected rainfall in October and excessive snow melt in December, power demand for total pumping alone was still very close to the 2nd Quarter's budget projections.



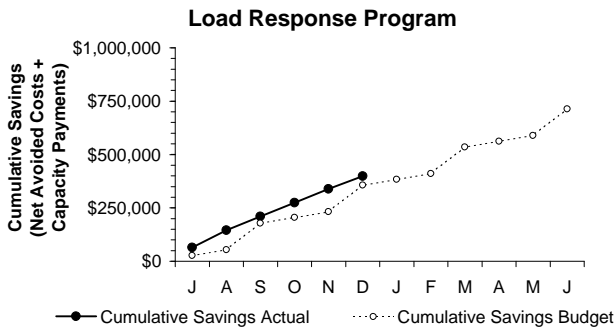
Power generated on-site was 6% lower than the target for the 2nd Quarter because both the STG and hydro turbines were off line for periods of time due to scheduled maintenance. The CTGs operated a total of 18.1 hours during the entire quarter.



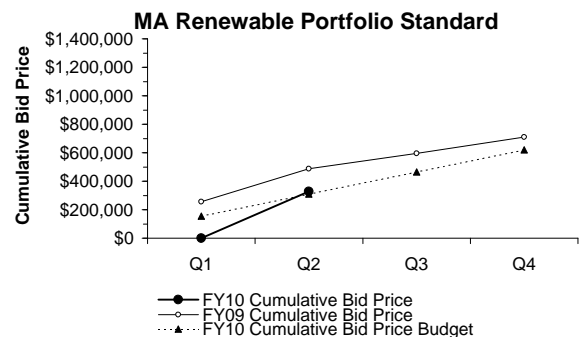
The DiGas system exceeded its 95% Availability Target for the 2nd Quarter, while the STG and the Hydro Turbine systems were below target (13% and 7%, respectively). All three systems were off-line for periods of time during the 2nd Quarter for scheduled annual maintenance.



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 2nd Quarter was 2% lower than the target due to lower-than-budgeted spot energy prices. The total energy price includes a fixed block price, spot energy price, transmission & distribution charges, and ancillary charges. November and December total energy prices are estimates as the invoices have not been received. FY10 YTD costs as a result of the lower energy pricing are estimated at approximately \$211,699 less than budgeted.



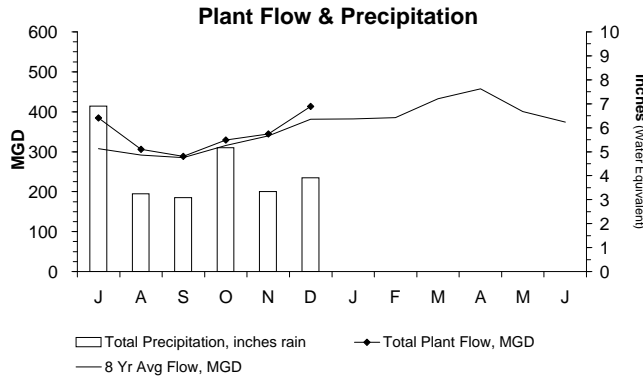
DI did not participate in any demand response events in the 2nd Quarter as none were called. Deer Island participates in the ISO-New England Load Response Programs. By agreeing to have its Combustion Turbine Generators available to run and thus relieve the New England energy grid of Deer Island's load during times of high energy demand or high pricing, MWRA receives monthly Capacity Payments from ISO-NE. When it 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 charges offset by the cost of running the CTGs and the energy payments. Cumulative savings are the sum of Net Avoided Costs and monthly Capacity Payments - \$398,568 YTD.



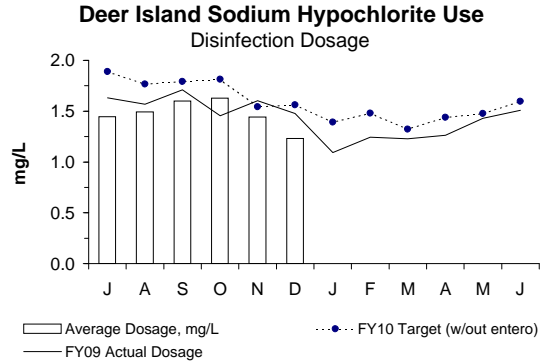
Bids were awarded in December for the sale of 13,239 Renewable Energy Portfolio Standard (RPS) Certificates, for a total value of \$328,975. Certificate prices reflect the bid prices on the date that bids are accepted. Cumulative bid price reflects the total value of bids received to date.

Deer Island Operations

2nd Quarter - FY10



The Total Plant Flow for the 2nd Quarter was 5% higher than the 8-year average flow (362.2 mgd actual vs. 345.5 mgd expected) as precipitation was 9% greater than the 8-year average for the quarter (12.42 inches of actual water equivalent vs. 11.39 water equivalent inches projected).

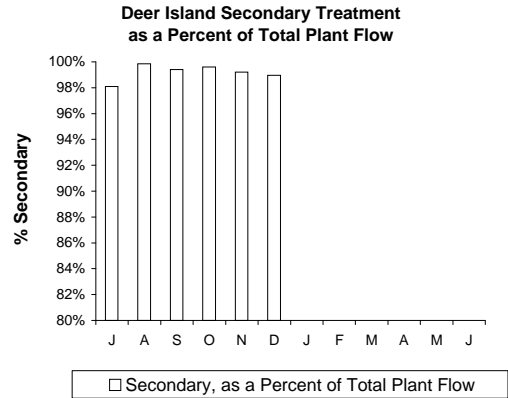


The disinfection dosing rate was 13% lower than the target for the 2nd Quarter and 5% lower than the FY09 actual dosage for the same period. The lower-than-expected dosing rate may be due to lower-than-expected chlorine demand. Chlorine demand was less than historical as the effluent continues to contain less overall solids and organic material. 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	0	0	0		
F	0	0	0		
M	0	0	0		
A	0	0	0		
M	0	0	0		
J	0	0	0		
Total	18	18	0	99.2%	81.1

There were a number of significant rain events during the 2nd Quarter which resulted in eight separate blending events for a total of 40.6 hours of blending and 257.5 million gallons of flow blended with secondary effluent. All secondary blending events that occurred during the quarter were due to rain resulting in high plant flows. **Secondary permit limits were met at all times.**



Overall, 99.3% of total plant flow to DITP was treated through secondary treatment during the 2nd Quarter. The Maximum Secondary Capacity for the entire quarter was 700 mgd.

Deer Island Operations & Maintenance Report

Environmental/Pumping:

Precipitation for the 2nd Quarter was 9% higher than the 8-year historical average with a total of 12.42 inches of water equivalent falling on 33 out of the 92 days. The plant achieved a maximum average hourly flow rate for the quarter of 1,062 mgd on November 14 as a result of a remnant of Hurricane Ida, which produced a total of 1.49 inches of rainfall. Pumping and treatment operations continued without incident through this storm event, as well as throughout the entire quarter.

Residuals Treatment:

Digester 1 in Module 2 was placed back into service during the first few days of October after the mixer in the digester was replaced. Sludge feed to Digesters 1, 2 and 3 in Module 3 and to Digesters 1 and 2 in Module 2 was temporarily suspended for approximately six to seven days (for each digester) during the quarter for minor struvite remediation. Remediation work was performed on one digester at a time to minimize interruption to the sludge digestion process. The same remediation work began on December 30 for Digester 3 in Module 2 and will continue into early January leaving struvite remediation on Digester 4 in Module 2 (of the active modules) to be completed in January.

Deer Island Operations

2nd Quarter - FY10

Deer Island Operations & Maintenance Report (continued)

Secondary Treatment:

Annual turnaround maintenance was performed at the Cryogenic Oxygen Facility during the second two weeks of November. 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 1. The same turnaround maintenance was performed on Cryo Train 2 in April 2009.

Deer Island began operating the Cryogenic Oxygen Facility in December using the routine winter operating guidelines, whereby the continuous operation of only one "cold box" unit, rather than two, is needed for the effective maintenance of the secondary activated sludge process. Less oxygen is needed in the winter as there is a decrease in microbiological activity with the cooler wastewater temperature. Additional oxygen produced and stored in the liquid oxygen tank would be available for use in the secondary activated sludge process if there are periods when more oxygen is needed to supplement the oxygen being generated by the single cold box unit.

Odor Control:

In October, spent activated carbon was replaced with new (regenerated) carbon material in five separate carbon adsorber units: North Main Pumping Odor Control Unit 1; East Odor Control Units 3, 7, and 8; and West Odor Control Unit 5.

Energy:

Both wind turbines completed their mechanical and electrical check-out by the turbine manufacturer's representative in early November. In mid-November, both turbines underwent operational start-up testing. Actual power generation by the wind turbines occurred for only approximately half of November and for all of December during the 2nd Quarter.

Clinton Wastewater Treatment Plant Operations & Maintenance Report

Existing Conditions Survey Report:

Staff received a draft Survey Report on the Clinton Plant's existing conditions from Fay, Spofford & Thorndike (FS&T), MWRA's Consultant. The draft report evaluates conditions at the Clinton plant and provides recommendations for rehabilitation and repair, and associated cost estimates over a 20-year period. Staff are reviewing the report and will provide comments to FS&T; the Final Report is anticipated this spring.

Aeration System Evaluation:

A consultant review of the Plant's aeration system for activated sludge is finally complete and staff are awaiting the draft in printed form. There was a delay in finalizing the report due to a potential increase in flow limits, which may impact the sizing of the electrical motors and loadings. The recommendation for a change from mechanical aeration to a fine-bubble, diffused-air system remains the same.

Digester Cleaning Project:

The procurement process for this contract was completed in December and staff are finalizing the staff summary for approval under delegated authority. The low bid was \$88,600; the Engineer's Estimate was \$86,500. This is the first phase of a project that will rehabilitate both digesters and their components over the next two years.

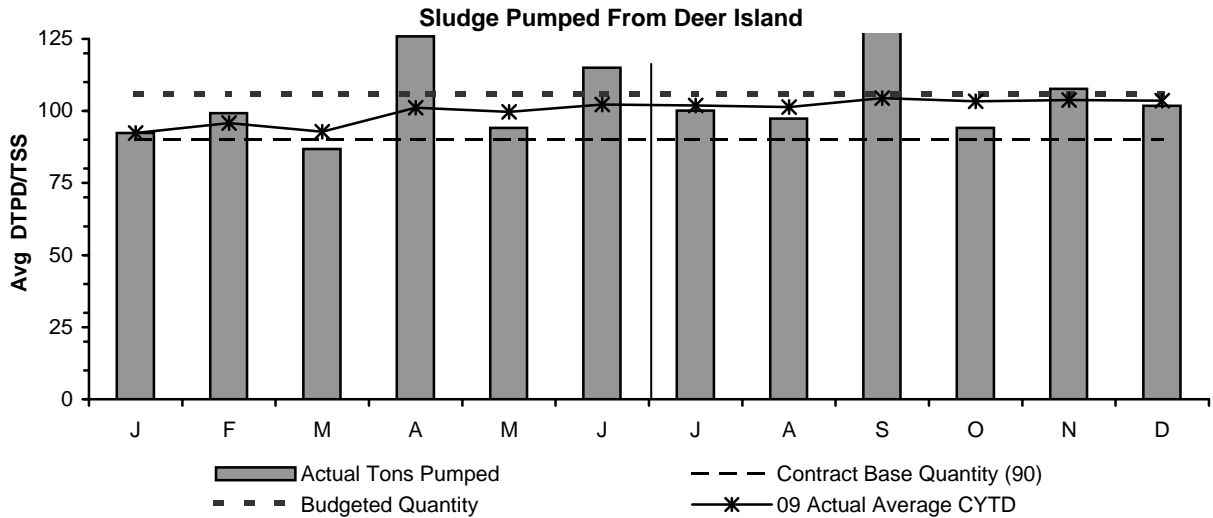
Preventive Maintenance:

Staff completed all assigned preventive maintenance work orders for the quarter, in addition to completing a number of various corrective tasks in all areas of the plant.

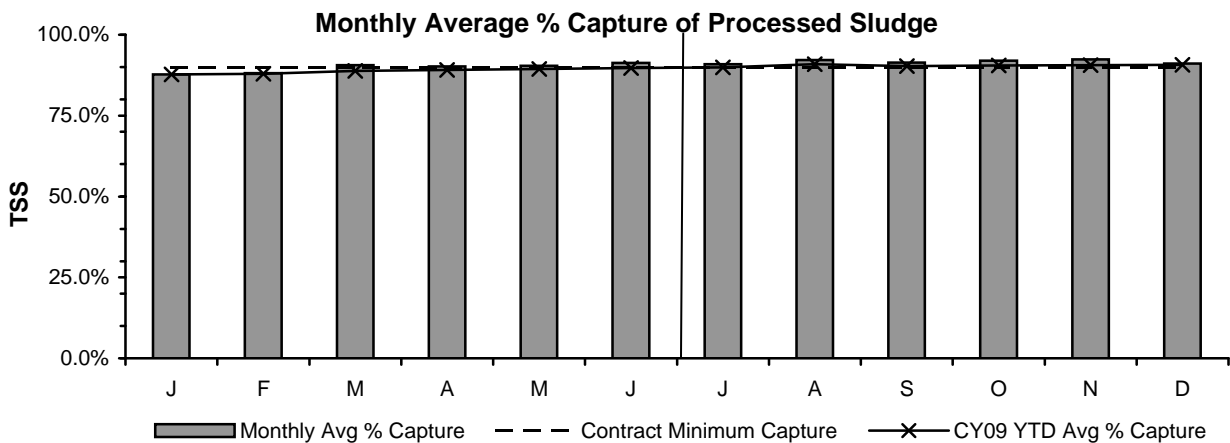
Deer Island Residuals

2nd 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 entire 15-year term of the contract, even though, on average, MWRA processes more than 90 DTPD/TSS each year (FY10's budget is 106 DTPD/TSS).



The average total quantity of sludge pumped to the Pelletizing Plant in Quincy in the 2nd Quarter was 101.2 DTPD, which was less than the FY10 budget of 106 DTPD. The lower quantity reflects digester work that occurred in October, plus the expected seasonal decrease in sludge yield resulting from the onset of colder weather. It should be noted that changes in sludge inventory, as well as Primary and Secondary treatment system performance, can impact sludge quantities; digester upset conditions can also affect sludge quantities.



NEFCo's contract requirement for solids capture each month is 90%. The average solids capture rate was met each month during the 2nd Quarter, with an average of 91.8%.

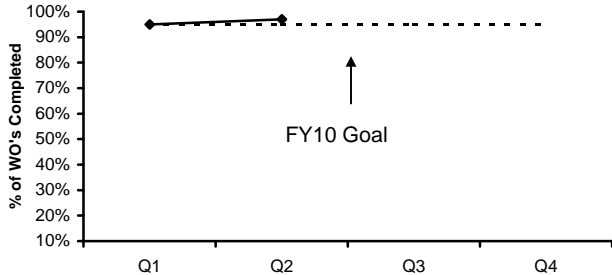
Deer Island Maintenance

2nd Quarter - FY10

Productivity Initiatives

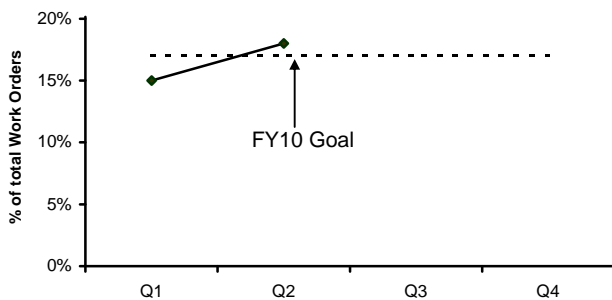
Productivity initiatives include increasing predictive maintenance tasks. Accomplishing this initiative should result in a decrease in the overall maintenance backlog.

Predictive Maintenance Compliance



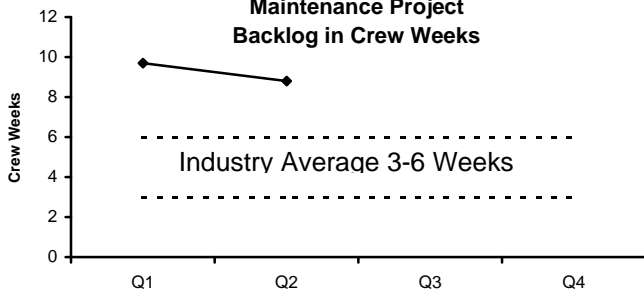
Deer Island is moving forward with an aggressive predictive maintenance program. Deer Island's FY10 predictive maintenance goal is completion of 95% of all PdM work orders; DITP met that goal as it completed 97% if its PdM work orders in the 2nd Quarter.

Predictive Maintenance



Deer Island's FY10 goal is to increase PdM work orders to 17% of total work orders. The industry is moving toward increasing predictive maintenance work to reduce down time and to better predict when repairs are needed. DITP completed 18% for the 2nd Quarter.

Maintenance Project Backlog in Crew Weeks

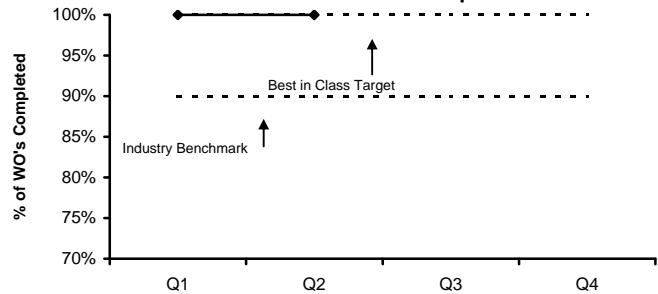


The industry average for maintenance backlog is 3-6 weeks. Deer Islands FY10 goal is to stay within the industry average. Maintenance backlog was at 8.8 weeks for the 2nd Quarter. Maintenance currently has seven vacancies in trades positions; these vacancies are contributing to the increased backlog. Management monitors the backlog and equipment availability weekly to ensure that all critical equipment is on line.

Proactive Initiatives

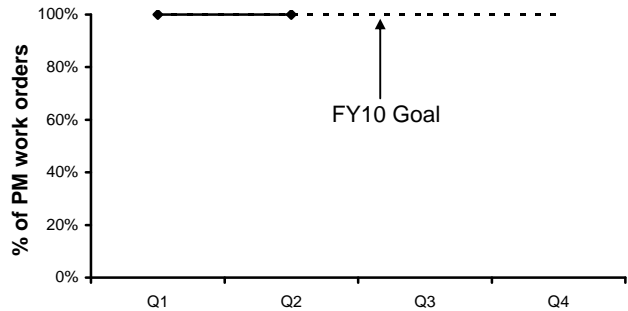
Proactive initiatives include completing 100% of all preventive maintenance tasks and increasing preventive maintenance kitting. These tasks should result in lower maintenance costs.

Preventive Maintenance Compliance



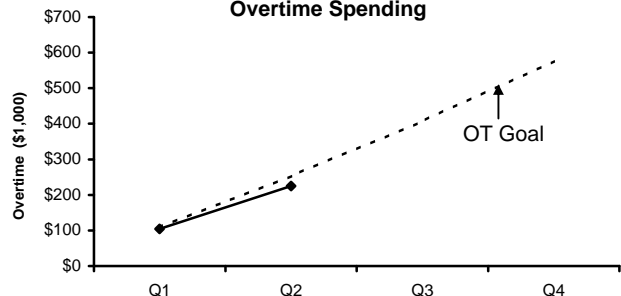
Deer Island's FY10 preventive maintenance goal is completion of 100% of all PM work orders from Operations and Maintenance. DITP met its goal as it completed 100% of all PMs every month this quarter.

Preventive Maintenance Kitting



Deer Island's FY10 preventive maintenance kitting goal is 100% of all PM work orders. DITP met this goal late in FY09 but will audit all PM work orders to ensure that all PMs requiring kitting are complete. Staff will develop a new proactive initiative in January 2010. DITP continued to complete 100% this quarter.

Overtime Spending

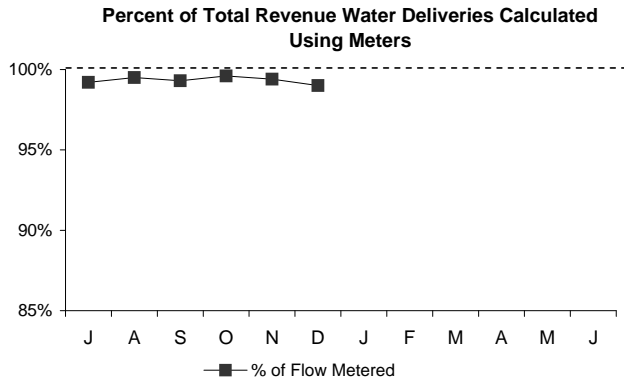


Overtime spending was \$28K under budget for the 2nd Quarter. Overtime was used for storm coverage, wind turbine project, the primary hot water loop, the pressure relief valves in Residuals, and Primary and Secondary clarifier work. Management continues to limit overtime spending to critical maintenance activities.

Operations Division Metering

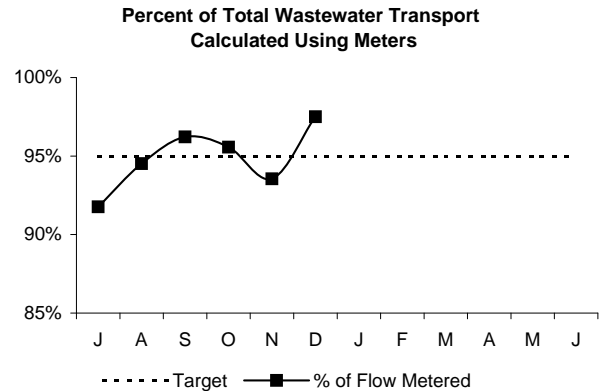
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WATER METERS



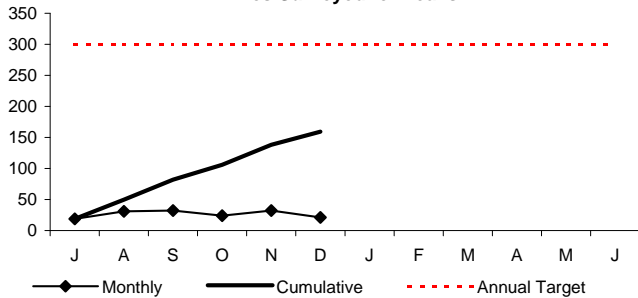
The target for revenue water deliveries calculated using meters is 100%. Estimates are generated for meters that are out of service due to instrumentation problems or in-house and capital construction projects. During the 2nd Quarter, meter actuals accounted for 99.3% of flow; only 0.7% of total revenue water deliveries was estimated. The following is the breakdown of estimations:
 In-house/Capital Construction Projects - 0.3%
 Instrumentation Failure - 0.4%

WASTEWATER METERS



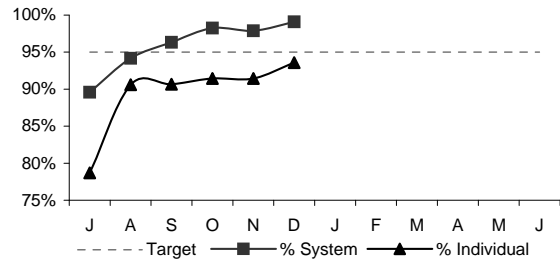
The target for revenue wastewater transport calculated using meters is 95%. Estimates are generated for meters missing data due to instrument failure and/or erratic meter behavior. Estimates are produced using data from previous time periods under similar flow conditions. During the 2nd Quarter, meter actuals accounted for 95.6% of flow; 4.4% of wastewater transport was estimated.

Miles Surveyed for Leaks



During the 2nd Quarter, staff inspected 77.49 miles of MWRA water mains; this brings the total for the fiscal year to 159.38 miles.

% METER UPTIME



For the 2nd Quarter, out of a possible 1,651,584 data points, only 25,778 points were missed, resulting in a system-wide up time of 98.4%. Of the 187 revenue meters installed, on average, 15 experienced down time greater than the 5% target resulting in a 92.1% individual meter uptime. For the 2nd Quarter, down time for is defined by any individual meter having less than an average 2,797 data points.

Water Distribution System

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

The leak backlog for FY10 remains at zero. Two leaks were found and repaired in December. 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.

Water Distribution System Valves

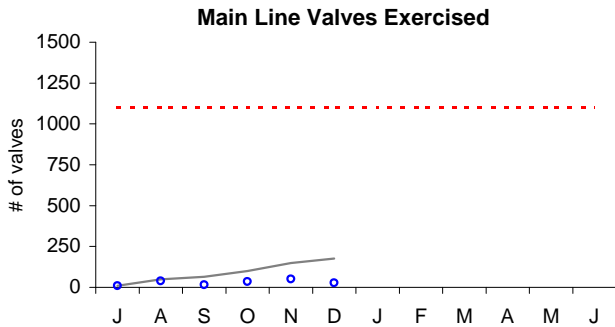
2nd Quarter - FY10

Background

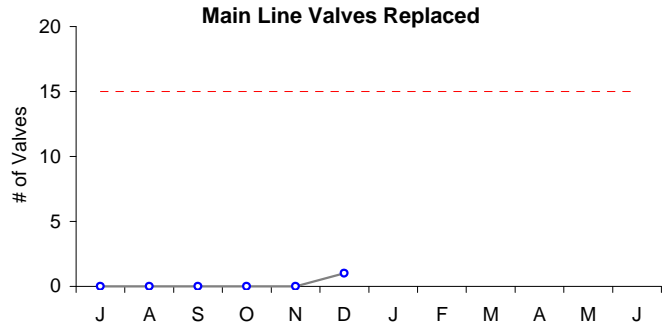
Valves are exercised, rehabilitated, or replaced in order to improve their operating condition. This work occurs year round. Valve replacements occur in roadway locations during the normal construction season, and in off-road locations during the winter season. Valve exercising can occur year round but 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	85.1%	87%
Blow-Off Valves	1,175	92.8%	94%
Air Release Valves	1,338	91.6%	92%
Control Valves	48	94.0%	92%

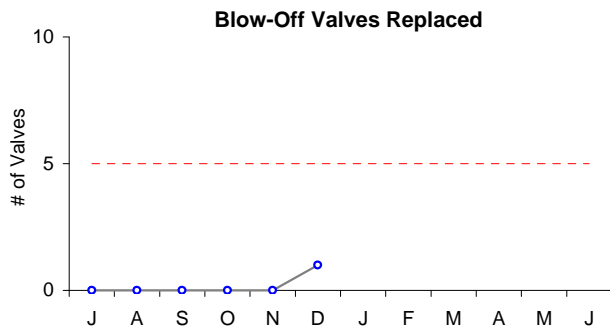
Key to Symbols: ○ FY2010 Monthly Total
— FY2010 Cumulative Total



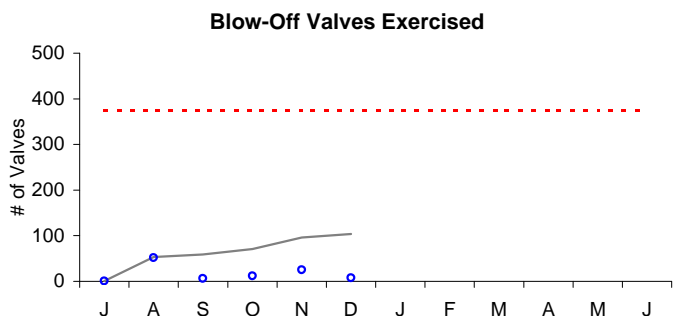
During the 2nd Quarter, staff exercised 113 main line valves bringing the total for the fiscal year to 177. Valve staff's workload during the quarter was dedicated to maintenance on pressure reducing valves, fire-flow bypass valves, and operational support for the CIP construction contracts. Construction work zone safety issues have also impacted valve exercising.



Staff replaced one main line valve this quarter. Pipeline staff's workload during the 2nd Quarter was focused on leak repairs, two on Deer Island and two in the Metropolitan water system. Staff also spent a significant amount of time working on the centrate and filtrate lines at FRSA. Construction work zone safety issues and staffing levels also have affected workload planning.



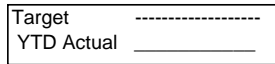
In addition to the work described above, staff replaced one blow-off valve in the 2nd Quarter.



In addition to the work described above, staff exercised 45 blow-off valves in the 2nd Quarter, bringing the total for the fiscal year to 104.

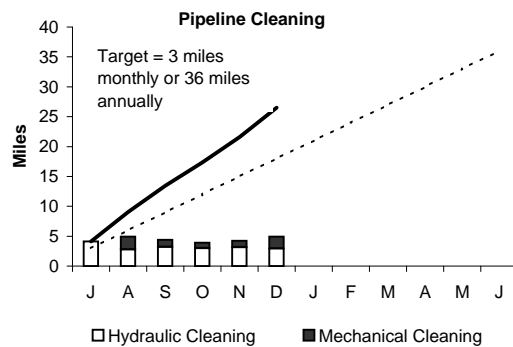
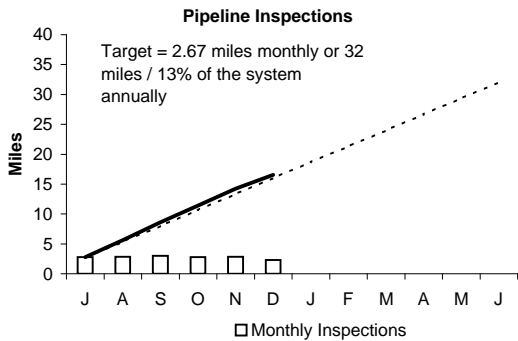
Wastewater Pipeline and Structure Inspections and Maintenance

2nd Quarter - FY 10



Inspections

Maintenance

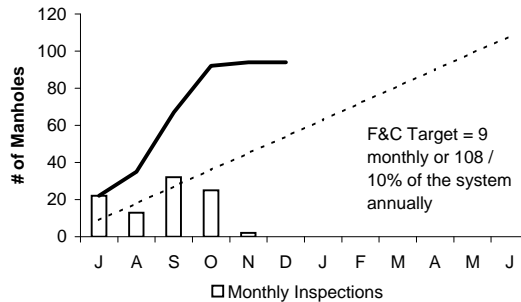
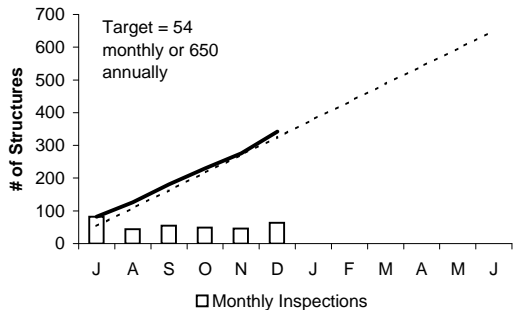


In the 2nd Quarter, staff internally inspected 7.94 miles of MWRA sewer pipeline. No Community Assistance was provided this quarter.

Staff cleaned 13.07 miles of MWRA's sewer system and removed 28 cubic yards of grit and debris during the 2nd Quarter. No Community Assistance was provided this quarter.

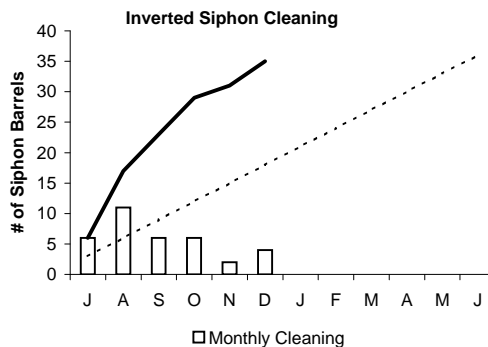
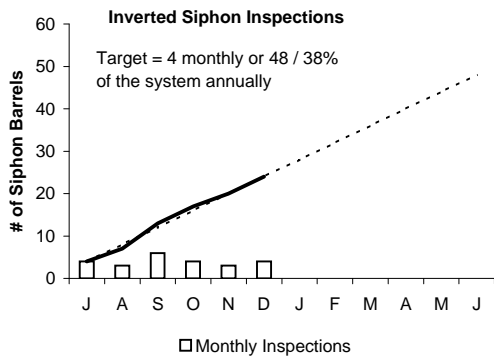
Structure Inspections

Manhole Rehabilitation



Staff performed 159 inspections during the 2nd Quarter; the 12 CSO structures were inspected each month plus an additional 123 manhole/structure inspections.

Staff replaced 27 frames and covers this quarter.



In the 2nd Quarter, staff inspected 11 siphon barrels.

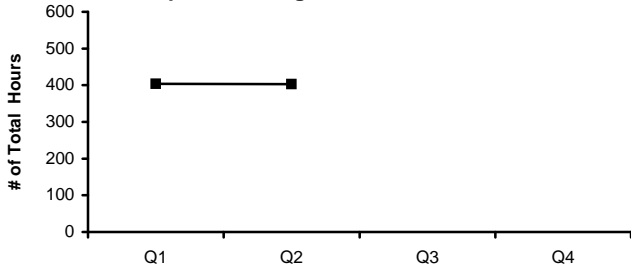
Staff cleaned 12 siphon barrels this quarter.

Field Operations' Metropolitan Equipment & Facility Maintenance

2nd Quarter - FY10

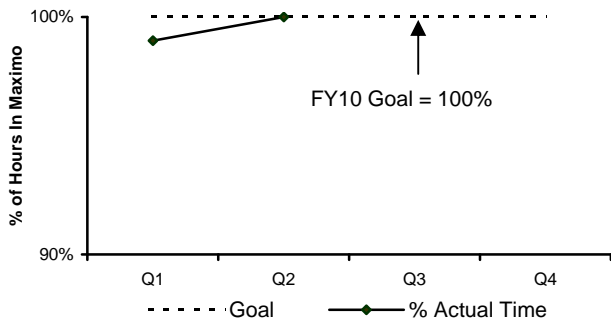
Several maintenance and productivity initiatives are in progress; Operators now performing light maintenance tasks is one of those productivity initiatives. This frees up maintenance staff to perform corrective maintenance and project work, thus reducing maintenance spending. Backlog and overtime metrics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

Operations Light Maintenance PM Hours



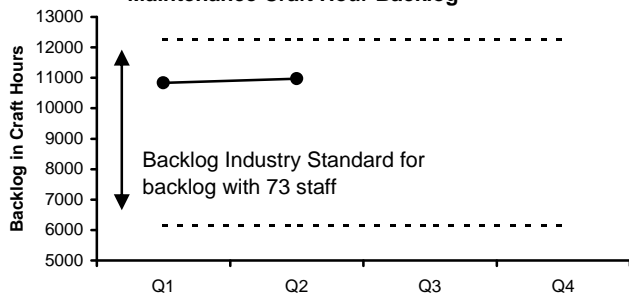
Operations staff averaged 403 hours of preventive maintenance during the 2nd Quarter, an average of 19% of the total PM hours for the 2nd Quarter, which is above the industry benchmark of 10% to 15%.

Time in Maximo



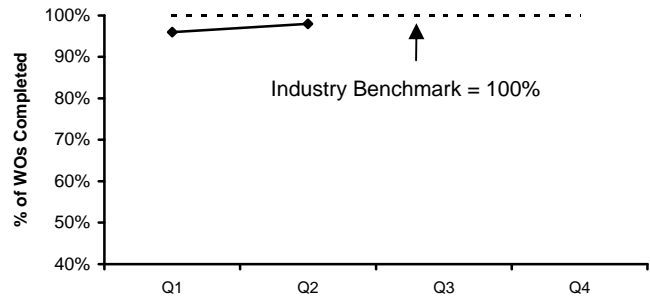
To ensure accurate data in the Maximo database, 8 hours of staff time each day must be entered into Maximo. Staff have developed a new method of time entry into Maximo that, with the issuance of a daily accountability report, has improved time entry. The FY10 goal is 100%; 100% of time was entered in the 2nd Quarter.

Maintenance Craft Hour Backlog



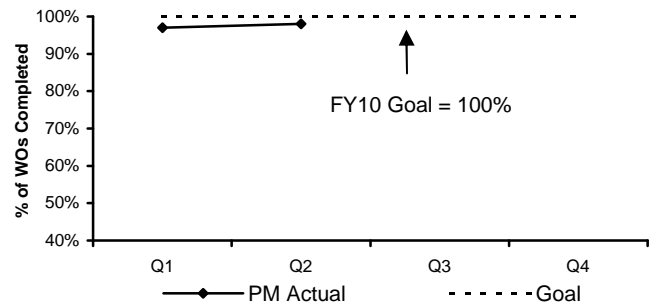
At 12/31/09, the maintenance backlog is at 10,143 hours. The industry standard for maintenance backlog with 73 staff (current planned staffing level) is between 6,132 hours and 12,264 hours. We are currently filling 2 vacant trades positions with the goal of reducing the backlog.

Overall Preventive Maintenance



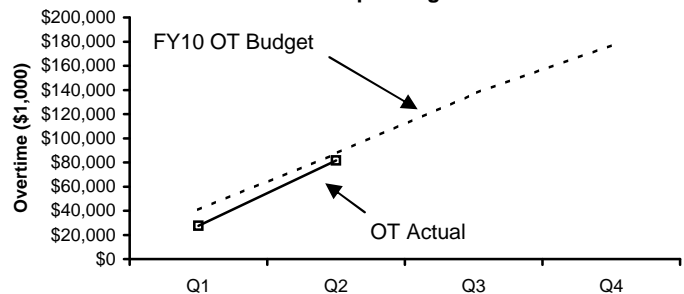
FOD's preventive maintenance goal for FY10 is 100% of all PM work orders. Staff completed an average of 98% of all PM work orders in the 2nd Quarter.

Operations Light Maintenance % PM Completion



Operations' FY10 PM goal is completion of 100% of all PM work orders assigned. Operations completed an average of 98% of PM work orders in the 2nd Quarter.

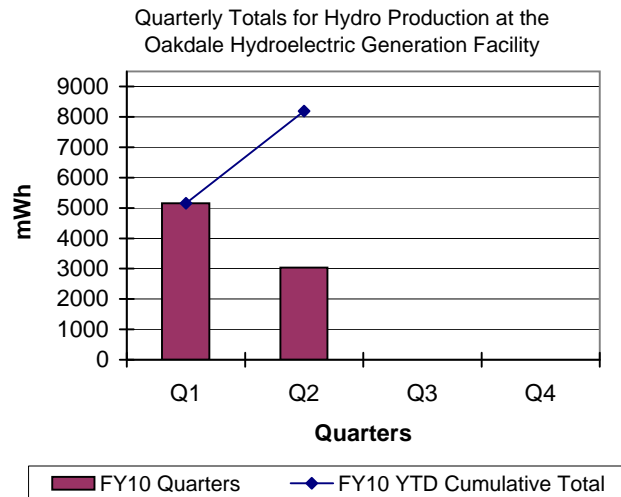
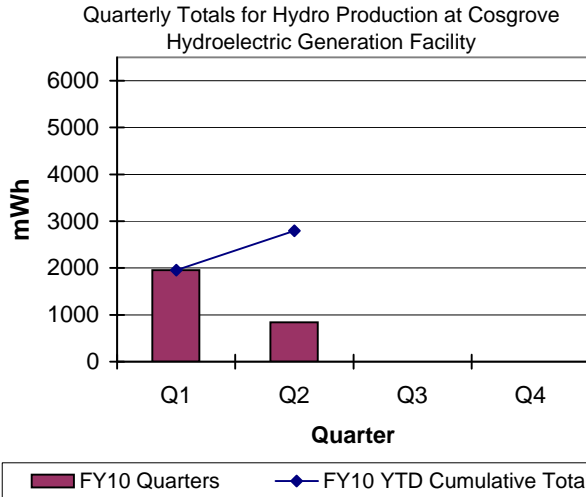
Overtime Spending



Maintenance overtime was \$6K under budget for the 2nd Quarter. Overtime was used to complete emergency repairs due to a variety of critical operational needs, as well as snow removal.

Field Operations Hydroelectric Generation Quarterly Report

2nd Quarter - FY10



In the 2nd Quarter, the Cosgrove Hydroelectric Station generated a net of 842 mWh, 9% more than for the same quarter in FY09. The revenue generated at Cosgrove in the 2nd Quarter was \$33,274; YTD revenue is \$94,098. Hydro production was lower in the second quarter this year compared to the first quarter due to JCWTP winter half plant operation.

In the 2nd Quarter, the Oakdale Station's hydroelectric plant generated a net of 3,036 mWh, 97% more than the same period in FY09. The revenue generated at Oakdale in the 2nd Quarter was \$204,653; YTD revenue is \$537,643. (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.)

ENERGY HIGHLIGHTS

Loring Road Hydroelectric Project: Project is progressing; staff expect construction to begin in February 2010. MWRA was allocated \$1.5 million in SRF stimulus funding for this project.

Lonergan Intake: MWRA is conducting feasibility studies of hydroelectric power at this facility.

Carroll Water Treatment Plant (CWTP) Photovoltaic: In December, 2009, the Board approved the award of Contract 7304 to Nexamp, Inc./Florence Electric Joint Venture to design and install a ground-mounted solar photovoltaic system at the plant. MWRA was allocated \$1.5 million in SRF stimulus funding for this \$2,187,414 project. The Notice to Proceed was issued in January 2010 and work is expected to be completed by the end of this calendar year. 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 is also being studied.

Wind Power: Staff continue to study the feasibility of wind turbines at Nut Island and 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.

On December 16, 2009, the Board approved the award of Contract 7302 to Lumus Construction, Inc. to furnish, design and install a 1.5-Megawatt wind turbine generator at DeLauri Pump Station. This \$4,686,500 contract will be fully funded through the SRF stimulus program.

CWTP Energy Audit: Recommendations from the energy audit regarding process changes at CWTP are being further investigated, primarily installation of demand-controlled ventilation in the office space and variable frequency drives (VFDs).

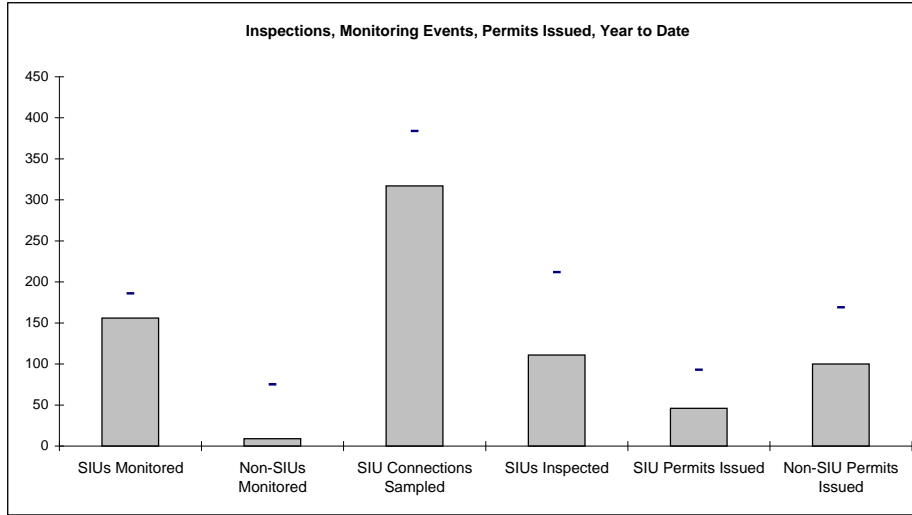
Chelsea Facility Energy Audit: The second phase of NSTAR's energy audit at Chelsea, a study of the HVAC system, was completed in the 1st Quarter. The study recommended installing an Energy Management System (EMS) for the Admin. Building, along with some equipment updates. Staff have recommended proceeding with this recommendation and will work with NSTAR to put together a specifications package. NSTAR has agreed to provide a \$168,000 incentive to MWRA for the EMS installation.

Energy Audit of Eight Field Operations Department (FOD) Facilities: Staff identified multiple FOD facilities within NSTAR's service area that would benefit from a comprehensive energy audit. Phase 1 of these audits, which included Chelsea Creek, Columbus Park, and Ward Street Headworks, and Gillis, Newton Street, Commonwealth Avenue, and Prison Point Pump Stations, and the Chelsea Screen House, was completed during the 2nd Quarter. In addition, there are five FOD facilities on the South Shore that are in NGRID's service area that were also targeted for energy audits. A lighting audit of these facilities was completed in the 2nd Quarter; an audit of process equipment will be conducted in the 3rd Quarter. Staff have begun working with NSTAR to set up audits for an additional 14 FOD facilities that will be conducted in the 3rd and 4th Quarters of FY10.

Energy Audit of Southborough Facility: A report outlining preliminary energy-saving recommendations from the NSTAR audit was received

Toxic Reduction and Control

2nd Quarter - FY10



EPA Required SIU Monitoring Events for FY10: 186
YTD: **156**

Required Non-SIU Monitoring Events for FY10: 75
YTD: **9**

SIU Connections to be Sampled for FY10: 384
YTD: **317**

EPA Required SIU Inspections for FY10: 212
YTD: **111**

SIU Permits due to Expire In FY10: 93
YTD: **46**

Non-SIU Permits due to Expire for FY10: 169
YTD: **100**

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.

The annual goal is set at the beginning of the fiscal year but it 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.

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

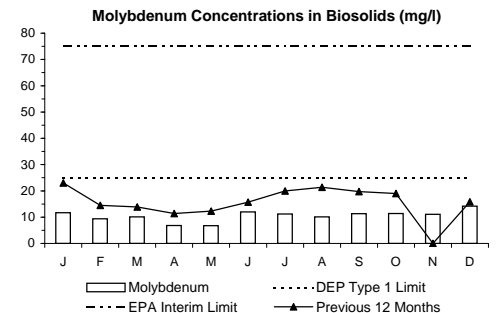
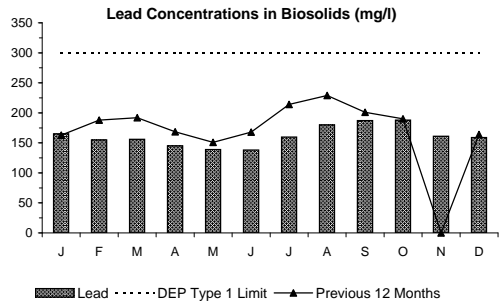
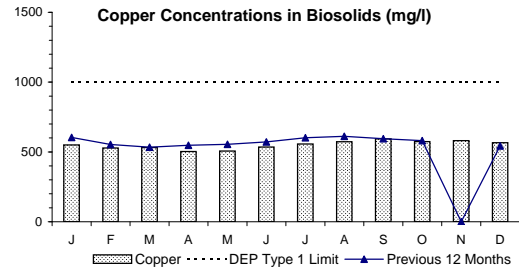
	Number of Days to Issue a Permit						Total Permits Issued	
	0 to 120		121 to 180		181 or more		SIU	Non-SIU
Jul	5	15	0	0	0	0	1	16
Aug	1	4	0	2	0	2	2	8
Sep	6	5	1	0	0	0	1	6
Oct	19	23	1	5	2	0	0	28
Nov	4	18	0	5	2	3	3	26
Dec	5	12	0	1	0	3	3	16
Jan								0
Feb								0
Mar								0
Apr								0
May								0
Jun								0
% YTD	87%	77%	4%	13%	9%	10%	46	100

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.

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.

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

**Note: Because of the duct work fire at the Pelletizing Plant, no metals data was included in the three graphs to the right for the month of November 2008.*



Field Operations Highlights 2nd Quarter - FY10

Western Water Operations & Maintenance

- Carroll Water Treatment Plant (CWTP): In October, the Plant was placed into half-plant operation by isolating Treatment Train A, isolating the Upper Hultman and securing the MetroWest community connections to the Hultman Aqueduct. Once the transition was made, staff began draining the primary contactors and the storage tank to allow for the start of scheduled maintenance tasks. When maintenance was completed, the upper Hultman Aqueduct was flushed and placed into service. Treatment Train B and the section of the MetroWest Tunnel from Shaft D to Shaft E were then taken out of service for Train B maintenance.
- Norumbega Reservoir: Staff completed maintenance tasks reported by the dam safety inspection. Staff cleared the water's edge on the dams of the Norumbega Open Reservoir and Schenck's Pond, the emergency spillway into Schenck's Pond, and the brook downstream of Schenck's Pond.

Metro Water Operations & Maintenance

- Water Pipeline Program: Pipeline staff completed: piping work at the FRSA riser shaft, two leak repairs on Deer Island, valve installation on Section 29 at the Stone Zoo, a blow-off retrofit on Section 66 in Somerville, armor stone installation at Spot Pond Dam behind Gillis Pump Station, and leak repairs on Section 57 in Medford and on WASM 1 in Newton.
- Valve Program: Valve staff provided support on the Phase 2 Pump Station, Sections 18/50/51 Pipeline, and Section 28 Pipeline contracts, and the Section 26/Route 107 Mass Highway Project.
- Section 22 Air Release Valve Repair: An air release valve that had been leaking for more than 10 years (because the Blue Hills Covered Storage Facility was needed to supply Quincy while Section 22 was isolated) was repaired on October 23. This was the last of the "old" leaks in the Metropolitan water system.

Wastewater Operations & Maintenance

- Headworks: Staff continued to work with SCADA and Process Control to field-test automatic influent gate control via SCADA at the three remote headworks facilities. Once field-testing is completed, staff will be trained and the automatic gate control programming will be implemented.
- Preventive Maintenance: Through the combined efforts of Operations and Maintenance, staff completed better than 97% of all PM work orders this quarter, ensuring maximum efficiency and availability of equipment.

TRAC

- Annual Industrial Waste Report: On October 27, 2009, MWRA submitted its 25th Annual Industrial Waste Report to U.S. EPA and Massachusetts DEP, as required by the Clinton and Deer Island Wastewater Treatment Plant NPDES Permits. The report summarizes the inspection, permitting, monitoring, enforcement and related activities completed by TRAC during Fiscal Year 2009. The full report is available electronically at <http://www.mwra.com/annual/tracindustrialwastereport/iwr-2009.pdf>.
- Permitting: On November 24, 2009, staff met with representatives of Massport to discuss the potential of discharging de-icing fluid from Logan Airport to MWRA's sanitary sewer system. Massport is drafting comments to EPA's proposed rule regulating the discharge of de-icing fluid. To support its comments, Massport is investigating options and associated costs for disposal of its de-icing contaminated stormwater, including sewer discharge. De-icing produces extremely large flows and BOD loadings during winter storm events. MWRA Staff provided additional information about MWRA hydraulic and organic capacity to Massport in December.

Metro Equipment and Facility Maintenance

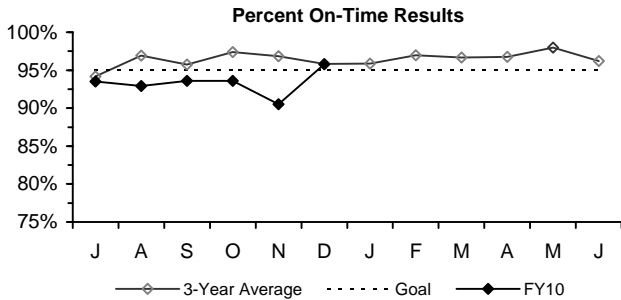
- Lexington Street Power Problems: The Lexington Street Pump Station's electrical systems were fed by an external bus duct bank that failed. A decision was made to rewire the station with a conduit and cable including a section of underground duct bank. Staff removed the existing bus duct bank, trenched for the new duct bank, ran new conduit and cable, backfilled and completed terminations. The new installation was inspected by the state and returned to service.
- Cottage Farm Washdown Pumps: Cottage Farm Washdown Pumps 1 and 2 have experienced numerous bearing and seal failures. The piping, pumps and motors were removed, and a Mason demolished the existing bases and formed new ones. The equipment was reinstalled, laser-aligned, and the equipment was returned to service.
- Somerville Marginal: Staff installed total chlorine residual samplers at the Somerville Marginal CSO and Somerville Marginal Sampling Building. These samplers will provide real time chlorine readings and improved dosing control for sodium hypochlorite and sodium bisulfite.
- Easements/Grounds Clearing: Staff cleared approximately 30 water and wastewater easements in addition to clearing work on Pearl Street, Cleverly Court, Commercial Remote, Fox Point, High Fells, Spot Pond Spillway, Nut Island Headworks, the DeLauri Pump Station, and Bear Hill. Grounds crews supported Wastewater Pipeline in cleaning up the area around the Alewife MBTA Station.

Operations Support

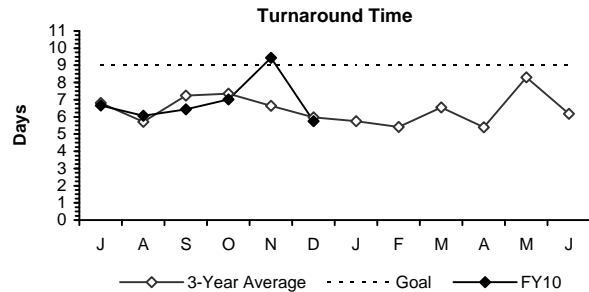
- Updating Emergency Response Plans: Staff completed updating MWRA's Emergency Response Procedures and scenario-specific Emergency Action Plans to reflect new DEP requirements. Staff also conducted a series of workshops to distribute a community Emergency Response Plan template and supporting material to assist MWRA communities in meeting the December 31, 2009 deadline for compliance with DEP requirements. This program was attended by virtually all MWRA communities and was well received.
- Development of ERP Training Programs: Staff have been developing a comprehensive annual emergency plan training program to be held in the 3rd Quarter to comply with DEP requirements. This training will be provided for MWRA staff and a version of the training will also be provided to staff from MWRA's water communities. Following DEP approval, the delivery of this training is expected to begin in the spring and will be continued throughout the year.
- Start-up Testing: Start-up testing of Brattle Court Pump Station, Phase 2 work was completed in October.
- Tank Maintenance: In the 2nd Quarter, the backup generator and fuel tank to support the Bellevue Tank's SCADA Hub were installed. Staff are in the process of competitively procuring a cleaning contract with either divers or robotically-controlled equipment for the Nash Hill Water Storage Tanks.
- Section 22 Air Valve Leak Repair: Following the successful Blue Hills Tank startup, Operations Support staff worked with Metro Maintenance planning and undertaking the repair of Section 22, which had been unable to be done previously because of insufficient redundancy of service.
- Headworks SCADA Project: Staff initiated a task order in December to perform further testing of the new headworks flow measurement systems in the Ward Street and Columbus Park. The testing includes manipulation of headworks flow to verify performance under a variety of conditions.
- Online Water Quality Monitoring: Staff continued the detailed process of preparing the specifications for a competitive procurement to replace the distribution system's water quality monitoring equipment. Several meetings were held in the 2nd Quarter to discuss current available technology and the evaluation process. A complete draft procurement document was prepared in December and is being reviewed for final comments. Staff expect to advertise the bid in January 2010.

Laboratory Services

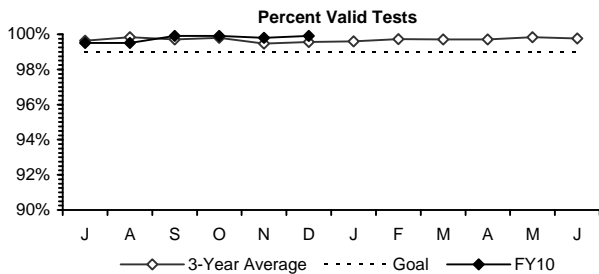
2nd Quarter - FY10



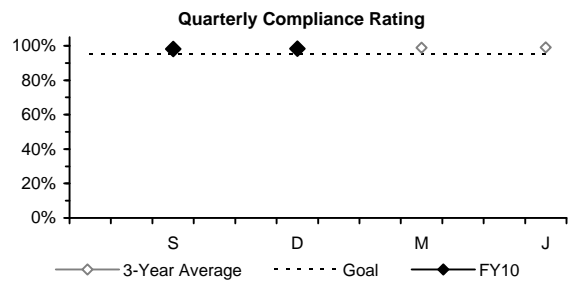
The Percent On-Time measurement was below the 95% goal for two months this quarter as staff focused on the new LIMS



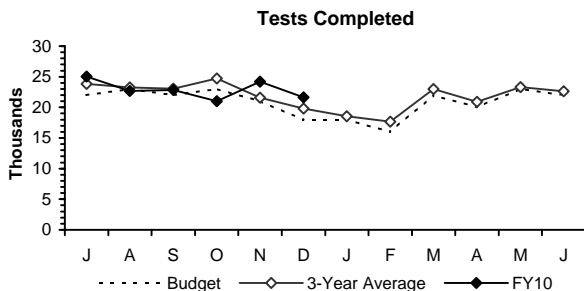
Turnaround Time was faster than the nine-day goal for two months of the quarter. The excursion in November was caused by longer turn-around projects.



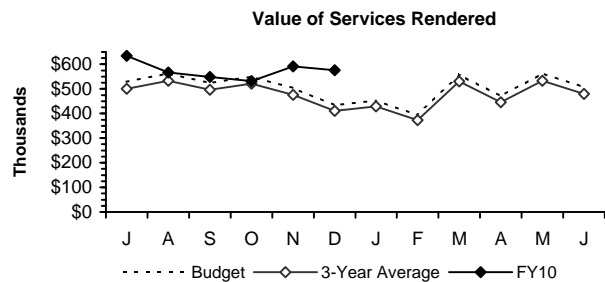
The Percent Valid Tests measurement stayed above the 99% goal for each month during the 2nd Quarter.



An audit on records archiving and retention at all five lab locations found good compliance with requirements. Compliance audits are performed in September, December, March and June.



The Tests Completed measurement was above the seasonally-adjusted budget goal for two months this quarter.



Value of Services Rendered was above the seasonally-adjusted budget projection for two months of the quarter.

Highlights:

LIMS: The final LIMS "Go-Live" for all chemistry and wastewater microbiology is now scheduled for January 1, 2010. All significant issues have been addressed including the interface between LIMS and TRAC's Pretreatment Information Management System (PIMS). PIMS will be able to automatically send to LIMS information on samples that TRAC plans to collect, a major change in workflow.

Quality Assurance: DLS received DEP drinking water microbiology certification at the three water quality labs for a newly required Total Coliform Rule confirmation procedure and for Enterococcus bacteria that is now required for the Groundwater Monitoring Rule for communities using groundwater. Final preparations have been made to configure the analyst certification information in new LIMS to ensure that analyst training and certification documentation is current. DEP has scheduled an audit in January for certification of the new ICP/MS test for metals.

Security: Steve Rhode participated in a tabletop exercise of a severe tornado requiring activation of EPA's Environmental Laboratory Response Network.

CSO: Tested rush wastewater and receiving water samples from Somerville Marginal CSO facility.

DITP: Tested solids samples for polymer procurement selection process. The Sample Bank, used to store refrigerated samples, was turned back to the lab now that the replacement of refrigeration units has been completed by DITP. Testing samples from the BIOCAST bioreactor pilot study.

ENQUAD: Tested caged mussel samples for the Harbor and Outfall Monitoring program. DLS continues to work on the lobster samples. Fish and shellfish samples are only tested every three years and this is the first time they are being tested in-house.

FOD/TRAC: Tested samples from monitoring wells at DeLauri Pump Station. Provided consultation on laboratory detection limits and reporting limits for industrial permittees.

FOD/Water Quality Assurance: Completed large semi-annual Lead and Copper Rule samples. Performing NPDES tests on CWTP dewatering samples from half-plant operation. Tested customer complaint samples from Waltham.

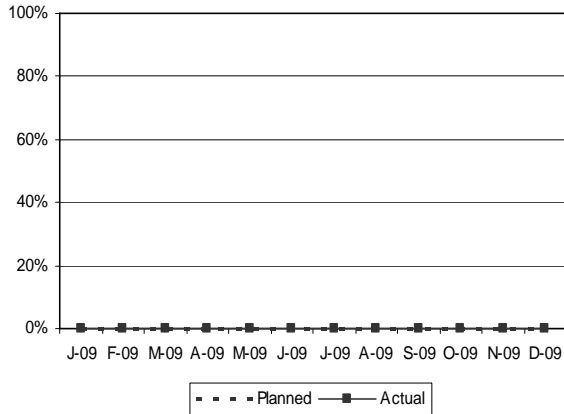
Outside Customers: Tested disinfection by-products samples for Northborough at the town's expense and expect to get other tests as the town's regulatory calendar progresses. Tested samples from Reading.

CONSTRUCTION PROGRAMS

Projects In Construction - 1 December 2009

(Progress Percentages based on Construction Expenditures)

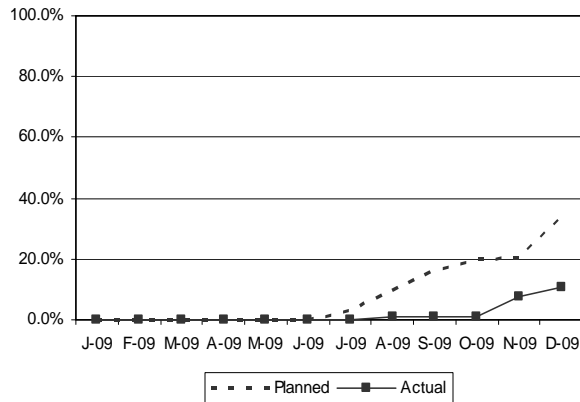
Southern Spine Water Mains Rehabilitation - Section 107
Progress - December 2009



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: During December, the construction contract for Section 107 was awarded at the December 16th Board Meeting to RJV Construction Corp. in the amount of \$14,565,000 for a term of 1,158 calendar days. The notice to proceed is anticipated to be issued by January 15th to meet the stimulus funding deadline.

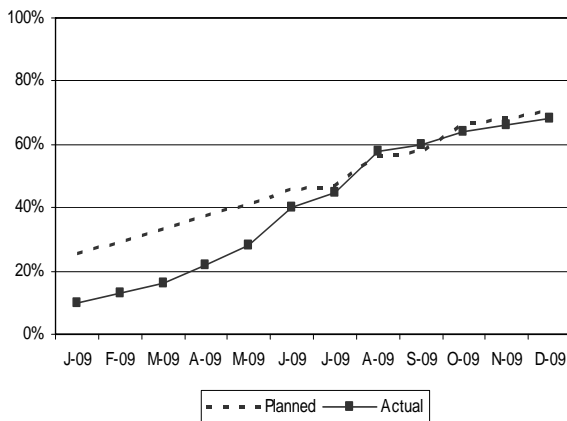
North Dorchester Bay Pump Station and Sewers
Progress -December 2009



Project Summary: Construction of 15-MGC CSO pump station, approximately 3,200 linear feet of 2-inch force main and 640 linear feet of 30-inch gravity sewers and appurtenant work.

Status and Issues: The contractor's late start in the mini-pile installation due to the Peer Review requirement has delayed the project approximately 15-18 workdays. During December, the contractor completed 100% of the 48 pump station mini-piles. Work commenced on the installation of the eight geotechnical instrumentation devices and five dewatering pits. At the force main, the contractor completed installation of the 30-inch force main between Farragut Road and Shore Road along Day Blvd. Force main installation reached 69% completion.

East Boston Branch Relief Sewer
Progress - December 2009

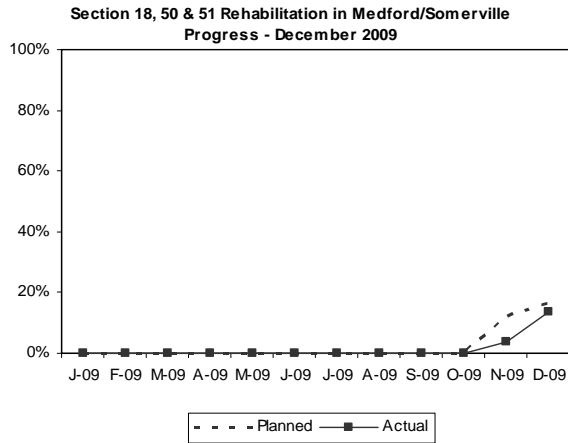


Project Summary: Construction of 14,500 feet of replacement sewers primarily by microtunneling.

Status and Issues: Microtunneling was completed with Drive #2 from JS-9A to RS-8A on December 10th. Preparations began for microtunneling with Drive #1 from JS-12A to RS-11. Construction commenced on the special junction chamber at RS-8A. Sewer manholes were installed at JS-8A and the contractor completed restoration of the sewer and water lines at RS-6A. The 48" pipe liner was installed from JS-6A to RS-8A.

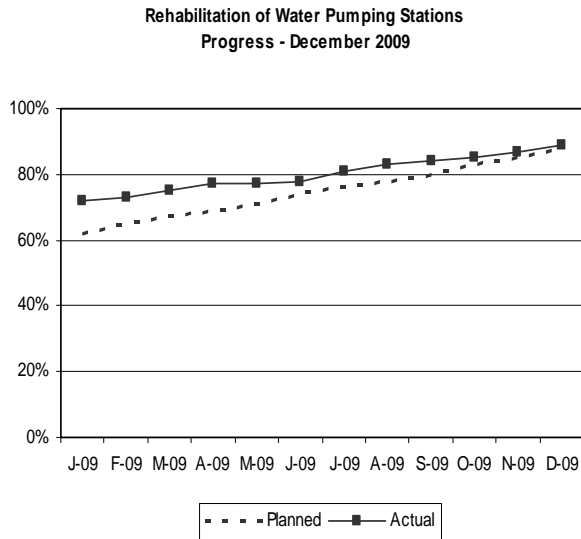
Projects In Construction – 2 December 2009

(Progress Percentages based on Construction Expenditures)



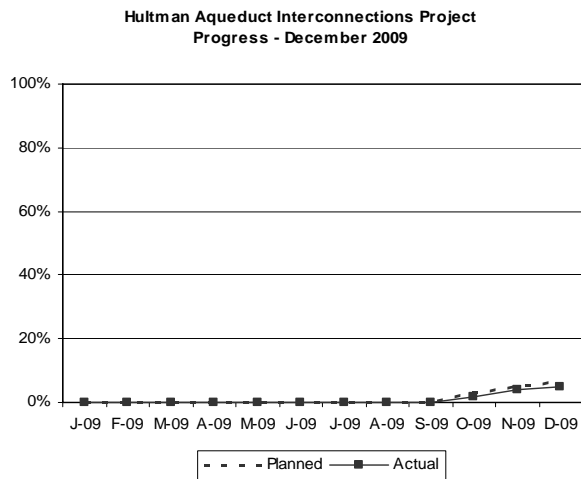
Project Summary: This project is one of the Shaft 7 to WASM 3 phases (CP-5) and provides for the rehabilitation of valves and 15,000 linear feet of 48, 20 and 16-inch pipe in Medford and Somerville including replacement of revenue Meter 32 in Somerville.

Status and Issues: On Section 18, the contractor completed excavation, installed new spool piece and cathodic protection, backfilled and paved eight access pits for cement lining. The contractor cleaned 3,100-linear feet (lf) of 20-inch cast iron pipe from station 121+00 to 152+00, cement lined 4,100-lf of 20-inch cast iron pipe from Station 111+00 to 152+00 and performed pre & post TV inspection the newly cement lined section. On Section 50, the contractor excavated the test pit at Meter 129.



Project Summary: This work provides rehabilitation of a series of water pump stations. At the present time, Brattle Court and Hyde Park are the focus of work.

Status and Issues: At Brattle Court, the contractor completed installation of conduit and wire for new lights in the Electrical Room and began wiring for the new overhead crane. At Hyde Park, the contractor completed all conduit and wiring for pump #3 and the motor base was installed for pump #1. At Reservoir Road the contractor completed the installation of all new suction and discharge piping for pumps #1 & #2 and began installation of instrumentation piping for all transmitters. At Spring Street the contractor completed Phase II work for pumps #1 & #2 and startup commenced.



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: Internal inspections of the Hultman were completed from Rice Rd, Wayland to VV E3 in Southboro. Utility connections were completed at the Norumbega staging area. Internal pipe joints were numbered from Shaft L to Rice Rd. Removal began on existing blowoff valves along the Hultman.

CSO CONTROL PROGRAM

2nd Quarter - FY10

Of the 35 projects in MWRA's Long-Term CSO Control Plan, 24 are complete as reported last quarter. Six projects are in construction, some with continuing design of later-phased contracts, and four additional projects are in design. 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.

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	<p><u>Tunnel Construction:</u> Contractor reached Substantial Completion of the \$146 million tunnel contract on November 30, 2009. Remaining work involves punch list items. <u>Dewatering Pump Station and Sewer Construction:</u> This \$25.9 million contract began in May 2009. Since then, Contractor has relined BWSC sewers that will accept flows from the pumping station; completed construction of the slurry wall and installation of mini-piles for the pumping station foundation at Conley Terminal; and installed more than 2,000 feet of the nearly 4,000-foot-long, 24-inch-diameter force main. <u>Ventilation Building Design and Construction:</u> MWRA issued the Notice to Proceed for this \$5.2 million construction contract for the below-ground ventilation and odor control facility on November 4, 2009. This is the last of the construction contracts within the CSO control plan for North Dorchester Bay (South Boston beaches).</p>
East Boston Branch Sewer Relief	Mar 00	Mar 03	Jun 10	<p>MWRA completed a \$5.2 million interceptor rehab contract in 2004 and is making substantial progress with the second and third contracts: Contract 6257 (Micro-tunneling) and Contract 6841 (Pipe-bursting). Both contracts are on schedule for Substantial Completion by July 2010.</p> <p><u>Contract 6257 (\$61.5 million):</u> Work is 70% complete and pipe installation 65% complete as of December 2009. The contractor has completed the planned 8,037 feet of Phase I micro-tunneling to install 48-inch and 66-inch-diameter pipe from an intermediate point along Border Street to the downstream end of the project at MWRA's Caruso Pump Station. The Phase I alignment follows Border, Condor, East Eagle and Chelsea streets. The contractor plans to commence Phase II micro-tunneling in spring 2010 and commence Phase III micro-tunneling in January 2010.</p> <p><u>Contract 6841 (\$7.3 million):</u> Work is 45% complete and pipe installation is 41% complete as of December 2009. The contractor has completed 2,075 feet of pipe-bursting and simultaneous new pipe insertion to increase 12-inch pipe to 16-inch pipe along Marginal, Border, Maverick and New Streets. In addition, the contractor has installed 170 feet of 16-inch pipe by open cut.</p>
	Jun 06	Jun 08		
Cottage Farm Brookline Connection and Inflow Controls	Sep 06	Jun 08	Jun 09	Construction substantially completed June 30, 2009 in compliance with Schedule Seven. Contractor is completing punch list items and minor change order work and is scheduled to perform final paving and wetlands restoration in spring 2010.
Charles River Interceptor Gate Controls and Additional Interconnections	Jan 08	Jan 10	Jan 11	From an 18-month hydraulic study, MWRA concludes that system optimization measures can not improve wet weather performance or further reduce CSOs at 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 MWRA response to EPA comments. MWRA is seeking deletion of related construction milestones in Schedule Seven.

CSO CONTROL PROGRAM

2nd Quarter FY10 (continued)

Project		Court Milestones in Schedule Seven (Shaded milestones are complete)			Status
		Commence Design	Commence Construction	Complete Construction	
South Dorchester Bay Sewer Separation		Jun 96	Apr 99	Nov 08	BWSC continues to perform stormwater inflow removal to meet sewer system hydraulic performance criteria.
Reserved Channel Sewer Separation		Jul 06	May 09	Dec 15	BWSC final design and phased construction are underway. In May 2009, BWSC issued a Notice to Proceed for the first of nine planned construction contracts. The contractor's construction activities have focused on installation of large drain pipes in the Farragut and East First streets area. The contractor has installed approximately 15% of the storm drains included in this contract. BWSC plans to award the second construction contract in March 2010 and the third and fourth contracts later in the spring.
Bulfinch Triangle Sewer Separation		Nov 06	Nov 08	Jul 13	BWSC is on schedule to complete the sole construction contract in July 2010, three years ahead of the court milestone. The contractor has completed storm drain installations on Causeway, Canal, Lancaster and Portland Streets. Storm drain installation continues on Merrimac Street. BWSC has installed approximately 4,000 linear feet of storm drain, more than 90% of the project total.
Brookline Sewer Separation		Nov 06	Nov 08	Jul 13	The first of two Brookline construction contracts is substantially complete and the contractor plans to perform final paving in spring 2010. For the second and much larger contract, Brookline submitted the 95% design documents to MWRA in November 2009. Brookline is presently resolving several issues, including potential conflicts with existing water lines, prior to completing the design documents. Brookline expects to advertise this contract in early 2010 and complete construction ahead of the July 2013 milestone in Schedule Seven. Meanwhile, MWRA is developing the scope of a contract to inspect, clean and repair Outfall MWR010 in time for Brookline's project completion.
Cambridge/ Alewife Brook Sewer Separation	CAM004 Outfall and Detention Basin		Jul 08*	Jul 09*	Cambridge resumed design in October 2008 after a 27-month delay due to wetlands permit appeals. Cambridge continues efforts to obtain construction permits and easements and is coordinating work in Alewife Reservation and related Article 97 legislation with DCR. Cambridge's proposed schedule calls for construction award in July 2010.
	CAM004 Sewer Separation	Jan 97	Jul 98 Jul 09*	Jan 13*	Cambridge plans to resume design in February 2010 and resume construction by July 2012.
	CAM400 Manhole Separation	Jul 06*	Jul 07*	Jul 08*	On January 11, 2010, Cambridge awarded the construction contract that includes both of these projects.
	Interceptor Connection Relief/ Floatables	Jul 06*	Jan 08*	Dec 08*	
	MWR003 Gate and Rindge Ave. Siphon	Apr 09*	Nov 10*	Jan 12*	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 required for certain Alewife projects due to permits, land, easements and Article 97 legislation requirements for Outfall and Detention Basin. MWRA is presently seeking revisions to the milestones in Schedule Seven based on new project schedules proposed by the City of Cambridge.

CIP Expenditures December 2009

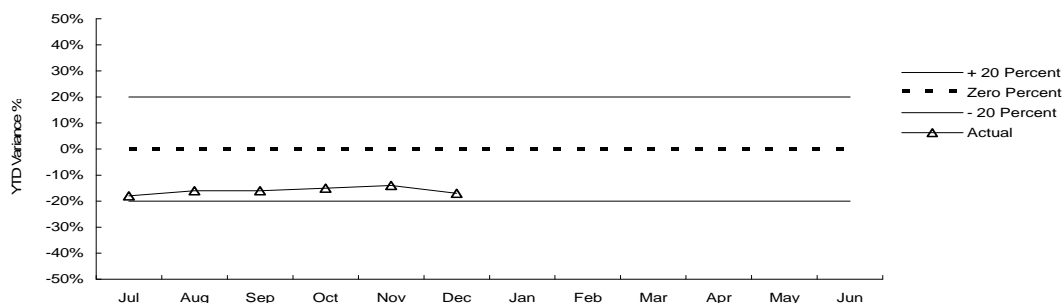
Accurate projections of CIP spending are one measure of effective project management and are important to ensuring that funds are available to support MWRA's capital program.

FY10 Capital Improvement Program Expenditure Variances through December by Program (\$000)				
Program	FY10 Budget Through December	FY10 Actual Through December	Variance Amount	Variance Percent
Wastewater	80,158	69,902	(10,256)	-13%
Waterworks	29,833	22,292	(7,541)	-25%
Business and Operations Support	6,874	5,238	(1,636)	-24%
Total	\$116,865	\$97,432	(\$19,433)	-17%

Underspending within Wastewater is primarily attributable to schedule changes for the Digester Sludge Pump Replacements; timing of miscellaneous Variable Frequency Drive Replacements at Deer Island (DI) and the Fort Point Channel Sewer Separation payment; transfer of Low Voltage Lighting Replacement contract work to the current expense budget; scope changes to the DI Power System Improvements contract; and less-than-projected spending due to project delays for North Dorchester Dewater/Pump Station & Sewers, East Boston Branch Relief Sewer, and Cambridge Sewer Separation Design CS/RI contracts. This underspending was partially offset by higher community requests for grants and loans; progress on the DI Primary & Secondary Clarifier Rehabilitation contract; and DI Roof Replacement work scheduled for FY09 but performed in FY10. Underspending in Waterworks is in Watershed Land, the Lower Hultman Rehabilitation project due to a lower bid award; and less than anticipated community requests for loans as well as lower loan repayments.

CIP Expenditure Variance

Total FY10 CIP Budget of \$238,251,000.



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 12/26/09	\$112 million
Unused capacity under the debt cap:	\$674 million
Estimated date for exhausting construction fund without new borrowing:	May-10
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

* Cash based spending is discounted for construction retainage.

DRINKING WATER QUALITY AND SUPPLY

Source Water – Microbial Results

2nd Quarter - FY10

Background

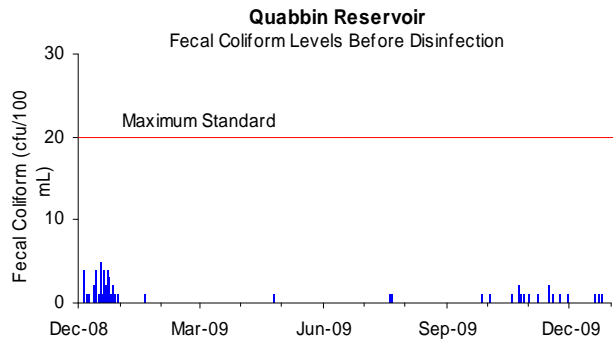
Total coliform bacteria are monitored in both source and treated water to provide an indication of overall bacteriological activity. Most coliforms are harmless. However, fecal coliform, a subclass of the coliform group, are identified by their growth at temperatures comparable to those in the intestinal 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 2nd Quarter were below 20 cfu/100ml.

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



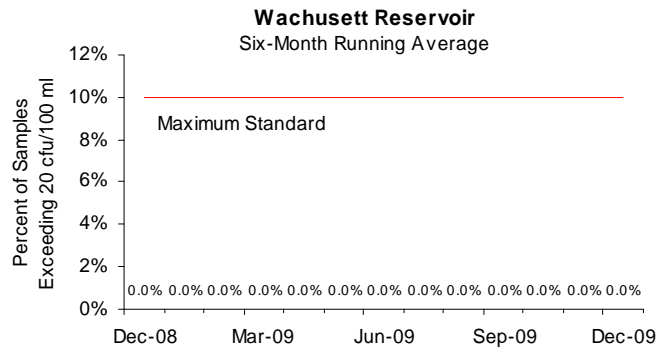
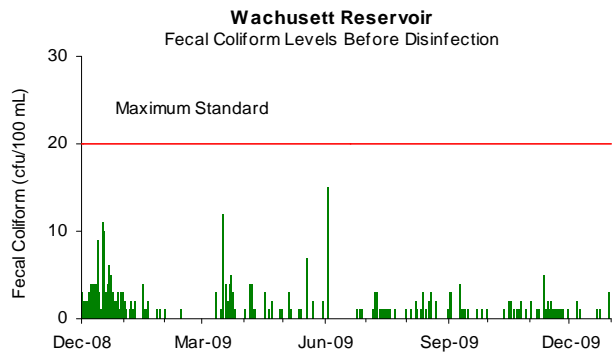
Sample Site: Wachusett Reservoir

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 2nd Quarter were below 20 cfu/100ml.

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



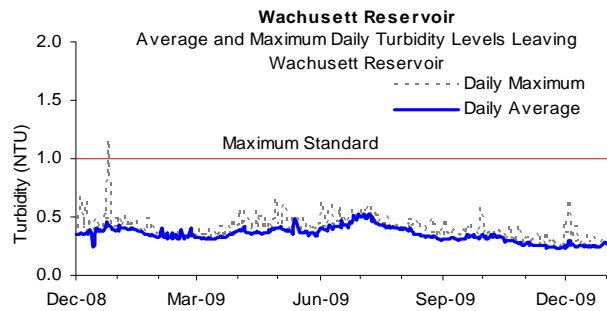
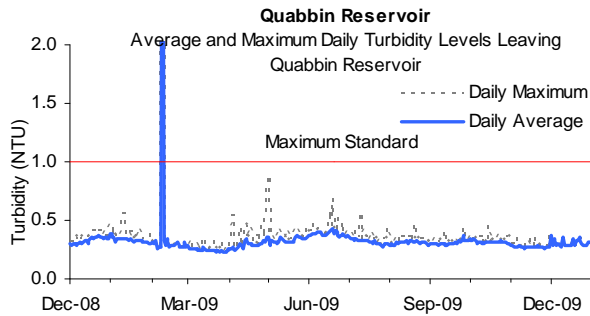
Source Water – Turbidity

2nd 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 and Wachusett were within DEP standards for the quarter.



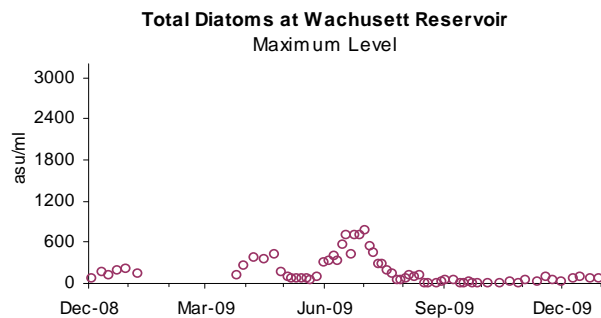
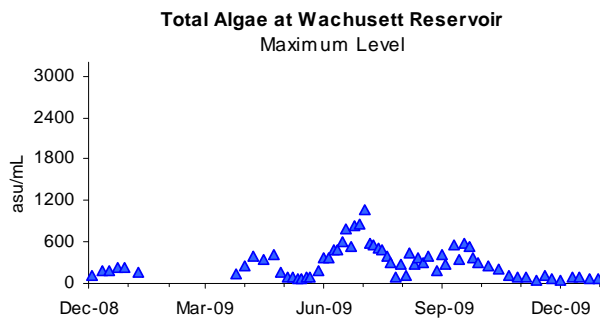
In February 2009, there was a spike in turbidity at Quabbin when a planned valve operation disturbed sediment, but it did not disrupt disinfection effectiveness and was not a violation.

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 algacide. During the winter and spring, diatom numbers may increase. While not a taste and odor concern, consumers using filters may notice more frequent changing of the filters is needed. Diatom levels are currently low.

Of the 10 complaints received for the quarter from local water departments, none concerned taste and odor that may be due to algae.



Treated Water – Disinfection Effectiveness

2nd Quarter - FY10

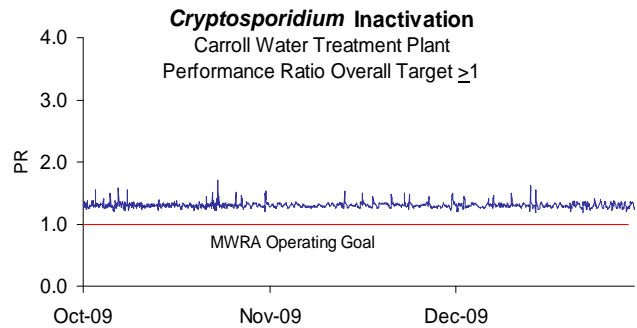
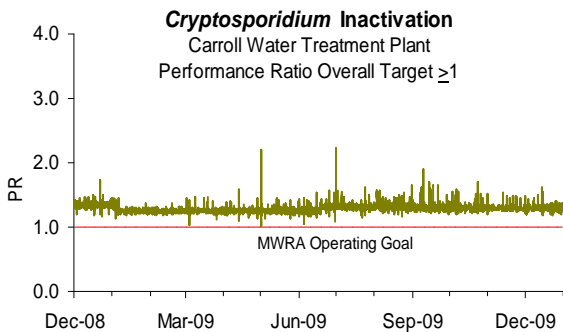
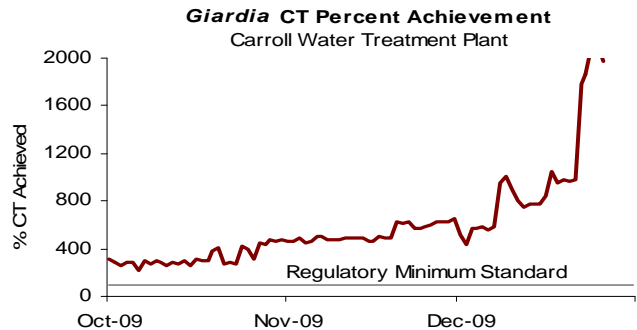
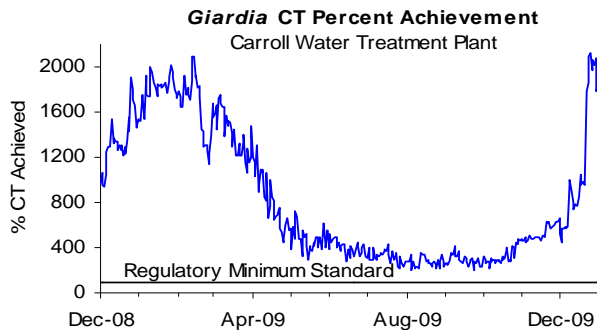
Background

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 percent of required CT achieved; 100% is the minimum allowed.

To avoid confusion with the regulatory requirements, inactivation of *Cryptosporidium* is reported as Performance Ratio (PR); a PR of 1 demonstrates inactivation of 99% of *Cryptosporidium* based on site-specific data.

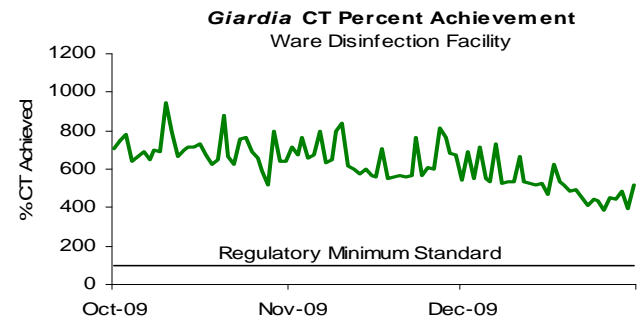
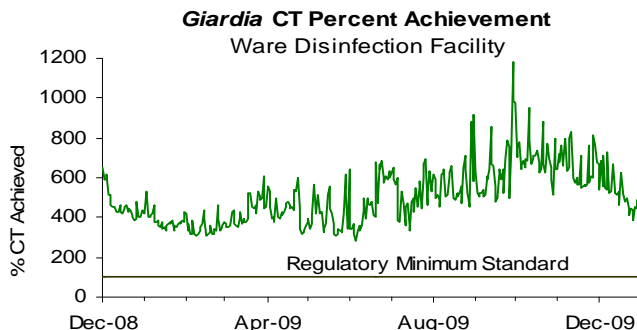
Wachusett Reservoir – MetroWest/Metro Boston Supply:

- CT was maintained above 100% at all times the plant was providing water into the distribution system this quarter; PR was maintained above 1, as well.
- Ozone dose at the CWTP varied between 2.1 to 3.8 mg/L for the quarter.



Quabbin Reservoir at Ware Disinfection Facility (CVA Supply):

CT was maintained above 100% at all times the plant was providing water into the distribution system for the quarter, as well as every day for the last fiscal year. Chlorine dose remains at 1.4 mg/L.

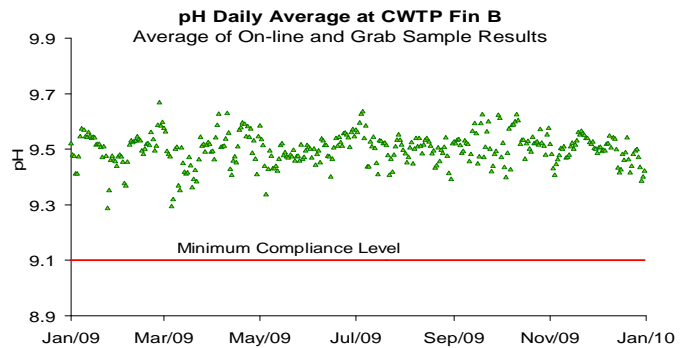
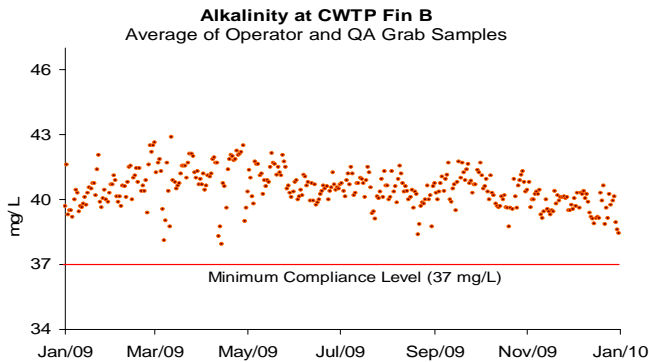


Treated Water – pH and Alkalinity Compliance

2nd 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 December 14, 2009; sample pH ranged from 9.2 to 9.7 and alkalinity ranged from 39 to 44 mg/L. No sample results were below DEP limits for the 2nd Quarter.



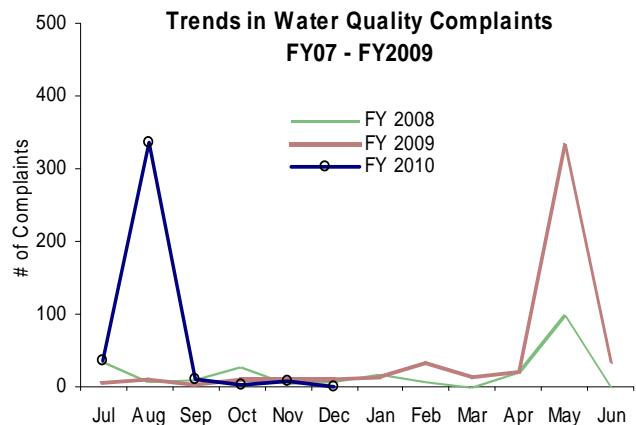
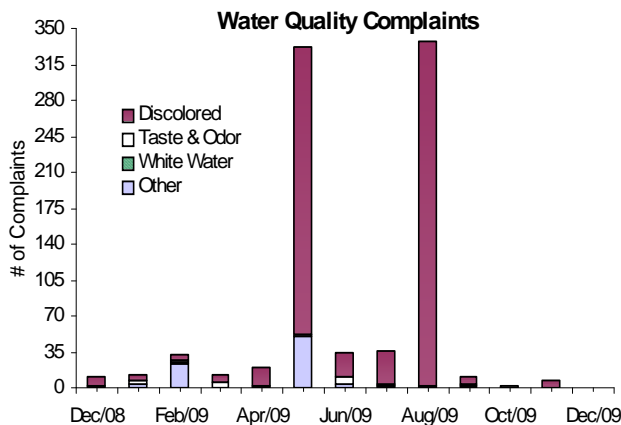
Drinking Water Quality Customer Complaints: Taste, Odor, or Appearance

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 10 complaints during the 2nd Quarter compared to 29 complaints for the same period in FY09. Of these complaints, eight were for "discolored water" and one was for "taste and odor". No complaints were reported in December.



Bacteria & Chlorine Residual Results for Communities in MWRA Testing Program 2nd 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 its distribution system.

Highlights

In the 2nd Quarter, 34 of the 5,790 community samples (0.59% system-wide) submitted to MWRA labs for analysis tested positive for coliform (Somerville, South Hadley - October; Framingham - November; Somerville - December). Somerville and South Hadley exceeded the 5% limit in the TCR for October; four of the 2,025 (0.20%) MWRA samples tested positive for total coliform. No sample tested positive for *E.coli*. All 41 systems that submitted chlorine residual data maintained an average disinfectant residual of at least 0.2 mg/L. Only 5.3% of samples had any results with a disinfectant residual lower than 0.2 mg/L for the quarter.

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	194	0 (0%)	0.0%		0.01	1.66
BELMONT	104	0 (0%)	0.0%		0.08	1.43
BOSTON	745	0 (0%)	0.0%		0.37	2.17
BROOKLINE	221	0 (0%)	0.0%		0.01	2.13
CHELSEA	130	0 (0%)	0.0%		1.36	2.04
DEER ISLAND	53	0 (0%)	0.0%		1.15	2.03
EVERETT	130	0 (0%)	0.0%		1.01	1.10
FRAMINGHAM	220	1 (0.45%)	0.0%	No	0.18	1.54
HANSCOM AFB (Bedford) (b)	27	0 (0%)	0.0%		0.03	0.98
LEXINGTON	117	0 (0%)	0.0%		0.06	2.05
LYNNFIELD	18	0 (0%)	0.0%		0.06	0.75
MALDEN	195	0 (0%)	0.0%		1.25	1.29
MARBLEHEAD	72	0 (0%)	0.0%		0.21	1.78
MARLBOROUGH (b)	157	0 (0%)	0.0%		0.06	1.72
MEDFORD	238	0 (0%)	0.0%		0.16	1.78
MELROSE	117	0 (0%)	0.0%		0.02	0.56
MILTON	98	0 (0%)	0.0%		0.10	1.65
NAHANT	30	0 (0%)	0.0%		0.09	1.35
NEEDHAM (b)	123	0 (0%)	0.0%		0.03	0.44
NEWTON	276	0 (0%)	0.0%		0.25	1.88
NORTHBOROUGH	48	0 (0%)	0.0%		0.00	1.13
NORWOOD	117	0 (0%)	0.0%		0.01	1.45
QUINCY	299	0 (0%)	0.0%		0.02	1.47
READING	130	0 (0%)	0.0%		0.05	1.49
REVERE	211	0 (0%)	0.0%		1.03	1.86
SAUGUS	104	0 (0%)	0.0%		1.61	1.95
SOMERVILLE	340	14 (4.12%)	0.0%	Yes	0.13	1.76
SOUTH HADLEY FD1 (c)	79	19 (24.05%)	0.0%	Yes	0.02	0.28
SOUTHBOROUGH	30	0 (0%)	0.0%		0.40	1.90
STONEHAM	98	0 (0%)	0.0%		0.74	1.89
SWAMPSCOTT	54	0 (0%)	0.0%		0.00	1.41
WAKEFIELD (b)	154	0 (0%)	0.0%		0.29	1.29
WALTHAM	217	0 (0%)	0.0%		0.01	1.87
WATERTOWN	140	0 (0%)	0.0%		0.07	1.80
WELLESLEY (b)	109	0 (0%)	0.0%		0.05	0.65
WESTBORO HOSPITAL	15	0 (0%)	0.0%		0.09	1.35
WESTON	48	0 (0%)	0.0%		0.53	1.89
WINCHESTER (b)	65	0 (0%)	0.0%		0.10	0.81
WINTHROP	72	0 (0%)	0.0%		0.04	1.42
WOBBURN (b)	195	0 (0%)	0.0%		0.03	0.67
Total:	5790	34 (0.59)%				
MASS. WATER RESOURCES AUTHORITY (d)	2025	4 (0.20%)	0.0%		0.01	1.86

(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.

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

2nd Quarter - FY10

Background

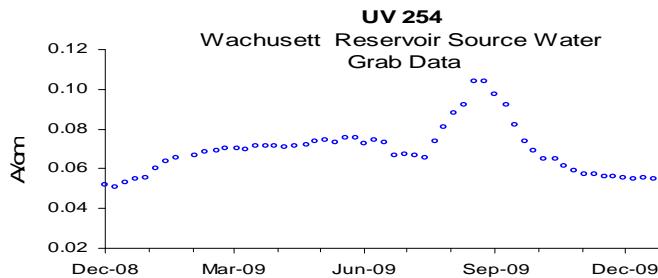
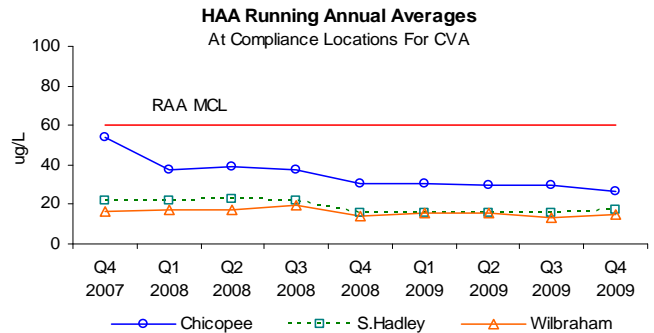
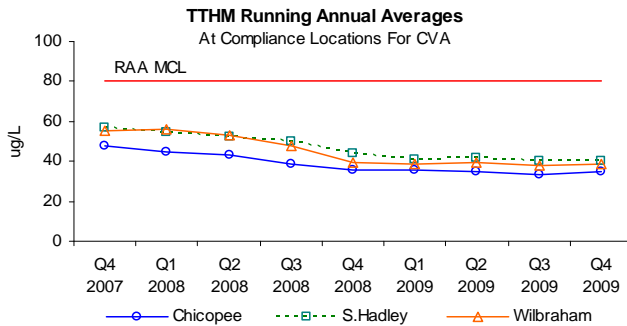
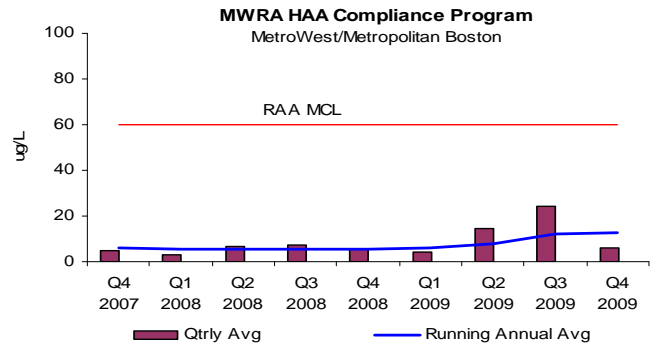
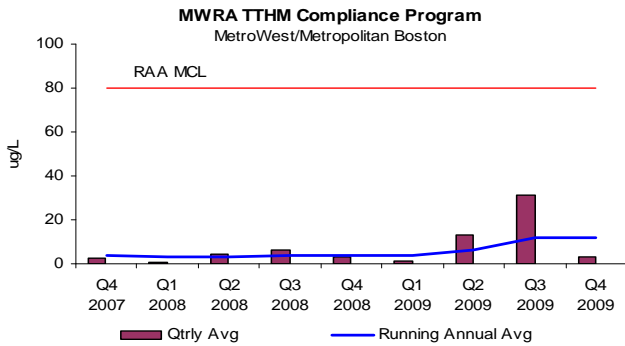
Total Trihalomethanes (TTHMs) and Haloacetic Acids (HAA5s) are by-products of disinfection treatment with chlorine and are of concern due to their potential adverse health effects at high levels. EPA's running annual average (RAA) standard is 80 ug/L for TTHMs and 60 ug/L for HAA5s. The switch from chlorine 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 = 12.2 ug/L; HAA5s = 12.4 ug/L. CVA's DBP levels continue to be below current standards. UV-254 levels are currently around 0.06 A/cm. The current RAA for Bromate = 0.0 ug/L.



Water Supply and Source Water Management

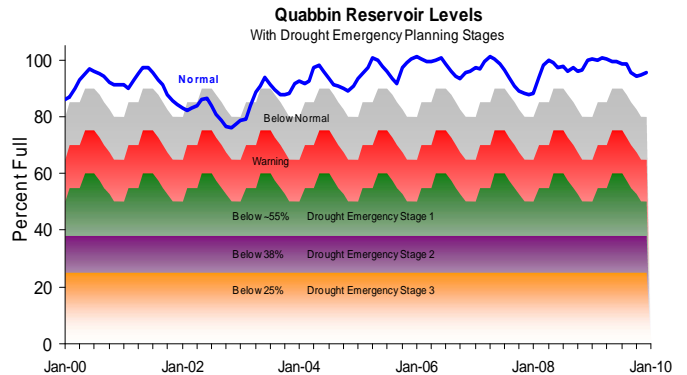
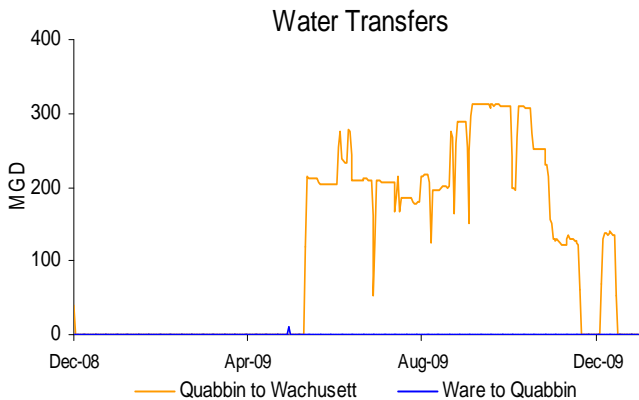
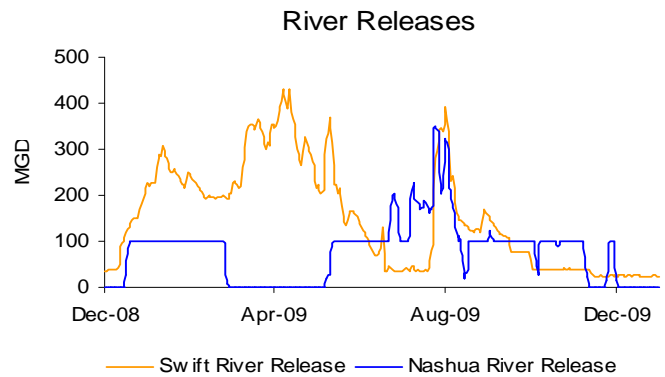
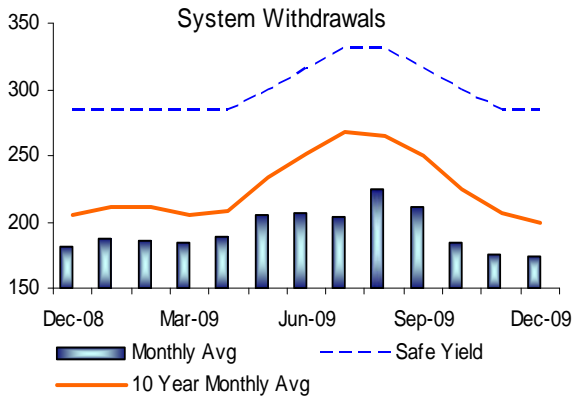
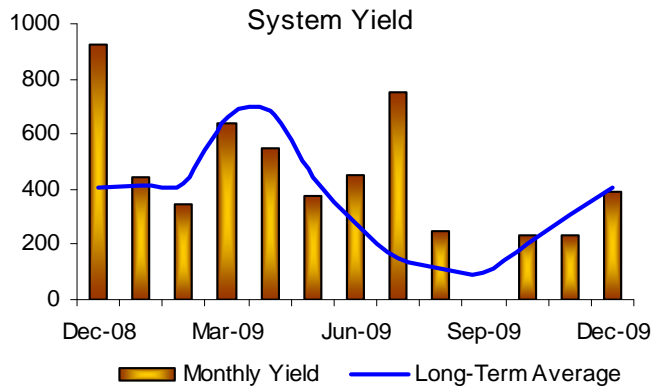
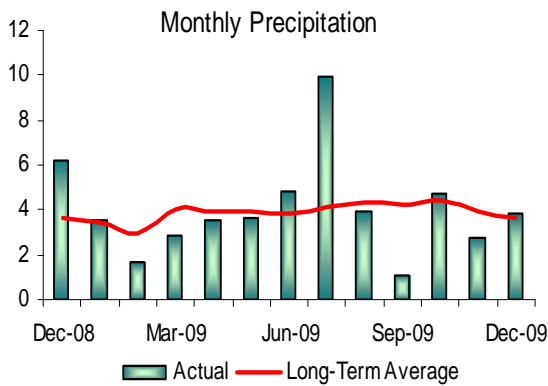
2nd Quarter – FY10

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 95.6% of capacity as of December 31, 2009, 4.3% lower than same time last year. Quabbin Reservoir average capacity for the quarter was 94.7%. The average withdrawal for the year was below 200 mgd (194.27 mgd).



WASTEWATER QUALITY

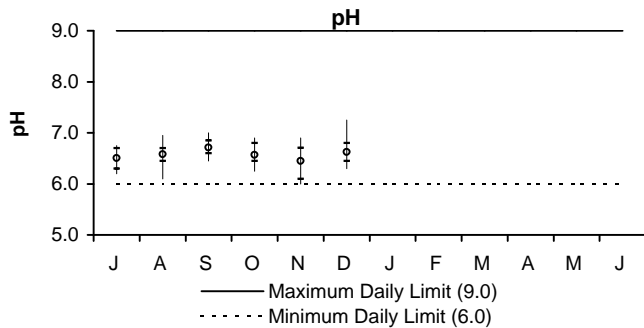
NPDES Permit Compliance: Deer Island Treatment Plant

2nd Quarter - FY10

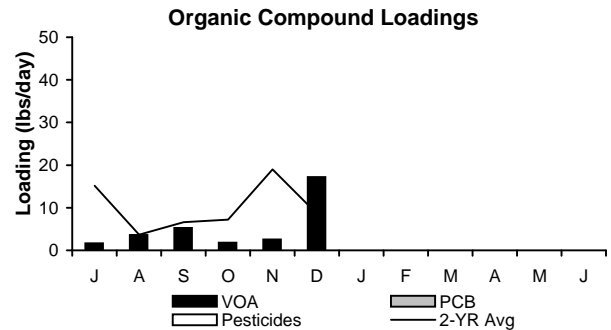
NPDES Permit Limits

Effluent Characteristics	Units	Limits	October	November	December	2nd Quarter Violations	FY10 Violations	
Dry Day Flow:	mgd	436	312.8	316.3	319.5	0	0	
cBOD:	Monthly Average	mg/L	3.9	4.5	5.4	0	0	
	Weekly Average	mg/L	40	5.3	6.2	0	0	
TSS:	Monthly Average	mg/L	30	5.6	5.5	0	0	
	Weekly Average	mg/L	45	8.3	8.2	0	0	
TCR:	Monthly Average	ug/L	456	40	40	0	0	
	Daily Maximum	ug/L	631	40	40	0	0	
Fecal Coliform:	Daily Geometric Mean	col/100mL	14000	40.8	38.1	0	0	
	Weekly Geometric Mean	col/100mL	14000	22.0	19.4	0	0	
	% of Samples >14000	%	10	0	0	0	0	
	Consecutive Samples >14000	#	3	0	0	0	0	
pH:	SU	6.0-9.0	6.3-6.9	6.0-6.9	6.3-7.3	0	0	
PCB, Aroclors:	Monthly Average	ug/L	UNDETECTED			0	0	
Acute Toxicity:	Mysid Shrimp	%	50	>100	>100	>100	0	0
	Inland Silverside	%	50	>100	>100	>100	0	0
Chronic Toxicity:	Sea Urchin	%	1.5	100	100	100	0	0
	Inland Silverside	%	1.5	50	50	50	0	0

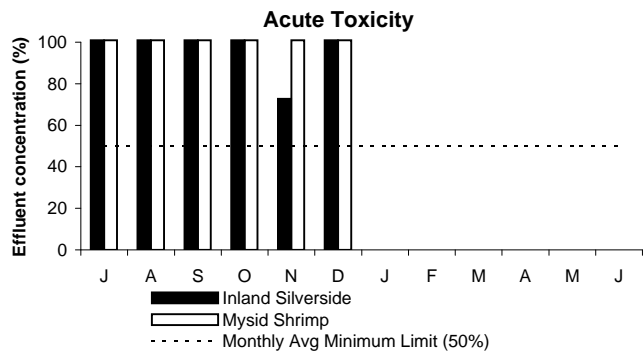
To date, there have been no permit violations at the Deer Island Treatment Plant in FY10.



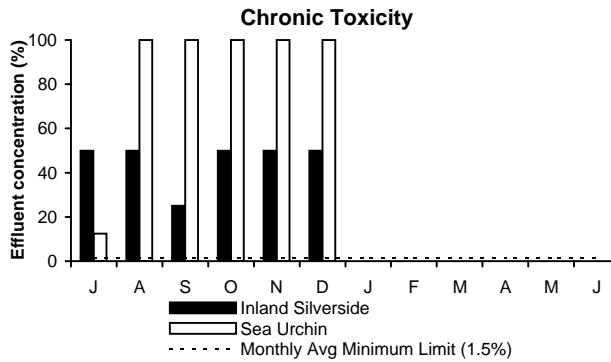
pH is a measure of the alkalinity or acidity of the effluent. Fluctuations in pH do not have an adverse effect on marine environments. Because of the pure oxygen used in the activated sludge reactor, the effluent pH tends to be at the lower pH range. pH measurements for the 2nd Quarter were within the 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.



The acute toxicity tests simulate the short-term toxic effects of chemicals in wastewater effluent on marine animals. The tests measure the concentration (percent) of effluent that kills half of 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%. Permit limits were met during the 2nd Quarter for both the inland silverside and mysid shrimp.



Typically, effects of chronic exposures differ from those of acute exposures. Because of this, chronic toxicity responses are not necessarily related to acute toxicity. The chronic toxicity tests simulate the long-term toxic effects of chemicals in wastewater effluent on marine animals. To meet permit limits, 1.5% effluent concentration must show no observed effect on the growth and reproduction of the test species. Permit limits were met during the 2nd Quarter for both the inland silverside and the sea urchin.

NPDES Permit Compliance: Clinton Wastewater Treatment Plant

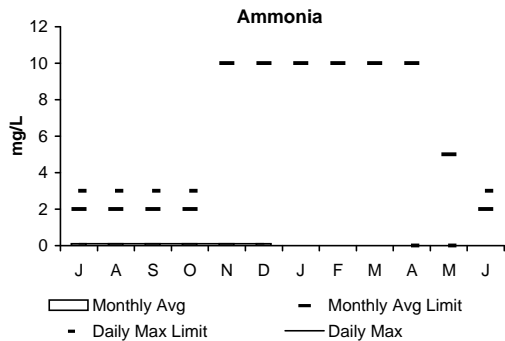
2nd Quarter - FY10

NPDES Permit Limits

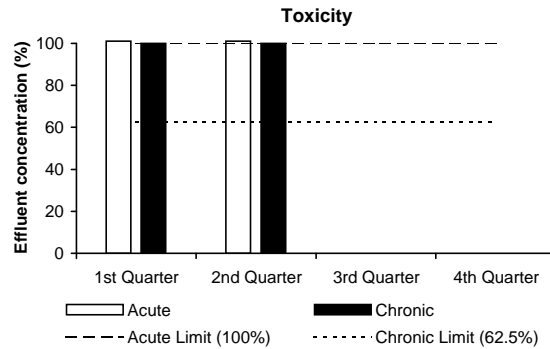
Effluent Characteristics	Units	Limits	October	November	December	2nd Quarter Violations	FY10 YTD Violations
Flow:	mgd	3.01	3.42	3.46	3.37	3	6
BOD: Monthly Average:	mg/L	20	3.4	5.2	8.2	0	0
Weekly Average:	mg/L	20	6.4	5.9	9.0	0	0
TSS: Monthly Average:	mg/L	20	4.0	7.7	8.6	0	0
Weekly Average:	mg/L	20	7.3	10.2	12.2	0	0
pH:	SU	6.5-8.3	6.8-7.4	7.0-7.5	7.2-7.6	0	0
Dissolved Oxygen: Daily Minimum:	mg/L	6	8.7	9.0	9.7	0	0
Fecal Coliform: Daily Geometric Mean:	col/100mL	400	8	6	19	0	0
Monthly Geometric Mean:	col/100mL	200	3	3	3	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: 11/1-3/31							
Monthly Average:	mg/L	10.0	0.1	0.1	0.1	0	0
Daily Maximum:	mg/L	35.2	0.1	0.1	0.1	0	0
Copper: Monthly Average:	ug/L	20	6.5	6.8	7.8	0	0
Phosphorus: May 1 - Oct 31							
Monthly Average:	mg/L	1.0	0.19	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

The Clinton Plant's monthly average flows for all three months in the 2nd Quarter, as indicated in the table above, exceeded the permit limit of 3.01 mgd. Monthly average flow is calculated using a 12-month running average.

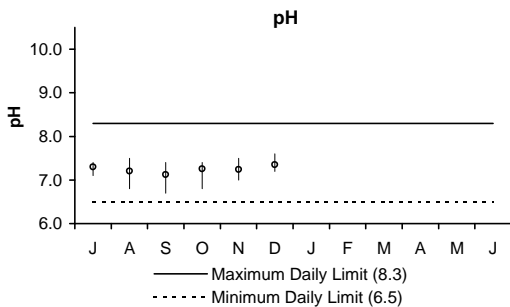
Toxicity testing at Clinton is only conducted on a quarterly basis.



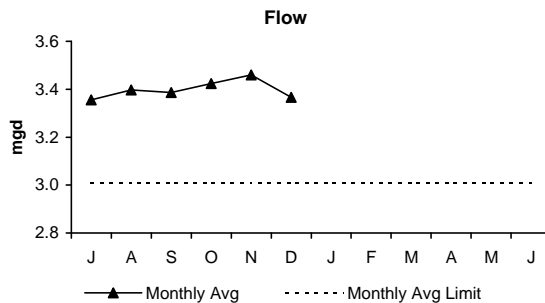
The 2nd Quarter's monthly average and daily maximum concentrations were below permit limits. The monthly average and daily maximum limits for the period of November 1 - March 31 are 10 mg/L and 35.2 mg/L, respectively. The permit limits are most stringent from June to October when warm weather conditions are most conducive to potential eutrophication.



Acute and chronic toxicity testing simulates the short- and long-term toxic effects of chemicals in wastewater effluent on aquatic animals. For permit compliance, the effluent concentration that causes mortality to the daphnid in acute and chronic testing must be at least >100% and 62.5%, respectively; these limits were met during the 2nd Quarter.



pH is a measure of the alkalinity or acidity of the effluent. All daily pH results for the 2nd Quarter were within the range set by the permit.



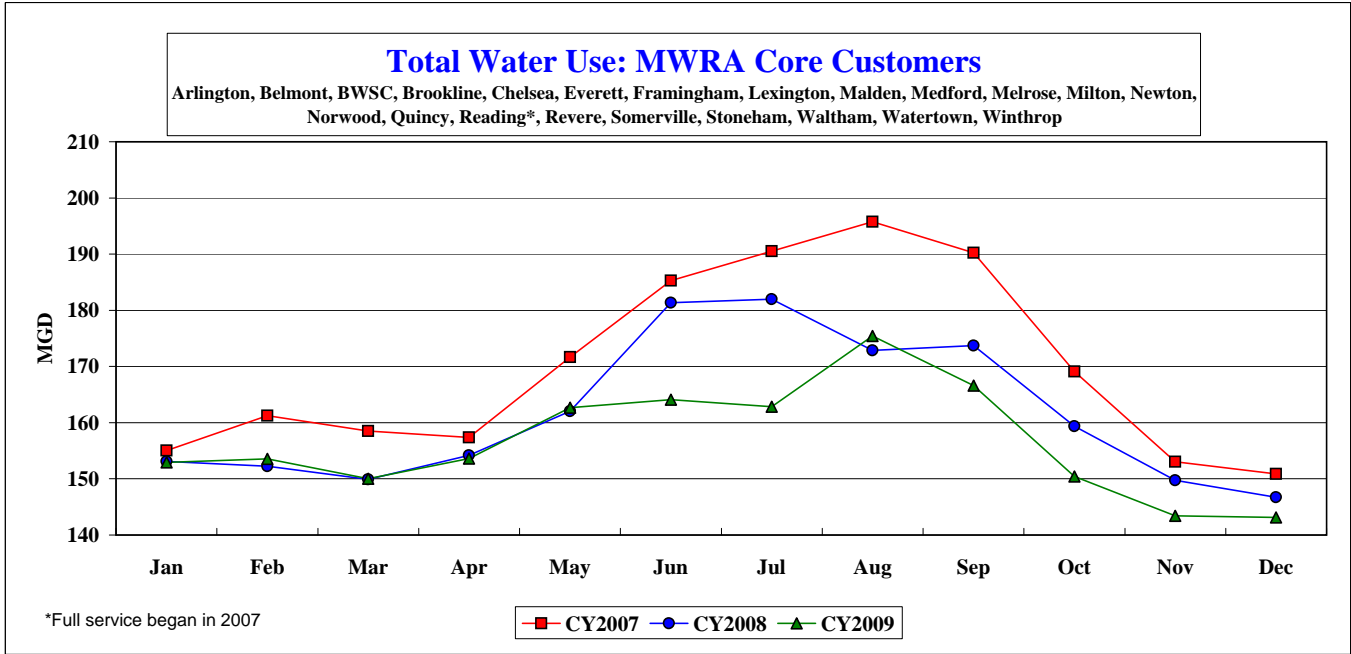
This graph depicts the average monthly flow, measured in million gallons per day, entering the plant. As indicated above, the plant's average monthly flows during the 2nd quarter exceeded the permit limit of 3.01. The flows during October, November, and December were 3.42 mgd, 3.46 mgd, and 3.37 mgd, respectively.

COMMUNITY FLOWS AND PROGRAMS

Total Water Use: MWRA Core Communities

MGD	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
CY2007	155.061	161.227	158.519	157.376	171.642	185.297	190.539	195.762	190.260	169.111	153.066	150.887	169.949
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	143.117	156.586

MG	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
CY2007	4,806.893	4,514.365	4,914.084	4,721.268	5,320.891	5,558.920	5,906.704	6,068.612	5,707.813	5,242.433	4,591.980	4,677.497	62,031.459
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	4,436.641	57,153.835

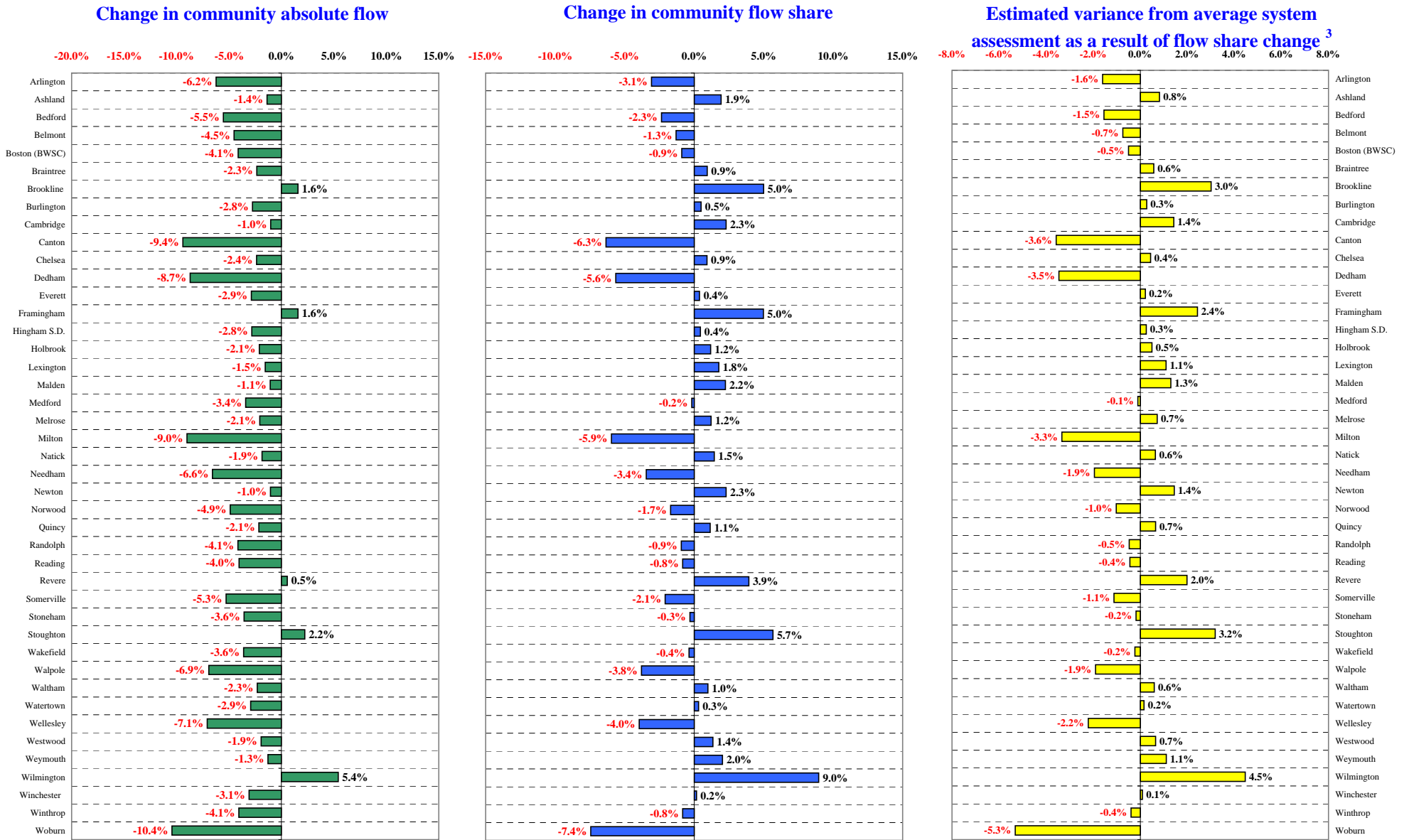


How CY2009 Community Wastewater Flows Through Ten Months Could Effect FY2011 Sewer Assessments ^{1,2}

The flow components of FY2011 sewer assessments will be allocated using a 3-year average of CY2007 to CY2009 wastewater flows compared to FY2010 assessments that used a 3-year average of CY2006 to CY2008 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 CY2007 to CY2009 flow share compared to CY2006 to CY2008 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 FY2011 sewer assessments.



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 CY2006 to CY2009 average wastewater flows as of 12/10/09. 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.

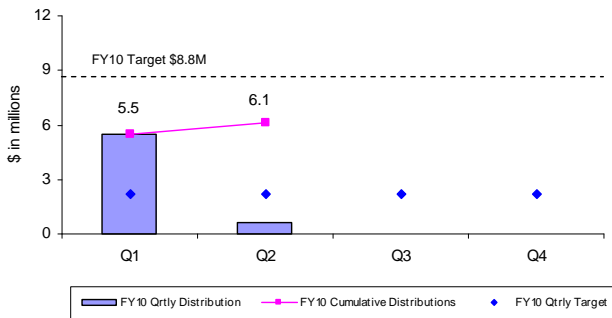
Community Support Programs

2nd Quarter – FY10

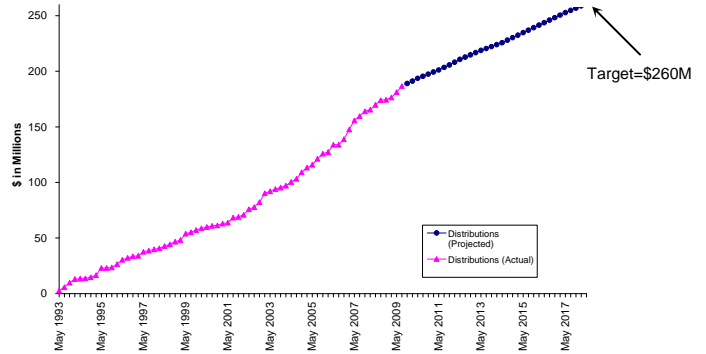
Infiltration/Inflow Local Financial Assistance Program

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

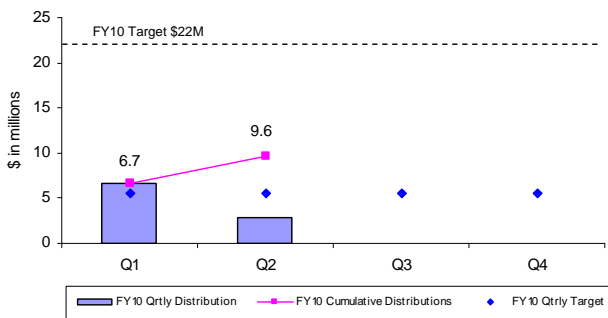


During the second quarter of FY10, \$0.6 million in financial assistance (45% grants and 55% interest-free loans) was distributed to fund local sewer rehabilitation projects in Lexington and Stoughton. Total grant/loan distribution for FY10 is \$6.1 million. From FY93 through the second quarter of FY10, all 43 member sewer communities have participated in the program and more than \$187 million has been distributed to fund 375 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.

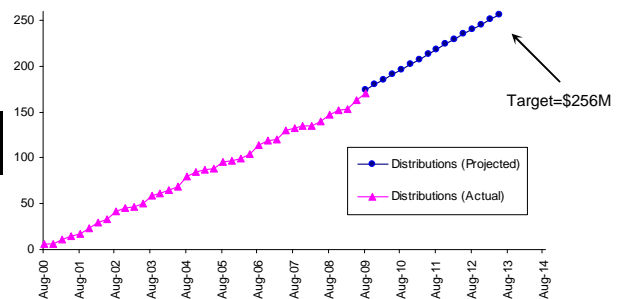
Water Local Pipeline Assistance Program

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

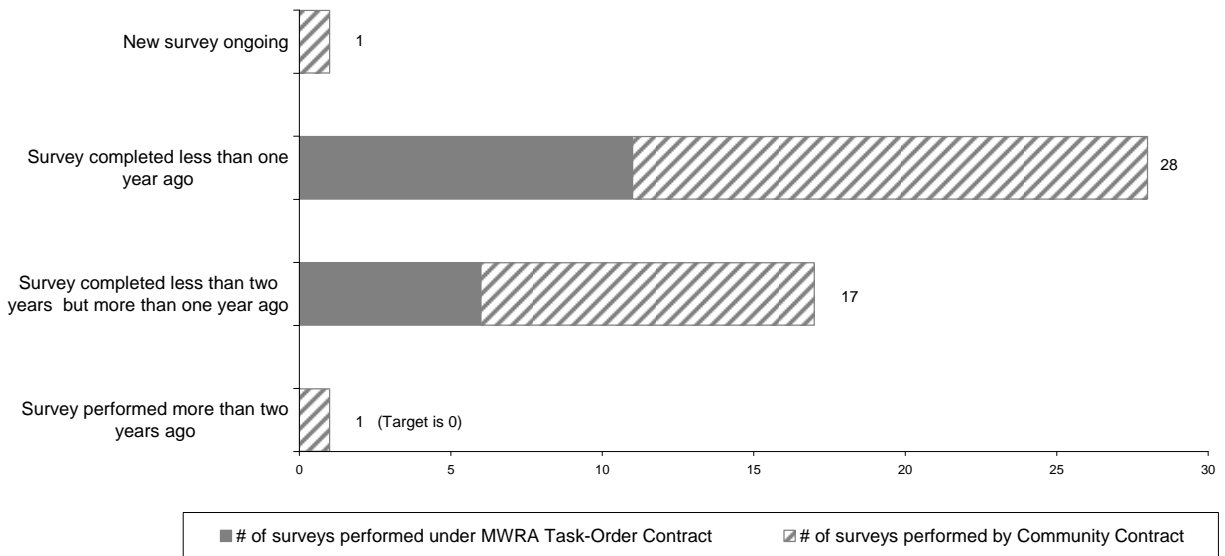


During the second quarter of FY10, \$2.9 million in interest-free loans was distributed to fund local water projects in Malden, Milton and Quincy. Total loan distribution for FY10 is \$9.6 million. From FY01 through the second quarter of FY10, \$173 million has been distributed to fund 204 local water pipeline rehabilitation projects in 30 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 2nd 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.



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 average annual water demand is less than 215 mgd. The local water conservation program includes distribution of water conservation education brochures (indoor and outdoor bill-stuffers) and low-flow water fixtures and related materials (shower heads, faucet aerators, toilet leak detection dye tabs, and instructions), all at no cost to member communities or regional 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			23,929
Low-Flow Fixtures (showerheads and faucet aerators)	6,000	4,185	2,270			6,455
Toilet Leak Detection Dye Tablets	-----	4,330	1,246			5,576

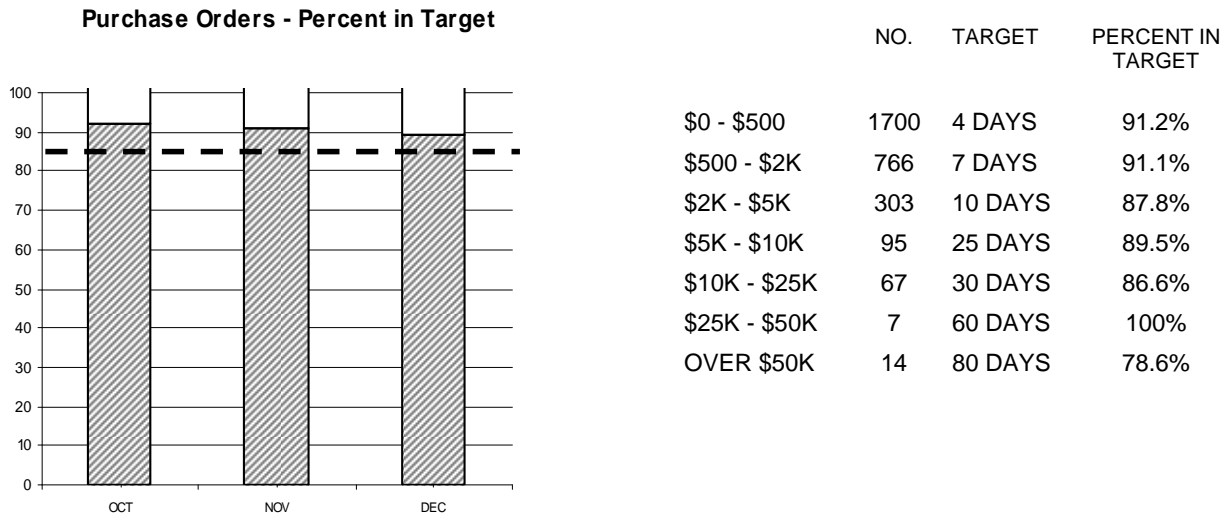
BUSINESS SERVICES

Procurement: Purchasing and Contracts Second Quarter FY10

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

Outcome: Processed 91% of purchase orders within target; Avg. Processing Time was 4.22 days vs. 4.24 days in Qtr 2 of FY09. Processed 73% (16 of 22) contracts within target timeframes; Avg. Processing Time was 82 days vs. 149 days in Qtr 2 of FY09.

Purchasing

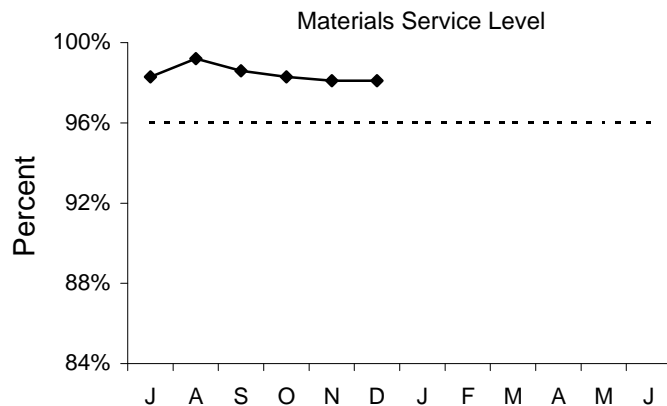


- Purchasing Unit processed 2952 purchase orders, 333 more than the 2619 processed in Qtr 2 of FY09, for a total value of \$17,134,947 vs. a dollar value of \$8,128,391 in Qtr 2 of FY09.
- The target was not achieved for the over \$50k category due to re-bids and clarification of specifications.

Contracts, Change Orders and Amendments

- Six contracts were not processed within target timeframes. Reasons include; numerous addenda, Fore River Railroad Board meeting schedule, and adjustments by MWRA in its training services schedule. One contract was executed within two weeks of target.
- Procurement processed twenty-two contracts with a value of \$10,386,226 and fourteen amendments with a value of \$3,543,280.
- Thirty-three change orders were executed during the period, but some were credit change orders and are recorded as negative numbers. The dollar value of all non-credit change orders during the 2nd quarter FY10 was \$1,408,689 and the value of credit change orders was (\$1,606,591). The final dollar value of all change orders was (\$197,902).
- In addition, staff reviewed 101 proposed change orders and 44 draft change orders.

Materials Management 2nd Quarter, FY10



The service level is the percentage of stock requests filled. The goal is to maintain a service level of 96%. Staff issued 10,088 (98.1%) of the 10,284 items requested in Q2 from the inventory locations for a total dollar value of \$674,170.

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 – micron filters and actuator for Residuals in addition to a flowmeter for Liquid Train.
- Chelsea – hub couplings and mechanical joint coupling kit for the Maintenance group.
- Southboro – terminal connectors and anchors for the Maintenance group as well as teflon packing for the Carroll Water Treatment Plant.

Property Pass Program:

- 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 first quarter amounted to \$7,735.02.
- Tool/equipment reviews were conducted by staff at Chelsea Carpenter shop, Chelsea Paint shop and Chelsea HVAC.

Items	Base Value July-09	Current Value w/o Cumulative New Adds	Reduction / Increase To Base
Consumable Inventory Value	6,883,472	6,869,017	-14,455
Spare Parts Inventory Value	7,243,971	7,224,610	-19,361
Total Inventory Value	14,127,443	14,093,627	-33,816

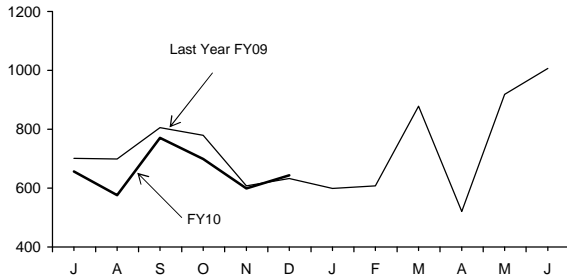
Note: New adds are items added at an inventory location for the first time for the purpose of servicing a group/department to meet their business needs/objectives.

MIS Program 2nd Quarter FY10

Operations

Highlights:

Helpline Monthly Call Volume



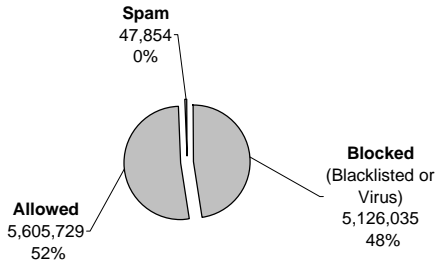
Performance

Call volume peaked in October and has decreased by 6.60% from Q2 last year. The backlog peaked in November and is above the targeted benchmark range.

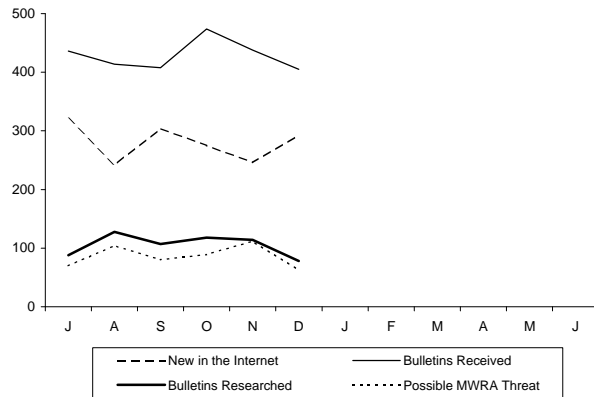
Business System Plan

- **Cyber Security:** During Q2, staff pushed security fixes and updates to desktops and servers throughout the quarter in order to protect against the 814 newly revealed vulnerabilities.
- Four files were identified with viruses on MWRA computers this quarter and infected files were cleaned or deleted before any damage ensued.

Emails Received



Internet Vulnerabilities



- Configured a new external call-in number and voicemail message system to handle staff absentee calls during a pandemic emergency. A total of 111 phones for staff across 19 departments were configured.

Applications/Training/Records Center

Area	Significant Accomplishments
PIMS/GIS	The PIMS "MAPIT" button, which links the GIS viewer with the PIMS application, has been integrated into that system. This button allows PIMS users to see the locations of the industries they are researching and launch geography-based queries against that data.
LabWare LIMS	The Department of Lab Services and MIS have completed the final steps for going live with the new LIMS for wastewater testing in Q3.
Lawson	Continued making improvements to the Lawson Employee Self Service Time Entry System. One enhancement, which will be rolled out in February, handles the rotating schedule of 45 laboratory employees and will allow electronic time sheet entry. Two new functions are being evaluated and tested. One function will be to pre-populate timesheets with standard hours in addition to holiday time and the second will be to enable electronic time sheet approvals. These features will shorten the amount of time required to perform weekly web time entry and greatly reduce the dependency on paper timesheets. A proposal and/or demonstration will be given to Senior Management for their approval to implement these features.
Employee Acknowledgement Application	In response to a request by Human Resources, implemented a new web application so that MWRA PC users could acknowledge receipt of the Commonwealth's Summary of the Conflict of Interest Law for State Employees. The application also allows Human Resources to keep track of online acknowledgements. In addition, staff provided MS Exchange email support for the Law Division efforts to distribute the Summary of the Law to external personnel and track their receipt acknowledgements.
Training	For the quarter, 105 staff attended 13 classes and 8 workshops. Year-to-date, 201 staff have attended 24 classes and 15 workshops. 12% of the workforce have attended at least one class year-to-date.

Legal Matters

2nd Quarter FY10

PROJECT ASSISTANCE

COURT AND ADMINISTRATIVE ORDERS

- **Boston Harbor Litigation and CSO:** Finalized Compliance and Progress Report and CSO Quarterly Progress Report and filed them with Federal District Court. Submitted annual report to EPA and DEP updating information on the emergency backup landfill sites for the Fore River Pelletizing Plant. Drafted motion and memorandum seeking to amend Schedule Seven by deleting or amending certain construction milestones related to the Charles River CSO interceptor optimization evaluation project and the remaining Cambridge CSO projects. Submitted completion report for supplemental environmental project relating to marine debris removal. Submitted annual report for supplemental environmental project relating to sewage pumpout boat.
- **NPDES:** Reviewed 308 request for information pursuant to the clean water act issued for discharge from Carroll Water Treatment Plant and filed response. Reviewed NPDES submission to EPA and DEP seeking to modify ambient monitoring plan.
- **Administrative Consent Order (DITP power outages):** Submitted semi-annual report to DEP in accordance with the Administrative Consent Order.

REAL ESTATE AND CONTRACT AND OTHER SUPPORT

- **Hultman Aqueduct Interconnections Project:** Completed negotiation of the Memorandum of Agreement for Permanent and Temporary Easements necessary for the Hultman Aqueduct Interconnections Project with the Massachusetts Turnpike Authority and Liberty Mutual Insurance Company, prepared execution copies and obtained signatures.
- **Low Service Storage Facility – Spot Pond:** Completed negotiation of the Purchase and Sale Agreement for the acquisition of interests in real property necessary for the Northern Low Service Storage Facility in Stoneham, prepared execution copies and obtained signatures. Reviewed Title Reports, reviewed and revised closing documents and a proposed Amendment to the Purchase and Sale Agreement.
- **Watershed Land Acquisition:** Reviewed 2 proposed acquisitions of either Watershed Preservation Restrictions or real property for Watershed Preservation to identify issues prior to approval for funding.
- **Deer Island:** Finalized a license with Volpe Center to site wind measurement equipment on Deer island; reached an agreement in principle with a wind turbine producer to allow testing of a prototype on site.
- **Lynnfield/Saugus Pipelines Project:** Drafted an MOA with Saugus for cost sharing during the Project.
- **Section 8(m) permits:** Revised the 8(m) Permit Template for use by both Water and Wastewater Operations; reviewed and approved 25 Section 8(m) permits.
- **Miscellaneous:** Assisted in obtaining statutorily-required acknowledgements of receipt of Ethics Commission law summary from MWRA consultants, experts and advisory groups.

ENVIRONMENTAL

- **Statutes/Regulations-Amendments:** Reviewed new and proposed regulatory changes for their application to MWRA, including those made to the federal Oil Pollution Prevention - Spill Prevention, Control, and Countermeasure (SPCC) regulations; EPA Effluent Limitations guidelines and New Source Performance Standards to control discharge of pollutants from construction sites; DEP Timely Action Schedule and Fee Provision regulations; Massachusetts Office of Consumer Affairs and Business Regulation information security regulations.

- **SARA/EPCRA:** Researched and drafted memo confirming that the Chemical Inventory (Tier II) reporting requirement under EPCRA is not applicable to MWRA, and drafted letter responding to Boston's Local Emergency Planning Committee's inquiry (from its director, Boston Fire Dept Capt Bruynell) seeking DITP's Tier II report.
- **Norumbega/Solar project:** Researched and drafted memo detailing the significant statutory hurdle and regulatory impediments to locating solar installation at the Norumbega Covered Storage Facility.
- **Safe Drinking Water Act:** Updated and finalized letter to DEP to allow MWRA an additional 2 years to come into compliance with the Long Term 2 Enhanced Surface Water Treatment Rule.

LABOR, EMPLOYMENT AND ADMINISTRATIVE

New Matters

Three demands for arbitration were filed.

Two charges were filed at the Massachusetts Commission Against Discrimination.

Matters Concluded

Received an arbitration decision in favor of the MWRA.

Received two dismissals by the MCAD on charges of discrimination.

LITIGATION/TRAC

New Lawsuits

No new cases were reported in the Second Quarter of FY 2010.

Significant Developments

Seaver Electric v. JF White, et al.: On August 20, the Superior Court granted Motions for Summary Judgment by MWRA and its co-defendants in Seaver Electric v. JF White, et al. This was a construction contract claim. Plaintiff was the filed electrical sub-bidder on the Braintree/Weymouth Intermediate Pumping Station Project. Plaintiff sought damages from being ordered to perform work which it alleged it was beyond the scope of the applicable specifications under his contract. Plaintiff alleged some \$565,000 in contract damages, the loss of which Seaver alleged caused it to lose bonding capacity, and ultimately go out of business. During the case, Seaver estimated the "lost business" damages at \$5,000,000. During the course of construction MWRA had determined that so-called "extra work" was included in Seaver's scope. Engineer's Decisions on the claims put before it confirmed that the claims had no merit and that Seaver had not performed "extra work" for which it should be compensated. MWRA argued in its Motions that, among other things, the Engineer's Decision were final and binding, and that MWRA did not err in not paying Seaver its Direct Demand. The Superior Court agreed, concluding that Seaver had not shown that it performed any "extra" work. The Court therefore granted summary judgment in favor of MWRA on all counts. Seaver filed an appeal in September 2009.

(Employee) v. MWRA: In this matter, the plaintiff alleges race discrimination in his conditions of employment and his termination from employment, all in violation of federal (42 USC 2000e) and state (G.L. C. 151 B Section 1) law. MWRA has moved for summary judgment on all claims based upon plaintiff's execution of a release at the time of the termination of his employment, and his subsequent ratification of that release. The Law Division filed a Motion for Summary Judgment on September 28, 2009.

(Employee) v. MWRA: This is an action brought by an MWRA employee who has been on unpaid leave since December 2003, against the MWRA and two supervisors, alleging claims under the state "whistleblower" statute, the Massachusetts Civil Rights Act, intentional infliction of emotional distress, civil conspiracy, and intentional interference with contractual relations. Plaintiff alleges that the MWRA and his supervisors retaliated against him for reporting alleged health, safety & environmental violations at the Clinton Wastewater

Treatment Plant. The Law Division took several depositions in this case in September and on November 24, 2009 served a Motion for Summary Judgment.

(Employee) v. MWRA: This is a retaliation claim filed by Complainant on December 12, 2008. Complainant was removed from his Deer Island work place on June 24, 2008 and sent for a fitness for duty exam on July 7, 2008 to determine whether he posed a threat to himself and or his co-workers after a heated altercation with his supervisor during which the Complainant repeatedly swore at and bumped his supervisor. The employee was found fit for duty and returned to the work place, but was suspended for five days for violating MWRA's Code of Conduct and Violence in the Workplace Policy. Complainant alleges that his subsequent suspension was retaliatory. A hearing on the five day suspension was held on October 15, 2009 and the Law Division is awaiting the arbitrator's decision.

Closed Cases There were no cases reported closed in the Second Quarter FY 2010.

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

Public Records During the Second Quarter of FY 2010 eleven new public records requests were received and nine requests were pending at the end of Second Quarter FY 2010.

SUMMARY OF PENDING LITIGATION MATTERS

TYPE OF CASE/MATTER	As of Dec 2009	As of Sept 2009	As of June 2009
Construction/Contract/Bid Protest (other than BHP)	4	4	4
BHP Claims/Contract Cases	0	0	0
Tort/Labor/Employment	7	7	8
Environmental/Regulatory/Other	2	2	2
Eminent Domain/Real Estate	2	2	2
total – all defensive cases	15	15	16
Affirmative Cases:	3	3	1
<u>MWRA v. (current employee)</u>			
<u>MWRA v. Chutehall Construction Co., Ltd, et al.</u>			
<u>MWRA v. Doyle</u>			
Other Litigation matters (restraining orders, etc.)	2	2	2
<u>MWRA v. (former employee)</u>			
<u>MWRA v. (former employee)</u>			
total – all pending lawsuits	20	20	19
Significant claims not in suit:	1	1	1
Verizon, Farragut Road & E. 6 th Street			
Bankruptcy	9	1	2
Wage Garnishment	7	7	7
TRAC Appeals	3	5	3
Subpoenas	2	1	1
Public Records Requests	11	8	5
TOTAL - ALL LITIGATION MATTERS	53	43	38

TRAC

New Appeals:

One new appeal was received in the 2nd Quarter FY 2010.

- Brandeis University; MWRA Docket No. 09-05

Settlement by Agreement of Parties

One case was settled by Agreement of Parties in 2nd Quarter FY 2010.

- Empire Photo; MWRA Docket No. 09-03

Notice of Dismissal Fine paid in full

One case was dismissed by Notice of Dismissal, fine paid in full.

- Boston Biomedical, Inc.; MWRA Docket No. 09-04

Tentative Decisions

One Tentative Decision was issued in 2nd Quarter FY 2010.

- Massachusetts General Hospital; MWRA Docket No. 08-01

Final Decisions

One Final Decision was issued during the 2nd Quarter FY 2010.

- Massachusetts General Hospital; MWRA Docket No. 08-01

Internal Audit Program 2nd Quarter FY10

Highlights

CONSTRUCTION CHANGE ORDER PRICING (Issued: Dec 31, 2009)

The purpose of this audit was to evaluate the sufficiency of documentation in the construction files evidencing a determination of the reasonableness of the price for each of the 42 change orders approved by the Board between February 2006 and January 2009. The audit identified the need to standardize procedures and ensure that pricing documentation was properly completed and filed. Recommendations included updating the Change Order Process policy and the Resident Engineer's Manual, instituting a quality control function, and providing staff training on the requirements contained in the updated manual.

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 94% 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)	3	0
Review of Fixed Assets (9/21/09)	6	4
Construction Change Order Pricing (12/31/09)	<u>5</u>	<u>0</u>
Total Recommendations	16	20

Audit Savings

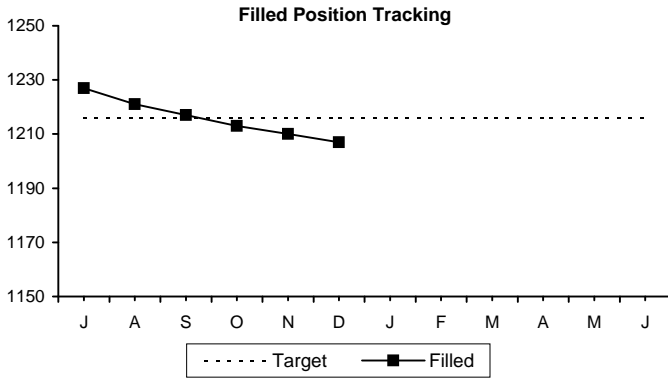
The Internal Audit Department's target is to achieve at least \$1 million in cost savings each year. Cost savings vary each year based upon many factors. In some cases, cost savings for one year may be the result of work in prior years. Commencing in FY07 cost savings include the dollar impact, if measurable, of internal assignments.

Savings	FY06	FY07	FY08	FY09	FY10	TOTAL
Consultants	\$768,394	\$358,341	\$55,901	\$316,633	\$119,759	\$1,619,028
Contractors & Vendors	\$456,968	\$637,378	\$2,147,311	\$1,262,088	\$331,752	\$4,835,497
Internal Audits		\$183,840		\$438,027		\$621,867
Total	\$1,225,362	\$1,179,559	\$2,203,212	\$2,016,748	\$451,511	\$7,076,392

OTHER MANAGEMENT

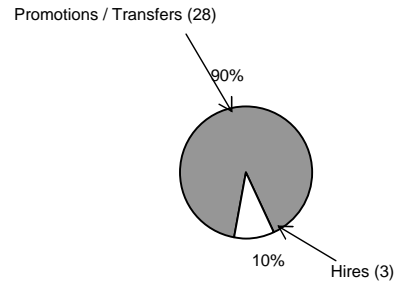
Workforce Management

2nd Quarter FY10



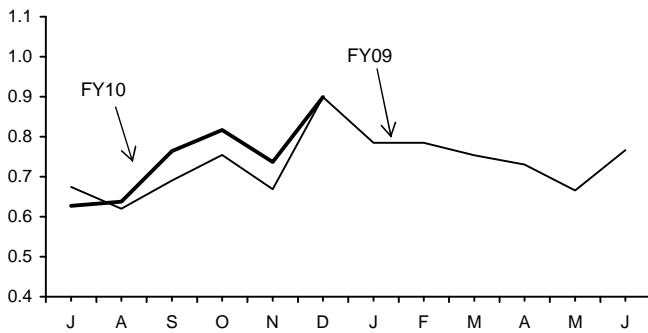
FY10 Target for Filled Positions = 1216
 Filled Positions as of December 2009 = 1207

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

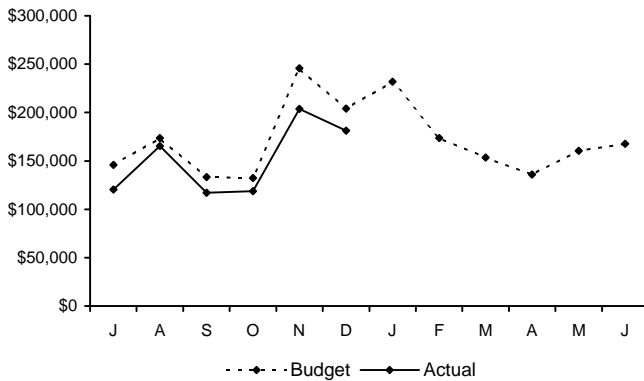


In FY10, the average monthly sick leave usage has increased 4.04% from the same time last year.

	Number of Employees	YTD	Annualized Total	Annual FMLA %	FY09
Law	19	5.13	10.26	8.8%	7.91
Planning	24	3.03	6.07	29.1%	8.07
Operations	932	4.61	9.22	23.7%	9.11
Support	184	3.74	7.47	32.1%	7.53
Finance	43	6.07	12.14	55.9%	8.45
Executive	8	1.99	3.98	0.0%	6.83
MWRA Avg	1210	4.48	8.96	26.0%	8.79

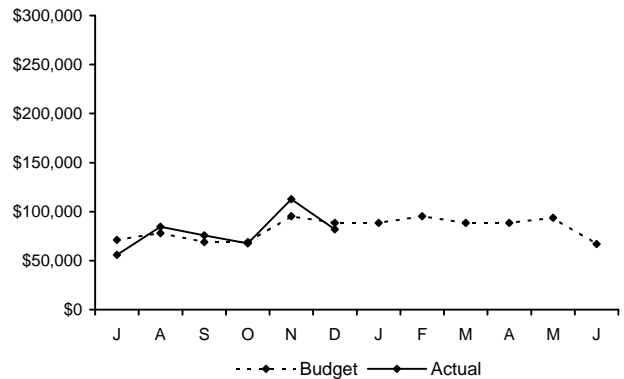
Percent of sick leave usage attributable to Family and Medical Leave Act (FMLA) leave is 26.0% ending December 31, 2009.

Field Operations
Overtime Expenditure Variance



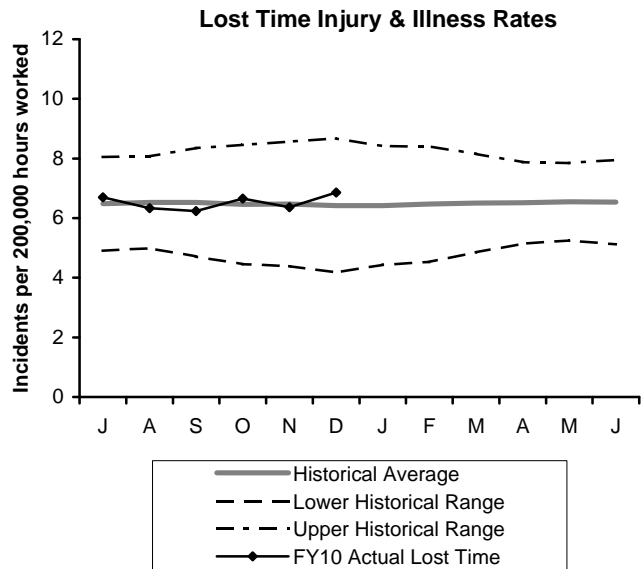
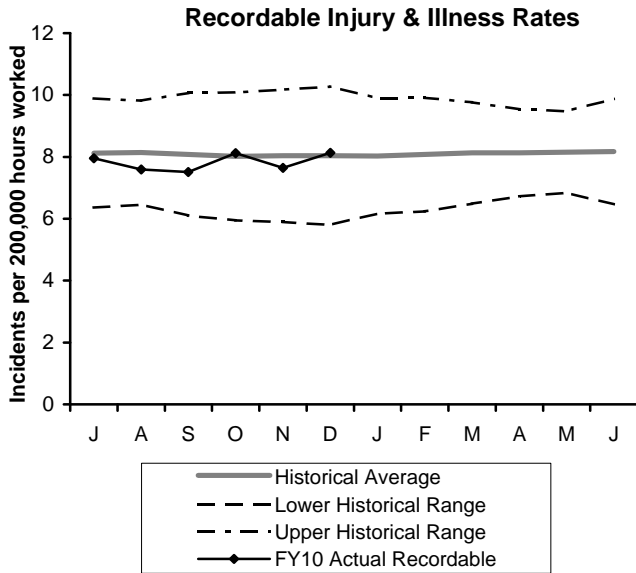
Overtime spending in the second quarter was \$78,300 less than budgeted (13.5%).

Deer Island Treatment Plant
Overtime Expenditure Variance



Overtime spending in the second quarter was \$9,000 more than budgeted (3.6%), due to wet weather coverage needs, off-loading the chemical barge, and the planned boiler outage, all in November.

Workplace Safety 2nd Quarter FY10



- 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

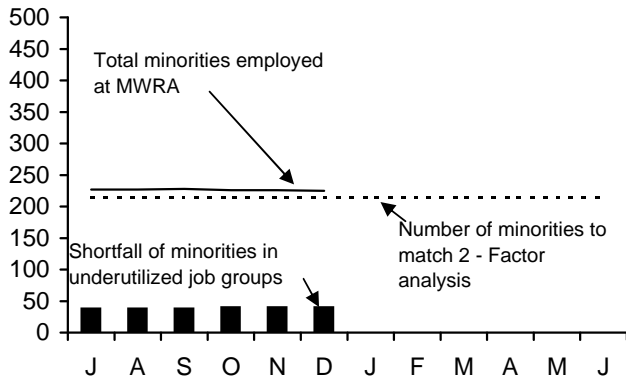
	New	Closed	Open Claims
Lost Time	8	20	50
Medical Only	56	65	43
	New		YTD Returns
Light Duty Returns	1		1

Highlights / Comments

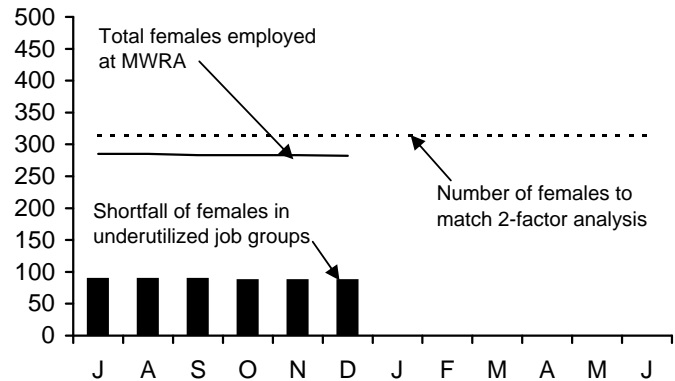
During Q2: 7 employees returned to work Full Duty after being on IA.
 1 employee returned to work Light Duty after being on IA.

MWRA Job Group Representation Quarter 2, FY 2010

Minority - Affirmative Action Plan Goals



Female - Affirmative Action Plan Goals



Highlights:

At the end of Q2 FY10, 8 job groups or a total of 40 positions are underutilized by minorities as compared to 9 job groups or a total of 42 at the end of Q2 FY09; for females 13 job groups or a total of 87 positions are underutilized by females as compared to 11 job groups or a total of 83 at the end of Q2 FY09. During Q2, 0 minority and 0 females were hired. During this same period, 3 minorities and 1 female terminated.

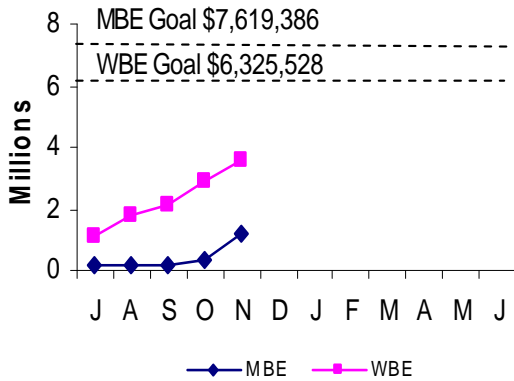
Underutilized Job Groups - Workforce Representation

Job Group	Employees as of 12/31/2009	Minorities as of 12/31/2009	Achievement Level	Minority Over or Under Under utilized	Females As of 12/31/2009	Achievement Level	Female Over or Under Under utilized
Administrator A	19	3	2	1	3	4	-1
Administrator B	25	0	4	-4	6	7	-1
Clerical A	49	21	11	10	43	10	33
Clerical B	36	8	9	-1	18	2	16
Engineer A	85	16	13	3	12	14	-2
Engineer B	50	9	4	5	6	25	-19
Craft A	120	15	21	-6	0	4	-4
Craft B	143	26	18	8	3	7	-4
Laborer	62	14	10	4	4	8	-4
Management A	105	16	17	-1	30	36	-6
Management B	56	10	9	1	13	25	-12
Operator A	66	5	7	-2	2	3	-1
Operator B	67	8	10	-2	4	3	1
Para Professional	61	11	28	-17	28	53	-25
Professional A	38	2	9	-7	24	15	9
Professional B	172	43	28	15	79	78	1
Technical A	47	15	11	4	4	11	-7
Technical B	11	3	2	1	3	4	-1
Total	1212	225	213	52/-40	282	309	60/-87

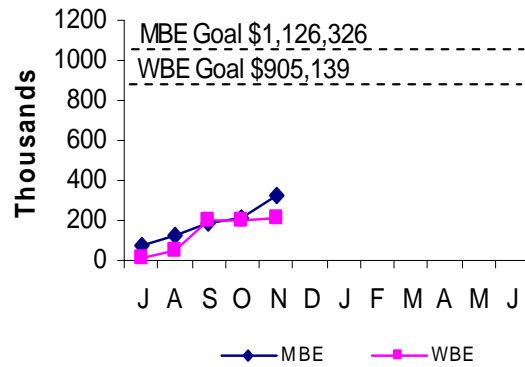
MBE/WBE Expenditures Second Quarter 2009

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 November.

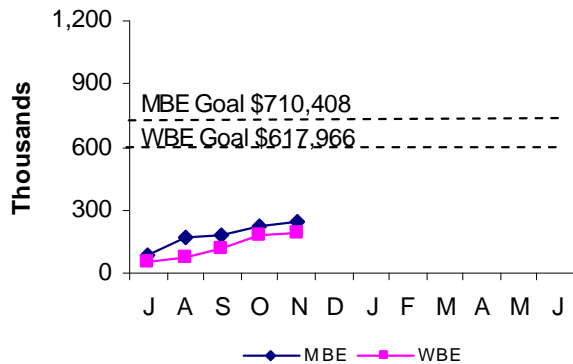
Construction



Professional



Goods/Services



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	1,217,121	16.0%	6,609,216	122.4%	3,535,321	55.9%	8,770,461	210.0%
Professional Svc.	326,594	29.0%	1,266,243	83.5%	218,731	24.2%	706,320	57.9%
Goods & Svcs.	241,314	34.0%	1,288,538	187.7%	195,273	31.6%	835,066	139.8%
Total	\$1,785,029	18.9%	\$9,163,997	120.5%	\$3,949,325	50.3%	\$10,311,847	172.1%

MWRA FY10 CEB Expenses through December 2009

	December 2009 Year-to-Date					
	Period 6 YTD Budget	Period 6 YTD Actual	Period 6 YTD Variance	%	FY10 Approved	% Expended
EXPENSES						
WAGES AND SALARIES	\$ 44,881,591	\$ 43,746,956	\$ (1,134,635)	-2.5%	\$ 91,711,114	47.7%
OVERTIME	1,681,393	1,505,260	(176,133)	-10.5%	3,408,792	44.2%
FRINGE BENEFITS	8,263,916	8,062,141	(201,775)	-2.4%	16,578,832	48.6%
WORKERS' COMPENSATION	662,500	932,450	269,950	40.7%	1,325,000	70.4%
CHEMICALS	5,586,603	4,484,622	(1,101,981)	-19.7%	10,363,436	43.3%
ENERGY AND UTILITIES	11,593,325	11,087,778	(505,547)	-4.4%	24,072,215	46.1%
MAINTENANCE	13,980,597	12,709,794	(1,270,803)	-9.1%	28,259,673	45.0%
TRAINING AND MEETINGS	88,089	40,291	(47,798)	-54.3%	164,003	24.6%
PROFESSIONAL SERVICES	3,082,548	2,620,199	(462,349)	-15.0%	5,903,213	44.4%
OTHER MATERIALS	1,913,103	1,674,744	(238,359)	-12.5%	4,603,646	36.4%
OTHER SERVICES	11,867,604	11,514,973	(352,631)	-3.0%	23,222,760	49.6%
TOTAL DIRECT EXPENSES	\$ 103,601,269	\$ 98,379,208	\$ (5,222,060)	-5.0%	\$ 209,612,684	46.9%
INDIRECT EXPENSES						
INSURANCE	\$ 1,158,000	\$ 964,858	\$ (193,142)	-16.7%	\$ 2,316,000	41.7%
WATERSHED/PILOT	11,774,837	11,495,715	(279,122)	-2.4%	23,549,673	48.8%
BEC _o PAYMENT	1,979,100	1,973,750	(5,350)	-0.3%	3,877,500	50.9%
MITIGATION	740,684	720,575	(20,109)	-2.7%	1,481,367	48.6%
ADDITIONS TO RESERVES	(326,627)	(326,627)	-	0.0%	(653,254)	50.0%
RETIREMENT FUND	2,793,384	2,814,060	20,676	0.7%	8,392,133	33.5%
POST EMPLOYEE BENEFITS	-	-	-	---	800,000	---
TOTAL INDIRECT EXPENSES	\$ 18,119,378	\$ 17,642,331	\$ (477,047)	-2.6%	\$ 39,763,419	44.4%
DEBT SERVICE						
DEBT SERVICE	\$ 171,924,255	\$ 162,549,916	\$ (9,374,339)	-5.5%	\$ 346,876,225	46.9%
DEBT SERVICE ASSISTANCE	(175,000)	-	175,000	-100.0%	-	0.0%
TOTAL DEBT SERVICE	\$ 171,749,255	\$ 162,549,916	\$ (9,199,340)	-5.4%	\$ 346,876,225	46.9%
TOTAL EXPENSES	\$ 293,469,902	\$ 278,571,455	\$ (14,898,446)	-5.1%	\$ 596,252,328	46.7%
REVENUE & INCOME						
RATE REVENUE	\$ 280,715,500	\$ 280,715,500	\$ -	0.0%	\$ 561,431,000	50.0%
OTHER USER CHARGES	3,741,050	3,654,812	(86,238)	-2.3%	7,939,758	46.0%
OTHER REVENUE	3,058,292	1,620,705	(1,437,587)	-47.0%	4,371,736	37.1%
RATE STABILIZATION	3,656,219	3,656,219	-	0.0%	7,312,438	50.0%
INVESTMENT INCOME	7,588,853	7,450,506	(138,347)	-1.8%	15,197,396	49.0%
TOTAL REVENUE & INCOME	\$ 298,759,913	\$ 297,097,742	\$ (1,662,171)	-0.5%	\$ 596,252,328	49.8%

Through December 2009, total revenue was \$297.1 million, \$1.7 million less than budget. Total expenses were \$278.6 million, \$14.9 million or 5.1% less than budget.

Expenses –

- **Direct Expenses** are \$98.4 million, \$5.2 million or 5.0% less than budget.
- **Maintenance** is \$1.3 million or 9.1% under budget due to lower services of \$974,000 and materials of \$297,000 mostly due to timing. Maintenance spending is anticipated to be on budget by year-end.
- **Wages and Salaries** are \$1.1 million or 2.5% less than budget as a result of lower regular pay due to fewer than budgeted filled positions, higher staff attrition than planned, employees out on work related injury and on unpaid leave.
- **Chemicals** are \$1.1 million or 19.7% under budget. Lower spending for Sodium Hypochlorite of \$345,000 due to timing, Soda Ash of \$232,000 and Carbon Dioxide of \$88,000 due to lower flows, Nitrazyme of \$170,000 for odor control in the Framingham Extension Sewer due to wet weather and optimization, and Sodium Bisulfite of \$90,000.
- **Utilities** are \$505,000 or 4.4% less than budget. Underspending for Diesel Fuel of \$342,000 due to lower usage at Deer Island, Natural Gas of \$113,000, and Electricity of \$86,000 due to lower pricing at Deer Island offset by higher spending in the Field Operations Department.
- **Professional Services** are \$462,000 or 15.0% less than budget. Underspending for Engineering of \$208,000 due to delayed use of as-needed engineering services, Lab & Testing of \$105,000, and Other of \$77,000.
- **Other Services** are \$353,000 or 3.0% less than budget. Underspending for Sludge Pelletization of \$140,000 due to slightly lower than budgeted quantities and inflation, Space Lease/Rentals of \$67,000, and Other of \$65,000.
- **Workers' Compensation** is \$270,000 higher than budget due to the unusually high number of claimants that have applied for and received accidental disability retirements.
- **Other Materials** are \$238,000 or 12.5% under budget. Lower Computer Hardware of \$281,000 due to timing and lower Vehicle Expense of \$135,000 due to gas prices/usage, offset by higher Vehicle Replacement of \$162,000 due to timing.
- **Indirect Expenses** are \$17.6 million, \$477,000 or 2.6% less than budget mainly due to lower Watershed expenses of \$279,000 due to 2009 year-end overaccrual and lower Insurance expenses of \$193,000 due to claims.
- **Debt Service Expenses total** \$162.5 million, \$9.2 million or 5.4% less than budget. This underspending results mainly from lower Variable Rate Debt due to favorable rates.

Revenue and Income –

- **Total Revenue / Income** through December was \$297.1 million, \$1.7 million less than budget. This decrease is due to lower than budgeted Other Revenue of \$1.4 million as a result of lower permit fees of \$1.7 million due to new TRAC billing system implementation delay, Investment Income of \$138,000 due to lower variable rates offset by higher fund balances, and Other User Charges of \$86,000.

Cost of Debt December 2009

MWRA borrowing costs are a function of the fixed and variable tax exempt interest rate environment, the level of MWRA's variable interest rate exposure and the perceived creditworthiness of MWRA. Each of these factors has contributed to decreased MWRA borrowing costs since 1990.

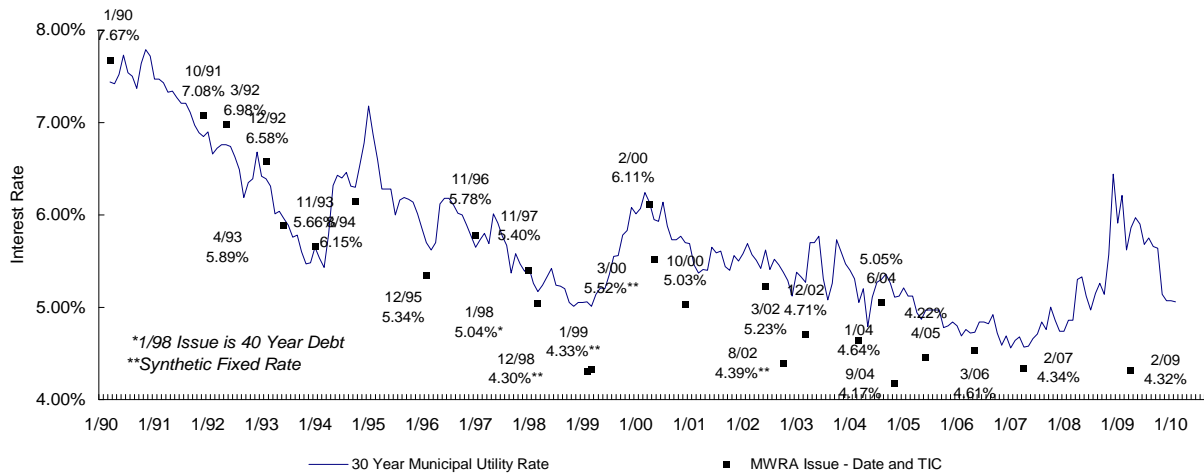
Average Cost of MWRA Debt

Fixed Debt (\$3,877)	4.58%
Variable Debt (\$603)	0.76%
SRF Debt (\$1,057)	1.00%
Weighted Average Debt Cost (\$5,538)	3.48%

Most Recent Senior Fixed Debt Issue February 2009

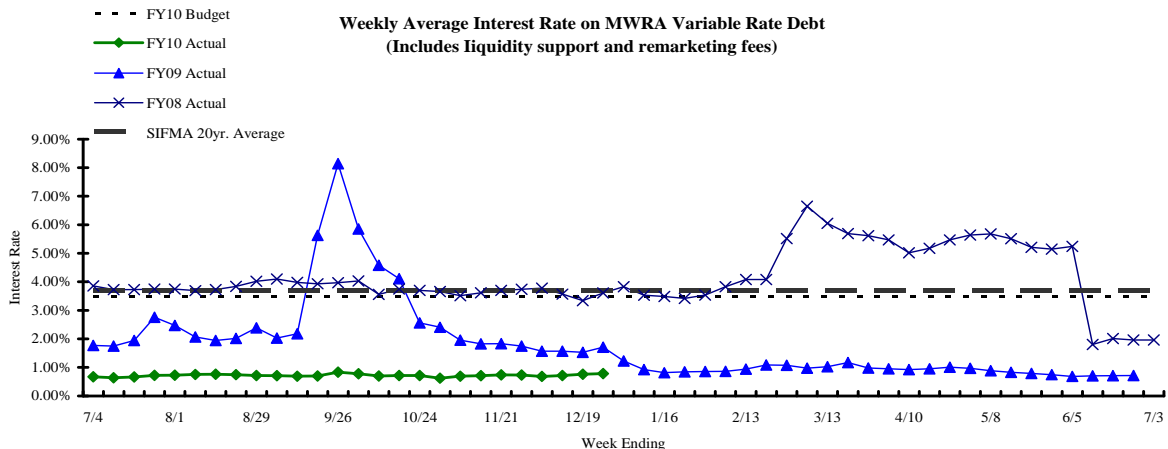
2009 Series A & B (\$383)	4.32%
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MWRA Fixed Rate Debt vs. 30 Year Municipal Utility Interest Rate



Weekly Average 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 December, SIFMA rates fluctuated with a high of 0.32% and a low of 0.22%. 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 December 2009

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)

Fund	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	
	Average Budgeted Balance	Average Actual Balance	Variance	Impact	Budget	Actual	Impact	Impact	%
Combined Reserves	\$92,836	\$92,193	(\$642)	(\$18)	4.54%	4.68%	\$69	\$50	2.4%
Construction	\$156,945	\$157,241	\$296	\$1	0.75%	0.59%	(\$124)	(\$123)	-21.3%
Debt Service	\$107,537	\$103,710	(\$3,827)	(\$14)	0.75%	0.57%	(\$92)	(\$106)	-26.8%
Debt Service Reserves	\$252,481	\$251,676	(\$805)	\$347	2.88%	2.97%	(\$246)	\$102	2.9%
Operating	\$55,121	\$53,734	(\$1,387)	(\$3)	1.46%	1.46%	(\$2)	(\$5)	-1.3%
Revenue	\$69,684	\$82,600	\$12,917	\$48	0.93%	0.68%	(\$89)	(\$41)	-13.0%
Redemption	\$32,853	\$32,851	(\$2)	(\$0)	1.68%	1.58%	(\$15)	(\$15)	-5.5%
Total	\$767,456	\$774,006	\$6,550	\$360	2.02%	1.96%	(\$498)	(\$138)	-1.8%

YTD Investment Income Variance

