

UNITED STATES DISTRICT COURT  
for the  
DISTRICT OF MASSACHUSETTS

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UNITED STATES OF AMERICA,

Plaintiff,

v.

METROPOLITAN DISTRICT COMISSION,  
et al.,

Defendants.

CIVIL ACTION  
No. 85-0489-RGS

.....

CONSERVATION LAW FOUNDATION OF  
NEW ENGLAND, INC.,

Plaintiff,

v.

METROPOLITAN DISTRICT COMMISSION,

Defendants.

CIVIL ACTION  
No. 83-1614-RGS

.....

MWRA QUARTERLY COMPLIANCE AND  
PROGRESS REPORT AS OF DECEMBER 15, 2004

The Massachusetts Water Resources Authority (the "Authority") submits the following quarterly compliance report for the period from September 15, 2004 to December 15, 2004, and supplementary compliance information in accordance with the Court's Order of December 23, 1985, and subsequent orders of the Court.

1. Schedule Six.

A status report for the scheduled activities for the month of October 2004 on the Court's Schedule Six, certified by Frederick A. Laskey, Executive Director of the Authority, is attached hereto as Exhibit "A."

A. Activities Completed.

1. Report on Backup Residuals Plan.

On October 15, 2004, the Authority submitted its report on actions taken pursuant to its backup residuals disposal plan over the past six months in compliance with Schedule Six. In addition, the Authority and the Commonwealth filed their Joint Report on the implementation of the Memorandum of Understanding regarding the beneficial use of biosolids.

B. Progress Report.

1. Fiscal Matters.

(a.) Transmittal of Capital Improvement Program.

On December 15, 2004, the Authority voted to transmit its proposed Fiscal Year 2006 Capital Improvement Program ("CIP") to its Advisory Board for review and comment. The combined sewer overflow ("CSO") program is the largest single capital spending commitment in the proposed CIP, and it continues to grow. Of the Authority's total proposed capital project spending between fiscal years 2004 and 2008, almost 40 percent is for CSO control.

Increases to ongoing projects, new capital requirements, construction cost inflation (significantly higher than previous years) and changes to project schedules to meet regulatory requirements continue to expand the size of the Authority's capital budget. These cost increases, together with the cost of financing the Authority's existing debt, have necessitated a reduction of \$425 million from the amount proposed in last year's capital budget for spending on non-CSO projects over the next eight years. The Authority also excluded another \$150 million in recently identified high priority water and wastewater capital needs from the proposed capital budget.

The Authority is deferring these critical water and wastewater capital needs simply to meet current CSO requirements and limit further increases in water and sewer rates. As described in Section 3 of this report, the Authority's assessment of the economic impact of CSO expenditures concludes that Authority ratepayers are already experiencing a significant economic burden and increasing spending on capital projects including CSO control will exacerbate these burdens particularly among the low income households.

The Authority's Board of Directors will hold a hearing on the budget in late Spring of 2005 to review comments and recommendations by the Advisory Board before adopting a final budget in late June 2005.

## 2. Combined Sewer Overflow Program

### (a.) North Dorchester Bay and Reserved Channel Consolidation Conduits and CSO Facility.

The Authority continues to move forward with the design of the North Dorchester Bay CSO storage tunnel, while developing project design and construction schedules for the overall plan in support of discussions with the parties on revisions to Schedule Six. The Authority's work plans and schedules have the goal of achieving the benefits of CSO and stormwater control for the North Dorchester Bay beaches as soon as possible. However, the work plans and schedules must account for the many complicated interactions the Authority will have with regulatory agencies, public property owners and the state legislature in order to obtain the permits and approvals necessary to build the project. The Authority has inventoried the various regulatory review processes and the approvals and permits that must be issued by others, including the Massachusetts Legislature, the Department of Conservation and Recreation ("DCR") and Massport to construct major portions of the plan within public parklands and parkways and at Conley Terminal. The Authority expects that the detailed work plan and schedule analyses it has conducted, together with input from the parties in upcoming meetings, will produce a set of project schedules that expedite benefits while carrying assurance of success.

On December 10, 2004, the Authority met with the United States Environmental Protection Agency ("EPA") and the Massachusetts Department of Environmental Protection ("DEP") to discuss many issues related to the overall CSO plan, including discussions on the status of this project. The Authority plans to continue discussions with EPA and DEP over the next several weeks. In addition, the Authority plans to meet with the Conservation

Law Foundation on January 11, 2005, to discuss the proposed schedule for this project.

The Authority's North Dorchester Bay project schedule continues to have the objectives of awarding the tunnel construction contract in the spring of 2006 and constructing the related dewatering pump station and odor control facility as early as possible following tunnel mining operations on the same site. The Authority recently completed evaluations of construction sequencing options and requirements with the tunnel and facilities contracts and has concluded that it cannot commence the facilities contract prior to completing the mining and lining of the tunnel without significantly increasing construction risk, which could have both cost and schedule implications. Based upon these evaluations, the Authority may be able to award the facilities construction contract as soon as October 2008 and to complete all construction work and bring the tunnel and facilities on-line for start-up testing and system optimization by September 2010.

The schedule in the SEIR calls for Boston Water and Sewer Commission ("BWSC") to expedite design and construction of the Morrissey Boulevard storm drain project, with completion by June 2009, more than a year before this storm drain could be brought on-line to support the level of stormwater control provided by the tunnel.

In addition, the Authority made substantial design progress on the contract for the Pleasure Bay stormwater relocation improvements and expects to commence construction as early as August 2005 (actual field work would

begin in September), with completion of construction well before the 2006 swimming season.

With respect to the North Dorchester Bay tunnel, the Authority has made significant progress with the technical aspects of the design. The Authority's design consultant recently completed most of the field surveys and soil borings necessary to supplement data collected during the original project design efforts in 1997-2000. Remaining survey and soil boring work is limited to Conley Terminal, which must await issuance of a right-of-entry permit by Massport.

Massport has drafted proposed permit provisions, which would require the Authority to assume broad liabilities for potential site remediation of any newly discovered contamination at Conley Terminal, including areas beyond the CSO construction limits. The Authority has committed to full compliance with requirements under DEP's Utility Release Abatement Measures ("URAM") regulation, and has stated that it cannot and should not be required to take on broader and undetermined liabilities. The Authority continues to seek resolution of this issue with Massport. This matter is now impeding completion of the subsurface investigations and may eventually be an impediment to the Authority's ability to reach land or easement agreements with Massport for completion of design, construction, and long-term operation of the tunnel and dewatering facility. (The Authority does not have eminent domain power over Massport property.)

In the last few months, the Authority has also completed development of

a hydraulic model it will use to evaluate hydraulic design requirements, simulate design conditions and confirm predicted project performance. Recent work also involved investigations into operational strategies and controls, sediment deposition in the tunnel and other maintenance needs, long-term tunnel access requirements, and a tunnel construction risk assessment.

The tunnel design contract schedule calls for receipt of 60-percent design plans and specifications in late February 2005. The Authority's design consultant has also nearly completed the 100-percent design plans for the Pleasure Bay storm drain improvements, which are due shortly, and is conducting preliminary design studies for the tunnel dewatering pump station at Conley Terminal, which was not included in the 1997-2000 project design. In addition, the consultant is preparing applications for construction permits related to the Pleasure Bay contract, including a Wetlands Order of Conditions from the Boston Conservation Commission, a Chapter 91 Waterways License from DEP and approvals from DCR. The Authority also continues to work with elected officials to coordinate the filing of Article 97 legislation for planned construction in parklands.

In addition, the Authority is preparing a response to a requirement in the Secretary of Environmental Affairs' Certificate on the SEIR that the Authority file a Section 61 Finding with the MEPA Office describing the environmental impacts of the recommended plan, mitigation measures and general approaches for meeting the other various requirements of the Certificate. The Authority is coordinating this work with BWSC and also plans to coordinate

development of the Section 61 Finding with DCR, prior to submitting the document to MEPA next year. The Authority has rescheduled submission of the document from late 2004 to April 2005, after identifying the specific information that needs to be included as well as coordinating its submission and review with an updated schedule for obtaining the necessary environmental permits to construct the North Dorchester Bay plan.

With respect to the Reserved Channel CSO control plan, the Authority and BWSC continue to propose the schedule in the SEIR, calling for commencement of design by January 2007, commencement of construction by May 2009 and substantial completion by December 2017. At the request of EPA, the Authority recently submitted a technical memorandum (the "TM") to EPA and DEP that evaluates the cost and benefit of additional CSO controls that might reduce CSO discharges to the Reserved Channel beyond the levels predicted to be attained with the recommended sewer separation project. The TM concludes that expanding the sewer separation plan into other hydraulically related areas in and around South Boston or adding localized storage tanks at the CSO outfalls would carry significant additional cost, have only a small effect on overflow events, have negligible effect on water quality and, in the case of tanks, likely not be feasible, due to siting concerns, which have been raised by the South Boston community in the past. The TM concludes that the sewer separation plan recommended in the SEIR is the appropriate and cost-effective control for the Reserved Channel.

(b) Union Park Detention and Treatment Facility.

During the past quarter, the contractor continued to excavate the area for the large below-grade detention basins and place concrete for the base slabs, exterior walls and interior walls of the detention basins. The contractor also continued with the structural modifications for electric pumps five and six, the installation of new process piping and plumbing, the installation of primary and secondary duct banks, the placement of motor control centers, and the placement of a new membrane on the lower portion of the roof for the existing BWSC building. As of November 30, 2004, the contractor had completed 51 percent of the construction work for the Union Park detention and treatment facility.

At its November 10, 2004 meeting, the Authority's Board of Directors approved a 102-day time extension for delays in the summer of 2003 that were related to the site remediation of the abandoned 1914 pump station, extending the contract completion date from September 29, 2005 to January 9, 2006.<sup>1</sup> The Authority expects to grant an additional seven-day time extension due to the suspension of work during the week of the Democratic National Convention. The contractor has also requested another time extension of 46 days for differing site conditions in the detention basin area, which the Authority is currently evaluating. BWSC's design changes associated with electrical pumps Number 5 and Number 6 may also result in an additional time

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<sup>1</sup> See Compliance and Progress Report for September 15, 2004, pp. 5-6, Compliance and Progress Report for June 15, 2004, pp. 6-7, and Compliance and Progress Report for March 15, 2004, pp. 5-6.

extension. The Authority will report further next quarter.

(c) Cambridge Sewer Separation.

The City of Cambridge continues to prepare the Second Supplemental Preliminary Design Report (the “SSPDR”) to update the work plans, design and construction contract requirements, schedules and costs for the Cambridge/Alewife Brook Sewer Separation project, in order to make them consistent with the revised recommended CSO control plan in the Final Variance Report for Alewife Brook and the Upper Mystic River, July, 2003 (the “Final Variance Report”). The Authority expects to receive the SSPDR from Cambridge soon, though completion of the report has taken several months longer than originally expected.

The Authority has received preliminary updated cost information from Cambridge and is gravely concerned that the preliminary information shows project costs again to have risen significantly, potentially \$25 million or more above the \$74 million estimate presented in the Final Variance Report with no additional water quality benefits. The Authority plans to review the SSPDR carefully to understand the new cost estimates and the reasons for the changed costs.

The \$74 million estimate was itself a huge cost increase from the original 1997 CSO plan estimate of \$13.8 million (the \$13.8 million plan is what the Authority originally agreed to in the Court schedule). The prior increase occurred when information collected by Cambridge during preliminary design

(1997- 1999) led to a Notice of Project Change in 2001, an extensive reevaluation of the project, and the significantly revised and more expensive plan that is currently recommended. The latest additional large increase in estimated cost will compel the Authority to reevaluate again the cost-effectiveness of the plan.

In the meantime and with the risks created by escalating cost estimates, Cambridge continues to make design progress on Contract 12, involving the proposed storm drain outfall and stormwater wetland in DCR's Alewife Brook Reservation. The new basin and outfall are necessary to accommodate future sewer separation in the upstream CAM004 area and eventually to close the CAM004 regulator. As previously reported, Cambridge received a Wetlands Order of Conditions for Contract 12 from the Cambridge Conservation Commission in June 2004, which was appealed by a group of citizens seeking a Superseding Order of Conditions from DEP. Cambridge has provided information to support DEP's review of the appeal, including conducting a visit to the proposed stormwater basin site. Cambridge expects that DEP will issue a Superseding Order of Conditions soon. Cambridge also continues to work on other design and construction components of the Alewife Brook CSO plan.

Meanwhile, the Authority completed a draft scope for engineering design and construction services for the component of the Alewife Brook CSO plan it is implementing, which involves installation of an overflow control gate and floatables control at outfall MWR003 and hydraulic relief of an Authority siphon near Rindge Ave. The Authority plans to advertise a Request for

Qualifications/Proposals with the scope next month.

(d) Charles River Variance.

On October 1, 2004, DEP issued a three-year extension to the CSO Variance for the Charles River Basin, to October 1, 2007. New conditions with the variance extension require the Authority, the City of Cambridge and BWSC to implement all elements of the Authority's recommended CSO control plan for the Charles River and to continue to implement the Nine Minimum Controls, to conduct CSO discharge monitoring, to give public notice of CSO discharges and to perform Charles River water quality monitoring. In addition, the new conditions require the Authority, Cambridge and BWSC to report on improvements to their sewer systems and storm drain systems that may affect sanitary sewer overflows ("SSO") and combined sewer overflows to the Charles River, report on the operational performance of facilities related to the collection and transport of combined sewage flows, and evaluate the feasibility of additional infiltration and inflow ("I/I") removal and stormwater recharge to further control SSO and CSO discharges.

(e) Storage Conduit for BOS019.

On November 13, 2004, the Authority advertised the contract for the construction of the storage conduit for CSO outfall BOS019. The Authority plans to open filed sub-bids on January 6, 2005 and general bids on January 27, 2005. The Authority also expects to seek approval from its Board of Directors in February to award the contract by March 31, 2005, in compliance with Schedule Six.

However, this schedule is dependent upon the Authority's securing temporary and permanent easements from Massport. As with the North Dorchester Bay CSO project, there is a potential for impasse with Massport over proposed provisions requiring the Authority to assume broad liabilities for site remediation of any newly discovered contamination on the construction site, including areas beyond the CSO construction limits. The Authority is continuing discussions with Massport in an effort to reach an agreement on the terms of an easement. As noted last quarter, the estimated duration for the construction of the storage conduit for BOS 019 increased from 18 months to 24 months based on review of the 100-percent design submission. If the Authority is able to reach an agreement for easements with Massport and commence construction by March 31, 2005, it anticipates being able to complete construction by March 31, 2007, six months later than the corresponding milestone in Schedule Six.

(f.) Quarterly CSO Progress Report.

In accordance with Schedule Six, the Authority submits as Exhibit "C" its Quarterly CSO Progress Report (the "Report"). The Report summarizes progress made in design and construction on the CSO projects during the past quarter and identifies issues that affect or may affect compliance with Schedule Six.

3. Assessment of Economic Impact of Additional Combined Sewer Overflow Controls in the MWRA Service Area.

EPA interprets the Clean Water Act to require either the elimination of combined sewer overflows or a demonstration that water quality standards should be changed to permit overflows. One of the permissible bases for a change in water quality standards is a showing that the cost of eliminating CSOs would produce sewer rates so high as to cause widespread social and economic impacts. In 1997, EPA and DEP agreed with the Authority that the ratio of its projected rates to median household income in certain communities within the service area showed that the further increase in rates that would result from CSO controls in addition to those proposed in the 1997 Plan would have such impacts.

Several years ago, when it became evident that certain components of the 1997 Plan were infeasible and the Authority had to seek approval of a revised plan, EPA pointed out that median household income in the Authority's service area had risen since 1997 and that the Authority had been able to keep its rates below the levels projected in 1997. As a result, EPA expressed the view that, regardless whether there were water quality benefits, the Authority could be required to implement CSO controls more extensive and expensive than those contained in the 1997 Plan. It was the impression of the Authority and its Advisory Board that, between 1997 and 2003, increases in the cost of living in Metropolitan Boston had more than outpaced increases in household income and, therefore, that the impacts of the Authority's rates were at least as great in 2003 as they had been in 1997. The Authority retained Professor Robert

Stavins of the Kennedy School and The Analysis Group to ascertain whether there was analytic as well as anecdotal support for this view.

A copy of the report of Professor Stavins and his associates, in the form in which it was submitted to EPA and DEP on December 7, 2004, is attached hereto as Exhibit "B." The report concludes that, compared to the 1997 prediction, its rates are having a greater impact on its ratepayers and increases on spending on CSO control would exacerbate this burden. Accordingly, it supports the position that water quality standards in the Charles River and Alewife Brook/Upper Mystic River, the two areas where there is not final agreement as to the required level of CSO control, should be changed to allow the permitting of the remaining, minor CSO discharges following implementation of the Authority's recommended plan.

EPA's Guidelines do not mandate a particular method of calculating the social and economic impact of sewer rates. Any wastewater treatment agency may demonstrate the likelihood of a large economic impact by using what is known as the "municipal preliminary screener" and showing that the actual or projected sewer rates associated with a given level of CSO control exceed 2 percent of the median household income in some significant portion of its service area. But EPA recognizes that the "screener" may not accurately reflect the economic impacts of the cost of CSO control in all situations, so its guidelines allow use of alternative analyses and criteria appropriate to local circumstances.

The alternative analysis used by Professor Stavins and his colleagues views sewer rates not in isolation but as a component of the basic cost of living. More particularly, because variations in the cost of living over time and across different geographical areas are largely associated with housing costs, the report views sewer rates as a component of what are usually termed “shelter costs.” In general, residents are concerned with how their total shelter cost compares to their income and are indifferent to the composition of that total cost. If rents are low, then there is more income available to pay for such things as sewer rates. If, on the other hand, as is the case in Metropolitan Boston, rents and heating costs consume an unusually high percentage of household income, then the impact of increases in sewer rates may be particularly burdensome.

Professor Stavins’ report compares shelter costs as a percentage of median household income in the Authority’s service area with such percentages for 80 other metropolitan areas. For those other areas, the report adjusts the shelter costs upward by increasing the sewer rate component to a level equal to 2 percent of median household income, a level that EPA views as indicating a large economic impact. In other words, the report compares the actual economic burden in Boston to that which would have been considered excessive elsewhere. The resulting comparison demonstrates that in 1997, shelter costs (including sewer charges) in the Authority's service area exerted a larger economic burden relative to other metropolitan areas and that the impact of shelter costs was even greater in 2003, confirming EPA's previous

conclusion. Specifically, the burden of shelter costs as a percentage of median household income throughout the Authority's service area in 1997 was greater than that burden would have been in almost 75 percent of the 80 metropolitan areas examined even if the sewer rates in those areas had been raised to 2 percent of income. For 2003, the burden in Metropolitan Boston had grown to be greater than that in more than 90 percent of the other areas.

When the focus is on particular portions of the Authority's service area, the picture is even clearer. Application of the analysis to the two municipalities on which the 1997 finding was based--Chelsea, the poorest community in the service area, and Boston, the largest--shows that shelter cost burdens are even higher there than in the service area as a whole. Moreover, because of the greater income disparity between median and low income households in the Authority's service area than in other metropolitan areas, the burdens of a given level of sewer rates on lower-income households are more pronounced in the Authority's service area than EPA's guidelines would suggest.

The filing of Professor Stavins' report at this time is solely informational. The Authority hopes to reach final agreement with DEP and EPA as to the required level of CSO control in the Charles River and the Alewife Brook/Upper Mystic River areas, and it is not now asking the Court to take any action based upon the report. At the same time, the Authority feels strongly that the level of CSO control currently planned attains the highest level of benefit achievable from CSO control, that this program already places burdens on its ratepayers

and that there is no justification for increasing those burdens by imposing costs that will produce no further significant benefit.

4. Study of Anthropogenic Viruses in Boston Harbor, Charles River, Cottage Farm CSO Treatment Facility and Deer Island Treatment Plant: 1995-2003.

The Authority also completed and submitted a report on the study of anthropogenic viruses in Boston Harbor, Charles River, Cottage Farm CSO Treatment Facility and Deer Island Treatment Plant for the years 1995 to 2003 to DEP, in accordance with DEP's October 24, 2002 Final Determination for Extension to Variance for CSO Discharges to Lower Charles River Basin. The virus study found viruses in about 30 percent of samples from Boston Harbor and the Charles River. Virus levels were low and similar to other water bodies in Europe and the United States (including beaches). There are no standards for virus concentrations in Massachusetts waters, but all the Authority samples collected in the Charles River and in Boston Harbor had virus counts well below Arizona's standards for reclaimed water for partial contact, and the average counts in the Charles River and Boston Harbor were well below Arizona's full-body contact standard for reclaimed water. The data are consistent with multiple sources of pathogens (e.g. stream flow, CSO, and stormwater), and CSO facility discharges did not significantly increase the prevalence of viruses during wet weather. Viruses in wastewater were significantly reduced by treatment at the Cottage Farm CSO treatment facility

and at the Deer Island Treatment Plant; on average, treated CSO and final secondary effluent had equivalent levels of viruses.

By its attorneys,

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Certificate of Service

I, John M. Stevens, attorney for the Massachusetts Water Resources Authority, do hereby certify that I have caused this document to be served by hand or mail to all counsel of record.

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Dated: December 15, 2004