UNITED STATES DISTRICT COURT
for the
DISTRICT OF MASSACHUSETTS

UNITED STATES OF AMERICA, Plaintiff, v. METROPOLITAN DISTRICT COMMISSION, et al., Defendants.	CIVIL ACTION No. 85-0489-MA
CONSERVATION LAW FOUNDATION OF NEW ENGLAND, INC., Plaintiff, v. METROPOLITAN DISTRICT COMMISSION, Defendants.	CIVIL ACTION No. 83-1614-MA

MWRA QUARTERLY COMPLIANCE AND
PROGRESS REPORT AS OF DECEMBER 15, 2003

The Massachusetts Water Resources Authority (the "Authority") submits the following quarterly compliance report for the period from September 16, 2003 to December 15, 2003, and supplementary compliance information in accordance with the Court's order of December 23, 1985, and subsequent orders of the Court.

I. Schedule Six.

A status report for the scheduled activities for the month of October 2003 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, 2003, 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. Combined Sewer Overflow Program.

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

Since last reporting to the Court in September, the Authority's efforts in completing the South Boston combined sewer overflow ("CSO") reassessment have focused on developing more detailed engineering layouts and conducting comparative evaluations of the two most promising modular approaches for maximizing CSO control along the South Boston beaches.[1] These two

[1] See Compliance and Progress Report for September 15, 2003, pp.2-3; June 16, 2003, pp. 2-4.

approaches would allow the Authority to implement a high level of CSO control in the near term and conduct a water quality monitoring program to examine the performance of the improved wastewater system and the resulting receiving water quality to determine the incremental benefits while still maintaining an overall goal of CSO elimination to the beach areas.

The first approach under consideration is based on interceptor relief that would relieve or supplement the capacity of the existing South Boston interceptor. (See Exhibit "B" – Figures 1 and 2). This approach evolved from the earlier interceptor relief option designated "Option 1."[2] In the reassessment, the Authority modified the original interceptor relief alternative to increase the near-term level of CSO control and allow for future build-on that would achieve CSO elimination for the beach areas. More importantly the revised interceptor relief alternative does not require the construction of aboveground buildings, which would address many of the concerns expressed by the South Boston community. The Authority accomplished this aim by increasing the diameter of the relief pipe to expand its conveyance capacity and provide storage in the short-term.

This modified interceptor relief approach involves building an eight to 10-foot diameter pipe parallel to the existing Boston Water and Sewer Commission ("BWSC") interceptor from outfall BOS081 in the Marine Park area to outfall BOS085 near the Authority's Columbus Park Headworks, along a Day Boulevard alignment. Additional near-term improvements would include

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[2] See Compliance and Progress Report for December 15, 2002, pp. 4-12.

localized hydraulic relief at the BOS086 outfall and the possibility of utilizing BWSC's abandoned section of the old Boston Main Interceptor, near the Bayside Exposition Center, to provide an additional level of storage, thereby providing a higher level of CSO control. A variation of this alternative involves constructing an additional relief pipe to a new outfall in the Calf Pasture area (adjacent to UMass Boston) which could direct most of the remaining CSO flows away from the outfalls that discharge directly to swimming areas.

The interceptor relief alternatives would convey more wet weather flow to the Columbus Park Headworks and significantly reduce CSO discharges to the beaches. These alternatives could initially achieve a two-year storm level of CSO control along the beaches at an estimated capital cost of $170 to $200 million, in current dollars. However, hydraulic model results show that by increasing flow conveyance from the North Dorchester area, other areas tributary to the headworks, such as Fort Point Channel, may see slightly higher CSO discharges.

In a future phase, construction of a large underground storage facility or storage tunnel could control CSOs in extreme storms, such as the 25-year storm, at an additional cost estimated at $100 to $105 million in current dollars. Since the maximum design flow of the tributary combined sewer area pipes is a 25-year storm, achieving this level of control would virtually eliminate CSOs to the beaches. Construction of a large, underground tank would involve excavation of an approximately three-acre site, with construction lasting about three years. Most of the storage facility would be sited below

ground, which, after the construction period, would be consistent with open space land uses, thereby opening up opportunities for siting this future project at a number of locations.

The second approach under consideration is a modified version of the tunnel storage option identified earlier in the reassessment as "Option 2." (See Exhibit "B" – Figures 3 and 4.) In the near-term, this approach would involve building a 13-foot diameter, soft-ground storage tunnel along Day Boulevard to collect and store CSO discharges from the seven outfalls along the beaches. After each storm, the stored flow would be pumped back into the interceptor system for conveyance to the Columbus Park Headworks and the Deer Island Treatment Plant. This approach would require a 10 million gallons per day ("mgd") pump-out facility with ventilation and odor control facilities. The tunnel storage approach could initially achieve at least a five-year storm level of CSO control along the beaches at an estimated capital cost of $170 million, in current dollars.

One variation of this alternative involves mining the tunnel from a location adjacent to the Columbus Park Headworks, while a second variation involves mining the tunnel from a site near the entrance to Massachusetts Port Authority's Conley Terminal. These approaches, respectively, would allow siting the 10 mgd facility either next to an existing wastewater facility or within the terminal. The construction method for the tunnel would be the same as previously recommended in the 1997 Final CSO Facilities Plan and

Environmental Impact Report (the "1997 Plan"), using an earth pressure-balanced tunnel boring machine.

Unlike the interceptor relief alternatives, the tunnel storage alternatives require aboveground facilities, including the 10 mgd pump-out station on a half-acre portion of the mining shaft site and a ventilation and odor control facility on a half-acre portion of the receiving shaft site. Under the variation where mining is conducted from the Columbus Park Headworks vicinity, the pump station and odor control facilities could both be sited adjacent to the headworks, and only passive odor control with minimal aboveground construction would be needed at the upstream tunnel end. If mining were to be conducted from Conley Terminal, the pump station and odor control facility would be sited near the entrance to the terminal with an additional relatively small odor control facility near the Bayside Exposition Center.

In a future phase, additional storage could be added to achieve a 25-year level of control, for an estimated additional cost of up to $100 million. The storage could be achieved either with a large tank, similar to the interceptor relief build-out, or by mining an additional length of tunnel. In an alternative future phase, a large pumping facility could be added to eliminate CSOs to the beaches by transferring CSO flows that exceed tunnel capacity to the Reserved Channel, for an estimated additional $140 to $155 million, similar to the original plan.

In addition, the Authority is evaluating a variation of the tunnel alternative involving additional storage that may provide elimination of CSO

discharges to the beach areas up to a 25-year storm as a possible cost-effective alternative to longer term phasing. Such a tunnel would need to be wider and longer than the five-year storage tunnel being considered for the phased approach. The Authority believes that this alternative, like the other 25-year level of control alternatives would virtually eliminate CSO discharges to the beaches.

The Authority also evaluated several CSO control alternatives to reduce discharges to the Reserved Channel that will be discussed further in the Supplemental Environmental Impact Report the ("SEIR"]. At this time, the Authority's preferred option is separation of the combined sewer areas tributary to the Reserved Channel, at an estimated capital cost of $50 million in current dollars, which would reduce CSO activations from approximately 37 per year to approximately four per year.

Over the next quarter, the Authority plans to schedule a public workshop and a community meeting in South Boston to present the results of the recent evaluations and to gain input towards selecting a preferred plan. The Authority expects to submit its SEIR to MEPA in March.

(b) Alewife Brook and Upper Mystic River Variance.

As reported last quarter, the Massachusetts Department of Environmental Protection ("DEP") is reviewing the Authority's Final Variance Report. To facilitate adequate public input into its decision-making process, DEP sponsored a public forum on Alewife Brook water quality issues on

September 23, 2003. DEP outlined the regulatory framework, public participation and decision-making processes for the Variance, and panelists from the Authority and Mystic River Watershed Association presented water quality data and analyses.

On September 30, DEP issued its Final Determination to extend the Alewife Variance to September 1, 2004. The extension was necessary to allow thorough public and agency review of the Final Variance Report and sufficient time for DEP to deliberate on its decision on the water quality standard for this receiving water.

In the meantime, the City of Cambridge is preparing a scope of services and budget estimates for final design of the remaining work as revised in the Response to Comments document including CAM400 common manhole separation and Contracts 8 and 9 (CAM004 area). Cambridge has also re-commenced final design of Contract 12 (new storm drain and stormwater wetland) and begun the permitting process with the submission of a Notice of Intent to the Cambridge Conservation Commission.

(c) Storage and Consolidation Conduit for BOS 072-073.

The Authority plans to file a motion with the Court to amend Schedule Six by replacing the CSO storage and consolidation conduit project for Fort Point Channel Outfalls BOS 072 and BOS 073 with a sewer separation and system optimization project. The proposed substitution was the subject of a Notice of Project Change the Authority submitted to the Massachusetts

Executive Office of Environmental Affairs' MEPA Unit in June 2003. As reported last quarter, the MEPA Unit received numerous public comment letters, including letters from the United States Environmental Protection Agency ("EPA") and DEP that generally supported the project change. On August 14, 2003, the Secretary of Environmental Affairs issued a certificate accepting the project change as meeting MEPA requirements.

On October 22, 2003, the Authority met with EPA and DEP staff to discuss the proposed revision to Schedule Six to incorporate the new recommended plan. At the meeting, both EPA and DEP repeated their support for sewer separation and optimization, but questioned the adequacy of the recommended level of CSO control in light of both the cost savings due to the changed system conditions and the information in the 2002 Fort Point Channel Watersheet Activation Plan proposing higher recreational uses for the Channel. The regulatory agencies urged the Authority to investigate the feasibility of increasing the level of control for BOS 072 ad BOS 073 to achieve zero overflows in a typical year, including reconsidering the value of adding sewer separation in the BOS072 area.

In response, the Authority undertook additional evaluations that reconsidered full sewer separation. The Authority also assessed the additional benefits of carrying out sewer separation in the hydraulically connected Reserved Channel area and investigated the potential for additional

optimization of hydraulic controls in both the BOS072 and BOS073 systems.[3] Specifically, the Authority looked at the results of separating the BOS072 area, separating the Reserved Channel area, further revising the weir elevation in the BOS072 CSO regulator (RE072-3) and adding raising the weir elevation in the BOS073 CSO regulator (RE073-4).

The results of these evaluations indicated that by increasing the removal of stormwater inflow assumed from 70 percent to 80 percent and by raising the weir elevations in both the BOS072 CSO regulator (RE072-3) and in the BOS073 CSO regulator (RE073-4) to elevation 110.0 feet, the Authority could increase the level of control at the two outfalls from the original goal of two discharges per year at BOS072 and BOS073 to possible elimination of discharges at these locations in a typical rainfall year. The results also showed that sewer separation in the Reserved Channel area would further reduce discharges. However, the evaluations continued to demonstrate that separating sewers in the BOS072 area would not provide commensurately greater CSO control.

On November 26, 2003, the Authority met with EPA and DEP to discuss the results of the additional evaluations. As a result of these discussions, the Authority now plans to file its motion to amend Schedule Six and include these additional system optimization measures as part of its revised recommended CSO control plan for BOS072 and BOS073.

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[3] The Authority expects to recommend Reserved Channel sewer separation

(d) Interceptor Relief for BOS 003-014.

As previously reported, the Authority temporarily suspended final design work in 2002 on two of the three construction contracts it proposed to undertake to reduce CSO discharges at outfalls BOS003-014 in East Boston based on preliminary design information which indicated that the project would have lower CSO control performance than estimated in the 1997 Plan at significantly higher cost.[4] The Authority did, however, commence construction of the first contract, which primarily includes the relining of the main trunk sections of the Authority's East Boston Branch sewer, at a cost of $5.1 million, in accordance with Schedule Six.

As a result of the preliminary design information, the Authority commenced a reassessment of this project to update baseline conditions, assess the feasibility of improving downstream transport performance during wet weather, develop CSO control alternatives and evaluate the alternatives. The baseline conditions in the sewer system model were updated to represent the current configuration of the sewer system along with any confirmed near-term improvements. The number of CSO discharges under existing conditions at the most active outfall dropped from the previously estimated 37 per year in the 1997 Plan to 31 per year in the new baseline estimate. The total annual

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in its North Dorchester Bay CSO reassessment.

[4] See April 26, 2002 Special Report of the MWRA Concerning Construction of Interceptor Relief for BOS003-14; Compliance and Progress Report for June 13, 2002, p. 8; and Compliance and Progress Report for June 16, 2003, pp. 5-6.

volume of CSO discharge from all 10 outfalls in East Boston dropped from 45 million gallons to 41 million gallons.[5]

The Authority also considered the potential for improving the performance of the facilities and pipelines that carry East Boston flows to the Deer Island Treatment Plant. These facilities include the Caruso Pump Station in East Boston, the Winthrop Terminal facility and the Chelsea Creek Headworks. The Authority did not find new opportunities for improving the performance of these facilities beyond the benefits of currently planned work. Although planned improvements to the Winthrop Terminal facility will increase transport capacity and allow Caruso Pump Station to pump greater volumes, this increase in capacity will have little effect on flows and overflows in East Boston, where ability to convey wet weather flows is limited not by the pump station but by the conveyance capacities of the East Boston pipes delivering flow to the station.

In addition, the Authority evaluated the cost and benefit of a total of 20 CSO control alternatives including hydraulic relief, sewer separation and flow diversion alternatives. Other CSO control technologies, such as storage or treatment, that were evaluated and rejected in the 1997 Plan, were not deemed cost effective, primarily because the outfalls are dispersed throughout East Boston. The Authority received the report on the results of these evaluations this month.

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[5] The new baseline condition includes assumptions regarding the expected hydraulic performance of the trunk sewer line now under construction.

The report confirmed that the current interceptor relief project, at a total estimated capital cost of $60 million ($30 million more than estimated in the 1997 Plan), would reduce the current overflow activations from 31 to six and volume from 41 million gallons to 8.6 million gallons in a typical year, as compared to the 1997 Plan goals of five activations and 4.0 million gallons in typical year. The report also showed that the current interceptor relief project with the addition of sewer separation in the Jeffries Point and Maverick Square areas, at a total capital cost of $74 million, would be the most cost effective plan attaining the CSO control goals in the 1997 Plan. Adding more areas of sewer separation beyond the Jeffries Point and Maverick Square areas to the plan would not result in significantly higher levels of control. Full sewer separation, in lieu of the interceptor relief project, while yielding the highest level of control (four activations and 1.0 million gallons annual volume), would cost $105 million, and would not eliminate CSO discharges. Calculations of bacteria loads for the various alternatives show that the highest load reduction would be provided by the current interceptor relief project with sewer separation in the Jeffries Point and Maverick Square areas. The report also demonstrates that diverting flows through a new siphon across Chelsea Creek would not be cost effective and would not increase the level of control above options that build on the current interceptor relief project.

On November 26, 2003, the Authority met with EPA and DEP staff to present and discuss these results. At the meeting, EPA and DEP recommended incorporating the decision-making process on this project into a broader

context involving the discussions and decisions to be made on other CSO projects, including South Boston, the Charles River and Alewife Brook. To that end, the Authority has agreed to meet with EPA and DEP in late January to discuss the CSO projects in a broader context and to refrain from recommending a plan and filing a Notice of Project Change for the interceptor relief project for CSO outfalls BOS003-014 until after it meets with EPA and DEP.

(e) Union Park Detention Treatment Facility.

As previously reported, the Authority experienced delays in the construction of the Union Park Detention Treatment facility and was assessing the impact of those delays on the construction schedule. The Authority recently completed its assessment and determined that the contractor is approximately three months behind the September 2005 schedule for completion of construction. The three-month delay is primarily due to the site remediation, which was needed to address the unanticipated soil contamination discovered within the foundation of the abandoned 1914 pump station. The Authority is attempting to recover the lost time but believes that recovery is highly unlikely due to schedule constraints.

During the past quarter, the contractor completed the remediation of contaminated materials contained within the abandoned pump station and has nearly completed the demolition of the pump station foundation and the installation of the sheeting for the earth retention system for the detention basins. The contractor also installed 28 pin piles to a depth of 110 feet and

excavated the first seven feet of the basin. The contractor is now preparing to demolish portions of the existing pump station to accommodate construction of the new facility.

Over the next quarter, the contractor will continue with the excavation of the basin area and installation of bracing for the basin area. In addition, the contractor expects to commence the demolition of the annex building, the installation of the remaining sheeting within the area of the annex and the first phase of structural modifications to the existing pump station.

(f) Charles River Variance.

In compliance with conditions in the Charles River Variance, the Authority plans to submit the Cottage Farm Facility Assessment Report (the "report") to EPA, DEP and MEPA later this month, pending authorization by its Board of Directors on December 17. In addition to updating the baseline water quality conditions for the Charles River Basin with new information collected by the Authority and others during the Variance period, the report includes an evaluation of the treatment performance of the upgraded Cottage Farm facility; an assessment of the cost, water quality benefits and environmental impacts of alternatives for additional storage capacity at the facility; an initial affordability analysis to be supplemented within the next few months, and an updated description of the recommended plan for CSO control for the basin.

The report evaluates a range of storage alternatives sized to reduce discharges at the facility to as low as zero in a typical year, as compared to the

current recommended level of seven. The cost performance information shows that further reducing the activation frequency and volume would cost as much as $100 million to eliminate CSO discharges. The receiving water model indicates that further reducing the frequency and volume of annual discharges from the facility would not yield appreciable reductions in the magnitude and duration of wet weather impacts because of the continued predominant impact of non-CSO sources.

The report also includes a preliminary affordability analysis evaluating the economic impacts of higher CSO costs on the Authority's ratepayers, which is basically unchanged from the analysis the Authority submitted this past July as part of the Final Variance Report for the Alewife Brook and Upper Mystic River. From the analysis, the report concludes that the cost of higher levels of CSO control may cause hardship. The report points out that the Authority is now undertaking additional economic studies and intends to submit supplemental information on affordability to the regulatory agencies in the next few months.

The performance evaluation of the upgraded Cottage Farm facility was based on water quality testing of facility influent, facility effluent and Charles River receiving waters during storms significant enough to cause activations at Cottage Farm. Results indicate that the screening, disinfection and dechlorination systems perform well; facility effluent meets the Authority's National Pollutant Discharge Elimination System permit limits for bacteria, TSS, and TCR.

The current recommended plan for this receiving water consists of hydraulic relief for outfall CAM005, closure of several CSO outfalls, and upgrade of treatment at the Cottage Farm facility, which have been completed; floatables control at remaining outfalls in Cambridge and Boston (installations in Cambridge are not yet complete); and sewer separation to greatly reduce CSO discharges to the Stony Brook Conduit which is 37 percent complete and scheduled to be completed by the Boston Water and Sewer Commission in 2006. This long-term plan builds on the dramatic reductions in CSO flows to the Basin resulting from the Authority's improvements to the Deer Island transport system over the past 15 years, including the new North Main Pumping Station, which greatly increased the capacity and reliability of the system to deliver wet weather flows to Deer Island.

Staff expect the report will undergo regulatory and public review, within a MEPA framework, over the next few months. At the same time, staff plan to be involved in discussions with EPA and DEP regarding all of the remaining regulatory decisions required be made with respect to the long-term CSO control plan, including decisions on appropriate plans for South Boston, Alewife Brook and East Boston. Staff understand that these discussions could affect the recommended plan at Cottage Farm and that the outcome of these discussions, together with the information in the report and the supplemental affordability analyses, will, in part, ultimately contribute to a determination by DEP on the level of CSO control and the appropriate water quality designation

for the Charles River Basin. DEP has presently scheduled those decisions to occur no later than October 1, 2004, when the term of the variance ends.

However, the report points out that there is much ongoing and planned work that will continue to reduce CSO discharges and impacts to the Charles River Basin, including the Stony Brook sewer separation project, ongoing and planned sewer separation in Brookline and Cambridge, and hydraulic optimization measures that the Authority is evaluating to further reduce Cottage Farm discharges. In light of the prospects for improved water quality from all of this work and from efforts by others to continue to reduce non-CSO pollutant loads to the basin, the Authority believes that it would be premature to make final decisions on water quality standards for the basin. Accordingly, the Authority recommends that DEP extend the variance period until the results of these efforts can be realized and measured, while other opportunities for further incremental improvement are explored.

(g) Quarterly CSO Progress Report.

Pursuant to Schedule Six, the Authority submits as Exhibit "C" its Quarterly CSO Progress Report (the "Report"). The Report summarizes progress made in the design and construction of the CSO projects during the past quarter and identifies issues that have affected or may affect compliance with Schedule Six. The Report also notes the status of certain planning and regulatory efforts.

2. Residuals Management Program.

In 1993, the Authority entered into Memoranda of Understanding ("MOUs") with the Towns of Walpole and Norfolk. The MOUs were part of the materials presented to the Court in support of the Authority's motion to substitute an alternative plan for the requirement to build a landfill in the Town of Walpole and use that site as a backup to the primary residuals program of producing fertilizer pellets. Under the MOUs, the Towns of Walpole and Norfolk agreed to facilitate the building of the Walpole landfill, if needed, and the Authority agreed to return to the Court every five years to review its sludge management operation and, if appropriate, request the elimination of the requirement to keep the in-state site.

In 1998, the Authority reviewed its sludge management program and notified the Court it had determined that it was no longer necessary to retain the Walpole landfill site for the purposes of operating a reliable sludge management program and that it intended to initiate conversations on this determination with EPA and DEP. Based on the discussions with EPA and DEP at that time, it became apparent that EPA and United States Department of Justice were reluctant to agree to assent to a motion that would relieve the Authority of its obligation to maintain the Walpole landfill site.

Five years have elapsed since that time, and staff have once again reviewed the Authority's sludge management program and determined that the Authority can continue to operate a reliable sludge management program without retaining the Walpole site for a potential landfill. This determination

was based on the continued success of its primary residuals strategy of pelletization for use as fertilizer and secondary residuals strategy of using commercial landfills as a backup.

Over the past 10 years, the Authority's pelletizing plant has demonstrated that it is a very effective and reliable means of sludge disposal. From 1994 to 1998, the plant processed approximately 71,595 tons of sludge, of which only 4,200 tons (six percent) was landfilled. From 1999 to 2003, the plant processed approximately 136,830 tons of sludge, of which only 2,800 tons (two percent) was landfilled. In both these time periods, the causes for the non-beneficial use were overwhelmingly related to specific construction activities, which interfered with normal facility operations.

In addition, during the past 10 years, the Authority has successfully maintained its ability to landfill sludge when needed. The Authority continues to maintain its primary backup sludge disposal contract and coordinate its emergency response plan with its primary backup sludge disposal contractor. The Authority also continues to update its list of secondary backup landfill sites and has determined that there are various locations both with and without rail access where the sludge could be sent if the primary backup landfills were unavailable or inaccessible.

Based on staff's recommendation, the Authority's Board of Directors directed the Authority to seek relief from the requirement to retain the Walpole site. The Authority plans to initiate discussions with both DEP and EPA

shortly. The Authority will report to the Court after those discussions have taken place.

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, 2003

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