UNITED STATES DISTRICT COURT
for the
DISTRICT OF MASSACHUSETTS

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UNITED STATES OF AMERICA, .
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Plaintiff, .
. CIVIL ACTION
v. . No. 85-0489-MA
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METROPOLITAN DISTRICT COMMISSION, .
et al., .
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Defendants. .
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.
CONSERVATION LAW FOUNDATION OF .
NEW ENGLAND, INC., .
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Plaintiff, .
. CIVIL ACTION
v. . No. 83-1614-MA
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METROPOLITAN DISTRICT COMMISSION, .
.
Defendants. .
.
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MWRA MONTHLY COMPLIANCE REPORT
FOR DECEMBER 1998 AND
PROGRESS REPORT AS OF JANUARY 15, 1999

The Massachusetts Water Resources Authority (the "Authority") submits the following monthly compliance report for the month of December 1998 and supplementary compliance information in accordance with the Court's order of December 23, 1985, subsequent orders of the Court and undertakings of the Authority.

Board of Directors Chair.

The Authority notes that the Governor has appointed Senator Robert A. Durand as Executive Secretary of Environmental Affairs to succeed Trudy Coxe, who resigned recently to assume a position in Rhode Island. As Secretary, Senator Durand now serves as Chair of the Authority's Board of Directors. Prior to his appointment, Senator Durand served as the Assistant Majority Leader in the Massachusetts Senate and the Senate Chairman of the Joint Committee on Natural Resources and Agriculture. Before serving four terms in the Senate, Senator Durand served three terms in the Massachusetts House of Representatives.

I. Schedule Six.

A status report for the scheduled activities for the month of December 1998 on the Court's Schedule Six, certified by Douglas B. MacDonald, Executive Director of the Authority, is attached hereto as Exhibit "A."

A. Activities Completed.

1. Design of Outfall Repairs and Floatables Control at CHE 008.

As previously reported, on June 18, 1997, the Authority issued a Notice to Proceed for design of combined sewer overflow ("CSO") outfall repairs and floatables control at CHE 008, in compliance with Schedule Six, as part of a contract that includes design of the Chelsea Trunk Sewer and Chelsea Branch Sewer relief projects.1 The plan for outfall repairs includes relining approximately 600 feet of the existing 42-inch outfall pipe, replacing 35 feet of the pipe at its downstream end, replacing the headwall and laying new riprap. One or more underflow baffles will be installed at the sole regulator structure associated with this outfall to provide floatables control. Construction of the project is expected to take place as part of the construction contract for relief of the Chelsea Branch Sewer, which is scheduled to commence in December 1999 and be complete in June 2001.

2. Interim Report on Field Testing for Floatables Control.

On December 31, 1998, in compliance with Schedule Six, the Authority submitted to the Environmental Protection Agency ("EPA"), the Department of Environmental Protection ("DEP") and other parties an interim report on its field testing program for floatables control. The floatables control field testing program began in 1997, and the Authority submitted a first interim report in January 1998.2 The current report describes the associated field activities conducted during 1998, presents the data collected over the past year, reviews all of the information collected to date and makes recommendations for completing the program.

The program involves collection of floatable materials and related observations at three CSO outfall locations in Boston. At one location, BOS 004 in East Boston, an end-of-pipe net continues in use for the purpose of quantifying and characterizing the floatable material discharged from the outfall, for comparison with discharges following future installation of a prototype underflow baffle. At this site, floatable material has been collected following 15 wet weather events without the baffle. The data collected to date suggests that only one CSO activation during the 15 storms contributed a significant quantity of floatable material. Most of the floatable material collected after these storms was attributed to separate stormwater flows which enter the outfall pipe downstream of the CSO regulator. The program schedule called for installing the baffle at BOS 004 and proceeding to post-baffle monitoring in early 1999. However, because there is not yet sufficient data without the baffle for purposes of comparison, the Authority expects to continue monitoring in that mode for the immediate future.3

The Authority installed prototype underflow baffles at two additional locations, BOS 012 in East Boston and BOS 078 in South Boston, last Spring, in order to proceed with another phase of the study. Field inspections have taken place at these two sites during and after CSO activations to determine the potential for operation and maintenance ("O&M") problems that may be associated with the baffles. The Authority has monitored these sites during and after seven wet weather events. Minimal quantities of floatable material remained in the regulator structures (i.e., on regulator shelves, the baffle or ladder rungs). No nuisance odors or other nuisance conditions were evident. During storm observations, no operational problems were apparent, and the baffle appeared to perform well, retaining floatable material behind the baffle as expected, with only a minor amount of material passing underneath the baffle to the overflow conduit. The observations indicated that the baffles work as designed and do not cause operational problems. The Authority expects to continue observations at these locations during 1999 and may leave the prototype baffles in place for long-term floatables control and for assessment of long-term O&M issues.

The Authority and the CSO communities will use the final results of this study during the design and installation of floatables control at approximately 71 locations throughout the CSO system. Regardless of the status of the study, the Authority expects to begin construction of floatables control at various locations by March 1999, on schedule.

3. Supplemental Environmental Impact Report for Fox Point CSO Facility Upgrade.

The Authority filed the Supplemental Environmental Impact Report for the Fox Point CSO Facility Upgrade ("Fox Point SEIR") with the Massachusetts Environmental Policy Act ("MEPA") Unit on December 31, 1998, in compliance with Schedule Six.4

The recommended plan for the dechlorination system at Fox Point differs substantially from the plan proposed in the Authority's Notice of Project Change ("NPC") submitted to MEPA in August 1997.5 The NPC proposed to locate the entire dechlorination system within a 36 foot by 32 foot building to be constructed on Savin Hill Yacht Club property. Instead, the Fox Point SEIR recommends constructing a dechlorination building with chemical storage tanks, pumps and controls on Authority property, adjacent to the existing Fox Point facility, installing a 2,700-foot long sodium bisulfite force main from the dechlorination building to the dechlorination point on the CSO outfall pipe near Morrissey Boulevard and constructing a 12 foot by 12 foot structure near the dechlorination point to house compliance sampling and residual chlorine analyzing systems. As noted in previous reports, the earlier proposal sparked considerable controversy among area residents, elected officials and other interested parties. The additional time spent to extend the Authority's public participation effort enabled it to work with the community to review and evaluate a range of dechlorination options more thoroughly. The new recommendation, which limits above-ground structures in the Morrissey Boulevard/Savin Hill Beach area, appears to have broad public support.

The Fox Point SEIR received public notice in the January 10, 1999 *Environmental Monitor*. As reported previously, the Authority will conduct additional public meetings during the 30-day comment period. The Authority anticipates receiving the Secretary's Certificate on the document in mid-February. Preliminary design work is already proceeding, and the Authority expects to begin construction on schedule in November 1999, assuming that no further MEPA review is required.

In last month's "Response of the United States to the MWRA's December 15, 1998 Compliance and Progress Report," EPA addressed the need to dechlorinate at the Commercial Point and Fox Point CSO facilities. The Authority agrees that adding a dechlorination component to the treatment system appears to be advisable to enable discharges to meet the anticipated NPDES limit for residual chlorine consistently, and dechlorination facilities remain a part of the Authority's recommended plan for the upgrades at both Fox Point and Commercial Point. Nevertheless, operating the chlorination and dechlorination systems effectively to meet the conflicting demands of achieving sufficient bacterial kill while minimizing residual chlorine will be challenging. As stated in the Fox Point SEIR, the Authority will work with EPA and DEP to determine whether there may be benefits from conducting additional sampling at the existing CSO facilities to support process and control design and to improve understanding of the effect of the upgrades on the quality of discharges to South Dorchester Bay.

With respect to the potential long-term use of the Commercial Point and Fox Point facilities for treatment of separate stormwater discharges remaining after completion of sewer separation in South Dorchester, the Authority would like to clarify that treatment of stormwater would not be its responsibility, and the Authority will decommission the two facilities when they are no longer needed for CSO control.6 However, in keeping with the MEPA certificate on the NPC for these facilities, the Authority has been implementing the facility upgrades in such a way as not to preclude future use, presumably by the Boston Water and Sewer Commission, to treat stormwater, if EPA and DEP deem that treatment is necessary.7

B. Progress Report.

1. Fiscal Matters.

(a) Transmittal of Capital Improvement Program.

On December 16, 1998, the Authority's Board of Directors initiated the annual process of developing a new capital budget by authorizing the transmittal of a proposed Fiscal Year 2000-02 Capital Improvement Program ("CIP") to the Advisory Board for review and comment. At this stage, the proposed CIP forecasts a three year budget of $1.355 billion, including $164 million in expenditures to complete the Boston Harbor Project and $242 million for CSO projects. The Board will consider the proposed CIP after the Advisory Board completes its review.

(b) Bond Sales.

A sale of $200 million in variable rate bonds to refund existing debt took place on December 22, 1998, as anticipated in last month's report. On December 17, the Authority competitively bid an additional $195 million floating-to-fixed interest rate swap to lower and fix the cost of another planned borrowing to support the ongoing capital program. The actual bond sale will occur later this month. The swap bid results will save ratepayers an estimated $1.15 million annually over the next seven and one-half years.

2. Harbor Management.

(a) Construction of Effluent Outfall Tunnel.

The contractor for the Effluent Outfall Tunnel completed clean-up and repair activities in the remainder of the tunnel invert during the past month, using the dam car that was not damaged in the fire reported last month. Following clean-up and repair of the east dam car, where the fire occurred, the contractor resumed removal of the ventilation and water discharge lines and completion of minor work. These tasks remain to be completed in approximately 2,700 feet of the tunnel. The precast liner segments located above the east dam car when the fire occurred were also cleaned and inspected, and it was determined that they sustained no damage from the fire.

Preparatory work for placement of the concrete lining in the starter tunnel area is underway. The contractor is assembling the form work and form carrier above ground while clean-up of the starter tunnel proceeds. The contractor has removed the hoist in the Deer Island shaft to permit lowering of the forms into the tunnel. A mobile crane is now at the site to replace the hoist for construction support.

The Authority's "Annual Progress Report on the Boston Harbor Project," which will include an updated assessment of the anticipated schedule for completing construction of the outfall tunnel, will be presented to the Board of Directors on January 27, 1999. The Authority will file the report with the Court shortly thereafter.

(b) Electrical System Modifications for Deer Island Pump Stations.

At the Lydia Goodhue Pump Station, four of the eight modified harmonic filters needed to address excessive harmonic distortion in the electrical system have arrived on-site, and installation is in progress. The remaining filters are on schedule to arrive in mid-January, and all eight harmonic filters should be in place by the end of January.

The additional harmonic filters needed at the North Main Pump Station are expected to arrive later this month.

The work necessary to prepare for the installation of the filters is in progress and expected to be complete in time for installation of the filters to proceed, once they arrive. The Authority anticipates that the equipment for both pump stations will be in place and available for testing by the beginning of March, when flows are typically higher. The high flows will allow full testing of the filters and proper tuning for maximum performance. In addition, the new filters will permit use of a larger number of pumps at the Lydia Goodhue Pump Station should they be needed to convey higher flows from the South System through the Inter-Island Tunnel.8

(c) Construction of Pretreatment Facilities and Plant Modifications.

On December 16, 1998, the Board of Directors approved the award of a contract to perform several projects on Deer Island. In addition to the installation of the new harmonic filters, the contract includes constructing new pretreatment facilities with chemical tanks, pumps, piping and control equipment to be used to treat North and South System influent flows with hydrogen peroxide, as necessary to reduce levels of hydrogen sulfide gas in the plant.9 An electrical substation also will be constructed to house switchgear and motor control equipment to provide permanent electrical power for the sludge loading and pier facilities. Finally, the contract provides for various other modifications to the site, including the demolition of several temporary construction support facilities, such as the guard house and gates at the main entrance to Deer Island, portions of the interim thermal facilities and the concrete testing building.

(d) Demolition and Construction on Nut Island.

On Nut Island, the contractor has completed demolishing the Administration building and three of the four digesters from the decommissioned treatment plant. All buildings have been removed except the main building, demolition of which is 75 percent complete. In addition, the contractor has imported more than 114,000 of the approximately 140,000 cubic yards of fill needed to complete the final contours and grading of the site.

The contractor has temporarily halted work on the surge chamber in the headworks facility while demolition of the main building above the surge chamber proceeds. This work will resume when demolition is completed.

(e) Thermal Plant.

In the Thermal Plant, the problem with the digester gas compressors in the residuals complex described last month was addressed successfully, and all gas generated is being used to fire the boilers. The contractor has completed testing the boilers with a mixture of gas and fuel oil. Emissions testing has commenced and is scheduled to be complete by the end of January. Thereafter, the Thermal Plant will be turned over to Deer Island Treatment Plant staff.

(f) Construction Management Services.

On December 16, 1998, the Board of Directors approved a final four-year extension to the Authority's contract with ICF Kaiser Engineers of Massachusetts ("Kaiser") to continue construction management services for the Boston Harbor Project through December 31, 2002. This contract extension will facilitate both the completion of the remaining key projects at Deer Island, the Effluent Outfall Tunnel and Secondary Battery C, and the transition from active construction to substantial completion of all aspects of construction. In addition, Kaiser will be involved with the increasing number of close-out activities as the Boston Harbor Project reaches substantial completion as a whole, anticipated to occur by September 2001 with the completion of final grading and site work on Deer Island. Significant close-out activities will include completion and turnover of as-built

drawings, transition of the computerized drafting and design system to Deer Island Treatment Plant staff and completion and turnover of the operations and maintenance materials necessary to support the Deer Island Treatment Plant's long-range maintenance program. Both the continuity provided by Kaiser as Program and Construction Manager since 1988 and Kaiser's effective service under the leadership of Ken Willis have contributed significantly to the Authority's progress over the past ten years in completing more than 90 percent of the construction necessary to meet Schedule Six requirements for secondary treatment.

3. Residuals Program.

(a) Disruption in Pelletizing Plant Operations.

On December 16, 1998, an incident at the pelletizing plant at the Fore River Staging Area resulted in the temporary suspension of fertilizer pellet production. Partial production resumed on December 29. In the meantime, the Authority produced sludge cake for landfill disposal. Partial production of sludge cake will continue until full capacity for pellet production is back on-line.

At approximately 10:45 a.m. on December 16, a 24-inch stainless steel air duct recently installed as part of the construction of plant expansion fell from its support beam and broke a four-inch gas line that serves one of the plant's four regenerative thermal oxidizers ("RTOs"). The leaking gas ignited immediately. A large flame scorched and damaged RTOs #2 and #3, duct work, an RTO access platform and other miscellaneous building components. New England Fertilizer Company ("NEFCO") employees, who operate the plant under contract to the Authority, immediately triggered a fire alarm, shut down process equipment, evacuated the building and shut off the gas supply to the plant. Quincy firefighters responded within minutes, and the fire was extinguished. There were no injuries. The building was reoccupied shortly before noon.

Although all plant operations were shut down initially, NEFCO resumed dewatering sludge and began filling rail cars with sludge cake later the same day. Authority staff immediately contacted the backup landfill in Utah to arrange for additional rail cars for sludge cake removal. When it became apparent that the upcoming Christmas weekend would interrupt the delivery of empty rail cars, the Authority also contacted trucking companies and local landfills listed in its Emergency Preparedness Plan for Sludge Disposal. Cake was shipped by rail through December 23. To continue sludge processing, the Authority and NEFCO, in consultation with representatives of the City of Quincy, arranged for cake to be trucked to a landfill in Maine for approximately 24 hours on December 23 and December 24. The use of rail cars for sludge cake resumed on December 26, following the plant's holiday closure. At no time was transport of liquid sludge from Deer Island to the Fore River Staging Area for processing disrupted as a result of this incident.

As soon as initial insurance inspections were complete, NEFCO and specialized subcontractors removed the failed equipment and damaged structures, re-piped the gas system, and repaired damaged wiring and fire protection systems. The State Plumbing Inspector approved use of the high pressure gas line on December 24. These steps enabled RTO #1 to be used for odor control. After cleaning out residue in Dryer Train #1, NEFCO resumed pelletizing on Tuesday, December 29, using the one train. The Authority expects Train #4 to resume operation in the coming week, after the installation of additional supports for its associated duct work. Due to damage to RTOs #2 and #3, Dryer Trains #2 and #3 will not be available for another two to four weeks. NEFCO will continue to produce some sludge cake to be shipped by rail until adequate dryer capacity is again available to pelletize all the sludge.

In keeping with the procedures agreed to in the "Emergency Preparedness Plan for Backup Sludge Disposal," the Authority notified the parties of the interruption in its operations at the pelletizing facility on December 23, and provided an update on December 30.

Immediately following the December 16 incident, the Authority contracted with Camp, Dresser & McKee ("CDM") to perform an independent safety assessment of the plant.10 CDM recommended a number of short- and long-term improvements, some related to the construction of the two new dryer trains, Trains #5 and #6. Although construction activities regarding the new trains resumed shortly after the fire, implementation of the improvements recommended by CDM will delay resumed testing of the two new trains until at least February. The Authority is working with Poole & Kent, the construction contractor, to assess the impact of the additional items on the project's schedule and expects to have a better estimate of the delay within the next two weeks.

(b) Review of Residuals Management Program.

The incident described above resulted in the most substantial exercise of the Authority's backup residuals disposal program to date, including the Emergency Preparedness Plan. The Authority believes the recent events provided a good demonstration of both the effectiveness of the Plan and the reliability of commercial transportation and disposal infrastructure to meet the Authority's sludge disposal needs, when necessary. Due to the need to attend to last month's incident, the Authority has not yet begun discussions with EPA and DEP regarding the Town of Walpole's request to seek elimination of the requirement for an in-state backup sludge disposal site. Such discussions are anticipated shortly.

4. CSO Program.

(a) Cottage Farm Facility Upgrade.

As reported previously, unforeseen deterioration of the floor in the existing sodium hypochlorite storage room at the Cottage Farm CSO facility has affected construction of the upgrade at this facility, such that the new control room, as designed, cannot be in place by the March 1999 milestone for construction completion.11 Based on investigations, concrete testing and other evaluations conducted during the past two months, the Authority is pursuing a plan to install a flow-based semi-automatic control system on an interim basis by March 1999 to allow operation of the upgraded treatment system to proceed, and to complete the new permanent control room as soon as possible thereafter.12 Design of the interim control system was completed in late December.

Further testing and investigations regarding the damage to the floor were completed in December, confirming conclusions about the extent of the damage and the need for shoring of the floor prior to beginning repairs. Design of the floor repairs is nearly complete, and the Authority expects to finalize construction documents before the end of this month. As previously reported, the Authority anticipates that the repairs and installation of the permanent control equipment will be completed by July 1999.

(b) Proposed Variances for Alewife Brook and Upper Mystic River CSO Discharges.

On December 23, 1998, DEP published in the *Environmental Monitor* a notice of draft conditions for variances for CSO discharges to Alewife Brook and the Upper Mystic River, commencing a public review and comment period ending today.13

Similar to the 24-month variance recently issued in final form for the Charles River CSOs,14 the proposed 36-

month variances for Alewife Brook and Upper Mystic River CSOs allow temporary exceedances of existing water quality standards while additional investigations are underway to determine whether the standards can ultimately be attained through the control of CSO and non-CSO sources and, if not, what level of CSO control is appropriate. During the variance period, the Authority is required to continue to implement its current recommended CSO control plan for these receiving waters. It is important to note that the variance indicates DEP's belief that the Alewife Brook and Upper Mystic River CSOs, like those in the Charles River, will eventually receive Class B(CSO) water quality designations, because DEP has not identified a feasible means to eliminate CSOs completely in these basins.15

Many of the proposed conditions for the variances are similar to conditions for the Charles River variance. Tasks to be performed by the Authority include further evaluation of the potential for infiltration and inflow reductions to reduce local CSO discharges; reevaluation of System Optimization Projects in Cambridge and Somerville based on new information that may now be available; assessment of potential stormwater quality improvements on the cost/benefit of additional CSO controls, through hydraulic and receiving water modeling; sampling of stormwater discharges, including some from the City of Medford; and identification of "triggers" for determining when additional CSO controls may be warranted.

The Authority has met with DEP to discuss the proposed conditions and, specifically, has raised objections to the requirement that the Authority sample separate stormwater flows in storm drains owned and operated by the City of Medford. As noted in written comments submitted to DEP, the Authority believes that these separate stormwater-related responsibilities appropriately belong with the municipality. The Authority also reported that the City of Cambridge has identified significant new information regarding its sewer system tributary to Alewife Brook, and the time required to incorporate this new information into ongoing planning activities may create difficulty with regard to compliance with some of the interim variance milestones within the timeframes proposed.

The Authority understands that DEP intends to finalize the variance conditions following the public comment period, with possible modifications. The final Alewife Brook/Upper Mystic variance conditions, like the Charles River variance conditions, are expected to be incorporated into the Authority's new NPDES permit.

By its attorneys,

John M. Stevens (BBO No. 480140)

Dated: January 15, 1999

Notes:

1. See Compliance and Progress Reports submitted June 16, 1997, pp. 13-14, and August 15, 1997, pp. 2-3, and "Special Report of the Massachusetts Water Resources Authority Concerning Compliance with July 1997 Milestones," filed on July 28, 1997.

2. See Compliance and Progress Report submitted February 13, 1998, pp. 2-3.

3. Whether the Authority will be able to collect sufficient data to complete the field program, draw conclusions and submit a final report by February 2000 in compliance with Schedule Six will depend primarily upon rainfall conditions and the frequency of CSO activations over the next several months. If necessary, the Authority may

initiate discussions with the parties regarding a possible change to the milestone for completing the report, an adjustment that would not affect other milestones.

4. The Authority notes that the milestone for this project, originally scheduled for September 1998, was moved to December 1998 following the Court's approval of the Authority's Motion to Amend Schedule Six on October 27, 1998. See Compliance and Progress Reports submitted on September 15, 1998, pp. 8-11, October 15, 1998, pp. 2-7 and November 16, 1998, pp. 7-9.

5. See Compliance and Progress Report submitted on August 15, 1997, pp. 17-20.

6. The Authority's Enabling Act gives it responsibility for addressing stormwater entering the sanitary system but not separate stormwater drainage, which remains the responsibility of local jurisdictions.

7. See Compliance and Progress Reports for November 17, 1997, pp. 8 11 and October 15, 1998, pp. 5-6.

8. In order to avoid the excess harmonic distortion the new filters are designed to prevent, operation of the Lydia Goodhue Pump Station is restricted currently to four pumps.

9. In 1995 and 1996, the Authority reported on the unexpectedly high levels of hydrogen sulfide that appeared in the wastewater received at Deer Island, affecting the performance of odor control systems and accelerating deterioration of facilities and equipment in the new primary plant. See Compliance and Progress Reports for November 15, 1995, p. 8, April 12, 1996, pp. 6-7, May 15, 1996, pp. 4-5 and December 16, 1996, p. 8 among other reports. A temporary system to pretreat flows with sodium hypochlorite was installed in 1996 and has worked effectively. The new pretreatment facilities will replace the interim system for the long term.

10. CDM performed a similar role in 1992 after a number of issues arose during the first few months the pelletizing plant was in operation.

11. See November 16, 1998 Compliance and Progress Report, pp. 9-12.

12. See December 15, 1998 Compliance and Progress Report, pp. 12-13.

13. As reported previously, DEP's Final Administrative Determinations made under the State Water Quality Standards in support of the Authority's long-term CSO Control Plan included variances for the CSOs in these areas, pending further studies. See Compliance and Progress Report for January 15, 1998, pp. 3-4.

14. See September 15, 1998 Compliance and Progress Report, pp. 11-13.

15. Other receiving waters where CSO discharges will remain after completion of the Authority's CSO control projects already received the Class B(CSO) designation in DEP's December 1998 Administrative Determinations.