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
.
METROPOLITAN DISTRICT COMMISSION, .
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Defendants. .
.
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MWRA MONTHLY COMPLIANCE REPORT
FOR DECEMBER 1999 AND
PROGRESS REPORT AS OF JANUARY 18, 2000

The Massachusetts Water Resources Authority (the "Authority") submits the following monthly compliance report for the month of December 1999 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.

1. Schedule Six.

A status report for the scheduled activities for the month of December 1999 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. Commence Design of Detention and
Treatment Facility at Union Park Station.

On December 30, 1999, the Authority issued a Notice To Proceed with the contract for design of the Union Park Detention and Treatment Facility, in compliance with Schedule Six. The Union Park facility is expected to improve water quality in the Fort Point Channel by providing for storage and for the treatment of combined

sewer overflows ("CSOs") discharged to the channel through the Boston Water and Sewer Commission's ("BWSC's") existing Union Park Pumping Station.1

The plan for the new detention and treatment facility includes adding finer screens, chlorination with sodium hypochlorite, dechlorination with sodium bisulfite and below- ground, rapid-settling detention tanks, with a combined storage capacity of 2.2 million gallons. The project is intended to reduce the average number of pumping station discharges to the channel from about 20 per year today to about 14 per year and to treat flows that exceed the storage capacity in larger storms. The level of treatment will be similar to that provided at the Authority's Cottage Farm and Prison Point CSO facilities.

The Authority will construct the facility adjacent to the BWSC pumping station. The Authority and BWSC have agreed that the two facilities must be integrated, with all treatment operations controlled from a common Programmable Logic Controller. The Authority will work with BWSC during the course of design to develop an agreed plan for the future operation of the integrated facilities.

In 1999, BWSC initiated a study of the South End sewer and storm drain systems to begin to address the causes of the serious flooding in the neighborhood during extreme storms over the last few years. Because information and long-term recommendations from the BWSC study may affect design of the Authority's Union Park facility, the Authority plans to exchange technical information with BWSC over the next year, as BWSC completes its facilities plan and the Authority completes preliminary design. The Authority's facility is scheduled to be in construction by March 2003.

2. Consolidation Facilities for BOS 076-080.

On August 7, 1997, the Authority issued a Notice to Proceed with the design for the consolidation of outfalls BOS 076-80, in compliance with Schedule Six. As previously reported, the design for consolidation of outfalls BOS 076-80 (now more often referred to as the "Reserved Channel Consolidation Conduit") was included in the contract for the design of the North Dorchester Bay Consolidation Conduit and the Reserved Channel CSO Treatment Facility, which began in August 1997.2

Together with the North Dorchester Bay Conduit and the Reserved Channel CSO facility, the Reserved Channel Conduit will provide for the consolidation and storage of CSO flows that currently discharge to the Reserved Channel. Stored flows will be dewatered to the Deer Island transport system following storm events. Flows that exceed the storage capacity in very large storms will receive treatment at the CSO facility before discharge by pumping into the Reserved Channel.3

3. Commence Construction of Chelsea
Branch Relief Sewer.

On December 31, 1999, the Authority issued a Notice to Proceed with the construction of the Chelsea Branch Sewer Relief project, in compliance with Schedule Six. The project is intended to bring CSO discharges at outfall CHE 008, which discharges to Chelsea Creek, into compliance with state water quality standards and relieve wet weather-related surcharge conditions upstream.

The project will include the construction of 4,200 feet of 36-inch diameter pipe and 3,500 feet of 66-inch diameter pipe by microtunneling methods. These pipes will supplement the capacity of the Authority's Chelsea Branch Sewer, as well as the capacity of the section of the Authority's Revere Extension Sewer that lies parallel and adjacent to the Chelsea Branch Sewer.4

The construction project also includes outfall repairs and installation of floatables control at CHE 008.5 The repairs include the replacement of a portion of the existing pipe, replacement of the concrete headwall and slope protection in Chelsea Creek and installation of underflow baffles in the upstream CSO regulator.

B. Activities Not Completed.

1. Complete Construction of Secondary Battery C.

As anticipated, the Authority was unable to complete construction of Secondary Battery C on schedule. The Authority notes, however, that it completed the residual facilities necessary to support the operation of Secondary Battery C in March 1998 when it placed the third module of new digesters into service. The polymer addition facility is also completed and tested, with only minor corrections remaining. In addition, as required by the milestone, the Authority is preserving sufficient space for a fourth secondary battery, should it be required, in the area adjacent to Battery C.

As reported previously, construction of Battery C began in January 1997. Substantial completion was originally forecast for October 1999. During the first year, the contractor made good progress with site excavation, pile driving and concrete placement.6 Although the contractor continued to make progress in 1998, concrete work in the clarifiers fell behind schedule. Because of competition from the Central Artery/Third Harbor Tunnel project for skilled carpenters needed to erect concrete forms, the contractor was unable to obtain workers for a second shift to expedite construction.7 In an effort to maintain a schedule in keeping with the December 1999 milestone, the contractor compressed the duration of the schedule for performing mechanical installation and electrical wiring and planned to perform a greater number of activities concurrently. Subsequently, the contractor revised the projected completion date from October 1999 to December 1999. Senior Authority and Construction Management staff met regularly with the contractor to monitor progress and attempt to resolve problems expeditiously.

In 1999, the contractor increased the work force and worked extended hours on weekdays and weekends to recover schedule slippage. In June 1999, the Authority augmented the contractor's efforts, implementing a three-month program to give the contractor extra compensation for additional hours on critical activities, in order to minimize delays and create positive float in the schedule.8 By the end of August, the contractor had recovered approximately seven days on the project's critical path.

Despite the recovery effort, during the Fall the contractor's schedule became increasingly compressed. Although completion of the project by December 1999 appeared to remain possible, an increasing number of activities were on or near the critical path. Mechanical and electrical work continued more slowly than projected, and the contractor was unable to sustain the planned rate of progress. As the contractor encountered problems identified in testing various equipment, no float remained in the schedule to accommodate their resolution.9 During November and December, the contractor fell significantly behind schedule.10

The contractor continues to push toward completing Secondary Battery C as quickly as possible, working extended hours and Saturdays with selected trades. In the reactor battery, the contractor is continuing to address the vibration problem in the 100-horsepower aerator motors reported last month. In addition, the contractor has replaced defective gaskets on 50 access hatches and is now filling the reactor trains with water to resume testing.

In the clarifier battery, the contractor has successfully completed static water testing in two tanks and is filling others for leakage testing. Hoping to minimize problems in other tanks, the contractor is proactively grouting weak points or possible leak areas prior to filling the tanks with water for testing. The contractor is installing an extra temporary heat exchanger in the hot water supply and return line to permit water testing to continue during freezing weather to the extent possible. In addition, logic testing is now complete on all 27 return sludge pumps and is ongoing on other equipment. Installation of the scum dip tubes is proceeding slowly, with 20 of 72 sections installed to date. Dry run testing of the sludge collection equipment, followed by wet run testing, is in progress.

As of the end of December, the contractor had completed 56 percent of the field tests and 33 percent of the functional tests for Battery C. The contractor's current schedule to achieve completion of construction and functional testing by the first of March is an aggressive one. This schedule is predicated on favorable weather and no major problems during the remaining test program.

Once the contractor's testing of Battery C is complete, the Authority's Construction Manager will coordinate the inter-CP tests necessary to ensure that Battery C operates successfully with other facilities. After turnover of

Battery C to the Authority, Deer Island Treatment Plant staff will perform their own check out and water testing before full-scale operations begin. As a result, the Authority is not likely to introduce flow into Battery C for treatment before April or May. The Authority will report further on progress with Battery C when it files its 1999 Annual Progress Report on the Boston Harbor Project later this month.

The Authority is disappointed that it was unable to complete Secondary Battery C on schedule. In the meantime, however, it is providing a high level of treatment with the two secondary batteries already in operation. During the second half of 1999, an average of 95 percent of the wastewater treated at Deer Island received secondary treatment. Throughout that period, all effluent consistently met secondary limits for BOD (Biochemical Oxygen Demand) and TSS (Total Suspended Solids) removal, in compliance with the Clean Water Act.

C. Progress Report.

1. Fiscal Matters.

(a) Transmittal of Capital Improvement Program.

On December 15, 1999, the Authority's Board of Directors authorized the transmittal of the proposed Fiscal Year ("FY") 2001-2003 Capital Improvement Program ("CIP") to the Authority's Advisory Board for review and comment. The proposed CIP supports a continuation of the Authority's ongoing capital program, with increased emphasis on asset maintenance. To date, the proposed CIP includes spending of $1.6 billion for FY 2000-2003 (the current fiscal year plus a three-year budget period). Once the Advisory Board completes its review of the proposed CIP, the Board will begin its consideration.11

2. Harbor Management.

(a) Construction of Effluent Outfall Tunnel.

The Authority understands that, during the past month, the Occupational Safety and Health Administration ("OSHA") met twice with the outfall tunnel contractor and the Authority's construction management consultant, as part of OSHA's investigation of the July 1999 accident that led to the death of two workers in the tunnel. The Authority has learned that OSHA issued its findings on the incident earlier today. The Massachusetts State Police investigation is ongoing.

In the meantime, the Authority also understands that the contractor is preparing a revised plan for the recovery of the remaining evidence and removal of the remaining safety plugs. The Authority does not expect to receive the contractor's proposal for a number of weeks.

3. Residuals Management.

(a) Pelletizing Plant Expansion.

During the past month, the contractor for the expansion of the pelletizing plant was able to run one of the new dryer trains for a sustained period of 120 hours. The Authority is currently evaluating the results of the test run to determine whether the new shaftless screw installed in the mixer conveyor is an acceptable long-term solution to the operating difficulties experienced to date. In the meantime, the contractor conducted emissions performance testing last week, and the results are expected to be available within a few days.12

(b) Management of Pelletizing Operations.

The consultant assisting the Authority in preparing to renew the contract for operating the pelletizing plant has submitted draft recommendations regarding the data to be provided to potential bidders in the forthcoming Request for Proposals, as well as a draft analysis of the existing contract, with recommendations for changes. Staff are currently evaluating these reports.

(c) Minor Residuals Disposal.

On January 12, 2000 the Board of Directors awarded a new contract for the hauling and disposal of minor residuals. The two-year contract includes the removal of grit, screenings and scum screenings from the Deer Island Treatment Plant and various headworks, pump stations and CSO treatment facilities. The contractor will provide proper containers and remove them for disposal at a landfill.

4. CSO Program.

(a) Cambridge Sewer Separation.

The Authority and the City of Cambridge are continuing with activities to support the reevaluation of CSO control alternatives for areas of Cambridge connected to CSOs along Alewife Brook.13 The Authority's CSO planning consultant has completed recalibration of the system hydraulic model, using updated information. In addition, the Authority is reviewing operational procedures at the downstream Alewife Brook Pump Station to determine their potential impact on upstream CSOs.

The Authority is continuing its review of the recent Cambridge submittal reported last month that evaluates alternatives for meeting CSO control goals in the CAM 002 tributary area, while reducing capital costs. Cambridge has now commenced its field investigations in the CAM 401B tributary area. The Authority and Cambridge will use the results of these investigations to establish the existing system configuration, update system mapping and reconfigure the local hydraulic model.

Authority and Cambridge representatives plan to meet on January 20, 2000 to evaluate progress made to date and to determine whether they have sufficient information to complete the overall reevaluation of CSO control alternatives for the area by February, as planned, without the results of the CAM 401B field investigations. The Authority will report further on this matter next month.

In the meantime, Cambridge is continuing with sewer separation construction projects already approved. Cambridge has now completed a third contract, resulting in separation of an area of combined sewers tributary to CAM 002. Construction under a fourth contract, separating an area tributary to CAM 004, is approximately 35-percent complete.

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

Last week, the Authority received 100-percent design plans and specifications for the facilities included in the North Dorchester Bay and Reserved Channel CSO control projects. The plans assume the location of the CSO treatment facility at the Authority's recommended site, known as "Site J." As reported last month, residents and elected officials from the area have stated firm opposition to using that site, and some have filed suit to oppose it.14 The Authority's Board of Directors is expected to discuss the matter and consider the Authority's options at its upcoming meeting on January 26, 2000.

(c) Variance for Alewife Brook and Upper Mystic River CSO Discharges.

Under the terms of the Alewife Brook/Upper Mystic Variance, the cities of Cambridge and Somerville were required to notify the Authority, the Department of Environmental Protection ("DEP") and the Environmental Protection Agency ("EPA") by January 1, 2000 as to whether they have found conditions within their combined sewer systems that are significantly different than those assumed at the time the Authority developed its System Optimization Plans ("SOPs") for the CSO system. The communities were to determine whether additional SOPs would be likely to reduce CSO discharges.
The City of Somerville notified the Authority that conditions in its CSO system are not significantly different, and it has identified no additional potential SOPs. The City of Cambridge submitted a list of activities undertaken in the Alewife Brook tributary areas since the Authority's initial SOP reports were completed in 1993-1994, including extensive field investigations, preliminary design work and various system improvements now in progress. Cambridge indicated that it does not plan to perform any further SOP-type improvements and will focus on aggressive sewer separation in the tributary areas.

(d) Hydraulic Relief for CAM 005.

The contractor for the hydraulic relief project at CAM 005 has completed excavation and demolished portions of the existing 54-inch overflow pipe and an existing sewer manhole. The contractor has also placed concrete for the base slab and walls of the new structure.

(e) Cottage Farm CSO Facility Upgrade.

During the past month, the contractor for the Cottage Farm facility upgrade completed meter replacement and electrical work identified as necessary in initial performance testing. On January 10, during a wet weather activation, full performance testing of the new automated control system took place. Operators encountered problems with various equipment and measurement devices. The Authority's design consultant is currently reviewing the test data to identify necessary adjustments to be implemented as soon as possible, so that performance testing can resume in future activations of the facility.

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.

John M. Stevens (BBO No. 480140)

Dated: January 18, 2000

Notes:

1. The BWSC pumping station, constructed in 1976, provides flood control for the South End neighborhood of Boston during large storms, when wastewater flows exceed the capacities of downstream BWSC interceptors and the Authority's transport system.

2. See August 15, 1997 Compliance and Progress Report, pp. 11-13. As reported below, the Authority recently received 100 percent design plans and specifications for all of these projects. See Section 4(b). The Authority notes that it has anticipated proposing new milestones for the projects, taking into account new information affecting the existing Schedule Six milestones for the projects. See May 17, 1999 Compliance and Progress Report, pp. 10-14. Because of the controversy regarding the siting of the Reserved Channel Treatment Facility (reported on in Section 4(b)), the Authority is not yet in a position to propose new dates.

3. In extreme storms (occurring on average once every five to ten years), flows may exceed the pumping capacity of the facility, resulting in untreated CSO discharges at three outfalls that will remain.

4. The Chelsea Branch Sewer collects wastewater and some storm flow from portions of Chelsea, Everett and Revere. The Revere Extension Sewer collects flows from other parts of Chelsea and Revere.

5. The Authority is beginning this work well in advance of the July 2000 milestone for commencing construction of outfall repairs and floatables control at CHE 008.

6. See Boston Harbor Project 1997 Annual Progress Report submitted January 30, 1998, p. 5.

7. See Boston Harbor Project 1998 Annual Progress Report submitted January 29, 1999, pp. 5-6.

8. In total, the Authority spent approximately $415,000 in addition to compensation already due under the contract.

9. See Compliance and Progress Reports for October 15, 1999, pp. 5-7; November 15, 1999, pp. 5-7; and December 15, 1999, pp. 4-6.

10. Because of the complexity of the remaining activities, the Authority determined that reasonable, targeted expenditures to enhance the work effort were no longer feasible.

11. Consistent with previous years, the Board is expected to approve a final CIP in June 2000 just prior to the new fiscal year.

12. Air compliance testing will take place following acceptance of the new dryer trains for operation by the Authority.

13. The reevaluation became necessary once sewer separation in the area was underway. Preliminary design work indicated that the scope and cost of the project were much larger than anticipated when the plan for sewer separation was recommended and approved.

14. See December 15, 1999 Compliance and Progress Report, pp. 8-9. As reported therein, the legislative representatives of the community expressed their strong commitment to oppose the Article 97 legislation required for the Authority to proceed with the project at "Site J".